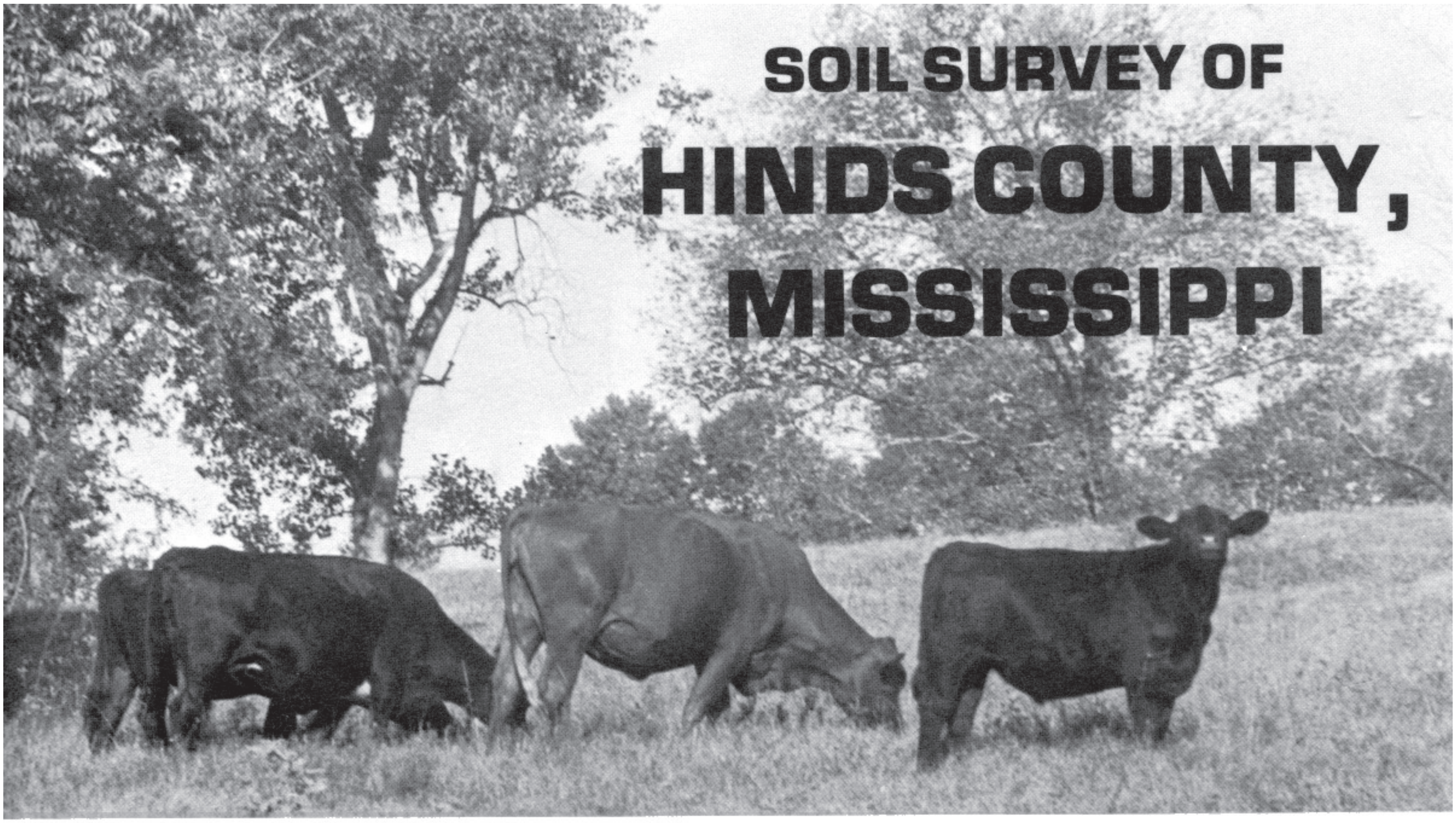
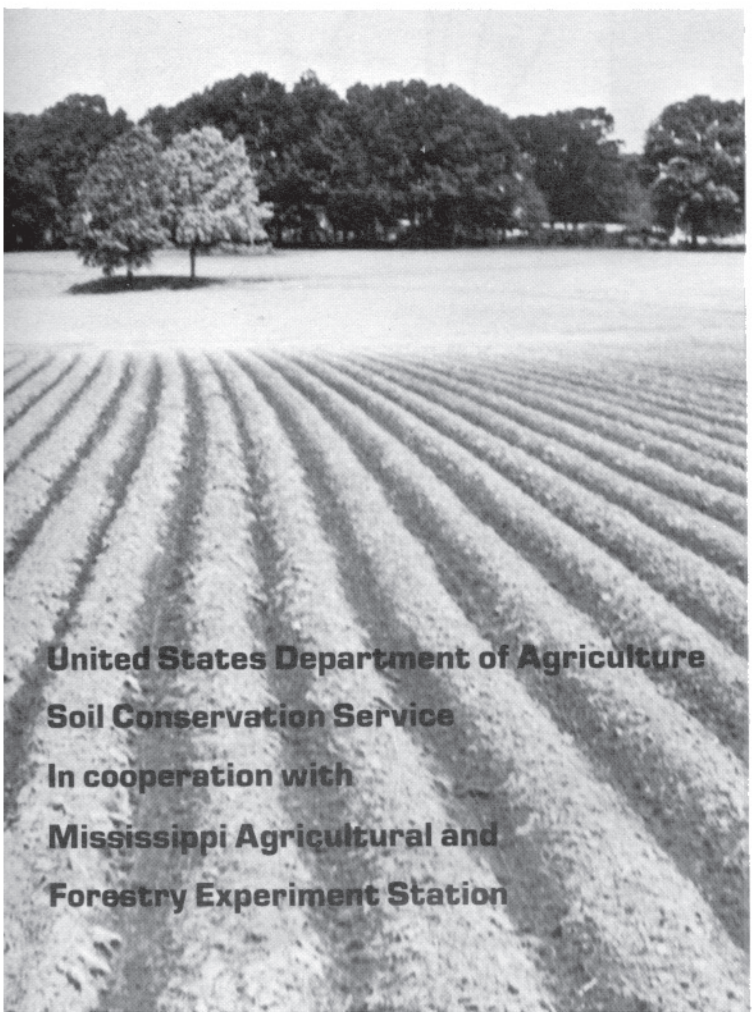
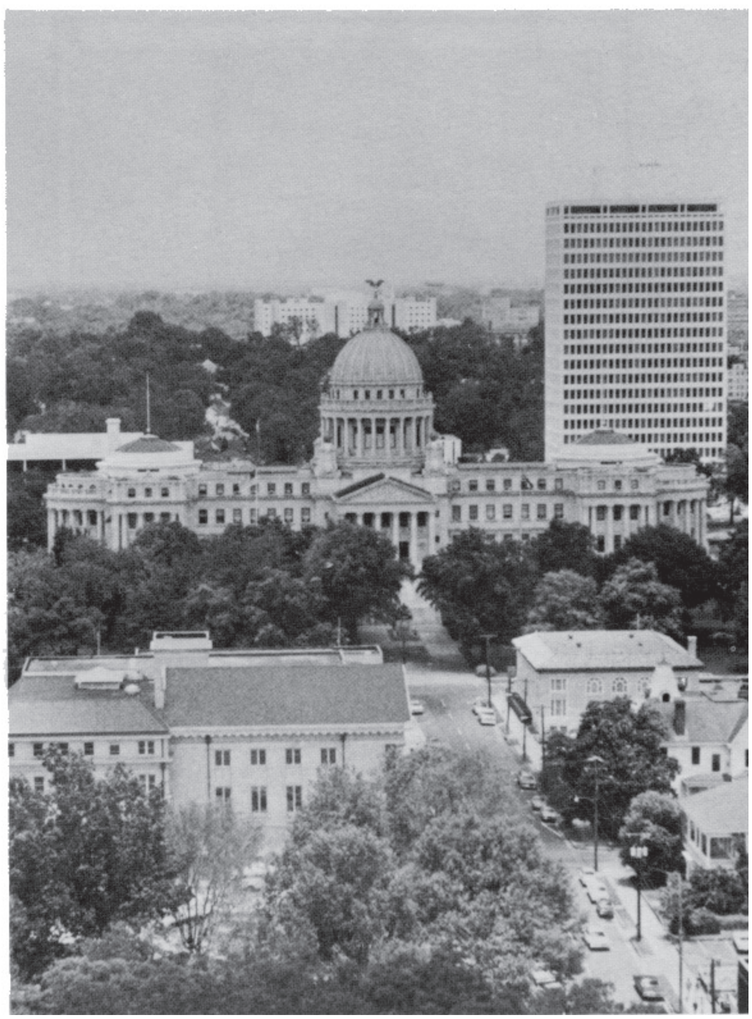
SOIL SURVEY OF
HINDS COUNTY, MISSISSIPPI



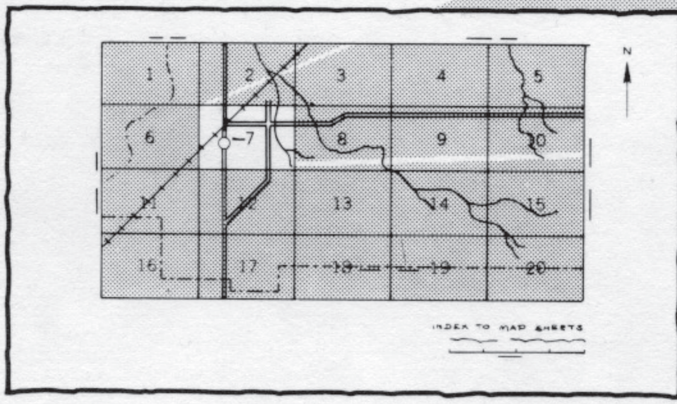


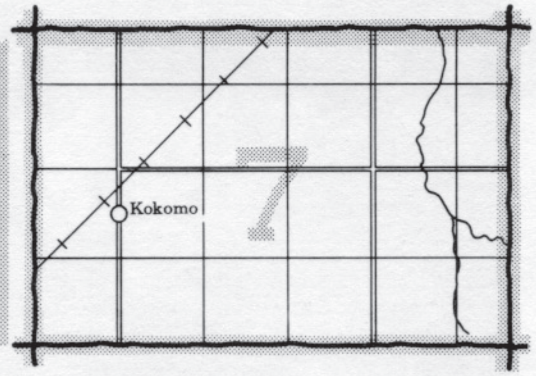
United States Department of Agriculture
Soil Conservation Service
In cooperation with
Mississippi Agricultural and
Forestry Experiment Station



HOW TO USE

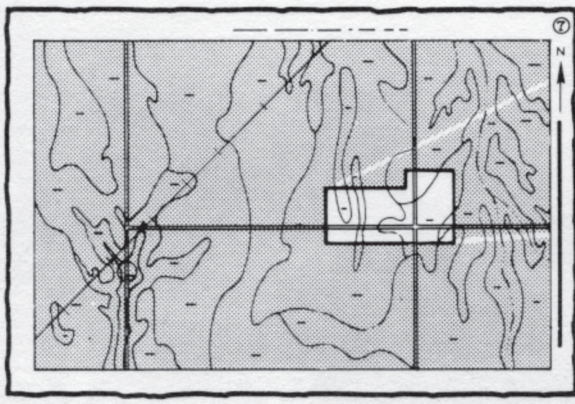
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

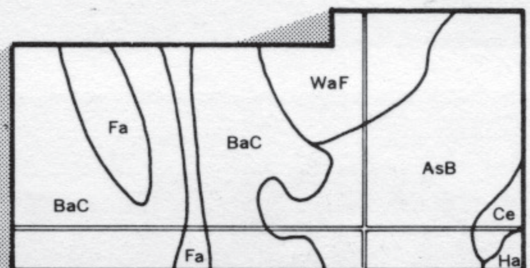




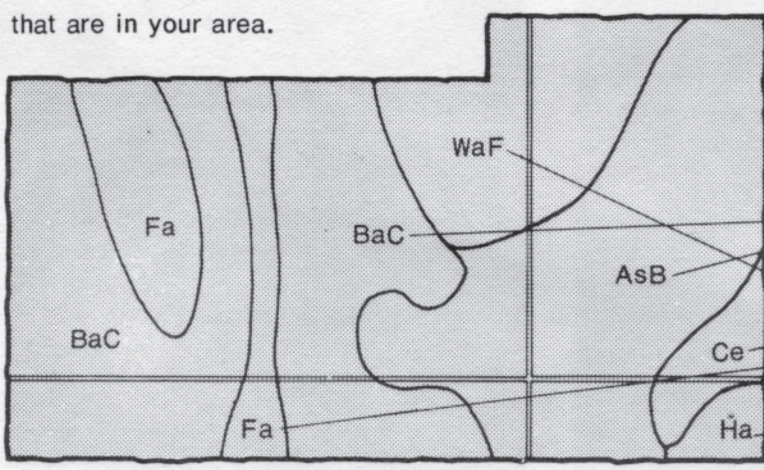
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.





4. List the map unit symbols that are in your area.

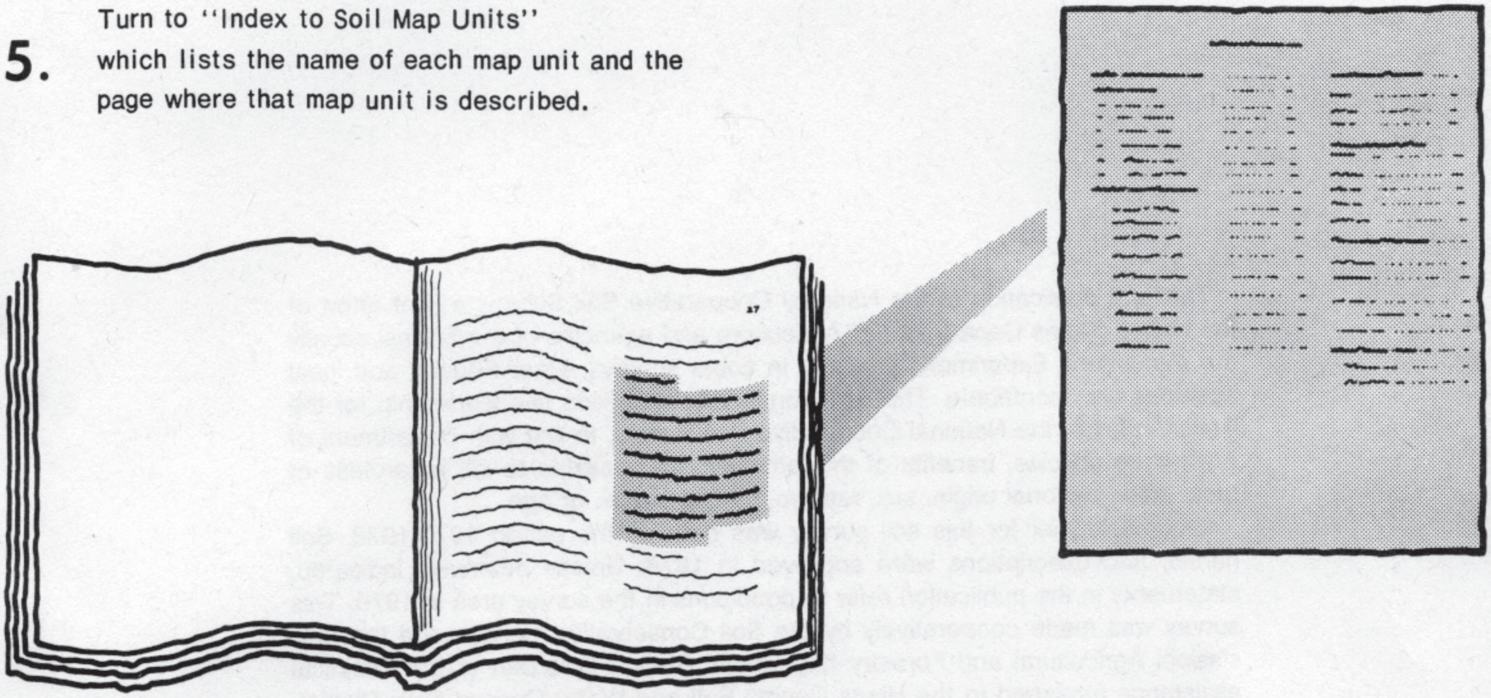


Symbols

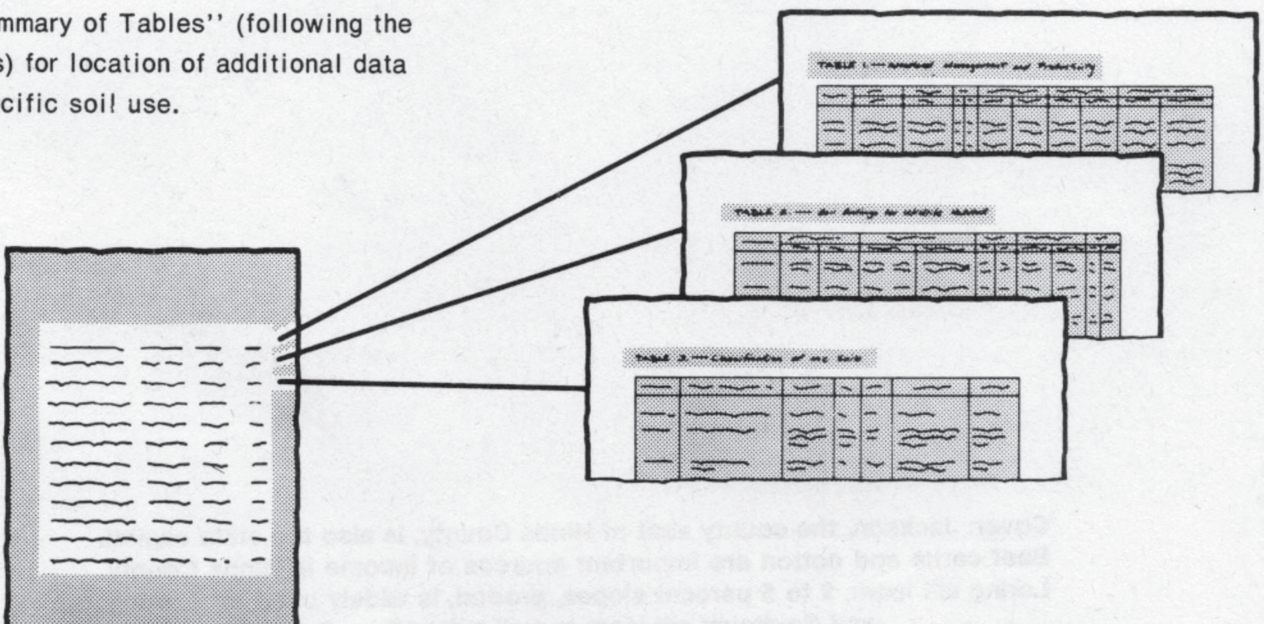
AsB
BaC
Ce
Fa
Ha
WaF

THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was done in the period 1970-1976. Soil names and descriptions were approved in 1976. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1976. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Hinds County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show the small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Jackson, the county seat of Hinds County, is also the state capital. Beef cattle and cotton are important sources of income in Hinds County. Loring silt loam, 2 to 5 percent slopes, eroded, is widely used for grazing, and Reidtown silt loam is well suited to cotton.

Contents

Issued March 1979

Index to map units

Summary of tables

Summary of tables—Continued

Foreword

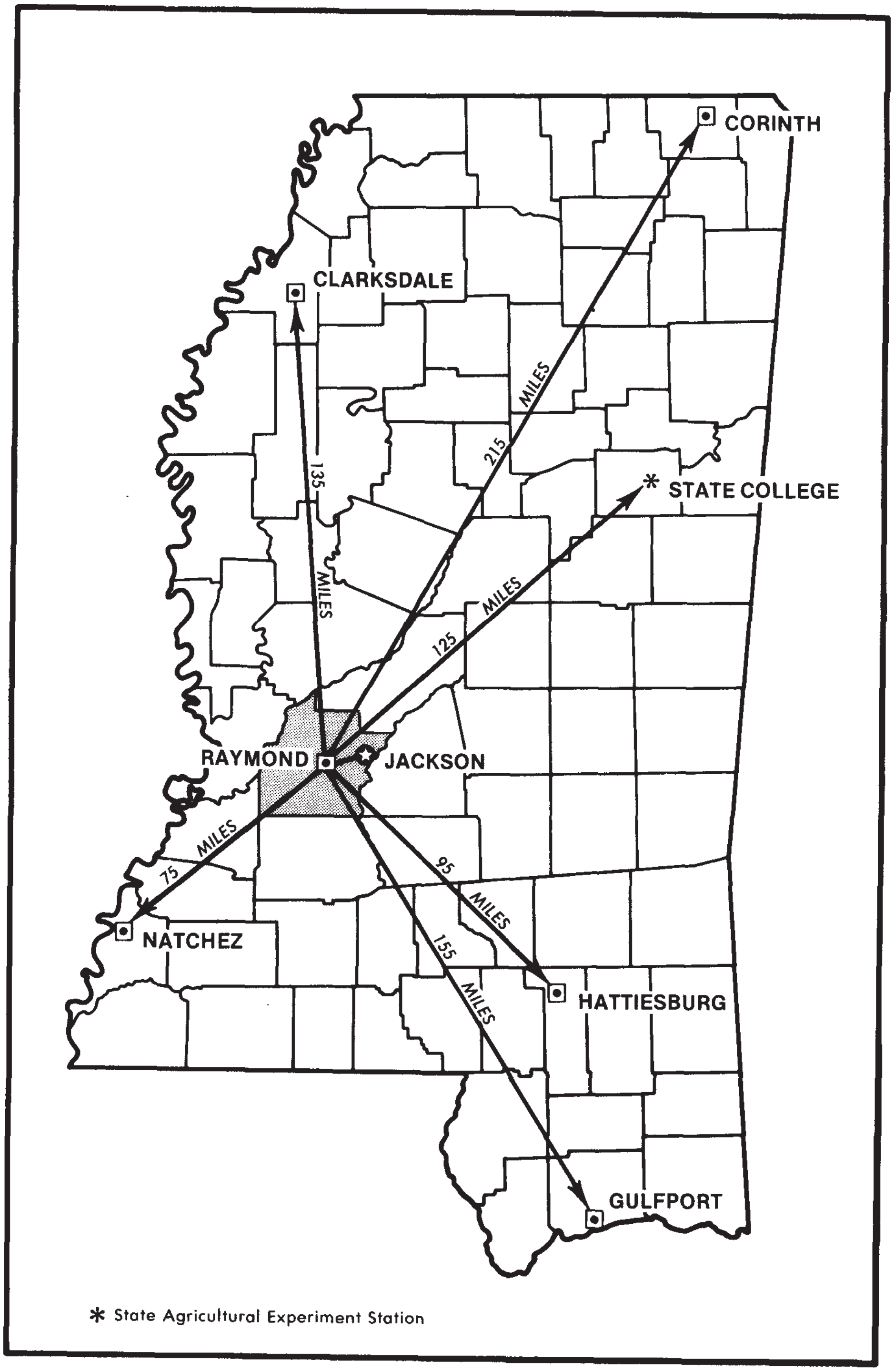
This Soil Survey contains much information that can be used in land-planning programs in Hinds County. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use it to plan land use, select sites for construction, develop soil resources, or identify special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Chester F. Bellard
State Conservationist
Soil Conservation Service



Location of Hinds County in Mississippi.

SOIL SURVEY OF HINDS COUNTY, MISSISSIPPI

By William A. Cole, Roger W. Smith, John W. Keyes, Frank T. Scott, and Lloyd B. Walton,
Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service, in cooperation with
the Mississippi Agricultural and Forestry Experiment Station

HINDS COUNTY is in the west-central part of Mississippi. Jackson, the county seat, is also the state capital. It has a population of 153,968. According to the 1970 census, Hinds County has an area of 561,280 acres, or 877 square miles, and a population of 214,973 (*9*).

The eastern boundary of the county is the Pearl River, and part of the western boundary is the Big Black River. Hinds County extends 39 miles from east to west and about 37 miles from north to south. It is joined on the north by Madison and Yazoo Counties, on the east by Rankin County, on the south by Copiah County, and on the west by Warren and Claiborne Counties.

Beef cattle, cotton, forest products, and soybeans are the main sources of agricultural income in Hinds County. Many employees of nearby industrial plants are part-time farmers in the county.

General nature of the county

In this section, general information about the county is given. The information covers climate; history and development; physiography, relief, and drainage; and agriculture.

Climate

Hinds County has long, hot summers because of moist tropical air from the Gulf of Mexico. Winters are cool and fairly short. Cold waves are rare and moderate in a day or two. Precipitation is fairly heavy throughout the year. It peaks in winter. Prolonged droughts are rare. Summer precipitation, mostly afternoon thundershowers, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Jackson, Mississippi, for the period 1963 to 1975. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 48 degrees F, and the average daily minimum temperature is 37 degrees. The lowest temperature on record, which occurred at Jackson on January 30, 1966, is 7 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 91 degrees. The highest temperature, 103 degrees, was recorded on June 29, 1969.

Growing degree days, shown in table 1, are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 26 inches, or 48 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 22 inches. The heaviest 1-day rainfall during the period of record was 6.97 inches at Jackson on October 4, 1964. There are about 65 thunderstorms each year, 31 of which occur in summer.

Snowfall is rare. In 85 percent of the winters, there is no measurable snowfall. The heaviest snowfall in 1 day was more than 2 inches.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night and averages about 90 percent at dawn. The sunshine is 65 percent of that possible in summer and 50 percent in winter. Average windspeed is highest, 10 miles per hour, in March.

Severe local storms, including tornadoes, occur occasionally in or near the county. They are of short duration, and they cause variable damage. Every few years in summer or fall a tropical depression or remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days.

History and development

In 1820, the Mississippi legislature established Hinds County within the area ceded to the United States by the Choctaw Indians in the treaty of Doaks Stand. The new county was named in honor of General Thomas Hinds (*4*). In 1821, LeFleur's Bluff, the county seat, was renamed Jackson in honor of General Andrew Jackson.

Hinds County is divided into two main cultural areas. One is the highly industrial and heavily populated metropolitan area of Jackson. The other is mainly agricultural, although there has been considerable urban expansion in this area in recent years.

There are more than 300 manufacturing plants in Hinds County producing more than 150 products. Most of the plants are in Jackson.

Physiography, relief, and drainage

The topography of Hinds County includes high, rugged hills with steep side slopes and narrow valleys; lower, more rolling hills, wider valleys, and gentler slopes; and flat flood plains. A prominent ridge runs generally north to south across the eastern third of the county and forms a divide between the Pearl River and the Big Black River drainage basins. Some of the highest areas in the county are along the southern part of this divide. The highest elevation is 488 feet, and the lowest is less than 100 feet. The area of greatest relief is in the southwestern corner of the county where ridge crests are as high as 200 feet above the valley floor.

Hinds County is drained chiefly by tributaries of the Big Black and Pearl Rivers. Drainage in the northeast is into the Pearl River via Hanging Moss Creek and several small creeks in and around Jackson. South of Jackson, Rhodes Creek and several small creeks flow east into the Pearl River. The rest of the county drains into the Big Black River—the area northwest of Jackson via Bogue Chitto Creek and its tributaries; west-central and western Hinds County via Five Mile Creek, Fourteen Mile Creek, and several large tributaries; and the northwestern corner of the county via Porters Creek and its tributaries and Fibia Creek.

Agriculture

Since the earliest non-Indian settlements in Hinds County, cotton has been the main cash crop. In the early years, in addition to cotton, the farmers produced corn, wheat, vegetables, and enough beef and pork to supply their needs.

The yields of principal crops in 1969 were as follows: cotton harvested, 15,055 bales; field corn, 120,658 bushels; sorghum for grain, 23,752 bushels; and soybeans, 449,261 bushels.

The number of livestock on farms in 1969 was as follows: cattle and calves, 79,218; hogs and pigs, 15,593; chickens, 3 months old and older, 943,360; and broilers, less than 3 months old, 61,316.

The number of farms in 1969 was 1,639, and the average size of a farm was 237 acres. Full owners operated 1,088 farms; part owners operated 309 farms; and tenants operated 242 farms.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Through correlation, they classified and named the soils according to nationwide, uniform procedures.

After classifying and naming the soils, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their characteristics are modified as necessary during the course of the survey. New interpretations are made for local use, mainly through field observation of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, home buyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscape in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Table 4 shows the extent of the map units shown on the general soil map and gives general ratings of the potential of each, in relation to the potential of other map units, for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each map unit is rated for *cultivated farm crops, specialty crops, woodland, urban uses,* and *recreation areas.* Cultivated farm crops are those grown extensively by farmers in the survey area. Specialty crops include vegetables, fruits, and nursery crops grown on limited acreage and generally requiring intensive management. Woodland is land that produces native trees or introduced species. Urban uses include residential, commercial, and industrial developments. Intensive recreation areas include campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic. Extensive recreation areas include those used for nature study and as wilderness.

Areas dominated by silty soils that are subject to flooding

1. Cascilla-Bonn-Deerford

Nearly level, well drained silty soils and poorly drained and somewhat poorly drained silty soils that have a high content of sodium; on flood plains

This map unit is in the eastern part of Hinds County on flood plains and terraces adjacent to the Pearl River. The landscape is mainly nearly level; it is marked by shallow drainageways and depressions. Near the river the drainageways are deeper. There are many old river runs and a few oxbow lakes.

This map unit makes up about 2 percent of the county. It is about 70 percent Cascilla soils, 10 percent Bonn soils, and 6 percent Deerford soils. The rest is Oaklimeter soils and some somewhat poorly drained and poorly drained soils on flood plains.

Cascilla soils are at a higher elevation than the other soils in this unit. The areas are along the Pearl River, old river runs, and major tributary streams. The soils are well drained and silty. Bonn soils are in broad, level areas and in depressions. They are poorly drained and silty and have a high content of sodium. Deerford soils are in the slightly higher areas of the broad flats. They are somewhat poorly drained and silty and have a high content of sodium. The Bonn and Deerford soils have a high seasonal water table. These soils are usually flooded several times a year.

Most of this map unit is woodland. This map unit has poor potential for the row crops commonly grown in the county and fair potential for grasses and legumes. Flooding for long periods and wetness are the main limitations for farming and for most other uses.

Most of this map unit has good potential for use as woodland. The Bonn soils have poor potential because of the high content of sodium. The use of equipment is limited by wetness and flooding. The map unit has poor potential for urban uses if it is not protected from flooding. A major flood prevention project is needed to provide adequate protection. Most of this map unit has fair potential for the development of habitat for woodland and openland wildlife. Most of this map unit has poor potential for recreation uses, mainly because of the flooding hazard and wetness.

2. Oaklimeter-Ariel

Nearly level, moderately well drained and well drained silty soils; on flood plains

This map unit is in the western part of Hinds County adjacent to the Big Black River. The landscape is dissected by many drains, a few oxbow lakes, and old river runs that have natural levees.

This map unit makes up about 1 percent of the county. It is about 43 percent Oaklimeter soils and 27 percent

Ariel soils. The rest is Adler, McRaven, and Riedtown soils and soils in old sloughs and depressions that are covered with water during most of the year.

Oaklimeter soils are generally in the more nearly flat areas between the streams, old sloughs, and oxbow lakes. They are silty, moderately well drained soils that have a seasonal high water table. Ariel soils are at a slightly higher elevation, mainly in bands adjacent to stream channels, sloughs, and oxbow lakes. They are silty and well drained.

Most of this map unit is woodland. In summer, some areas are used for pasture. The potential for grasses and legumes is fair. This map unit has poor potential for the row crops commonly grown in the county. Flooding for long periods is the main limitation to use of these soils for crops and for most other purposes.

This map unit has good potential for use as woodland. The use of equipment is limited by wetness and flooding. The potential is poor for urban uses because of the severity of flooding. This map unit has good potential for development of habitat for woodland wildlife and fair potential for development of habitat for openland wildlife. Most of this map unit has poor potential for recreation uses mainly because of the severity of flooding.

3. Riedtown-Oaklimeter-McRaven

Nearly level, moderately well drained and somewhat poorly drained silty soils; on flood plains

This map unit is on flood plains throughout the county. The soils are subject to occasional flooding, generally in winter or early in spring.

This map unit makes up about 10 percent of the county. It is about 35 percent Riedtown soils, 30 percent Oaklimeter soils, and 15 percent McRaven soils. The rest is Adler soils and somewhat poorly drained and poorly drained soils on flood plains.

Riedtown and Oaklimeter soils are at a slightly higher elevation than McRaven soils in most places. These soils are silty throughout. They have a seasonal high water table.

This map unit is used mainly for cultivated crops and pasture. A small acreage is woodland. In places, some drainage systems have been installed. Flooding is common in winter and spring. It is the main limitation for most uses of these soils.

This map unit has good potential for cultivated row crops. A good drainage system is needed for the highest potential. This unit has poor potential for urban use because of seasonal flooding and wetness. It has good potential for use as woodland. The use of equipment is limited by wetness.

Most of this map unit has poor potential for recreation uses mainly because of wetness and flooding. This map unit has good potential for the development of habitat for openland and woodland wildlife. In some areas it has fair potential for the development of habitat for wetland wildlife.

Areas dominated by silty soils on uplands

4. Loring-Siwell-Urban land

Gently sloping to moderately steep silty soils that have a fragipan and soils that are underlain by plastic clay, and Urban land

This map unit is in the northeastern part of Hinds County and includes the city of Jackson. The landscape is mainly gently sloping to moderately steep, but it ranges from nearly level to hilly. Narrow flood plains extend into this map unit.

This map unit makes up about 10 percent of the county. It is about 20 percent Loring soils, 15 percent Siwell soils, and 40 percent Urban land. The rest is Byram, Calloway, Riedtown, and Oaklimeter soils.

Loring soils are on ridgetops and side slopes. They are moderately well drained silty soils that have a fragipan. Siwell soils are on ridgetops and side slopes. They are moderately well drained silty soils that are underlain by plastic clay. Urban land is made up of soils that have undergone extensive urban development. The soil material has been modified by cutting, filling, and shaping. Urban facilities include paved parking areas, streets, industrial buildings, houses and other structures, and underground utilities.

This map unit, except for the commercial area of Jackson, is used for dwellings, streets, driveways, sidewalks, and a number of small shopping centers with parking areas. This map unit has fair potential for urban development in areas where the plastic clay is deep and where slopes are favorable. The more sloping areas can be cut and shaped for building sites and lots. In many areas, cuts and fills are in the plastic clay. The soil characteristics that affect urbanization are mainly high shrink-swell potential, steepness of slopes, and corrosivity.

Most of this map unit has fair to good potential for landscaping. Parts of this map unit have good or fair potential for recreation uses, but most of it has poor potential because of the steepness of slopes and the very slow permeability in the clayey areas.

5. Loring-Kisatchie

Sloping to moderately steep silty soils that have a fragipan and steep, well drained clayey soils that are underlain by sandstone

This map unit is in the central part of Hinds County. The landscape is hilly and is marked by narrow ridgetops, generally less than one-eighth mile wide, and steep side slopes that are dissected by many short drainageways. There are also flood plains that are less than one-eighth mile wide.

This map unit makes up about 1 percent of the county. It is about 40 percent Loring soils and 25 percent Kisatchie soils. The rest is Memphis, Providence, and Riedtown soils and some moderately well drained and somewhat poorly drained soils on uplands.

Most of this map unit is woodland. A small acreage, where slopes are favorable, is in pasture. This map unit has poor potential for most of the row crops grown in the county and fair to poor potential for grasses and legumes. Steep slopes, a hazard of erosion, and a shallow rooting depth are the main limitations. The Loring soils, which are the major part of this unit, have good potential for use as woodland, and the Kisatchie soils have poor potential because in most places they are too shallow for good tree growth.

Parts of this map unit have good or fair potential for urban use, but most of the unit has poor potential because of steep slopes and the shallow depth to sandstone.

The potential is fair to good for the development of habitat for openland and woodland wildlife. Most of this map unit has poor potential for recreation uses mainly because of the steep slopes. Some parts have fair or good potential for recreation uses such as hunting, hiking, and horseback riding.

6. Loring-Memphis

Gently sloping to moderately steep, moderately well drained silty soils that have a fragipan and well drained silty soils

This map unit is in the central part of Hinds County. The landscape is marked by moderately steep side slopes and gently sloping ridgetops that are generally less than one-eighth mile wide and in many places less than 300 feet wide. The slopes are dissected by many short drainageways and by flood plains.

This map unit makes up about 6 percent of the county. It is about 45 percent Loring soils and 25 percent Memphis soils. The rest is Grenada, Calloway, Calhoun, Providence, Riedtown, Oaklimeter, and McRaven soils.

Loring soils are on ridgetops and side slopes. They are moderately well drained silty soils that have a fragipan. Memphis soils are on ridgetops and side slopes. They are well drained silty soils.

Most of this map unit is in pasture. Some of the acreage is woodland. A moderate acreage where slopes are favorable is in row crops. Most of this map unit has fair potential for most of the row crops commonly grown in the county and good potential for grasses and legumes. Steepness of slopes and a hazard of erosion are the main limitations for row crops. This map unit has good potential for use as woodland. There are no significant limitations to woodland use and management.

Much of this map unit has fair potential for urban uses. Some areas have poor potential because of the steepness of slopes.

The potential is good for the development of habitat for openland and woodland wildlife. Most of this map unit has fair potential for recreation uses, mainly because of the steepness of the slopes. Some areas have good potential for such recreation uses as hunting and horseback riding.

7. Loring-Providence-Grenada

Nearly level to rolling, moderately well drained silty soils that have a fragipan

This map unit is in the eastern part of Hinds County. The landscape is generally nearly level to rolling but ranges to moderately steep. It is marked by narrow ridgetops, generally less than one-eighth mile wide, by side slopes that are dissected by short drainageways, and by narrow flood plains.

This map unit makes up about 24 percent of the county. It is about 40 percent Loring soils, 25 percent Providence soils, and 11 percent Grenada soils. The rest is Calloway, Smithdale, Oaklimeter, Riedtown, and McRaven soils.

Loring, Providence, and Grenada soils are moderately well drained silty soils that have a fragipan. Loring and Providence soils are generally in the higher and steeper areas, and Grenada soils are in the lower and smoother areas.

Most of this map unit is pasture and woodland. A moderate acreage where slopes are favorable is in crops. This map unit has fair to poor potential for most crops commonly grown in the county and good potential for grasses and legumes. The steepness of slopes and the erosion hazard are the main limitations. The potential for use as woodland is good. There are no significant limitations to woodland use and management.

This map unit generally has fair potential for urban uses. In some steep areas it has poor potential.

The potential is good for the development of habitat for openland and woodland wildlife. Most areas of this map unit have fair potential for recreation uses mainly because of the steepness of slopes. Some areas have good potential for uses such as hunting, birdwatching, hiking, and horseback riding.

8. Memphis-Loring

Gently sloping to moderately steep, well drained silty soils and moderately well drained silty soils that have a fragipan

This map unit is in the western and west-central part of Hinds County. The landscape is marked by moderately sloping side slopes and gently sloping ridgetops that generally are less than one-eighth mile wide and in many places are less than 300 feet wide. The slopes are dissected by many short drainageways and by narrow flood plains.

This map unit makes up about 22 percent of the county. It is about 50 percent Memphis soils and 25 percent Loring soils. The rest is Grenada, Calloway, Calhoun, Riedtown, Oaklimeter, and McRaven soils.

The Memphis and Loring soils are on ridgetops and side slopes. Memphis soils are well drained, silty soils.

Loring soils are moderately well drained, silty soils that have a fragipan.

Most of this map unit is pasture, and a small acreage is woodland. In areas where slopes are favorable the map unit is in row crops. Most of this map unit has poor potential for most row crops commonly grown in the county and good potential for grasses and legumes. Steep slopes and the erosion hazard are the main limitations. This map unit has good potential for woodland. There are no significant limitations to woodland use and management.

This map unit, in most places, has fair potential for urban uses; in some places, because of steep slopes, it has poor potential. It has good potential for the development of habitat for openland and woodland wildlife. Most of the map unit has fair potential for recreation uses mainly because of the steepness of slopes.

Areas dominated by sloping to steep silty and loamy soils mainly on uplands

9. Memphis-Natchez

Undulating to hilly, well drained silty soils

This map unit is in the western part of Hinds County. The landscape is hilly and marked by narrow ridgetops that are generally less than one-eighth mile wide and steep side slopes that are dissected by many short drainageways and by intermittent streams. These streams form narrow flood plains that extend into this map unit.

This map unit makes up about 15 percent of the county. It is about 60 percent Memphis soils and 10 percent Natchez soils. The rest is Adler and Riedtown soils and some moderately well drained and somewhat poorly drained soils on flood plains.

Memphis and Natchez soils are well drained, silty soils. Memphis soils generally are on the ridgetops and the upper part of side slopes. Natchez soils are on the steeper side slopes.

Most of this map unit is woodland. A moderate acreage in areas where slopes are favorable is in pasture. This map unit has poor potential for most row crops commonly grown in the county and poor to fair potential for grasses and legumes. The steepness of slopes and the erosion hazard are the main limitations. This map unit has good potential for woodland. There are no significant limitations to woodland use and management. Natchez soils have a moderate limitation to the use of equipment.

Some areas of this map unit have good to fair potential for urban uses, but most of the map unit has poor potential because of the slopes. The potential is good for the development of habitat for woodland and openland wildlife. Most of this map unit has poor potential for recreation uses mainly because of the steepness of slopes. Some areas have fair to good potential for recreation uses such as hunting, hiking, and horseback riding.

10. Providence-Smithdale

Undulating, moderately well drained silty soils that have a fragipan and hilly, well drained loamy soils

This map unit is in the southern and central parts of Hinds County. The landscape is hilly and is marked by narrow ridgetops that are generally less than one-eighth mile wide, by steep side slopes that are dissected by many short drainageways, and by narrow flood plains.

This map unit makes up about 3 percent of the county. It is about 42 percent Providence soils and 28 percent Smithdale soils. The rest is Lexington and Loring soils and some moderately well drained and somewhat poorly drained soils on flood plains.

Providence soils generally are on ridgetops. They are moderately well drained, silty soils that have a fragipan. Smithdale soils are on the steeper side slopes. They are well drained loamy soils.

Most of this map unit is woodland. A moderate acreage in areas where slopes are favorable is in pasture. Most areas of this map unit have poor potential for the row crops commonly grown in the county and poor to fair potential for grasses and legumes. Steep slopes and the erosion hazard are the main limitations. This map unit has good potential for use as woodland. There are no significant limitations to woodland use and management.

Some areas of this map unit have good to fair potential for urban uses, but the potential is poor in most areas because of the steep slopes. The potential is good for the development of habitat for openland and woodland wildlife. Most of this map unit has poor potential for recreation uses mainly because of the steep slopes.

Some areas have fair to good potential for recreation uses such as hunting, hiking, and horseback riding.

11. Smithdale-Lexington-Memphis

Steeply sloping, well drained loamy and silty soils on side slopes and silty soils on narrow ridgetops

This map unit is mainly in the southeastern part of Hinds County. The landscape is hilly and is characterized by narrow ridgetops that generally are less than one-eighth mile wide and steep side slopes that are dissected by many short drainageways. Narrow flood plains extend into this map unit.

This map unit makes up about 4 percent of the county. It is about 39 percent Smithdale soils, 20 percent Lexington soils, and 20 percent Memphis soils. The rest is Riedtown and Providence soils and some moderately well drained and somewhat poorly drained soils on flood plains.

Smithdale soils generally are on the middle and lower parts of side slopes. They are well drained loamy soils. Lexington and Memphis soils are well drained silty soils.

Lexington soils generally are on the middle and upper parts of slopes, and Memphis soils are on the ridgetops and the upper part of side slopes.

Most of this map unit is woodland. A moderate acreage in areas where slopes are favorable is in pasture. This map unit has poor potential for row crops commonly grown in the county and poor to fair potential for grasses and legumes. Steep slopes and the erosion hazard are the main limitations. This map unit has good potential for use as woodland. There are no significant limitations to woodland use and management.

Parts of this map unit have good to fair potential for urban uses, but because of the steep slopes most of the map unit has poor potential. The potential is good for the development of habitat for openland and woodland wildlife. Most of this map unit has poor potential for recreation uses, mainly because of the steep slopes. Some areas have good to fair potential for recreation uses such as hunting, hiking, and horseback riding.

12. Memphis-Riedtown

Level to sloping, well drained silty soils on uplands and nearly level, moderately well drained silty soils on flood plains

This map unit is in the western part of Hinds County. It consists of broad, low, nearly level to sloping ridges and nearly level flood plains.

This map unit makes up about 2 percent of the county. It is about 60 percent Memphis soils and 20 percent Riedtown soils. The rest is Grenada, Calloway, Calhoun, Oaklimeter, and McRaven soils.

Memphis soils are on broad, low ridges. They are well drained silty soils. Riedtown soils are moderately well drained silty soils on flood plains.

Most of this map unit is used for row crops. A moderate acreage in the more sloping areas is in pasture. This map unit has good potential for most of the crops commonly grown in the county and for grasses and legumes. It also has good potential for use as woodland. There are no significant limitations to woodland use or management.

The upland areas of this map unit have good potential for urban uses. The other areas have poor potential because of the flooding hazard. This map unit has good potential for the development of habitat for openland and woodland wildlife. Most of this map unit has good potential for recreation uses. The area on the flood plains has fair potential because of the flooding hazard.

Broad land use considerations

The map units in Hinds County vary widely in their potential for major land uses. Table 4 gives, for each land use, general ratings of the potential of each map unit in relation to other map units. Kinds of soil limitations are also indicated in general terms. The ratings of soil potential reflect the relative cost of practices to overcome the limitations and the hazard of continuing soil-related problems after practices are installed.

Kinds of land uses considered include cropland, woodland, urban development, and recreation development. Cultivated farm crops grown extensively include cotton, corn, and soybeans. Woodland refers to land in trees. Urban areas include those used as residential, commercial, and industrial sites. Recreation uses include nature study areas, trails, and wildlife areas.

About 21 percent, or 116,881 acres, of Hinds County is used for cultivated crops, mostly soybeans, cotton, and corn. Cropland is scattered throughout the county in areas of soils that have good to fair potential for row crops. These soils are in map units 3, 6, 7, and 12 of the general soil map.

The soils in map unit 3 and some of the soils in map unit 12 are flooded occasionally, mainly in winter and early in spring, resulting in slight to moderate crop damage. The major soils in these map units are Riedtown, Oaklimeter, and McRaven soils on flood plains and Memphis soils on uplands.

Erosion is the main hazard in growing crops on soils in map units 6 and 7. Memphis, Loring, Providence, and Grenada soils make up these map units.

About 2,030 acres are in specialty crops. Of this, about 1,000 acres are in pecan orchards and 725 acres are in vegetables. The rest of the acreage is in other crops. Soils in map units 3, 4, 6, 7, and 12 have fair to good potential for specialty crops. The major soils in these map units are Riedtown, Oaklimeter, and McRaven soils on flood plains and Memphis, Loring, Providence, and Grenada soils on the uplands.

About 37 percent, or 208,800 acres, of the county is used as woodland. Soils in map units 2, 3, 4, 6, 7, 9, 10, 11, and 12 have good potential for trees, and soils in map unit 5 have fair potential. Some soils have a moderate limitation for equipment use that can be overcome by harvesting during the drier seasons or by using special equipment.

About 10 percent, or 58,880 acres, of the county is classified as urban or built-up land. The gently sloping to moderately steep Loring soils have fair potential for urban use, and the Siwell soils have poor potential. These soils are in map unit 4. Low strength, steep slopes, and very high shrink-swell potential are limitations of these soils. Because Loring and Siwell soils perc slowly or very slowly, there is a severe limitation for use as septic tank absorption fields. Most of the limitations can be overcome by proper design and careful installation.

Soils on flood plains in map units 1, 2, and 3 have poor potential for urban use because of flooding. Soils in map units 5, 9, 10, and 11 in hilly areas have poor potential for urban use primarily because of steep slopes and low strength. Kisatchie soils have poor potential because of steep slopes, high shrink-swell potential, and shallow depth to sandstone. Some areas of these map units, however, are suitable sites for houses or small commercial buildings.

Map units 6, 7, 8, and 12 have fair potential for urban use. Low strength and wetness are the main limitations of these soils. Most of the limitations can be overcome by proper design and careful installation. Because Grenada, Loring, and Providence soils perc slowly, there is a limitation for use as septic tank absorption fields. If these soils are used as filter fields, the size of the absorption area should be increased.

The potential for recreation use ranges from poor to good, depending on the intensity of expected use. Map units 7 and 12 have fair potential for intensive recreation use, and map units 1, 2, and 3 have poor potential because of flooding. Map units 4, 5, 6, 7, 8, 9, 10, and 11 have steep slopes that limit their potential for intensive recreation use. All of these units, however, are suitable for extensive recreation uses such as hiking and horseback riding.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

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

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Memphis silt loam, 2 to 5 percent slopes, eroded, is one of several phases within the Memphis series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes and soil associations.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Calloway-Urban land complex is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Bonn-Deerford association is an example.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most mapped areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Urban land is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 5, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

Soil descriptions

Ad—Adler silt loam. This is a moderately well drained soil on flood plains. Slopes are 0 to 2 percent.

Typically, the surface layer is dark brown silt loam about 6 inches thick. It is underlain by a layer, about 48 inches thick, of yellowish brown silt loam that has gray and brown mottles. Below this, to a depth of more than 72 inches, the soil material is silt loam that has brown and gray mottles.

Included in mapping are small areas of Riedtown and McRaven soils and a few areas of soils that are better drained than the Adler soil.

This soil is medium acid to mildly alkaline. The available water capacity is very high, and permeability is moderate. Runoff is slow, and the erosion hazard is slight. Flooding of brief duration is common under normal conditions, mostly in winter and spring. This soil has a seasonally high water table in winter and spring. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The root zone is deep and easily penetrated by plant roots.

About 80 percent of this soil is cultivated or used as pasture. The rest is used as woodland. This soil has good potential for cotton, soybeans, and small grain. Management practices, such as returning crop residue to the soil, row arrangement, and the use of field ditches to remove excess surface water, are needed if this soil is used for row crops. This soil has good potential for pasture grasses, including improved bermudagrass and tall fescue. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for hardwoods, including green ash, eastern cottonwood, sweetgum, and American sycamore. There are no significant limitations to woodland management.

This soil has poor potential for most urban uses because it is subject to flooding and wetness. It has fair potential if protected from flooding. Capability unit IIw-1; woodland suitability group 1o4.

BD—Bonn-Deerford association. This map unit consists of poorly drained and somewhat poorly drained soils that formed in silty alluvium. The soils are high in sodium. They are on low terraces and flood plains adjacent to the Pearl River at a slightly higher elevation than soils on the flood plains. They are inundated for long periods, mostly in winter and spring. The areas are 200 to more than 1,200 acres in size and are dissected by a few drainageways and old stream runs. Slopes are 0 to 2 percent. The Bonn soils are level or are in slight depressions. The Deerford soils are at a slightly higher elevation in level to slightly convex areas.

The poorly drained Bonn soils and some similar soils make up about 43 percent of this map unit, and the somewhat poorly drained Deerford soils and some similar soils make up about 32 percent. Oaklimeter, Cascilla, and other somewhat poorly drained and poorly drained silty soils make up the rest. The pattern and extent of Bonn and Deerford soils are fairly uniform throughout. Each area outlined on the detailed soil map consists of these two soils and generally one or more of the minor soils.

Typically, Bonn soils have a surface layer of dark grayish brown silt loam about 3 inches thick. The surface layer is underlain by light brownish gray silt loam that has brown mottles. Below this, at a depth of 11 inches and extending to a depth of 42 inches, the layer is gray silty clay loam that has brown mottles. The next layer, to a depth of about 80 inches, is light brownish gray silt loam that has brown or gray and brown mottles.

The surface layer is very strongly acid to neutral, and the subsoil is slightly acid to moderately alkaline. Permeability is very slow, and the available water capacity is medium. Runoff is slow.

Typically, the surface layer of Deerford soils is dark grayish brown silt loam and is about 4 inches thick. The subsurface layer, to a depth of about 17 inches, is light brownish gray silt loam that has grayish and brownish mottles. The layer below this is silt loam that has brown, and gray mottles; it extends to a depth of 27 inches. This is underlain by light brownish gray silt loam that extends to a depth of 84 inches.

Reaction is very strongly acid to medium acid in the upper part of the profile and neutral to moderately alkaline in the lower part. Permeability is slow, and the available water capacity is high. Runoff is slow.

The soils in this map unit are in woods. Bonn soils have poor potential for use as woodland. Eastern redcedar is the best adapted species. Deerford soils have good potential for sweetgum, loblolly pine, and water oak. The use of equipment in managing and harvesting tree crop is limited by wetness. This limitation can be overcome by using special equipment and by logging during the drier seasons.

This map unit has poor potential for farm and urban uses. Wetness, high sodium content, and flooding are the main limitations. Flooding and wetness can only be overcome by major flood control and drainage measures. Bonn soils in capability unit IVs-1, woodland suitability group 5t0; Deerford soils in capability unit Vw-1, woodland suitability group 2w8.

BrB2—Byram silt loam, 2 to 5 percent slopes, eroded. This is a moderately well drained soil that has a fragipan overlying clayey material. This soil is on uplands on the fringes of the Jackson metropolitan area. Areas of this soil are 5 to 100 acres in size.

Typically, the surface layer is brown silt loam about 4 inches thick. It is underlain, to a depth of about 23 inches, by yellowish brown silty clay loam or silt loam. Below this, to a depth of about 51 inches, there is a compact, brittle fragipan that is yellowish brown in the upper part and has gray and brown mottles in the lower part. Below the fragipan, to a depth of 67 inches, the soil material is yellowish brown silty clay loam that has grayish mottles. The underlying material, to a depth of 90 inches, is clay that has brownish mottles. In places, the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included with this soil in mapping are small areas of Grenada, Loring, and Siwell soils and a few areas of soils that have slopes of more than 5 percent.

This soil is very strongly acid to neutral to a depth of 67 inches. Below that it is neutral to moderately alkaline.

Permeability is moderate in the upper part, moderately slow in the fragipan, and very slow in the clayey underlying material. The available water capacity is medium. Runoff is slow to medium. Good tilth is fairly easy to maintain, and this soil can be cultivated within a fairly wide range of moisture content. The surface tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this soil are in small holdings adjacent to the Jackson metropolitan area. Some small areas are in crops and pasture or are used as woodland. A fairly large acreage is idle.

This soil has good potential for cotton, corn, soybeans, small grains, and truck crops. The use of minimum tillage, contour cultivation, terraces, and the return of crop residue to the soil help to improve tilth and reduce erosion.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for lawn plants, including sod grasses (fig. 1), trees, shrubs, and many annuals. It also has good potential for loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, and sweetgum. There are no significant limitations to woodland use or management.

This soil has fair potential for most urban uses. The shrink-swell potential and low strength of the soil are limitations, but they can be overcome by good design and careful installation. The fragipan and the clayey lower part of the subsoil severely limit the use of this soil as septic tank absorption fields. Community sanitary facilities should be used. Capability unit IIe-2; woodland suitability group 2o7.

BrC2—Byram silt loam, 5 to 8 percent slopes, eroded. This is a moderately well drained soil that has a fragipan overlying clayey material. This soil is on uplands on the fringes of the Jackson metropolitan area. Areas of this soil are 5 to 80 acres in size.

Typically, the surface layer is brown silt loam about 4 inches thick. It is underlain by yellowish brown silty clay loam or silt loam that extends to a depth of about 23 inches. Below this, to a depth of about 51 inches, there is a compact, brittle fragipan that is yellowish brown in the upper part and has gray and brown mottles in the lower part. Below the fragipan, a layer of yellowish brown silty clay loam that has grayish brown mottles extends to a depth of 67 inches. The underlying material, to a depth of 90 inches, is clay that has brown mottles. In places, the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included with this soil in mapping are small areas of Grenada, Loring, and Siwell soils and a few areas of soils that have slopes of more than 5 percent.

This soil is very strongly acid to neutral to a depth of 67 inches; below this depth, it is neutral to moderately alkaline. Permeability is moderate in the upper part, moderately slow in the fragipan, and very slow in the clayey underlying material. The available water capacity is medium. Runoff is medium. Good tilth is fairly easy to maintain, and this soil can be cultivated within a fairly wide range of moisture content. The surface tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this soil are in small holdings adjacent to the Jackson metropolitan area. Some small areas are in crops and in pasture or are used as woodland. A fairly large acreage is idle.

This soil has fair potential for cotton, corn, soybeans, small grains, and truck crops. The erosion hazard is moderate if cultivated crops are grown. The use of minimum tillage, contour cultivation, terraces, and cover crops, including grasses and legumes, in the cropping system helps to reduce runoff and control erosion.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for lawn plants, including sod grasses, trees, shrubs, and many annuals. It also has good potential for loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, and sweetgum. There are no significant limitations to woodland use or management.

This soil has fair potential for most urban uses. The shrink-swell potential and low strength of this soil are limitations, but they can be overcome by good design and careful installation. The fragipan and the clayey lower part of the subsoil are severe limitations to use of the soil as septic tank absorption fields. Community sanitary facilities should be used. Capability unit IIIe-1; woodland suitability group 2o7.

BuC—Byram-Urban land complex, 2 to 8 percent slopes. This map unit consists of gently sloping and sloping, moderately well drained soils on uplands within the Jackson metropolitan area. The Byram soil and Urban land are in an intricate pattern in areas of residential buildings, streets, utilities, and other public facilities. In areas of Urban land, most of the original soil material has been so extensively altered that the soil series is no longer identifiable.

This complex is 35 percent Byram silt loam and 30 percent Urban land. The rest is made up of small areas of Grenada, Loring, Providence, and Siwell soils and moderately well drained soils on narrow flood plains. Small areas of soils that have slopes of more than 8 percent are also included.

The Byram soil is moderately well drained. The surface layer is brown silt loam about 4 inches thick. It is underlain to a depth of about 23 inches by yellowish brown silty clay loam or silt loam. Below this, to a depth of about 51 inches, there is a compact, brittle fragipan that is yellowish brown in the upper part and has grayish and brownish mottles in the lower part. Below the fragipan, to a depth of 67 inches, the soil material is yellowish brown silty clay loam that has grayish mottles. The underlying material, to a depth of 90 inches, has brownish mottles.

The Byram soil is very strongly acid to neutral in the upper part of the profile and neutral to moderately alkaline in the clayey underlying material. Permeability is moderate in the upper part, moderately slow in the fragipan, and very slow in the clayey underlying material. The available water capacity is medium. Runoff is slow to medium. Good tilth is fairly easy to maintain, and the soil can be cultivated within a fairly wide range of moisture content. The surface tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

This soil has good potential for lawn plants, including sod grasses, exotic trees, shrubs, and many annuals. It also has good potential for native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is not used as cropland.

The Byram soil has fair potential for most urban uses. The shrink-swell potential and low strength are limitations, but they can be overcome by good design and careful installation procedures. The fragipan and clayey lower part of the subsoil severely limit the use of the soil as septic tank absorption fields. Community sanitary facilities should be used.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. The areas are mainly sites for houses and adjoining streets, for a few shopping centers, and other public service areas. Byram soil in woodland suitability group 2o7.

Ca—Calhoun silt loam. This is a poorly drained soil that is in slight depressions on uplands. Slopes are 0 to 1 percent.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsurface layer, to a depth of about 17 inches, is gray and light brownish gray silt loam that has brown mottles. Below this, to a depth of about 80 inches, the soil material is gray silt loam in the upper part and grayish brown that has brown mottles in the lower part.

Included in mapping are small areas of slightly better drained soils and small areas of Calloway and Grenada soils.

This soil is medium acid to very strongly acid in the upper part and very strongly acid to mildly alkaline in the lower part. The available water capacity is very high. Permeability is slow. Runoff is slow to very slow, and some areas remain ponded for long periods. If it is drained, this soil is fairly easy to keep in good tilth and can be cultivated within a fairly wide range of moisture content. The surface tends to crust if left bare. If this soil is not drained, the subsoil is waterlogged and poorly aerated for long periods.

Most of this soil is in pasture or is used as woodland. It has fair potential for corn, soybeans, and small grain. A complete drainage system is needed if this soil is used for crops.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include drainage, proper stocking, controlling grazing, and controlling weeds and brush. Pasture can be damaged by trampling in winter and early in spring if the soil is wet.

This soil has good potential for loblolly pine, sweetgum, cherrybark oak, and water oak. Wetness is the main limitation to the use of equipment in managing and harvesting trees. This limitation can be overcome by using special equipment and by logging during drier seasons.

This soil has poor potential for urban use mainly because it is wet and needs drainage. Capability group IIIw-1; woodland suitability group 2w9.

Co—Calloway silt loam. This is a somewhat poorly drained soil that has a fragipan. It is on uplands. Slopes are 0 to 2 percent.

Typically, the surface layer is brown silt loam about 6 inches thick. The upper part of the subsoil is silt loam and extends to a depth of about 23 inches. It is yellowish brown and has brown mottles; in the lower 3 inches, it is light brownish gray and has brown mottles. The lower part of the subsoil, to a depth of about 65 inches, is a firm, compact, and brittle fragipan of silt loam. In the upper part, the fragipan has brown and gray mottles; in the lower part, it is yellowish brown and has gray and brown mottles.

Included in mapping are small areas of Grenada, Calhoun, and McRaven soils and areas of similar soils that have less clay in the subsoil.

This soil is medium acid to very strongly acid in the upper part and strongly acid to mildly alkaline in the lower part. Permeability is moderate in the upper part and slow in the fragipan. A perched water table is within 12 to 24 inches of the surface in winter and spring. The available water capacity is medium, and runoff is slow. The soil is fairly easy to keep in good tilth and can be cultivated within a fairly wide range of moisture content. It tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this soil are used for row crops or pasture. This soil has good potential for cotton, soybeans, corn, and small grain. Management practices, such as returning crop residue to the soil, row arrangement, and the use of field ditches to remove excess surface water, are needed if this soil is used continuously for row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

The soil has good potential for water oak, cherrybark oak, loblolly pine, shortleaf pine, sweetgum, and yellow-poplar. Wetness is the main limitation to the use of equipment in woodland management and in harvesting the trees. This limitation can be overcome, however, by using special equipment and by logging in the drier seasons.

This soil has poor potential for most urban uses. Wetness is the main limitation, but this limitation can be overcome by drainage. Capability unit IIw-5; woodland suitability group 2w8.

CuA—Calloway-Urban land complex. This is a level, somewhat poorly drained complex on uplands in the metropolitan Jackson area. Slopes are 0 to 2 percent. The complex is made up of Calloway silt loam and Urban land in an intricate pattern in areas of residential buildings and other structures and streets and other public facilities. Areas of this complex range from 10 to 50 acres in size. In some places, the original surface layer has been covered with a few inches of other soil material, and low places have been filled in. Although the original soil has been altered, the basic soil characteristics remain the same.

This complex is 40 percent Calloway silt loam and 35 percent Urban land. The rest is made up of small areas of Grenada, Loring, and Siwell soils and somewhat poorly drained and moderately well drained soils on narrow flood plains. Areas of soils that have slope of more than 2 percent are also included. The Calloway soil and Urban land and one or more minor soils are in each mapped area.

The Calloway soil is somewhat poorly drained. The surface layer is brown silt loam about 6 inches thick. The upper part of the subsoil is silt loam and extends to a depth of about 23 inches. It is yellowish brown and has brown mottles; in the lower 3 inches, it is light brownish gray and has brown mottles. The lower part of the subsoil, to a depth of 65 inches, is a firm, compact, and brittle fragipan of silt loam. In the upper part, the fragipan has brown and gray mottles; in the lower part, it is yellowish brown and has gray and brown mottles.

The Calloway soil is medium acid to strongly acid in the upper part and strongly acid to mildly alkaline in the lower part. Permeability is moderate in the upper part and slow in the fragipan. The available water capacity is medium, and runoff is slow. The fragipan restricts the rooting depth and limits the amount of water available to plants.

This soil has good potential for lawn plants, including sod grasses, exotic trees, shrubs, and many annuals. It also has good potential for native trees, including loblolly pine, shortleaf pine, water oak, southern redcedar, sweetgum, and yellow-poplar. This soil is not used as cropland.

The Calloway soil has poor potential for most urban uses. Wetness is the main limitation, but this limitation can be overcome by drainage.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. It is used mostly as house sites and for adjoining streets, shopping centers, and other public service areas that have paved parking lots. Calloway soil in woodland suitability group 2w8.

CY—Cascilla-Chenneby association. This association is made up of soils that formed in silty alluvium. The soils are on flood plains that are 1/4- to 1/2-mile wide and are characterized by oxbow lakes and old stream channels. They are flooded for long periods, mostly in winter and spring. Slopes are 0 to 2 percent. Areas of these soils range from 160 to 1,000 acres in size.

The well drained Cascilla soil makes up about 45 percent of this association, and the somewhat poorly drained Chenneby soil and similar soils make up 26 percent. The rest is made up of Deerford soils and other well drained soils that formed in loamy alluvium that is high in sand content and soils that are not so well drained. The soils in the old sloughs and depressions, which occur in all areas of this association, are covered with water much of the year. The two major soils and one or more of the minor soils are in each mapped area.

Typically, the Cascilla soil has a surface layer of very dark grayish brown silt loam about 3 inches thick. The layer below that, to a depth of about 55 inches, is brown or dark yellowish brown silty clay loam. It is underlain by yellowish brown loam and fine sandy loam that extends to a depth of about 72 inches.

The Cascilla soil is strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow. The rooting zone is deep and is easily penetrated by plant roots.

Typically, the Chenneby soil has a surface layer of brown silt loam about 5 inches thick. The subsurface layer is dark yellowish brown silt loam and extends to a depth of about 13 inches. The layer below that, extending to a depth of 30 inches, is silt loam that is brown in the upper part and yellowish brown in the lower part and has gray and brown mottles. This layer is underlain, to a depth of about 51 inches, by grayish brown silty clay loam that has brown mottles. The underlying material, to a depth of 60 inches, is grayish brown loam that has brown mottles.

The Chenneby soil is strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow. This soil is easily penetrated by plant roots; the root zone is deep.

Almost all of this association is in hardwood trees. Because the sloughs and depressions remain flooded much of the year, the higher areas that overflow less frequently are isolated and difficult to manage for crops and pasture.

The soils in this association have good potential for cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, American sycamore, and yellow poplar. The use of equipment is restricted during periods of flooding, but special equipment can be used and logging can be done in the drier seasons.

The soils in this association have poor potential for farming and for urban use. Flooding and wetness are the main limitations. These limitations can be overcome, however, by major flood control and drainage measures. Capability unit IVw-1; woodland suitability group 1w7.

GrA—Grenada silt loam, 0 to 2 percent slopes. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 10 to 40 acres in size.

Typically, the surface layer is dark grayish brown and brown silt loam about 4 inches thick. The subsoil, to a depth of about 27 inches, is silt loam. In the upper part it is yellowish brown; in the lower 4 inches it is light brownish gray and has brown mottles. Below this, there is a compact and brittle fragipan that extends to a depth of about 70 inches. The fragipan is silt loam and is mottled in shades of brown and gray.

Included in mapping are small areas of Calloway and Loring soils and areas of similar soils that have less clay in the subsoil.

This soil is medium acid to very strongly acid. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. A perched water table is within 24 to 30 inches of the surface in seasons of heavy rainfall. The available water capacity is medium, and runoff is slow. The soil is fairly easy to keep in good tilth and can be cultivated within a fairly wide range of moisture content. It tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this soil are used for row crops or pasture. This soil has good potential for cotton, soybeans, corn, and small grain. Management practices, such as returning crop residue to the soil, row arrangement, minimum tillage, and the use of field ditches to remove excess surface water are needed if this soil is used continuously for row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, sweetgum, and water oak. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Community sanitary facilities should be used. Capability unit IIw-4; woodland suitability group 2o7.

GrB—Grenada silt loam, 2 to 5 percent slopes. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 10 to 40 acres in size.

Typically, the surface layer is dark grayish brown to brown silt loam about 4 inches thick. The subsoil, to a depth of about 27 inches, is silt loam. In the upper part it is yellowish brown; in the lower 4 inches it is light brownish gray and has brown mottles. Below this, there is a compact and brittle fragipan that extends to a depth of about 70 inches. The fragipan is silt loam and has brown and gray mottles. In places the surface layer has been thinned by erosion and is mixed with subsoil material.

Included in mapping are small areas of Byram, Calloway, and Loring soils and areas of similar soils that have less clay in the subsoil. Also included are a few areas of soils that have slopes of less than 2 percent.

This soil is medium acid to very strongly acid. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. A perched water table is within 24 to 30 inches of the surface in seasons of heavy rainfall. The available water capacity is medium. Runoff is slow to medium. The soil is fairly easy to keep in good tilth and can be cultivated within a fairly wide range of moisture content. It tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this soil are used for row crops or pasture. This soil has good potential for cotton, soybeans (fig. 2), corn, and small grain. Erosion is a hazard if cultivated crops are grown. The return of crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways help reduce erosion when the soil is in row crops.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, sweetgum, and water oak. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Community sanitary facilities should be used. Capabiltiy unit IIe-2; woodland suitability group 2o7.

LoB2—Loring silt loam, 2 to 5 percent slopes, eroded. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 5 to 100 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. This is underlain, to a depth of about 27 inches, by brown to strong brown silt loam. Below this, to a depth of about 56 inches, there is a compact and brittle silt loam fragipan that has gray and brown mottles.

The underlying material, to a depth of 80 inches, is brown silt loam that has gray and brown mottles. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are a few small areas of Byram, Grenada, Memphis, and Providence soils and small areas of soils that have slopes of more than 5 percent.

This soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part and moderately slow in the fragipan. The available water capacity is medium. Runoff is slow to medium. This soil is fairly easy to keep in good tilth and can be cultivated within a fairly wide range of moisture content. The surface tends to crust if it is left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most of the acreage of this soil is used for row crops or pasture. This soil has good potential for cotton, soybeans, corn (fig. 3), and small grain. The hazard of erosion is moderate if cultivated crops are grown. The return of crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways help reduce erosion when the soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, shortleaf pine, sweetgum, and water oak. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit IIe-2; woodland suitability group 2o7.

LoC2—Loring silt loam, 5 to 8 percent slopes, eroded. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 5 to 100 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. This is underlain by brown to strong brown silt loam to a depth of about 27 inches. Below this, to a depth of about 56 inches, there is a compact and brittle silt loam fragipan that is brown and has gray and brown mottles. The underlying material, to a depth of 80 inches, is brown silt loam that has gray and brown mottles. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are a few small areas of Byram, Grenada, Kisatchie, Memphis, Providence, and Siwell soils and small areas of soils that have slopes of more than 8 percent.

This soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part of the profile and moderately slow in the fragipan. The available water capacity is medium. Runoff is medium. This soil is fairly easy to keep in good tilth and can be cultivated throughout a fairly wide range of moisture content. The surface tends to crust if it is left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most of the acreage of this soil is used for row crops or pasture. This soil has fair potential for cotton, soybeans, corn, and small grain (fig. 4). The hazard of erosion is moderate to severe if cultivated crops are grown. Returning crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways help reduce erosion if the soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, shortleaf pine, sweetgum, and water oak. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit IIIe-1; woodland suitability group 2o7.

LoC3—Loring silt loam, 5 to 8 percent slopes, severely eroded. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 10 to 100 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. It is underlain by brown to strong brown silt loam to a depth of about 27 inches. Below this, a compact and brittle silt loam fragipan that is brown and has gray and brown mottles extends to a depth of about 56 inches. The underlying material, to a depth of 80 inches, is brown silt loam and has gray and brown mottles. In most areas the surface layer has been thinned by erosion. Rills and shallow gullies are common, and a few deep gullies have formed.

Included in mapping are small areas of Byram, Kisatchie, Memphis, Providence, and Siwell soils. Small areas of soils that have slopes of more than 8 percent and areas where erosion is less severe are also included.

This soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part of the profile and moderately slow in the fragipan. The available water capacity is medium. Runoff is medium to rapid, and the hazard of erosion is severe in cultivated fields. Tilth is fair because of the severe hazard of erosion. This soil can be cultivated throughout a fairly wide range of moisture content. It tends to crust and pack if it is left bare, and it becomes hard when dry. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most of the acreage of this soil is in pasture, and some areas are in row crops and trees. This soil has poor potential for row crops and small grains because of the hazard of erosion. Further loss by erosion is probable if cultivated crops are grown. Returning crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, rotation with grasses, terracing, and grassed waterways help reduce erosion if the soil is in crops.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for loblolly pine and shortleaf pine. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit IVe-2; woodland suitability group 2o7.

LoD2—Loring silt loam, 8 to 17 percent slopes, eroded. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 5 to 100 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. The layer below that, extending to a depth of about 27 inches, is brown to strong brown silt loam. A compact and brittle silt loam fragipan extends to a depth of about 56 inches. It is brown and has gray and brown mottles. The underlying material, to a depth of 80 inches, is brown silt loam and has gray and brown mottles. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are a few small areas of Byram, Kisatchie, Memphis, Providence, and Siwell soils and small areas of soils that have slopes of more than 17 percent.

This soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe in cultivated fields.

Most of the acreage of this soil is in pasture. A few acres are in crops or are used as woodland. This soil has poor potential for crops because of steep slopes and the hazard of erosion. It has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling weeds and brush, and controlling grazing (fig. 5).

This soil has good potential for cherrybark oak, loblolly pine, shortleaf pine, sweetgum, and water oak. There are no significant limitations to woodland use and management.

This soil has fair potential for urban uses. Low strength and slope are the main limitations, but they can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit VIe-4; woodland suitability group 2o7.

LoD3—Loring silt loam, 8 to 17 percent slopes, severely eroded. This is a moderately well drained soil that has a fragipan. This soil is on uplands in areas that range from 15 to 100 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. It is underlain by brown to strong brown silt loam. This layer extends to a depth of about 27 inches. Below this, to a depth of about 56 inches, there is a compact and brittle silt loam fragipan that is brown and has gray and brown mottles. The underlying material, to a depth of 80 inches, is brown silt loam that has gray and brown mottles. In most places the surface layer has been thinned by erosion and is mixed with subsoil material. Rills and gullies are common, and a few deep gullies have formed.

Included in mapping are a few small areas of Byram, Kisatchie, Memphis, Providence, and Siwell soils and small areas of soils that have slopes of more than 17 percent.

This soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part of the profile and moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe in cultivated areas.

Most of the acreage of this soil is in pasture and trees. A few areas are idle. This soil has poor potential for crops because of steep slopes and the hazard of erosion. It has fair potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling weeds and brush, and proper grazing. Steepness of slopes and gullies are the main limitations to use of equipment in pasture management.

This soil has good potential for loblolly pine and shortleaf pine. The steep side slopes of gullies impose an erosion hazard, and they interfere with the operation of logging equipment.

This soil has poor potential for urban use. Low strength and slope are the main limitations, but they can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit VIe-3; woodland suitability group 2o7.

LuC—Loring-Urban land complex, 2 to 8 percent slopes. This complex of gently sloping, moderately well drained Loring soil intermingled with Urban land is on uplands in the Jackson metropolitan area. In areas of Urban land, most of the original soils have been so extensively altered that the soil series are no longer identifiable. Areas of this map unit range from 20 to 250 acres in size.

This map unit is made up of 40 percent Loring silt loam, 35 percent Urban land, and 25 percent small areas of Byram, Calloway, Grenada, Providence, and Siwell soils and some moderately well drained soils on narrow flood plains.

Included in mapping are small areas of soils that have slopes of more than 8 percent.

Typically, the surface layer of the Loring soil is brown silt loam about 5 inches thick. It is underlain by brown to strong brown silt loam that extends to a depth of about 27 inches. Below this, there is a compact and brittle silt loam fragipan that extends to a depth of about 56 inches. The fragipan is brown and has gray and brown mottles. The underlying material, to a depth of 80 inches, is brown silt loam that has gray and brown mottles.

The Loring soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part and moderately slow in the fragipan. The available water capacity is medium. Runoff is slow to medium. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Open areas of the Loring soil are used for lawns, shrubs, and trees. This soil has good potential for lawn plants, including sod grasses, exotic trees, shrubs, and many annuals. It has good potential for native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is not used as cropland.

The Loring soil has fair potential for urban uses. Low strength is the main limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as septic tank absorption fields. Increasing the size of the absorption field should be considered.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. It is used mainly as sites for houses, shopping centers, and public service areas including streets and parking lots. Loring soil in woodland suitability group 2o7.

LuD—Loring-Urban land complex, 8 to 15 percent slopes. This complex of sloping and strongly sloping, moderately well drained Loring soil intermingled with Urban land is on uplands in the Jackson metropolitan area.

Areas of this map unit range from 20 to 100 acres in size. It is 40 percent Loring silt loam and 35 percent Urban land. The rest is made up of small areas of Byram, Calloway, Grenada, Providence, and Siwell soils and moderately well drained soils on narrow flood plains.

Included in mapping are small areas of soils that have slopes of more than 15 percent.

Typically, the surface layer of the Loring soil is brown silt loam about 5 inches thick. This is underlain by brown to strong brown silt loam to a depth of about 27 inches. Below this, to a depth of about 56 inches, is a compact and brittle silt loam fragipan that is brown and has gray and brown mottles. The underlying material, to a depth of 80 inches, is brown silt loam that has gray and brown mottles.

The Loring soil is very strongly acid to medium acid in the upper part of the profile and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part of the profile and moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Open areas of the Loring soil is used for lawns, shrubs, and trees. This soil has good potential for lawn plants, including sod grasses, exotic trees, shrubs, and many annuals. It also has good potential for native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is not used as cropland.

The Loring soil has fair potential for urban uses. Low strength is the main limitation, but this can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as septic absorption fields. Increasing the size of the absorption field should be considered.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. It is used mostly as homesites and for adjoining streets and as shopping centers and paved parking lots. Loring part in woodland suitability group 2o7.

LW—Loring-Kisatchie association, hilly. This association consists of moderately well drained and well drained soils in a regular and repeating pattern. The topography is hilly, characterized by narrow ridgetops and steep side slopes that are dissected by many narrow drainageways. Slopes range from 5 to 30 percent. Areas of this map unit range in size from 160 to 500 acres.

The moderately well drained Loring soils make up about 40 percent of this map unit and the well drained Kisatchie soils, 25 percent.

Included in mapping are areas of Memphis, Providence, and Riedtown soils and moderately well drained and somewhat poorly drained soils that are on uplands. Also included are small areas that have gravel, areas that have sandstone outcrops, and areas where alkaline clay is within 48 inches of the surface layer.

Loring soils are generally on ridgetops 1/4- to 1/2-mile long and less than 300 feet wide and on the upper parts of side slopes. Kisatchie soils are generally on the steeper side slopes that are dissected by many drainageways.

Typically, the surface layer of Loring soil is brown silt loam about 5 inches thick. This is underlain, to a depth of about 27 inches, by brown to strong brown silt loam. Below this, to a depth of about 56 inches, is a compact and brittle silt loam fragipan that is brown and has gray and brown mottles. The underlying material, to a depth of 80 inches, is brown silt loam that has gray and brown mottles.

The Loring soil is very strongly acid to medium acid in the upper part and very strongly acid to slightly acid in the lower part. Permeability is moderate in the upper part and moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe.

Typically, the surface layer of the Kisatchie soil is very dark gray and grayish brown fine sandy loam about 5 inches thick. The layer below that extends to a depth of about 29 inches. It is brown and yellowish brown silty clay that has brown mottles. The next layer extends to a depth of about 32 inches. It is grayish brown clay loam. The underlying material is gray sandstone (fig. 6).

The Kisatchie soils are very strongly acid to extremely acid. The available water capacity is low. Permeability is very slow. Runoff is very rapid.

Most of the acreage of this map unit is woodland. A small acreage where slopes are favorable is in pasture.

Because of the steepness of slopes and the severe hazard of erosion, this map unit has poor potential for most of the commonly grown row crops and should be kept under permanent vegetation. It has fair to poor potential for grasses and legumes. The steepness of slopes, the hazard of erosion, and the shallow rooting depth are the main limitations. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush. The Loring soils have good potential for woodland use, and Kisatchie soils have poor potential.

Kisatchie soils are mainly too shallow and clayey for good tree growth. Loring soils are suited to cherrybark oak, loblolly pine, shortleaf pine, sweetgum, and water oak. Kisatchie soils are better suited to loblolly pine than to other species. Equipment limitations are moderate for Kisatchie soils. These limitations can be overcome by harvesting during the drier seasons and by using special equipment.

Most areas of this map unit have poor potential for most urban uses. Steep slopes, low strength, and shallow depth to sandstone are limitations. Onsite selection, proper design, and careful installation procedures should be used. Loring part in capability unit VIe-2; woodland suitability group 2o7; and Kisatchie part in capability unit VIIe-2; woodland suitability group 4d2.

Mc—McRaven silt loam. This is a somewhat poorly drained soil on flood plains. Slopes are 0 to 2 percent.

Typically, the surface layer is dark brown silt loam about 5 inches thick. It is underlain by a layer of silt loam that extends to a depth of about 21 inches. This layer is mottled brown in the upper part and grayish brown in the lower part. The underlying material is grayish brown and brown silt loam that has yellowish brown mottles.

Included in mapping are small areas of Adler, Oaklimeter, and Riedtown soils. Also included are a few areas of soils that are more poorly drained than the McRaven soil.

This soil is strongly acid to neutral in the upper part and slightly acid to mildly alkaline in the lower part. Permeability is moderate. Runoff is slow, and the available water capacity is very high. The hazard of erosion is slight. Flooding of brief duration usually occurs during periods of heavy rainfall in winter and spring. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep, and it is easily penetrated by plant roots. This soil has a seasonal high water table in winter and early spring.

About 80 percent of this soil is cultivated or is in pasture. The rest is used as woodland. This soil has good potential for cotton, soybeans, and small grain. Good management practices, such as returning crop residue to the soil, row arrangement, and the use of surface field ditches to remove excess surface water are needed if this soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush. This soil also has good potential for hardwoods, green ash, eastern cottonwood, sweetgum, and American sycamore. Wetness is the main limitation for woodland management and harvesting the tree crop. This limitation can be overcome, however, by using special equipment and by logging during the drier seasons.

This soil has poor potential for most urban uses because of flooding and wetness (fig. 7). Potential for urban uses is medium if the soil is protected from flooding. Capability unit IIw-3; woodland suitability group 1w5.

MeA—Memphis silt loam, 0 to 2 percent slopes. This is a well drained soil on uplands. Areas of this soil are 5 to more than 100 acres in size.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, the soil material is dark brown silt loam that has pale brown mottles in the lower part.

Included in mapping are small areas of Calloway, Grenada, and Loring soils and small areas of soils that have slopes of more than 2 percent.

This soil is very strongly acid to medium acid. Permeability is moderate. The available water capacity is very high. Runoff is slow, and the hazard of erosion is slight. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep, and it is easily penetrated by plant roots.

About 95 percent of this soil is cultivated or is in pasture. The rest is used as woodland. This soil has good potential for cotton, corn, soybeans, small grain, and truck crops. Good management practices, such as returning crop residue to the soil, row arrangement, and minimum tillage are needed if this soil is in row crops. This soil also has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush. This soil has good potential for cherrybark oak, loblolly pine, and yellow-poplar. There are no significant limitations for woodland management.

This soil has fair potential for most urban uses. Low strength is a limitation that can easily be overcome by good design and careful installation. Capability unit I-1; woodland suitability group 1o7.

MeB2—Memphis silt loam, 2 to 5 percent slopes, eroded. This is a well drained soil on uplands. Areas of this soil range from 5 to 100 acres in size.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, the soil material is dark brown silt loam that has pale brown mottles in the lower part. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are small areas of Calloway, Grenada, and Loring soils and small areas of soils that have slopes of more than 5 percent.

This soil is very strongly acid to medium acid. Permeability is moderate. The available water capacity is very high. Runoff is slow to medium, and the hazard of erosion is slight to moderate. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep, and it is easily penetrated by plant roots.

Most of this soil is cultivated or is in pasture. A small acreage is used as woodland. This soil has good potential for cotton, corn, soybeans, small grain, and truck crops. The hazard of erosion is moderate if cultivated crops are grown. The return of crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways are practices that help reduce the amount of erosion when the soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, and yellow-poplar. There are no significant limitations for woodland management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can easily be overcome by good design and careful installation procedures. Capability unit IIe-1; woodland suitability group 1o7.

MeC2—Memphis silt loam, 5 to 8 percent slopes, eroded. This is a well drained soil on uplands. Areas of this soil range from 5 to 150 acres in size.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, is dark brown silt loam that has pale brown mottles in the lower part. In places erosion has removed much of the original surface layer and shallow gullies have formed. In some areas there are a few deep gullies.

Included in mapping are a few areas where erosion is more severe and where gullies impede the operation of farm machinery. Also included are some areas of Loring soils.

This soil is very strongly acid to medium acid. Permeability is moderate. The available water capacity is very high. Runoff is medium, and erosion is a hazard. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep and easily penetrated by plant roots.

Most of this soil is used for row crops or is in pasture. A small acreage is used as woodland. This soil has fair potential for cotton, soybeans, corn, and small grain. The hazard of erosion is moderate to severe if cultivated crops are grown. The return of crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways are practices that help reduce erosion where the soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, and yellow-poplar. There are no significant limitations for woodland management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome easily by good design and careful installation procedures. Capability unit IIIe-2; woodland suitability group 1o7.

MeD2—Memphis silt loam, 8 to 17 percent slopes, eroded. This is a well drained soil on uplands. Areas of this soil range from 5 to 400 acres in size.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, is dark brown silt loam that has pale brown mottles in the lower part. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are small areas of Lexington, Loring, and Natchez soils. Also included are small areas of soils that have slopes of more than 17 percent and areas of soils that have slopes of less than 8 percent.

This soil is very strongly acid to medium acid. Permeability is moderate. The available water capacity is very high. Runoff is rapid, and the hazard of erosion is severe. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep and easily penetrated by plant roots.

Most of this soil is used for woodland or is in pasture. A small acreage is in row crops. Because of steepness of slopes and the severe hazard of erosion, this soil has poor potential for cultivated crops. This soil has fair potential for pasture grasses, including bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for cherrybark oak, loblolly pine, and yellow-poplar. There are no significant limitations for woodland management.

This soil has fair potential for urban uses. Low strength and slope are the main limitations, but they can be overcome by good design and careful installation procedures. Capability unit VIe-4; woodland suitability group 1o7.

MeD3—Memphis silt loam, 8 to 17 percent slopes, severely eroded. This is a well drained soil on uplands. Areas of this soil range from 10 to 300 acres in size.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, is dark brown silt loam that has pale brown mottles in the lower part. In most areas the surface layer has been thinned by erosion. Rills and shallow gullies are common, and a few deep gullies have formed.

Included in mapping are small areas of Lexington, Loring, Natchez, and Providence soils. Also included are a few areas where the slope exceeds 17 percent.

This soil is very strongly acid to medium acid. Permeability is moderate. The available water capacity is very high. Runoff is very rapid, and the hazard of erosion is severe. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep and easily penetrated by plant roots.

Most of this soil is in pasture and trees. A few acres are idle. This soil has poor potential for crops because of steep slopes and the hazard of erosion. It has fair to poor potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling weeds and brush, and proper grazing. Steepness of slopes and gullies are the main limitations for equipment use in pasture management.

This soil has good potential for loblolly pine. Steep side slopes of gullies contribute to the hazard of erosion, and they interfere with the operation of logging equipment.

This soil has fair potential for urban use. Low strength and steep slopes are the main limitations, but they can be overcome by good design and careful installation procedures. Capability unit VIe-1; woodland suitability group 1o7.

Mg—Memphis-Udorthents complex, gullied. This complex consists of very severely eroded soils, mostly in the western part of the county (fig. 8). Areas of this complex range from 15 to 160 acres in size. The pattern of Memphis soils and Udorthents soils in gullies is so complex that these soils cannot be mapped separately at the scale used. Slopes are about 10 to 35 percent.

Memphis soils make up about 51 percent of each mapped area. They are on ridgetops and side slopes. Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, the soil material is dark brown silt loam that has pale brown mottles in the lower part.

Included in mapping are small areas of Lexington, Loring, and Natchez soils.

Memphis soils are very strongly acid to medium acid. Permeability is moderate. The available water capacity is very high. Runoff is very rapid, and the hazard of erosion is very severe. The rooting zone is deep and is easily penetrated by plant roots.

The Udorthents soils make up 38 percent of the complex. They are loamy and have a large amount of silt. Many of the wide gullies are U-shaped and have a nearly flat bottom in which there are stratified accumulations of silt and sand. These accumulations range to about 40 inches in depth, and they vary in amounts of silt and sand but are dominantly silt. Many of the gully floors have been stabilized with trees and a dense growth of understory plants similar to flood plain vegetation. The gully walls, which range from 2 to 30 feet in height, are almost vertical and in most places are bare. In some areas progressive erosion has cut through the mantle of silty material and exposed sandy material. Some of the gullies that are less than about 5 feet deep are V-shaped and have little or no accumulation of material on the gully floor. The soils in the gullied areas are strongly acid to moderately alkaline. The available water capacity and permeability vary. Runoff is rapid.

This complex has poor potential for row crops, grasses, and legumes because of the severe hazard of erosion. Some areas, where gullies are less than about 4 feet deep and slopes are less than 15 percent, can be smoothed and used for pasture. Establishing adapted grasses and legumes, using large amounts of fertilizers, and controlling grazing are necessary. Without careful management, the area will revert to gullies within a short time.

Memphis soils have good potential for cherrybark oak, loblolly pine, and yellow-poplar. In areas that are not severely eroded, woodland production is expected to be as good as that on Memphis soils. Pine trees and adapted hardwoods are generally suited to gullied areas, but production varies. Onsite investigation is needed to make accurate recommendations. The steep side slopes of gullies are an erosion hazard, and they interfere with the operation of logging equipment.

This complex has poor potential for urban use. Landslides on steep slopes are a potential hazard. Low strength, steep slopes, and deep gullies are the main limitations. They can be partially overcome by good design and careful installation procedures. Grading, filling, shaping, and smoothing modify the landscape for urban use. Memphis part in capability unit VIIe-1 and woodland suitability group 1o8. Udorthents not assigned to a capability unit or a woodland suitablity group.

MN—Memphis-Natchez-Riedtown association, hilly. This association consists of well drained soils on uplands and moderately well drained soils on narrow flood plains. Areas of this map unit range from 160 to more than 1,000 acres in size. Slopes range from 10 to 30 percent. The landscape is hilly, characterized by narrow ridgetops, generally less than 300 feet wide, and steep side slopes that are dissected by many short drainageways and intermittent streams that form narrow flood plains.

The Memphis soils are mainly on ridgetops and upper parts of side slopes. Natchez soils are on the steeper side slopes. Riedtown soils are on the narrow flood plains. Eroded spots, shallow gullies, and, occasionally, a deep gully are in many areas.

The well drained Memphis and similar soils make up about 62 percent of this map unit; Natchez soils, about 22 percent; and Riedtown and similar soils, about 15 percent. The rest is soils of minor extent. The pattern and extent of Memphis, Natchez, and Riedtown soils are fairly uniform throughout. Each area outlined on the map consists of each of these soils and generally one or more of the minor soils.

Typically, the surface layer of a Memphis soil is brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. Below this, to a depth of about 80 inches, the soil material is dark brown silt loam that has pale brown mottles in the lower part.

Memphis soils are very strongly acid to medium acid. The available water capacity is very high. Permeability is moderate. Runoff is very rapid, and the hazard of erosion is severe. The rooting zone is deep and is easily penetrated by plant roots.

Typically, the surface layer of a Natchez soil is dark grayish brown silt loam about 3 inches thick. The subsurface layer, to a depth of about 7 inches, is brown silt loam. The subsoil, to a depth of more than 72 inches, is yellowish brown or brown silt loam.

Natchez soils are strongly acid to neutral in the upper part of the profile and neutral to moderately alkaline in the lower part. Permeability is moderate. The available water capacity is very high. Runoff is rapid. The rooting zone is deep and is easily penetrated by plant roots.

Typically, the surface layer of a Riedtown soil is dark brown silt loam about 7 inches thick. The next layer, to a depth of 27 inches, is dark brown silt loam that has grayish brown mottles. This is underlain, to a depth of about 80 inches, by grayish brown to dark gray silt loam that has brown mottles.

Riedtown soils are strongly acid to neutral in the surface layer and medium acid to moderately alkaline in the subsoil. Permeability is moderate. Runoff is slow, and the available water capacity is very high. The rooting zone is deep and is easily penetrated by plant roots.

Most of the soils of this map unit are used as woodland. A few small areas are in pasture. Because of the steepness of slope and the severe hazard of erosion, the soils should not be used for row crops. The soils should be kept under permanent vegetation. They have poor to fair potential for grasses and legumes. When these soils are used as pasture, management concerns include proper stocking, controlling weeds and brush, and proper grazing. Steepness of slopes and hillside drainageways are limitations to equipment use in pasture management.

The soils in this map unit have good potential for cherrybark oak, loblolly pine, sweetgum, and yellow poplar. Because of steep slopes, there is an erosion hazard. The many hillside drainageways occasionally limit the operation of machinery. Soils on the narrow flood plains restrict the use of machinery during wet periods.

These soils have poor potential for urban uses. Landslides are a potential hazard on steep slopes. Low strength and steep slopes are the main limitations, but they can be partially overcome by good design and careful installation procedures. Grading, filling, shaping, and smoothing modify the landscape for urban use. Soils on the narrow flood plains are subject to overflow. Memphis part in capability unit VIe-1, woodland suitability group 1o8; Natchez part in capability unit VIe-1, woodland suitability group 1r8; and Riedtown part in capability unit IIw-1, woodland suitability group 1w5.

Oa—Oaklimeter silt loam. This is a moderately well drained soil on flood plains. Slopes are 0 to 2 percent.

Typically, the surface layer is brown silt loam about 6 inches thick. The upper part of the subsoil, to a depth of about 28 inches, is silt loam that is dark yellowish brown in the upper part and has brown and gray mottles below. The lower part of the subsoil, to a depth of about 72 inches, is silt loam that is mottled brown and gray.

Included in mapping are small areas of Ariel, Riedtown, and McRaven soils.

This soil is strongly acid to very strongly acid. The available water capacity is very high, and permeability is moderate. Runoff is slow, and the hazard of erosion is slight. Flooding of brief duration is common under normal conditions, mostly in winter and spring. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep and is easily penetrated by plant roots.

About 80 percent of this soil is cultivated or used as pasture. The rest is used as woodland. This soil has good potential for cotton, soybeans, and small grain. Good management practices, such as returning crop residue to the soil, row arrangement, and using surface field ditches to remove excess surface water are needed if this soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for green ash, loblolly pine, eastern cottonwood, sweetgum, and American sycamore. There are no significant limitations for woodland management.

This soil has poor potential for most urban uses because of flooding and wetness. Potential for urban use is fair if the soil is protected from flooding. Capability unit IIw-2; woodland suitability group 1o7.

OK—Oaklimeter-Ariel association. This association consists of moderately well drained and well drained soils in a regular and repeating pattern. It is on the western side of the county, adjacent to the Big Black River. The landscape is dissected by many drains, a few oxbow lakes, and old river runs with natural levees. Oaklimeter soils are moderately well drained and are generally in the flatter areas between the streams, old sloughs, and oxbow lakes. The Ariel soils are well drained and are on slightly higher elevations adjacent to channels, sloughs, and oxbow lakes. Areas of this association range from 160 to 500 acres in size. Slopes are 0 to 2 percent.

Oaklimeter soils make up 51 percent of the map unit and Ariel soils, 46 percent. The rest is Adler and McRaven soils and soils that are similar to Oaklimeter soils except that they have a more clayey subsoil and are in old sloughs and depressions that are covered with water much of the year.

Typically, the surface layer of an Oaklimeter soil is brown silt loam about 6 inches thick. The upper part of the subsoil, to a depth of about 28 inches, is silt loam that is dark yellowish brown in the upper part and has brown and gray mottles below. The lower part of the subsoil, to a depth of about 72 inches, is silt loam that is mottled brown and gray.

Oaklimeter soils are strongly acid to very strongly acid. The available water capacity is very high, and permeability is moderate. Runoff is slow, and the hazard of erosion is slight. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep and easily penetrated by plant roots.

Typically, the surface layer of an Ariel soil is dark brown silt loam about 4 inches thick. This is underlain, to a depth of about 36 inches, by brown silt loam that has grayish mottles in the lower part. Below this, to a depth of 40 inches, the soil material is pale brown silt loam that has gray and brown mottles. This is underlain, to a depth of about 72 inches, by dark brown silt loam that has gray mottles or brown and gray mottles.

Reaction is strongly acid or very strongly acid. The available water capacity is very high, and permeability is moderately slow. Runoff is slow, and the hazard of erosion is slight.

Most areas of this map unit are used as woodland. The potential for grasses and legumes is fair, and selected areas can be used for pasture in summer. Livestock should be moved to a higher elevation when floods are a threat.

The soils of this map unit have good potential for cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, water oak, and yellow-poplar. The use of equipment is restricted during periods of flooding and wetness. Using special equipment and logging during drier seasons can overcome this equipment problem.

The soils of this map unit have poor potential for farming and urban uses. Flooding and wetness are the main limitations. These can be overcome only by major flood control and drainage measures. Capability unit IVw-1; woodland suitability group 1w8.

Pa—Pits. This miscellaneous area consists of gravel pits, sand pits, and borrow pits that are scattered throughout the county. These pits are open excavations from which gravel, sand, and clay have been removed. Depth to these materials ranges from 0 to 15 or more feet.

Gravel pits are pits from which gravelly material has been excavated for use in roads, driveways, and parking areas. Some pits are fairly high in clay content, and the material is locally called clay gravel. The gravel is several feet thick.

Sand pits are pits from which sandy material has been excavated for use in building roads, filling in lots, improving building sites, and improving the tilth of soils in residential areas. These sand pits are mainly in the eastern part of the county in areas of Smithdale soils. There are also a few sand pits along the Pearl River.

Also included are areas where clay has been excavated for special uses, such as making bricks and other building materials. There are a few areas from which silty material was excavated for use as fill material in constructing Interstate 20.

Some abandoned pits are reverting to woodland. A few places have a good stand of pine trees.

In the open pits, the soil material supports low quality grass and trees. Most of this vegetation is useful only for erosion control. Many areas of this map unit are bare of vegetation. Pits have poor potential for cropland, pasture, woodland, and urban use.

PoB2—Providence silt loam, 2 to 5 percent slopes, eroded. This is a moderately well drained soil that has a fragipan. It is on uplands. Areas of this soil range from 5 to 100 acres in size.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil, to a depth of 24 inches, is strong brown silty clay loam or silt loam. It is underlain by a compact and brittle fragipan to a depth of

57 inches. The upper part of the fragipan is yellowish brown silt loam, and the lower part is brown loam that has mottles. The underlying material is light yellowish brown loam that has red and brown mottles. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are a few small areas of Byram, Grenada, and Loring soils and small areas of soils that have slope of more than 5 percent.

This soil is medium acid to very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. The available water capacity is medium. Runoff is slow to medium. The soil is fairly easy to keep in good tilth and can be cultivated throughout a fairly wide range of moisture content. It tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this map unit are used for row crops or pasture. This soil has good potential for cotton, soybeans, corn, and small grain (fig. 9). The hazard of erosion is moderate if cultivated crops are grown. The return of crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways help reduce the amount of erosion when the soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for loblolly pine, Shumard oak, and sweetgum. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit IIe-2; woodland suitability group 2o7.

PoC2—Providence silt loam, 5 to 8 percent slopes, eroded. This is a moderately well drained soil that has a fragipan. It is on uplands. Areas of this soil range from 5 to 100 acres in size.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil, to a depth of 24 inches, is strong brown silty clay loam or silt loam. This is underlain by a compact and brittle fragipan to a depth of 57 inches. The upper part of the fragipan is yellowish brown silt loam and the lower part is brown loam that has mottles. The underlying material is light yellowish brown loam that has red and brown mottles. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are a few small areas of Byram, Kisatchie, and Loring soils and small areas where the slope exceeds 8 percent.

This soil is medium acid to very strongly acid. Permeability is moderate in the upper part but moderately slow in the fragipan. The available water capacity is medium. Runoff is medium. The soil is fairly easy to keep in good tilth and can be cultivated throughout a fairly wide range of moisture content. It tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this map unit are used for row crops or pasture. This soil has fair potential for cotton, soybeans, corn, and small grain. The hazard of erosion is moderate to severe if cultivated crops are grown. The return of crop residue to the soil helps maintain good tilth. Minimum tillage, stripcropping, terracing, and grassed waterways help reduce the amount of erosion when the soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for loblolly pine, Shumard oak, and sweetgum. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit IIIe-1; woodland suitability group 2o7.

PoC3—Providence silt loam, 5 to 8 percent slopes, severely eroded. This is a moderately well drained soil that has a fragipan. It is on uplands. Areas of this soil range in size from 5 to 40 inches.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil, to a depth of 24 inches, is strong brown silty clay loam or silt loam. This is underlain by a compact and brittle fragipan to a depth of 57 inches. The upper part of the fragipan is yellowish brown silt loam, and the lower part is brown loam that has mottles. The underlying material is light yellowish brown loam that has red and brown mottles. In most areas the surface layer has been thinned by erosion. Rills and shallow gullies are common, and a few deep gullies have formed.

Included in mapping are small areas of Kisatchie and Loring soils. Also included are small areas of soils that have slopes of more than 8 percent and areas where erosion is less severe.

This soil is medium acid to very strongly acid. Permeability is moderate in the upper part but moderately slow in the fragipan. The available water capacity is medium. Runoff is medium to rapid. Tilth is fair because of the severe hazard of erosion. The soil can be cultivated throughout a fairly wide range of moisture content. It tends to crust and pack if left bare, and it becomes hard when dry. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this map unit are in pasture, and some areas are in row crops and trees. This soil has poor potential for row crops and small grains. The potential is limited because of erosion. Further loss by erosion is probable if cultivated crops are grown. The return of crop residue to the soil helps improve tilth. Minimum tillage, stripcropping, rotation with grasses, terracing, and grassed waterways help reduce the amount of erosion when the soil is in crops.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for loblolly pine. There are no significant limitations to woodland use and management.

This soil has fair potential for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit IVe-2; woodland suitability group 2o7.

PoD2—Providence silt loam, 8 to 15 percent slopes, eroded. This is a moderately well drained soil that has a fragipan. It is on uplands. Areas of this soil range from 5 to 75 acres in size.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil, to a depth of 24 inches, is strong brown silty clay loam or silt loam. This is underlain, to a depth of 57 inches, by a compact and brittle fragipan that is yellowish brown silt loam in the upper part and brown loam with mottles in the lower part. The underlying material is light yellowish brown loam mottled in shades of red and brown. In places the surface layer has been thinned by erosion and is mixed with subsoil material, and a few rills and shallow gullies have formed.

Included in mapping are a few small areas of Kisatchie, Loring, and Smithdale soils and small areas where the slope exceeds 15 percent.

This soil is medium acid to very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe. The soil is fairly easy to keep in good tilth and can be cultivated throughout a fairly wide range of moisture content. It tends to crust if left bare. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Most areas of this map unit are in pasture. A few areas are in crops, and some are used as woodland.

This soil has poor potential for crops because of steep slopes and the hazard of erosion. It has fair potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling weeds and brush, and proper grazing.

This soil has good potential for cherrybark oak, loblolly pine (fig. 10), shortleaf pine, sweetgum, and water oak. There are no significant limitations to woodland use and management.

This soil has fair potential for urban use. Low strength and slope are the main limitations, but they can be overcome by good design and careful installation procedures. The fragipan severely limits the use of this soil as a septic tank absorption field. Increasing the size of the absorption field should be considered. Capability unit VIe-4; woodland suitability group 2o7.

PrE—Providence-Smithdale complex, 8 to 20 percent slopes. This complex consists of small areas of Providence and Smithdale soils that are so intermingled that they could not be separated at the scale of mapping. It ranges from 20 to 160 acres in size. The topography is hilly, characterized by narrow ridgetops and steep side slopes that are dissected by numerous short drainageways. Providence soils are on the ridgetops and upper part of side slopes. Smithdale soils are on the side slopes. In places there are a few eroded spots, shallow gullies, and, occasionally, deep gullies.

The moderately well drained Providence soils make up about 41 percent of this complex, and the well drained Smithdale soils, about 35 percent. The rest is Loring and Kisatchie soils and moderately well drained soils on flood plains. The two dominant soils and one or more minor soils are in each mapped area.

Typically, the surface layer of a Providence soil is dark brown silt loam about 4 inches thick. The subsoil, to a depth of 24 inches, is strong brown silty clay loam or silt loam. This is underlain by a compact and brittle fragipan, to a depth of 57 inches, that is yellowish brown silt loam in the upper part and brown loam that has mottles in the lower part. The underlying material is light yellowish brown loam that has red and brown mottles.

These soils are medium acid to very strongly acid. Permeability is moderate in the upper part but moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Typically, the surface layer of a Smithdale soil is dark grayish brown sandy loam about 3 inches thick. This is underlain by yellowish brown to brown sandy loam to a depth of about 11 inches. The next layer, to a depth of 41 inches, is yellowish red sandy clay loam. Below this, to a depth of about 85 inches, is a layer of red to yellowish red sandy loam.

Smithdale soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is high. Runoff is rapid, and the erosion hazard is severe. The rooting zone is deep and easily penetrated by plant roots.

Most areas of this complex are used as woodland. A few acres are in pasture.

This complex is not recommended for row crops because of the steepness of slope and the severe hazard of erosion. It should be kept under permanent vegetation. The soils have poor to fair potential for grasses and legumes. If the soils are used for pasture, management concerns include proper stocking, controlling weeds and brush, and proper grazing. Steepness of slopes and hillside drainageways are limitations to equipment use in pasture management.

This complex has fair potential for urban uses. Low strength and steep slopes are the main limitations, but they can be overcome by good design and careful installation procedures. Grading, filling, shaping, and smoothing modify the landscape for urban use. The fragipan in the Providence soils severely limits the use of these soils as a septic tank absorption field. Increasing the size of the absorption field should be considered. Providence part in capability unit VIe-2, woodland suitability group 2o7; Smithdale part in capability unit VIe-2, woodland suitability group 2o2.

PS—Providence-Smithdale association, hilly. This association consists of moderately well drained and well drained soils in a regular and repeating pattern. The landscape is hilly with narrow ridgetops generally less than 300 feet wide and side slopes dissected by frequent, short drainageways. Slopes range from 10 to 40 percent. Providence soils are on the ridgetops and upper part of side slopes. Smithdale soils are on the side slopes. In some places there are eroded spots, shallow gullies, and, occasionally, deep gullies. Areas range from 160 to more than 600 acres in size.

The moderately well drained Providence soils make up about 40 percent of this map unit, and the well drained Smithdale soils make up about 30 percent. The rest is Kisatchie, Lexington, and Loring soils on uplands and somewhat poorly drained and moderately well drained soils in narrow drainageways.

Typically, the surface layer of a Providence soil is dark brown silt loam about 4 inches thick. The subsoil, to a depth of 24 inches, is strong brown silty clay loam or silt loam. This is underlain by a compact and brittle fragipan, to a depth of 57 inches, that is yellowish brown silt loam in the upper part and brown loam that has mottles in the lower part. The underlying material is light yellowish brown loam that has red and brown mottles.

These soils are medium acid to very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the erosion hazard is severe. The fragipan restricts the rooting depth and limits the amount of water available to plants.

Typically, the surface layer of a Smithdale soil is dark grayish brown sandy loam about 3 inches thick. This is underlain by yellowish brown to brown sandy loam to a depth of about 11 inches. The next layer, to a depth of 41 inches, is yellowish red sandy clay loam. Below this, to a depth of about 85 inches, is a layer of red to yellowish red sandy loam.

These soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is high. Runoff is rapid, and the hazard of erosion is severe. The rooting zone is deep and easily penetrated by plant roots.

Most areas of this map unit are used as woodland. A few acres are in pasture.

The soils in this map unit are not suitable for row crops because of the steepness of slope and the severe hazard of erosion. They should be kept under permanent vegetation. The soils have poor to fair potential for grasses and legumes. If this map unit is used for pasture, management concerns include proper stocking, controlling weeds and brush, and controlling grazing. Steepness of slopes and hillside drainageways are limitations to equipment use in pasture management.

The soils in this map unit have good potential for loblolly pine, Shumard oak, and sweetgum. Slopes are strong enough to result in an erosion hazard. Because of the many hillside drainageways operating machinery is difficult.

The soils in this map unit have poor potential for urban uses. Low strength and steep slopes are the main limitations, but they can be overcome by good design and careful installation procedures. Grading, filling, shaping, and smoothing modify the landscape for urban use. The fragipan of the Providence soils severely limits the use of these soils as a septic tank absorption field. Increasing the size of the absorption field should be considered. Providence part in capability unit VIe-2, woodland suitability group 2o7; Smithdale part in capability unit VIe-2, woodland suitability group 2o2.

Re—Riedtown silt loam. This is a moderately well drained soil on flood plains. Slopes are 0 to 2 percent.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The next layer, extending to a depth of 27 inches, is dark brown silt loam that has grayish brown mottles. The layer below this, extending to a depth of 33 inches, is mottled brown and grayish brown silt loam. This layer is underlain, to a depth of about 80 inches, by grayish brown to dark gray silt loam that has brown mottles.

The Riedtown soil is strongly acid to neutral in the surface layer and medium acid to moderately alkaline in the subsoil. The available water capacity is very high. Permeability is moderate. Runoff is slow, and the erosion hazard is slight. Flooding of brief duration is common under normal conditions in winter and spring. The surface layer is fairly easy to keep in good tilth, but it tends to crust. The rooting zone is deep and easily penetrated by plant roots.

About 80 percent of this soil is cultivated or is used as pasture. The rest is used as woodland. This soil has good potential for cotton, soybeans, and small grain.

Good management practices, such as returning crop residue to the soil, row arrangement, and the use of field ditches to remove excess surface water are needed if this soil is in row crops. This soil has good potential for pasture grasses, including improved bermudagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for growing hardwoods, including American sycamore, eastern cottonwood, green ash, sweetgum, and yellow poplar. There are no significant limitations to woodland management.

This soil has poor potential for most urban uses because it is subject to flooding and wetness; it has fair potential for urban uses if it is protected from flooding. Capability unit IIw-1; woodland suitability group 1o4.

SeB2—Siwell silt loam, 2 to 5 percent slopes, eroded. This is a moderately well drained silty soil over clayey material. It is on uplands that fringe the Jackson metropolitan area. Areas of this soil range from 10 to 30 acres in size.

Typically, the surface layer is dark brown silt loam about 4 inches thick. This is underlain by brown silty clay loam to a depth of 21 inches. The next layer, to a depth of 30 inches, is yellowish brown silty clay loam that has grayish mottles. The layer below this, extending to a depth of 39 inches, is silty clay loam that has brown and gray mottles. The next layer, to a depth of 72 inches, is clay that has brown and gray mottles. Erosion has removed much of the original surface layer, and shallow gullies have formed in some areas.

Included in mapping are small areas of Byram, Loring, and Providence soils. Also included are some severely eroded areas that have clay near the surface, and a few areas that have slopes of more than 5 percent.

This soil is medium acid to very strongly acid in the upper part and neutral to moderately alkaline in the lower part. Permeability is moderate in the upper part and very slow in the lower part. The available water capacity is high. Runoff is medium, and the erosion hazard is moderate. The soil is easy to keep in good tilth and can be cultivated throughout a fairly wide range of moisture content. It tends to crust if left bare.

Most of this soil is in small holdings adjacent to Jackson. Small areas are in crops, pasture, and woodland. A fairly large acreage is idle. This soil has good potential for cotton, corn, soybeans, small grains, and truck crops. It has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush.

This soil has good potential for lawn plants, including sod grasses, trees, shrubs, and many annuals. It also has good potential for cherrybark oak, Shumard oak, loblolly pine, sweetgum, and yellow-poplar. There are no significant limitations to woodland use or management.

This soil has poor potential for most urban uses. The very high shrink-swell potential and low strength are limitations, but they can be partly overcome by good design and careful installation procedures. The clay in the lower part of the subsoil is a severe limitation for septic tank absorption fields. Community sanitary facilities should be used. Capability unit IIe-2; woodland suitability group 3o7.

SeC2—Siwell silt loam, 5 to 8 percent slopes, eroded. This is a moderately well drained silty soil over clayey material. It is on uplands that fringe the metropolitan Jackson area. Areas of this soil range from 5 to 80 acres in size.

Typically, the surface layer is dark brown silt loam about 4 inches thick. It is underlain by brown silty clay loam to a depth of 21 inches. The next layer, to a depth of 30 inches, is yellowish brown silty clay loam that has grayish mottles. The layer below this, to a depth of 39 inches, is silty clay loam that has brown and gray mottles. The next layer, to a depth of 72 inches, is clay that has brown and gray mottles. Erosion has removed much of the original surface layer, and shallow gullies have formed in some areas. In places there are a few deep gullies.

Included in mapping are small areas of Byram, Loring, and Providence soils. Also included are some severely eroded areas that have clay near the surface, and a few areas that have slopes of more than 8 percent.

This soil is medium acid to very strongly acid in the upper part and neutral to moderately alkaline in the lower part. Permeability is moderate in the upper part and very slow in the lower part. The available water capacity is high. Runoff is medium, and the erosion hazard is moderate. This soil is easy to keep in good tilth and can be cultivated throughout a fairly wide range of moisture content. It tends to crust if left bare.

Most of this soil is in small holdings adjacent to the metropolitan Jackson area. Small areas are in crops, pasture, and woodland. A fairly large acreage is idle. This soil has poor potential for crops. The hazard of erosion is severe if cultivated crops are grown. Minimum tillage, the use of cover crops including grasses and legumes, terracing, and grassed waterways help reduce runoff and control erosion.

This soil has good potential for pasture grasses, including improved bermudagrass and bahiagrass. Management concerns include proper stocking, controlling grazing, and controlling weeds and brush. This soil has good potential for lawn plants, including sod grasses, trees, shrubs, and many annuals. It also has good potential for cherrybark oak, Shumard oak, loblolly pine, sweetgum, and yellow-poplar. There are no significant limitations to woodland use or management.

This soil has poor potential for most urban uses. The very high shrink-swell potential and low strength are limitations, but they can be partially overcome by good design and careful installation. The clay in the lower part of the subsoil is a severe limitation for septic tank absorption fields. Community sanitary facilities should be used. Capability unit IVe-2; woodland suitability group 3o7.

SuC—Siwell-Urban land complex, 2 to 8 percent slopes. This is a gently sloping and sloping, moderately well drained complex on uplands in the metropolitan Jackson area. It is made up of Siwell soil and Urban land in an intricate pattern of cuts and fills in areas of residential buildings and other structures and streets and other public facilities. Most of the original soil profile has been so extensively altered that soil series are no longer identifiable. Areas of this complex range from 10 to 200 acres in size.

This complex is 40 percent Siwell silt loam and 35 percent Urban land. The rest is made up of small areas of Byram, Grenada, Loring, and Providence soils and moderately well drained soils on narrow flood plains. Small areas that have slopes of more than 8 percent are also included. The Siwell soil and Urban land and one or more minor soils are in each mapped area.

Typically, the Siwell soil is moderately well drained. The surface layer is dark brown silt loam about 4 inches thick. This layer is underlain by brown silty clay loam to a depth of 21 inches. The next layer, to a depth of 30 inches, is yellowish brown silty clay loam that has grayish mottles. The layer below this, to a depth of 39 inches, is silty clay loam that has brown and gray mottles. The next layer, to a depth of 72 inches, is clay that has brown and gray mottles.

The Siwell soil is medium acid to very strongly acid in the upper part and neutral to moderately alkaline in the lower part. Permeability is moderate in the upper part and very slow in the lower part. The available water capacity is high. Runoff is medium, and the erosion hazard is moderate. The Siwell soil has good potential for lawn plants, including sod grasses, exotic trees, shrubs, and many annuals.

The Siwell soil has good potential for native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is not used as cropland.

The Siwell soil has poor potential for most urban uses. The very high shrink-swell potential and low strength are limitations, but they can be partially overcome by good design and careful installation procedures. The clay in the lower part of the subsoil is a severe limitation for septic tank absorption fields. Community sanitary facilities should be used.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. It is used mostly as homesites and for adjoining streets, shopping centers, and other public service areas that have parking lots. Siwell part in woodland suitability group 3o7.

SuD—Siwell-Urban land complex, 8 to 15 percent slopes. This is a sloping and strongly sloping complex on uplands in the metropolitan Jackson area. It is made up of Loring soil and Urban land in an intricate pattern of cuts and fills in areas of residential buildings and other structures and streets and other public facilities. Most of the original soil profile has been so extensively altered that soil series are no longer identifiable.

This complex is 40 percent Siwell silt loam and 35 percent Urban land. The rest is made up of small areas of Byram, Grenada, Loring, and Providence soils and moderately well drained soils on narrow flood plains. Small areas where the slopes are more than 15 percent are also included. The Siwell soil and Urban land and one or more minor soils are in each mapped area. Areas of this complex range from 10 to 80 acres in size.

Typically, the Siwell soil is moderately well drained. The surface layer is dark brown silt loam about 4 inches thick. This is underlain by brown silty clay loam to a depth of 21 inches. The next layer, to a depth of 30 inches, is yellowish brown silty clay loam that has grayish mottles. Below this, to a depth of 39 inches, the layer is silty clay loam that has brown and gray mottles. The next layer, to a depth of 72 inches, is clay that has brown and gray mottles.

The Siwell soil is medium acid to very strongly acid in the upper part and neutral to moderately alkaline in the lower part. Permeability is moderate in the upper part and very slow in the lower part. The available water capacity is high. Runoff is rapid, and the erosion hazard is severe in unprotected areas.

The Siwell soil has good potential for lawn plants, including sod grasses, exotic trees, shrubs, and many annuals. It also has good potential for native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is not used as cropland.

The Siwell soil has poor potential for most urban uses. The very high shrink-swell potential and low strength are limitations, but they can be partially overcome by good design and careful installation procedures. The clay in the lower part of the subsoil is a severe limitation for septic tank absorption fields. Community sanitary facilities should be used.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. It is used mostly as homesites and for adjoining streets, shopping centers, and other public service areas that have parking lots. Siwell part in woodland suitability group 3o7.

SW—Smithdale-Lexington-Memphis association, hilly. This association is made up of well drained soils in a regular and repeating pattern. These soils are hilly; they have narrow ridgetops and steep side slopes that are dissected by many drainageways. Slopes range from 10 to 40 percent. Smithdale soil is on the mid and lower parts of side slopes, Lexington soil is on the upper part of side slopes, and Memphis soil is on the ridgetops. In some areas there are eroded spots, shallow gullies, and, occasionally, deep gullies. Areas of this map unit range from 160 to more than 1,000 acres in size.

The well drained Smithdale soil makes up 39 percent of this association; the well drained Lexington soil, about

24 percent; and the well drained Memphis soil, about 15 percent. The rest is made up of Kisatchie, Natchez, and Providence soils on uplands and moderately well drained and somewhat poorly drained soils in narrow drainageways.

Typically, the Smithdale soil has a surface layer of dark grayish brown sandy loam about 3 inches thick. It is underlain to a depth of about 11 inches by yellowish brown to brown sandy loam. The next layer, to a depth of 41 inches, is yellowish red sandy clay loam. Below this, to a depth of about 85 inches, the soil material is red to yellowish red sandy loam.

The Smithdale soil is strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is high. Runoff is rapid, and the erosion hazard is severe. The root zone is deep and easily penetrated by plant roots.

Typically, the Lexington soil has a surface layer of brown silt loam about 6 inches thick. The subsoil, to a depth of about 35 inches, is dark brown or brown silt loam. The next layer, to a depth of 50 inches, is yellowish brown loam. The layer below this, to a depth of 80 inches, is red sandy clay loam.

The Lexington soil is medium acid or strongly acid. Permeability is moderate, and the available water capacity is high. Runoff is rapid, and the erosion hazard is severe. The rooting zone is deep and easily penetrated by plant roots.

Typically, the Memphis soil has a surface layer that is dark brown silt loam about 6 inches thick. The subsoil, to a depth of 22 inches, is dark brown silty clay loam. The layer below this, to a depth of about 80 inches, is dark brown silt loam that has pale brown mottles in the lower part.

The Memphis soil is very strongly acid to medium acid. The available water capacity is very high. Permeability is moderate. Runoff is very rapid, and the erosion hazard is severe. The rooting zone is deep and easily penetrated by plant roots.

Most of the soils in this map unit are used as woodland. A small acreage is in pasture and row crops. Because of the steepness of slope and the severe hazard of erosion, these soils are not suitable for row crops. They should be kept under permanent vegetation. They have poor to fair potential for grasses and legumes. If these soils are used for pasture, management concerns include proper stocking, controlling weeds and brush, and preventing overgrazing. Steepness of slopes and hillside drainageways are limitations to equipment use in pasture management.

The soils in this association have good potential for cherrybark oak, loblolly pine, sweetgum, and yellow-poplar. Steep slopes result in an erosion hazard. Because of the many hillside drainageways, operating machinery is difficult.

Some of the soils in this association have good to fair potential for urban uses, but most of them have poor potential. Low strength and steep slopes are the main limitations, but they can be overcome by good design and careful installation procedures. Grading, filling, shaping, and smoothing modify the landscape for urban use. Capability unit VIe-2; Lexington part in woodland suitability group 2o8, Memphis part in woodland suitability group 1o8, and Smithdale part in woodland suitability group 2o2.

Ur—Urban land. The city of Jackson covers most of this map unit. About 75 to 95 percent of the area is made up of industrial, commercial, and residential developments including buildings, streets, and parking lots. About 10 to 15 percent of the area is used for single-unit dwellings.

Installation of works and structures has so altered and obscured soil features that the soils do not resemble soils described in the various series. Most of the original soils were formed in a mantle of silt loam over calcareous clay.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture and woodland; as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities; and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates wetness or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 296,400 acres in the survey area were used for crops and pasture in 1967 according to the Soil and Water Conservation Needs Inventory for Mississippi. Of this total, 179,500 acres was used for permanent pasture; 56,000 acres for row crops, mainly cotton and soybeans; 97,000 acres for close-grown crops, mainly small grain; 4,000 acres for rotation hay and pasture; the rest was idle cropland.

The potential for increased food production is good. About 74,800 acres of potentially good cropland is currently used as woodland and about 100,000 acres is in pasture. In addition to the productive capacity represented by this land, food production can be increased considerably by extending crop production technology to all cropland in the county.

Acreage in crops and pasture has gradually decreased because more land is used for urban development. In 1967 there was an estimated 46,500 acres of urban and built-up land in the county. Urban and built-up land has been increasing at the rate of more than 500 acres a year. The use of this survey to help make land use decisions in the county is discussed in the section "General soil map for broad land use planning."

Soil erosion is the major problem on about three-fourths of the cropland and pasture in the county. Erosion is a hazard in areas where the slope is more than 2 percent.

Loss of the surface layer by erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost, and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a layer in or below the subsoil that limits the depth of the rooting zone. Such a layer includes a fragipan as in the Calloway, Grenada, Loring, and Providence soils. Second, soil erosion on farmlands results in sediment entering streams. Control of erosion minimized the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, for fish, and for wildlife habitat.

Soil drainage is the major management need on about one-fourth of the acreage used for cropland and pasture in the county.

Unless artificial drainage is provided, the poorly drained and somewhat poorly drained soils are so wet that crops are damaged in most years, for example, the Bonn, Calhoun, and Deerford soils.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the soil is not suited to the crop or the crop is not commonly grown on the soil.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 6.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

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

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forest trees, or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. These levels are defined in the following paragraphs (*7*). A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 7. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability unit is identified in the description of each soil map unit in the section "Soil maps for detailed planning." Capability units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-2 or IIIe-1.

Woodland

Robert L. Grigsby, forester, Soil Conservation Service, helped prepare this section.

Hinds County is 37.2 percent woodland. The largest group of owners is farmers, who own 64 percent of the woodland. Other groups are various private owners, who own 30 percent; public owners, 3 percent; and forest industry, 3 percent (*8*).

Soils influence the growth of tree crops by providing a reservoir of moisture and all essential elements for growth except those that derived from the atmosphere—carbon and oxygen. There is a strong relationship between the production of wood crops and various soil characteristics.

The kind of tree and its growth show a direct relationship between soil depth, texture, structure, topographic position, and inherent fertility.

Forest types

Forest types is a descriptive term used to group stands of trees that have similar characteristics and development because of certain ecological factors. In Hinds County, four forest types make up 208,800 acres of woodland (*7*). Oak-hickory, the largest type, makes up 36 percent of the woodland; loblolly-shortleaf pine, 25 percent; oak-gum-cypress, 23 percent; and oak-pine, 16 percent.

In the past 6 years, since the last forest statistics were reported, a large acreage of trees has been cleared for farming and for homesites.

Woodland management and productivity

Table 8 contains information useful to woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: *x, w, t, d, c, s, f, and r.*

In table 8 the soils are also rated for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade or grow if openings are made in the tree canopy. The invading plants compete with native plants or planted seedlings by impeding or preventing their growth. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Common trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Engineering

Peter Forsythe, State conservation engineer, Soil Conservation Service, helped prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. If pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 9 shows, for each kind of soil, the degree and kind of limitations for building site development; table 10, for sanitary facilities; and table 12, for water management. Table 11 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

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

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 9. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 9 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 9 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 10 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, and *poor*, which mean about the same as *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard if the seasonal high water table is above the level of the lagoon floor. If the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 10 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

If it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the site should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 11 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction material. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 15 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low frost action potential, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 11 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 15.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can restrict plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils or very firm clayey soils; soils that have suitable layers less than 8 inches thick; soils that have large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 12 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of the soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 12 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 13 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 10, and interpretations for dwellings without basements and for local roads and streets, given in table 9.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They have moderate slopes and have few or no stones or boulders on the surface.

Wildlife habitat

Edward G. Sullivan, biologist, Soil Conservation Service, helped prepare this section.

The way land is used is the most important factor that affects the wildlife population. The kinds and numbers of wild animals in Hinds County have varied over the years.

Before Hinds County was settled, the area was predominantly forest. Upland hardwoods and mixed pine-hardwood stands are dominant in the hills, and bottom land hardwood forests are dominant in the flood plains along the streams. Under these conditions, forest animals were abundant, for example, squirrels, deer, turkeys, bobcats, wolves, eagles, and many kinds of birds, including the now extinct passenger pigeon.

As this area was settled, logging and land clearing for farming changed the animal population. Woodland wildlife was pushed back as the woodland was cleared, but wildlife on open and semiopen land flourished. Clearing of fields, logging, burning, and other disturbances of the soils created vegetative patterns that were good for bobwhite quail, rabbits, doves, many types of ground- and brush-inhabiting birds, rodents, and reptiles. Land clearing, particularly in the steeper areas, resulted in erosion. Silt and sand filled many of the streams, affecting the kinds and numbers of fish the streams were able to support.

Farming methods of the early settlers were responsible for some of the largest bobwhite quail and cottontail rabbit populations in the country. As this trend continued, the number of forest animals further declined. Wolves, panthers, and bears were eliminated. Deer and turkey almost disappeared. Agricultural and industrial demands and methods continued to change. After World War II reforestation and wildlife management efforts began. As a result of restocking and management, deer and turkeys have been restored. More intensive farming methods have caused some decline in the number of wild animals on farm land and open land.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of habitat are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

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

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of hardwood plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, or foliage used by wildlife or that provide cover and shade for some species of wildlife. Major soil properties that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and moisture. Examples of shrubs are mountain-mahogany, bitterbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, and cordgrass and rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 15 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 15 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 15 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups can be further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The estimated classification, without group index numbers, is given in table 15. Also in table 15 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and in plasticity index is estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

V.E. Nash, agronomist, Mississippi Agricultural and Forestry Experiment Station, helped prepare this section.

Table 16 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems. In table 16, it is expressed as inches of water per inch of soil.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 17 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission. (No soils of this group are in Hinds County.)

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

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

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

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock is shown for all soils that are underlain by bedrock at a depth of 5 to 6 feet or less. For many soils, the limited depth to bedrock is a part of the definition of the soil series. The depths shown are based on measurements made in many soil borings and on other observations during the mapping of the soils. The kind of bedrock and its hardness as related to ease of excavation is also shown. Rippable bedrock can be excavated with a single-tooth ripping attachment on a 200-horsepower tractor, but hard bedrock generally requires blasting.

Physical and chemical analyses of selected soils

The results of physical and chemical analyses of several representative pedons of the survey area are given in table 18. The data presented are for samples from soil series that are important in the survey area. All samples were collected from carefully selected sites that are representative of the series.

The soil analyses reported in table 18 were made in the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station. The procedures used were essentially those given in Soil Survey Investigation Report No. 1 (SSIR).

Soil samples were collected from open pits. Preparation of the samples for analyses at the laboratory consisted of air-drying, grinding, and screening through a No. 10 sieve. All capacity measurements are reported on an oven-dry basis. The methods that were used in obtaining the data are listed in the paragraphs that follow.

The particle-size analyses of these soils were obtained by the hydrometer method of Day (*3*). Forty grams of soil material were dispersed in a 0.5 percent Calgon solution (sodium phosphate) by mixing for 5 minutes in a milk shaker. The dispersed soil material was transferred to a sedimentation cylinder, made to 1,000 ml, and equilibrated overnight in a water bath at 30 degrees Celsius. The suspension was then mixed and allowed to settle. Hydrometer readings were taken at predetermined times to determine the clay content. The sand was separated on a 325 mesh sieve, dried, and weighed. The results are expressed on the basis of oven-dry weight at 110 degrees Celsius.

The physical properties of soils, such as water infiltration and conduction, shrink-swell potential, crusting, ease of tillage, consistence, and available water capacity, are closely related to soil texture (the percentage of sand, silt, and clay).

The Siwell soil is high in expansive montmorillonite clay in the lower part of the subsoil. This clay content causes shrinking and swelling during drying and wetting cycles. Thus, Siwell soils are very unstable as foundation material for buildings and roads. Cracks develop in dry weather, and sometimes plant roots are damaged. Water infiltration is rapid until the cracks swell and then close. After cracks close, infiltration and hydraulic conductivity are very slow.

The Riedtown soils have a very high silt content, which can result in adverse physical conditions. Often these soils pack excessively. Raindrops form a surface crust that can result in poor seedling germination and emergence. A plowpan also develops easily during tillage.

The exchangeable cations, calcium, magnesium, potassium, and sodium, were extracted by neutral, 1N ammonium acetate (5A1 of SSIR 1). Calcium and magnesium in the extract were determined with a Perkins-Elmer atomic absorption instrument using strontium chloride to suppress interference of aluminum, silicon, and phosphorus. Potassium and sodium were analyzed by flame photometry using a Beckman flame spectrophotometer.

The percentage of base saturation was calculated by dividing the sum of the bases (calcium, magnesium, sodium, and potassium) by the sum of the cations and multiplying by 100. The sum of the cations include in addition to the bases the extractable acidity (hydrogen aluminum).

Soil reaction (pH) was determined potentiometrically with a Coleman pH meter using a 1:1 ratio of soil and water.

Calcium is the dominant basic exchangeable cation in these soils, particularly in the deeper horizons of Byram, Siwell, and similar soils. The magnesium saturation of these soils is in the range of 5 to 45 percent, which is adequate for balanced plant nutrition. Exchangeable potassium is low, in most places less than 0.2 milliequivalents per 100 grams of soil where no fertilizer has been applied.

The soil taxonomy adapted by the National Cooperative Soil Survey makes use of chemical soil properties as differentiating criteria in some categories of the system. The Alfisol and Ultisol orders, which are classes in the highest category in the system, are separated on the basis of percentage base saturation deep in the subsoil. Ultisols have argillic horizons that have base saturation of less than 35 percent at a designated depth below 4 feet; Alfisols have base saturation of more than 35 percent. The Byram soil, an Alfisol, has base saturation of more than 60 percent. The degree of weathering is inversely related to base saturation, because base saturation is a measure of the extent of the replacement of bases by hydrogen in the leaching process.

Engineering test data

The results of analyses of soil properties significant in engineering of several typical soils in the survey area are given in table 19.

The data presented are for soil samples that were collected from carefully selected sites. The pedons sampled are typical of the soil series in the survey area, which are described in the section "Soil series and morphology." The soil samples were analyzed by the Mississippi State Highway Department.

The methods used in obtaining the data are listed by code in the next paragraph. Most of the codes, in parentheses, refer to methods assigned by the American Association of State Highway and Transportation Officials.

The methods and codes are AASHTO classification (M-145-66); Unified classification (D-2487-66T); mechanical analysis (T88-57); liquid limit (T89-60); plasticity index (T90-56); moisture-density, method A (T99-57).

Classification of the soils

The system of soil classification used by the National Cooperative Soil Survey (*5*) has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 20, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Fluvaquents (*Fluv*, meaning flood plain, plus *aquents*, the suborder of Entisols that has an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Aeric* identifies better aeration than is typical for the Great Group. An example is Aeric Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is coarse-silty, mixed, nonacid, thermic Aeric Fluvaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition. The McRaven series is in the coarse-silty, mixed, nonacid, thermic family of Aeric Fluvaquents.

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The soil is then compared to similar soils and to nearby soils of other series. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*6*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area.

Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Adler series

The Adler series consists of moderately well drained soils that formed in silty material on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Adler silt loam, 4 miles northeast of Queens Hill, 400 feet east of Mississippi Highway 22, NE1/4SE1/4 sec. 23, T. 7 N., R. 3 W.

Ap—0 to 6 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; neutral; clear smooth boundary.

C1—6 to 48 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and common medium faint yellowish brown (10YR 5/6) mottles; massive; friable; few fine roots; many fine pores; thin horizontal strata; neutral; clear wavy boundary.

C2—48 to 57 inches; pale brown (10YR 6/3) silt loam; many medium distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6) mottles; massive; friable; few fine roots; many pores; few fine and medium black concretions; thin horizontal strata; neutral; clear wavy boundary.

C3—57 to 64 inches; mottled dark yellowish brown (10YR 4/4), light brownish gray (10YR 6/2), and yellowish brown (10YR 5/6) silt loam; massive; friable; few medium decaying roots; many fine and medium black concretions; thin horizontal strata; neutral; gradual wavy boundary.

C4—64 to 72 inches; mottled grayish brown (10YR 5/2), dark grayish brown (10YR 4/2), and dark yellowish brown (10YR 4/4) silt loam; massive; friable; few fine and medium black concretions; thin horizontal strata; neutral.

All horizons are medium acid to mildly alkaline.

The Ap horizon is grayish brown, dark grayish brown, or dark brown.

The C1 horizon is brown, dark brown, pale brown, or yellowish brown. In some pedons this horizon has no mottles; in others, grayish brown, light brownish gray, or gray mottles range to many. The C2 horizon is similar in color to the C1 horizon, but it has few to many gray, light brownish gray, grayish brown, or gray mottles within 20 inches of the surface. The C3 and C4 horizons are mottled gray, yellow, and brown, or they are gray and have brown mottles. The texture of the C horizon is silt or silt loam.

Adler soils are associated with Ariel, McRaven, and Riedtown soils. They are less acid and more poorly drained than Ariel soils and are better drained than McRaven soils. Adler soils are similar in drainage and reaction to Riedtown soils, but they do not have a B horizon.

Ariel series

The Ariel series consists of well drained soils that formed in silty material on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Ariel silt loam, in an area of Oaklimeter-Ariel association, 5 miles southwest of Edwards, 1,000 feet east of Big Black River, NW1/4NW1/4 sec. 15, T. 15 N., R. 5 E.

A1—0 to 4 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; many fine pores; strongly acid; clear smooth boundary.

B21—4 to 12 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; many fine pores; strongly acid; clear smooth boundary.

B22—12 to 30 inches; dark brown (10YR 4/3) silt loam; many medium faint yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; few fine roots; common dark coatings on faces of peds; few fine brown and black concretions; strongly acid; clear smooth boundary.

B23—30 to 36 inches; brown (10YR 5/3) silt loam; few coarse faint grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine pores; strongly acid; clear smooth boundary.

A2b—36 to 40 inches; pale brown (10YR 6/3) silt loam; many medium faint light brownish gray (10YR 6/2) and few medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine pores; few black and brown concretions; strongly acid; clear smooth boundary.

B21b—40 to 55 inches; dark brown (10YR 4/3) silt loam; many medium and coarse distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; slightly compact; few fine brown concretions; few tongues of gray silt between prisms; strongly acid; clear smooth boundary.

B22b—55 to 72 inches; mottled dark brown (10YR 4/3), light brownish gray (10YR 6/2), and yellowish brown (10YR 5/6) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; slightly compact; few tongues of gray silt between prisms; few fine brown concretions; strongly acid.

Depth to the buried solum ranges from 20 to 40 inches. All horizons are strongly acid to very strongly acid.

The A horizon is dark grayish brown, grayish brown, dark brown, dark yellowish brown, or brown.

The B21 and B22 horizons are dark brown, dark yellowish brown, brown, or yellowish brown.

The A2b horizon is pale brown, grayish brown, or light brownish gray, or it is mottled gray and brown.

The B2b horizon is brown, yellowish brown, or grayish brown and has few to many gray or brown mottles; or it is mottled brown and gray. At a depth of 10 to 40 inches, the clay content is 12 to 18 percent, and the sand content is 5 to 15 percent.

Ariel soils are associated with Adler, Oaklimeter, and Riedtown soils. They are better drained and more acid than Adler and Riedtown soils and are better drained than Oaklimeter soils.

Bonn series

The Bonn series consists of poorly drained soils that formed in silty material on low terraces. Slopes are 0 to 1 percent.

Typical pedon of Bonn silt loam, in an area of Bonn-Deerford association, 1 mile northeast of Byram on the Pearl River flood plain, 1,500 feet east of road, SE 1/4NE1/4 sec. 18, T. 4 N., R. 1 E.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; many medium faint brown (10YR 4/3) and grayish brown (10YR 5/2) mottles; weak medium granular structure; very friable; many fine and medium roots; many fine pores; very strongly acid; clear wavy boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak medium and fine granular structure; very friable; many fine roots; many fine pores; few fine concretions; strongly acid; clear wavy boundary.

A&B—6 to 11 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; about 25 percent yellowish brown B horizon bodies; many fine pores; few fine black and brown concretions; strongly acid; clear irregular boundary.

B&A—11 to 22 inches; gray (10YR 5/1) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak coarse columnar structure, aggregates have biscuit shaped tops; firm; common fine and medium roots; common fine pores; dark gray (10YR 4/1) discontinuous clay films on tops and sides of columns; gray (10YR 6/1) tongues and interfingers make up about 35 percent of the horizon; few fine and medium black concretions; fine and medium black coatings on faces of prisms; slightly acid; gradual irregular boundary.

B21tg—22 to 42 inches; light brownish gray (2.5Y 6/2) silty clay loam; many medium distinct light olive brown (2.5Y 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; few fine pores; clay films on horizontal and vertical faces of peds; gray (10YR 6/1) silt loam coatings on faces of prisms; gray (10YR 6/1) tongues 1 to 2 inches wide and about 5 inches apart are throughout the horizon; few fine black concretions; few fine to coarse calcite concretions; neutral; gradual irregular boundary.

B22tg—42 to 66 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine pores; gray clay films in pores and patchy clay films on faces of peds; gray (10YR 6/1) tongues 1 to 2 inches thick and about 5 inches apart throughout the horizon; common fine black concretions; mildly alkaline; gradual irregular boundary.

B23tg—66 to 80 inches; mottled light brownish gray (2.5Y 6/2) and dark yellowish brown (10YR 4/4) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine pores; gray clay films in pores and patchy clay films on faces of peds; gray (10YR 6/1) tongues 1 to 2 inches thick and about 5 inches apart extend throughout the horizon; common fine and medium black concretions; mildly alkaline.

The solum is 60 to more than 80 inches thick. The A1 and A2 horizons are very strongly acid to neutral, and the Bt horizon is slightly acid to moderately alkaline. Exchangeable sodium saturation of more than 15 percent is within a depth of 16 inches.

The A1 horizon is dark grayish brown, dark gray, or brown silt loam. The A2 horizon is grayish brown, light brownish gray, gray, light gray, or dark gray silt loam. Few very dark gray or dark gray clay coatings are on the tops and sides of prism columns. Biscuit shaped caps on the columns are weakly expressed or are absent in some pedons.

The upper part of the Bt horizon is gray, olive gray, grayish brown, or light brownish gray; the lower part has colors similar to the upper part, or it is mottled gray and brown. Tongues of silt loam or silty A2 horizon material extend into the lower part of the Bt horizon. The texture of the Bt horizon is silt loam or silty clay loam. Carbonate concretions that are as much as 3 centimeters in diameter make up 1 to 10 percent of some pedons.

Bonn soils are associated with Cascilla and Deerford soils. They are more poorly drained and less acid than Cascilla soils and are more poorly drained than Deerford soils.

Byram series

The Byram series consists of moderately well drained, gently sloping soils that formed in a silty mantle over alkaline clay on uplands. Slopes range from 2 to 8 percent.

Typical pedon of Byram silt loam, 2 to 5 percent slopes, in a pasture, 1 mile east of Clinton, 1/4 mile north of U.S. Highway 80, 500 feet east of gravel road, NW1/4NW1/4 sec. 34, T. 6 N., R. 1 W.

Ap—0 to 4 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many fine roots; medium acid; clear smooth boundary.

B21t—4 to 14 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common fine pores; thin patchy clay films on faces of peds; few black concretions; strongly acid; clear smooth boundary.

B22t—14 to 23 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; few fine black concretions; strongly acid; clear wavy boundary.

Bx1—23 to 31 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct grayish brown (10YR 5/2) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; few fine roots between prisms; light brownish gray silt coatings on faces of prisms; few black coatings and thin patchy clay films on faces of peds; few fine voids; few medium black concretions; strongly acid; clear smooth boundary.

Bx2—31 to 51 inches; mottled yellowish brown (10YR 5/4), brown (10YR 5/3), and light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure parting to weak fine and medium subangular blocky; firm; compact and brittle; few fine roots between prisms; many fine voids; thin patchy clay films on faces of peds; light brownish gray silt between prisms; strongly acid; gradual irregular boundary.

B23t—51 to 67 inches; yellowish brown (10YR 5/6) silty clay loam; many fine distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; firm, slightly sticky; common fine pores; thin patchy clay films on faces of peds; many fine black concretions; medium acid; clear irregular boundary.

IIC—67 to 90 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/3), and grayish brown (10YR 5/2) clay; strong medium blocky grooves intersecting natural soil fragments; very firm, very plastic; few fine pores; few fine light gray soft fragments of calcium carbonate; few fine black concretions; many brown concretions; neutral.

Depth to the fragipan ranges from 18 to 30 inches. Depth to the clayey IIC horizon ranges from 48 to 72 inches.

The A horizon is dark grayish brown, brown, strong brown, or yellowish brown. It is medium acid to very strongly acid.

The B1 horizon, if present, the B21t horizon, and the B22t horizon are brown, strong brown, yellowish brown, or dark yellowish brown. The texture of the B2t horizon is silt loam or silty clay loam. The upper 20 inches of the B horizon is 20 to 32 percent clay. Reaction is medium acid to very strongly acid.

The Bx horizon is brown, strong brown, yellowish brown, or dark yellowish brown; or it is mottled brown and gray. The texture is silt loam or silty clay loam. Reaction is medium acid to very strongly acid.

In some pedons there is a B23t horizon that is yellowish brown, dark yellowish brown, or light olive brown and has few to many gray mottles; or it is mottled brown and gray. The texture is silt loam or silty clay loam. Reaction is medium acid to neutral.

The IIC horizon is yellowish brown, light olive brown, or olive and has few to many gray, brown, yellow, and red mottles; or it is mottled brown, yellow, red, or gray. The texture is silty clay or clay. Reaction is neutral to moderately alkaline. In some pedons this horizon has no nodules; in others, soft calcium carbonate nodules range to many.

Byram soils are associated with Loring and Siwell soils. They are similar to Loring soils, but they have a clayey C horizon. Unlike Siwell soils, Byram soils have a fragipan.

Calhoun series

The Calhoun series consists of poorly drained soils that formed in silty material in small depressions. Slopes range from 0 to 1 percent.

Typical pedon of Calhoun silt loam, 2 miles southwest of Edwards, Mississippi, 1 1/4 miles south of old Highway 80, and 3,400 feet west of road, NE1/4NE1/4 sec. 35, T. 16 N., R. 5 E.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; very friable; many fine and medium roots; some mixing of leaves and twigs; strongly acid; clear smooth boundary.

A21g—4 to 8 inches; gray (10YR 5/1) silt loam; weak medium subangular blocky structure parting to weak fine granular; very frible; many fine and medium roots; mixing of dark grayish brown (10YR 4/2) material from A1 horizon; few fine brown concretions; strongly acid; gradual wavy boundary.

A22g—8 to 12 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; few fine roots; many fine pores; reddish brown (5YR

4/4) stains around old root channels; strongly acid; gradual wavy boundary.

A23g—12 to 17 inches; gray (10YR 5/1) silt loam; weak fine subangular blocky structure; friable; few fine roots; many fine pores; few black streaks and coatings; common yellowish red (5YR 5/6) stains around root channels; strongly acid; clear irregular boundary.

B21tg—17 to 37 inches; gray (10YR 5/1) silt loam; few medium faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; firm; few fine roots; few fine pores; thin light gray (10YR 7/2) silt coatings on faces of peds; tongues of grayish silt loam 1 to 1 1/2 inches wide extend into the B22tg horizon; thin patchy clay films in pores and root channels; common fine black concretions; strongly acid; gradual irregular boundary.

B22tg—37 to 54 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; firm; few fine roots; common medium and fine pores; brown (10YR 4/3) silt loam coatings on peds; thick continuous clay films on vertical faces of peds and in pores; common fine black concretions; few tongues of grayish silt loam; strongly acid; gradual irregular boundary.

B3tg—54 to 70 inches; gray (10YR 5/1) silt loam; few yellowish brown (10YR 5/4) mottles; weak coarse subangular blocky structure; friable; few fine roots; common fine pores; few dark gray (10YR 4/1) coatings on faces of peds; few patchy clay films on faces of peds and in pores; few tongues of grayish silt loam; strongly acid; gradual irregular boundary.

Cg—70 to 80 inches; grayish brown (10YR 5/2) silt loam; few medium distinct yellowish brown (10YR 5/4) mottles; massive; friable; dark gray (10YR 4/1) stains; pockets of light brownish gray (10YR 6/2) silt; few black concretions; strongly acid.

The solum is 40 to 70 inches thick. The A horizon is medium acid to very strongly acid. The B horizon is typically strongly acid or very strongly acid but ranges to neutral in the lower part in some pedons. The C horizon is mildly alkaline to very strongly acid.

The A1 horizon is brown, dark brown, or dark grayish brown. The A2 horizon is gray, light brownish gray, or grayish brown.

The B horizon is gray, light brownish gray, or grayish brown and has brown and gray mottles. The texture is silt loam or silty clay loam.

The C horizon is grayish brown, brown, or yellowish brown, or it is mottled brown and gray. The texture is silt loam or silty clay loam.

Calhoun soils are associated with Calloway and Grenada soils. They are more poorly drained than those soils, and they do not have a fragipan.

Calloway series

The Calloway series consists of somewhat poorly drained soils that formed in silty materiai on broad flats. Slopes are 0 to 2 percent.

Typical pedon of Calloway silt loam (fig. 11) in a pasture, 1 percent slopes, 300 feet east of Highway 49, 1 1/2 miles south of the Madison County line, NW1/4SE 1/4 sec. 10, T. 7 N., R. 1 W.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; many fine roots; many fine black and brown concretions; strongly acid; clear smooth boundary.

B21—6 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine pores; many fine black and brown concretions; strongly acid; clear smooth boundary.

B22—12 to 20 inches; mottled yellowish brown (10YR 5/4) and grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; many fine and medium pores; many fine black and brown concretions; strongly acid; gradual wavy boundary.

A'2&Bx1—20 to 23 inches; light brownish gray (10YR 6/2) silt loam; many medium faint brown (10YR 5/3) and yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; many fine and medium pores; yellowish brown (10YR 5/6) B horizon bodies are firm; slightly brittle and compact; many fine pores; many fine and medium black and brown concretions; strongly acid; gradual irregular boundary.

B'x2—23 to 40 inches; mottled yellowish brown (10YR 5/4), light brownish gray (10YR 6/2), and dark yellowish brown (10YR 4/4) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle; many fine black concretions; many fine voids; patchy clay films on faces of peds; tongues of gray silty material between prisms; strongly acid; irregular boundary.

B'x3—40 to 65 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct light brownish gray (10YR 6/2) and dark brown (10YR 4/3) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; many fine voids; many fine black concretions; thin patchy clay films on faces of peds; tongues of gray silty material between prisms; medium acid.

The solum is more than 60 inches thick. The upper part of the solum is medium acid to very strongly acid, and the lower part is strongly acid to mildly alkaline.

The A horizon ranges from dark grayish brown and brown to very dark grayish brown.

The B horizon or the B&A horizon, if present, is dark yellowish brown, olive brown, yellowish brown, or light olive brown and has few to many gray mottles within 16 inches of the surface. Some soils do not have matrix color and are mottled gray and brown.

The A'2&B'x1 horizon is grayish brown, light brownish gray, or light gray.

The B'x horizon is yellowish brown or is light olive brown and has few to many gray mottles; or it is mottled yellow, brown, or gray. Clay content from a depth of 10 inches to the fragipan ranges from 18 to 25 percent. Depth to the fragipan ranges from 15 to 33 inches.

Calloway soils are associated with Calhoun and Grenada soils. They have a fragipan and are better drained than Calhoun soils and are more poorly drained than Grenada soils.

Cascilla series

The Cascilla series consists of well drained soils that formed in silty material on natural levees of the flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Cascilla silt loam, in a large wooded area in the Pearl River flood plain, 1 mile north of State Highway 25, and 750 feet west of Pearl River channel, SW1/4NW1/4 sec. 20, T. 6 N., R. 2 E.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; many fine and coarse roots; very strongly acid; clear smooth boundary.

B21—3 to 7 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and coarse roots; many medium pores; very strongly acid; clear wavy boundary.

B22—7 to 23 inches; brown (10YR 4/3) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; many fine pores; very strongly acid; gradual wavy boundary.

B23—23 to 50 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; many fine pores; very strongly acid; clear smooth boundary.

IIC1—50 to 55 inches; dark yellowish brown (10YR 4/4) loam; weak fine and medium subangular blocky structure; friable; common fine pores; very strongly acid; abrupt smooth boundary.

IIC2—55 to 72 inches; yellowish brown (10YR 5/6) fine sandy loam; few fine faint brown mottles; massive; very friable; very strongly acid.

The solum is 45 to 80 inches thick. All horizons are strongly acid or very strongly acid.

The A horizon is brown, dark brown, dark grayish brown, or very dark grayish brown.

The B horizon is dark brown, brown, dark yellowish brown, or yellowish brown. The lower part of the B horizon, below a depth of 24 inches, can have few to many gray and brown mottles. Clay content ranges from 18 to 24 percent at a depth of 10 to 40 inches.

The C horizon is yellowish brown, light brownish gray, brown, or grayish brown. The texture is fine sandy loam, silt loam, or loam.

Cascilla soils are associated with Bonn, Chenneby, and Deerford soils. They are more acid and are better drained than the Bonn and Deerford soils. Unlike Bonn and Deerford soils, Cascilla soils do not have a high sodium content. Cascilla soils are better drained than Chenneby soils.

Chenneby series

The Chenneby series consists of somewhat poorly drained soils that formed in silty alluvial material. Slopes are 0 to 2 percent.

Typical pedon of Chenneby silt loam, in an area of Cascilla-Chenneby association, 1 mile east of railroad crossing at Rosemary, 4,500 feet west of Pearl River bridge, and 1,100 feet south of Rosemary Road, SE1/4NW1/4 sec. 19, T. 3 N., R. 1 E.

A11—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

A12—5 to 13 inches; dark yellowish brown (10YR 4/4) silt loam; few fine faint yellowish brown mottles; weak medium granular structure; friable; few fine roots; strongly acid; clear smooth boundary.

B1—13 to 21 inches; brown (10YR 4/3) silt loam; many medium distinct grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.

B21—21 to 30 inches; yellowish brown (10YR 5/4) silt loam; many medium and coarse distinct grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual smooth boundary.

B22—30 to 51 inches; grayish brown (10YR 5/2) silty clay loam; many medium distinct (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

C—51 to 60 inches; grayish brown (2.5Y 5/2) loam; many coarse and medium yellowish brown (10YR 5/6) mottles; massive; firm; few fine roots; very strongly acid.

The solum is 40 to 70 inches thick. Reaction is strongly acid to very strongly acid.

The A horizon is dark grayish brown, brown, and dark yellowish brown and has few to common gray or brown mottles in the lower part. The texture is silt loam or silty clay loam.

The upper part of the B horizon is brown, dark brown, or dark yellowish brown and has common to many light brownish gray or gray mottles and few to many brown mottles. The lower part of the B horizon is dark grayish brown and grayish brown, or it is mottled gray and brown. The texture is silt loam or silty clay loam. Clay content at a depth of 10 to 40 inches is 20 to 35 percent.

The C horizon is gray, grayish brown, and light grayish brown and has gray and brown mottles. The texture is silt loam, silty clay loam, loam, or sandy loam.

Chenneby soils are associated with Cascilla soils. They are not so well drained as Cascilla soils.

Deerford series

The Deerford series consists of somewhat poorly drained soils that formed in silty material on low terraces. Slopes are 0 to 2 percent.

Typical pedon of Deerford silt loam, in an area of Bonn-Deerford association, 1 mile northeast of Byram in the Pearl River flood plain, 1,300 feet east of road, SE 1/4NE1/4 sec. 18, T. 4 N., R. 1 E.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A21g—4 to 12 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct pale brown (10YR 6/3) and light gray (10YR 7/2) mottles; weak fine subangular blocky structure; many fine and medium roots; few root channels filled with light gray (10YR 7/2) silt loam; very strongly acid; clear wavy boundary.

A22g—12 to 17 inches; light brownish gray (10YR 6/2) silt loam; many medium faint grayish brown (10YR 5/2) and many medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; common fine roots; many fine pores; strongly acid; clear wavy boundary.

B21t—17 to 27 inches; mottled dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/4), and grayish brown (2.5Y 5/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; few fine roots; common fine voids; common root channels filled with light gray (10YR 7/2) silt; gray silt loam tongues 1 to 1 1/2 inches wide extending throughout the horizon; patchy very dark grayish brown (10YR 3/2) clay films; many fine black concretions; medium acid; clear irregular boundary.

B22tg—27 to 40 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct light yellowish brown (10YR 6/4) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; patchy clay films on faces of peds; many gray silt loam tongues 1 to 1 1/2 inches wide extend throughout the horizon; common thin black coatings on peds; common fine black concretions; medium acid; clear irregular boundary.

B23tg—40 to 51 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; patchy clay films on faces of peds; many gray silt loam tongues 1 to 1 1/2 inches wide extend throughout the horizon; few black stains; neutral; clear irregular boundary.

B24tg—51 to 72 inches; light brownish gray (10YR 6/2) silt loam; many coarse distinct yellowish brown (10YR 5/4) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; few black concretions; patchy clay films on faces of peds; gray silt loam coatings on faces of peds; many fine black concretions; mildly alkaline; clear irregular boundary.

C—72 to 84 inches; mottled light brownish gray (2.5Y 6/2) and yellowish brown (10YR 5/4) silt loam; massive; friable; few fine black concretions; few gray silt coatings in cracks or crevices; mildly alkaline.

The solum is 40 to 75 inches thick. Depth to the upper boundary, with more than 15 percent exchangeable sodium, ranges from 20 to 32 inches.

The A1 horizon is brown, pale brown, dark brown, grayish brown, or dark grayish brown. It is very strongly acid to strongly acid. The A2 horizon is grayish brown, light brownish gray, pale brown, or brown. The texture of the A horizon is silt or silt loam. The A2 horizon is very strongly acid to strongly acid. Tongues of A2 horizon material, 1 to 3 inches wide, extend to a depth of 30 to 50 inches.

The upper part of the B2t horizon is yellowish brown, dark yellowish brown, brown, pale brown, or light olive brown; or it is mottled gray and brown. The lower part is light brownish gray, grayish brown, dark grayish brown, or gray and has brown mottles. The texture is silt loam or silty clay loam. The B horizon is strongly acid to medium acid in the upper part and neutral to moderately alkaline in the lower part.

The C horizon has color and texture similar to the B2t horizon. It is neutral to moderately alkaline.

Deerford soils are associated with Bonn and Cascilla soils. They are better drained than Bonn soils. They are less acid and are more poorly drained than Cascilla soils.

Grenada series

The Grenada series consists of moderately well drained soils that formed in silty material on uplands. Slopes range from 0 to 5 percent.

Typical pedon of Grenada silt loam, 2 to 5 percent slopes, in a wooded area, 12 miles southwest of Jackson, 2 1/2 miles west of Highway 51, 220 feet south of road, NE1/4NE1/4 sec. 30, T. 4 N., R. 1 W.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; very friable; many fine medium and coarse roots; few fine black and brown concretions; very strongly acid; clear smooth boundary.

A2—2 to 4 inches; brown (10YR 5/3) silt loam; weak medium granular structure; very friable; many fine and few coarse roots; many fine pores; few fine black and brown concretions; very strongly acid; clear smooth boundary.

B21—4 to 18 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; few fine black concretions; very strongly acid; gradual wavy boundary.

B22—18 to 23 inches; yellowish brown (10YR 5/4) silt loam; many medium faint pale brown (10YR 6/3) and few medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; many fine pores; common pockets of uncoated silt; many fine black concretions; very strongly acid; clear smooth boundary.

A'2&B'x1—23 to 27 inches; light brownish gray (10YR 6/2) silt loam; common pale brown (10YR 6/3) and yellowish brown (10YR 5/6) mottles; weak fine and medium subangular blocky structure; friable; few fine roots; few fine pores; yellowish brown (10YR 5/6) B horizon bodies are firm and slightly brittle; few fine pores; few fine and medium black concretions; very strongly acid; clear irregular boundary.

B'x2—27 to 40 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/3), and light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle; few fine roots between faces of peds and in tongues; few fine voids; thin patchy clay films on faces of peds and in voids; tongues of gray silt between prisms; few fine and medium black and brown concretions; very strongly acid; clear irregular boundary.

B'x3—40 to 70 inches; mottled yellowish brown (10YR 5/4), brown (10YR 5/3), and light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle; thin patchy clay films on faces of peds; light gray silt coatings on faces of prisms; few fine black concretions; strongly acid; gradual wavy boundary.

The solum is more than 60 inches thick. In unlimed areas, reaction is very strongly acid to medium acid.

The A horizon is dark grayish brown, dark brown, yellowish brown, or grayish brown.

The B horizon is yellowish brown, dark yellowish brown, or light yellowish brown. Clay content of the B2 horizon ranges from 18 to 30 percent.

The A'2&B'x1 horizon is gray, light gray, light brownish gray, or grayish brown and has brownish mottles; or it is mottled brown and gray.

The Bx horizon is brown and has gray and brown mottles, or it is mottled yellow, brown, and gray. Depth to the fragipan ranges from 20 to 34 inches. The texture is silt loam or silty clay loam.

Grenada soils are associated with Calhoun and Calloway soils. Grenada soils are better drained than Calhoun soils, and they have a fragipan. Unlike Grenada soils, Calloway soils have grayish mottles in the upper 16 inches.

Kisatchie series

The Kisatchie series consists of well drained soils that formed in clayey material over sandstone. Slopes range from 5 to 30 percent.

Typical pedon of Kisatchie fine sandy loam, in an area of Loring-Kisatchie association, hilly, 3 miles south of Raymond, 600 feet east of road, SE1/4SW1/4 sec. 4, T. 4 N., R. 2 W.

A11—0 to 3 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A12—3 to 5 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; few coarse roots; many fine pores; very strongly acid; clear smooth boundary.

B21t—5 to 12 inches; yellowish brown (10YR 5/4) silty clay; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—12 to 29 inches; brown (10YR 5/3) silty clay; common fine faint yellowish brown mottles; moderate medium angular and subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B3t—29 to 32 inches; grayish brown (2.5Y 5/2) clay loam; many medium faint brown (10YR 5/3) and light gray (10YR 7/2) mottles; moderate medium subangular and angular blocky structure; firm; few fine roots; 20 percent grayish brown (2.5Y 5/2) sandstone fragments 1/2 to 1 centimeter thick and 2 to 5 centimeters long and is oriented horizontally with thin strata of loamy sand about 1/4 centimeter thick; very strongly acid; abrupt smooth boundary.

IIC—32 to 50 inches; gray (10YR 6/1) sandstone plates about 1 to 7 centimeters thick with pockets and strata of loamy sand in vertical cracks and along horizontal planes; 20 percent loamy sand.

The solum is 20 to 40 inches thick over sandstone or siltstone. The A horizon is strongly acid to very strongly acid, and the Bt horizon is very strongly acid to extremely acid.

The A11 horizon is black, very dark gray, or very dark grayish brown. The A12 horizon is dark gray, grayish brown, or dark grayish brown.

The Bt horizon is pale olive, olive gray, grayish brown, or yellowish brown. The texture is silty clay, silty clay loam, or clay loam. The upper 20 inches of the Bt horizon averages 35 to 55 percent clay. There are none to common brown mottles. The B3t horizon is 15 to 30 percent sandstone fragments 1/2 to 1 centimeter thick and 2 to 10 centimeters long and is oriented horizontally.

The IIC horizon is sandstone or siltstone.

Kisatchie soils are associated with Loring and Providence soils. Unlike Loring and Providence soils, Kisatchie soils do not have a fragipan. Kisatchie soils have a solum that is 20 to 40 inches thick over siltstone or sandstone.

Lexington series

The Lexington series consists of well drained soils that formed in silty and loamy materials on uplands. Slopes range from 10 to 40 percent.

Typical pedon of Lexington silt loam, on 20 percent slopes, in an area of the Smithdale-Lexington-Memphis association, hilly, 6 miles southwest of Utica, 700 feet west of public road south of logging road, NW1/4SW1/4 sec. 34, T. 13 N., R. 5 E.

A1—0 to 3 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; many fine pores; strongly acid; clear smooth boundary.

A2—3 to 6 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; many fine and medium roots; many fine pores; strongly acid; clear smooth boundary.

B21t—6 to 23 inches; dark brown (7.5YR 4/4) silt loam; moderate subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—23 to 35 inches; brown (7.5YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; gray silt coatings between peds; strongly acid; gradual smooth boundary.

IIB23t—35 to 50 inches; yellowish brown (10YR 5/6) loam; few medium faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; clay and oxide bridging and coating sand grains; common pockets of uncoated sand grains; medium acid; clear smooth boundary.

IIB24t—50 to 80 inches; red (2.5YR 4/8) sandy clay loam; moderate medium and fine subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; clay and oxide bridging and coating sand grains; common fine and medium pockets of uncoated sand grains; strongly acid.

The solum is more than 60 inches thick. Depth to the horizons that are more than 15 percent sand is 34 to 48 inches. All horizons are medium acid to strongly acid.

The Ap and A2 horizons are yellowish brown, brown, or dark brown. In some pedons there is an A1 horizon that is brown, dark grayish brown, or dark brown.

The upper part of the Bt horizon is strong brown, dark yellowish brown, or dark brown silty clay loam or silt loam.

The IIBt horizon is yellowish brown, strong brown, yellowish red, or red. The texture is sandy loam, loam, or sandy clay loam.

Lexington soils are associated with Memphis and Smithdale soils. Unlike Memphis soils, Lexington soils are more than 5 percent sand within a depth of 48 inches of the surface. Unlike Smithdale soils, they are less than 15 percent fine and coarser sand in the upper part of the Bt horizon.

Loring series

The Loring series consists of moderately well drained soils that formed in silty material on uplands. Slopes range from 2 to 17 percent.

Typical pedon of Loring silt loam, 2 to 5 percent slopes, eroded, in a pasture 12 miles southwest of Jackson, 2 1/2 miles west of Highway 51, 600 feet south of road, NE1/4NE1/4 sec. 30, T. 4 N., R. 1 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B1—5 to 10 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; many fine roots; many fine pores; thin patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B21t—10 to 23 inches; brown (7.5YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B22t—23 to 27 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; few black concretions; very strongly acid; clear smooth boundary.

Bx1—27 to 36 inches; brown (7.5YR 5/4) silt loam; many medium faint yellowish brown (10YR 5/4) and many medium distinct light brownish gray (10YR 6/

2) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; common roots between prisms; common fine voids; light gray (10YR 7/2) silt loam coatings on prisms; thin patchy clay films on faces of peds; few black concretions; very strongly acid; clear wavy boundary.

Bx2—36 to 56 inches; brown (7.5YR 4/4) silt loam; common medium distinct gray (10YR 6/1) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; few fine roots between prisms; thin patchy clay films on faces of peds; light gray (10YR 7/2) silt loam coatings on prisms; few fine black concretions; strongly acid; gradual wavy boundary.

C—56 to 80 inches; brown (7.5YR 5/4) silt loam; common medium distinct gray (10YR 5/1) and faint yellowish brown (10YR 5/4) mottles; massive; friable; slightly acid.

The solum is 45 to 75 inches thick. Depth to the fragipan is 22 to 35 inches. In unlimed areas, the A, B, and Bx horizons are medium acid to very strongly acid, and the C horizon is slightly acid to very strongly acid.

The A horizon is brown, strong brown, or yellowish brown.

The Bt horizon is dark yellowish brown, brown, strong brown, or yellowish brown. The texture is silty clay loam or silt loam. Clay content in the upper 20 inches of the B horizon is 20 to 32 percent. The Bx horizon is dark brown, brown, strong brown, or yellowish brown and has gray and brown mottles; or it is mottled brown and gray.

The C horizon is brown, strong brown, yellowish brown, or dark yellowish brown.

Loring soils are associated with Byram, Kisatchie, Memphis, Providence, and Siwell soils. They are similar to Byram soils but do not have a clayey C horizon. Unlike the Kisatchie soils, Loring soils have a fragipan and do not have a clayey B horizon. Loring soils have a fragipan and are not so well drained as the Memphis soils. They are similar to Providence soils but are less than 15 percent sand throughout the solum. Unlike the Siwell soils, Loring soils have a fragipan and they do not have clay in the lower part of the B horizon.

McRaven series

The McRaven series consists of somewhat poorly drained soils that formed in silty alluvial material. Slopes are 0 to 2 percent.

Typical pedon of McRaven silt loam, in a cultivated field, 5 miles southwest of Raymond, 1,900 feet south of paved road on Bakers Creek flood plain, SE1/4NE1/4 sec. 34, T. 15 N., R. 3 W.

Ap—0 to 5 inches; dark brown (10YR 4/3) silt loam; many medium faint dark yellowish brown (10YR 4/4) and few medium distinct grayish brown (10YR 5/2) mottles; weak fine granular and weak fine and medium subangular blocky structure; friable; common fine roots; many fine pores; strongly acid; abrupt smooth boundary.

B21—5 to 14 inches; mottled dark brown (10YR 4/3), brown (10YR 5/3), and grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; few fine roots and pores; common fine black and brown concretions; strongly acid; clear smooth boundary.

B22—14 to 21 inches; grayish brown (10YR 5/2) silt loam; many medium faint brown (10YR 5/3) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; few fine pores; common fine black and brown concretions; medium acid; clear wavy boundary.

Ab&B23b—21 to 30 inches; grayish brown (10YR 5/2) silt loam; many medium and coarse distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; yellowish brown part is slightly compact; few fine roots; many fine pores; gray tongues about 1 to 2 inches thick and about 7 inches apart extend to the B24b horizon; common fine black and brown concretions; medium acid; clear irregular boundary.

B24b—30 to 54 inches; mottled grayish brown (10YR 5/2), brown (10YR 5/3), and dark brown (10YR 4/3) silt loam; weak coarse prismatic structure parting to weak fine subangular blocky; friable; dark brown part is slightly brittle; common fine pores; silt and oxide coatings on faces of some peds; gray tongues about 1 to 2 inches thick extend to the B25b horizon; many black and brown concretions; medium acid; clear wavy boundary.

B25b—54 to 80 inches; brown (10YR 5/3) silt loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; yellowish brown part is slightly brittle and compact; few fine pores; few gray tongues and pockets of silt loam; common black and brown concretions; neutral.

The solum is 60 to more than 80 inches thick. Depth to the buried soil ranges from 20 to 50 inches. The A and B2 horizons are strongly acid to neutral. The Ab and B23b horizons are medium acid to neutral, and the B24b and B25b horizons are slightly acid to mildly alkaline.

The A horizon is dark grayish brown, dark brown, dark yellowish brown, or brown.

The B21 horizon is dark grayish brown, dark brown, dark yellowish brown, or brown, or it is mottled brown and gray. In some pedons this horizon has no mottles; in others, brown or gray mottles range to common. The B22 horizon is dark grayish brown, grayish brown, light brownish gray, gray, or light gray and has brown and gray mottles.

The Ab&B23b horizon is similar in color to the B22 horizon. The texture of the B21, B22, and Ab&B23b horizons is silt or silt loam. The Ab&B23b horizon is 6 to 18 percent clay in the 10- to 40-inch control section.

The B24b and B25b horizons are mottled brown and gray; are brown, dark yellowish brown, or dark brown; or are similar to the B22 horizon. The texture is silt loam or silty clay loam.

McRaven soils are associated with Adler, Oaklimeter, and Riedtown soils. They are not so well drained as the Adler soils and do not have bedding planes or thin strata within 20 inches of the surface. McRaven soils are less acid and are more poorly drained than Oaklimeter soils. They are not so well drained as Riedtown soils.

Memphis series

The Memphis series consists of well drained soils that formed in silty material. Slopes range from 0 to 35 percent.

Typical pedon of Memphis silt loam, 2 to 5 percent slopes, eroded, 3.4 miles northwest of Orange, 800 feet north of east-west and north-south curve in road, 75 feet west of field road, SW1/4NW1/4 sec. 28, T. 8 N., R. 3 W.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B21t—6 to 22 inches; dark brown (7.5YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; many fine roots; few fine pores; thin patchy clay films on faces of peds; few pale brown silt coatings on faces of peds; very strongly acid; clear smooth boundary.

B22t—22 to 48 inches; dark brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine and medium pores; thin patchy clay films on faces of peds; few fine black concretions; pale brown coatings on faces of peds; very strongly acid; clear smooth boundary.

B3—48 to 65 inches; dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; few pale brown silt coatings between and on faces of peds; strongly acid; gradual smooth boundary.

C3—65 to 80 inches; dark brown (7.5YR 4/4) silt loam; few medium distinct pale brown (10YR 6/3) mottles; massive; friable; pale brown silt coatings in cracks; medium acid.

The solum is 32 to 78 inches thick. In unlimed areas, it is very strongly acid to medium acid.

The Ap horizon is dark brown, brown, or dark yellowish brown.

The Bt horizon is dark brown, brown, strong brown, dark yellowish brown, or yellowish brown. The texture is silt loam or silty clay loam. Clay content ranges from 25 to 30 percent in the upper 20 inches.

The C horizon is dark brown, strong brown, brown, dark yellowish brown, or yellowish brown.

Memphis soils are associated with Lexington, Loring, Natchez, and Smithdale soils. Unlike Lexington soils, Memphis soils are less than 15 percent sand within 48 inches of the surface. Memphis soils are better drained than Loring soils, and they do not have a fragipan. Unlike Natchez soils, Memphis soils have a more clayey B horizon; and unlike Smithdale soils, they have less than 15 percent sand throughout.

Natchez series

The Natchez series consists of well drained soils that formed in silty material. Slopes range from 8 to 35 percent.

Typical pedon of Natchez silt loam, from Memphis-Natchez-Riedtown association, hilly, on 27 percent slopes, in a large wooded area 4.3 miles north of Edwards, 400 feet west of road, SW1/4SW1/4 sec. 34, T. 7 N., R. 3 W.

A11—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine roots; many fine pores; slightly acid; clear smooth boundary.

A12—3 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; many fine pores; medium acid; clear smooth boundary.

B1—7 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak medium and coarse subangular blocky structure; friable; common fine roots; many fine pores; strongly acid; gradual smooth boundary.

B2—12 to 29 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable; few fine roots; many fine and medium pores; slightly acid; gradual smooth boundary.

C1—29 to 49 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few fine roots; many fine pores; few fine snail shells; neutral; clear smooth boundary.

C2—49 to 72 inches; brown (10YR 5/3) silt loam; massive; friable; few medium and fine roots; few fine pores; few fine snail shell fragments; moderately alkaline.

The solum is 18 to 48 inches thick. The A and B horizons are strongly acid to neutral, and the C horizon is neutral to moderately alkaline.

The A1 horizon is dark grayish brown, dark brown, or very dark grayish brown. The A12 horizon is brown, yellowish brown, or grayish brown.

The B horizon is yellowish brown, dark yellowish brown, or brown. The texture is silt loam or silt. Clay content ranges from 8 to 18 percent in the upper 20 inches of the B horizon.

The color and texture of the C horizon are similar to the color and texture of the B horizon. Content of shell fragments in the C horizon ranges from few to many.

Natchez soils are associated with Memphis and Riedtown soils. Unlike Memphis soils, Natchez soils do not have clay accumulations in the B horizon. Natchez soils are better drained and are steeper than the Riedtown soils.

Oaklimeter series

The Oaklimeter series consists of moderately well drained soils that formed in silty alluvial material. Slopes are 0 to 2 percent.

Typical pedon of Oaklimeter silt loam, in a large soybean field 1 1/2 miles north of Raymond, 0.4 mile north of Natchez trace and 50 feet east of road, SE1/4NW1/4 sec. 8 T. 5 N., R. 8 W.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; weak medium granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

B21—6 to 11 inches; dark yellowish brown (10YR 4/4) silt loam; many medium distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine pores; few black concretions; strongly acid; clear smooth boundary.

B22—11 to 18 inches; mottled dark brown (10YR 4/3) and grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium pores; few medium black concretions; strongly acid; clear smooth boundary.

B23—18 to 28 inches; brown (10YR 5/3) silt loam; many medium faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine and medium pores; strongly acid; clear smooth boundary.

A2b&B24b—28 to 35 inches; mottled light brownish gray (10YR 6/2) and dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; many fine and medium pores; common fine black concretions; very strongly acid; clear wavy boundary.

B25b—35 to 40 inches; mottled light brownish gray (10YR 6/2) and brown (10YR 5/3) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine pores; common fine concretions; strongly acid; gradual wavy boundary.

B26b—40 to 72 inches; mottled grayish brown (10YR 5/2) and dark yellowish brown (10YR 4/4) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine pores; silt coatings on faces of prisms; few pockets of gray silt; strongly acid.

The solum is 60 to more than 80 inches thick. Depth to the buried solum ranges from 20 to 40 inches. In unlimed areas, reaction is strongly acid to very strongly acid.

The Ap horizon is dark grayish brown, brown, dark brown, or dark yellowish brown. The texture is silt or silt loam.

The B21 horizon is brown, dark brown, or yellowish brown, or it has brown mottles. The B22 and B23 horizons have brown and gray mottles or are brown or yellowish brown and have few to many grayish mottles.

The A2b&B24b horizon is light brownish gray, gray, or light gray and has brown mottles, or it is mottled gray and brown.

The Bb horizon is grayish brown or light brownish gray, or it is mottled gray and brown. The texture is silt loam or silty clay loam.

Oaklimeter soils are associated with Ariel, McRaven, and Riedtown soils. They are more poorly drained than Ariel soils. Oaklimeter soils are better drained and are more acid than McRaven soils. They are more acid than Riedtown soils.

Providence series

The Providence series consists of moderately well drained soils that formed in silty material on uplands. Slopes range from 2 to 15 percent.

Typical pedon of Providence silt loam, 2 to 5 percent slopes, eroded, in a pasture 2 1/2 miles south of Terry, 3,000 feet west of intersection, NE1/4NW1/4 sec. 34, T. 3 N., R. 1 W.

Ap—0 to 4 inches; dark brown (10YR 4/3) silt loam; weak medium granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

B21t—4 to 16 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; common fine roots; common fine and medium pores; thin patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B22t—16 to 24 inches; strong brown (7.5YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; few fine black concretions; strongly acid; abrupt smooth boundary.

Bx1—24 to 37 inches; yellowish brown (10YR 5/6) silt loam; few medium distinct pale brown (10YR 6/3) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; few roots between prisms; many fine voids; thin patchy clay films on faces of peds; gray (10YR 6/1) silt loam coatings on prisms; few fine black concretions; very strongly acid; clear irregular boundary.

IIBx2—37 to 57 inches; brown (7.5YR 5/4) loam; many medium faint yellowish brown (10YR 5/4) mottles; weak coarse prismatic structure parting to moderate medium subangular and angular blocky; very firm; compact and brittle; few fine roots between prisms; many fine voids; light brownish gray silt between prisms; thin patchy clay films on faces of peds and in pores; very strongly acid; gradual wavy boundary.

IIB23t—57 to 64 inches; light yellowish brown (10YR 6/4) loam; few medium prominent red (2.5YR 4/8) and distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; few patchy clay films and bridging of sand grains with clay; common fine quartz pebbles; few black concretions; very strongly acid.

The solum is more than 60 inches thick. In unlimed areas, reaction is medium acid to very strongly acid throughout. Depth of the fragipan ranges from 18 to 34 inches.

The Ap horizon is grayish brown, dark brown, or yellowish brown.

The B horizon is strong brown, brown, yellowish brown, or yellowish red. The texture of the Bt horizon is silt loam or silty clay loam.

The Bx and IIBx horizons are yellowish red to yellowish brown and have gray, brown, or red mottles; or they are mottled yellow, brown, gray, or red. The lower part of the Bx horizon is loam, sandy loam, sandy clay loam, or clay loam.

The IIB23t horizon is light yellowish brown, yellowish brown, brownish yellow, gray, light brownish gray, or grayish brown; or it is mottled gray, yellow, and brown. The texture of the IIBt horizon is sandy loam, sandy clay loam, loam, or clay loam.

Providence soils are associated with Kisatchie, Loring, and Smithdale soils. Unlike Kisatchie soils, Providence soils have a fragipan and a solum that is more than 40 inches thick. Providence soils are similar to Loring soils but are more than 15 percent sand in the lower part of the profile. They have a fragipan and are less sandy than Smithdale soils.

Riedtown series

The Riedtown series consists of moderately well drained soils that formed in silty alluvial material. Slopes are 0 to 2 percent.

Typical pedon of Riedtown silt loam, in a cultivated field 2 miles southeast of Edwards, on State Highway 467, 1 1/4 miles west of Bakers Creek from Highway 467, NW1/4SE1/4 sec. 3, T. 15 N., R. 4 E.

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.

B21—7 to 27 inches; dark brown (10YR 4/3) silt loam; common medium faint grayish brown (10YR 5/2) mottles; weak coarse prismatic structure parting to weak fine subangular blocky; friable; common fine roots; many fine pores; few bedding planes; medium acid; clear smooth boundary.

B22&A2b—27 to 33 inches; mottled dark brown (10YR 4/3), brown (10YR 5/3), and grayish brown (10YR 5/2) silt loam; weak coarse prismatic structure parting to weak fine subangular blocky; friable; slightly brittle; few fine roots; common fine pores; about 30 percent A2 material; silt coatings on faces of peds; slightly acid; clear smooth boundary.

B23b—33 to 42 inches; grayish brown (10YR 5/2) silt loam; many medium distinct dark brown (10YR 4/3) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine pores; thin patchy brownish coatings on faces of peds; few pockets and seams of gray silt between prisms; few fine and medium black concretions; slightly acid; clear smooth boundary.

B24gb—42 to 52 inches; dark gray (10YR 4/1) silt loam; common medium distinct yellowish brown (10YR 5/6) and dark brown (10YR 4/3) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few fine pores; few pockets and seams of gray silt loam; few thin patchy brownish coatings on faces of peds; many fine and medium black concretions; slightly acid; clear smooth boundary.

B25gb—52 to 80 inches; dark gray (10YR 4/1) silt loam; few fine distinct dark brown (10YR 4/3) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine pores; few pockets and seams of gray silt loam; many fine and medium black concretions; slightly acid.

The solum is 60 to more than 80 inches thick. Depth to the buried soil is 20 to 40 inches. The A horizon is strongly acid to neutral, and the B horizon is medium acid to moderately alkaline.

The A horizon is dark grayish brown, dark brown, dark yellowish brown, or brown or is mottled brown and gray.

The B21 horizon is dark brown, dark yellowish brown, brown, or yellowish brown. In some pedons this horizon has no mottles; in others, grayish mottles range to common. The B22&A2b horizon is dark brown, brown, or dark yellowish brown and has gray and brown mottles.

The B23b, B24gb, and B25gb horizons are dark gray, gray, or grayish brown and have few to many brown mottles. The texture is silt loam or silty clay loam.

Weighted average clay content in the 10- to 40-inch control section ranges from 10 to 18 percent. In some pedons there are no concretions; in others, black and brown concretions range to many.

Riedtown soils are associated with Adler, Ariel, McRaven, Natchez, and Oaklimeter soils. Unlike Adler soils, Riedtown soils have a B horizon. Riedtown soils are less acid and are more poorly drained than Ariel soils. They are better drained than McRaven soils. Riedtown soils are less acid than Oaklimeter soils. They are not so well drained as Natchez soils, and they are on smoother landscapes.

Siwell series

The Siwell series consists of moderately well drained soils that formed in silty material over clay. Slopes are 2 to 15 percent.

Typical pedon of Siwell silt loam, 2 to 5 percent slopes, eroded, 1,100 feet south of intersection of U.S. Highway 80 and Robinson Road, NW1/4SW1/4 sec. 1, T. 5 N., R. 1 W.

Ap—0 to 4 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B21t—4 to 8 inches; dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; many fine roots; common fine pores; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—8 to 13 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; common fine roots; common fine pores; patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B23t—13 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; few fine distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; firm; few fine roots; few fine pores; few thin patchy clay films on faces of peds; common fine black and brown concretions; very strongly acid; clear smooth boundary.

B24t—21 to 30 inches; yellowish brown (10YR 5/6) silty clay loam; many fine and medium distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; firm; few fine roots; few fine pores; thin patchy clay films on faces of peds; few black and brown concretions; very strongly acid; clear wavy boundary.

IIB25t—30 to 39 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/3), and grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; plastic; few fine roots; few fine pores; pressure faces or clay films on faces of peds; few fine black concretions; very strongly acid; gradual wavy boundary.

IIC—39 to 72 inches; mottled light olive brown (2.5Y 5/4), yellowish brown (10YR 5/4), and grayish brown (10YR 5/2) clay; intersecting slickensides parting to moderate medium angular blocky fragments; very firm; very plastic; shiny faces on peds; common light gray soft chalk fragments; few black and brown concretions; neutral.

The solum is 24 to 55 inches thick.

The A horizon is dark brown, brown, dark yellowish brown, or yellowish brown. It is medium acid to very strongly acid.

The B2t horizon is brown, dark brown, or strong brown, or it is yellowish brown and has few to many brown and gray mottles. The texture of the B2t horizon is silt loam or silty clay loam. Clay content ranges from 20 to 35 percent. The B2t horizon is medium acid to very strongly acid.

The IIBt horizon is yellowish brown, light olive brown, or olive and has grayish mottles, or it is mottled brown, red, and gray. The texture is silty clay loam to silty clay. The IIBt horizon is very strongly acid to moderately alkaline.

The IIC horizon is yellowish brown, light olive brown, olive brown, or olive and has grayish mottles, or it is mottled brown, red, and gray. Soft nodules range from none to many. The IIC horizon is neutral to moderately alkaline.

Siwell soils are associated with Byram and Loring soils. Unlike Byram and Loring soils, Siwell soils do not have a fragipan, and they have clay within a depth of 48 inches.

Smithdale series

The Smithdale series consists of well drained soils that formed in loamy material. Slopes range from 10 to 40 percent.

Typical pedon of Smithdale sandy loam, in an area of Smithdale-Lexington-Memphis association, hilly, 6 miles southwest of Utica, 700 feet west of public road, 75 feet south of logging road, NW1/4SW1/4 sec. 34, T. 13 N., R. 5 E.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine and medium granular structure; very friable; many fine roots; many fine and medium pores; very strongly acid; clear smooth boundary.

A21—3 to 7 inches; yellowish brown (10YR 5/4) sandy loam; weak medium granular structure; very friable; few fine roots; many fine and medium pores; strongly acid; clear smooth boundary.

A22—7 to 11 inches; brown (7.5YR 4/4) sandy loam; weak medium granular structure; very friable; few fine roots; many fine and medium pores; very strongly acid; clear smooth boundary.

B21t—11 to 41 inches; yellowish red (5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common fine and medium pores; thin patchy clay films on faces of peds; sand grains bridged and coated with oxides and clay; very strongly acid; clear smooth boundary.

B22t—41 to 62 inches; red (2.5YR 4/8) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; sand grains coated and bridged with clay; few pockets of uncoated sand grains; very strongly acid; clear smooth boundary.

B22t—62 to 85 inches; yellowish red (5YR 4/8) sandy loam; friable; few fine roots; sand grains bridged and coated with clay; common pockets of uncoated sand grains; few fine pebbles of quartz; very strongly acid.

The solum is 60 to more than 100 inches thick. It is strongly acid to very strongly acid.

The A1 horizon is dark grayish brown or dark brown. The A2 horizon is brown, yellowish brown, or pale brown.

The B1 horizon, when present, is strong brown or yellowish red. The texture is sandy loam or loam. The upper part of the Bt horizon is yellowish red or red. The texture is clay loam, sandy clay loam, or loam. The lower part is yellowish red or red loam, sandy clay loam, or sandy loam. Pebbles of quartz range from none to few. Pockets of uncoated sand grains range from few to many.

Smithdale soils are associated with Lexington, Memphis, and Providence soils. Unlike Lexington and Memphis soils, Smithdale soils are more than 15 percent sand throughout the solum. Smithdale soils are more sandy in the upper part of the solum than Providence soils; and unlike Providence soils, they do not have a fragipan.

References

(1) American Association of State Highway and Transportation Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vol., illus.

(2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM Stand. D 2487-69, *In* 1974 Annual Book of ASTM Standards, Part 19, 464 pp., illus.

(3) Day, Paul R. and others. 1956. Report of the committee on physical analysis, 1954-1955. Soil Sci. Soc. Am. Proc. 20: 167-169.

(4) Rowland, Dunbar. 1925. History of Mississippi, the heart of the south. S. J. Clark Publishing Co., Chicago, Ill., vol. 2.

(5) United States Department of Agriculture. 1975. Soil taxonomy: a basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U. S. Dep. Agric. Handb. 436, 754 pp., illus.

(6) United States Department of Agriculture. 1951. Soil survey manual. U. S. Dep. Agric. Handb. 18, 503 pp., illus. Supplements replacing pp. 173-188 issued May 1962

(7) United States Department of Agriculture. 1961. Land capability classification. U. S. Dep. Agric. Handb. 210, 21 pp.

(8) United States Department of Agriculture. 1969. Forest statistics for Mississippi counties. Forest Serv., South Forest Exp. Stn. Resour. Bull. SO-15, 24 pp., illus.

(9) Unites States Department of Commerce. 1971. 1970 census of population. Bur. Census, vol. 26.

Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single mapping unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Medium	6 to 9
High	More than 9

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to frequent flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid. A soil having measurable amounts of calcium carbonate or magnesium carbonate.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is 40 or 80 inches (1 or 2 meters).

Depth to rock. Bedrock at a depth that adversely affects the specified use.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the xorizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Landslide. The rapid downhill movement of a mass of soil and loose rock generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Percolation. The downward movement of water through the soil.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Productivity (soil). The capability of a soil for producing a specified plant or sequence of plants under a specified system of management. Productivity is measured in terms of output, or harvest, in relation to input.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots. See Root zone.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineralogical and chemical composition. hrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea. A stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or " very fine."

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

ILLUSTRATIONS

Figure 1.—A golf green on Byram silt loam, 2 to 5 percent slopes, eroded.

Figure 2.—Soybeans on Grenada silt loam, 2 to 5 percent slopes. Parallel terraces on this field control surface runoff and help reduce erosion.

Figure 3.—Loring silt loam, 2 to 5 percent slopes, eroded, is suited to corn.

Figure 4.—Oats planted for winter grazing on Loring silt loam, 5 to 8 percent slopes, eroded. The pond in the foreground furnishes water for livestock and for fish production.

Figure 5.—Oats and crimson clover on Loring silt loam, 8 to 17 percent slopes, eroded, provide good grazing for dairy cattle.

Figure 6.—A roadcut showing the sandstone that underlies Kisatchie soils.

Figure 7.—McRaven silt loam near the Big Black River generally is flooded in winter and spring.

Figure 8.—An area of Memphis-Udorthents complex, gullied. The Memphis soil between the gullies can be smoothed and planted to pasture grass if the gullies are not too deep.

Figure 9.—This pecan orchard on Providence silt loam, 2 to 5 percent slopes, eroded, is also used for wheat.

Figure 10.—A thinned stand of loblolly pine on Providence silt loam, 8 to 15 percent slopes, eroded.

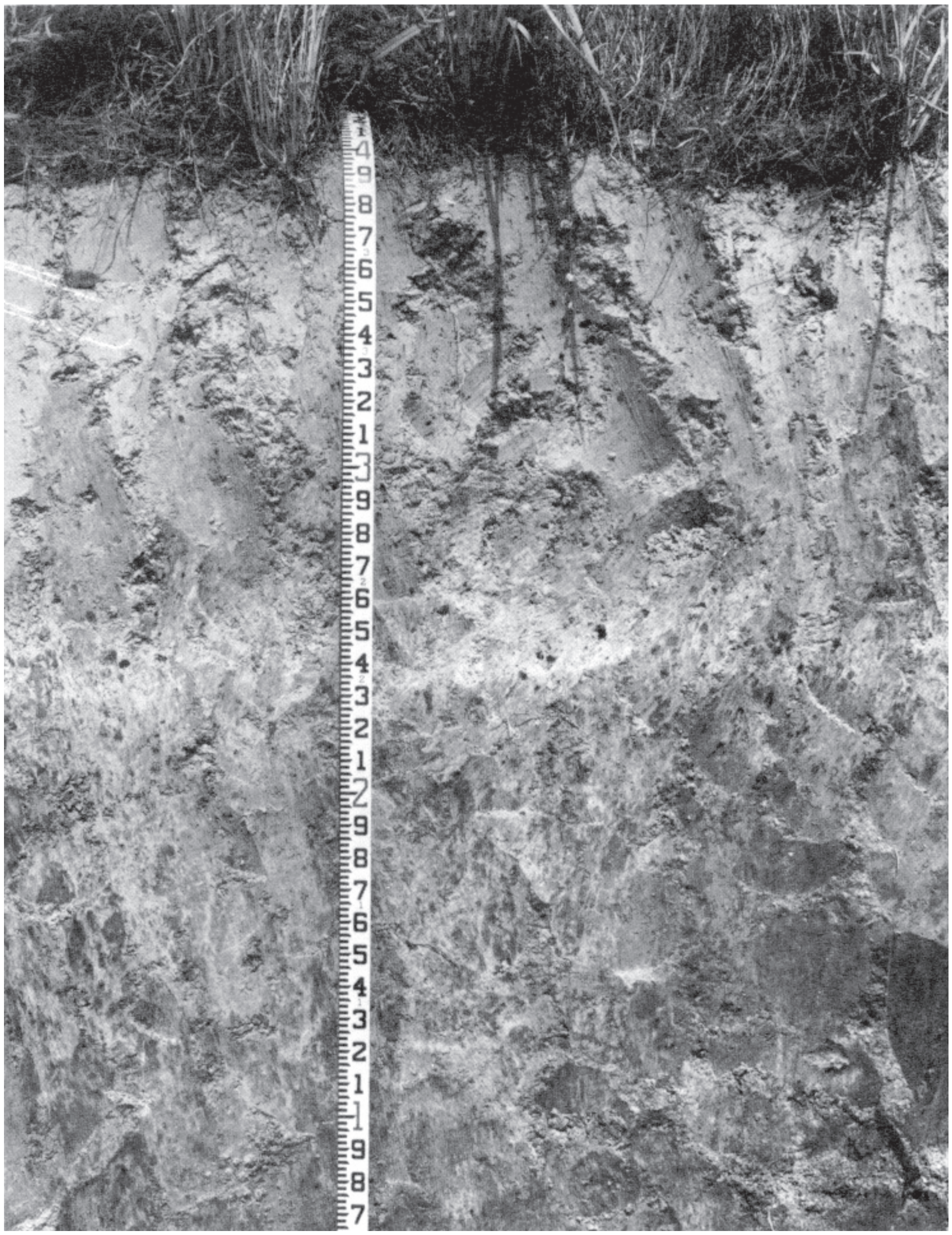


Figure 11.—Profile of Calloway silt loam. The A'2 horizon is at a depth of about 20 inches, and below that horizon there is a fragipan.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature[1]						Precipitation[1]				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[2]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	57.7	36.4	47.1	80	9	102	4.57	2.20	6.49	7	.1
February---	59.2	35.1	47.2	81	14	62	4.64	2.93	6.18	7	.3
March------	68.3	43.5	56.0	86	21	250	5.23	3.18	7.07	7	.4
April------	77.6	53.4	65.6	90	33	468	5.64	2.74	8.00	6	.0
May--------	83.8	60.2	72.0	94	42	682	5.16	2.44	7.36	7	.0
June-------	90.1	67.5	78.8	98	53	864	2.63	1.15	3.83	5	.0
July-------	91.7	70.6	81.2	100	58	967	3.94	2.12	5.42	7	.0
August-----	90.8	69.8	80.3	98	58	939	4.23	2.74	5.57	7	.0
September--	86.3	64.9	75.6	96	44	768	4.08	1.76	5.96	5	.0
October----	78.8	52.2	65.5	90	34	481	3.05	.45	5.04	3	.0
November---	68.1	43.1	55.6	85	22	201	3.70	2.13	4.98	6	.0
December---	59.8	37.9	48.9	91	16	129	6.40	4.66	8.01	9	.3
Year-----	76.0	52.9	64.5	101	9	5,913	53.27	45.58	62.26	76	1.1

[1]Recorded in the period 1963-75 at Jackson, Miss.

[2]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature[1] 24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 23	March 23	April 8
2 years in 10 later than--	March 14	March 18	April 3
5 years in 10 later than--	February 26	March 8	March 26
First freezing temperature in fall:			
1 year in 10 earlier than--	November 12	November 2	October 23
2 years in 10 earlier than--	November 20	November 8	October 29
5 years in 10 earlier than--	December 4	November 19	November 9

[1]Recorded in the period 1963-75 at Jackson, Miss.

TABLE 3.--GROWING SEASON LENGTH

Probability	Daily minimum temperature during growing season[1] Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	242	228	210
8 years in 10	255	237	216
5 years in 10	381	256	228
2 years in 10	306	274	239
1 year in 10	319	283	245

[1]Recorded in the period 1963-75 at Jackson, Miss.

TABLE 4.--POTENTIALS AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR SPECIFIED USES

Map unit	Extent of area	Cultivated farm crops	Specialty crops	Woodland	Urban uses	Intensive recreation areas	Extensive recreation areas
	Pct						
1. Cascilla-Bonn-Deerford---	2	Poor: floods.	Poor: floods.	Good-----------	Poor: floods.	Poor: floods.	Fair: floods.
2. Oaklimeter-Ariel---------	1	Poor: floods.	Poor: floods.	Good-----------	Poor: floods.	Poor: floods.	Fair: floods.
3. Riedtown-Oaklimeter McRaven.	10	Good-----------	Good-----------	Good-----------	Poor: floods.	Poor: floods.	Fair: floods.
4. Loring-Siwell-Urban land-	10	Not rated*-----	Not rated*-----	Good-----------	Fair: shrink-swell.	Poor: slope.	Fair: percolates slowly.
5. Loring-Kisatchie---------	1	Poor: slope.	Poor: slope.	Good-----------	Poor: slope.	Poor: slope.	Fair: slope.
6. Loring-Memphis-----------	6	Fair: slope.	Fair: slope.	Good-----------	Fair: slope.	Fair: slope.	Good.
7. Loring-Providence-Grenada	24	Fair: slope.	Fair: slope.	Good-----------	Fair: slope.	Fair: slope.	Good.
8. Memphis-Loring-----------	22	Poor: slope.	Poor: slope.	Good-----------	Fair: slope.	Fair: slope.	Good.
9. Memphis-Natchez----------	15	Poor: slope.	Poor: slope.	Good-----------	Poor: slope.	Poor: slope.	Fair: slope.
10. Providence-Smithdale----	3	Poor: slope.	Poor: slope.	Good-----------	Poor: slope.	Poor: slope.	Fair: slope.
11. Smithdale-Lexington-Memphis.	4	Poor: slope.	Poor: slope.	Good-----------	Poor: slope.	Poor: slope.	Fair: slope.
12. Memphis-Riedtown--------	2	Good-----------	Good-----------	Good-----------	Good: parts subject to flooding.	Good: parts subject to flooding.	Good.

*Because the present use of this map unit is mainly urban development, a rating for cultivated farm crops and for specialty crops is not appropriate.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ad	Adler silt loam	3,828	0.7
BD	Bonn-Deerford association	2,565	0.5
BrB2	Byram silt loam, 2 to 5 percent slopes, eroded	1,551	0.3
BrC2	Byram silt loam, 5 to 8 percent slopes, eroded	4,428	0.8
BuC	Byram-Urban land complex, 2 to 8 percent slopes	7,495	1.3
Ca	Calhoun silt loam	2,284	0.4
Co	Calloway silt loam	6,905	1.2
CuA	Calloway-Urban land complex	6,124	1.1
CY	Cascilla-Chenneby association	8,181	1.5
GrA	Grenada silt loam, 0 to 2 percent slopes	4,601	0.8
GrB	Grenada silt loam, 2 to 5 percent slopes	10,417	1.9
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	35,223	6.3
LoC2	Loring silt loam, 5 to 8 percent slopes, eroded	40,004	7.1
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	3,282	0.6
LoD2	Loring silt loam, 8 to 17 percent slopes, eroded	26,249	4.7
LoD3	Loring silt loam, 8 to 17 percent slopes, severely eroded	5,517	1.0
LuC	Loring-Urban land complex, 2 to 8 percent slopes	17,827	3.2
LuD	Loring-Urban land complex, 8 to 15 percent slopes	746	0.1
LW	Loring-Kisatchie association, hilly	5,331	0.9
Mc	McRaven silt loam	11,112	2.0
MeA	Memphis silt loam, 0 to 2 percent slopes	2,546	0.5
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded	20,001	3.6
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded	27,457	4.9
MeD2	Memphis silt loam, 8 to 17 percent slopes, eroded	46,662	8.3
MeD3	Memphis silt loam, 8 to 17 percent slopes, severely eroded	14,691	2.6
Mg	Memphis-Udorthents complex, gullied	1,726	0.3
MN	Memphis-Natchez-Riedtown association, hilly	36,794	6.5
Oa	Oaklimeter silt loam	41,174	7.3
OK	Oaklimeter-Ariel association	6,171	1.1
Pa	Pits	657	0.1
PoB2	Providence silt loam, 2 to 5 percent slopes, eroded	2,622	0.5
PoC2	Providence silt loam, 5 to 8 percent slopes, eroded	17,160	3.1
PoC3	Providence silt loam, 5 to 8 percent slopes, severely eroded	401	0.1
PoD2	Providence silt loam, 8 to 15 percent slopes, eroded	19,817	3.5
PrE	Providence-Smithdale complex, 8 to 20 percent slopes	5,425	1.0
PS	Providence-Smithdale association, hilly	11,342	2.0
Re	Riedtown silt loam	63,282	11.2
SeB2	Siwell silt loam, 2 to 5 percent slopes, eroded	225	*
SeC2	Siwell silt loam, 5 to 8 percent slopes, eroded	4,721	0.8
SuC	Siwell-Urban land complex, 2 to 8 percent slopes	5,537	1.0
SuD	Siwell-Urban land complex, 8 to 15 percent slopes	3,802	0.7
SW	Smithdale-Lexington-Memphis association, hilly	17,247	3.1
Ur	Urban land	2,519	0.4
	Water	5,631	1.0
	Total	561,280	100.0

* Less than 0.1 percent.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop is generally not grown on the soil]

Soil name and map symbol	Cotton lint	Corn	Soybeans	Common bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM[1]	AUM[1]	AUM[1]	AUM[1]
Ad: Adler	800	100	35	---	12.0	---	9.5
BD**:							
Bonn	---	---	---	---	---	---	---
Deerford	---	---	---	---	---	---	---
BrB2: Byram	700	---	30	7.0	9.5	8.5	---
BrC2: Byram	650	---	25	6.5	9.0	8.0	---
BuC: Byram	---	---	---	---	---	---	---
Ca: Calhoun	400	---	25	5.0	---	6.5	---
Co: Calloway	650	85	35	6.0	9.0	---	8.0
CuA: Calloway	---	---	---	---	---	---	---
CY**:							
Cascilla	---	---	---	7.0	8.0	---	---
Chenneby	---	---	---	6.0	9.0	---	---
GrA: Grenada	625	90	35	---	9.5	---	8.5
GrB: Grenada	600	80	35	---	9.5	---	8.0
LoB2: Loring	700	90	30	7.5	9.5	8.5	8.5
LoC2: Loring	650	70	25	7.0	9.0	8.0	7.5
LoC3: Loring	600	65	20	6.0	8.5	8.0	---
LoD2: Loring	---	---	---	6.0	8.5	8.0	---
LoD3: Loring	---	---	---	5.5	6.5	6.0	---
LuC: Loring	---	---	---	---	---	---	---
LuD: Loring	---	---	---	---	---	---	---
LW**:							
Loring	---	---	---	5.5	---	6.0	---
Kisatchie	---	---	---	3.5	---	4.0	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Cotton lint	Corn	Soybeans	Common bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM[1]	AUM[1]	AUM[1]	AUM[1]
Mc----- McRaven	700	100	35	---	10.0	---	10.0
MeA----- Memphis	800	95	40	8.0	10.5	---	8.5
MeB2----- Memphis	750	90	35	7.5	10.0	---	8.5
MeC2----- Memphis	700	80	30	7.0	9.0	---	7.5
MeD2----- Memphis	600	65	25	6.0	8.0	---	7.0
MeD3----- Memphis	---	---	---	5.5	6.5	---	---
Mg**----- Memphis	---	---	---	---	---	---	---
MN**:							
Memphis-----	---	---	---	5.0	6.5	---	---
Natchez-----	---	---	---	5.0	6.5	---	---
Riedtown-----	---	---	---	6.0	8.0	---	---
Oa----- Oaklimeter	750	95	40	9.0	11.0	---	10.0
OK**:							
Oaklimeter-----	---	---	---	6.0	7.0	---	6.0
Ariel-----	---	---	---	6.0	7.0	---	6.0
Pa**. Pits							
PoB2----- Providence	700	80	35	---	9.5	8.5	8.5
PoC2----- Providence	650	70	30	---	9.0	8.0	7.5
PoC3----- Providence	500	55	25	---	8.5	8.0	---
PoD2----- Providence	---	---	---	---	8.5	8.0	---
PrE----- Providence	---	---	---	---	8.7	---	---
PS**:							
Providence-----	---	---	---	5.0	---	8.0	---
Smithdale-----	---	---	---	4.5	---	5.0	---
Re----- Riedtown	750	100	40	9.0	12.0	---	9.0
SeB2----- Siwell	---	---	---	---	10.0	9.0	8.0
SeC2----- Siwell	---	---	---	---	9.0	8.5	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Cotton lint	Corn	Soybeans	Common bermuda-grass	Improved bermuda-grass	Bahiagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
SuC-------------------------- Siwell	---	---	---	---	---	---	---
SuD-------------------------- Siwell	---	---	---	---	---	---	---
SW**:							
Smithdale--------------------	---	---	---	4.5	---	5.0	---
Lexington--------------------	---	---	---	5.0	---	---	---
Memphis----------------------	---	---	---	5.0	---	---	---
Ur**. Urban land							

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	2,546	---	---	---	---
II	208,910	70,039	138,871	---	---
III	101,051	98,767	2,284	---	---
IV	27,890	12,435	14,352	1,103	---
V	1,462	---	1,462	---	---
VI	182,223	182,223	---	---	---
VII	3,059	3,059	---	---	---
VIII	---	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Trees to plant
Ad-------------------- Adler	1o4	Slight	Slight	Slight	Moderate	Green ash------------ Eastern cottonwood-- Water oak------------ Willow oak----------- Sweetgum------------- American sycamore---	95 120 100 100 100 115	Green ash, eastern cottonwood, sweetgum, American sycamore.
BD*: Bonn-----------------	5t0	Slight	Severe	Severe	---------	Eastern redcedar----	---	Eastern redcedar.
Deerford------------	2w8	Slight	Moderate	Slight	---------	Sweetgum------------- Loblolly pine-------- Slash pine----------- Water oak------------	86 92 92 82	Loblolly pine, slash pine.
BrB2, BrC2---------- Byram	2o7	Slight	Slight	Slight	Moderate	Cherrybark oak------- Southern red oak---- Sweetgum------------- White oak------------ Loblolly pine-------- Shortleaf pine-------	86 75 90 80 90 75	Cherrybark oak, southern red oak, sweetgum, white oak, loblolly pine, shortleaf pine.
BuC*: Byram---------------	2o7	Slight	Slight	Slight	Moderate	Cherrybark oak------- Southern red oak---- Sweetgum------------- White oak------------ Loblolly pine-------- Shortleaf pine-------	85 75 85 80 85 75	Cherrybark oak, southern red oak, sweetgum, white oak, loblolly pine, shortleaf pine.
Urban land.								
Ca-------------------- Calhoun	2w9	Slight	Severe	Moderate	---------	Cherrybark oak------- Water oak------------ Sweetgum------------- Loblolly pine-------- Slash pine-----------	--- --- --- 90 90	Loblolly pine, slash pine.
Co, CuA-------------- Calloway	2w8	Slight	Moderate	Slight	Moderate	Cherrybark oak------- Loblolly pine-------- Sweetgum-------------	90 90 90	Cherrybark oak, loblolly pine, sweetgum, water oak, yellow-poplar.
CY*: Cascilla------------	1w7	Slight	Moderate	Moderate	Moderate	Cherrybark oak------- Eastern cottonwood-- Loblolly pine-------- Nuttall oak---------- Water oak------------ Sweetgum------------- Yellow-poplar--------	112 110 93 114 104 102 115	Cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, American sycamore, yellow-poplar.
Chenneby------------	1w7	Slight	Moderate	Moderate	Severe	Loblolly pine-------- Sweetgum------------- Water oak------------ Yellow-poplar--------	96 100 90 105	Loblolly pine, yellow-poplar.
GrA, GrB------------- Grenada	2o7	Slight	Slight	Slight	Slight	Cherrybark oak------- Water oak------------ Loblolly pine-------- Slash pine-----------	85 80 95 95	Cherrybark oak, loblolly pine, sweetgum, water oak, slash pine.

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
LoB2, LoC2, LoC3, LoD2, LoD3 Loring	2o7	Slight	Slight	Slight	Severe	Cherrybark oak	86	Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, yellow-poplar.
						Loblolly pine	95	
						Shortleaf pine	90	
						Sweetgum	90	
						Water oak	90	
LuC*, LuD*: Loring	2o7	Slight	Slight	Slight	Severe	Cherrybark oak	86	Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, yellow-poplar.
						Loblolly pine	95	
						Shortleaf pine	90	
						Sweetgum	90	
						Water oak	90	
Urban land.								
LW*: Loring	2o7	Slight	Slight	Slight	Severe	Cherrybark oak	86	Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, yellow-poplar.
						Loblolly pine	95	
						Shortleaf pine	90	
						Sweetgum	90	
						Water oak	90	
Kisatchie	4d2	Moderate	Moderate	Moderate	---------	Loblolly pine	70	Loblolly pine, slash pine, longleaf pine.
						Slash pine	70	
						Longleaf pine	---	
						Shortleaf pine	---	
Mc McRaven	1w5	Slight	Moderate	Slight	Moderate	Cherrybark oak	120	Eastern cottonwood, green ash, sweetgum, American sycamore.
						Eastern cottonwood	110	
						Green ash	90	
						Sweetgum	100	
						American sycamore	110	
						Water oak	95	
						Willow oak	95	
MeA, MeB2, MeC2, MeD2, MeD3 Memphis	1o7	Slight	Slight	Slight	Moderate	Cherrybark oak	100	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
						Loblolly pine	105	
						Sweetgum	90	
						Water oak	90	
Mg*: Memphis	1o8	Moderate	Slight	Slight	Moderate	Cherrybark oak	100	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
						Loblolly pine	105	
						Sweetgum	90	
						Water oak	90	
Udorthents.								
MN*: Memphis	1o8	Moderate	Slight	Slight	Moderate	Cherrybark oak	100	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
						Loblolly pine	105	
						Sweetgum	90	
						Water oak	90	
Natchez	1r8	Moderate	Moderate	Slight	Slight	Cherrybark oak	105	Eastern cottonwood, green ash, loblolly pine, sweetgum, American sycamore, yellow-poplar.
						Eastern cottonwood	110	
						Loblolly pine	100	
						Sweetgum	105	
Riedtown	1w5	Slight	Moderate	Moderate	Moderate	Eastern cottonwood	115	Eastern cottonwood, green ash, sweetgum, American sycamore, yellow-poplar.
						Green ash	90	
						Sweetgum	105	
						American sycamore	110	
						Water oak	100	
						Willow oak	100	
						Yellow-poplar	110	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
Oa----------------- Oaklimeter	1o7	Slight	Slight	Slight	Moderate	Cherrybark oak------	100	Cherrybark oak,
						Eastern cottonwood--	100	eastern cottonwood,
						Green ash-----------	90	loblolly pine,
						Loblolly pine-------	90	Nuttall oak,
						Nuttall oak---------	100	sweetgum,
						Willow oak----------	100	water oak,
						Sweetgum------------	100	yellow-poplar.
OK*:								
Oaklimeter--------	1w8	Slight	Moderate	Moderate	Moderate	Cherrybark oak------	100	Cherrybark oak,
						Eastern cottonwood--	100	eastern cottonwood,
						Green ash-----------	90	loblolly pine,
						Loblolly pine-------	90	Nuttall oak,
						Nuttall oak---------	100	sweetgum,
						Willow oak----------	100	water oak,
						Sweetgum------------	100	yellow-poplar.
Ariel-------------	1w8	Slight	Moderate	Moderate	Moderate	Cherrybark oak------	110	Cherrybark oak,
						Eastern cottonwood--	115	eastern cottonwood,
						Loblolly pine-------	95	loblolly pine,
						Sweetgum------------	100	sweetgum,
						Water oak-----------	105	water oak,
						Yellow-poplar-------	110	yellow-poplar.
PoB2, PoC2, PoC3, PoD2--------------- Providence	2o7	Slight	Slight	Slight	Slight	Loblolly pine-------	87	Loblolly pine,
						Longleaf pine-------	73	Shumard oak,
						Sweetgum------------	90	sweetgum,
								yellow-poplar.
PrE*, PS*:								
Providence--------	2o7	Slight	Slight	Slight	Slight	Loblolly pine-------	87	Loblolly pine,
						Longleaf pine-------	73	Shumard oak,
						Sweetgum------------	90	sweetgum,
								yellow-poplar.
Smithdale---------	2o2	Moderate	Slight	Slight	Moderate	Loblolly pine-------	86	Loblolly pine,
						Longleaf pine-------	69	longleaf pine,
						Slash pine----------	85	slash pine.
Re----------------- Riedtown	1o4	Slight	Slight	Slight	Moderate	Eastern cottonwood--	115	Eastern cottonwood,
						Green ash-----------	90	green ash,
						Sweetgum------------	105	sweetgum,
						American sycamore---	110	American sycamore,
						Water oak-----------	100	yellow-poplar.
						Willow oak----------	100	
						Yellow-poplar-------	110	
SeB2, SeC2--------- Siwell	3o7	Slight	Slight	Slight	Slight	Cherrybark oak------	85	Cherrybark oak,
						Shumard oak---------	90	Shumard oak,
						White oak-----------	80	loblolly pine,
						Loblolly pine-------	85	sweetgum,
						Sweetgum------------	85	yellow-poplar.
						Yellow-poplar-------	85	
SuC*, SuD*:								
Siwell------------	3o7	Slight	Slight	Slight	Slight	Cherrybark oak------	85	Cherrybark oak,
						Shumard oak---------	90	Shumard oak,
						White oak-----------	80	loblolly pine,
						Loblolly pine-------	85	sweetgum,
						Sweetgum------------	85	yellow-poplar.
						Yellow-poplar-------	85	
Urban land.								

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
SW*:								
Smithdale----------	2o2	Moderate	Slight	Slight	Moderate	Loblolly pine--------	86	Loblolly pine,
						Longleaf pine--------	69	longleaf pine,
						Slash pine-----------	85	slash pine.
Lexington----------	2o8	Moderate	Slight	Slight	Moderate	Cherrybark oak-------	86	Cherrybark oak,
						Southern red oak-----	80	Shumard oak,
						Loblolly pine--------	95	loblolly pine,
						Shortleaf pine-------	90	shortleaf pine,
						Sweetgum-------------	90	sweetgum,
								yellow-poplar.
Memphis------------	1o8	Moderate	Slight	Slight	Moderate	Cherrybark oak-------	100	Cherrybark oak,
						Loblolly pine--------	105	loblolly pine,
						Sweetgum-------------	90	sweetgum,
						Water oak------------	90	yellow-poplar.

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Ad----------------- Adler	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods, wetness, low strength.
BD*:					
Bonn---------------	Severe: floods, wetness, cutbanks cave.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Deerford----------	Severe: floods, wetness, cutbanks cave.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.
BrB2, BrC2--------- Byram	Severe: too clayey, wetness.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.
BuC*:					
Byram-------------	Severe: too clayey, wetness.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.
Urban land.					
Ca----------------- Calhoun	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Co----------------- Calloway	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Moderate: wetness, low strength.
CuA*:					
Calloway----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Moderate: wetness, low strength.
Urban land.					
CY*:					
Cascilla----------	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Chenneby----------	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, low strength.
GrA, GrB----------- Grenada	Moderate: wetness.	Moderate: wetness, low strength.	Moderate: wetness, low strength.	Moderate: corrosive, wetness, low strength.	Moderate: low strength, wetness.
LoB2--------------- Loring	Moderate: low strength, wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
LoC2, LoC3--------- Loring	Moderate: low strength, wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: slope, low strength.	Moderate: low strength.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
LoD2, LoD3: Loring	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
LuC*:					
Loring	Moderate: low strength, wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: slope, low strength.	Moderate: low strength.
Urban land.					
LuD*:					
Loring	Moderate: slope, wetness, low strength.	Moderate: slope, low strength.	Moderate: slope, low strength.	Severe: slope.	Moderate: slope, low strength.
Urban land.					
LW*:					
Loring	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Kisatchie	Severe: slope, depth to rock, too clayey.	Severe: slope, shrink-swell.	Severe: slope, shrink-swell, depth to rock.	Severe: slope, shrink-swell.	Severe: slope, low strength, shrink-swell.
Mc: McRaven	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
MeA, MeB2: Memphis	Slight	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
MeC2: Memphis	Slight	Moderate: low strength.	Moderate: low strength.	Moderate: low strength, slope.	Moderate: low strength.
MeD2, MeD3: Memphis	Moderate: slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
Mg*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Udorthents.					
MN*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Riedtown	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Oa: Oaklimeter	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
OK*:					
Oaklimeter	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
OK*:					
Ariel	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Pa*. Pits					
PoB2 Providence	Moderate: wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
PoC2, PoC3 Providence	Moderate: wetness.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength, slope.	Moderate: low strength.
PoD2 Providence	Moderate: wetness, slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
PrE*:					
Providence	Moderate: wetness, slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
PS*:					
Providence	Moderate: wetness, slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Re Riedtown	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
SeB2, SeC2 Siwell	Severe: too clayey, wetness.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell.	Severe: shrink-swell.
SuC*, SuD*:					
Siwell	Severe: too clayey, wetness.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, slope.	Severe: shrink-swell.
Urban land.					
SW*:					
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lexington	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ur*. Urban land					

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate, "good," and "fair." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ad------------------- Adler	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Good.
BD*:					
Bonn----------------	Severe: percs slowly, floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Deerford------------	Severe: percs slowly, floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Fair: too clayey.
BrB2, BrC2---------- Byram	Severe: percs slowly, wetness.	Moderate: slope.	Severe: too clayey, wetness.	Slight------------	Fair: too clayey.
BuC*:					
Byram---------------	Severe: percs slowly, wetness.	Moderate: slope.	Severe: too clayey, wetness.	Slight------------	Fair: too clayey.
Urban land.					
Ca------------------- Calhoun	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Co------------------- Calloway	Severe: percs slowly, wetness.	Slight------------	Moderate: wetness, percs slowly.	Moderate: wetness.	Good.
CuA*:					
Calloway------------	Severe: percs slowly, wetness.	Slight------------	Moderate: wetness, percs slowly.	Moderate: wetness.	Good.
Urban land.					
CY*:					
Cascilla------------	Severe: floods.	Moderate: seepage.	Severe: floods.	Severe: floods.	Good.
Chenneby------------	Severe: floods.	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
GrA------------------ Grenada	Severe: percs slowly.	Slight------------	Moderate: wetness.	Moderate: wetness.	Good.
GrB------------------ Grenada	Severe: percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Good.
LoB2, LoC2, LoC3---- Loring	Severe: percs slowly.	Moderate: slope.	Slight------------	Slight------------	Good.
LoD2, LoD3---------- Loring	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
LuC*:					
Loring	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Urban land.					
LuD*:					
Loring	Severe: percs slowly.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
Urban land.					
LW*:					
Loring	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.
Kisatchie	Severe: slope, percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock, too clayey.	Severe: slope.	Poor: too clayey, thin layer.
Mc McRaven	Severe: floods, wetness.	Slight	Severe: floods, wetness.	Severe: floods, wetness.	Good.
MeA Memphis	Slight	Moderate: seepage.	Slight	Slight	Fair: too clayey.
MeB2, MeC2 Memphis	Slight	Moderate: seepage, slope.	Slight	Slight	Fair: too clayey.
MeD2, MeD3 Memphis	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: too clayey, slope.
Mg*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Udorthents.					
MN*:					
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Natchez	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.
Riedtown	Severe: floods, wetness.	Moderate: seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Oa Oaklimeter	Severe: floods, wetness.	Moderate: seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
OK*:					
Oaklimeter	Severe: floods, wetness.	Moderate: seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Ariel	Severe: floods, percs slowly.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
Pa*. Pits					

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
PoB2, PoC2, PoC3---- Providence	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight------------	Fair: too clayey.
PoD2----------------- Providence	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
PrE*:					
Providence----------	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
Smithdale-----------	Moderate: slope.	Severe: seepage, slope.	Slight------------	Moderate: slope.	Fair: slope.
PS*:					
Providence----------	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
Smithdale-----------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Re------------------- Riedtown	Severe: floods, wetness.	Moderate: seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
SeB2, SeC2----------- Siwell	Severe: percs slowly, wetness.	Moderate: slope, wetness.	Severe: too clayey.	Severe: wetness.	Fair: too clayey.
SuC*:					
Siwell--------------	Severe: percs slowly, wetness.	Moderate: slope, wetness.	Severe: too clayey.	Severe: wetness.	Fair: too clayey.
Urban land.					
SuD*:					
Siwell--------------	Severe: percs slowly, wetness.	Severe: slope.	Severe: too clayey.	Severe: wetness, slope.	Fair: too clayey, slope.
Urban land.					
SW*:					
Smithdale-----------	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Lexington-----------	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: slope.
Memphis-------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Ur*. Urban land					

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Ad: Adler	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
BD*:				
Bonn	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, excess sodium.
Deerford	Fair: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
BrB2, BrC2: Byram	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
BuC*:				
Byram	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Urban land.				
Ca: Calhoun	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Co: Calloway	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
CuA*:				
Calloway	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Urban land.				
CY*:				
Cascilla	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Chenneby	Fair: wetness, low strength.	Poor: excess fines.	Poor: excess fines.	Good.
GrA, GrB: Grenada	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
LoB2, LoC2, LoC3, LoD2, LoD3: Loring	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
LuC*, LuD*:				
Loring	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Urban land.				
LW*:				
Loring	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LW*:				
Kisatchie	Poor: low strength, shrink-swell, thin layer.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
Mc McRaven	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
MeA, MeB2, MeC2 Memphis	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
MeD2, MeD3 Memphis	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey, slope.
Mg*:				
Memphis	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Udorthents.				
MN*:				
Memphis	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Natchez	Fair: slope, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Riedtown	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Oa Oaklimeter	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
OK*:				
Oaklimeter	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Ariel	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Pa*. Pits				
PoB2, PoC2, PoC3, PoD2 Providence	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
PrE*:				
Providence	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Smithdale	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
PS*:				
Providence	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Smithdale	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Re Riedtown	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
SeB2, SeC2: Siwell	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
SuC*:				
Siwell	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Urban land.				
SuD*:				
Siwell	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey, slope.
Urban land.				
SW*:				
Smithdale	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Lexington	Fair: slope, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Memphis	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Ur*. Urban land				

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
Ad----------------- Adler	Moderate: seepage.	Moderate: low strength, piping.	Severe: no water.	Floods, cutbanks cave.	Erodes easily	Erodes easily.
BD*:						
Bonn--------------	Slight----------	Moderate: piping, erodes easily.	Severe: no water.	Cutbanks cave, percs slowly.	Not needed------	Droughty, erodes easily, excess sodium.
Deerford----------	Slight----------	Moderate: piping, compressible, erodes easily.	Severe: no water.	Cutbanks cave, percs slowly.	Not needed------	Excess sodium, erodes easily.
BrB2, BrC2--------- Byram	Slight----------	Moderate: hard to pack, wetness, low strength.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, erodes easily, slope.	Percs slowly, erodes easily, slope.
BuC*:						
Byram-------------	Slight----------	Moderate: hard to pack, wetness, low strength.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, erodes easily, slope.	Percs slowly, erodes easily, slope.
Urban land.						
Ca----------------- Calhoun	Slight----------	Moderate: piping, erodes easily, low strength.	Severe: no water.	Percs slowly, cutbanks cave.	Not needed------	Wetness.
Co----------------- Calloway	Slight----------	Moderate: piping, compressible, low strength.	Severe: deep to water.	Cutbanks cave, percs slowly, slope.	Percs slowly, erodes easily, piping.	Percs slowly, erodes easily, slope.
CuA*:						
Calloway----------	Slight----------	Moderate: piping, compressible, low strength.	Severe: deep to water.	Cutbanks cave, percs slowly, slope.	Percs slowly, erodes easily, piping.	Percs slowly, erodes easily, slope.
Urban land.						
CY*:						
Cascilla----------	Moderate: seepage.	Moderate: piping, low strength.	Severe: no water.	Cutbanks cave	Erodes easily, piping.	Erodes easily.
Chenneby----------	Moderate: seepage.	Moderate: piping.	Severe: deep to water.	Floods, wetness.	Not needed------	Favorable.
GrA---------------- Grenada	Slight----------	Moderate: piping, low strength.	Severe: deep to water.	Slope-----------	Erodes easily	Erodes easily, slope.
GrB---------------- Grenada	Slight----------	Moderate: piping, low strength.	Severe: deep to water.	Not needed------	Erodes easily, slope.	Erodes easily, slope.
LoB2, LoC2, LoC3, LoD2, LoD3-------- Loring	Moderate: seepage.	Moderate: piping, low strength.	Severe: no water.	Not needed------	Erodes easily, slope.	Rooting depth, erodes easily, slope.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
LuC*, LuD*:						
Loring	Moderate: seepage.	Moderate: piping, low strength.	Severe: no water.	Not needed	Erodes easily, slope.	Rooting depth, erodes easily, slope.
Urban land.						
LW*:						
Loring	Moderate: seepage.	Moderate: piping, low strength.	Severe: no water.	Not needed	Erodes easily, slope.	Rooting depth, erodes easily, slope.
Kisatchie	Severe: depth to rock.	Moderate: low strength, shrink-swell, compressible.	Severe: no water.	Not needed	Slope, erodes easily, depth to rock.	Slope.
Mc McRaven	Moderate: seepage.	Moderate: compressible, piping, unstable fill.	Severe: no water.	Floods, wetness.	Wetness	Wetness.
MeA, MeB2, MeC2, MeD2, MeD3 Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Severe: deep to water.	Not needed	Erodes easily, slope, piping.	Erodes easily, slope.
Mg*:						
Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Severe: deep to water.	Not needed	Erodes easily, slope, piping.	Erodes easily, slope.
Udorthents.						
MN*:						
Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Severe: deep to water.	Not needed	Erodes easily, slope, piping.	Erodes easily, slope.
Natchez	Severe: seepage.	Moderate: piping, compressible.	Severe: deep to water.	Slope	Erodes easily, slope, piping.	Erodes easily, slope.
Riedtown	Moderate: seepage.	Moderate: piping.	Severe: deep to water.	Floods, wetness.	Floods, wetness.	Floods, wetness.
Oa Oaklimeter	Moderate: seepage.	Moderate: piping.	Severe: no water.	Floods, wetness.	Erodes easily, piping.	Piping.
OK*:						
Oaklimeter	Moderate: seepage.	Moderate: piping.	Severe: no water.	Floods, wetness.	Erodes easily, piping.	Piping.
Ariel	Moderate: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Cutbanks cave, floods.	Erodes easily	Erodes easily.
Pa*. Pits						
PoB2, PoC2, PoC3, PoD2 Providence	Slight	Moderate: piping, unstable fill.	Severe: no water.	Cutbanks cave, percs slowly, slope.	Erodes easily, percs slowly, piping.	Erodes easily, percs slowly, slope.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
PrE*, PS*:						
Providence	Slight	Moderate: piping, unstable fill.	Severe: no water.	Cutbanks cave, percs slowly, slope.	Erodes easily, percs slowly, piping.	Erodes easily, percs slowly, slope.
Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Slope, erodes easily.	Slope, erodes easily.
Re: Riedtown	Moderate: seepage.	Moderate: piping.	Severe: deep to water.	Floods, wetness.	Floods, wetness.	Floods, wetness.
SeB2, SeC2: Siwell	Slight	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, slope, erodes easily.	Percs slowly, slope, erodes easily.
SuC*, SuD*:						
Siwell	Slight	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, slope, erodes easily.	Percs slowly, slope, erodes easily.
Urban land.						
SW*:						
Smithdale	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Slope, erodes easily.	Slope, erodes easily.
Lexington	Severe: seepage.	Slight	Severe: no water.	Not needed	Slope	Slope.
Memphis	Moderate: seepage.	Moderate: piping, compressible, erodes easily.	Severe: deep to water.	Not needed	Erodes easily, slope, piping.	Erodes easily, slope.
Ur*. Urban land						

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 13.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Ad----- Adler	Severe: floods.	Moderate: floods.	Moderate: floods.	Moderate: floods.
BD*:				
Bonn-----	Severe: floods, wetness, percs slowly.	Severe: wetness.	Severe: floods, wetness, percs slowly.	Severe: wetness.
Deerford-----	Severe: floods.	Moderate: wetness.	Severe: floods.	Moderate: wetness.
BrB2----- Byram	Moderate: percs slowly.	Slight-----	Moderate: percs slowly, slope.	Slight.
BrC2----- Byram	Moderate: percs slowly.	Slight-----	Severe: slope.	Slight.
BuC*:				
Byram-----	Moderate: percs slowly.	Slight-----	Severe: slope.	Slight.
Urban land.				
Ca----- Calhoun	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Co----- Calloway	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
CuA*:				
Calloway-----	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
Urban land.				
CY*:				
Cascilla-----	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Chenneby-----	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods, wetness.	Moderate: floods, wetness.
GrA, GrB----- Grenada	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, wetness.	Slight.
LoB2----- Loring	Slight-----	Slight-----	Moderate: slope.	Slight.
LoC2, LoC3----- Loring	Slight-----	Slight-----	Severe: slope.	Slight.
LoD2, LoD3----- Loring	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
LuC*:				
Loring-----	Slight-----	Slight-----	Severe: slope.	Slight.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
LuC*:				
Urban land.				
LuD*:				
Loring	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Urban land.				
LW*:				
Loring	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Kisatchie	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Mc McRaven	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods, wetness.	Moderate: floods, wetness.
MeA Memphis	Slight	Slight	Slight	Slight.
MeB2 Memphis	Slight	Slight	Moderate: slope.	Slight.
MeC2 Memphis	Slight	Slight	Severe: slope.	Slight.
MeD2, MeD3 Memphis	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Mg*:				
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Udorthents.				
MN*:				
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Riedtown	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods.	Slight.
Oa Oaklimeter	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods.	Slight.
OK*:				
Oaklimeter	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods.	Slight.
Ariel	Severe: floods.	Moderate: floods.	Severe: floods.	Slight.
Pa*. Pits				
PoB2 Providence	Slight	Slight	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
PoC2, PoC3: Providence	Slight	Slight	Severe: slope.	Slight.
PoD2: Providence	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
PrE*:				
Providence	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
PS*:				
Providence	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Re: Riedtown	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods.	Slight.
SeB2: Siwell	Severe: percs slowly.	Slight	Severe: percs slowly.	Slight.
SeC2: Siwell	Severe: percs slowly.	Slight	Severe: slope, percs slowly.	Slight.
SuC*:				
Siwell	Severe: percs slowly.	Slight	Severe: slope, percs slowly.	Slight.
Urban land.				
SuD*:				
Siwell	Severe: percs slowly.	Moderate: slope.	Severe: slope, percs slowly.	Slight.
Urban land.				
SW*:				
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lexington	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ur*. Urban land				

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 14.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Ad: Adler	Good	Good	Good	Good	Fair	Good	Poor	Poor	Good	Good	Poor	---
BD*:												
Bonn	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Good	Poor	Poor	Fair	---
Deerford	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Good	Fair	---
BrB2: Byram	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
BrC2: Byram	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
BuC*:												
Byram	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
Urban land.												
Ca: Calhoun	Poor	Fair	Fair	Good	Fair	Good	Good	Good	Fair	Fair	Good	---
Co: Calloway	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	---
CuA*:												
Calloway	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	---
Urban land.												
CY*:												
Cascilla	Poor	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	---
Chenneby	Poor	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair	---
GrA, GrB: Grenada	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
LoB2: Loring	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
LoC2, LoC3: Loring	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
LoD2, LoD3: Loring	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	---
LuC*, LuD*:												
Loring	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
Urban land.												
LW*:												
Loring	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	---
Kisatchie	Poor	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	---

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Mc------------------ McRaven	Fair	Good	Good	Good	Fair	Good	Fair	Good	Good	Good	Fair	---
MeA, MeB2----------- Memphis	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
MeC2, MeD2, MeD3---- Memphis	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
Mg*:												
Memphis-------------	Very poor.	Poor	Good	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	---
Udorthents.												
MN*:												
Memphis-------------	Very poor.	Poor	Good	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	---
Natchez-------------	Poor	Fair	Good	Good	Fair	Good	Very poor.	Very poor.	Fair	Good	Very poor.	---
Riedtown------------	Poor	Fair	Good	Good	Fair	Good	Poor	Poor	Fair	Good	Poor	---
Oa------------------ Oaklimeter	Good	Good	Good	Good	Poor	Good	Poor	Poor	Good	Good	Poor	---
OK*:												
Oaklimeter----------	Poor	Fair	Good	Good	Poor	Good	Poor	Poor	Fair	Good	Poor	---
Ariel---------------	Poor	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	---
Pa*. Pits												
PoB2---------------- Providence	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
PoC2, PoC3, PoD2---- Providence	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
PrE*:												
Providence----------	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
Smithdale-----------	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
PS*:												
Providence----------	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
Smithdale-----------	Very poor.	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	---
Re------------------ Riedtown	Good	Good	Good	Good	Fair	Good	Poor	Poor	Good	Good	Poor	---
SeB2---------------- Siwell	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
SeC2---------------- Siwell	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
SuC*:												
Siwell	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
Urban land.												
SuD*:												
Siwell	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
Urban land.												
SW*:												
Smithdale	Very poor.	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	---
Lexington	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	---
Memphis	Very poor.	Poor	Good	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	---
Ur*. Urban land												

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that the data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ad------------------ Adler	0-6	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	6-72	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	0	100	100	95-100	60-95	<30	NP-10
BD*:											
Bonn---------------	0-6	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	75-100	20-30	2-7
	6-42	Silt loam, silty clay loam.	CL	A-6	0	95-100	90-100	85-100	65-100	30-40	12-22
	42-80	Silt loam, silty clay loam.	CL	A-6, A-4	0	100	95-100	90-100	75-100	28-38	8-18
Deerford-----------	0-17	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	17-84	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	95-100	32-49	11-21
BrB2, BrC2---------- Byram	0-4	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	90-100	<30	NP-10
	4-23	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	85-95	30-54	11-30
	23-51	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	85-95	30-54	11-34
	51-67	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	85-95	30-54	11-30
	67-90	Silty clay, clay	CH	A-7	0	100	100	90-100	80-95	55-135	40-100
BuC*:											
Byram--------------	0-4	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	90-100	<30	NP-10
	4-23	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	85-95	30-54	11-30
	23-51	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	85-95	30-54	11-34
	51-67	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	85-95	30-54	11-30
	67-90	Silty clay, clay	CH	A-7	0	100	100	90-100	80-95	55-135	40-100
Urban land.											
Ca------------------ Calhoun	0-17	Silt loam--------	CL-ML, ML, CL	A-4	0	100	100	100	95-100	<31	NP-10
	17-54	Silty clay loam, silt loam.	CL	A-6	0	100	100	95-100	95-100	30-45	11-24
	54-80	Silt loam--------	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	25-40	5-20
Co------------------ Calloway	0-23	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	90-100	25-35	5-15
	23-40	Silt loam, silty clay loam.	CL	A-6	0	100	100	100	90-95	30-40	12-20
	40-65	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	100	90-100	25-35	5-15
CuA*:											
Calloway-----------	0-23	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	90-100	25-35	5-15
	23-40	Silt loam, silty clay loam.	CL	A-6	0	100	100	100	90-95	30-40	12-20
	40-65	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	100	90-100	25-35	5-15
Urban land.											

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
CY*:											
Cascilla	0-50	Silt loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	20-35	3-15
	50-72	Silt loam, fine sandy loam, loam.	CL-ML, SM, ML	A-4	0	100	100	80-100	45-86	<20	NP-5
Chenneby	0-51	Silt loam	CL, ML, MH	A-4, A-6, A-7-6	0	100	95-100	90-100	75-95	30-55	8-20
	51-60	Stratified sandy loam to silty clay loam.	SM, ML	A-2-4, A-4	0	100	100	65-90	20-75	<30	NP-8
GrA, GrB: Grenada	0-4	Silt loam	ML, CL-ML	A-4	0	100	100	100	90-100	<30	NP-6
	4-23	Silt loam, silty clay loam.	CL	A-6, A-4	0	100	100	100	90-100	27-40	8-19
	23-27	Silt loam	CL-ML, CL	A-4	0	100	100	100	90-100	20-30	5-10
	27-70	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	32-45	13-24
LoB2, LoC2, LoC3, LoD2, LoD3: Loring	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	20-35	4-15
	5-27	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	90-100	35-45	15-25
	27-56	Silt loam	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	8-18
	56-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	100	100	95-100	90-100	25-40	6-15
LuC*:											
Loring	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	20-35	4-15
	5-27	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	90-100	35-45	15-25
	27-56	Silt loam	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	8-18
	56-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	100	100	95-100	90-100	25-40	6-15
Urban land.											
LuD*:											
Loring	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	20-35	4-15
	5-27	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	90-100	35-45	15-25
	27-56	Silt loam	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	8-18
	56-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	100	100	95-100	90-100	25-40	6-15
Urban land.											

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
LW*:											
Loring	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	20-35	4-15
	5-27	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	90-100	35-45	15-25
	27-56	Silt loam	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	8-18
	56-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	100	100	95-100	90-100	25-40	6-15
Kisatchie	0-5	Fine sandy loam	SM, ML, CL-ML, SM-SC	A-4	0	100	100	85-100	40-65	<25	NP-4
	5-32	Silty clay, silty clay loam, clay loam.	CH, CL	A-7-6	0	100	100	90-100	85-95	45-65	22-36
	32-50	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Mc McRaven	0-5	Silt loam	ML, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-7
	5-21	Silt loam	ML, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-7
	21-80	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-10
MeA, MeB2, MeC2, MeD2, MeD3 Memphis	0-6	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	6-22	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	22-80	Silt loam	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
Mg*:											
Memphis	0-6	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	6-22	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	22-80	Silt loam	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
Udorthents.											
MN*:											
Memphis	0-6	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	6-22	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	22-80	Silt loam	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
Natchez	0-29	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	85-100	<35	NP-10
	29-72	Silt loam, silt	ML, CL-ML	A-4	0	100	100	100	85-100	<30	NP-7
Riedtown	0-7	Silt loam	ML, CL-ML	A-4	0	100	100	90-100	70-90	---	NP
	7-27	Silt loam	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-10
	27-80	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-10

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Oa------------------- Oaklimeter	0-6	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-8
	6-28	Very fine sandy loam, silt loam, loam.	ML, CL, CL-ML	A-4	0	100	100	85-95	60-85	<30	NP-8
	28-64	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	0	100	100	90-100	90-100	<30	NP-10
OK*: Oaklimeter---------	0-6	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-8
	6-28	Very fine sandy loam, silt loam, loam.	ML, CL, CL-ML	A-4	0	100	100	85-95	60-85	<30	NP-8
	28-72	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	0	100	100	90-100	90-100	<30	NP-10
Ariel--------------	0-36	Silt loam--------	ML, CL-ML	A-4	0	100	100	90-100	85-95	<30	NP-7
	36-72	Silt loam, loam	ML, CL, CL-ML	A-4	0	100	100	85-100	70-90	<30	NP-10
Pa*. Pits											
PoB2, PoC2, PoC3, PoD2--------------- Providence	0-4	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	4-24	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	24-37	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	37-57	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
	57-64	Sandy loam, sandy clay loam, loam.	SM, SC, CL, ML	A-2, A-4	0	100	95-100	60-85	30-80	<30	NP-10
PrE*, PS*: Providence---------	0-4	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	4-24	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	24-37	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	37-57	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
	57-64	Sandy loam, sandy clay loam, loam.	SM, SC, CL, ML	A-2, A-4	0	100	95-100	60-85	30-80	<30	NP-10
Smithdale----------	0-11	Sandy loam-------	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	11-41	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	41-85	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Re------------------- Riedtown	0-7	Silt loam--------	ML, CL-ML	A-4	0	100	100	90-100	70-90	---	NP
	7-27	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-10
	27-80	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-10

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
SeB2, SeC2--------- Siwell	0-4	Silt loam-------	ML, CL, CL-ML	A-4	0	100	100	95-100	90-100	<30	NP-10
	4-21	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	95-100	90-100	25-55	15-32
	21-30	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	35-55	15-35
	30-39	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	90-100	85-95	48-65	25-45
	39-72	Clay-------------	CH	A-7	0	100	100	90-100	85-95	55-115	40-90
SuC*, SuD*: Siwell------------	0-4	Silt loam-------	ML, CL, CL-ML	A-4	0	100	100	95-100	90-100	<30	NP-10
	4-21	Silt loam, silty clay loam.	CL, CH	A-6, A-7	0	100	100	95-100	90-100	25-55	15-32
	21-30	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	35-55	15-35
	30-39	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	90-100	85-95	48-65	25-45
	39-72	Clay-------------	CH	A-7	0	100	100	90-100	85-95	55-115	40-90
Urban land.											
Sw*: Smithdale---------	0-11	Sandy loam------	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	11-41	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	41-85	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Lexington---------	0-6	Silt loam-------	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-95	25-42	5-16
	6-35	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	75-95	27-45	11-25
	35-80	Sandy loam, loam	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	50-85	20-65	22-35	5-15
Memphis-----------	0-6	Silt loam-------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	6-22	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	22-80	Silt loam-------	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
Ur*. Urban land											

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than. The erosion tolerance factor (T) is for the entire profile. Absence of an entry indicates that the data were not available or were not estimated.]

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T	Wind erodi-bility group
	In	In/hr	In/in	pH						
Ad------------------	0-6	0.6-2.0	0.20-0.23	5.6-7.8	Low---------	Moderate	Low-------	0.43	---	---
Adler	6-72	---	---	---	-----------	----------	----------	---		
BD*:										
Bonn---------------	0-6	0.2-0.6	0.15-0.23	4.5-7.3	Low---------	High------	Low-------	0.49	3	---
	6-42	<0.06	0.08-0.14	5.6-9.0	Low---------	High------	Low-------	0.49		
	42-80	<0.2	0.08-0.14	6.6-9.0	Low---------	High------	Low-------	0.49		
Deerford-----------	0-17	0.6-2.0	0.21-0.23	4.5-6.5	Low---------	High------	Moderate	0.49	3	---
	17-84	0.06-0.2	0.12-0.18	5.1-8.4	Moderate	High------	Low-------	0.49		
BrB2, BrC2----------	0-4	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	Moderate	Moderate	0.43	3	---
Byram	4-23	0.6-2.0	0.20-0.22	4.5-6.0	Moderate	High------	Moderate	0.43		
	23-51	0.2-0.6	0.06-0.13	4.5-6.0	Moderate	Moderate	Moderate	0.37		
	51-67	0.6-2.0	0.20-0.22	5.6-7.3	Moderate	High------	Low-------	0.43		
	67-90	<0.06	0.10-0.15	6.1-8.4	Very high	High------	Low-------	0.24		
BuC*:										
Byram--------------	0-4	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	Moderate	Moderate	0.43	3	---
	4-23	0.6-2.0	0.20-0.22	4.5-6.0	Moderate	High------	Moderate	0.43		
	23-51	0.2-0.6	0.06-0.13	4.5-6.0	Moderate	Moderate	Moderate	0.37		
	51-67	0.6-2.0	0.20-0.22	5.6-7.3	Moderate	High------	Low-------	0.43		
	67-90	<0.06	0.10-0.15	6.1-8.4	Very high	High------	Low-------	0.24		
Urban land.										
Ca------------------	0-17	0.2-0.6	0.21-0.23	4.5-6.0	Low---------	High------	Moderate	0.49	3	---
Calhoun	17-54	0.06-0.2	0.20-0.22	4.5-5.5	Moderate	High------	Moderate	0.43		
	54-80	0.2-0.6	0.21-0.23	4.5-7.8	Low---------	High------	Moderate	0.43		
Co------------------	0-23	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	High------	Moderate	0.49	3	---
Calloway	23-40	0.06-0.2	0.09-0.12	4.5-6.0	Moderate	High------	Moderate	0.43		
	40-65	0.06-0.2	0.09-0.12	5.1-7.8	Low---------	High------	Moderate	0.43		
CuA*:										
Calloway-----------	0-23	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	High------	Moderate	0.49	3	---
	23-40	0.06-0.2	0.09-0.12	4.5-6.0	Moderate	High------	Moderate	0.43		
	40-65	0.06-0.2	0.09-0.12	5.1-7.8	Low---------	High------	Moderate	0.43		
Urban land.										
CY*:										
Cascilla-----------	0-50	0.6-2.0	0.18-0.22	4.5-5.5	Low---------	Low-------	Moderate	0.43	5	---
	50-72	0.6-2.0	0.16-0.20	4.5-5.5	Low---------	Low-------	Moderate	0.43		
Chenneby-----------	0-51	0.6-2.0	0.15-0.20	4.5-6.0	Low---------	High------	Moderate	0.32	---	---
	51-60	2.0-6.0	0.05-0.10	4.5-6.0	Low---------	High------	Moderate	0.24		
GrA, GrB------------	0-4	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	Moderate	Moderate	0.43	3	---
Grenada	4-23	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	Moderate	Moderate	0.43		
	23-27	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	Moderate	Moderate	0.43		
	27-70	0.06-0.2	0.10-0.12	4.5-6.0	Low---------	Moderate	Moderate	0.37		
LoB2, LoC2, LoC3, LoD2, LoD3---------	0-5	0.6-2.0	0.20-0.23	4.5-6.0	Low---------	Moderate	Moderate	0.43	3	---
Loring	5-27	0.6-2.0	0.20-0.22	4.5-6.0	Low---------	Moderate	Moderate	0.43		
	27-56	0.2-0.6	0.06-0.13	4.5-6.0	Low---------	Moderate	Moderate	0.43		
	56-80	0.6-2.0	0.06-0.13	5.1-6.5	Low---------	Moderate	Low-------	0.43		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permea- bility	Available water capacity	Soil reaction	Shrink- swell potential	Risk of corrosion		Erosion factors		Wind erodi- bility group
						Uncoated steel	Concrete	K	T	
	In	In/hr	In/in	pH						
LuC*:										
Loring	0-5	0.6-2.0	0.20-0.23	4.5-6.0	Low	Moderate	Moderate	0.43	3	---
	5-27	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43		
	27-56	0.2-0.6	0.06-0.13	4.5-6.0	Low	Moderate	Moderate	0.43		
	56-80	0.6-2.0	0.06-0.13	5.1-6.5	Low	Moderate	Low	0.43		
Urban land.										
LuD*:										
Loring	0-5	0.6-2.0	0.20-0.23	4.5-6.0	Low	Moderate	Moderate	0.43	3	---
	5-27	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43		
	27-56	0.2-0.6	0.06-0.13	4.5-6.0	Low	Moderate	Moderate	0.43		
	56-80	0.6-2.0	0.06-0.13	5.1-6.5	Low	Moderate	Low	0.43		
Urban land.										
LW*:										
Loring	0-5	0.6-2.0	0.20-0.23	4.5-6.0	Low	Moderate	Moderate	0.43	3	---
	5-27	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43		
	27-56	0.2-0.6	0.06-0.13	4.5-6.0	Low	Moderate	Moderate	0.43		
	56-80	0.6-2.0	0.06-0.13	5.1-6.5	Low	Moderate	Low	0.43		
Kisatchie	0-5	0.6-2.0	0.12-0.20	4.5-5.5	Low	Low	High	0.43	2	---
	5-32	<0.06	0.15-0.18	4.0-5.0	High	High	High	0.32		
	32-50	---	---	---	---	---	---	---		
Mc McRaven	0-5	0.6-2.0	0.20-0.22	5.1-7.3	Low	High	Moderate	0.43	5	---
	5-21	0.6-2.0	0.20-0.22	5.1-7.3	Low	High	Moderate	---		
	21-80	0.6-2.0	0.20-0.22	6.1-7.8	Low	High	Moderate	---		
MeA, MeB2, MeC2, MeD2, MeD3 Memphis	0-6	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5	---
	6-22	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37		
	22-80	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37		
Mg*:										
Memphis	0-6	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5	---
	6-22	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37		
	22-80	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37		
Udorthents.										
MN*:										
Memphis	0-6	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5	---
	6-22	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37		
	22-80	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37		
Natchez	0-29	0.6-2.0	0.20-0.24	5.1-7.3	Low	Low	Low	0.37	5	---
	29-72	0.6-2.0	0.20-0.24	6.6-8.4	Low	Low	Low	0.37		
Riedtown	0-7	0.6-2.0	0.20-0.22	5.1-7.3	Low	Moderate	Low	0.43	5	---
	7-27	0.6-2.0	0.20-0.22	5.6-8.4	Low	Moderate	Low	---		
	27-80	0.6-2.0	0.20-0.22	5.6-8.4	Low	Moderate	Low	---		
Oa Oaklimeter	0-6	0.6-2.0	0.20-0.22	4.5-5.5	Low	Moderate	High	0.43	5	---
	6-28	0.6-2.0	0.15-0.20	4.5-5.5	Low	Moderate	High	0.43		
	28-72	0.6-2.0	0.20-0.20	4.5-5.5	Low	Moderate	High	0.43		
OK*:										
Oaklimeter	0-6	0.6-2.0	0.20-0.22	4.5-5.5	Low	Moderate	High	0.43	5	---
	6-28	0.6-2.0	0.15-0.20	4.5-5.5	Low	Moderate	High	0.43		
	28-64	0.6-2.0	0.20-0.20	4.5-5.5	Low	Moderate	High	0.43		
Ariel	0-36	0.6-2.0	0.20-0.22	4.5-5.5	Low	Low	Moderate	0.43	5	---
	36-72	0.2-0.6	0.16-0.20	4.5-5.5	Low	Low	Moderate	0.43		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors		Wind erodi-bility group
						Uncoated steel	Concrete	K	T	
	In	In/hr	In/in	pH						
Pa*. Pits										
PoB2, PoC2, PoC3, PoD2 Providence	0-4	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43	3	---
	4-24	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43		
	24-37	0.2-0.6	0.08-0.10	4.5-6.0	Moderate	Moderate	Moderate	0.32		
	37-57	0.2-0.6	0.08-0.10	4.5-6.0	Low	Moderate	Moderate	0.32		
	57-64	0.6-2.0	0.10-0.15	4.5-6.0	Low	Moderate	Moderate	0.32		
PrE*, PS*: Providence	0-4	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43	3	---
	4-24	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.43		
	24-37	0.2-0.6	0.08-0.10	4.5-6.0	Moderate	Moderate	Moderate	0.32		
	37-57	0.2-0.6	0.08-0.10	4.5-6.0	Low	Moderate	Moderate	0.32		
	57-64	0.6-2.0	0.10-0.15	4.5-6.0	Low	Moderate	Moderate	0.32		
Smithdale	0-11	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28	5	---
	11-41	0.6-2.0	0.15-0.17	4.5-5.5	Low	Low	Moderate	0.24		
	41-85	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28		
Re Riedtown	0-7	0.6-2.0	0.20-0.22	5.1-7.3	Low	Moderate	Low	0.43	5	---
	7-27	0.6-2.0	0.20-0.22	5.6-8.4	Low	Moderate	Low	---		
	27-80	0.6-2.0	0.20-0.22	5.6-8.4	Low	Moderate	Low	---		
SeB2, SeC2 Siwell	0-4	0.6-2.0	0.20-0.22	4.5-6.0	Low	High	Moderate	0.43	4	---
	4-21	0.6-2.0	0.20-0.22	4.5-6.0	Moderate	High	Moderate	0.43		
	21-30	0.2-0.6	0.19-0.22	4.5-6.0	Moderate	High	Moderate	0.24		
	30-39	0.06-0.2	0.16-0.18	6.1-8.4	High	High	Moderate	0.24		
	39-72	<0.06	0.10-0.15	6.6-8.4	Very high	High	Moderate	0.24		
SuC*, SuD*: Siwell	0-4	0.6-2.0	0.20-0.22	4.5-6.0	Low	High	Moderate	0.43	4	---
	4-21	0.6-2.0	0.20-0.22	4.5-6.0	Moderate	High	Moderate	0.43		
	21-30	0.2-0.6	0.19-0.22	4.5-6.0	Moderate	High	Moderate	0.24		
	30-39	0.06-0.2	0.16-0.18	6.1-8.4	High	High	Moderate	0.24		
	39-72	<0.06	0.10-0.15	6.6-8.4	Very high	High	Moderate	0.24		
Urban land.										
SW*: Smithdale	0-11	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28	5	---
	11-41	0.6-2.0	0.15-0.17	4.5-5.5	Low	Low	Moderate	0.24		
	41-85	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28		
Lexington	0-6	0.6-2.0	0.17-0.22	4.5-6.0	Low	Low	Moderate	0.43	3	---
	6-35	0.6-2.0	0.16-0.21	4.5-6.0	Low	Moderate	Moderate	0.43		
	35-80	2.0-6.0	0.06-0.12	4.5-6.0	Low	Low	Moderate	0.24		
Memphis	0-6	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37	5	---
	6-22	0.6-2.0	0.20-0.22	4.5-6.0	Low	Moderate	Moderate	0.37		
	22-80	0.6-2.0	0.20-0.23	4.5-6.0	Low	Low	Moderate	0.37		
Ur*. Urban land										

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness
					Ft			In	
Ad: Adler	C	Rare to common.	Very brief to long.	Jan-Apr	2.0-3.0	Apparent	Jan-Apr	>60	---
BD*:									
Bonn	D	Common	Long	Nov-Jun	0-2.0	Perched	Dec-Apr	>60	---
Deerford	D	Common	Long	Nov-Jun	0.5-1.5	Perched	Dec-Apr	>60	---
BrB2, BrC2: Byram	C	None	---	---	1.5-2.5	Perched	Dec-Apr	>60	---
BuC*:									
Byram	C	None	---	---	1.5-2.5	Perched	Dec-Apr	>60	---
Urban land.									
Ca: Calhoun	D	None	---	---	0-2.0	Perched	Dec-Apr	>60	---
Co: Calloway	C	None	---	---	1.0-2.0	Perched	Jan-Apr	>60	---
CuA*:									
Calloway	C	None	---	---	1.0-2.0	Perched	Jan-Apr	>60	---
Urban land.									
CY*:									
Cascilla	B	Common	Long	Jan-Apr	>6.0	---	---	>60	---
Chenneby	C	Common	Long	Dec-Apr	1.0-2.5	Apparent	Jan-Mar	>60	---
GrA, GrB: Grenada	C	None	---	---	2.0-2.5	Perched	Jan-Mar	>60	---
LoB2, LoC2, LoC3, LoD2, LoD3: Loring	C	None	---	---	2.0-3.0	Perched	Dec-Mar	>60	---
LuC*, LuD*:									
Loring	C	None	---	---	2.0-3.0	Perched	Dec-Mar	>60	---
Urban land.									
LW*:									
Loring	C	None	---	---	2.0-3.0	Perched	Dec-Mar	>60	---
Kisatchie	D	None	---	---	>6.0	---	---	20-40	Rippable
Mc: McRaven	C	Common	Brief	Nov-Mar	1.0-1.5	Apparent	Nov-Mar	>60	---
MeA, MeB2, MeC2, MeD2, MeD3: Memphis	B	None	---	---	>6.0	---	---	>60	---
Mg*:									
Memphis	B	None	---	---	>6.0	---	---	>60	---
Udorthents.									

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness
					Ft			In	
MN*:									
Memphis	B	None	---	---	>6.0	---	---	>60	---
Natchez	B	None	---	---	>6.0	---	---	>60	---
Riedtown	C	Common	Brief	Nov-Mar	1.5-3.5	Apparent	Nov-Mar	>60	---
Oa Oaklimeter	C	Common	Very long	Nov-Apr	1.5-2.5	Apparent	Nov-Mar	>60	---
OK*:									
Oaklimeter	C	Common	Very long	Nov-Apr	1.5-2.5	Apparent	Nov-Mar	>60	---
Ariel	C	Common	Brief	Jan-Apr	2.0-3.0	Apparent	Jan-Apr	>60	---
Pa*. Pits									
PoB2, PoC2, PoC3, PoD2 Providence	C	None	---	---	1.5-3.0	Perched	Jan-Mar	>60	---
PrE*, PS*:									
Providence	C	None	---	---	1.5-3.0	Perched	Jan-Mar	>60	---
Smithdale	B	None	---	---	>6.0	---	---	>60	---
Re Riedtown	C	Common	Brief	Nov-Mar	1.5-3.5	Apparent	Nov-Mar	>60	---
SeB2, SeC2 Siwell	C	None	---	---	2.5-3.0	Perched	Jan-Mar	>60	---
SuC*, SuD*:									
Siwell	C	None	---	---	2.5-3.0	Perched	Jan-Mar	>60	---
Urban land.									
SW*:									
Smithdale	B	None	---	---	>6.0	---	---	>60	---
Lexington	B	None	---	---	>6.0	---	---	>60	---
Memphis	B	None	---	---	>6.0	---	---	>60	---
Ur*. Urban land									

* See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 18.--PHYSICAL AND CHEMICAL ANALYSES OF SELECTED SOILS

Soil and report number	Depth	Horizon	Particle size distribution: Sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Extractable bases (Meq/100 g): Ca	Ng	Na	K	Base saturation	Reaction (1:1 soil:water)
	In		Pct	Pct	Pct					Pct	pH
Bonn:											
382	0-3	A1	4.5	82.8	12.7	0.1	0.5	0.1	0.1	7.0	5.0
383	3-6	A2	3.4	81.4	15.2	0.1	0.6	0.8	0.1	21.0	5.3
384	6-11	A&B	2.6	73.6	23.8	0.3	1.4	1.1	0.1	25.4	5.2
385	11-22	B&A	2.3	66.6	31.1	6.6	3.4	4.1	0.1	84.0	6.2
386	22-42	B21tg	2.5	70.4	27.1	10.4	4.8	6.5	0.1	95.5	6.8
387	42-66	B22tg	1.8	81.6	16.6	6.6	3.3	3.0	0.1	95.5	7.8
388	66-80	B23tg	2.1	81.2	16.7	7.6	3.1	1.5	0.1	95.2	7.8
Byram:											
255	0-4	Ap	3.6	75.8	20.6	4.0	2.9	0.1	0.3	58.2	5.6
256	4-14	B21t	1.9	70.5	28.6	2.6	3.6	0.2	0.2	44.1	5.3
257	14-23	B22t	0.5	78.9	20.6	1.8	2.9	0.3	0.1	38.9	5.4
258	23-31	Bx1	0.6	74.1	25.3	5.2	5.9	0.6	0.2	60.6	5.1
259	31-51	Bx2	1.5	71.7	26.8	6.2	6.3	0.8	0.2	68.0	5.2
260	51-67	B23t	0.8	71.7	27.5	10.4	9.5	1.4	0.3	91.4	5.9
261	67-90	IIC	1.6	20.1	78.3	38.0	21.1	3.0	0.6	98.0	7.3
Deerford:											
263	0-4	A1	7.7	78.1	14.2	2.7	1.1	0.1	0.3	26.1	4.8
264	4-12	A21g	4.4	83.4	12.2	1.8	0.7	0.2	0.1	29.3	5.0
265	12-17	A22g	3.4	83.9	12.7	1.9	0.6	0.2	0.1	36.8	5.4
266	17-27	B21t	2.8	81.9	15.3	2.7	1.0	0.8	0.1	46.5	5.6
267	27-40	B22tg	3.4	73.3	23.3	6.2	2.6	7.2	0.1	84.9	5.8
268	40-51	B23tg	2.4	71.8	25.8	13.2	3.7	9.9	0.2	99.3	6.6
269	51-72	B24tg	1.1	75.3	23.6	8.8	4.0	7.4	0.1	100.0	7.7
270	72-84	C	0.6	78.5	20.9	9.0	3.7	5.3	0.1	96.9	7.8
McRaven:											
55	0-5	Ap	8.8	76.3	14.9	4.0	1.4	---	0.1	47.0	5.4
56	5-14	B21	6.4	81.6	11.0	3.7	1.6	---	---	57.0	5.4
57	14-21	B22	10.3	78.1	11.6	3.9	1.0	---	---	60.0	5.7
58	21-30	Ab&B23b	8.6	77.2	14.2	4.0	3.0	0.1	---	64.0	5.7
59	30-54	B24b	8.5	69.4	22.1	5.5	5.5	0.1	---	77.0	6.0
60	54-80	B25b	19.7	69.6	10.7	3.9	4.8	0.1	---	93.0	7.1
Riedtown:											
49	0-7	Ap	2.5	84.5	13.0	6.4	2.7	---	0.1	74.0	6.2
50	7-27	B21	1.7	83.3	15.0	7.2	2.9	----	---	69.0	5.8
51	27-33	B22&A2b	4.0	77.3	18.7	9.5	3.7	---	----	75.0	6.2
52	33-42	B23b	4.1	73.7	22.2	10.3	4.7	---	---	75.0	6.2
53	42-52	B24gb	4.6	74.5	20.9	11.2	5.5	---	---	92.0	6.5
54	52-80	B25gb	4.3	74.4	21.3	12.1	6.2	---	---	88.0	6.4
Siwell:											
248	0-4	Ap	3.5	71.7	24.8	8.8	4.0	0.1	0.6	62.7	5.3
249	4-8	B21t	1.1	66.4	32.5	4.0	3.1	0.1	0.5	48.2	5.1
250	8-13	B22t	0.9	70.7	28.4	3.2	3.0	0.1	0.3	43.0	5.2
251	13-21	B23t	0.9	67.2	31.9	6.8	4.9	0.6	0.3	60.8	5.0
252	21-30	B24t	0.7	67.5	31.8	9.2	9.5	0.8	0.2	68.6	4.9
253	30-39	IIB25t	0.9	60.0	39.1	13.8	11.8	1.4	0.3	85.7	5.0
254	39-72	IIC	1.2	27.5	71.3	34.6	20.4	2.4	0.5	94.7	7.0

TABLE 19.--ENGINEERING TEST DATA

[Tests performed by Mississippi State Highway Department in cooperation with the Federal Highway Administration, Department of Transportation, in accordance with standard procedures of the American Association of State Highway and Transportation Officials]

Soil name and location	Parent material	Mississippi State Highway Laboratory Number	Depth from surface	Moisture density: Maximum dry density	Moisture density: Optimum moisture	Mechanical analysis: Percentage passing sieve--: No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)	Percentage smaller than--: 0.05 mm	0.02 mm	0.005 mm	0.002 mm	Liquid limit	Plasticity index	Classification: AASHTO	Unified
			In	Pcf	Pct								Pct			
Byram silt loam: 1 mile east of Clinton, 1/4 mile north of U.S. Highway 80, 500 feet east of gravel road, NW1/4NW1/4 sec. 34, T. 6 N., R. 1 W.	Loess over calcareous clay.	5	4-14	99.2	19.6	100	99	98	92	54	31	26	47	29	A-7	CL-ML
		6	23-31	100.8	18.0	100	99	99	92	62	31	26	51	23	A-7	CH
		7	31-51	104.7	18.6	100	100	99	92	66	35	30	53	21	A-7	CH
		8	51-67	105.2	17.4	100	100	99	92	63	30	24	44	21	A-7	CL
		9	67-90	84.8	27.2	100	99	98	92	85	74	69	31	36	A-7	CH
Deerford silt loam: 1 mile northeast of Byram in Pearl River flood plain, 1,300 feet east of road, SE1/4NE1/4 sec. 18, T. 4 N., R. 1 E.	Silty alluvium.	11	4-12	100.2	17.4	100	99	96	88	52	17	12	27	25	A-4	ML
		12	27-40	108.0	17.0	100	99	96	88	58	29	24	35	20	A-6	CL
		13	40-51	105.0	19.6	100	99	98	90	25	30	25	43	20	A-7	CL
		14	51-72	103.2	17.8	100	100	99	92	70	32	26	50	20	A-7	CL
		15	72-84	103.4	19.2	100	100	99	93	70	29	24	43	22	A-7	CL
Siwell silt loam: 1,100 feet south of intersection of U.S. Highway 80 and Robinson Road, NW1/4SW1/4 sec. 1, T. 5 N., R. 1 W.	Thin loess over calcareous clay.	1	8-13	97.8	21.3	100	99	97	92	63	32	27	55	24	A-7	CH
		2	21-30	101.7	21.0	100	100	99	92	71	27	33	54	22	A-7	CH
		3	30-39	99.6	20.7	100	100	99	93	70	42	37	64	20	A-7	CH
		4	39-72	89.0	28.0	100	100	99	95	86	75	70	113	33	A-7	CH

TABLE 20.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Adler	Coarse-silty, mixed, nonacid, thermic Aquic Udifluvents
Ariel	Coarse-silty, mixed, thermic Fluventic Dystrochrepts
Bonn	Fine-silty, mixed, thermic Glossic Natraqualfs
Byram	Fine-silty, mixed, thermic Typic Fragiudalfs
Calhoun	Fine-silty, mixed, thermic Typic Glossaqualfs
Calloway	Fine-silty, mixed, thermic Glossaquic Fragiudalfs
Cascilla	Fine-silty, mixed, thermic Fluventic Dystrochrepts
Chenneby	Fine-silty, mixed, thermic Fluvaquentic Dystrochrepts
Deerford	Fine-silty, mixed, thermic Albic Glossic Natraqualfs
Grenada	Fine-silty, mixed, thermic Glossic Fragiudalfs
Kisatchie	Fine, montmorillonitic, thermic Typic Hapludalfs
Lexington	Fine-silty, mixed, thermic Typic Paleudalfs
Loring	Fine-silty, mixed, thermic Typic Fragiudalfs
McRaven	Coarse-silty, mixed, nonacid, thermic Aeric Fluvaquents
Memphis	Fine-silty, mixed, thermic Typic Hapludalfs
Natchez	Coarse-silty, mixed, thermic Typic Eutrochrepts
Oaklimeter	Coarse-silty, mixed, thermic Fluvaquentic Dystrochrepts
Providence	Fine-silty, mixed, thermic Typic Fragiudalfs
Riedtown	Coarse-silty, mixed, thermic Fluvaquentic Eutrochrepts
Siwell	Fine-silty, mixed, thermic Typic Hapludalfs
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979-268-940/89

Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at (800) 457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

Nondiscrimination Statement

Nondiscrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the basis of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, whether all or part of an individual's income is derived from any public assistance program, or protected genetic information. The Department prohibits discrimination in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

To File an Employment Complaint

If you wish to file an employment complaint, you must contact your agency's EEO Counselor (http://directives.sc.egov.usda.gov/33081.wba) within 45 days of the date of the alleged discriminatory act, event, or personnel action. Additional information can be found online at http://www.ascr.usda.gov/complaint_filing_file.html.

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to program.intake@usda.gov.

Persons with Disabilities

If you are deaf, are hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint, please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Supplemental Nutrition Assistance Program

For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (http://directives.sc.egov.usda.gov/33085.wba).

All Other Inquiries

For information not pertaining to civil rights, please refer to the listing of the USDA Agencies and Offices (http://directives.sc.egov.usda.gov/33086.wba).