United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
Louisiana Agricultural
Experiment Station and
Louisiana State
Soil and Water
Conservation Committee

Soil Survey of St. Tammany Parish, Louisiana

How To Use This Soil Survey

General Soil Map

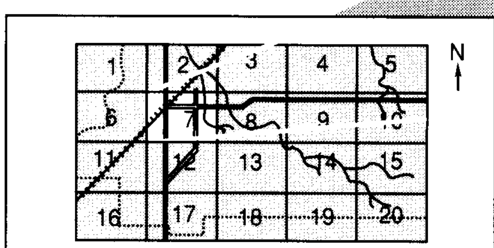
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

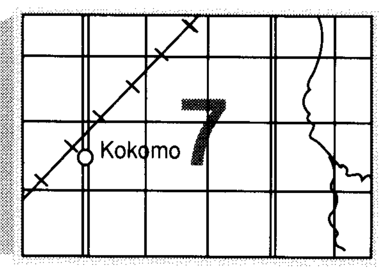
Detailed Soil Maps

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

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

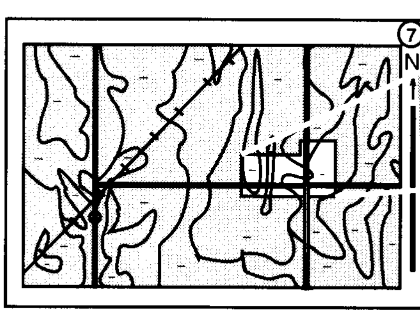


INDEX TO MAP SHEETS



MAP SHEET

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



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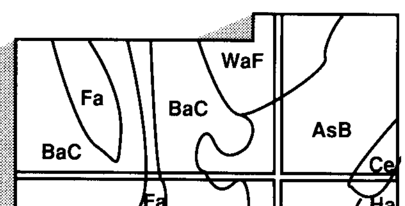

AREA OF INTEREST

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

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

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1984. Soil names and descriptions were approved in 1984. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This soil survey was made cooperatively by the Soil Conservation Service, the Louisiana Agricultural Experiment Station, and the Louisiana State Soil and Water Conservation Committee. It is part of the technical assistance furnished to the Bogue Chitto-Pearl River Soil and Water Conservation District.

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

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: The bahiagrass pasture is in an area of Ruston fine sandy loam, 3 to 6 percent slopes. The pond provides water for horses throughout the year. The residential development is in an area of Savannah fine sandy loam, 1 to 3 percent slopes.

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Soil Series

Issued March 1990

Index to Map Units

Summary of Tables

Foreword

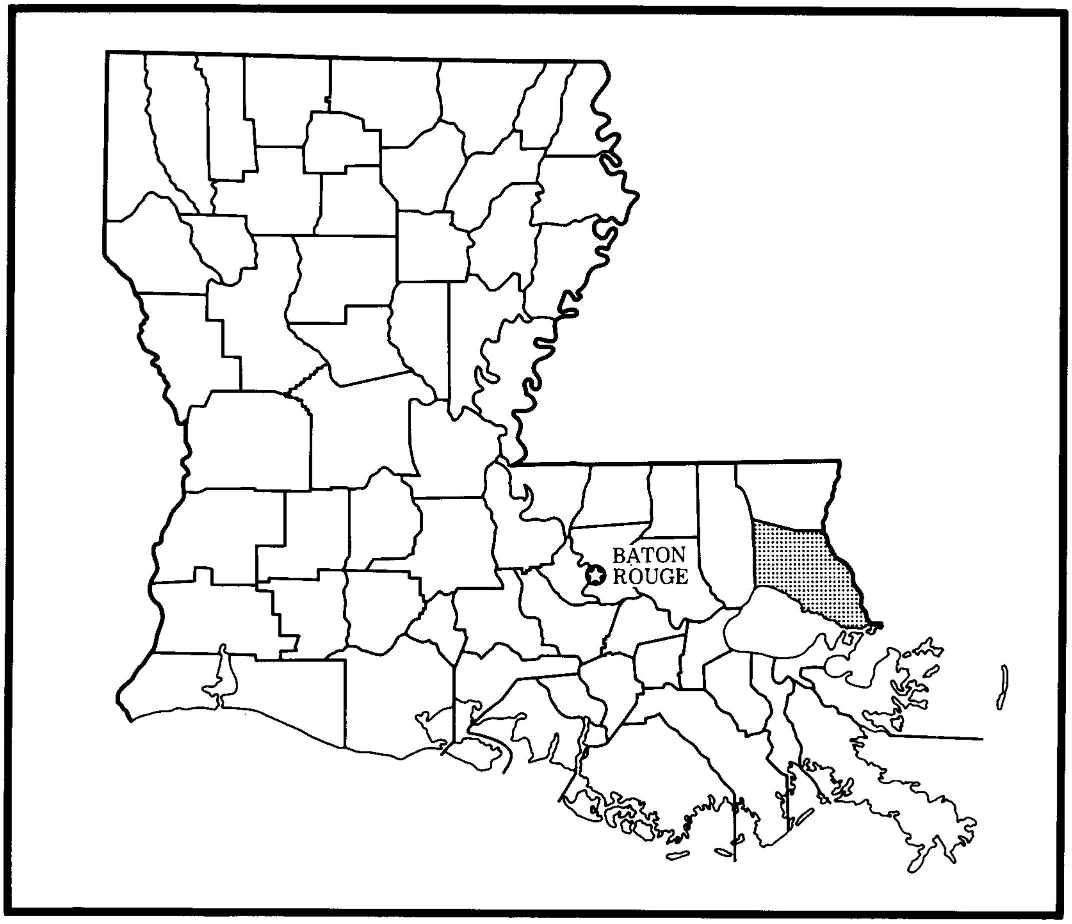
This soil survey contains information that can be used in land-planning programs in St. Tammany Parish. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. 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 soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Horace J. Austin
State Conservationist
Soil Conservation Service



Location of St. Tammany Parish in Louisiana.

Soil Survey of St. Tammany Parish, Louisiana

By Larry Trahan, Jeanette J. Bradley, Lyfon Morris,
Soil Conservation Service and
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United States Department of Agriculture, Soil Conservation Service
In cooperation with Louisiana Agricultural Experiment Station and
Louisiana State Soil and Water Conservation Committee

ST. TAMMANY PARISH is in southeastern Louisiana. It has a total area of 721,830 acres, of which 562,749 acres is land and 159,081 acres is large water areas—streams, small lakes, and Lake Pontchartrain.

This parish is bordered by Washington Parish on the north, Lake Pontchartrain on the south, Hancock and Pearl River Counties, Mississippi, on the east, and Tangipahoa Parish on the west. According to the 1980 census, the population of the parish was 110,869. Covington is the parish seat, and Slidell is the largest city. The parish is chiefly rural. The population centers are around Slidell in the southeastern part and around Covington and Mandeville in the southwestern part.

St. Tammany Parish consists of four physiographic areas: the forested terrace uplands, used mainly for woodland and pastureland; the broad terraces or Gulf Coast Flatwoods, used mainly for woodland; the narrow flood plains of major streams, used for woodland and wildlife habitat; and the marshes and swamps, used mainly as habitat for wetland wildlife and for recreation. The elevation ranges from about 200 feet above sea level on the terrace uplands to about 5 feet below sea level in the former marshes and swamps that have been drained.

General Nature of the Survey Area

This section gives general information concerning the parish. It discusses climate, agriculture, history, transportation, and water resources.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Covington, Louisiana, in the period 1951 to 1979. 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 53 degrees F, and the average daily minimum temperature is 41 degrees. The lowest temperature on record, which occurred at Covington, Louisiana, on December 13, 1962, is 7 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred at Covington, Louisiana, on June 30, 1954, is 103 degrees.

Growing degree days are shown in table 1. They 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.

The total annual precipitation is 61 inches. Of this, 32 inches, or 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 27 inches. The heaviest

1-day rainfall during the period of record was 6.5 inches at Covington, Louisiana, on December 6, 1953. Thunderstorms occur on about 70 days each year, and most occur in summer.

Snowfall is rare. In 85 percent of the winters, there is no measurable snowfall. In 15 percent, the snowfall, usually of short duration, is more than 1 inch. The heaviest 1-day snowfall on record was more than 3 inches.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 65 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the southeast. Average windspeed is highest, 10 miles per hour, in spring.

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

Agriculture

Most of St. Tammany Parish is in forests. Less than 10,000 acres is used for row crops, such as soybeans and corn. Numerous small plots are used for truck and garden crops. Farms in the parish are small, ranging from 5 to 40 acres.

Pastureland and nurseries are important agricultural uses on the terrace uplands. Most pastureland is used for grazing horses (fig. 1). A small acreage is used for grazing cattle. Numerous nurseries are in the Folsom area, and stock is shipped throughout the United States.

The present trend in St. Tammany Parish indicates an increase in the number of small farms, a net reduction in cropland acres, and an increase in urban and built-up areas. Residential areas are rapidly increasing along major highways as residents of Baton Rouge and New Orleans seek a more rural environment in which to live.

History

St. Tammany Parish is in an area that was part of the Mississippi Valley Territories claimed for France by LaSalle in 1682.

Indians lived in the area before LaSalle's arrival. Archaeological evidence suggests that former inhabitants were of the prehistoric Tchefuncta, Marksville, Troyville, Coles Creek, and Plaquemine-Historic cultures. When the French settlers arrived, the Acolapissa Indians were living in the area *(11)*.

France lost possession of the area to the British. Following the American Revolution, the Spanish helped to drive the British out. The area was then claimed for Spain. In 1810, the settlers revolted against Spain and proclaimed the area to be the West Florida Republic.

Figure 1.—This bahiagrass pasture is in an area of Ruston fine sandy loam, 1 to 3 percent slopes. The more sloping soil on each side of the drainageway is Ruston fine sandy loam, 3 to 6 percent slopes.

The settlers then petitioned the United States for admittance.

Louisiana became a state in 1812, and the boundaries of St. Tammany Parish were established. The original parish included all of present-day Washington Parish and part of Tangipahoa Parish.

The first parish courthouse was erected at Enon on the Bogue Chitto River in present-day Washington Parish. In 1817, the parish seat was moved to Claiborne, across the Bogue Falaya River from Covington. Covington, the present parish seat, was established in 1938 *(12)*.

St. Tammany Parish is named for a Delaware Indian chief called Tamanand, an ally of the settlers in New York. Governor W.C.C. Claiborne, first governor of Louisiana, bestowed the name St. Tammany on the Parish although Chief Tamanand had never lived in this area.

From the mid 1800's to the early 1900's the parish attracted cattle raisers, boatbuilders, brickmakers, and lumbermen *(31)*. The natural beauty of the area, with its pure pine scented air and soft artesian water, fostered the development of resorts. The advancing railroads provided access to the vast, untouched timberlands in the central part of the parish, allowing wholesale destruction of the forest. Today, only 1 or 2 sawmills are in the parish. The brickyards slowly disappeared after 1900 because of lack of demand. Only one brickyard is still in operation. The boatbuilding business flourished until the end of World War I.

St. Tammany Parish has seven incorporated towns or cities. Most were incorporated in the 19th century or the beginning of the 20th century *(12)*.

Transportation

St. Tammany Parish is served by several major railroads that connect to every major railroad system in the United States. Roads in the parish are mostly hard-surfaced federal, state, and parish highways. There are also a number of graveled timber company roads. Interstate 12 extends east-west across the parish to Slidell, where it intersects Interstate 59 and Interstate 10.

St. Tammany Parish is served by airports in Covington, Abita Springs, and Slidell that serve small private and commercial aircraft.

Water transportation in St. Tammany Parish is available for shallow draft vessels through Lake Pontchartrain and the numerous rivers that flow into the lake. Access to the Gulf of Mexico is through Lake Pontchartrain.

Water Resources

Surface Water. The main sources of surface water in St. Tammany Parish are the Tchefuncte River, Bogue Falaya River, Bayou Lacombe, Bayou Bonfouca, Liberty Bayou, Bogue Chitto River, Pearl River, and Lake Pontchartrain. Lake Pontchartrain and the numerous streams flowing into the lake are subject to daily tidal fluctuations. Therefore, the surface waters of Lake Pontchartrain and the lower ends of streams that flow into the lake range from fresh to brackish, depending upon the season and the amount of rainfall received.

Ground Water. Wells in St. Tammany Parish yield large quantities of soft water from sands of Miocene, Pliocene, and Quaternary Ages. Wells generally range in depth from 400 to 2,400 feet; the deepest is about 2,800 feet. Industrial wells have an average yield of about 1,000 gallons per minute (gpm). The largest yield is a municipal supply well at Slidell with a flow rate of 3,200 gpm. Flowing artesian wells are common in St. Tammany Parish. The base of freshwater aquifers in St. Tammany Parish is at greater depths than any known aquifers in Louisiana. Near the eastern border of the parish, the base of some aquifers is as deep as 3,550 feet below the surface *(18)*.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; and the kinds of crops and native plants growing on the soils. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map 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 can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect 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. It lists the suitability of each, in relation to that of the other map units, for specified uses and shows soil properties that limit use. Soil suitability ratings are based on the practices commonly used in the survey area to overcome soil limitations. These ratings reflect the ease of overcoming the limitations. They also reflect the problems that will persist even if such practices are used.

Each map unit is rated for *cultivated crops, pastureland, woodland, urban uses,* and *recreation areas.* Cultivated crops are those grown extensively in the survey area. Pasture refers to native and improved grasses for livestock. Woodland refers to areas of native or introduced trees. Urban uses include residential, commercial, and industrial developments. Intensive recreation areas are campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic.

The general soil map units in this survey have been grouped into four general landscapes. Descriptions of each of the broad groups and the map units in each group follow.

Soils of the Uplands

This group consists of loamy soils on the terrace uplands. Most of the acreage is used as woodland. This group makes up about 15 percent of the land area of the parish. Small acreages are used as pastureland or cropland.

1. Savannah-Ruston

Very gently sloping and gently sloping, moderately well drained and well drained soils that are loamy throughout

The soils of this map unit are on very gently sloping and gently sloping ridgetops and side slopes on the terrace uplands. They are at the highest elevation in the parish. Slopes range from 1 to 6 percent.

This map unit makes up about 15 percent of the land area of the parish. It is about 91 percent Savannah soils, 7 percent Ruston soils, and 2 percent soils of minor extent.

The Savannah soils are moderately well drained. They have a dark grayish brown fine sandy loam surface layer. The subsoil is yellowish brown, mottled clay loam in the upper part, and in the lower part is a fragipan of mottled brownish and reddish clay loam.

The Ruston soils are well drained. They have a dark yellowish brown fine sandy loam surface layer, and the subsoil is red and yellowish red sandy clay loam.

Of minor extent are the Bibb, Guyton, Myatt, and Ouachita soils. Bibb, Guyton, and Myatt soils are poorly drained, and Ouachita soils are well drained. These soils are on the flood plains of narrow drainageways. Also included are small areas of Smithdale soils. These soils are well drained and are on some of the steeper side slopes.

The soils of this map unit are mainly used as pastureland and woodland. Small acreages are used as cropland or for homesites.

These soils are well suited to use as woodland and have few limitations for this use.

These soils are well suited to use as pasture and moderately well suited to cultivated crops. Additions of lime and fertilizer are needed for optimum crop and forage production. Practices designed to control erosion should be used.

These soils are moderately well suited to urban uses and for intensive recreation areas, such as playgrounds and campsites. Wetness and moderate and moderately slow permeability are the main limitations. Low strength is a limitation for roads and streets. In addition, erosion is a hazard.

Soils of the Terraces

This group consists of loamy soils on broad stream terraces or marine terraces. The three map units in this group make up about 55.5 percent of the land area of the parish. Most of the acreage is used as woodland. Small acreages are used as pastureland or cropland. Wetness and flooding are the main limitations.

2. Guyton-Abita-Brimstone

Level to gently sloping, poorly drained and somewhat poorly drained soils that are loamy throughout

This map unit is on the Eastern Gulf Coast Flatwoods, a broad stream or marine terrace. The landscape is broad flats, low ridges, and poorly developed, small drainageways. The Guyton and Brimstone soils are on broad flats and are subject to rare flooding. Some of the Guyton soils are in drainageways and depressional areas and they are subject to occasional flooding. Slopes generally are long and smooth and range from 0 to 5 percent.

This map unit makes up about 9 percent of the parish. It is about 55 percent Guyton soils, 32 percent Abita soils, 8 percent Brimstone soils, and 5 percent soils of minor extent.

The Guyton soils are level and poorly drained. They are on broad flats and in drainageways and depressional areas. They have a dark grayish brown silt loam surface layer and a thick subsurface layer of mottled silt loam. The subsoil is mottled and grayish silt loam.

The Abita soils are level to gently sloping and somewhat poorly drained. They on slightly convex ridges and on the side slopes of drainageways. They have a dark grayish brown silt loam surface layer. The subsoil is mottled silt loam. It is brownish in the upper part and grayish in the lower part.

The Brimstone soils are level and poorly drained. They are on broad flats and irregular, slight rises. They have a dark gray silt loam surface layer and a grayish brown, mottled subsurface layer. The subsoil is grayish and mottled silt loam. High levels of sodium are in the subsoil.

Of minor extent are the Stough, Myatt, and Prentiss soils. The Stough soils are somewhat poorly drained. The Myatt soils are poorly drained and are on broad flats. The Prentiss soils are moderately well drained and are on low ridges.

The soils of this map unit are mainly used as woodland. Small acreages are used for pasture, crops, or residential and commercial areas.

These soils are well suited to use as woodland. Wetness limits the use of equipment. The high levels of sodium in the Brimstone soil can limit tree growth.

These soils are moderately well suited to pasture and crops. The main limitations are wetness, low fertility, and the high levels of sodium in the Brimstone soils. The Guyton soils that flood occasionally are poorly suited to crops. A surface drainage system and fertilizer are needed for optimum crop and forage production.

These soils are poorly suited to urban uses and intensive recreation areas, such as playgrounds and campsites. The main limitations are wetness, slow permeability, and low strength for roads. In addition, flooding is a hazard.

3. Myatt-Stough-Prentiss

Level and very gently sloping, poorly drained to moderately well drained soils that are loamy throughout

The soils of this map unit are on broad terraces in the southern part of the parish. The landscape is broad flats, low ridges, and numerous small drainageways. Most areas of the Myatt soils are subject to rare flooding. The Myatt soils that are in depressional areas and drainageways are subject to frequent flooding. Slopes range from 0 to 3 percent.

This map unit makes up about 41.5 percent of the land area of the parish. It is about 42 percent Myatt soils, 39 percent Stough soils, 13 percent Prentiss soils, and 6 percent soils of minor extent.

The Myatt soils are level and poorly drained. They are on flats and in depressional areas and drainageways. They have a dark gray fine sandy loam surface layer and a gray, mottled fine sandy loam subsurface layer. The subsoil is gray, mottled loam and sandy clay loam.

The Stough soils are level and somewhat poorly drained. They are on flats in positions that are slightly higher than those of the Myatt soils. The Stough soils have a dark gray fine sandy loam surface layer. The subsoil is brownish, mottled loam.

The Prentiss soils are level and very gently sloping and moderately well drained. They are on low ridges. They have a dark gray fine sandy loam surface layer. The subsoil is brownish, mottled sandy loam and loam. The lower part of the subsoil is a fragipan.

Of minor extent are the Guyton, Brimstone, Abita, Latonia, and Cahaba soils. The Guyton and Brimstone soils are poorly drained and are on flats. The Abita soils are somewhat poorly drained, and the Latonia and Cahaba soils are well drained. The Abita, Latonia, and Cahaba soils are in high positions on the landscape.

Most of the soils in this map unit are used as woodland. Small acreages are used for crops, pasture, or urban uses.

These soils are well suited to use as woodland. The main limitation is wetness. Flooding is a hazard in some areas of the Myatt soils.

These soils are moderately well suited to crops and well suited to use as pasture. The main limitations are wetness and low fertility. Erosion is a slight hazard. A good surface drainage system and fertilizer are needed for optimum crop and forage production. Soils that are subject to frequent flooding are poorly suited to crops and to use as pasture.

These soils are poorly suited to urban uses and moderately well suited to intensive recreation areas, such as playgrounds and campsites. Wetness and moderately slow permeability are the main limitations. In addition, flooding is a hazard.

4. Cahaba-Prentiss-Latonia

Very gently sloping and level, well drained and moderately well drained soils that have a loamy surface layer and subsoil

The soils of this map unit are on stream terraces mainly along the Bogue Chitto and Pearl Rivers. The landscape is long, smooth slopes and gentle rises or low ridges. Slopes range from 0 to 3 percent.

This map unit makes up about 5 percent of the land area of the parish. It is about 39 percent Cahaba soils, 30 percent Prentiss soils, 26 percent Latonia soils, and 5 percent soils of minor extent.

The Cahaba soils are very gently sloping and well drained. They are in high positions on convex ridges and side slopes. They have a brownish fine sandy loam surface layer, a reddish and brownish loamy subsoil, and brownish sandy underlying material.

The Prentiss soils are level and very gently sloping and moderately well drained. They have a dark gray fine sandy loam surface layer and a brownish loamy subsoil. The lower part of the subsoil is a fragipan.

The Latonia soils are nearly level and well drained. They have a grayish brown fine sandy loam surface layer, a brownish loamy subsoil, and brownish and white sandy underlying material.

Of minor extent are the Stough and Myatt soils. Stough soils are somewhat poorly drained and are in level areas. Myatt soils are poorly drained and are in drainageways and in depressional areas.

The soils of this map unit are used mainly as woodland and pastureland. Small acreages are used for crops and urban uses.

These soils are well suited to use as woodland and pasture, and they have few limitations to these uses.

The soils of this map unit are moderately well suited to crops. Low fertility and droughtiness are the main limitations. Erosion is a slight hazard.

These soils are moderately well suited to urban uses and intensive recreation areas, such as playgrounds and campsites. Wetness is the main limitation.

Soils of the Flood Plains

This group consists of loamy soils on the flood plains of major streams and drainageways. These soils are well drained to poorly drained. They are frequently flooded by overflow and by runoff from the terrace uplands. The two map units in this group make up about 15 percent of the land area of the parish. Most of the acreage is used as woodland. Small acreages are used as pasture or cropland.

5. Arkabutla-Rosebloom

Nearly level, somewhat poorly drained and poorly drained soils that are loamy throughout

The soils of this map unit are on the flood plains of the Pearl River and its tributaries. They are frequently flooded. Slopes range from 0 to 2 percent.

This map unit makes up about 10 percent of the land area of the parish. It is about 50 percent Arkabutla soils, 40 percent Rosebloom soils, and 10 percent soils of minor extent.

The Arkabutla soils are somewhat poorly drained. They are on slight rises. They have a dark brown silt loam or silty clay loam surface layer. The subsoil is brownish and grayish, mottled silt loam and silty clay loam.

The Rosebloom soils are poorly drained. They are in low positions on the landscape. They have a brown, mottled silt loam surface layer, and the subsoil is grayish, mottled silty clay loam and silt loam.

Of minor extent are the Cahaba, Ouachita, Bibb, Arat, Guyton, and Myatt soils. Cahaba and Ouachita soils are well drained and are on low ridges. Bibb, Arat, Guyton, and Myatt soils are poorly drained and are in low positions on the landscape.

Most of the soils in this map unit are used as woodland. Small acreages are used for pasture or crops.

These soils are moderately well suited to use as woodland. Flooding and wetness limit the use of equipment and cause moderate seedling mortality.

These soils are poorly suited to crops and pasture, and they are not suited to urban uses or intensive recreation areas, such as playgrounds and campsites. Flooding and wetness are generally too severe for these uses.

6. Ouachita-Bibb

Nearly level, well drained and poorly drained soils that are loamy throughout

The soils of this map unit are on the flood plains of major streams, such as the Tchefuncte, Bogue Falaya, and Bogue Chitto Rivers. The landscape is slightly undulating with low ridges and shallow swales. Slopes range from 0 to 2 percent.

This map unit makes up about 5 percent of the land area of the parish. It is about 60 percent Ouachita soils, 30 percent Bibb soils, and 10 percent soils of minor extent.

The Ouachita soils are well drained and are on the low ridges. They have a dark brown silt loam surface layer and a brownish silt loam and silty clay loam subsoil.

The Bibb soils are poorly drained and are in low positions on the landscape. They have a brownish fine sandy loam or loam surface layer and grayish, mottled loam and sandy loam underlying material.

Of minor extent are the Cahaba, Arat, Guyton, and Myatt soils. Cahaba soils are well drained and are on ridges. Arat soils are very poorly drained and are in backswamps. Guyton and Myatt soils are poorly drained and are in low positions on the landscape. Also included are large areas of Arat and Kenner soils near the mouth of Lacombe Bayou.

Most of the soils in this map unit are used as woodland. A small acreage is used as pasture.

These soils are moderately well suited to use as woodland. Flooding and wetness limit the use of equipment and cause moderate seedling mortality.

These soils are poorly suited to pasture and crops. They are not suited to intensive recreation areas, such as playgrounds and campsites, or for urban uses. Wetness is the main limitation, and flooding is a hazard.

Soils of the Marshes and Swamps that are Frequently Flooded and Ponded

This group consists of soils that are level and very poorly drained. They are in marshes and swamps. These soils are frequently flooded and are ponded most of the time. The four map units in this group make up about 12.5 percent of the land area of the parish. Most of the area is in native vegetation and is used for recreation and as habitat for wetland wildlife.

7. Larose-Allemands-Kenner

Level, very poorly drained soils that have a mucky surface layer and clayey and mucky underlying material; in freshwater marshes

The soils of this map unit are in freshwater marshes that are ponded most of the time. Elevation ranges from sea level to about 1 foot above sea level. Slopes are less than 1 percent.

This map unit makes up about 4 percent of the land area of the parish. It is about 61 percent Larose soils, 17 percent Allemands soils, 12 percent Kenner soils, and 10 percent soils of minor extent.

The Larose soils are very fluid mineral soils. They have a very fluid mucky clay surface layer and very fluid clay underlying material.

The Allemands soils are very fluid organic soils. They have a moderately thick surface layer of very fluid muck and underlying material of very fluid clay.

The Kenner soils are very fluid organic soils. They are stratified very fluid muck and very fluid clay.

Of minor extent are the Arat, Barbary, Clovelly, Lafitte, and Maurepas soils. These soils are very poorly drained. Arat, Barbary, and Maurepas soils are in nearby swamps. Clovelly and Lafitte soils are in nearby brackish marshes. Many small ponds and perennial streams are in most areas.

Most of the acreage in this map unit is in native vegetation and is used for recreation and as habitat for wetland wildlife. A few small areas are drained and used as urban land. Saltwater has intruded into some areas, and brackish marsh vegetation has become established.

These soils are well suited to use as habitat for wetland wildlife and provide habitat for many species. Hunting, fishing, and other outdoor activities are popular.

These soils are not suited to crops, pasture, woodland, and urban uses. Flooding, wetness, and low soil strength are too severe.

8. Arat

Level, very poorly drained soils that are loamy throughout; in swamps

The soils in this map unit are in swamps that are frequently flooded and ponded most of the time. Elevation ranges from sea level to about 5 feet above sea level. Slopes are less than 1 percent.

This map unit makes up about 4 percent of the land area of the parish. It is about 85 percent Arat soils and 15 percent soils of minor extent.

Arat soils are very fluid mineral soils. They have a brownish silty clay loam surface layer and underlying material.

Of minor extent are the Barbary, Larose, Maurepas, Arkabutla, and Rosebloom soils. Barbary, Larose, and Maurepas soils are very poorly drained, Arkabutla soils are somewhat poorly drained, and Rosebloom soils are poorly drained. Barbary and Maurepas soils are in swamps, and Larose soils are in nearby marshes. Arkabutla and Rosebloom soils are on the flood plains of streams that drain into the swamps.

Most of the acreage in this map unit is in native trees and aquatic vegetation. It is used for recreation and as habitat for wetland wildlife.

The soils of this map unit are well suited to recreation uses and to use as habitat for many species of wetland wildlife. Hunting, fishing, and other outdoor activities are popular in most of the areas.

These soils are not suited to crops, pasture, woodland, or urban uses. Flooding, wetness, and low soil strength are too severe.

9. Clovelly-Lafitte

Level, very poorly drained soils that have a mucky surface layer and clayey and mucky underlying material; in brackish marshes

This map unit makes up about 4 percent of the land area of the parish. It is about 60 percent Clovelly soils, 35 percent Lafitte soils, and 5 percent soils of minor extent.

The Clovelly soils are very fluid, slightly saline organic soils. They have a moderately thick surface layer of very fluid muck and underlying material of very fluid clay.

The Lafitte soils are very fluid, slightly saline organic soils. They are brownish and grayish, very fluid muck throughout.

Of minor extent are the Allemands, Kenner, and Larose soils in adjacent areas of freshwater marsh. These soils are very poorly drained. Many small ponds and perennial streams are in most areas.

Most of the acreage in this map unit is in native vegetation and is used for recreation and as habitat for wetland wildlife.

The soils of this map unit are well suited to use as habitat for wetland wildlife and they provide suitable habitat for many species. Hunting, fishing, and other outdoor activities are popular in most of the areas. This map unit is part of the estuary that helps support marine life in the Gulf of Mexico.

These soils are not suited to crops, pasture, woodland, or urban uses. Flooding, wetness, salinity, and low soil strength are too severe.

10. Barbary-Maurepas

Level, very poorly drained soils that are clayey or mucky throughout; in swamps

The soils of this map unit are in swamps that are frequently flooded and ponded most of the time. Elevation ranges from sea level to about 2 feet above sea level. Slope is less than 1 percent.

This map unit makes up about 0.05 percent of the land area of the parish. It is about 50 percent Barbary soils, 42 percent Maurepas soils, and 8 percent soils of minor extent.

The Maurepas soils are organic soils and they are very fluid muck throughout.

The Barbary soils are mineral soils and they are grayish, very fluid clay throughout.

Of minor extent are the Allemands, Kenner, and Guyton soils. Allemands and Kenner soils are very poorly drained and are in nearby marshes. Guyton soils are poorly drained. They are on islands in the swamps and on flood plains of streams that drain into the swamps.

Most of the acreage is in native trees and aquatic vegetation. These soils are used for recreation and as habitat for wetland wildlife. A small acreage has been drained for urban uses.

These soils are well suited to recreation and to use as habitat for wetland wildlife. The soils provide habitat for many species of wetland wildlife. Hunting, fishing, and other outdoor activities are popular in most areas.

The soils of this map unit are not suited to crops, pasture, woodland, or urban uses. Wetness, low soil strength, and the hazard of flooding are too severe.

Soils of the Former Marshes and Swamps that are Drained and Protected from Flooding

This group consists of soils that range from mucky to clayey. They are level to gently sloping and are poorly drained. These soils are in drained marshes and swamps. The soils are protected from most floods by levees and are drained by pumps. Flooding is rare, but it can occur during severe storms or when protection levees fail. The map unit in this group makes up about 2 percent of the parish. The area is used about equally as pasture and for urban uses. Wetness, low soil strength, subsidence, the shrinking and swelling of the subsoil, and the hazard of flooding are the main limitations if the soils are used for urban development.

11. Aquents-Allemands-Harahan

Level to gently sloping, poorly drained soils; some vary in texture throughout, some have a mucky surface layer and clayey underlying material, and some have a clayey surface layer and subsoil

The soils of this map unit are in former marshes and swamps that are protected from flooding by levees and drained by pumps. Flooding is rare, but it can occur during severe storms or when protection levees fail. Elevation ranges from 5 feet above sea level to 5 feet below sea level. Slopes range from 0 to 5 percent.

This map unit makes up about 2 percent of the land area of the parish. It is about 41 percent Aquents soils, 26 percent drained Allemands soils, 14 percent Harahan soils, and 19 percent soils of minor extent.

The Aquents soils consist of spoil material dredged from nearby marshes and swamps during the construction and maintenance of waterways. Throughout, they are stratified mucky, clayey, sandy, and loamy soils.

The drained Allemands soils have a moderately thick surface layer of muck and underlying material of very fluid clay. They were formerly in marshes.

The Harahan soils are in former swamps. They have a firm clay surface layer; a grayish, firm clay subsoil; and grayish, slightly fluid clay underlying material.

Of minor extent are the Guyton and Myatt soils. These soils are poorly drained and they are on the flood plains of streams that drain into the marshes and swamps and around the edges of these areas. Also included are the drained Maurepas soils in swamps. Small to large areas of open water are in some areas.

Most areas of the Aquents soils in this map unit are developed for urban uses. A small acreage is in pasture or in idle land that has been reserved for future urban uses. Most areas of the drained Allemands and Harahan soils are used as pasture or they are idle land.

These soils are poorly suited to most urban uses. Wetness, low strength for roads and streets, very slow permeability, the shrinking and swelling of the subsoil, and the hazard of flooding are the main limitations. Adequately controlling the water table is difficult. Foundations for buildings need to be specially designed and set upon pilings.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

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

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Ruston fine sandy loam, 1 to 3 percent slopes, is one of several phases in the Ruston series.

Some map units are made up of two or more major soils. These map units are called soil complexes or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Brimstone-Guyton silt loams is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Ouachita and Bibb soils, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps.

All the soils in St. Tammany Parish were mapped at the same level of detail except for those areas within the marshes and swamps and those areas on the narrow flood plains of major streams. Poor accessibility limited the number of observations in most of these areas. In addition, wetness from flooding or ponding limits the use and management of these soils, and separating all of the soils in these areas would be of little importance to the land user. Where flooding or ponding is the overriding limitation for expected land use, fewer onsite observations were made and the soils were not mapped separately.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Aa—Abita silt loam, 0 to 2 percent slopes. This soil is nearly level and somewhat poorly drained. It is in slightly raised positions on broad stream or marine terraces. Areas range from about 10 to 200 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsoil to a depth of about 62 inches is brownish yellow and light yellowish brown, mottled silt loam in the upper part; mottled strong brown, gray, and red silt loam in the middle part; and light brownish gray, mottled silt loam in the lower part.

This Abita soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil slowly and water runs off the surface slowly. A seasonal high water table fluctuates between depths of about 1 foot and 3 feet from December through April. Adequate water is available to plants in most years. The shrink-swell potential is moderate in the subsoil.

Included in mapping are a few small areas of Brimstone, Guyton, Myatt, Prentiss, and Stough soils. The Brimstone, Guyton, and Myatt soils are in lower positions on the landscape than Abita soil and are grayish throughout. In addition, the Brimstone soils have high concentrations of sodium in the subsoil. The Prentiss and Stough soils are in slightly higher positions and have more sand throughout. Also included are a few small areas of soils that are similar to the Abita soil except that the lower part of the subsoil is browner than in the Abita soil. Also included are a few small areas of Abita soil that are at a lower elevation and are subject to rare flooding and small areas of urban land that are in commercial and residential uses. The included soils make up about 10 percent of the map unit.

This Abita soil is mostly used as woodland. Small acreages are used as commercial and residential sites, pastureland, or cropland.

This soil is well suited to woodland. Loblolly pine, slash pine, and longleaf pine are suitable trees to plant. The main concern in producing and harvesting timber is a moderate equipment use limitation caused by wetness. The soil compacts less if suitable logging systems are used, if skid trails are laid out in advance, and if timber is harvested when the soil is least susceptible to compaction. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants.

This soil is poorly suited to urban uses. The main limitations are wetness, slow permeability, moderate shrink-swell potential, and low strength for roads. As the population has grown, home construction has increased in areas of this soil. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow permeability. Drainage is needed if roads and building foundations are constructed. Foundations for buildings need to be designed to withstand the shrinking and swelling of the soil. Roads should be designed to offset the limited ability of the soil to support a load.

This soil is well suited to pasture. Suitable pasture plants are common bermudagrass, improved bermudagrass, ryegrass, tall fescue, wheat, oats, bahiagrass, white clover, winterpeas, and vetch. Wetness and low fertility are the main limitations to the use of this soil as pasture. The surface layer will compact if the pasture is grazed when the soil is wet. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition.

This soil is moderately well suited to crops. The main limitations are wetness, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. A drainage system is needed for most cultivated crops and pasture plants. A tillage pan can form if the soil is cultivated excessively, but it can be broken by subsoiling when the soil is dry. Returning crop residue to the soil or regularly adding other organic matter improves fertility, reduces crusting, and increases the water intake rate. Crops respond to additions of lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitations are wetness and slow permeability. Good drainage should be provided for such areas as playgrounds. Plant cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife, such as white-tailed deer, turkey, squirrel, quail, cottontail rabbits, and many nongame birds. Habitat for woodland wildlife can be improved by planting or encouraging the growth of existing oak trees and suitable understory plants. Prescribed burning, rotated every 3 years among several small tracts of land, can increase the amount of palatable deer browse and seed-producing plants used by quail and turkey.

This Abita soil is in capability subclass IIw. The woodland ordination symbol is 11W.

Ab—Abita silt loam, 2 to 5 percent slopes. This soil is gently sloping and somewhat poorly drained. It is on low, convex ridges and side slopes of drainageways on stream or marine terraces. Areas range from about 10 to 100 acres.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The subsoil to a depth of about 60 inches is light yellowish brown, mottled silt loam in the upper part; mottled light brownish gray, light yellowish brown, yellowish brown, and red silty clay loam in the middle part; and light brownish gray, mottled silty clay loam in the lower part.

This Abita soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil slowly, and water runs off the surface at a medium rate. A seasonal high water table fluctuates between depths of about 1 foot and 3 feet from December to April. Adequate water is available to plants in most years. The shrink-swell potential is moderate in the subsoil.

Included in mapping are a few small areas of Brimstone, Guyton, Myatt, Prentiss, and Stough soils. The Brimstone, Guyton, and Myatt soils are in lower positions on the landscape than Abita soil and are grayish throughout. In addition, the Brimstone soils have high concentrations of sodium in the subsoil. The Prentiss and Stough soils are in slightly higher positions and have more sand throughout. Included are a few small areas of soils that are similar to the Abita soil except that the lower part of the subsoil is browner. Also included, and subject to rare flooding, are a few small areas of Abita soil at a lower elevation and a few areas of urban land. The included soils make up about 10 percent of the map unit.

This Abita soil is mostly used as woodland. Small acreages are used as commercial and residential sites, pastureland, or cropland.

This soil is well suited to use as woodland. Loblolly pine, slash pine, and longleaf pine are suitable trees to plant. The main concern in producing and harvesting timber is a moderate equipment use limitation caused by wetness. Erosion is a slight hazard. Soil compaction is also a concern. Harvesting when the soil is dry reduces the risk of soil compaction. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants. Management that minimizes the risk of erosion is important in harvesting timber.

This soil is poorly suited to urban uses. The main limitations are wetness, slow permeability, moderate shrink-swell potential, and low strength for roads. Erosion is a moderate hazard where the soil surface is left bare during construction. As the population has grown, home construction has increased in areas of this soil. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow permeability. Drainage is needed where buildings are constructed. Foundations should be designed to withstand shrinking and swelling of the soil. The effects of shrinking and swelling can be minimized by backfilling with material that has low shrink-swell potential. Roads should be designed to offset the limited ability of the soil to support a load. Preserving the existing plant cover during construction or revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion.

This soil is well suited to pasture. The main limitations are wetness, low fertility, and a moderate hazard of erosion. Grazing when the soil is wet will compact the surface layer and cause poor tilth and excessive runoff. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Seedbed preparation should be on the contour or across the slope where practical. Suitable pasture plants are common bermudagrass, improved bermudagrass, ryegrass, tall fescue, wheat, oats, bahiagrass, winterpeas, vetch, and white clover.

This soil is moderately well suited to crops. The main limitations are wetness, low fertility, a moderate hazard of erosion, and potentially toxic levels of aluminum within the root zone. Proper row arrangement, field ditches, and vegetated outlets help remove excess surface water. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. A tillage pan can form if the soil is excessively cultivated, but it can be broken by subsoiling when the soil is dry. Practices that can be used to control erosion include early fall seeding, conservation tillage, and construction of terraces, diversions, and grassed waterways. Crops respond well to additions of lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitations are wetness, slow permeability, and a moderate hazard of erosion. Good drainage should be provided for intensively used areas, such as playgrounds. Adequate plant cover can control erosion and sedimentation and enhance the beauty of the area. Plant cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for woodland wildlife can be improved by planting or encouraging the growth of existing oak trees. Prescribed burning, rotated every 3 years among several small tracts of land, can increase the amount of palatable deer browse and seed-producing plants used by quail and turkey. Habitat for openland wildlife can be improved by providing undisturbed, vegetated areas around the edges of fields.

This Abita soil is in capability subclass IIe. The woodland ordination symbol is 11W.

AC—Allemands muck. This organic soil is level, very poorly drained, and very fluid. It is in freshwater marshes that are frequently flooded and are ponded most of the time. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected use of the soil. Areas are irregular in shape and are several hundred acres in size. Slope is less than 1 percent.

Typically, the surface layer is very dark grayish brown, slightly fluid muck about 12 inches thick. The next layers to a depth of about 48 inches are black, very fluid muck. The underlying material to a depth of about 75 inches is black, very fluid clay in the upper part and dark gray, very fluid clay in the lower part.

This soil is flooded by freshwater most of the time, and it is wet throughout the year. During storms, floodwaters are as deep as 4 feet. The high water table is commonly at or above the surface, but during periods of sustained north wind and low gulf tides, it is as much as 6 inches below the surface. This soil has a low capacity to support loads. Permeability is rapid in the organic surface layer and very slow in the clayey underlying material. The total subsidence potential is high. If drained, the organic material, on drying, initially shrinks to about half the original thickness and then subsides further as a result of compaction and oxidation. These losses are most rapid during the first 2 years after draining. Thereafter, the soil continues to subside at the rate of about 1 inch per year. The lower the water table, the more rapid the loss.

Included in mapping are a few large areas of Barbary, Clovelly, Kenner, Lafitte, and Maurepas soils. The Barbary soils are in swamps and are mineral soils. The Clovelly soils are in brackish marshes and are more saline throughout than the Allemands soil. The Kenner and Lafitte soils are in marshes, and the Maurepas soils are in swamps. The Kenner, Lafitte, and Maurepas soils have thicker layers of organic material than the Allemands soil. Few to many small ponds and tidal channels are included in places. Also included are a few large areas of Allemands soil that has loamy underlying material. The included soils make up about 15 percent of the map unit.

This Allemands soil is mainly used as habitat for wetland wildlife and for extensive forms of recreation, such as hunting and fishing.

This soil is well suited to use as habitat for wetland wildlife. Roosting and feeding areas are available for large numbers of ducks and other waterfowl. This soil also provides habitat for large numbers of crawfish, swamp rabbits, American alligators, and furbearers, such as mink, nutria, otter, raccoon, and muskrat. The small ponds and perennial channels included in this map unit provide habitat for significant numbers of freshwater fish. Trapping of American alligators and furbearers and commercial fishing are important activities. Water control structures, designed for the management of habitat, are difficult to construct and maintain because of the instability of the organic material.

The natural vegetation consists mainly of bulltongue, maidencane, alligatorweed, cattail, common rush, pickerelweed, and giant cutgrass. A few baldcypress trees are in some areas.

Unless this soil has been drained and is protected from flooding, it is not suited to crops, pasture, or woodland. Wetness, flooding, and low strength are too severe for these uses. This soil is generally too soft and boggy to support livestock grazing. Drainage and protection from flooding are possible, but extensive water control structures, such as levees and water pumps, are required. Subsidence and low strength are continuing limitations after drainage.

This soil is not suited to urban and intensive recreation uses, such as playgrounds and campsites, because of wetness, flooding, and low soil strength. Drainage is only feasible with an extensive system of levees and water pumps. The soil material is poorly suited to the construction of levees because it shrinks and cracks as it dries, causing the levees to fail.

This Allemands soil is in capability subclass VIIw. It is not assigned a woodland ordination symbol.

Ad—Allemands muck, drained. This soil is level and poorly drained. It is an organic soil that is in former freshwater marshes that have been drained. Areas of this soil range from about 20 to 500 acres. Slope is less than 1 percent.

Typically, this Allemands soil has a very dark gray muck surface layer about 18 inches thick. The next layer to a depth of about 38 inches is black muck. The underlying material to a depth of about 74 inches is gray, very fluid clay. In places, buried logs and stumps are in the underlying material. The organic material, in drying, shrinks and cracks; it remains cracked when rewetted.

Permeability is rapid in the organic surface layer and very slow in the clayey underlying material. If the surface is covered with fill material, the cracks in the surface layer remain open and extend into the underlying material. Water and air move freely through these cracks. The natural fertility of this Allemands soil is high. Under normal conditions, the high water table is maintained at a depth of 2 to 4 feet. After intense rains of long duration, the high water table is near the surface for long periods. This soil is drained by pumps and protected from most floods by levees. Flooding is rare, occurring during storms and when water pumps or protection levees fail. Flooding occurs less often than once in 10 years. This soil has a high total subsidence potential.

Included in mapping are a few small areas of Harahan soils, drained Maurepas soils, and soils similar to Allemands muck, drained. The Harahan soils are in drained swamps and are mineral soils. The Maurepas soils are in swamps and have thicker organic layers that have logs and stumps. The soils similar to Allemands muck, drained have an organic surface layer that is only 5 to 15 inches thick. The included soils make up about 10 percent of this map unit.

This Allemands soil is used mostly as pasture or idle land that is reserved for future urban uses. A small acreage is in residential use.

This soil is moderately well suited to pasture. Suitable pasture plants are common bermudagrass, Dallisgrass, white clover, ryegrass, and tall fescue. Native grasses, such as maidencane, are also suitable. Wetness limits the choice of plants and the period of grazing. Adequate water control is needed. Grazing cattle may have difficulty walking if the surface layer becomes soft and boggy for short periods after heavy rainstorms or after flooding. In places, spoil deposits along dug channels help to improve grazing distribution.

This soil is poorly suited to urban uses and intensive forms of recreation, such as playgrounds and campsites, mainly because of flooding, wetness, subsidence, and low strength. If the water table is lowered, the organic matter oxidizes and slowly subsides. In places, buried logs and stumps cause uneven subsidence. If dry, the organic matter is subject to burning.

If this soil is used for dwellings, pilings and specially constructed foundations are needed. Removing the organic material and replacing it with suitable mineral material or covering the surface with mineral material can also help to reduce subsidence where buildings, local roads and streets, and playgrounds are to be constructed. Adequate water control is needed to reduce wetness and to control the rate of subsidence. Septic tank absorption fields do not function properly in this soil; therefore, community sewage systems are needed to prevent contamination of water sources by effluent seepage. Drainage ditches and levees are difficult to construct and maintain because of the very fluid nature of the underlying mineral material and the subsidence of the organic material.

This soil has good potential for use as habitat for wetland wildlife and fair potential for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation or by encouraging the propagation of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open water areas for waterfowl and furbearers, such as muskrat, nutria, and otter.

This Allemands soil is in capability subclass IVw. It is not assigned a woodland ordination symbol.

Ag—Aquents, dredged. This map unit consists of areas of spoil material dredged from nearby marshes, swamps, and waterways. The soils are nearly level to gently sloping and are poorly drained. Slopes range from 0 to 5 percent.

These soils are variable in texture and range from muck and clay to sand. Areas of these soils were created by encircling them with dikes. Spoil material dredged from waterways was stacked and allowed to dry. The material was then leveled and spread throughout the diked area.

The soils of this map unit are subject to rare flooding during storms, and areas along Lake Pontchartrain are subject to saltwater flooding by tides. Flooding can occur at any time of the year, but less often than once in 10 years. The soils have a seasonal high water table that is near the surface during wet periods. Permeability is variable. The clayey material in these soils has a high shrink-swell potential. The soils have a low to medium total subsidence potential.

Typically, the Aquents soils have a clay or silty clay loam surface layer that ranges from very strongly acid to moderately alkaline. The underlying material is clayey, mucky, loamy, or sandy. In some places, the underlying material is fluid. In other places, the soils have thin organic layers and many fragments of clam shells.

Most of the acreage is in residential or commercial uses or it is being developed for these uses (fig. 2).

These soils are severely limited for urban uses, mainly because of wetness, flooding, subsidence, low strength, and high shrink-swell potential.

This soil is well suited to use as habitat for wetland wildlife. Habitat can be improved by constructing shallow ponds for waterfowl and furbearers, such as muskrat, raccoon, otter, and nutria.

Aquents is not assigned to interpretative groups.

AR—Arat silty clay loam. This soil is level, very poorly drained, and very fluid. It is a mineral soil that is in swamps. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected use of the soil. Areas are irregular in shape and range up to several thousand acres. Slope is less than 1 percent.

Typically, this Arat soil has a dark grayish brown, very fluid, silty clay loam surface layer about 10 inches thick. The underlying material to a depth of about 70 inches is grayish brown and very dark grayish brown, very fluid, silty clay loam. Logs and wood fragments are in the lower part.

This Arat soil has slow permeability. The high water table ranges from 0.5 foot below the soil surface to 3 feet above the surface when the soil is not flooded; however, this soil is frequently flooded by freshwater for very long periods. Depth of floodwaters ranges from 3 to 7 feet. This soil has low strength or capacity to support a load. Permeability is slow. The total subsidence potential is medium.

Included in mapping are a few large areas of Allemands, Barbary, Larose, Maurepas, and Rosebloom soils. The Allemands soils are in nearby marshes and are organic soils. The Barbary soils are in positions on the landscape similar to those of the Arat soil and are more clayey throughout. The Larose soils are in nearby marshes and are clayey in the underlying material. The Maurepas soils are in positions similar to those of the Arat soil and have thick organic layers. The Rosebloom soils are in higher positions and are firm throughout. The included soils make up about 20 percent of the map unit.

This Arat soil is mainly used as woodland and as habitat for wetland wildlife. In some areas, it is also used for extensive recreation, such as hunting.

This soil is well suited to use as habitat for wetland wildlife. It provides roosting areas for migratory ducks and food and nesting sites for wood ducks, squirrels, alligators, and nongame birds. This soil also provides suitable habitat for large numbers of crawfish and for furbearers, such as raccoon, nutria, and otter. Water control structures for intensive wildlife management are difficult to construct because of the instability and fluid nature of the soil material. Hunting of waterfowl is a popular sport in most areas of this map unit.

This soil is poorly suited to use as woodland. Few areas are managed for timber production because trees grow slowly and special equipment is needed to harvest the timber. This soil cannot support the load of most harvesting equipment. The regeneration of trees is generally only on rotting logs, stumps, and root mats. Seedling mortality is severe because of wetness and flooding. The natural vegetation consists mainly of water-tolerant trees and aquatic understory plants. The common trees are baldcypress and water tupelo. Understory and aquatic vegetation consist mainly of alligatorweed, water hyacinth, bulltongue, arrowhead, and pickerelweed. Natural regeneration of baldcypress and water tupelo trees is very slow. In places, most of the trees have been harvested and only open water or aquatic understory plants remain.

Figure 2.—Although Aquents, dredged, have severe limitations for urban uses, most of this soil is used for residential and commercial development.

This Arat soil is not suited to crops or pasture. Wetness, flooding, and low strength are too severe. This soil generally is too soft and boggy to support livestock grazing.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites, because wetness, flooding, and low strength are too severe. Drainage and protection from flooding are possible only by constructing large water control structures. Drainage ditches are difficult to construct because stumps and logs are buried in the soil. In addition, subsidence is a problem if this soil is drained.

This Arat soil is in capability subclass VIIIw. The woodland ordination symbol is 5W.

AT—Arkabutla and Rosebloom soils, frequently flooded. These soils are nearly level and somewhat poorly drained and poorly drained. They are on the flood plains of major drainageways. Both soils generally are in a mapped area, but only one soil is in a few of the areas. In areas of both soils, the Arkabutla soil is on slightly higher convex ridges, and the Rosebloom soil is in lower positions. The texture of the surface layer changes as floodwaters rework the deposits. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for expected uses of the soil. The areas range from 100 to several thousand acres and consist of about 50 percent Arkabutla soil and 40 percent Rosebloom soil. Slope is less than 2 percent.

Typically, this Arkabutla soil is somewhat poorly drained. It has a dark brown silt loam, loam, or silty clay loam surface layer about 4 inches thick. The subsoil to a depth of about 65 inches is brown silt loam in the upper part, light brownish gray silt loam in the middle part, and light brownish gray silty clay loam in the lower part.

The Arkabutla soil has medium fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderate rate, and water runs off the surface slowly. This soil is subject to brief to very long periods of flooding, mainly in the winter and spring; however, flooding can occur any time during the year and more often than twice in 5 years. A seasonal high water table fluctuates between depths of about 1 foot and 1.5 feet from January to April. This soil has moderate shrink-swell potential in the subsoil.

Typically, the Rosebloom soil is poorly drained. It has a brown silt loam or silty clay loam surface layer about 5 inches thick. The subsoil to a depth of about 65 inches is gray silt loam in the upper part and light brownish gray silty clay loam in the lower part.

The Rosebloom soil has medium fertility and moderately high levels of exchangeable aluminum that are potentially toxic to some crops. Water and air move through this soil at a slow rate, and water runs off the surface slowly. A seasonal high water table is within 1 foot of the surface from January to March. This soil is subject to brief to very long periods of flooding, mainly in the winter and spring; however, flooding can occur anytime during the year and more often than twice in 5 years.

Included in mapping are a few small areas of Arat, Bibb, and Ouachita soils. The Arat soils are in nearby swamps and are very fluid throughout. The Bibb soils are in positions on the landscape similar to those of the Rosebloom soil and have more sand throughout. The Ouachita soils are in slightly higher positions than the Arkabutla soil and have a brownish subsoil. Also included are a few small areas of soils similar to the Arkabutla soil except they have been covered by recent deposits of sand. The included soils make up about 10 percent of the map unit.

The soils are mainly used as woodland and as habitat for woodland wildlife. They are used as pasture in a few areas.

The soils in this map unit are moderately well suited to use as woodland. The main concerns in producing and harvesting timber are moderate equipment use limitations and severe seedling mortality caused by wetness and flooding. Only trees that can tolerate seasonal wetness, such as eastern cottonwood, American sycamore, green ash, loblolly pine, and sweetgum, should be planted. Standard-wheeled and tracked equipment cause rutting and compaction if the soil is moist. Conventional methods of harvesting can be used except sometimes during rainy periods.

The soils in this map unit are poorly suited to pasture mainly because of wetness and flooding. Suitable pasture plants are common bermudagrass, Dallisgrass, ryegrass, tall fescue, and white clover. Wetness limits the use of equipment. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

These soils have good potential for use as habitat for woodland and wetland wildlife. The soils provide habitat for deer, squirrels, rabbits, turkey, and numerous furbearing animals. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by encouraging the propagation of desirable plants.

These soils are not suited to cultivated crops, urban uses, or intensively used recreation areas, such as playgrounds and campsites. The hazard of flooding is generally too severe for these uses.

The soils in this map unit are in capability subclass Vw. The woodland ordination symbol for Arkabutla soil is 12W, and for Rosebloom soil it is 9W.

BB—Barbary mucky clay. This soil is level, very poorly drained, and very fluid. It is a mineral soil that is in swamps. In mapping, the number of observations was fewer than in most other areas because of poor accessibility. The detail, however, is adequate for the expected use of the soil. Areas are irregular in shape and are several hundred acres. Slope is less than 1 percent.

Typically, this Barbary soil has a very dark grayish brown, very fluid mucky clay surface layer about 4 inches thick. The subsurface layer to a depth of about 14 inches is very dark gray, very fluid clay. The underlying material to a depth of about 65 inches is dark gray, very fluid clay in the upper part and gray, slightly fluid clay in the lower part.

The Barbary soil has very slow permeability. The high water table fluctuates between 0.5 foot below the surface and 1 foot above the surface when the soil is not flooded. This soil is ponded most of the time and subject to frequent flooding. Floodwaters range in depth from 1 foot to 5 feet. This soil has low strength. The total subsidence potential is medium.

Included in mapping are a few small areas of Allemands, Arat, and Maurepas soils. The Allemands soils are in nearby marshes and have moderately thick organic layers. The Arat soils are in positions on the landscape similar to those of the Barbary soil, and they are loamy throughout. Also included along the edges of stream channels are a few small areas of soils similar to the Barbary soil except they are firm in the subsurface layer and underlying material. The included soils make up about 15 percent of the map unit.

This Barbary soil is mainly used as woodland and as habitat for wetland wildlife. In some areas, it is also used for extensive recreation, such as hunting.

This soil is well suited to use as habitat for wetland wildlife. It provides roosting areas for migratory ducks and food and nesting sites for wood ducks, squirrels, alligators, and nongame birds. This soil also provides suitable habitat for large numbers of crawfish and for furbearers, such as raccoon, nutria, and otter. Water control structures for intensive wildlife management are difficult to construct because of the instability and very fluid nature of the soil material.

This soil is poorly suited to use as woodland, mainly because of wetness, flooding, and poor trafficability. Few areas are managed for timber production because trees grow slowly and special equipment is needed to harvest the timber. This soil cannot support the load of most harvesting equipment. The natural vegetation consists of water-tolerant trees and aquatic understory plants. Water tupelo and baldcypress are the main trees. Other less common trees that grow in areas of included soils along streams are water oak, white oak, red maple, elm, and water hickory. The main understory plants are lizards tail, spiderlily, and buttonbush.

This Barbary soil is not suited to crops or pasture. Wetness, flooding, and low strength are too severe for these uses. The soil is too soft and boggy to support livestock grazing.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites. Wetness, flooding, and low strength are too severe. In addition, buried logs and stumps make the digging of shallow excavations difficult.

This Barbary soil is in capability subclass VIIw. The woodland ordination symbol is 6W.

Bg—Brimstone-Guyton silt loams. These soils are poorly drained and they are on broad, flat stream terraces. The landscape is broad flats that have irregular, slight rises and slightly concave areas. The Brimstone soil is on the irregular, slight rises, and the Guyton soil is in the slightly concave areas. These soils were so intricately intermingled that mapping them separately at the selected scale was not practical. The areas range from 10 to 500 acres and have about 50 percent Brimstone soils and 40 percent Guyton soils. Slopes are less than 1 percent.

Typically, the Brimstone soil has a dark gray silt loam surface layer about 5 inches thick. The subsurface layer is grayish brown silt loam to a depth of about 17 inches. The subsoil to a depth of about 66 inches is light gray and light brownish gray, mottled silt loam in the upper part and light olive gray, mottled silt loam in the lower part.

This Brimstone soil has low fertility. Water and air move through this soil at a slow rate, and water runs off the surface slowly. A seasonal high water table fluctuates between the surface and a depth of about 1.5 feet from December to April. This soil is subject to rare flooding after unusually severe rainstorms. Flooding can occur anytime of the year, but less often than once in 10 years. The high concentrations of sodium in the subsoil restrict root development and limit the amount of water available to plants. This soil has moderate shrink-swell potential in the subsoil.

Typically, the Guyton soil has a dark grayish brown, mottled silt loam surface layer about 5 inches thick. The subsurface layer to a depth of 28 inches is grayish brown, mottled silt loam in the upper part and light brownish gray, mottled silt loam in the lower part. The subsoil to a depth of about 66 inches is light brownish gray, mottled silt loam.

This Guyton soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate, and water runs off the surface slowly. This soil is subject to rare flooding after unusually severe rainstorms. Flooding can occur at anytime of the year, but less often than once in 10 years. A seasonal high water table ranges from the surface to a depth of about 1.5 feet from December to May. The shrink-swell potential is low.

Included in mapping are a few small areas of Abita, Myatt, and Stough soils. The Abita and Stough soils are in higher positions on the landscape than the Brimstone soil and are brown in the upper part of the subsoil. The Myatt soils are in positions similar to those of the Guyton soil and contain more sand in the subsoil. During storms, a few small areas along Lake Pontchartrain are subject to rare flooding by tidal waves. The included soils make up about 10 percent of the map unit.

In most areas, these soils are used as woodland. In a few areas, they are used as pasture or homesites and for growing vegetables.

These soils are moderately well suited to woodland. The main concerns in producing and harvesting timber are moderate seedling mortality and moderate to severe equipment use limitations that are caused by wetness. Conventional methods of harvesting timber generally can be used except sometimes during rainy periods, generally from December to April. Soil compaction is a problem if timber is harvested when the soil is moist. Trees should be water tolerant, and they should be planted or harvested during dry periods. Suitable trees to plant are slash pine, loblolly pine, and sweetgum.

The soils in this map unit are moderately well suited to pasture. The main limitations are wetness, excess sodium, and low fertility. Excessive surface water can be removed by a surface drainage system. The concentration of sodium in the subsoil of the Brimstone soil limits the choice of plants for pasture. Suitable pasture plants are common bermudagrass, bahiagrass, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

These soils are poorly suited to cultivated crops, mainly because of wetness, excessive sodium in the subsoil, and low fertility. The potentially toxic levels of exchangeable aluminum in the Guyton soil is an additional limitation. A drainage system is needed for most cultivated crops and pasture plants. During land grading and smoothing, deep cuttings should not expose the subsoil, which is high in sodium content. A tillage pan forms easily if these soils are tilled when wet. Chiseling or subsoiling, however, can break up the tillage pan. Returning crop residue to the soil or regularly adding other organic matter improves fertility, reduces crusting, and increases the water intake rate. Crops respond to additions of lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

These soils are poorly suited to urban uses, mainly because of wetness, rare flooding, moderate shrink-swell potential, slow permeability, and low strength for roads. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Buildings and roads can be designed to offset the effects of shrinking and swelling. Roads should be designed to offset the limited ability of the soil to support a load. Topsoil can be stockpiled and used to reclaim areas disturbed by cutting and filling. Landscaping plants that can tolerate a seasonal high water table and the high content of sodium should be selected if drainage and irrigation are not provided. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow permeability. Protection from flooding is needed and can be provided by constructing levees.

The soils in this map unit are poorly suited to intensive recreation uses, mainly because of wetness, rare flooding, and slow permeability. Good drainage is needed for most uses, and levees can provide protection from flooding. Plant cover can be maintained by controlling traffic.

These soils are well suited to use as habitat for wetland wildlife and moderately well suited to woodland and openland wildlife. Habitat for wetland wildlife can be improved by constructing ponds or open water areas. Habitat for woodland wildlife can be improved by encouraging the growth of oaks and other mast-producing trees. Prescribed burning at 3-year intervals can help increase the amount of food available to white-tailed deer, turkey, and quail. Habitat for openland wildlife can be improved by providing small, undisturbed and vegetated areas around the edges of fields.

The soils in this map unit are in capability subclass IIIw. The woodland ordination symbol for Brimstone soil is 11T, and for Guyton soil, it is 9W.

Ca—Cahaba fine sandy loam, 1 to 3 percent slopes. This soil is very gently sloping and well drained. It is in high positions on ridges and side slopes on stream terraces bordering major drainageways. Areas range from about 5 to 100 acres.

Typically, this Cahaba soil has a dark yellowish brown fine sandy loam surface layer about 7 inches thick. The subsoil extends to a depth of 53 inches. It is yellowish red sandy clay loam in the upper part, red sandy clay loam in the middle part, and strong brown sandy loam in the lower part. The underlying material to a depth of about 65 inches is yellowish brown loamy sand.

This soil has low fertility and moderately high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderate rate, and water runs off the surface at a medium rate. Plants are damaged by lack of water during dry periods in the summer and fall of some years. This soil dries quickly after rains.

Included in mapping are a few small areas of Latonia, Prentiss, and Stough soils. The Latonia soils are in more level areas than the Cahaba soil and have less clay in the subsoil. The Prentiss and Stough soils are also on more level areas, and they have brittle material in the subsoil. Also included are small areas of Cahaba soils that have slopes of 3 to 5 percent, areas of Cahaba soils along major drainageways that are subject to rare flooding after intense rainstorms, and a few large areas of urban land. The included soils make up about 15 percent of the map unit.

This Cahaba soil is mainly used for pasture or urban uses. A small acreage is in woodland or is used for vegetable crops.

This soil is well suited to use as woodland and has few limitations to this use. Suitable trees to plant are loblolly pine, slash pine, sweetgum, and water oak. Mechanical planting of trees on the contour helps to control erosion. The soil surface has a moderate susceptibility to compaction; therefore, harvesting should be done when the soil is dry.

This soil is well suited to pasture. It has few limitations. Proper grazing, weed control, and fertilizer are needed for maximum forage quality. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, tall fescue, wheat, oats, arrowleaf clover, and white clover.

This soil is moderately well suited to cultivated crops. It is limited mainly by low fertility, a slight erosion hazard, and potentially toxic levels of exchangeable aluminum within the root zone. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. A tillage pan forms easily if this soil is tilled when wet. Chiseling or subsoiling, however, can break up the tillage pan. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Suitable crops are corn, soybeans, grain sorghum, and vegetables. Crops respond well to lime and fertilizer, which help to overcome the low fertility and moderately high levels of exchangeable aluminum.

This soil is well suited to urban uses, although erosion is a hazard in the steeper areas. Only the soil at the site of construction should be disturbed. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Effluent from septic tank absorption fields can surface in downslope areas and create a hazard to health. Absorption lines should be installed on the contour where possible. If the density of housing is moderate to high, community sewage systems are needed to prevent contamination of water supplies as a result of seepage.

This soil is well suited to recreation uses and it has few limitations to this use. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Plant cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation or by encouraging the propagation of desirable plants.

This Cahaba soil is in capability subclass IIe. The woodland ordination symbol is 9A.

CV—Clovelly muck. This soil is level, very poorly drained, very fluid, and slightly saline. This is an organic soil that is in brackish marshes. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected uses of the soil. Areas range from about 100 to 2,000 acres. Slope is dominantly less than 1 percent.

Typically, this Clovelly soil has a very dark grayish brown, very fluid, slightly saline muck surface layer about 12 inches thick. The subsurface layer to a depth of about 49 inches is black, very fluid, slightly saline muck. The underlying material to a depth of about 72 inches is dark gray, very fluid, slightly saline clay.

Permeability is rapid in the organic surface and subsurface layers and very slow in the underlying mineral material. Water is above the surface most of the year; however, during periods of sustained north wind and low tides, the water can be as much as 0.5 foot below the surface. This soil is flooded most of the time by brackish water, and during storms, floodwaters from tides reach a depth of 4 feet. This soil has a high total subsidence potential. If drained, the organic material on drying initially shrinks to about half the original thickness and then subsides further as a result of compaction and oxidation. These losses are most rapid during the first 2 years after draining. Thereafter, the soil continues to subside at the rate of about 1 inch per year. The lower the water table, the more rapid the loss.

Included in mapping are a few small to large areas of Allemands, Kenner, and Lafitte soils. The Allemands and Kenner soils are in freshwater marshes and are less saline than the Clovelly soil. The Lafitte soils are in positions on the landscape similar to those of the Clovelly soil, and they have thicker layers of organic material. Few to many small ponds and tidal channels are included in most places. Also included are large areas of soils similar to the Clovelly soil except they have loamy underlying material. The included soils make up about 20 percent of the map unit.

Most of this Clovelly soil is used as habitat for wetland wildlife and for extensive forms of recreation, such as hunting and fishing.

This soil is well suited to use as habitat for wetland wildlife. Food and roosting areas are available for ducks, geese, and other waterfowl. The soil also provides habitat for the American alligator and for furbearers, such as mink, otter, muskrat, and nutria. The natural vegetation consists mainly of marshhay cordgrass, dwarf spikerush, and Olney bulrush. Intensive management of wildlife habitat generally is not practical. Water control structures are difficult to construct and maintain because of the instability and very fluid nature of the soil material. Saltwater intrusion is a problem in managing vegetation for wildlife habitat. The small ponds and streams included in this map unit provide areas for sport and commercial fishing.

This soil is not suited to crops or pasture or to use as woodland because of wetness, flooding, salinity, low strength, and poor accessibility. These soils generally are too soft and boggy to support livestock.

This soil is not suited to urban use or intensive recreation uses, such as playgrounds and campsites. Flooding, wetness, low strength, and the subsidence potential are too severe for these uses.

This Clovelly soil is in capability subclass VIIw. It is not assigned a woodland ordination symbol.

Dp—Dumps. This map unit consists of refuse disposal areas. Dumps are nearly level to sloping. Areas generally range from 5 to 100 acres. Slopes range from 0 to 8 percent.

Typically, these areas consist of successive layers of compacted refuse and thin soil layers. The combined thickness of these layers ranges from 5 feet to more than 30 feet.

This map unit is used chiefly for the disposal of solid waste. Dumps are not suited to agricultural, forest, or urban uses. Dumps are, however, used as commercial sites in some places, but the limitation of differential settling is very difficult to overcome.

Dumps are not assigned to interpretative groups.

Gt—Guyton silt loam. This soil is level and poorly drained. It is on broad stream terraces. Areas range from about 5 to 100 acres. Slope is dominantly less than 1 percent.

Typically, this Guyton soil has a dark grayish brown silt loam surface layer about 5 inches thick. The subsurface layer to a depth of about 22 inches is grayish brown, mottled silt loam. The subsoil to a depth of about 64 inches is light brownish gray and light olive gray, mottled silt loam and silty clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate, and water runs off the surface slowly. A seasonal high water table ranges from the surface to a depth of about 1.5 feet from December to May. Most areas of this soil are subject to rare flooding following unusually heavy rainstorms. Flooding can occur anytime of the year, but less often than once in 10 years.

Included in mapping are a few small areas of Abita, Brimstone, Myatt, and Stough soils. The Abita and Stough soils are in slightly higher positions on the landscape than the Guyton soil and have a subsoil that is browner in the upper part. The Brimstone soils are in positions similar to those of the Guyton soil and have high concentrations of sodium in the subsoil. The Myatt soils are in similar positions and they have more sand throughout. Also included are a few large areas of urban land and adjacent to Lake Pontchartrain, a few areas of Guyton soils that are subject to rare flooding by tides during storms. The included soils make up about 15 percent of the map unit.

This Guyton soil is mainly used as woodland or pastureland. In a few areas, it is used as commercial or residential sites and for growing vegetables.

The soil is well suited to the production of pine and hardwood trees. Suitable trees to plant are loblolly pine and sweetgum. The main concerns in producing and harvesting timber are moderate seedling mortality and severe equipment use limitations caused by wetness. Standard-wheeled and tracked equipment cause rutting and compaction when the soil is moist. Puddling can occur when the soil is wet. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants.

This soil is well suited to pasture. The main limitations are wetness and low fertility. Suitable pasture plants are common bermudagrass, bahiagrass, tall fescue, ryegrass, white clover, and winterpeas. Wetness limits the period of grazing. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. It is limited mainly by wetness, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are vegetables, rice, soybeans, and grain sorghum. A drainage system is needed for most cultivated crops and pasture plants. Returning crop residue to the soil or regularly adding other organic matter improves fertility, reduces crusting, and increases the water intake rate. Crops respond well to lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is poorly suited to urban uses and intensive recreation uses, such as playgrounds and campsites, mainly because of rare flooding, wetness, slow permeability, and low strength for roads. Using fill to raise low areas or constructing levees help protect this soil from flooding. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Roads should be designed to offset the limited ability of the soil to support a load. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow permeability.

This soil is well suited to use as habitat for wetland wildlife and moderately well suited to openland and woodland wildlife. Habitat for wetland wildlife can be improved by constructing shallow ponds and by encouraging the growth of appropriate wetland plants. Habitat for woodland wildlife can be improved by encouraging the growth of oak trees and by practicing prescribed burning to encourage the regrowth of young, palatable vegetation.

This Guyton soil is in capability subclass IIIw. The woodland ordination symbol is 9W.

Gy—Guyton silt loam, occasionally flooded. This soil is level and poorly drained. It is on broad stream terraces and in narrow drainageways. Areas range from about 5 to 100 acres. Slope is less than 1 percent.

Typically, this Guyton soil has a dark grayish brown silt loam surface layer about 4 inches thick. The subsurface layer to a depth of about 27 inches is light brownish gray, mottled silt loam. The subsoil to a depth of about 58 inches is light brownish gray, mottled silt loam and clay loam. The underlying layer to a depth of about 64 inches is gray clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate, and water runs off the surface slowly. The seasonal high water table ranges from the surface to a depth of about 1.5 feet from December to May. This soil is subject to flooding for very brief to long periods during any time of the year; however, flooding occurs less often than twice in 5 years. Areas along Lake Pontchartrain are subject to tidal flooding during storms.

Included in mapping are a few small areas of Abita, Brimstone, Ouachita, Myatt, and Stough soils. The Abita and Stough soils are in slightly higher positions on stream terraces than the Guyton soil and have a subsoil that is browner in the upper part. The Brimstone soils are in positions similar to those of the Guyton soil and have high levels of sodium in the subsoil. The Ouachita soils are in slightly higher positions in drainageways and are browner throughout. The Myatt soils are in similar positions and have more sand throughout. The included soils make up about 15 percent of the map unit.

This Guyton soil is mainly used as woodland. In a few areas, it is used as homesites.

This soil is moderately well suited to use as woodland. The main concerns in producing and harvesting timber are severe seedling mortality and equipment use limitations caused by flooding and wetness. Suitable trees to plant are loblolly pine and sweetgum. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants. Harvesting should be done when the soil is dry to reduce the risks of soil compaction and puddling.

This soil is moderately well suited to pasture. The main limitations are wetness and low fertility, and flooding is a hazard. Suitable pasture plants are common bermudagrass, bahiagrass, ryegrass, and vetch. Wetness limits the choice of plants and the period of grazing. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is poorly suited to cultivated crops mainly because of wetness, flooding, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are vegetables, rice, soybeans, and grain sorghum. A drainage system is needed for most cultivated crops and pasture plants. Returning crop residue to the soil or regularly adding other organic matter improves fertility, reduces crusting, and increases the water intake rate. Flooding can be controlled only by constructing large levees or dikes. Crops respond well to lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is poorly suited to urban use and intensive recreation uses, such as playgrounds and campsites, mainly because of wetness, flooding, slow permeability, and low strength for roads. Major flood control structures, along with extensive local drainage systems, are needed to protect this soil from flooding. Drainage is needed if roads and building foundations are constructed. Roads should be designed to offset the limited ability of the soil to support a load. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow permeability.

This soil is well suited to use as habitat for wetland wildlife and moderately well suited to woodland wildlife. Habitat can be improved by constructing shallow ponds and encouraging the growth of appropriate wetland plants for waterfowl and furbearers. Habitat for woodland wildlife can be improved by encouraging the growth of oak and other mast-producing trees.

This Guyton soil is in capability subclass IVw. The woodland ordination symbol is 9W.

Ha—Harahan clay. This soil is level and poorly drained. On the landscape, this soil is in low positions that formerly were swamps. This firm mineral soil is underlain by slightly fluid mineral materials. Areas range from about 20 to 200 acres. Slope is less than 1 percent.

Typically, this Harahan soil has a very dark grayish brown clay surface layer about 6 inches thick. The subsoil to a depth of about 21 inches is grayish brown and gray, mottled, firm clay. The underlying material to a depth of about 60 inches is gray and greenish gray, slightly fluid clay. In places, logs and stumps are in the underlying material.

This Harahan soil is high in fertility. Water and air move through this soil at a very slow rate, and water runs off the surface slowly. Under normal conditions, the high water table is maintained at a depth of about 1 foot to 3 feet. After heavy rains, the water table is near the surface for short periods. This soil has been drained by pumps and is protected from flooding by levees. Flooding is rare, but it can occur during severe storms and hurricanes, or when water pumps or protection levees fail. Flooding can occur anytime of the year, but less often than once in 10 years. Adequate water is available to plants in most years. This soil has very high shrink-swell potential and a medium total subsidence potential.

Included in mapping are a few small areas of drained Allemands and Maurepas soils. The Allemands soils are in former marshes. The Maurepas soils are in positions on the landscape similar to those of the Harahan soil. The Allemands and Maurepas soils are organic soils. Also included are a few small areas of soils similar to the Harahan soil except they have thin organic or loamy layers in the subsoil and firm clay in the underlying material. The included soils make up about 10 percent of the map unit.

Most of the acreage of this Harahan soil is in pasture, or it is idle land that is reserved for future urban uses. Small acreages are in crops or developed for residential uses.

This soil is well suited to pasture and moderately well suited to crops. Suitable pasture plants are common bermudagrass, Dallisgrass, tall fescue, ryegrass, and white clover. Fertility generally is sufficient for sustained production of high quality nonirrigated pasture. Water control is a major concern for pasture and crops.

This soil is well suited to commercial production of bottom land hardwoods; however, the threat of urban expansion generally precludes such long-term agricultural land use commitments.

This soil is poorly suited to urban uses and intensive forms of recreation, such as playgrounds and campsites, mainly because of flooding, wetness, very slow permeability, subsidence, low strength, and the very high shrink-swell potential. If buildings are constructed, pilings and special foundations are needed. Loamy fill material added to the soil surface can provide additional support and stability for buildings and roads. Adequate water control is needed to reduce wetness and to control the rate of subsidence. The effects of shrinking and swelling can be minimized by using proper designs and by backfilling with mineral material that has low shrink-swell potential. The buried stumps and logs and the slightly fluid nature of the underlying material make shallow excavations difficult. Septic tank absorption fields do not function properly because of wetness and the very slow permeability. A community sewage system is needed if housing density is moderate to high.

This Harahan soil is in capability subclass IIIw. It is not assigned a woodland ordination symbol.

KE—Kenner muck. This soil is level, very poorly drained, and very fluid. It is an organic soil that is in freshwater marshes. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected use of the soil. Areas range from about 50 to 1,000 acres. Slope is less than 1 percent.

Typically, this Kenner soil has a very dark grayish brown, very fluid muck surface layer about 14 inches thick. The next layer to a depth of about 16 inches is dark gray, very fluid clay. Below that layer to a depth of about 45 inches is a layer of black, very fluid muck underlain by a layer of gray, very fluid clay about 1 inch thick. The underlying material to a depth of about 75 inches is very dark grayish brown, very fluid muck.

Permeability of this Kenner soil is rapid in the organic layers and very slow in the clayey layers. During storms, depth of floodwater is 4 feet or more. During periods when the soil is not flooded, the seasonal high water table ranges from 1 foot above the surface to 0.5 foot below the surface. This soil is flooded most of the time by freshwater and it is wet throughout the year. This soil has low strength and poor trafficability. The total subsidence potential is very high. If drained, the organic material on drying initially shrinks to about half the original thickness and then subsides further as a result of compaction and oxidation. These losses are most rapid during the first 2 years after draining. Thereafter, the soil continues to subside at the rate of about 1 inch per year. The lower the water table, the more rapid the loss.

Included in mapping are a few small areas of Allemands, Clovelly, Lafitte, and Maurepas soils. The Allemands soils are in positions on the landscape similar to those of the Kenner soil and have a thick layer of clay within 51 inches of the surface. The Clovelly and Lafitte soils are in brackish marshes and are more saline throughout than the Kenner soil. The Maurepas soils are in nearby swamps and do not have thin mineral layers in the upper part of the profile. Few to many small ponds and tidal channels are included in places. The included soils make up about 20 percent of the map unit.

This Kenner soil is mainly used as habitat for wetland wildlife and for extensive forms of recreation, such as hunting and fishing.

This soil is well suited to use as habitat for wetland wildlife. Food and roosting areas are available for ducks, geese, and other waterfowl. This soil also provides habitat for the American alligator and for furbearers, such as mink, muskrat, otter, raccoon, and nutria. The natural vegetation consists mainly of alligatorweed, bulltongue, common buttonbush, common rush, cattail, giant cutgrass, California bulrush, and maidencane. A few scattered baldcypress trees are in some areas. Fishing, hunting, and trapping are popular. Many species of freshwater fish are in the small ponds and perennial streams in this map unit. Intrusion of saltwater is a problem in managing the vegetation for wetland wildlife. Water control structures are difficult to construct and maintain because of the instability of the organic materials.

This soil is not suited to crops, to use as woodland, or to pasture. Wetness, flooding, and low strength are too severe. This soil is too soft and boggy to support livestock grazing.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites. Flooding, wetness, low strength, and subsidence potential are too severe. If this soil is drained and protected from flooding, it will subside 5 feet or more below sea level.

This Kenner soil is in capability subclass VIIIw. It is not assigned a woodland ordination symbol.

LF—Lafitte muck. This soil is level, very poorly drained, very fluid, and slightly saline. It is an organic soil that is in brackish marshes. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected use of the soil. Areas are large and range to several thousand acres. Slope is less than 1 percent.

Typically, this Lafitte soil has a dark gray, very fluid, slightly saline muck surface layer about 10 inches thick. The subsurface layers to a depth of about 84 inches are very dark grayish brown, black, and very dark brown, very fluid, slightly saline muck. The underlying material is very dark gray, very fluid, slightly saline mucky clay.

Permeability of this Lafitte soil is rapid in the organic layers and very slow in the clayey underlying material. During periods of sustained north wind and low tides, the water table is as much as 0.5 foot below the surface. This soil is flooded and ponded most of the time by brackish water and it is wet throughout the year. This soil has low strength and poor trafficability. The total subsidence potential is very high. If drained, the organic material on drying initially shrinks to about half the original thickness and then subsides further as a result of compaction and oxidation. These losses are most rapid during the first 2 years after draining. Thereafter, the soil continues to subside at the rate of about 1 inch per year. The lower the water table, the more rapid the loss.

Included in mapping are a few small to large areas of Allemands, Clovelly, and Kenner soils. The Allemands and Clovelly soils are in nearby marshes and have organic layers less than 51 inches thick underlain by very fluid clay. The Kenner soils are in freshwater marshes and have thin layers of mineral material in the upper part of the profile. In addition, the Kenner soils are not saline. Few to many small ponds and tidal channels are included in places. The included soils make up about 20 percent of the map unit.

This Lafitte soil is mainly used as habitat for wetland wildlife and for extensive forms of recreation, such as hunting and fishing.

This soil is well suited to use as habitat for wetland wildlife. Food and roosting areas are available for ducks, geese, and other waterfowl. The soil also provides habitat for American alligator and furbearers, such as mink, otter, raccoon, muskrat, and nutria. The natural vegetation consists mainly of marshhay cordgrass, saltmarsh morningglory, Olney bulrush, and smooth cordgrass. Intensive management of wildlife habitat generally is not practical. Water control structures are difficult to construct and maintain because of the instability and very fluid nature of the soil. Saltwater intrusion is a problem in managing the vegetation for wildlife habitat. The small ponds and streams within this map unit provide areas for sport and commercial fishing.

This soil is not suited to crops, pasture, or woodland because of wetness, flooding, salinity, low strength, and poor accessibility. These soils are generally too soft and boggy to support livestock.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites, because of flooding, wetness, low strength, and subsidence. If this soil is drained and protected from flooding, it will subside 5 feet or more below sea level.

This Lafitte soil is in capability subclass VIIIw. It is not assigned a woodland ordination symbol.

LR—Larose muck. This soil is level, very poorly drained, and very fluid. It is a mineral soil that is in freshwater marshes. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected use of the soil. Areas are large and range to several thousand acres. Slope is less than 1 percent.

Typically, this Larose soil has a very dark grayish brown, very fluid muck surface layer about 2 inches thick. The subsurface layer is dark grayish brown, very fluid mucky clay to a depth of about 11 inches. The underlying material to a depth of about 64 inches is olive gray and dark olive gray, very fluid clay.

Water and air move through this Larose soil at a very slow rate. During periods of sustained north wind, low tides, and limited rainfall, the water table is as much as 0.5 foot below the surface. This soil is flooded and ponded most of the time by freshwater and it is wet throughout the year. During storms, depth of floodwater is 4 feet or more. This soil has a medium total subsidence potential. It has low strength.

Included in mapping are a few small to large areas of Allemands, Arat, Barbary, Clovelly, Kenner, and Lafitte soils. The Allemands, Clovelly, Kenner, and Lafitte soils are in nearby marshes and are organic soils. The Arat and Barbary soils are in nearby swamps. The Arat soils are loamy throughout, and the Barbary soils are clayey and have stumps and logs in the underlying material. Also included are a few large areas of soils similar to the Larose soil except they have thin organic or loamy layers within the underlying material. Few to many small ponds and tidal channels are included in places. The included soils make up about 20 percent of the map unit.

This Larose soil is mainly used as habitat for wetland wildlife and for extensive forms of recreation, such as hunting and fishing.

This soil is well suited to use as habitat for wetland wildlife. It provides habitat for large numbers of ducks and other waterfowl. It also provides habitat for crawfish, alligators, swamp rabbits, deer, feral hogs, nutria, mink, otter, muskrat, and raccoon. The natural vegetation is mainly alligatorweed, cattail, common rush, bulltongue, maidencane, pickerelweed, and giant cutgrass. The small ponds and tidal channels produce many species of freshwater fish. Sport fishing and duck hunting are popular. Intensive habitat management is difficult. Water control structures are difficult to construct because of the instability and very fluid nature of the soil.

This soil is not suited to crops, trees, or pasture because of flooding and wetness. This soil is generally too soft and boggy to support livestock grazing.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites, because of flooding, wetness, subsidence, and low strength. This soil is poorly suited to use in constructing levees. Upon drying, it shrinks and cracks considerably, and levees commonly fail.

This Larose soil is in capability subclass VIIw. It is not assigned a woodland ordination symbol.

Lt—Latonia fine sandy loam. This soil is nearly level and well drained. It is on stream terraces along major drainageways. Areas range from about 5 to 150 acres. Slope is less than 2 percent.

Typically, the Latonia soil has a grayish brown fine sandy loam surface layer about 4 inches thick. The subsoil to a depth of 26 inches is yellowish brown sandy loam. The underlying material to a depth of about 62 inches is yellowish brown loamy sand in the upper part and white sand in the lower part.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately rapid rate, and water runs off the surface slowly. Plants are damaged by lack of water during dry periods in summer and fall of some years.

Included in mapping are a few small areas of Cahaba, Myatt, Prentiss, and Stough soils. The Cahaba soils are in slightly higher positions on the landscape than the Latonia soil and are redder throughout. The Myatt soils are in lower positions and are grayish throughout. The Prentiss and Stough soils are in positions similar to those of the Latonia soil, and they have brittle material in the subsoil. Also included are a few large areas of urban land and, along major drainageways, a few small areas of Latonia soils that are subject to rare flooding. The included soils make up about 10 percent of the map unit.

This Latonia soil is mainly used as woodland. Small acreages are in pasture or used as commercial or residential sites.

This soil is well suited to use as woodland. It has few limitations to this use; however, it has moderate susceptibility to compaction. The risk of soil compaction can be reduced by limiting site preparation and harvesting activities to periods when the soil is dry. Suitable trees to plant are loblolly pine and slash pine.

The Latonia soil is well suited to use as pasture. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, tall fescue, wheat, oats, crimson clover, and white clover. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage.

This soil is moderately well suited to cultivated crops, such as corn, soybeans, grain sorghum, and vegetables. The main limitations are low fertility and potentially toxic levels of exchangeable aluminum within the root zone. The soil is friable, easy to keep in good tilth, and can be worked over a wide range of moisture content. Droughtiness is a slight limitation. Maintaining crop residue on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Crops respond well to lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is well suited to urban uses. Plans for homesite development should provide for the preservation of as many trees as possible. Mulching, fertilizing, and irrigation are needed to establish lawn grasses and other small seeded plants. The moderately rapid permeability of the soil is a limitation to most sanitary facilities. If the density of housing is moderate to high, community sewage systems are needed to prevent contamination of water supplies as a result of seepage. Cutbanks cave easily, making shallow excavations difficult.

This soil is well suited to intensive recreation areas, such as playgrounds and camp areas. It has few limitations to these uses. Plant cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for woodland and openland wildlife. Habitat for woodland wildlife can be improved by encouraging the growth of oak and other mast-producing trees. Prescribed burning, rotated every three years among several small tracts of land, can increase the amount of palatable deer browse and seed producing plants for quail and turkey. Leaving undisturbed and vegetated areas around fields can improve the habitat for openland wildlife.

This Latonia soil is in capability subclass IIs. The woodland ordination symbol is 9A.

MA—Maurepas muck. This soil is level, very poorly drained, and very fluid. It is an organic soil that is in swamps. In mapping, the number of observations was fewer than in most other areas. The detail, however, is adequate for the expected use of the soil. Areas range from about 50 to 1,000 acres. Slope is less than 1 percent.

Typically, this Maurepas soil has a dark brown, very fluid muck surface layer about 10 inches thick. The surface layer is underlain by layers of black and very dark gray, very fluid muck to a depth of about 75 inches.

This soil is flooded and ponded most of the time by freshwater. During nonflood periods, the seasonal high water table ranges from 1 foot above the surface to 0.5 foot below the surface. This soil has a low capacity to support loads. If drained, the organic material on drying initially shrinks to about half the original thickness and then subsides further as a result of compaction and oxidation. These losses are most rapid during the first 2 years after draining. Thereafter, the soil continues to subside at the rate of about 1 inch per year. The lower the water table, the more rapid the loss.

Included in mapping are a few small to large areas of Allemands, Barbary, and Kenner soils. The Allemands soils are in nearby freshwater marshes and have less than 57 inches of organic material that is underlain by very fluid clay. The Barbary soils are in positions similar to those of the Maurepas soil, and unlike Maurepas soil, they are mineral soils. The Kenner soils are in freshwater marshes and have thin layers of mineral material in the upper part of the profile. Few to many small ponds and tidal channels are included in places. The included soils make up about 20 percent of the map unit.

This Maurepas soil is mainly used as habitat for wetland wildlife and for extensive forms of recreation, such as hunting and fishing.

This soil is moderately well suited to use as habitat for wetland wildlife. Food and roosting areas are available for ducks and other waterfowl. This soil also provides habitat for American alligator and for furbearers, such as mink, muskrat, otter, nutria, and raccoon. The natural vegetation consists of baldcypress, water tupelo, and buttonbush. In some areas, the trees have been removed and freshwater marsh vegetation, such as bulltongue, alligatorweed, maidencane, and cattail, has become established. Fishing, hunting, and trapping are popular. Many species of freshwater fish are in the small ponds and perennial streams in this map unit. Intrusion of saltwater is a problem in managing the vegetation for wetland wildlife. Water control structures, designed to improve the habitat for wildlife, are difficult to construct and maintain because of the instability of the organic material and the numerous buried logs.

This soil is not suited to crops, woodland, or pasture. Wetness, flooding, and low strength are too severe for these uses. This soil is too soft and boggy to support livestock grazing.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites. Flooding, wetness, low strength, and the subsidence potential are too severe. If this soil is drained and protected from flooding, it will subside 5 feet or more below sea level. Numerous buried logs and stumps cause the surface to subside unevenly.

This Maurepas soil is in capability subclass VIIIw. It is not assigned a woodland ordination symbol.

Md—Maurepas muck, drained. This soil is level and poorly drained. It is an organic soil that is in former swamps that have been drained. Areas range from about 20 to 500 acres. Slope is less than 1 percent.

Typically, this Maurepas soil has a dark brown muck surface layer about 12 inches thick. The next layer to a depth of about 70 inches is very dark grayish brown muck in the upper part, black muck in the middle part, and very dark brown muck in the lower part. The organic material has dried, shrunk, and cracked, and it remains cracked if rewetted. In most places, buried logs and stumps are in the underlying material.

Permeability of this Maurepas soil is rapid. If the surface is covered with fill material, the cracks in the surface layer remain open and extend into the underlying material. Water and air move freely through these cracks. The soil is drained by pumps and protected from most flooding by levees. Under normal conditions, the water table is at a depth of 1 foot to 3 feet. After intense rains of long duration, the water table is near the surface for long periods. Flooding is rare, but it can occur during storms and when water pumps or protection levees fail. This soil has a very high total subsidence potential. Subsidence is uneven because of the many buried logs and stumps. This soil has high fertility.

Included in mapping are a few small areas of drained Allemands soils and Harahan soils. The Harahan soils formed in mineral material. The drained Allemands soils are in former freshwater marshes and have organic layers less than 51 inches thick that are underlain by fluid clays. The included soils make up about 15 percent of the map unit.

This soil is mainly used as pastureland, or it is idle land that is reserved for future urban uses.

This soil is poorly suited to crops and pasture, mainly because of wetness. Suitable pasture plants include common bermudagrass and native grasses, such as maidencane. Adequate water control is needed. Grazing cattle may have difficulty walking if the surface layer becomes soft and boggy after heavy rainstorms or after flooding. Spoil deposits along dug channels help improve grazing distribution in places.

This soil is poorly suited to urban uses and intensive recreation uses, such as playgrounds and campsites, mainly because of flooding, wetness, subsidence, low strength, and buried logs and stumps. As the water table is lowered, the organic matter oxidizes and slowly subsides. In most places, buried logs and stumps cause uneven subsidence. If dry, the organic matter is subject to burning.

If this soil is used for dwellings, pilings and specially constructed foundations are needed. Covering the organic surface with mineral material can help reduce subsidence where buildings, local roads and streets, and playgrounds are to be constructed. Adequate water control is needed to reduce wetness, control the rate of subsidence, and prevent flooding. Septic tank absorption fields do not function properly in this soil; therefore, community sewage systems are needed to prevent contamination of water sources by effluent seepage. Drainage ditches and levees are difficult to construct and maintain because of the very fluid nature of the underlying material, the subsidence of the organic material, and the numerous buried logs and stumps.

This Maurepas soil is in capability subclass IVw. It is not assigned a woodland ordination symbol.

Mt—Myatt fine sandy loam. This soil is level and poorly drained. It is on broad flats or stream terraces. Areas range from 5 to 500 acres. Slope is less than 1 percent.

Typically, this Myatt soil has a dark gray fine sandy loam surface layer about 4 inches thick. The subsurface layer is gray, mottled fine sandy loam to a depth of about 12 inches. The subsoil to a depth of 50 inches is gray, mottled loam. The underlying material to a depth of about 64 inches is light brownish gray, mottled clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately slow rate. Water runs off the surface very slowly and stands in low places for long periods after heavy rains. A seasonal high water table ranges from the surface to a depth of 1 foot from November to April. This soil is subject to rare flooding, which can occur at any time of the year, but less often than once in 10 years.

Included in mapping are a few small areas of Brimstone, Cahaba, Guyton, Prentiss, and Stough soils. The Brimstone soils are in positions on the landscape similar to those of the Myatt soil and have a high content of sodium in the subsoil. The Cahaba, Prentiss, and Stough soils are in slightly higher positions and have a browner subsoil. The Guyton soils are in positions similar to those of the Myatt soil and have less sand in the subsoil. Included along Lake Pontchartrain are a few areas of Myatt soils that are subject to flooding by brackish water during tidal storms. Also included are a few large areas of urban land. The included soils make up about 15 percent of the map unit.

This Myatt soil is mainly used as woodland. Small acreages are used as commercial and residential sites or as cropland.

This soil is well suited to use as woodland. The main concerns in producing and harvesting timber are severe seedling mortality and equipment use limitations caused by wetness. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants. Using equipment when the soil is moist causes rutting and compaction. Suitable trees to plant are loblolly pine, slash pine, and sweetgum.

This soil is poorly suited to urban uses, mainly because of flooding, wetness, and moderately slow permeability. Levees can provide protection from flooding. Filling low areas prior to construction also helps prevent flooding. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability.

This soil is moderately well suited to cultivated crops. The main limitations are wetness and low fertility. Suitable crops are soybeans, corn, grain sorghum, vegetables, and rice. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Crop residue left on or near the surface helps to maintain soil tilth and organic matter content. Most crops respond well to lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is poorly suited to intensive recreation areas, such as playgrounds and campsites. The main limitations are wetness and moderately slow permeability. Good drainage should be provided for such intensively used areas as playgrounds.

This soil is well suited to use as pasture. The main limitations are wetness and low fertility. The main suitable pasture plants are common bermudagrass, bahiagrass, tall fescue, ryegrass, white clover, and winterpeas. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to use as habitat for wetland wildlife and moderately well suited to openland and woodland wildlife. Habitat for wetland wildlife can be improved by constructing small ponds for waterfowl and furbearers. Habitat for woodland wildlife can be improved by encouraging the growth of oaks and other mast-producing trees. Prescribed burning can enhance the growth of palatable plants for white-tailed deer and seed crops for turkey and quail. Habitat for openland wildlife can be improved by providing undisturbed and vegetated areas around fields.

This Myatt soil is in capability subclass IVw. The woodland ordination symbol is 9W.

My—Myatt fine sandy loam, frequently flooded. This soil is level and poorly drained. It is in depressional areas on stream terraces and in narrow drainageways. Areas range from about 5 to 500 acres. Slope is less than 1 percent.

Typically, this Myatt soil has a dark gray fine sandy loam surface layer about 6 inches thick. The subsurface layer is gray, mottled loam to a depth of about 14 inches. The subsoil extends to a depth of about 58 inches. It is gray mottled loam in the upper and middle parts and mottled gray, light yellowish brown, and strong brown sandy clay loam in the lower part. The underlying material to a depth of about 68 inches is gray sandy clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately slow rate, and water runs off the surface very slowly. A seasonal high water table fluctuates between the surface and a depth of about 1 foot from November to April. This soil is subject to brief periods of flooding, mainly in the winter and spring, but flooding can occur anytime during the year and more often than twice in 5 years.

Included in mapping are a few small areas of Brimstone, Guyton, Latonia, Prentiss, and Stough soils. The Brimstone and Guyton soils are in positions on the landscape similar to those of the Myatt soil and have less sand in the subsoil. In addition, the Brimstone soils have high concentrations of sodium in the subsoil. The Latonia, Prentiss, and Stough soils are in slightly higher positions and have a browner subsoil. In addition, the Prentiss soils have a fragipan. Also included are a few areas of soils along Lake Pontchartrain that are subject to flooding with brackish water during tidal storms. The included soils make up about 15 percent of the map unit.

This Myatt soil is mainly used as woodland. In a few areas, it is used as pastureland.

This soil is moderately well suited to use as woodland. Flooding and wetness are the main concerns in managing this soil for timber production. Suitable trees to plant are loblolly pine, slash pine, and sweetgum. Equipment use limitations and seedling mortality are concerns if drainage is not provided. Soil compaction can be reduced by using equipment only when the soil is dry. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants. Trees should be water tolerant, and they should be planted or harvested during dry periods. Trees commonly are subject to windthrow during periods when the soil is excessively wet and winds are strong.

This soil is poorly suited to crops and pasture, mainly because of wetness, low fertility, flooding, and potentially toxic levels of exchangeable aluminum within the root zone. Wetness limits the choice of pasture plants and the period of grazing. Wetness and flooding limit the choice of crops to those that are planted late and mature early. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition.

This soil is not suited to urban uses or intensive recreation uses, such as playgrounds and campsites. Flooding and wetness are generally too severe. Protection from flooding is needed before areas of this soil can be used for building sites and sanitary facilities. Dikes and channels that have outlets to bypass floodwater can be used to protect buildings and onsite sewage disposal systems from flooding. Roads and streets should be located above the expected flood level. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability.

This soil is moderately well suited to use as habitat for woodland wildlife, such as deer, squirrels, rabbits, turkey, and numerous small furbearers. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by encouraging the propagation of desirable plants.

This Myatt soil is in capability subclass Vw. The woodland ordination symbol is 9W.

OB—Ouachita and Bibb soils, frequently flooded. This map unit consists of soils that are nearly level. They are well drained and poorly drained and are on the flood plains of major drainageways. Both soils generally are in a mapped area, but only one soil is in some areas. In areas of both soils, the Ouachita soil is on convex ridges, and the Bibb soil is in low positions between ridges. The texture of the surface layer changes as floodwaters rework the deposits. In mapping, the number of observations was fewer than in some other areas. The detail, however, is adequate for the expected uses of the soil. Areas are large, ranging up to several thousand acres and consisting of 60 percent Ouachita soil and 30 percent Bibb soil. Slope is less than 2 percent.

Typically, the Ouachita soil is well drained and has a dark brown silt loam surface layer about 9 inches thick. The subsoil to a depth of about 60 inches is dark brown silt loam in the upper part, dark yellowish brown and yellowish brown silty clay loam in the middle part, and yellowish brown silt loam in the lower part.

This Ouachita soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately slow rate, and water runs off the surface slowly. This soil is subject to brief periods of flooding mainly in the winter and spring, but flooding can occur anytime of the year and more often than twice in 5 years.

Typically, the Bibb soil is poorly drained and has a surface layer about 10 inches thick. The upper part of the surface layer is dark grayish brown loam or fine sandy loam, and the lower part is grayish brown sandy loam. The underlying material to a depth of about 60 inches is gray loam in the upper part and light gray, mottled sandy loam in the lower part.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderate rate, and water runs off the surface very slowly. This soil is subject to brief periods of flooding mainly in the winter and spring, but flooding can occur anytime of the year and more often than twice in 5 years. A seasonal high water table ranges from a depth of 0.5 foot to 2 feet from December through April.

Included in mapping are a few small areas of Cahaba, Guyton, Myatt, and Stough soils. The Guyton and Myatt soils are in positions on the landscape similar to those of the Bibb soil; however, these soils have more clay in the subsoil. The Cahaba and Stough soils are in higher positions on adjacent stream terraces. The Cahaba soils are reddish throughout, and the Stough soils have brittle material in the subsoil. Also included in intermediate positions are soils similar to the Ouachita soil except they have a seasonal high water table at a depth of 3 to 6 feet. The included soils make up about 10 percent of the map unit.

The soils are mainly used as woodland. In a few areas, they are used as pasture.

The soils in this map unit are moderately well suited to use as woodland. Suitable trees to plant are loblolly pine, eastern cottonwood, sweetgum, yellow poplar, and American sycamore. The main concerns in producing and harvesting timber are moderate equipment use limitations and severe seedling mortality caused by wetness and flooding. Only trees that can tolerate seasonal wetness should be planted. Conventional methods of harvesting timber can be used except sometimes during rainy periods, generally from December to May. Standard-wheeled and tracked equipment can cause rutting and compaction when the soil is moist. Puddling can occur when the soil is wet.

This map unit is poorly suited to pasture, mainly because of wetness, low fertility, and flooding. Wetness limits the use of equipment. Suitable pasture plants are common bermudagrass and vetch. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition.

These soils are poorly suited to crops, mainly because of wetness and flooding. Crops that are planted late and mature early can be successfully grown in some years. Drainage and protection from flooding are possible, but major structures, such as levees, are needed.

These soils are well suited to use as habitat for woodland wildlife. They provide habitat for deer, squirrels, rabbits, ducks, turkey, and numerous small furbearers. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining the existing plant cover, or by encouraging the propagation of desirable plants.

Figure 3.—This pavilion is in a park in an area of Ouachita and Bibb soils, frequently flooded. Such recreation areas generally can be used only during drier seasons unless the soils are protected from flooding.

The soils in this map unit are not suited to urban uses and intensive recreation uses, such as playgrounds and campsites. The hazard of flooding is generally too severe (fig. 3). Protection from flooding is possible only by constructing large flood control structures, such as levees.

These Ouachita and Bibb soils are in capability subclass Vw. The woodland ordination symbol is 9W for both soils.

Pg—Pits. This map unit consists of gravel pits, sand pits, and borrow pits. Areas range from 5 to 100 acres.

Gravel pits are open excavations from which gravel has been mined. The largest of these are on the terraces and flood plains of major drainageways. Sand pits are areas from which mostly sand has been removed. Borrow pits are areas from which soil material has been removed for use in constructing roads and developing commercial and residential areas.

Pits require major reclamation before they can be used for crops or pasture. Pine trees can be planted to protect the soil against erosion, but they grow slowly because of low fertility and low available water capacity. Young pines and shrubs partly cover a few small areas.

Pr—Prentiss fine sandy loam, 0 to 1 percent slopes. This soil is level, moderately well drained, and has a fragipan. It is on ridges on stream terraces. Areas range from about 5 to 200 acres.

Typically, this Prentiss soil has a dark gray fine sandy loam surface layer about 5 inches thick. The subsoil to a depth of about 25 inches is yellowish brown, mottled sandy loam and loam. The next layer to a depth of 62 inches is a fragipan of mottled brownish and grayish loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through the upper part of this soil at a moderate rate and through the lower part at a moderately slow rate. Water runs off the surface at a medium rate. The soil has a seasonal high water table that is perched above the fragipan at a depth of 2 to 2.5 feet from January to March.

Included in mapping are a few small areas of Brimstone, Cahaba, Guyton, Latonia, Myatt, and Stough soils. Unlike the Prentiss soil, these soils do not have a fragipan. The Brimstone, Guyton, Myatt, and Stough soils are in lower positions on the landscape than those of the Prentiss soil, and the Cahaba soils are in slightly higher positions. The Latonia soils are in positions similar to those of the Prentiss soils. The Brimstone soils have a high content of sodium in the subsoil, and the Guyton and Myatt soils are grayish throughout. Also included are a few large areas of urban land and, along major drainageways, a few small areas of the Prentiss soil that is subject to rare flooding. The included soils make up about 5 percent of the map unit.

This Prentiss soil is mainly used as woodland. Small acreages are used as commercial or residential sites.

This soil is well suited to use as woodland and has few limitations to this use. Suitable trees to plant are loblolly pine and slash pine. The risk of soil compaction is reduced if trees are planted and harvested when the soil is dry. Conventional methods of harvesting timber can be used except sometimes during rainy periods, generally from January to March.

This soil is well suited to pasture. The main limitations are wetness and low fertility. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, crimson clover, wheat, oats, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum forage production.

This soil is moderately well suited to crops. The main limitations are wetness, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are soybeans, corn, cotton, grain sorghum, and vegetables. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Conservation tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain soil tilth and organic matter content. Crops respond well to fertilizer and lime, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is moderately well suited to urban uses. The main limitations are wetness and moderately slow permeability. A seasonal high water table is perched above the fragipan, and drainage should be provided if buildings are constructed. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitations are wetness and moderately slow permeability. Good drainage should be provided for most recreation uses. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover.

This soil is well suited to use as habitat for openland and woodland wildlife. Small, vegetated areas left around the borders of fields can provide habitat for rabbits, quail, and nongame birds. Habitat for white-tailed deer and turkey can be improved by encouraging the growth of oaks and other mast-producing trees. Prescribed burning can also encourage the growth of palatable browse for white-tailed deer and seed-producing plants for quail and turkey.

This Prentiss soil is in capability subclass IIw. The woodland ordination symbol is 9A.

Pt—Prentiss fine sandy loam, 1 to 3 percent slopes. This soil is very gently sloping and moderately well drained. It is on ridges on stream terraces. Areas range from about 5 to 200 acres.

Typically, this Prentiss soil has a dark grayish brown fine sandy loam surface layer about 5 inches thick. The subsoil to a depth of about 22 inches is yellowish brown, mottled loam in the upper part and brownish yellow, mottled loam in the lower part. The next layer to a depth of 60 inches is a fragipan. It is brownish yellow and gray, brittle, mottled loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through the upper part of this soil at a moderate rate and through the lower part at a moderately slow rate. Water runs off the surface at a medium rate. The high water table is perched above the fragipan at a depth of 2 to 2.5 feet from January to March.

Included in mapping are a few small areas of Brimstone, Cahaba, Guyton, Latonia, Myatt, and Stough soils. Unlike the Prentiss soil, these soils do not have a fragipan. The Brimstone, Guyton, Myatt, and Stough soils are in lower positions on the landscape than the Prentiss soil, and the Cahaba soils are in slightly higher positions. The Latonia soils are in positions similar to those of the Prentiss soil. The Brimstone soils have a high content of sodium in the subsoil, and the Guyton and Myatt soils are grayish throughout. Also included are a few large areas of urban land and, along major drainageways, are a few small areas of Prentiss soil that is subject to rare flooding. The included soils make up about 5 percent of the map unit.

This Prentiss soil is mainly used as woodland. Small acreages are used as commercial or residential sites.

This soil is well suited to use as woodland and has few limitations to this use. Suitable trees to plant are loblolly pine and slash pine. Conventional methods of harvesting timber can be used except sometimes during rainy periods, generally from January to March. Soil compaction can be a problem if equipment is used when the soil is moist or wet.

This soil is well suited to pasture. The main limitations are wetness and low fertility. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, crimson clover, wheat, oats, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum forage production.

This soil is well suited to crops. The main limitations are wetness, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are soybeans, corn, cotton, grain sorghum, and vegetables. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Conservation tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain soil tilth and organic matter content. Crops respond well to fertilizer and lime, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is moderately well suited to urban uses. The main limitations are wetness and moderately slow permeability. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitations are wetness and moderately slow permeability. Good drainage should be provided for areas used as playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Plant cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for woodland and openland wildlife. Habitat for wildlife can be improved by planting or encouraging the growth of appropriate vegetation. Preserving oak trees during harvesting helps to maintain a supply of food for white-tailed deer, squirrel, and turkey. Prescribed burning helps promote the growth of palatable deer browse and seed-producing plants for quail and turkey.

This Prentiss soil is in capability subclass IIe. The woodland ordination symbol is 9A.

Rs—Ruston fine sandy loam, 1 to 3 percent slopes. This soil is very gently sloping and well drained. It is on ridgetops on the terrace uplands. Areas range from about 5 to 150 acres.

Typically, this Ruston soil has a grayish brown fine sandy loam surface layer about 6 inches thick. The subsurface layer to a depth of 11 inches is light yellowish brown fine sandy loam. The subsoil to a depth of about 74 inches is red sandy clay loam in the upper part, yellowish red sandy loam in the middle part, and red sandy clay loam in the lower part.

This soil has low fertility and moderately high levels of exchangeable aluminum that are potentially toxic to some crops. Water and air move through this soil at a moderate rate, and water runs off the surface at a medium rate. Plants are damaged by lack of water during dry periods in the summer and fall of some years.

Included in mapping are a few small areas of Savannah and Smithdale soils. The Savannah soils are in positions on the landscape similar to those of the Ruston soil, and they have a fragipan. The Smithdale soils are on steeper slopes and have a subsoil that becomes less clayey with depth. Also included are a few small areas of soils similar to the Ruston soil except they have a loamy fine sand surface layer. The included soils make up less than 5 percent of the map unit.

This Ruston soil is mainly used as pasture. In a few areas, it is used as homesites or woodland.

This soil is well suited to pasture. The main limitations are slope and low fertility. Where practical, seedbed preparation should be on the contour or across the slope. Proper grazing, weed control, and fertilizer are needed for maximum quality of forage. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, wheat, oats, ball clover, and crimson clover.

The soil is moderately well suited to cultivated crops. Suitable crops are soybeans, corn, grain sorghum, cotton, and vegetables. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. The main limitations are slope and low fertility. Practices that control erosion include early fall seeding, conservation tillage, and construction of terraces, diversions, and grassed waterways. Most crops respond well to lime and fertilizer, which help to overcome the low fertility and moderately high levels of exchangeable aluminum.

This soil is well suited to use as woodland and has few limitations to this use. Suitable trees to plant are loblolly pine, slash pine, and longleaf pine. Soil compaction can be a problem if standard-wheeled equipment is used when the soil surface is moist or wet.

This soil is well suited to urban uses. The main limitations are moderate permeability and low strength for roads. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Roads can be designed to offset the limited ability of the soil to support a load. The moderate permeability of the subsoil is a limitation to the performance of septic tank absorption fields. This limitation can be overcome by increasing the size of the septic tank absorption field.

This soil is well suited to intensive recreation uses, such as playgrounds and campsites, and has few limitations to these uses. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Plant cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for openland wildlife can be improved by providing vegetated areas near fields. Habitat for woodland wildlife can be improved by encouraging the growth of oak and other mast-producing trees. Providing small open areas in forest land and using a program of prescribed burning promote the growth of understory plants suitable for wildlife food and cover.

This Ruston soil is in capability subclass IIe. The woodland ordination symbol is 9A.

Rt—Ruston fine sandy loam, 3 to 6 percent slopes. This soil is gently sloping and well drained. It is on side slopes on the terrace uplands. Areas range from about 5 to 150 acres.

Typically, this Ruston soil has a dark yellowish brown fine sandy loam surface layer about 6 inches thick. The subsurface layer is brown fine sandy loam about 11 inches thick. The subsoil to a depth of about 64 inches is red sandy clay loam in the upper part, yellowish red sandy clay loam in the middle part, and red, mottled sandy clay loam in the lower part.

This soil has low fertility and moderately high levels of exchangeable aluminum that are potentially toxic to some crops. Water and air move through this soil at a moderate rate and water runs off the surface rapidly. Plants are damaged by lack of water during dry periods in the summer and fall of some years.

Included in mapping are a few small areas of Savannah and Smithdale soils. The Savannah soils are in slightly less convex positions on the landscape than those of the Ruston soil and have a fragipan. The Smithdale soils are on steeper side slopes and have a subsoil that becomes less clayey with depth. Also included are a few small eroded areas of Ruston soils that have a surface layer less than 3 inches thick, and included in places are small areas of Ruston soils that have slopes of 6 to 8 percent. The included soils make up 10 percent of the map unit.

This Ruston soil is mainly used as woodland. In a few areas, it is used as pasture or as homesites.

This soil is well suited to use as woodland and has few limitations to this use. Soil compaction can occur if standard-wheeled equipment is used when the soil surface is moist. Suitable trees to plant are loblolly pine, slash pine, and longleaf pine.

This soil is moderately well suited to crops. The main limitations are slope, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are corn, soybeans, grain sorghum, and vegetables. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. This soil dries quickly after rains. Conservation practices, such as proper management of crop residue, stripcropping, contour farming, and terracing, help reduce soil erosion. Most crops respond well to lime and fertilizer, which help to overcome the low fertility and moderately high levels of exchangeable aluminum.

This soil is well suited to pasture. The main limitations are slope and low fertility. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, wheat, oats, ball clover, and crimson clover. Where practical, seedbed preparation should be on the contour or across the slope. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to urban uses. The main limitations are slope, moderate permeability, and low strength for roads. Septic tank absorption fields can be enlarged to offset the moderate permeability limitation. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. Roads can be designed to offset the limited ability of the soil to support a load.

This soil is well suited to intensive recreation uses, such as playgrounds and campsites. The main limitation is slope. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover.

This soil is well suited to use as habitat for openland and woodland wildlife. Woodland areas provide habitat for white-tailed deer, turkey, quail, squirrel, and many nongame birds and animals. Openland areas provide habitat for rabbits, quail, and many nongame species. Openland areas can be improved for wildlife habitat by setting aside small plots in which appropriate vegetation is planted. Habitat for woodland wildlife can be improved by encouraging the growth of oaks and other mast-producing trees.

This Ruston soil is in capability subclass IIIe. The woodland ordination symbol is 9A.

Sa—Savannah fine sandy loam, 1 to 3 percent slopes. This soil is moderately well drained and very gently sloping. It is on ridgetops and side slopes on the terrace uplands. Areas range from about 5 to 500 acres.

Typically, this Savannah soil has a dark grayish brown fine sandy loam surface layer about 6 inches thick. The subsurface layer is brown fine sandy loam to a depth of about 10 inches. The subsoil to a depth of about 29 inches is yellowish brown, mottled clay loam. The next layer to a depth of 62 inches is a fragipan. It is mottled brownish and reddish, firm and brittle clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately slow rate, and water runs off the surface at a medium rate. This soil dries quickly after rains. A seasonal high water table is at a depth of 1.5 to 3 feet from January to March. Plants are damaged by lack of water during dry periods in summer and fall of some years.

Included in mapping are a few small areas of Guyton and Ruston soils. The Guyton soils are nearly level and are grayish throughout. The Ruston soils have more convex slopes. The Guyton and Ruston soils do not have a fragipan. The included soils make up about 10 percent of the map unit.

This Savannah soil is mainly used as pastureland. In a few areas, it is used as woodland, cropland, or homesites.

This soil is moderately well suited to crops. The main limitations are low fertility, slope, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are soybeans, corn, grain sorghum, and vegetables (fig. 4). Practices, such as early fall seeding, minimum tillage, and construction of terraces, diversions, and grassed waterways, can be used to control erosion. Crop residue on or near the surface reduces runoff and helps to maintain tilth and organic matter content.

This soil is well suited to pasture. The main limitation is low fertility. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, wheat, ryegrass, ball clover, and crimson clover. Fertilizer and lime are needed for optimum forage production.

This soil is well suited to use as woodland. It has few limitations; however, to prevent soil compaction, site preparation and harvesting should be limited to periods when the soil surface is dry. Suitable trees to plant are loblolly pine, slash pine, sweetgum, yellow poplar, and American sycamore.

This soil is moderately well suited to urban uses. The main limitations are wetness and moderately slow permeability. A seasonal high water table is perched above the fragipan, and drainage should be provided if buildings are constructed. Preserving the existing plant

Figure 4.—Savannah fine sandy loam, 1 to 3 percent slopes, is well suited to crops, such as soybeans.

cover or revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. The moderately slow permeability and the high water table increase the possibility that septic tank absorption fields will fail.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and camp areas. The main limitations are wetness and moderately slow permeability. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Plant cover can be maintained by controlling traffic. This soil can be improved for recreation uses by constructing ditches or providing the proper grade for drainage.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for openland wildlife can be improved by providing small undisturbed, vegetated areas near fields. Habitat for woodland wildlife can be improved by encouraging the growth of oaks and other mast-producing trees. Prescribed burning, rotated every three years among several small tracts of land, can increase the amount of palatable deer browse and seed-producing plants for quail and turkey.

This Savannah soil is in capability subclass IIe. The woodland ordination symbol is 9A.

Sh—Savannah fine sandy loam, 3 to 6 percent slopes. This soil is gently sloping and moderately well drained. It is on ridgetops and side slopes on the terrace uplands. Areas range from about 5 to 500 acres.

Typically, this Savannah soil has a dark grayish brown fine sandy loam surface layer about 7 inches thick. The subsoil to a depth of about 23 inches is yellowish brown, mottled clay loam. The next layer to a depth of about 60 inches is a fragipan. It is mottled brownish and reddish, firm and brittle sandy clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately slow rate. Water runs off the surface at a medium rate. This soil dries quickly after rains. A seasonal high water table is perched on the fragipan about 1.5 to 3 feet below the surface from January to March. Plants are damaged by lack of water during dry periods in the summer and fall of some years.

Included in mapping are a few small areas of Guyton and Ruston soils. The Guyton soils are on flatter slopes than the Savannah soil, and the Ruston soils are on more convex slopes. The Guyton soils are grayish throughout. The Guyton and Ruston soils do not have a fragipan. Also included are a few small areas of soils similar to the Savannah soil except they have a loamy fine sand subsurface layer and a subsoil that is reddish in the upper part. Included in places are small areas of Savannah soils that are eroded and have thin surface layers. The included soils make up about 5 percent of the map unit.

This Savannah soil is mainly used as pastureland. In a few areas, it is used as woodland, cropland, or homesites.

This soil is well suited to pasture. The main limitations are slope and low fertility. Suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ryegrass, wheat, ball clover, and crimson clover. Where possible, seedbed preparation should be on the contour to prevent erosion. Fertilizer and lime are needed for optimum forage production.

This Savannah soil is moderately well suited to crops. The main limitations are low fertility, slope, and potentially toxic levels of exchangeable aluminum within the root zone. Suitable crops are soybeans, corn, grain sorghum, and vegetables. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Practices that can control erosion include early fall seeding, conservation tillage, and construction of terraces, diversions, and grassed waterways. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Crops respond well to additions of lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is well suited to use as woodland and has few limitations for producing timber. Suitable trees to plant are loblolly pine, slash pine, sweetgum, yellow poplar, and American sycamore. To prevent soil compaction, planting and harvesting should be done when the soil surface is dry.

This soil is moderately well suited to urban uses. The main limitations are moderately slow permeability, wetness, and slope. Septic tank absorption fields do not function properly during rainy periods because of wetness and the moderately slow permeability. A seasonal high water table is perched above the fragipan, and drainage is needed where buildings are constructed. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitations are slope, wetness, and moderately slow permeability. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Drainage is needed for playgrounds and camp sites.

This soil is well suited to use as habitat for openland and woodland wildlife. Forested areas provide habitat for white-tailed deer, quail, rabbit, squirrel, turkey, and many nongame birds and animals. Habitat for woodland wildlife can be improved by encouraging the growth of oaks and other mast-producing trees. Habitat for openland wildlife can be created or improved by planting or propagating appropriate vegetation.

This Savannah soil is in capability subclass IIIe. The woodland ordination symbol is 9A.

Sm—Smithdale fine sandy loam, 8 to 12 percent slopes. This soil is strongly sloping. It is on side slopes on the terrace uplands. Areas range from about 5 to 100 acres.

Typically, this Smithdale soil has a very dark gray fine sandy loam surface layer about 4 inches thick. The subsurface layer is yellowish brown sandy loam to a depth of about 10 inches. The subsoil to a depth of about 62 inches is red sandy clay loam in the upper part; red, mottled sandy clay loam in the middle part; and red sandy loam in the lower part.

This soil has low fertility and moderately high levels of exchangeable aluminum that are potentially toxic to some crops. Water and air move through this soil at a moderate rate and water runs off the surface rapidly. Plants are damaged by lack of water during dry periods in the summer and fall of some years.

Included with this soil in mapping are a few small areas of Ruston and Savannah soils. The Savannah soils are in less sloping positions on the landscape than the Smithdale soil and they have a fragipan. The Ruston soils are in less sloping positions, and the subsoil has more clay in the lower part. Also included are small areas of Smithdale soils that have slopes of 12 to 15 percent. Included in places are small areas of Smithdale soils that are eroded and have a thin surface layer. The included soils make up about 15 percent of the map unit.

This Smithdale soil is mainly used as woodland. In a few areas, it is used as homesites or pasture.

This soil is well suited to use as woodland and has few limitations to this use. Suitable trees to plant are loblolly pine, longleaf pine, and slash pine. Road cuts and landings need to be seeded to permanent plant cover to reduce the hazard of erosion. Harvesting should be done when the soil is dry to prevent compaction of the soil surface.

This soil is moderately well suited to urban uses. The main limitation is steepness of slope. Erosion is a hazard; therefore, only the part of the site that is used for construction should be disturbed. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. The steepness of slope is a concern in installing septic tank absorption fields. Unless absorption lines are installed on the contour, effluent from absorption fields can surface in downslope areas and create a hazard to health.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitation is steepness of slope. Paths and trails should extend across the slope. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Plant cover can be maintained by controlling traffic.

This soil is moderately well suited to pasture. The main limitations are steepness of slope and low fertility. A good plant cover is needed to prevent gullying. Fertilizer and lime are also needed.

This soil is poorly suited to cultivated crops. The hazard of erosion is severe; therefore, small grains are better suited than row crops. Practices that control erosion include early fall seeding, conservation tillage, and construction of terraces, diversions, and grassed waterways.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for openland wildlife can be improved by planting or propagating appropriate vegetation. Habitat for woodland wildlife can be improved by encouraging the growth of oak trees and by providing open areas to increase the growth of understory plants.

This Smithdale soil is in capability subclass IVe. The woodland ordination symbol is 9A.

St—Stough fine sandy loam. This soil is level and somewhat poorly drained. It is on broad flats on stream terraces. Areas range from about 5 to 300 acres. Slope is less than 1 percent.

Typically, this Stough soil has a dark gray fine sandy loam surface layer about 5 inches thick. The next layer to a depth of about 12 inches is mottled, pale brown, light yellowish brown, and gray loam. The subsoil to a depth of about 60 inches is mottled brownish and grayish loam. Firm and slightly brittle loamy material is common in the subsoil.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a moderately slow rate, and water runs off the surface slowly and stands in low places for short periods after heavy rains. A seasonal high water table ranges from about 1 foot to 1.5 feet below the surface from January to April.

Included in mapping are a few small areas of Brimstone, Cahaba, Myatt, and Prentiss soils. The Brimstone soils are in slightly lower positions on the landscape than the Stough soil and have a high content of sodium in the subsoil. The Cahaba soils are on low ridges and are reddish throughout. The Myatt soils are in lower positions and have more clay in the subsoil. The Prentiss soils are in slightly higher or more sloping positions and they have a fragipan. Included at lower elevations along major drainageways are a few small areas of Stough soils that are subject to rare flooding. Also included are a few large areas of urban land. The included soils make up about 15 percent of the map unit.

This Stough soil is mainly used as woodland. In a few areas, it is used as commercial and residential sites or as cropland.

This soil is well suited to use as woodland. Suitable trees to plant are loblolly pine, slash pine, and sweetgum. Trees should be planted or harvested during dry periods. Using equipment when the soil surface is moist can cause soil compaction. Conventional methods of harvesting timber can be used, but can be restricted by wetness in the winter and spring. After harvesting, reforestation must be carefully managed to reduce competition from undesirable understory plants.

This soil is poorly suited to urban uses. The main limitations are wetness and moderately slow permeability. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability.

This soil is moderately well suited to intensive recreation uses, such as playgrounds and campsites. The main limitations are wetness and moderately slow permeability. Good drainage is needed. Plant cover can be maintained by controlling traffic.

This soil is moderately well suited to crops. The main limitations are wetness, low fertility, and potentially toxic levels of exchangeable aluminum within the root zone. The main crops are soybeans, grain sorghum, corn, and vegetables. A drainage system is needed for most cultivated crops and pasture plants. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Crops respond well to additions of lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is well suited to pasture. The main limitations are wetness and low fertility. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to use as habitat for openland and woodland wildlife. Small undisturbed, vegetated areas around fields can provide food and cover for rabbits, quail, and many nongame birds and animals. Encouraging the growth of oaks and other mast-producing trees can improve the habitat for white-tailed deer, turkey, and squirrel. In wooded areas, prescribed burning can stimulate the growth of palatable deer browse and seed-producing plants for quail and turkey.

This Stough soil is in capability subclass IIw. The woodland symbol is 9W.

Prime Farmland

In this section, prime farmland is defined and discussed, and the prime farmland soils in St. Tammany Parish are listed.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

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

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

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 6 percent.

The following map units, or soils, make up prime farmland in St. Tammany Parish. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 5. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control. Onsite evaluation is necessary to determine if the limitations have been overcome by the corrective measures.

Aa	Abita silt loam, 0 to 2 percent slopes
Ab	Abita silt loam, 2 to 5 percent slopes
Ca	Cahaba fine sandy loam, 1 to 3 percent slopes
Gt	Guyton silt loam
Ha	Harahan clay
Lt	Latonia fine sandy loam
Pr	Prentiss fine sandy loam, 0 to 1 percent slopes
Pt	Prentiss fine sandy loam, 1 to 3 percent slopes
Rs	Ruston fine sandy loam, 1 to 3 percent slopes
Rt	Ruston fine sandy loam, 3 to 6 percent slopes
Sa	Savannah fine sandy loam, 1 to 3 percent slopes
Sh	Savannah fine sandy loam, 3 to 6 percent slopes
St	Stough fine sandy loam

Use and Management of the Soils

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

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

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

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

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

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

Crops and Pasture

Dayton Matthews, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; 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 listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Differences in crop suitability and management needs result from differences in soil characteristics, such as fertility level, erodibility, organic matter content, availability of water for plants, drainage, and the hazard of flooding. Cropping systems and soil tillage are also an important part of management. Each farm has a unique soil pattern; therefore, each has unique management problems. Some principles of farm management, however, apply to specific soils and certain crops. This section presents the general principles of management that can be widely applied to the soils of St. Tammany Parish.

Perennial grasses or legumes. Grasses, legumes, or mixtures of these are grown for pasture and hay (fig. 5). The mixtures generally consist of either a summer or a winter perennial grass and a suitable legume. In addition, many farmers seed small grain or ryegrass in the fall for winter and spring forage. Excess grass in summer is harvested as hay for the winter.

Common and improved bermudagrass and Pensacola bahiagrass are the summer perennials most commonly grown. Improved bermudagrass and Pensacola bahiagrass produce good quality forage. Tall fescue, the main winter perennial grass, grows well only on soils that have a favorable moisture content. All of these grasses respond well to fertilizers, particularly nitrogen.

White clover, crimson clover, vetch, and wild winterpeas are the most commonly grown legumes. All of these respond well to lime, particularly on acid soils.

Proper grazing is essential for high quality forage, stand survival, and erosion control. Brush and weed control, fertilizer, lime, and renovation of the pasture are also important.

Forage production can be increased by grazing the understory native plants in woodland. Forage volume varies with the woodland site, the condition of the native forage, and the density of the timber stand. Although most woodland is managed mainly for timber, substantial volumes of forage can be obtained from these areas if

Figure 5.—Savannah fine sandy loam, 3 to 6 percent slopes, is well suited to use as hayland.

they are properly managed. Stocking rates and grazing periods need to be carefully managed for optimum forage production and to maintain an adequate cover of understory plants to control erosion. Additional information on the production of forage in woodland is in the section "Woodland Management and Productivity."

Fertilization and liming. The soils that are used for crops and pasture range from very strongly acid to neutral in the upper 20 inches. Most soils that are used for crops are low in organic matter content and available nitrogen. Most of the soils generally need lime and a complete fertilizer for crops and pasture plants. The amount of fertilizer needed depends upon the kind of crop, on past cropping history, on the level of yield desired, and on the kind of soil. The amount should be determined on the basis of soil test results. Information and instructions on collecting and testing soil samples can be obtained from the Cooperative Extension Service.

Organic matter content. Organic matter is an important source of nitrogen for crop growth. It also increases the rate of water intake, reduces surface crusting, and improves tilth. In St. Tammany Parish, most soils used for crops, especially soils that have a silt loam or fine sandy loam surface layer, are low in organic matter content. The level of organic matter can be maintained or improved by growing crops that produce an extensive root system and an abundance of foliage, by leaving plant residue on the surface, and by growing perennial grasses and legumes in rotation with other crops.

Soil tillage. Conservation tillage can be used on most of the soils to increase organic matter and improve overall tilth. Soils should be tilled only enough to prepare a seedbed and to control weeds. Excessive tillage destroys soil structure. A compacted layer, generally known as a traffic pan or plowpan, sometimes develops just below the plow layer in loamy soils. This condition can be avoided by not plowing when the soil is wet, by varying the depth of plowing, or by breaking up the plowpan by subsoiling or chiseling. Tillage implements that stir the surface but leave crop residue in place protect the soil from beating rains, thereby helping to control erosion, reduce runoff, increase infiltration, and reduce surface crusting.

Drainage. Many soils in the parish need surface drainage to make them more suitable for crops. Early drainage methods involved a complex pattern of main ditches, laterals, and surface field ditches. The more recent approach to drainage in this parish is a combination of land smoothing with a minimum of surface ditches. Larger and more uniformly shaped fields are created and are more suited to the use of modern, multirow farm machinery. Deep cutting of soils that have unfavorable subsoil characteristics, however, should be avoided.

Control of erosion. Erosion is a major hazard on many soils in St. Tammany Parish. It is an especially serious problem on the soils on stream terraces and on terrace uplands. Sloping soils, such as the Ruston and Cahaba soils, are highly susceptible to erosion when left without plant cover for extended periods. If the surface layer is lost by erosion, most of the available plant nutrients and organic matter are also lost. Soils that have a fragipan, such as the Prentiss and Savannah soils, especially need protection against erosion. Soil erosion also results in sedimentation of drainage systems and pollution of streams by sediment, nutrients, and pesticides.

Cropping systems in which a plant cover is maintained on the soil for extended periods reduce soil erosion. Legume or grass cover crops reduce erosion, increase the content of organic matter and nitrogen in the soils, and improve tilth. Terraces, diversions, grassed waterways, conservation tillage, contour farming, and cropping systems that rotate grass or close-growing crops with row crops help to control erosion on cropland and pasture. Constructing water control structures in drainageways to drop water to different levels can help prevent gullying.

Cropping system. A good cropping system includes a legume for nitrogen, a cultivated crop to aid in weed control, a deep-rooted crop to utilize subsoil fertility and maintain subsoil permeability, and a close-growing crop to help maintain organic matter content. The sequence of crops should keep the soil covered as much of the year as possible.

A suitable cropping system varies according to the needs of the farmer and the characteristics of the soil. Producers of livestock, for example, generally use cropping systems that have higher percentages of pasture than the cropping systems of cash-crop farms.

Additional information on erosion control, cropping systems, and drainage practices can be obtained from the local office of the Soil Conservation Service and the Cooperative Extension Service or from the Louisiana Agricultural Experiment Station.

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.

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

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

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

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

Land Capability Classification

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

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

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 they 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 miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

No class I or class VI soils are in St. Tammany Parish.

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

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but 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 shown in table 7. The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Carl V. Thompson Jr., state staff forester, Soil Conservation Service, helped prepare this section.

This section has information on the relation between trees and their environment, particularly trees and the soils in which they grow. It also includes information on the kind, amount, and condition of woodland resources in St. Tammany Parish. The section also includes soil interpretations that can be used in planning.

Soil directly influences the growth, management, harvesting, and multiple uses of forests. Soil is the medium in which a tree is anchored and from which it draws its nutrients and moisture. Soil characteristics, such as chemical composition, texture, structure, depth, and slope position, affect tree growth, seedling survival, species adaptability, and equipment limitations.

The ability of a soil to supply moisture and nutrients to trees is strongly related to its texture, structure, and depth. Generally, sandy soils are less fertile and lower in available water capacity than clayey soils. However, aeration is often impeded in clayey soils, particularly under wet conditions. Slope position strongly influences species composition as well as growth within an individual tree.

These soil characteristics, in combination, largely determine the species forest stand composition and influence management and use decisions. Sweetgum, for example, is tolerant of many soils and sites, but grows best on the rich, moist, alluvial loamy soils of bottom lands. Use of heavy logging and site preparation equipment is more restricted on clayey soils than on better drained sandy or loamy soils.

Woodland Resources

The topography and vegetation of St. Tammany Parish varies from the sloping piney woods in the northern part of the parish and the flat piney woods in the central part to the brackish salt marsh in the southern part. The dominant forest species are longleaf pine, slash pine, and loblolly pine on the higher sites; sweetgum, red oak, white oak, elm, pecan, green ash, willow, American sycamore, and eastern cottonwood in the stream and river bottoms; and baldcypress and tupelo gum in the swamps.

St. Tammany Parish was once a vast virgin forest of pine in the north and baldcypress-tupelo gum in the south. Now, no virgin forests are left. Most were cut during the "cut out-get out" period around the turn of the century. The timber barons of that time stripped both the upland pine and low-lying baldcypress-tupelo gum forests of commercial trees. No attempts at artificial regeneration were made at the time, and the second growth forests were strictly a product of nature. This second growth forest was largely unmanaged and subject to periodic wildfires and harvests with little or no thought of selective cutting or regeneration until the late 1940's and early 1950's. At that time, a series of events took place that set the stage for forest management and reforestation. First, effective fire protection was provided by the Louisiana Office of Forestry (then known as the Louisiana Forestry Commission). Then, the Office of Forestry increased operations of their pine seedling nurseries, making pine seedlings more readily available for planting the cut-over land. At last, timber and land values began to increase, providing an incentive to landowners to bring their property into production. Today, most of the forest land in St. Tammany Parish is once again productively growing commercial timber, although a substantial part is now devoted to urban use, pastures, cropland, and other nonforest uses.

St. Tammany Parish has about 328,300 acres of commercial woodland, representing about 58 percent of the total land area. Commercial woodland is defined as that producing or capable of producing crops of industrial wood and not withdrawn from timber use. The commercial woodland area decreased by about 20,000 acres between 1964 and 1974. Most of the cleared land was converted to pastureland and urban areas. Other uses are cropland, urban land, and transmission and transportation corridors. The conversion of cleared land continued from 1974 to 1980, when woodland in St. Tammany Parish decreased by 49,900 acres. The woodland acreage in the parish probably will continue to decrease as urban areas increase in size.

About 6.5 percent of the forest land in St. Tammany Parish is owned by private farms, 7.7 percent is public forest land, and 85.8 percent is in miscellaneous private ownership *(32)*.

The parish is divided into 4 major land resource areas (MLRA's): Eastern Gulf Coast Flatwoods, Southern Coastal Plain, Southern Mississippi Valley Alluvium, and Gulf Coast Marsh. The first two MLRA's support substantial acreages of commercial forest. Some commercial forest, however, is also in the Southern Mississippi Valley Alluvium MLRA.

In the Eastern Gulf Coast Flatwoods MLRA, predominant trees are loblolly pine, slash pine, longleaf pine, sweetgum, water oak, southern red oak, white oak, American sycamore, and magnolia on the higher, well drained soils; and eastern cottonwood, green ash, white oak, cherrybark oak, Nuttall oak, water oak, willow oak, American sycamore, and tupelo gum on the lower, poorly drained soils. In the Southern Coastal Plain MLRA, loblolly pine and slash pine with associated sweetgum, shortleaf pine, longleaf pine, southern red oak, white oak, water oak, post oak, black cherry, elm, and red maple are dominant trees. In the Southern Mississippi Valley Alluvium MLRA, green ash, eastern cottonwood, elm, and American sycamore are on well drained soils; and green ash, elm, tupelo gum, baldcypress, willow, water oak, pecan, hackberry, willow oak, and Drummond red maple are on poorly drained soils. The Gulf Coast Marsh MLRA generally does not support trees. However, areas of swamp that produce baldcypress and water tupelo are included within this MLRA.

Commercial forests may be further divided into forest types. Types can be based on tree species, site quality, or age. As used in this survey, forest types are stands of trees of similar character, composed of the same species, and growing under the same ecological and biological conditions. The forest types are named for the dominant trees.

The *oak-gum-cypress* forest type covers 32 percent of the forest land in St. Tammany Parish. This type is composed of bottom land forests of tupelo gum, blackgum, sweetgum, oak, and baldcypress, singularly or in combination. Associated trees include eastern cottonwood, black willow, green ash, hackberry, maple, and elm.

The *loblolly-shortleaf pine* forest type covers 22 percent of the forest land in the parish. Loblolly pine generally is dominant except on drier sites. Scattered hardwoods, such as sweetgum, blackgum, southern red oak, post oak, white oak, mockernut hickory, and pignut hickory, can be mixed with pines on well-drained soils; on more moist sites, sweetgum, red maple, water oak, and willow oak can be mixed with pines. Green ash and American beech are associated with this forest type in fertile, well drained coves and along stream bottoms.

The *oak-hickory* forest type covers 12 percent of the forest land in the parish. This kind of forest is one in which upland oaks or hickory, singly or in combination, make up most of the stocking except where pines make up 25 to 50 percent. In this case, the stand is classified oak-pine. Common associated trees include elm and maple.

The *longleaf-slash pine* forest type covers 30 percent of the forest land in the parish. In this forest type, 50 percent or more of the stand is longleaf pine or slash pine, singly or in combination. Common associated trees include other southern pines, oak, and tupelo gum.

The *oak-pine* forest type covers about 4 percent of the forest land. About 50 to 75 percent of the stocking is hardwoods, usually upland oaks, and 25 to 50 percent of the stocking is softwoods (except baldcypress). The species that make up the oak-pine forest type are primarily the result of soil, slope, and aspect. On the higher, drier sites the hardwood components tend to be the upland oaks, such as post oak, southern red oak, and blackjack oak. On the more moist and more fertile sites, the trees are white oak, southern red oak, and black oak. Blackgum, winged elm, red maple, and various hickories are associated with the oak-pine type on both of these broad site classifications.

The forest land in St. Tammany Parish, by physiographic class, is 68 percent pine and 32 percent bottom land hardwood.

The marketable timber volume is about 68 percent pine and 32 percent hardwood. About 54 percent of the forest acreage is in sawtimber, 24 percent in pole timber, and 16 percent in saplings and seedlings. About 6 percent of the commercial forest land in St. Tammany Parish is classified as "non-stocked."

About 2 percent of the forest land produces 165 cubic feet or more of wood per acre per year. About 8 percent produces 120 to 165 cubic feet, 22 percent produces 85 to 120 cubic feet, 60 percent produces 50 to 85 cubic feet, and 8 percent produces less than 50 cubic feet per acre per year.

Although only a few wood preserving plants and no large sawmills are in St. Tammany Parish, timber production is important to the parish's economy. Most of the upland pine sites are privately owned, mostly in tracts of 500 acres or less. Most of these tracts are producing well below potential and would benefit if thinned, if undesirable trees were cut or deadened, and if competing underbrush and excess litter was reduced by controlled fire. Almost all of the bottom land tracts are producing at only a fraction of potential. Protection from grazing, fire, insects, and diseases; tree planting; and timber stand improvement are needed to improve both upland and bottom land forests.

The Soil Conservation Service, Louisiana Office of Forestry, and the Louisiana Cooperative Extension Service can help determine specific woodland management needs.

Environmental Values

Other values associated with woodlands include wildlife habitat, recreation, natural beauty, and conservation of soil and water.

The commercial forest land of St. Tammany Parish provides food and shelter for wildlife and offers opportunity for sport and recreation to many users annually. Hunting and fishing clubs in the parish lease or otherwise use the forest land. Forest land provides watershed protection, helps to arrest soil erosion and reduce sedimentation, and enhances the quality and value of water resources.

Trees can be planted to screen distracting views of dumps and other unsightly areas, muffle the sound of traffic, reduce the velocity of winds, and lend beauty to the landscape. Trees produce fruits and nuts for use by people as well as wildlife. Trees and forests help filter out airborne dust and other impurities, convert carbon dioxide into life-giving oxygen, and provide shade from the sun's hot rays.

Production of Forage in Woodland

The kind and amount of understory vegetation that can be produced in an area is related to the soils, climate, and amount of tree overstory. In many pine woodlands, cattle grazing can be a compatible secondary use. Grazing is not recommended on hardwood woodland. Grasses, legumes, forbs, and many of the woody browse species in the understory are grazable if properly managed to supplement a woodland enterprise without damage to the wood crop. In fact, on most pine woodland, grazing is beneficial to the woodland program because it reduces the accumulation of heavy "rough," thus reducing the hazard of wildfires. Grazing also helps to suppress undesirable woody plants.

The success of a combined woodland and livestock program depends primarily on the degree and time of grazing of the forage plants. Intensity of grazing should maintain adequate cover for soil protection and maintain or improve the quantity and quality of trees and forage vegetation.

Forage production varies according to the type of woodland and the amount of sunlight that reaches the understory vegetation during the growing season.

Soils that have about the same potential to produce trees also have similar potential for producing about the same kind and amount of understory vegetation. The plant community on these soils will reproduce itself as long as the environment does not change.

Research has proven that a close correlation exists between the total potential yield of grasses, legumes, and forbs growing in similar soils and the amount of sunlight reaching the ground at midday in the forest. Herbage production continues to decline as the forest canopy becomes denser.

One of the main objectives in good woodland grazing management is to keep the woodland forage in excellent or good condition. If this is done, water is conserved, yields are improved, and the soils are protected.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Available water capacity and depth of the root zone are major influences of tree growth.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to fertilization than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special efforts to reforest. In the section "Detailed Soil Map Units," each map unit in the survey area suitable for producing timber presents information about productivity, limitations for harvesting timber, and management concerns for producing timber. Table 8 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

The first tree listed for each soil under the column "Common trees" is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

Table 8 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation for use and management. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity, acidity, sodium salts, or other toxic substances that limit or impede development of desirable trees. The letter *A* indicates a soil that has no significant restrictions or limitations for forest use and management. If a soil has more than one limitation, the priority is W, then T.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation activities or harvesting operations expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, or susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment must be used. On the steepest slopes, even tracked equipment cannot operate; more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by soil wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are steep enough that wheeled equipment cannot be operated safely across the slope, if soil wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts ground-based equipment, or if special equipment is needed to avoid or reduce soil compaction. The rating is *severe* if slopes are steep enough that tracked equipment cannot be operated safely across the slope, if soil wetness restricts equipment use for more than 6 months per year, if stoniness restricts ground-based equipment, or if special equipment is needed to avoid or reduce soil compaction. Ratings of *moderate* or *severe* indicate a need to choose the most suitable equipment and to carefully plan the timing of harvesting and other management operations.

Ratings of *seedling mortality* refer to the probability of death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall as influenced by kinds of soil or topographic features. *Seedling mortality* is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth and duration of the water table, rock fragments in the surface layer, rooting depth, and the aspect of the slope. Mortality generally is greatest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of *moderate* or *severe* indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing surface drainage, or providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is *moderate* or *severe*.

The potential productivity of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate.

The soils that are commonly used to produce timber have the yield predicted in cubic feet and board feet. The yield is predicted at the point where mean annual increment culminates. The productivity of the soils in this survey is mainly based on age 30 years for eastern cottonwood, 35 years for American sycamore, and 50 years for all other species.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The procedure and technique for determining site index are given in the site index tables used for the St. Tammany Parish soil survey *(4, 5, 6, 7, 8, 23)*.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71. For example, a productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 568 board feet per acre per year.

Trees to plant are those that are used for reforestation or, if suitable conditions exist, natural regeneration. They are suited to the soils and will produce a commercial wood crop. Desired product, topographic position (such as a low, wet area), and personal preference are three factors of many that can influence the choice of trees to use for reforestation.

Recreation

In table 9, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that 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 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for 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 that 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 firm after rains and is not dusty when dry. If grading is needed, the depth of the soil over a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Billy R. Craft, state staff biologist, Soil Conservation Service, helped prepare this section.

About 360,000 acres of forest land, 80,000 acres of pastureland, 10,000 acres of cropland, and 50,000 acres of marshland are in St. Tammany Parish. It is bordered on the south by Lake Pontchartrain, and the Pearl River forms the eastern boundary. The diverse land use and numerous streams provide habitat for many wildlife species. Demand for quality hunting areas is high because of the parish's proximity to Baton Rouge and New Orleans. The swift flowing, clear streams provide good stream fishing.

Forest land managed for pine production totals 280,000 acres. Loblolly pine and slash pine are dominant. A large part of the parish is in the Eastern Gulf Coast Flatwoods Land Resource Area where the potential for pine timber production is high. The pine forests provide low to moderate quality habitat for white-tailed deer, squirrels, rabbits, and wild turkey. Periodic thinning and prescribed burning are management practices that are beneficial to woodland wildlife species.

Hardwoods are mainly along the major stream bottoms, such as the Pearl River bottom. These forests provide some of the best habitat in the parish. Typically, the trees include water oak, overcup oak, baldcypress, red maple, cherrybark oak, white oak, ash, pecan, and hickory.

Trees, such as baldcypress, water tupelo, green ash, and red maple, and shrubs, such as water elm and buttonbush, are in the swampland in the parish. The swampland areas have surface water all or most of the year. Excellent habitat exists for wood ducks, wading birds, reptiles, and amphibians. The swamps play an important filtering role for water quality improvement, ground water recharge, and timber production.

About 80,000 acres of pastureland are in the parish. Common bermudagrass, bahiagrass, improved bermudagrass, and Dallisgrass are common pasture grasses. Limited habitat exists for bobwhite quail, mourning dove, rabbit, and other species that use this kind of habitat. The pastures are managed mainly for livestock forage.

A small acreage is devoted to crop production. The waste grain and cover provided in these fields is beneficial to several wildlife species. Bobwhite quail and mourning dove especially benefit.

The marshlands consist of freshwater and brackish marshes. The marshes are mainly in the southeastern part of the parish. The marsh vegetation provides habitat for furbearers and waterfowl, and the marshes provide nurseries for many marine and estuarine fish and crustaceans. The plant communities in these marshes provide the base of the food chain for wildlife and fishery resources. Some of the common plants are maidencane, bulltongue, marshhay cordgrass, widgeongrass, waterhyssop, seashore paspalum, and marsh morningglory.

The private farm ponds, rivers, creeks, and lakes provide fishing for bluegill, redear, largemouth bass, white bass, warmouth, spotted bass, channel catfish, and blue catfish, among other fish. Streams are clear, aesthetically pleasing, and offer good opportunities for float fishing. Most of the farm ponds have been stocked with bluegill, redear, and largemouth bass. A few of the ponds are stocked with channel catfish.

The Bogue Chitto National Wildlife Refuge and the state-owned Pearl River Wildlife Management Area are in St. Tammany Parish. These areas are managed specifically for the production of fish and wildlife.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in 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* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features 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, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and grain sorghum.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, bahiagrass, bromegrass, clover, and vetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, panicum, and fescue.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are hawthorn, mayhaw, persimmon, and sumac.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are sumac, persimmon, and hawthorn.

Wetland plants are annual and perennial, wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, and slope. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are slope and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife 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 wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy, or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, nutria, and otter.

Engineering

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

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

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

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

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

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

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

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

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

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

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

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

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

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to a fragipan, and flooding affect absorption of the effluent.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the 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.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, flooding, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a water table, slope, and flooding affect both types of landfill. Texture, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

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

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

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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

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

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

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

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

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

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick. All other soils are rated as an improbable source.

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

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

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

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

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

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

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

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

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

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

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

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

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

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

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness and slope affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

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

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

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

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

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

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

Classification of the soils is determined according to the Unified soil classification system *(3)* and the system adopted by the American Association of State Highway and Transportation Officials *(2)*.

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

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

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

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

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

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

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They influence the soil's adsorption of cations, moisture retention, shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

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

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

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

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

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

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

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

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion *(36)*. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Soil and Water Features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive 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 mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. There are no group A soils in St. Tammany Parish.

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

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

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

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (about 1 to 10 times in 100 years). *Occasional* means that flooding occurs, on the average, no more than twice in 5 years (about 11 to 40 times in 100 years). *Frequent* means that flooding occurs, on the average, more than twice in 5 years (more than 41 times in 100 years). Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. January-December, for example, means that flooding can occur during the period January through December. About two-thirds to three-fourths of all flooding occurs during the stated period. The definitions of the frequency of flooding differ slightly from the National Soil Conservation Service definition.

The information on flooding is based on evidence in the soil profile, namely, thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons, which are characteristic of soils that are not subject to flooding.

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

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, *perched* or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

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

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 17 shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Not shown in the table is subsidence caused by an imposed surface load or by the withdrawal of ground water throughout an extensive area as a result of lowering the water table.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

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

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

Soil Fertility Levels

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This section gives information concerning the environmental factors and the physical and chemical properties of the soils that affect the potential for crop production. It also lists the methods used to obtain the chemical analyses of the soils sampled.

Crop composition and yield are a function of many environmental, plant, and soil factors.

Environmental factors:

- Light—intensity and duration
- Temperature—air and soil
- Precipitation—distribution and amount
- Atmospheric carbon dioxide concentration

Plant factors (species and hybrid specific):

- Rate of nutrient and water uptake
- Rate of growth and related plant functions

Soil factors—physical properties:

- Particle-size distribution and texture
- Structure
- Surface area
- Bulk density
- Water retention and flow
- Aeration

Soil factors—chemical properties:

- *Quantity factor*. Amount of an element in the soil that is readily available for uptake by plants. To determine the quantity factor, the available supply of an element is removed from the soil, using a suitable extractant, and is analyzed.
- *Intensity factor*. The concentration of an element species in the soil moisture. It is a measure of the availability of an element for uptake by plant roots. Two soils that have identical quantities of an element's available supply but have different element intensity factors will differ in element availability to the plant.
- *Relative intensity factor*. Effect that the availability of one element has on the availability of another element.
- *Quantity—Intensity relationship factor*. The relationship includes the reactions between the soil surface and soil water that control the distribution of element species between the available supply in the soil and the soil water. A special quantity—intensity relationship is the buffer capacity of the soil for a given element. The buffer capacity is the amount of a given element that must be added to or removed from the available supply to produce a given change in the intensity factor for that element.
- *Replenishment factor*. Rate of replenishment of the available supply and intensity factors by weathering reactions, fertilizer additions, and transport by mass flow and diffusion.

These soil factors are interdependent. The magnitude of the factors and the interactions among them control crop response. The relative importance of each factor changes from soil to soil, crop to crop, and environment to environment. The soil factors are only part of the overall system.

The goal of soil testing is to provide information for a soil and crop management program that establishes and maintains optimum levels and balance of the essential elements in the soil for crop and animal nutrition and protects the environment against the buildup of potentially toxic levels of essential and nonessential elements. Current soil tests measure only one soil factor, the available supply of one or more nutrients in the plow layer. Where crop production is clearly limited by the available supply of one or more nutrients in the plow layer, existing soil tests generally can diagnose the problem and reliable recommendations to correct the problem can be made. Soil management systems generally are based on physical and chemical alteration of the plow layer. Characteristics of this layer can vary from one location to another, depending upon management practices and soil use.

The underlying layers are less subject to change or change very slowly as a result of alteration of the plow layer. The properties of the subsoil reflect the soil's inherent ability to supply nutrients to plant roots and to provide a favorable environment for root growth. If soil fertility recommendations based on current soil tests are followed, major fertility problems in the plow layer are normally corrected. Crop production is then limited by crop and environment factors, physical properties of the plow layer, and physical and chemical properties of the subsoil.

Although the soil's available nutrient supply is only one factor affecting crop production, it is important. Information on the available nutrient supply in the subsoil allows evaluation of the native fertility levels of the soil.

Soil profiles were sampled during the soil survey and analyzed for pH; organic carbon content; extractable phosphorus; exchangeable cations of calcium, magnesium, potassium, sodium, aluminum, and hydrogen; total acidity; and cation-exchange capacity. These results are summarized in Table 18. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods *(35)*. More detailed information on chemical analysis of soils is available *(1, 15, 16, 17, 29, 30)*.

Reaction (pH)— 1:1 soil—water solution (8C1a).

Organic carbon— acid-dichromate oxidation (6A1a).

Extractable phosphorus— Bray 2 extractant (0.03 molar ammonium fluoride-0.1 molar hydrochloric acid).

Exchangeable bases— pH 7, 1 molar ammonium acetate-calcium (6N2), magnesium (6O2), potassium (6Q2), sodium (6P2).

Exchangeable aluminum and hydrogen— 1 molar potassium chloride (6G2).

Total acidity— pH 8.2, barium chloride-triethanolamine (6H1a).

Effective cation-exchange capacity— sum of bases plus exchangeable aluminum and hydrogen (5A3b).

Sum cation-exchange capacity— sum of bases plus total acidity (5A3a).

Base saturation— sum of bases/sum cation-exchange capacity (5C3).

Exchangeable sodium percentage— exchangeable sodium/sum cation-exchange capacity.

Aluminum saturation— exchangeable aluminum/effective cation-exchange capacity.

Nitrogen. Generally, over 90 percent of the nitrogen in the surface layer is in the form of organic nitrogen. Most of the nitrogen in the subsoil is in the form of fixed ammonium compounds. These forms of nitrogen are unavailable for plant uptake, but they can be converted to readily available ammonium and nitrate species.

Nitrogen is generally the most limiting nutrient element in crop production because plants have a high demand for it. Nitrogen fertilizer recommendations are nearly always based on the nitrogen requirement of the crop rather than nitrogen soil test levels, since no reliable nitrogen soil tests are available.

Despite the lack of an adequate nitrogen soil test, the amounts of readily available ammonium- and nitrate-nitrogen in soils, the amount of organic nitrogen, the rate of mineralization of organic nitrogen to available forms of nitrogen, and the rate of conversion of fixed ammonium-nitrogen to available forms of nitrogen provide information on the fertility status of a soil with respect to nitrogen. Unfortunately, since the amounts and rates of transformation of the various forms of nitrogen in the soils of St. Tammany Parish are unknown, no assessment of the nitrogen fertility status of these soils can be given.

Phosphorus. Phosphorus exists in the soil as discrete solid phase minerals, such as hydroxyapatite, variscite, and strengite; as occluded or coprecipitated phosphorus in other minerals; as retained phosphorus on mineral surfaces, such as carbonates, metal oxides, and layer silicates; and in organic compounds. Because most of the phosphorus in soils is unavailable for plant uptake, the availability of phosphorus in the soil is an important factor in controlling phosphorus uptake by plants.

The Bray 2 extractant tends to extract more phosphorus than the more commonly used Bray 1, Mehlich I, and Olsen extractants. The Bray 2 extractant provides an estimate of the plant available supply of phosphorus in soils. According to soil test interpretation guidelines, the Bray 2 extractable phosphorus content of most of the soils in St. Tammany Parish is in the very low to low range. Only the Cahaba and Ruston series have high levels of extractable phosphorus in the A horizon. The high levels of phosphorus in the Ap horizon most likely result from recent additions of fertilizer phosphorus to the surface layer. A response to added phosphorus can be obtained where the level of extractable phosphorus is very low or low in the surface and subsurface horizons. High levels of extractable phosphorus throughout the soil profile should not be interpreted as an indication that the soil never needs phosphorus fertilizer because the available supply of phosphorus in the soil can be reduced through continuous cropping with no additions of phosphorus. If the available supply of phosphorus is in the medium to high range it should be maintained by adding phosphorus to account for crop removal of phosphorus and the fixation of some added phosphorus as unavailable phosphorus in the soil. If the available supply of phosphorus is low, then available phosphorus levels should be gradually built up and maintained where possible.

Potassium. Potassium exists in three major forms in soils; exchangeable potassium associated with negatively charged sites on clay mineral surfaces, nonexchangeable potassium trapped between clay mineral interlayers, and structural potassium within the crystal lattice of minerals. The exchangeable form of potassium in soils is replaceable by other cations and is generally readily available for plant uptake. To become available to plants, the other forms of potassium must be converted to the exchangeable form via weathering reactions.

The exchangeable potassium content of the soils is an estimate of the plant available supply of potassium. According to soil test interpretation guidelines, the available supply of potassium in the mineral soils of St. Tammany Parish is mainly in the very low or low range, depending on the soil texture. Generally, in mineral soils, the higher levels of exchangeable potassium are in the silty clay loam and sandy clay loam soils. The exchangeable potassium content in most of the organic soils of the marshes is high. The content of potassium is probably high in these soils because clayey particles and organic material are intermixed by streams flowing into the marshes. Crops respond to fertilizer potassium where exchangeable potassium levels are very low to low. Low levels can be gradually built up by adding enough fertilizer potassium to account for crop removal, fixation of exchangeable potassium to nonexchangeable potassium, and leaching losses. Most of the soils in St. Tammany Parish have a sufficient amount of clay, and therefore, a sufficiently high cation-exchange capacity to maintain adequate quantities of available potassium for crop production. However, some of the soils, such as Bibb, Cahaba, Latonia, and Prentiss soils, have a low cation-exchange capacity. More frequent additions of fertilizer potassium are needed to maintain exchangeable potassium levels in these soils.

Magnesium. Magnesium exists in soils as exchangeable magnesium associated with negatively charged sites on clay mineral surfaces and as structural magnesium in mineral crystal lattices. Exchangeable magnesium is generally readily available for plant uptake; structural magnesium must be converted to exchangeable magnesium during mineral weathering reactions.

According to soil test interpretation guidelines, the exchangeable magnesium content of the soils of St. Tammany Parish is low to medium, depending upon soil texture. High exchangeable magnesium levels are in the organic and clay soils of the marshes and swamps. Medium levels of exchangeable magnesium are adequate for crop production. Where levels are low, some plants have magnesium deficiencies; thus, additions of fertilizer magnesium can be beneficial to crop production on many of the soils of St. Tammany Parish.

Calcium. Calcium exists in soils as exchangeable calcium associated with negatively charged sites on clay mineral surfaces and as structural calcium in mineral crystal lattices. Exchangeable calcium generally is available for plant uptake while structural calcium is not.

The exchangeable calcium levels in the mineral soils of St. Tammany Parish are low or medium. Calcium deficiencies in plants are rare. Thus, the levels of exchangeable calcium in the mineral soils of St. Tammany Parish are adequate for crop production. Calcium is normally added to soils when they are limed.

High levels of exchangeable calcium are in the clayey and organic soils of the parish. Most areas of these soils are in undrained marshes and swamps.

Organic Matter. The organic matter content of a soil greatly influences other soil properties. High organic matter levels in mineral soils are desirable, and low levels can lead to many problems. Increasing the organic matter content of a soil can greatly improve the soil's structure, drainage, and other physical properties. It can also increase the moisture-holding capacity, cation-exchange capacity, and nitrogen content.

Increasing organic matter content is very difficult because organic matter is continually subjected to microbial degradation. This is especially true in Louisiana where higher temperatures increase microbial activity. The rate of breakdown of organic matter in native plant communities is balanced by the rate of input of fresh material. Disruption of this natural process can lead to a decline in the organic matter content of the soil. Management practices that promote soil erosion lead to a further decrease.

If no degradation of organic matter occurs, 10 tons of organic matter are needed to raise the organic matter content of the top 6 inches of soil by just 1 percent. Since breakdown of organic matter does occur in the soil, several decades of adding large amounts of organic matter to the soil are needed to produce a small increase in the organic matter content. Conservation tillage and cover crops slowly increase the organic matter content over time, or at least prevent further declines.

The organic matter content of the loamy soils of St. Tammany Parish is low. It decreases sharply with depth because fresh organic matter is confined to the surface layer. These low levels reflect the high rate of organic matter degradation, erosion, and cultural practices that make maintenance of organic matter difficult at higher levels.

The organic matter content of the soils in marshes and swamps is high or very high. Where these soils are drained for use as pasture or cropland, the organic matter content can remain high for many years.

Sodium. Sodium exists in soils as exchangeable sodium associated with negatively charged sites on clay mineral surfaces and as structural sodium in mineral crystal lattices. Because primary sodium minerals are readily soluble and sodium is generally not strongly retained by soils, well drained soils subjected to a moderate or more intense degree of weathering from rainfall do not normally have significant amounts of sodium. Soils in low rainfall environments, soils that have restricted drainage in the subsoil, and soils of the Coastal Marsh have significant to substantial amounts of sodium. High levels of exchangeable sodium in soils are associated with undesirable physical properties, such as poor structure, slow permeability, and restricted drainage.

Although many soils in St. Tammany Parish have more exchangeable sodium than exchangeable potassium, only the Brimstone soil has excessive levels of exchangeable sodium. Exchangeable sodium levels in the Brimstone soil are shown in table 19, "Chemical Test Data on Selected Soils." Higher than normal levels of exchangeable sodium in the Brimstone soil are probably associated with restricted drainage in the subsoil.

Some horizons of the Brimstone soil have more than 15 percent of the cation-exchange capacity saturated with exchangeable sodium. In most years, crops grown on these soils produce lower yields than those grown on associated soils that do not have the high sodium levels.

Crop yield can be reduced as a result of one or more detrimental effects associated with the large quantities of sodium. The sodium reduces soil aggregation, which results in a decrease of the permeability of the soil to air and water. Consequently, when saturated, these soils dry more slowly than associated soils, particularly early in spring after becoming saturated during the wet winter months. Once these soils are dry, recharge of soil moisture from rainfall during the growing season is slower than in associated soils. Plants can be damaged by drought stress.

The high sodium levels may also inhibit or interfere with the plant's uptake of other nutrients, such as calcium and magnesium. Some plants take up quantities of sodium large enough to have a detrimental effect. Where high sodium levels are associated with high alkalinity, there is a caustic effect to some plants as well as possible toxic effects from anions, such as bicarbonate associated with the large quantities of sodium. Also, the high alkalinity can result in reduced availability of many nutrient elements. If large quantities of soluble salts are present in the soil, some plants suffer physiologic drought caused by the osmotic movement of water from the plant to the soil.

pH, exchangeable aluminum and hydrogen, exchangeable and total acidity. The pH of the soil solution in contact with the soil affects other soil properties. Soil pH is an intensity factor rather than a quantity factor. The lower the pH, the more acidic the soil. Soil pH controls the availability of essential and nonessential elements for plant uptake by controlling mineral solubility, ion exchange, and adsorption/desorption reactions with the soil surfaces. Soil pH also affects microbial activity.

Aluminum exists in soils as exchangeable monomeric hydrolysis species, nonexchangeable polymeric hydrolysis species, aluminum oxides, and aluminosilicate minerals. Exchangeable aluminum in soils is determined by extraction with neutral salts, such as potassium chloride or barium chloride. The exchangeable aluminum in soils is directly related to pH. If pH is less than 5.5, the soils have significant amounts of exchangeable aluminum that has charge of plus 3. This amount of aluminum is toxic to the plants. The toxic effects of aluminum on plant growth can be alleviated by adding lime to convert exchangeable aluminum to nonexchangeable polymeric hydrolysis species. High levels of organic matter can also alleviate aluminum toxicity.

Sources of exchangeable hydrogen in soils include hydrolysis of exchangeable and nonexchangeable aluminum and pH-dependent exchange sites on metal oxides, certain layer silicates, and organic matter. Exchangeable hydrogen as determined by extraction with such neutral salts as potassium chloride is normally not a major component of soil acidity. Exchangeable hydrogen is not readily replaceable by other cations unless accompanied by a neutralization reaction. Most of the neutral salt exchangeable hydrogen in soils apparently comes from aluminum hydrolysis.

Acidity from hydrolysis of neutral salt exchangeable aluminum plus neutral salt exchangeable hydrogen from pH-dependent exchange sites makes up the exchangeable acidity in soils. Exchangeable acidity is determined by the pH of the soil. Titratable acidity is the amount of acidity neutralized to a selected pH, generally pH 7 or 8.2, and constitutes the total potential acidity of a soil determined up to a given pH. All sources of soil acidity, including hydrolysis of monomeric and polymeric aluminum species and hydrogen from pH-dependent exchange sites on metal oxides, layer silicates, and organic matter, contribute to the total potential acidity. Total potential acidity in soils is determined by titration with base or incubation with lime; extraction with a buffered extractant followed by titration of the buffered extractant (pH 8.2, barium chloride-triethanolamine method); or equilibration with buffers followed by estimation of acidity from changes in buffer pH.

Potentially toxic levels of exchangeable aluminum are in the subsoils of the Abita, Arkabutla, Bibb, Cahaba, Guyton, Latonia, Myatt, Ouachita, Prentiss, Ruston, Smithdale, and Stough soils, and in the underlying material of the Bibb soils.

Soil treatments or other cultural methods that reduce or avoid problems associated with high levels of exchangeable aluminum have not been thoroughly studied in Louisiana. Liming soil to pH 5.5 is probably the most widespread method of reducing exchangeable aluminum levels. There is a wide range of susceptibility to aluminum phytotoxicity among many agronomic crops depending, in some cases, upon the particular cultivar grown. Planting crops or cultivars that are tolerant of high aluminum levels can help avoid phytotoxicity problems.

Cation-Exchange Capacity. The cation-exchange capacity represents the available supply of nutrient and non-nutrient cations in the soil. It is the amount of cations on permanent and pH-dependent negatively charged sites on soil surfaces. Permanent charge cation-exchange sites occur because a net negative charge develops on mineral surfaces from substitution of ions within the crystal lattice. A negative charge developed from ionization of surface hydroxyl groups on minerals and organic matter produces pH-dependent cation-exchange sites.

Methods for determining cation-exchange capacity are available and can be classified as one of two types: methods that use unbuffered salts to measure the cation-exchange capacity at the pH of the soil and methods that use buffered salts to measure the cation-exchange capacity at a specified pH. These methods produce different results since unbuffered salt methods include only a part of the pH-dependent cation-exchange capacity and the buffered salt methods include all of the pH-dependent cation-exchange capacity up to the pH of the buffer (generally pH 7 or 8.2). Errors in the saturation, washing, and replacement steps can also cause different results.

The effective cation-exchange capacity is the sum of exchangeable bases determined by extraction with pH 7, 1 molar ammonium acetate plus the sum of neutral salt exchangeable aluminum and hydrogen (exchangeable acidity). The sum cation-exchange capacity is the sum of exchangeable bases plus the total acidity determined by extraction with pH 8.2, barium chloride-triethanolamine. The effective cation-exchange capacity is generally less than the sum cation-exchange capacity and includes only that part of the pH-dependent cation-exchange capacity that is determined by exchange of hydrogen with a neutral salt. The sum cation-exchange capacity includes all of the pH-dependent cation-exchange capacity up to pH 8.2. If a soil has no pH-dependent exchange sites or the pH of the soil is about 8.2, the effective and sum cation-exchange capacity will be about the same. The larger the cation-exchange capacity, the larger the capacity to store nutrient cations.

Soil cation-exchange capacity is almost entirely a result of the amount and kind of clay and organic matter present. Most of the mineral soils mapped in the parish have a surface layer that has more organic matter than the subsoil, resulting in a greater cation-exchange capacity in the surface layer than in the subsurface layers. Many of these same soils have a subsoil that is more clayey than the surface and subsurface layers; therefore, the cation-exchange capacity is high in the surface layer, lower in the subsurface layer, and higher again in the subsoil.

The organic and clayey soils of the marshes and swamps have very high or high organic matter content and, correspondingly, very high or high cation-exchange capacity. Some of the soils on narrow flood plains have contents of clay and organic matter that are irregular with depth. The cation-exchange capacity of these soils, therefore, is also irregular with depth.

Physical and Chemical Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in table 19 and the results of chemical analysis in table 20. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the Soil Characterization Laboratory, Louisiana Agricultural Experiment Station.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an oven-dry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods *(35)*.

Sand—(0.05-2.0 mm fraction) weight percentages of materials less than 2 mm (3A1).
Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all materials less than 2 mm (3A1).
Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of materials less than 2 mm (3A1).
Water retained—pressure extraction, percentage of oven-dry weight of less than 2 mm material; 1/3 or 1/10 (3/10) bar (4B1), 15 bars (4B2).
Moist bulk density—of less than 2 mm material, saran-coated clods at field moist (4A3a), air-dry (4A1b), and oven-dry (4A1h).
Organic matter—dichromate, ferric sulfate titration (6A1a).
Extractable cations—ammonium acetate pH 7.0, uncorrected; calcium (6N2), magnesium (6O2), sodium (6P2), potassium (6Q2).
Extractable acidity at pH 8.2—barium chloride-triethanolamine (6G2b).
Cation-exchange capacity—ammonium acetate, pH 7.0 (5ABA).
Base saturation—ammonium acetate, pH 7.0 (5C1).
Reaction (pH)—1:1 water dilution (8C1a).
Reaction (pH)—potassium chloride (8C1c).
Reaction (pH)—calcium chloride (8C1e).

Aluminum—potassium chloride extraction (6G2).
Hydrogen—potassium chloride extraction (6G2).
Iron—dithionate-citrate extract (6C1).
Extractable phosphorus—(Bray No. 1).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(34)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that 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 development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning flood plain, plus *aquent*, the suborder of the Entisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group 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 *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series. An example is the Bibb series, which is a member of the coarse-loamy, siliceous, acid, thermic family of Typic Fluvaquents.

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual (33)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (34)*. Unless otherwise stated, colors in the descriptions are for moist soil. All of the soil reactions in the descriptions, including the Histosols, refer to pH in 1:1 water. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Abita Series

The Abita series consists of somewhat poorly drained, slowly permeable soils that formed in loamy sediments. These soils are on low, broad stream or marine terraces of late Pleistocene age. Slopes range from 0 to 5 percent.

Soils of the Abita series are fine-silty, siliceous, thermic Glossaquic Paleudalfs.

Abita soils commonly are near Brimstone, Guyton, Myatt, Prentiss, and Stough soils. Brimstone, Guyton, and Myatt soils are poorly drained. These soils are in lower positions on the landscape than Abita soils. Brimstone soils have high concentrations of sodium in the subsoil, and Guyton and Myatt soils are grayish throughout. Prentiss soils are moderately well drained, and Stough soils are somewhat poorly drained. Prentiss and Stough soils are in slightly higher positions on the landscape. They are forming in older sediments than Abita soils, and they have more sand in the subsoil.

Typical pedon of Abita silt loam, 0 to 2 percent slopes; 5 miles west of Covington, 1.3 miles west of Highway 1077, 1,300 feet northwest of the intersection of Interstate 12 and Highway 1085, 50 feet east of a fence row, SW1/4NE1/4 sec. 4, T. 7 S., R. 10 E.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common fine roots; neutral; clear smooth boundary.

BA—4 to 15 inches; brownish yellow (10YR 6/6) silt loam; few fine faint gray mottles; weak medium subangular blocky structure; friable; few fine roots; neutral; clear wavy boundary.

Bt/E—15 to 23 inches; about 60 percent light yellowish brown (2.5Y 6/4) silt loam (Bt); few fine faint light brownish gray mottles; weak medium prismatic structure parting to weak medium subangular blocky; friable; few thin clay films on faces of peds; about 40 percent light brownish gray (2.5Y 6/2) silt loam (interfingers of E material) between peds; few fine reddish brown and black concretions; very strongly acid; clear wavy boundary.

Bt—23 to 33 inches; mottled strong brown (7.5YR 5/8), red (2.5YR 4/8), and gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; few gray silt coatings on vertical faces of peds; very strongly acid; gradual smooth boundary.

Btg1—33 to 48 inches; light brownish gray (2.5Y 6/2) silt loam; few medium distinct yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; firm; thin discontinuous clay films on faces of peds; strongly acid; gradual smooth boundary.

Btg2—48 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; common medium distinct brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; firm; thin patchy clay films on vertical faces of peds; strongly acid.

The solum is 60 to more than 80 inches thick. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 3. It is 3 to 7 inches thick. Reaction ranges from extremely acid to neutral.

The BA horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 3 to 6. Texture is silt loam or silty clay loam. Mottles in shades of gray range from few to many. Reaction ranges from very strongly acid to neutral.

Some pedons have an E horizon rather than a BA horizon. The E horizon and the E part of the Bt/E horizon have hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 3. Texture is silt loam or very fine sandy loam. Reaction ranges from extremely acid to slightly acid.

The Bt part of the Bt/E horizon and the Bt horizon have hue of 7.5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 3 to 6. Mottles in shades of yellow, brown, and red range from few to many. Texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to slightly acid.

The Btg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 or 2. Texture is silt loam, loam, clay loam, or silty clay loam. Reaction ranges from strongly acid to mildly alkaline.

Allemands Series

The Allemands series consists of poorly drained and very poorly drained, very slowly permeable, organic soils that formed in decomposed herbaceous material underlain by alluvial clay. These soils are on the landward side of coastal freshwater marshes. Slopes are less than 1 percent.

Soils of the Allemands series are clayey, montmorillonitic, euic, thermic Terric Medisaprists.

Allemands soils commonly are near Barbary, Clovelly, Kenner, and Maurepas soils. Barbary soils are in swamps and are very fluid mineral soils. Clovelly soils are in brackish marshes and are more saline than Allemands soils. Kenner and Maurepas soils have organic layers that are thicker than those of Allemands soils. Kenner soils are in nearby marshes, and Maurepas soils are in swamps.

Typical pedon of Allemands muck; 2 miles west of Madisonville, 1.5 miles east of Guste Island, 200 feet east of the canal, sec. 34, T. 7 S., R. 10 E.

Oa1—0 to 12 inches; very dark grayish brown (10YR 3/2) muck; 60 percent fiber, 10 percent rubbed; massive; dominantly herbaceous fiber; slightly fluid, small amount flows through fingers when squeezed; many live roots; 33 percent mineral; neutral; clear smooth boundary.

Oa2—12 to 30 inches; black (10YR 2/1) muck; 40 percent fiber, 10 percent rubbed; massive; very fluid, flows easily through fingers when squeezed leaving hand empty; 40 percent mineral; neutral; clear smooth boundary.

Oa3—30 to 48 inches; black (10YR 2/1) muck; 30 percent fiber, less than 5 percent rubbed; massive;

very fluid, flows easily through fingers when squeezed leaving hand empty; 30 percent mineral; neutral; clear smooth boundary.

Abg—48 to 58 inches; black (10YR 2/1) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; neutral; clear smooth boundary.

Cg—58 to 75 inches; dark gray (10YR 4/1) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; few thin strata of sandy loam in upper part of horizon; mildly alkaline.

The organic material is 16 to 51 inches thick. The underlying mineral material is dominantly clay, but thin strata of loamy material are in some pedons. Individual layers in the organic material can have a pH of less than 4.5 (in 0.01 molar calcium chloride), but at least some part of the organic material in the control section has a pH of more than 4.5 (in 0.01 molar calcium chloride) or more than 5.5 (in 1:1 water).

The surface tier (0 to 12 inches) has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The content of rubbed fiber ranges from less than 5 to 30 percent. Reaction ranges from strongly acid to mildly alkaline in undrained pedons and from extremely acid to mildly alkaline in drained pedons.

The organic material in the subsurface tier (12 to 48 inches) has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 to 3. The content of fiber ranges from less than 5 percent to as much as 15 percent after rubbing. Reaction ranges from strongly acid to mildly alkaline in undrained pedons and from extremely acid to mildly alkaline in drained pedons.

The Abg horizon, where present, has hue of 10YR, 2.5Y, or 5Y, value of 2 to 5, and chroma of 1. Texture is mucky clay or clay. Reaction ranges from slightly acid to moderately alkaline in undrained pedons and from extremely acid to mildly alkaline in drained pedons.

The Cg horizon has hue of 10YR, 5Y, or 5GY, value of 4 or 5, and chroma of 1 or 2. Texture is clay or silty clay loam. Reaction ranges from slightly acid to moderately alkaline in undrained pedons and from extremely acid to moderately alkaline in drained pedons.

Arat Series

The Arat series consists of very poorly drained, slowly permeable, very fluid mineral soils. These soils formed in loamy alluvium in low, broad backswamp areas along major streams. Slopes are less than 0.5 percent.

Soils of the Arat series are fine-silty, siliceous, nonacid, thermic Typic Hydraquents.

Arat soils commonly are near Allemands, Barbary, Larose, and Maurepas soils. Allemands and Maurepas soils have thick organic layers. Allemands soils are in nearby freshwater marshes, and Maurepas soils are in positions on the landscape similar to those of the Arat soils. Barbary soils are in positions similar to those of the Arat soils and they are clayey throughout. Larose soils are in freshwater marshes and they are more clayey than the Arat soils.

Typical pedon of Arat silty clay loam; 7 miles east of Slidell, 3 miles north of Highway 90, 150 feet east of Middle Pearl River, SW1/4NE1/4 sec. 11, T. 9 S., R. 15 E.

A—0 to 10 inches; dark grayish brown (10YR 4/2) silty clay loam; massive; very fluid, flows easily between fingers when squeezed; few wood fragments; neutral; clear smooth boundary.

Cg1—10 to 45 inches; grayish brown (10YR 5/2) silty clay loam; massive; very fluid, flows easily between fingers when squeezed; few wood fragments; neutral; clear smooth boundary.

Cg2—45 to 70 inches; very dark grayish brown (10YR 3/2) silty clay loam; massive; very fluid, flows easily between fingers when squeezed; few logs and wood fragments; neutral.

All mineral horizons have n-value of 1 or more.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. Undecomposed logs and fragments of wood range from few to many. Reaction ranges from strongly acid to neutral.

The Cg horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 1 or 2. Texture is silty clay loam, silt loam, or mucky silty clay loam. Undecomposed logs and fragments of wood range from few to many. Reaction ranges from medium acid to mildly alkaline.

Arkabutla Series

The Arkabutla series consists of somewhat poorly drained, moderately permeable soils that formed in loamy alluvium. These soils are on the flood plains of major drainageways. Slopes range from 0 to 2 percent.

Soils of the Arkabutla series are fine-silty, mixed, acid, thermic Aeric Fluvaquents.

The Arkabutla soils in St. Tammany Parish are taxadjuncts to the Arkabutla series because the reaction is slightly higher throughout the profile than is typical for the series. This difference, however, does not affect the use and behavior of the soils.

Arkabutla soils commonly are near Arat, Bibb, Guyton, Myatt, Ouachita, and Rosebloom soils. Arat soils are in abandoned stream channels and in backswamps, and they are fluid and clayey throughout. Bibb soils are in lower positions than Arkabutla soils and have more sand throughout. Guyton, Myatt, and Rosebloom soils are in lower positions and are grayish throughout. Ouachita soils are in higher positions and have a brownish subsoil.

Typical pedon of Arkabutla silt loam, in an area of Arkabutla and Rosebloom soils, frequently flooded; 3 miles east of Pearl River, 1,700 feet south of Old

Highway 11 in the Pearl River Wildlife Management Area, 600 feet west of a gravel road, 200 feet south of the parking area, sec. 33, T. 7 S., R. 15 E.

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

Bw—4 to 12 inches; brown (10YR 5/3) silt loam; few medium distinct yellowish brown (10YR 5/8) mottles and many medium faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; firm; few medium roots; medium acid; gradual smooth boundary.

Bg1—12 to 33 inches; light brownish gray (10YR 6/2) silt loam; common medium faint brown (10YR 5/3) mottles and common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine black concretions; medium acid; gradual smooth boundary.

Bg2—33 to 65 inches; light brownish gray (10YR 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine black concretions; medium acid.

The solum is more than 40 inches thick. Reaction ranges from very strongly acid to medium acid. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4. It is 4 to 8 inches thick. Texture is silt loam, loam, or silty clay loam.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. Mottles having chroma of 1 or 2 range from few to many. Texture is silt loam or silty clay loam.

The Bg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. Mottles in shades of brown range from few to many. Texture is silt loam or silty clay loam.

Barbary Series

The Barbary series consists of very poorly drained, very slowly permeable, very fluid mineral soils. These soils formed in clayey alluvium. They are in swamps and are flooded or ponded most of the time. Slopes are less than 1 percent.

Soils of the Barbary series are very-fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Barbary soils commonly are near Allemands, Arat, Larose, and Maurepas soils. Arat soils are in positions on the landscape similar to those of Barbary soils and they are loamy throughout. Allemands and Maurepas soils have thick organic layers. Allemands soils are in freshwater marshes, and Maurepas soils are in positions similar to those of Barbary soils. Larose soils are in freshwater marshes and do not have woody fragments in the profile.

Typical pedon of Barbary mucky clay; 4 miles west of Madisonville, 2.3 miles south of Highway 22, 1,000 feet east of the St. Tammany-Tangipahoa Parish line, 200 feet west of canal, SW1/4SW1/4 sec. 30, T. 7 S., R. 10 E.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) mucky clay; massive; very fluid, flows easily between fingers when squeezed leaving small residue; many live roots; neutral; clear smooth boundary.

A2—4 to 14 inches; very dark gray (10YR 3/1) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; many decomposed woody fragments and roots; about 10 percent organic material; neutral; clear smooth boundary.

Cg1—14 to 35 inches; dark gray (10YR 4/1) clay; massive; slightly fluid, flows with difficulty between fingers when squeezed leaving small residue in hand; few decomposed woody fragments; neutral; clear smooth boundary.

Cg2—35 to 65 inches; gray (10YR 5/1) clay; massive; slightly fluid, flows with difficulty between fingers when squeezed leaving small residue in hand; common woody fragments; mildly alkaline.

Depth to firm mineral layers is 60 inches or more. The n-values are more than 0.7 throughout.

The A horizon has hue of 10YR, 2.5Y, or 5Y, value of 3 to 5, and chroma of 1 to 3. Reaction ranges from neutral to mildly alkaline.

The Cg horizon has hue of 10YR, 2.5Y, 5Y, 5GY, or 5BG, value of 4 or 5, and chroma of 1. Few to many buried logs, stumps, and wood fragments are in the Cg horizon. Texture is clay or mucky clay. Reaction ranges from neutral to moderately alkaline.

Bibb Series

The Bibb series consists of poorly drained, moderately permeable soils that formed in loamy alluvium. These soils are on flood plains. Slopes are less than 1 percent.

Soils of the Bibb series are coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

Bibb soils commonly are near Cahaba, Guyton, Ouachita, Ruston, and Savannah soils. Cahaba, Ruston, and Savannah soils are in higher positions on stream terraces and uplands, and they have an argillic horizon. Guyton soils are in lower positions on the landscape and have more clay in the subsoil. Ouachita soils are in higher positions and have less sand throughout.

Typical pedon of Bibb loam, in an area of Ouachita and Bibb soils, frequently flooded; 1 mile east of Folsom, 300 feet south of Highway 40, 105 feet west of Bogue Falaya River, sec. 11, T. 5 S., R. 10 E.

A—0 to 5 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

Ag—5 to 10 inches; grayish brown (10YR 5/2) sandy loam; weak fine granular structure; friable; few fine and medium roots; few reddish brown stains; very strongly acid; gradual wavy boundary.

Cg1—10 to 32 inches; gray (10YR 5/1) loam; massive; friable; strongly acid; gradual smooth boundary.

Cg2—32 to 60 inches; light gray (10YR 6/1) sandy loam; massive; friable; few medium yellowish brown (10YR 5/4) stains around old root channels; few thin strata of loamy sand; strongly acid.

This soil is strongly acid or very strongly acid throughout except where lime has been added. Clay content in the 10- to 40-inch control section ranges from 10 to 18 percent. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 1 to 3. Some pedons have mottles in shades of brown and yellow. Texture is fine sandy loam or loam.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2, or it is neutral and has value of 4 to 7. Few to many mottles or stains are in shades of red, brown, or yellow. Texture is sandy loam, fine sandy loam, loam, or silt loam. Thin strata of contrasting textures are in some pedons.

Brimstone Series

The Brimstone series consists of poorly drained, slowly permeable soils that have high levels of sodium in the subsoil. These soils formed in loamy sediment on low, broad terraces of late Pleistocene age. Slopes are less than 1 percent.

Soils of the Brimstone series are fine-silty, siliceous, thermic Glossic Natraqualfs.

Brimstone soils commonly are near Abita, Guyton, Myatt, and Stough soils. Abita and Stough soils are in slightly higher positions on the landscape than Brimstone soils and they have a subsoil that is browner in the upper part. Guyton and Myatt soils are in positions similar to those of Brimstone soils and they do not have high concentrations of sodium in the subsoil. Myatt and Stough soils also have more sand throughout than Brimstone soils.

Typical pedon of Brimstone silt loam, in an area of Brimstone-Guyton silt loams; 5 miles west of Covington, 1.3 miles west of Highway 1077, 1,500 feet northwest of the intersection of Interstate 12 and Highway 1085, 100 feet east of a fence row, 200 feet south of a farm pond, SW1/4NE1/4 sec. 4, T. 7 S., R. 10 E.

Ap—0 to 5 inches; dark gray (10YR 4/1) silt loam; weak fine granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

Eg—5 to 17 inches; grayish brown (10YR 5/2) silt loam; few fine faint brown mottles; weak medium subangular blocky structure; friable; few fine roots; neutral; clear irregular boundary.

E/Bn—17 to 24 inches; about 70 percent light brownish gray (2.5Y 6/2) silt loam (E); about 30 percent light gray (10YR 6/1) silt loam (Bn); few medium faint light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable; common fine pores; few dark gray bands of clay in E material; neutral; gradual irregular boundary.

Bn/E—24 to 33 inches; about 70 percent light gray (10YR 6/1) silt loam (Bn); common medium faint yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure parting to moderate medium subangular blocky; friable; few thin patchy clay films on faces of peds; about 30 percent light brownish gray (2.5YR 6/2) silt loam (E); firm; weak medium subangular blocky structure; few pockets of light gray (10YR 7/1) silt loam; few dark gray bands of clay; neutral; gradual irregular boundary.

Btng1—33 to 45 inches; light olive gray (5Y 6/2) silt loam; common medium prominent yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; thin discontinuous clay films on faces of peds; few pockets of gray silt loam; neutral; gradual wavy boundary.

Btng2—45 to 66 inches; light olive gray (5Y 6/2) silt loam; common medium prominent yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; firm; thin patchy clay films; few thin silt coatings on faces of some peds; neutral.

The solum is 40 to 100 inches thick. Exchangeable sodium percentage ranges from 15 to 30 within the upper 6 inches of the natric horizon and within 16 inches of the soil surface.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. Reaction ranges from strongly acid to mildly alkaline.

The E horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is silt loam or very fine sandy loam. Tongues of the E horizon extend into the E/Bn and Bn/E horizons. A few accumulations of dark gray clay typically occur in discontinuous bands within the E horizon. Reaction ranges from medium acid to moderately alkaline.

The Bn part of the E/Bn and Bn/E horizons and the Btng horizon have hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2. Mottles are in shades of brown or gray. Texture is silt loam or silty clay loam. Concretions of calcium carbonate range from none to common. Reaction ranges from neutral to moderately alkaline.

Cahaba Series

The Cahaba series consists of well drained, moderately permeable soils that formed in loamy and sandy fluvial sediment. These soils are on stream terraces of late Pleistocene age. Slopes range from 1 to 3 percent.

Soils of the Cahaba series are fine-loamy, siliceous, thermic Typic Hapludults.

Cahaba soils are similar to Ruston soils and commonly are near Latonia, Myatt, Prentiss, and Stough soils. Ruston soils are on the terrace uplands and have a thicker solum than Cahaba soils. Latonia soils are well drained, and Prentiss soils are moderately well drained. These soils are in more level areas, and they have less clay in the subsoil. In addition, Prentiss soils have a fragipan. Myatt soils are poorly drained and are in level to depressional areas. They are grayish throughout. Stough soils are somewhat poorly drained. They are in more level areas and have a fragipan.

Typical pedon of Cahaba fine sandy loam, 1 to 3 percent slopes; 1 mile north of Bush, 0.5 mile west of Highway 21, 700 feet north of Highway 40, Spanish Land Grant 42, T. 5 S., R. 13 E.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; few fine and medium roots; medium acid; abrupt smooth boundary.

Bt1—7 to 16 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; medium acid; clear wavy boundary.

Bt2—16 to 34 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; medium acid; gradual wavy boundary.

BC—34 to 53 inches; strong brown (7.5YR 5/8) sandy loam; weak fine subangular blocky structure; friable; strongly acid; gradual wavy boundary.

C—53 to 65 inches; yellowish brown (10YR 5/8) loamy sand; few medium faint very pale brown (10YR 7/4) mottles; massive; very friable; strongly acid.

The solum is 36 to 60 inches thick. Reaction ranges from medium acid to very strongly acid except where lime has been added. The effective cation-exchange capacity of this soil is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. It is 4 to 8 inches thick.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 to 8. The texture is sandy clay loam, loam, or clay loam. The BC or CB horizon is strong brown, yellowish brown, or red sandy loam or fine sandy loam. In some pedons, the horizon is mottled in shades of yellow and brown. Some pedons have a CB horizon that has colors and textures similar to those of the BC horizon.

The C horizon ranges from yellowish brown to red and commonly is stratified with sand, loamy sand, sandy loam, and fine sandy loam. It may have mottles in shades of yellow, brown, and gray.

Clovelly Series

The Clovelly series consists of very poorly drained, very slowly permeable, slightly saline, organic soils. These soils formed in moderately thick accumulations of decomposed herbaceous plant material overlying very fluid clayey alluvium. The soils are in brackish coastal marshes that are ponded or flooded most of the time. Slopes are less than 1 percent.

Soils of the Clovelly series are clayey, montmorillonitic, euic, thermic Terric Medisaprists.

Clovelly soils commonly are near Allemands, Kenner, and Lafitte soils. Allemands and Kenner soils are in freshwater marshes and are less saline than Clovelly soils. Lafitte soils are in positions on the landscape similar to those of Clovelly soils and have organic layers that are more than 51 inches thick.

Typical pedon of Clovelly muck; 4 miles southwest of Slidell, 3,500 feet north of Lake Pontchartrain, 300 feet east of Liberty Bayou, sec. 14, T. 9 S., R. 13 E.

Oa1—0 to 12 inches; very dark grayish brown (10YR 3/2) muck; about 30 percent fiber, 10 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 45 percent mineral; mildly alkaline; gradual smooth boundary.

Oa2—12 to 49 inches; black (10YR 2/1) muck; about 20 percent fiber, less than 5 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 65 percent mineral; mildly alkaline; gradual smooth boundary.

Cg—49 to 72 inches; dark gray (5Y 4/1) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; mildly alkaline.

The organic horizons are about 16 to 51 inches thick. The organic material is dominantly sapric material. The electrical conductivity ranges from 4 to 8 millimhos per centimeter in at least one layer between the surface and a depth of 40 inches. Individual layers in the organic material can have a pH of less than 4.5 (in 0.01 molar calcium chloride), but at least some part of the organic material in the control section has a pH of more than 4.5 (in 0.01 molar calcium chloride) or more than 5.5 (in 1:1 water).

The organic layers have hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 or 2. The mineral content ranges from 40 to 70 percent. Reaction ranges from neutral to moderately alkaline.

Some pedons have an Abg horizon. It has hue of 10YR or 5Y, value of 2 to 4, and chroma of 1 or 2. Texture is mucky clay, clay, or silty clay. The n-value ranges from 0.7 to more than 1. Reaction is mildly alkaline or moderately alkaline.

The Cg horizon has hue of 10YR, 5Y, 5BG, 5GY, or 5G, value of 4 to 6, and chroma of 1 or is neutral and has value of 4 to 6. Texture is clay, silty clay, or mucky clay. The n-value to a depth of 60 inches or more ranges from 0.7 to more than 1. Reaction is mildly alkaline or moderately alkaline.

Guyton Series

The Guyton series consists of poorly drained, slowly permeable soils that formed in loamy alluvium. These soils are on flood plains and on broad stream terraces. Slopes are less than 1 percent.

Soils of the Guyton series are fine-silty, siliceous, thermic Typic Glossaqualfs.

Guyton soils commonly are near Abita, Bibb, Brimstone, Myatt, and Stough soils. Abita soils are somewhat poorly drained. They are in slightly higher positions on the landscape than Guyton soils and have a subsoil that is brownish in the upper part. Bibb soils are in slightly higher positions on flood plains than Guyton soils and they have more sand throughout. Brimstone and Myatt soils are in positions on terraces that are similar to those of Guyton soils. Brimstone soils have more sodium in the subsoil, and Myatt soils have more sand throughout. Stough soils are in higher positions, and have more sand throughout.

Typical pedon of Guyton silt loam, in an area of Brimstone-Guyton silt loams; 5 miles west of Covington, 1.3 miles west of Highway 1077, 3,000 feet north of the intersection of Interstate 12 and Highway 1085, 700 feet northwest of a farm pond, 100 feet east of a fence row, NE1/4NE1/4 sec. 4, T. 7 S., R. 10 E.

A—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; medium acid; clear smooth boundary.

Eg1—5 to 20 inches; grayish brown (10YR 5/2) silt loam; few fine faint brown mottles; weak medium subangular blocky structure; friable; strongly acid; clear wavy boundary.

Eg2—20 to 28 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium subangular blocky structure; friable; tongues of albic material extend to 41 inches below the surface; strongly acid; clear irregular boundary.

B/E—28 to 36 inches; light brownish gray (2.5Y 6/2) silt loam (B); common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure; friable; thin discontinuous clay films on vertical faces of peds; about 25 percent, by volume, tongues of light brownish gray (10YR 6/2) silt loam (E); strongly acid; clear wavy boundary.

Btg—36 to 66 inches; light brownish gray (2.5Y 6/2) silt loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; firm; thin patchy clay films on vertical faces of peds; few pockets of silt; few fine brown and black concretions; medium acid.

The solum is 50 to about 80 inches thick. Sand content, which is dominantly very fine sand, ranges from 10 to 40 percent in the control section. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3. It is 3 to 8 inches thick. Reaction ranges from extremely acid to medium acid.

The Eg horizon and the E part of the B/E horizon have hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Mottles in shades of brown range from few to many. The lower boundary of the Eg horizon is clear irregular or abrupt irregular, and tongues extend into the Bt horizon. Texture is silt loam, loam, or very fine sandy loam. Reaction ranges from extremely acid to medium acid.

The Btg horizon and the B part of the B/E horizon have hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Mottles in shades of brown or gray range from few to many. Texture is silt loam, silty clay loam, or clay loam. Reaction ranges from extremely acid to medium acid.

Some pedons have BCg and Cg horizons that have the same color range as the Bt horizon. Texture is silt loam, silty clay loam, clay loam, or sandy clay loam. Content of exchangeable sodium is high in some pedons. Reaction ranges from extremely acid to moderately alkaline.

Harahan Series

The Harahan series consists of poorly drained, very slowly permeable soils that formed in firm clayey alluvium overlying slightly fluid clayey alluvium. These soils are in former swamps that are protected from flooding by levees and are artificially drained by pumps. Slopes range from 0 to 1 percent.

Soils of the Harahan series are very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts.

Harahan soils are similar to Barbary soils and commonly are near Allemands and Maurepas soils. Barbary soils are in undrained swamps and are very fluid throughout. Allemands soils are in drained areas of marsh and are organic soils. Maurepas soils have thick layers of organic material and are in positions on the landscape similar to those of Harahan soils.

Typical pedon of Harahan clay; 5 miles west of Madisonville, 1,000 feet east of St. Tammany-Tangipahoa Parish line, 600 feet north of Guste Island, sec. 31, T. 7 S., R. 10 E.

A—0 to 6 inches; very dark grayish brown (10YR 3/2) clay; weak fine subangular blocky structure; firm; few fine roots; strongly acid; clear smooth boundary.

Bw1—6 to 17 inches; grayish brown (10YR 5/2) clay; common medium distinct olive (5Y 5/6) mottles; weak medium subangular blocky structure; firm; patchy reddish brown stains on some ped faces; few wide cracks filled with silty clay loam materials; strongly acid; clear wavy boundary.

Bw2—17 to 21 inches; gray (5Y 5/1) clay; few medium distinct olive brown (2.5Y 5/6) mottles; weak medium subangular blocky structure; firm; few shiny pressure faces on surfaces of peds; strongly acid; clear wavy boundary.

Cg1—21 to 42 inches; gray (5Y 5/1) clay; massive; slightly fluid, flows with difficulty between fingers when squeezed leaving small residue in hand; few fragments of wood; mildly alkaline; clear smooth boundary.

Cg2—42 to 60 inches; greenish gray (5GY 5/1) clay; massive; slightly fluid, flows with difficulty between fingers when squeezed leaving medium residue in hand; few fragments of wood; mildly alkaline.

The solum is 20 to 40 inches thick. Depth to layers with n-values of more than 0.7 ranges from 20 to 40 inches.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2, or it is neutral and has value of 2 to 4. It is 3 to 12 inches thick. Reaction ranges from strongly acid to neutral.

The Bw horizon has hue of 10YR, 2.5Y, 5Y, 5GY, or 5BG, value of 3 to 5, and chroma of 1 or 2, or it is neutral and has value of 3 to 5. Texture is clay or silty clay. Reaction ranges from strongly acid to neutral.

The Cg horizon has hue of 10YR, 2.5Y, 5Y, 5BG, 5GY, or 5G, value of 3 to 5, and chroma of 1 or 2, or it is neutral and has value of 3 to 5. Texture is clay, silty clay, or mucky clay. Reaction ranges from neutral to moderately alkaline.

Kenner Series

The Kenner series consists of very poorly drained, rapidly permeable organic soils. They formed in herbaceous plant material in freshwater marshes. These soils are ponded or flooded most of the time. Slope is less than 1 percent.

Soils of the Kenner series are euic, thermic Fluvaquentic Medisaprists.

Kenner soils commonly are near Allemands, Barbary, Clovelly, Lafitte, and Maurepas soils. Allemands soils are in positions on the landscape similar to those of Kenner soil, and they have a clayey underlying material within a depth of 51 inches. Barbary and Maurepas soils are in nearby swamps. Barbary soils are clayey throughout, and Maurepas soils have logs and fragments of wood in the profile. Clovelly and Lafitte soils are in nearby marshes and are more saline throughout than Kenner soils.

Typical pedon of Kenner muck; 1.2 miles southwest of Madisonville, 0.3 mile north of lighthouse, 200 feet east of canal, Spanish Land Grant 37, T. 8 S., R. 10 E.

Oa—0 to 14 inches; very dark grayish brown (10YR 3/2) muck; about 25 percent fiber, 10 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving a small residue in hand; about 40 percent mineral; mildly alkaline; clear smooth boundary.

Cg—14 to 16 inches; dark gray (5Y 4/1) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; mildly alkaline; clear smooth boundary.

O'a—16 to 45 inches; black (10YR 2/1) muck; about 20 percent fiber, less than 5 percent rubbed; very fluid, flows easily between fingers when squeezed leaving hand empty; about 40 percent mineral; mildly alkaline; clear smooth boundary.

C'g—45 to 46 inches; gray (5Y 5/1) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; mildly alkaline; clear smooth boundary.

O"a—46 to 75 inches; very dark grayish brown (10YR 3/2) muck; about 40 percent fiber, 8 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving small residue in hand; about 70 percent mineral; mildly alkaline.

The organic material that has thin mineral layers is 51 to more than 100 inches thick. Depth to thin mineral strata ranges from 12 to 51 inches. Individual layers in the organic material can have a pH of less than 4.5 (in 0.01 molar calcium chloride), but at least some part of the organic material in the control section has a pH of more than 4.5 (in 0.01 molar calcium chloride) or more than 5.5 (in 1:1 water).

The organic material in the surface tier (0 to 12 inches) has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. The rubbed fiber content ranges from 5 to 60 percent, and the mineral content ranges from 40 to 70 percent. Reaction ranges from medium acid to mildly alkaline.

The organic material in the subsurface and bottom tiers (12 to 51 inches) has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. The rubbed fiber content ranges from less than 1 percent to 8 percent. Reaction ranges from medium acid to mildly alkaline.

Thickness of mineral strata (Cg horizons) within the subsurface and bottom tiers ranges from 1 centimeter to 25 centimeters. The Cg horizon has hue of 5Y, 5GY, or 10YR, value of 2 to 5, and chroma of 1. Texture is clay, silty clay, or mucky clay. Reaction ranges from medium acid to mildly alkaline.

Lafitte Series

The Lafitte series consists of very poorly drained, brackish organic soils. The soils are moderately rapidly permeable in the organic layers and very slowly permeable in the lower part. They formed in decomposed herbaceous plant material. These soils are in the brackish coastal marshes. They are ponded or flooded most of the time. Slope is less than 1 percent.

Soils of the Lafitte series are euic, thermic Typic Medisaprists.

Lafitte soils commonly are near Allemands, Clovelly, and Kenner soils. Allemands and Clovelly soils are in nearby marshes and have thinner organic layers overlying the mineral material. Kenner soils are in freshwater marshes and are not so saline as Lafitte soils.

Typical pedon of Lafitte muck; 1.5 miles south of Big Branch, 3.5 miles west of Lacombe, 400 feet northwest of Lake Pontchartrain shoreline in St. Tammany State Game Preserve, sec. 33, T. 8 S., R. 12 E.

Oa1—0 to 10 inches; dark gray (10YR 4/1) muck; about 20 percent fiber, 10 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving small residue in hand; about 65 percent mineral; strata of black (10YR 2/1) clay about 2 centimeters thick on surface; mildly alkaline; clear smooth boundary.

Oa2—10 to 21 inches; very dark grayish brown (10YR 3/2) muck; about 40 percent fiber, 10 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 45 percent mineral; mildly alkaline; clear smooth boundary.

Oa3—21 to 38 inches; black (10YR 2/1) muck; about 20 percent fiber, less than 5 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 30 percent mineral; mildly alkaline; clear smooth boundary.

Oa4—38 to 54 inches; very dark brown (10YR 2/2) muck; about 30 percent fiber, less than 5 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving small residue in hand; about 35 percent mineral; mildly alkaline; clear smooth boundary.

Oa5—54 to 84 inches; black (10YR 2/1) muck; about 10 percent fiber, less than 5 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 50 percent mineral; mildly alkaline; clear smooth boundary.

Cg—84 to 95 inches; very dark gray (5Y 3/1) mucky clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; mildly alkaline.

Depth to mineral material ranges from 51 inches to more than 100 inches. Individual layers in the organic material can have a pH of less than 4.5 (in 0.01 molar calcium chloride), but at least some part of the organic material in the control section has a pH of more than 4.5 (in 0.01 molar calcium chloride) or more than 5.5 (in 1:1 water).

The Oa horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3. Fiber content after rubbing is typically less than 10 percent. The average conductivity of the saturation extract ranges from 4 to 8 millimhos per centimeter throughout the Oa horizon. The organic material in the surface tier (0 to 12 inches) ranges from neutral to moderately alkaline. Reaction of the organic material in the subsurface tier (12 to 36 inches) and the bottom tier (36 to 64 inches) ranges from slightly acid to moderately alkaline.

The Cg horizon has hue of 5Y or 5GY, value of 3 to 5, and chroma of 1. Texture is clay, silty clay, or silty clay loam. In some pedons, thin layers of organic material or thin layers of sandy loam are within the Cg horizon. Reaction ranges from neutral to moderately alkaline.

Larose Series

The Larose series consists of very poorly drained, very slowly permeable, very fluid mineral soils. These soils formed in clayey alluvium in freshwater marshes. They are ponded and flooded most of the time. Slope is less than 1 percent.

Soils of the Larose series are very-fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Larose soils commonly are near Allemands, Arat, Barbary, Clovelly, Kenner, and Lafitte soils. Allemands, Clovelly, Kenner, and Lafitte soils are in nearby marshes and are organic soils. Arat soils are in swamps and are loamy throughout. Barbary soils are in swamps and have logs and stumps in the lower layers.

Typical pedon of Larose muck; 9 miles southeast of Slidell, 1.5 miles south of Highway 90, 100 feet west of West Middle Pearl River, SE1/4SW1/4 sec. 31, T. 9 S., R. 16 E.

Oa—0 to 2 inches; very dark grayish brown (10YR 3/2) muck; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 30 percent fiber, 10 percent rubbed; 60 percent mineral; common fine roots; neutral; clear smooth boundary.

A—2 to 11 inches; dark grayish brown (10YR 4/2) mucky clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; common fine roots; neutral; clear smooth boundary.

Cg1—11 to 32 inches; olive gray (5Y 4/2) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; neutral; gradual smooth boundary.

Cg2—32 to 64 inches; dark olive gray (5Y 3/2) clay; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; few wood fragments; mildly alkaline.

All of the mineral horizons above a depth of 60 inches have an n-value of 1 or more. Reaction ranges from medium acid to mildly alkaline in the Oa horizon and from slightly acid to moderately alkaline in the A and Cg horizons.

The Oa horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2.

The A horizon has hue of 10YR, 2.5Y, or 5Y, value of 2 to 4, and chroma of 1 or 2, or it is neutral and has value of 2 to 4. Texture is clay, silty clay, or mucky clay.

The Cg horizon has hue of 10YR to 5BG, value of 3 to 5, and chroma of 1 or 2, or it is neutral and has value of 2 to 4. Texture is clay, silty clay, or mucky clay.

Latonia Series

The Latonia series consists of well drained, moderately rapidly permeable soils that formed in loamy and sandy marine and fluvial sediments. These soils are on terraces of late Pleistocene age. Slopes range from 0 to 1 percent.

Soils of the Latonia series are coarse-loamy, siliceous, thermic Typic Hapludults.

Latonia soils commonly are near Cahaba, Myatt, Prentiss, and Stough soils. Cahaba soils are in positions on the landscape slightly higher than those of Latonia soils and they are redder throughout. Myatt soils are poorly drained. They are in level to depressional areas and have more clay in the subsoil than Latonia soils. Prentiss and Stough soils are in positions similar to those of Latonia soils and they have fragipan properties in the subsoil. Prentiss soils are moderately well drained, and Stough soils are somewhat poorly drained.

Typical pedon of Latonia fine sandy loam; 1.2 miles west of Florenville, 100 feet north of Highway 36, 100 feet east of forest company road, NW1/4SW1/4 sec. 24, T. 7 S., R. 13 E.

A—0 to 4 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear smooth boundary.

BA—4 to 8 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; clear smooth boundary.

Bt—8 to 26 inches; yellowish brown (10YR 5/6) sandy loam; moderate medium subangular blocky structure; friable; common clay bridges between sand grains; strongly acid; gradual smooth boundary.

2C1—26 to 40 inches; yellowish brown (10YR 5/4) loamy sand; common medium faint brownish yellow (10YR 6/6) mottles; massive; friable; common pockets of clean sand grains; strongly acid; clear smooth boundary.

2C2—40 to 62 inches; white (10YR 8/1) sand; common medium faint light yellowish brown (10YR 6/4) mottles; massive; very friable; strongly acid.

The solum is 20 to 45 inches thick. The soil is very strongly acid or strongly acid except where lime has been added. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. It is 2 to 6 inches thick.

The BA horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6. Texture is sandy loam, fine sandy loam, or loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Texture is sandy loam, fine sandy loam, or loam. Clay content of the Bt horizon ranges from 10 to 16 percent, and silt content ranges from 20 to 35 percent.

Some pedons have a BC horizon. It has the same range in colors and textures as the Bt horizon.

The 2C horizon ranges from white to yellowish brown. Texture is loamy sand or sand.

Maurepas Series

The Maurepas series consists of very poorly drained and poorly drained, rapidly permeable, organic soils that formed in woody plant remains. These soils are in very large swamps. They are ponded most of the time if not drained. Slopes are less than 1 percent.

Soils of the Maurepas series are euic, thermic Typic Medisaprists.

Maurepas soils are similar to Lafitte soils and commonly are near Allemands, Barbary, Harahan, and Kenner soils. Lafitte soils are in brackish marshes. They formed in herbaceous plant materials. Allemands soils are in freshwater marshes and have thinner layers of herbaceous organic material overlying clay. Barbary and Harahan soils are mineral soils. They are in positions similar to those of Maurepas soils. Kenner soils are in freshwater marshes and have thin layers of mineral material in the profile.

Typical pedon of Maurepas muck; 5 miles west of Madisonville, 0.7 mile south of Guste Island, 0.5 mile east of the St. Tammany-Tangipahoa Parish line, 300 feet west of the canal, sec. 6, T. 8 S., R. 10 E.

Oa1—0 to 10 inches; dark brown (7.5YR 3/2) muck; about 60 percent fiber, 15 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving small residue in hand; about 35 percent mineral; neutral; clear smooth boundary.

Oa2—10 to 25 inches; black (10YR 2/1) muck; about 40 percent fiber, 10 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 10 percent mineral; common wood fragments; neutral; clear smooth boundary.

Oa3—25 to 42 inches; very dark gray (10YR 3/1) muck; about 20 percent fiber, less than 5 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 15 percent mineral; common logs and wood fragments; mildly alkaline; clear smooth boundary.

Oa4—42 to 75 inches; black (10YR 2/1) muck; about 30 percent fiber, less than 5 percent rubbed; massive; very fluid, flows easily between fingers when squeezed leaving hand empty; about 20 percent mineral; common wood fragments; mildly alkaline.

Depth to mineral material ranges from 51 inches to more than 80 inches. Reaction ranges from medium acid to moderately alkaline in undrained pedons and from extremely acid to moderately alkaline in drained pedons. Individual layers in the organic material can have a pH of less than 4.5 (in 0.01 molar calcium chloride), but at least some part of the organic material in the control section has a pH of more than 4.5 (in 0.01 molar calcium chloride) or more than 5.5 (in 1:1 water). If not drained, the soil has an n-value of more than 0.7 throughout.

The surface tier (0 to 12 inches) has hue of 5YR, 7.5YR, or 10YR, value of 2 or 3, and chroma of 1 or 2, or it is neutral and has value of 2 or 3. The fiber content in the surface tier after rubbing ranges from less than 5 percent to about 40 percent.

The subsurface tier (12 to 36 inches) and the bottom tier (36 to 51 inches) have hue of 5YR, 7.5YR, or 10YR, value of 2 or 3, and chroma of 1 to 4, or they are neutral and have value of 2 or 3. The subsurface tier has as much as 60 percent fiber unrubbed and less than 15 percent rubbed.

The bottom tier averages less than 15 percent fiber after rubbing. The fiber is dominantly woody, and some pedons have as much as 45 percent herbaceous fiber (unrubbed) in the bottom tier. Mineral content ranges from 15 to 45 percent. Logs and wood fragments in varying states of decomposition are commonly throughout the organic material. In places, the organic layers are underlain by very fluid, gray clay.

Myatt Series

The Myatt series consists of poorly drained, moderately slowly permeable soils that formed in marine and fluvial sediments. These soils are on terraces of late Pleistocene age. Slopes range from 0 to 1 percent.

Soils of the Myatt series are fine-loamy, siliceous, thermic Typic Ochraquults.

Myatt soils commonly are near Brimstone, Cahaba, Guyton, Prentiss, and Stough soils. Brimstone soils are poorly drained. They are in positions on the landscape similar to those of Myatt soils and they have a high content of sodium in the subsoil. Cahaba soils are in higher positions than Myatt soils and are redder throughout. Guyton soils are in positions similar to those of Myatt soils and they have less sand in the subsoil. Prentiss soils are moderately well drained, and Stough soils are somewhat poorly drained. These soils are in higher positions and have fragic properties.

Typical pedon of Myatt fine sandy loam, frequently flooded; 6 miles southeast of Abita Springs, 100 feet south of a private road, NW1/4NW1/4 sec. 27, T. 7 S., R. 12 E.

A—0 to 6 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; friable; few fine and medium roots; very strongly acid; clear smooth boundary.

Eg—6 to 14 inches; gray (10YR 6/1) fine sandy loam; few medium faint yellowish brown (10YR 5/6) mottles; weak fine granular structure; friable; few fine and medium roots; very strongly acid; gradual wavy boundary.

Btg1—14 to 28 inches; gray (10YR 6/1) loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; pockets of gray fine sandy loam material fill crawfish holes and root channels; thin patchy clay films on faces of peds; few fine brown and black concretions; very strongly acid; gradual wavy boundary.

Btg2—28 to 40 inches; gray (10YR 6/1) loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; pockets of clean sand and gray sandy loam material fill crawfish holes and root channels; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

BCg—40 to 58 inches; mottled gray (10YR 6/1), light yellowish brown (10YR 6/4), and strong brown (7.5YR 5/8) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; pockets of clean sand between peds; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

Cg—58 to 68 inches; gray (10YR 6/1) sandy clay loam with pockets and lenses of sand; massive; friable; extremely acid.

The solum is 40 to 60 inches thick. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The Ap or A horizon has hue of 10YR, value of 3 to 6, and chroma of 1 or 2. It is 4 to 9 inches thick. Reaction ranges from very strongly acid to medium acid.

The Eg horizon has hue of 10YR or 2.5Y, value of 6, and chroma of 1 or 2, or value of 5 and chroma of 1. It is 3 to 8 inches thick. Texture is fine sandy loam, very fine sandy loam, or silt loam. Reaction is very strongly acid or strongly acid.

The Btg horizon has hue of 10YR, value of 6 or 7, and chroma of 1. Mottles in shades of brown and yellow range from few to many. Texture is sandy clay loam, loam, or clay loam with 18 to 30 percent clay and 20 to 45 percent silt. Reaction ranges from extremely acid to strongly acid.

The Cg horizon is sandy clay loam or clay loam and it is mottled in shades of gray and brown. Reaction ranges from extremely acid to strongly acid.

Ouachita Series

The Ouachita series consists of well drained, moderately slowly permeable soils that formed in recently deposited loamy alluvium. These soils are on the flood plains of major drainageways. Slopes are less than 2 percent.

Soils of the Ouachita series are fine-silty, siliceous, thermic Fluventic Dystrochrepts.

Ouachita soils commonly are near Bibb, Cahaba, Guyton, Myatt, and Stough soils. Bibb soils are in lower positions on the landscape than Ouachita soils and are sandier throughout. Cahaba and Stough soils are in higher positions on terraces. Cahaba soils are reddish throughout, and Stough soils have fragic properties. Guyton and Myatt soils are poorly drained. They are in slightly lower positions on the landscape and are grayish throughout.

Typical pedon of Ouachita silt loam, in an area of Ouachita and Bibb soils, frequently flooded; 5 miles northwest of Goodbee, 3 miles southwest of Folsom, 175 feet north of Highway 1077, 300 feet west of Tchefuncte River, sec. 31, T. 5 S., R. 10 E.

A—0 to 9 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bw1—9 to 15 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; clear smooth boundary.

Bw2—15 to 27 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; firm; strongly acid; gradual smooth boundary.

Bw3—27 to 46 inches; yellowish brown (10YR 5/4) silty clay loam; few medium faint pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; firm; strongly acid; gradual smooth boundary.

Bw4—46 to 60 inches; yellowish brown (10YR 5/4) silt loam; common medium faint brownish yellow (10YR 6/6) mottles and very dark grayish brown (10YR 3/2) mottles; weak medium subangular blocky structure; friable; strongly acid.

The solum is 45 to 80 inches thick. The soil is very strongly acid or strongly acid except where lime has been added. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. It is 7 to 12 inches thick.

The Bw horizon has hue of 10YR, value of 4 to 6, and chroma of 3 or 4. Some pedons have gray mottles below a depth of 24 inches. Texture is silt loam, loam, clay loam, or silty clay loam.

Some pedons have a C horizon. The range in colors is the same as that of the Bw horizon. Texture is silt loam, loam, or fine sandy loam; and the horizon is stratified.

Prentiss Series

The Prentiss series consists of moderately well drained soils that have a fragipan. They formed in loamy marine and fluvial sediments. These soils are on terraces of late Pleistocene age. Slopes range from 0 to 3 percent.

Soils of the Prentiss series are coarse-loamy, siliceous, thermic Glossic Fragiudults.

Prentiss soils commonly are near Brimstone, Cahaba, Guyton, Latonia, Myatt, and Stough soils. These soils do not have a fragipan. Brimstone, Guyton, Myatt, and Stough soils are in lower positions on the landscape than Prentiss soils. Cahaba soils are in higher positions, and Latonia soils are in positions similar to those of Prentiss soils.

Typical pedon of Prentiss fine sandy loam, 0 to 1 percent slopes; 6 miles southeast of Abita Springs, 3 miles southwest of the intersection of Highways 36 and 1088, 3,000 feet south of Highway 1088, 30 feet northwest of the intersection of timber company roads, SE1/4NE1/4 sec. 36, T. 7 S., R. 12 E.

A—0 to 5 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; friable; common medium and large roots; very strongly acid; clear smooth boundary.

Bw1—5 to 17 inches; yellowish brown (10YR 5/6) sandy loam; few medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few medium roots; sand grains bridged with clay; very strongly acid; gradual wavy boundary.

Bw2—17 to 25 inches; yellowish brown (10YR 5/6) loam; common medium distinct strong brown (7.5YR

5/8) mottles; few fine roots; sand grains bridged with clay; few medium brittle brown bodies; very strongly acid; gradual wavy boundary.

Btx1—25 to 48 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/3), light brownish gray (10YR 6/2), and strong brown (7.5YR 5/8) loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm and brittle; thin patchy clay films on faces of peds; prisms are surrounded by gray material that has less clay; strongly acid; gradual wavy boundary.

Btx2—48 to 62 inches; mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/8), and light yellowish brown (10YR 6/4) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; brittle and compact in about 65 percent, by volume; few fine roots in gray material; few fine pores; thin patchy clay films on faces of peds; strongly acid.

The solum is more than 60 inches thick. Depth to the fragipan ranges from 20 to 32 inches. Depth to mottles with chroma of 2 or less is more than 16 inches. The soil is very strongly acid or strongly acid except where lime has been added. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is 5 to 8 inches thick.

The Bw horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6. Texture is loam, fine sandy loam, or silt loam.

The Btx horizon has colors that are similar to those of the Bw horizon, or it is mottled in shades of brown, yellow, red, and gray. Texture is loam, sandy loam, or fine sandy loam.

Rosebloom Series

The Rosebloom series consists of poorly drained, slowly permeable soils that formed in loamy alluvium. These soils are on flood plains of drainageways. Slopes range from 0 to 2 percent.

Soils of the Rosebloom series are fine-silty, mixed, acid, thermic Typic Fluvaquents.

The Rosebloom soils in St. Tammany Parish are taxadjuncts to the Rosebloom series because the reaction is slightly higher throughout the profile than is typical for the Rosebloom series. This difference, however, does not affect the use and behavior of the soils.

Rosebloom soils commonly are near Arat, Arkabutla, Bibb, Guyton, and Ouachita soils. Arat soils are in swamps and are fluid throughout. Arkabutla and Ouachita soils are in slightly higher positions on the landscape than Rosebloom soils, and the upper part of the subsoil is browner. Bibb soils are sandier and in positions similar to those of Rosebloom soils. Guyton soils are in positions similar to those of Rosebloom soils and have an argillic horizon.

Typical pedon of Rosebloom silt loam, in an area of Arkabutla and Rosebloom soils, frequently flooded; 3 miles east of Pearl River, 1,800 feet south of old Highway 11 in the Pearl River Wildlife Management Area, 600 feet west of a gravel road, 300 feet south of the parking area, sec. 33, T. 7 S., R. 15 E.

A—0 to 5 inches; brown (10YR 5/3) silt loam; few medium faint dark yellowish brown (10YR 4/4) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; medium acid; clear smooth boundary.

Bg1—5 to 27 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; few fine black concretions; medium acid; clear smooth boundary.

Bg2—27 to 39 inches; light brownish gray (10YR 6/2) silty clay loam; few medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; firm; common fine black concretions; medium acid; clear smooth boundary.

Bg3—39 to 65 inches; light brownish gray (10YR 6/2) silty clay loam; common coarse distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; many fine black concretions; medium acid.

The solum is 40 to more than 60 inches thick. Texture is silt loam or silty clay loam throughout. In areas where lime has not been added, reaction is strongly acid or medium acid. Most pedons have black concretions in the Bg horizon. The effective cation-exchange capacity of this soil is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 3. It is 4 to 10 inches thick.

The Bg horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Most pedons have mottles in shades of brown and yellow.

Ruston Series

The Ruston series consists of well drained, moderately permeable soils that formed in loamy marine or stream sediment. These soils are on the terrace uplands. Slopes range from 1 to 6 percent.

Soils of the Ruston series are fine-loamy, siliceous, thermic Typic Paleudults.

Ruston soils commonly are near Savannah and Smithdale soils. Savannah soils are moderately well drained. They are in positions on the landscape similar to those of Ruston soils and they have a fragipan.

Smithdale soils are on steeper side slopes and do not have a solum with a bisequum.

Typical pedon of Ruston fine sandy loam, 3 to 6 percent slopes; 1.8 miles northwest of Lee Road, 2,200 feet north of Pat O'Brien Road, 2,800 feet east of Highway 40, 185 feet east of a fence row, NE1/4NW1/4 sec. 25, T. 5 S., R. 11 E.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

E—6 to 17 inches; brown (10YR 5/3) fine sandy loam; few medium prominent red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable; few fine pores; strongly acid; gradual wavy boundary.

Bt1—17 to 23 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; thin discontinuous clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—23 to 38 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; strongly acid; clear wavy boundary.

B/E—38 to 44 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; firm; pockets of yellowish brown (10YR 5/4) sandy loam E material throughout horizon; thin patchy clay films on faces of some peds; strongly acid; gradual wavy boundary.

Bt—44 to 64 inches; red (2.5YR 4/8) sandy clay loam; many medium prominent yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; few small pockets of clean sand grains; few fine pores; strongly acid.

The solum is more than 60 inches thick. Reaction ranges from very strongly acid to medium acid except where lime has been added. The effective cation-exchange capacity of this soil is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4. It is 3 to 6 inches thick.

The E horizon and the E part of the B/E horizon have hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 or 4. Texture is fine sandy loam or sandy loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 to 6, and chroma of 4 to 8. Texture is sandy clay loam, fine sandy loam, loam, or clay loam.

Savannah Series

The Savannah series consists of moderately well drained, moderately slowly permeable soils that have a fragipan. These soils formed in unconsolidated loamy sediment. They are on the terrace uplands. Slopes range from 1 to 6 percent.

Soils of the Savannah series are fine-loamy, siliceous, thermic Typic Fragiudults.

Savannah soils commonly are near Ruston and Smithdale soils, but unlike Savannah soils, these soils do not have a fragipan. Ruston soils are in positions on the landscape similar to those of Savannah soils. Smithdale soils are on steeper side slopes.

Typical pedon of Savannah fine sandy loam, 1 to 3 percent slopes; 4 miles northwest of Talisheek, 4 miles southwest of Bush, 3 miles north of Highway 435, 2.5 miles south of Highway 21, 110 feet east of Moneyhill Plantation Road, 15 feet north of section line, SE1/4SE1/4 sec. 36, T. 5 S., R. 12 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable; few fine roots; very strongly acid; clear smooth boundary.

E—6 to 10 inches; brown (10YR 5/3) fine sandy loam; weak fine subangular blocky structure; friable; few fine roots; few fine pores; very strongly acid; clear wavy boundary.

Bt1—10 to 20 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; firm; thin patchy clay films on faces of peds; few fine reddish brown concretions; very strongly acid; clear wavy boundary.

Bt2—20 to 29 inches; yellowish brown (10YR 5/6) clay loam; few medium faint yellowish brown (10YR 5/4) mottles and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; strongly acid; gradual wavy boundary.

Btx1—29 to 41 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/2), brownish yellow (10YR 6/6), and red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm and brittle; thin discontinuous clay films on faces of peds; few medium reddish brown concretions; strongly acid; clear wavy boundary.

Btx2—41 to 62 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/2), strong brown (7.5YR 5/6), and red (2.5YR 4/8) clay loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm and brittle; thin patchy clay films on faces of peds; strongly acid.

The solum is more than 60 inches thick. Depth to the fragipan ranges from 16 to 38 inches. Reaction ranges from extremely acid to strongly acid. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A and E horizons have hue of 10YR, value of 4 to 6, and chroma of 2 or 3. The A horizon ranges in thickness from 5 to 8 inches.

The Bt horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 6 to 8. Mottles of gray and red are common below a depth of 30 inches. Texture is loam, clay loam, or sandy clay loam.

The Btx horizon is mottled in shades of red, brown, yellow, or gray. Texture is sandy clay loam, clay loam, or loam.

Smithdale Series

The Smithdale series consists of well drained, moderately permeable soils that formed in loamy marine or stream sediment. These soils are on the terrace uplands. Slopes range from 8 to 12 percent.

Soils of the Smithdale series are fine-loamy, siliceous, thermic Typic Hapludults.

Smithdale soils are similar to Cahaba soils and commonly are near Ruston and Savannah soils. Cahaba soils are on stream terraces at a lower elevation and they have a solum less than 60 inches thick. Ruston soils are well drained, and Savannah soils are moderately well drained. These soils are in less sloping areas. Ruston soils have a solum with a bisequum. Savannah soils have a fragipan.

Typical pedon of Smithdale fine sandy loam, 8 to 12 percent slopes, 2.5 miles east of Folsom, 0.8 mile north of Highway 40, 20 feet east of Beason Road, SW1/4SW1/4 sec. 6, T. 5 S., R. 11 E.

A—0 to 4 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; friable; few fine roots; strongly acid; clear smooth boundary.

Bt1—10 to 31 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—31 to 45 inches; red (2.5YR 4/8) sandy clay loam; common medium prominent light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm; thin discontinuous clay films on faces of peds; dark stains on some faces of peds; strongly acid; clear wavy boundary.

Bt3—45 to 62 inches; red (2.5YR 4/8) sandy loam; moderate medium subangular blocky structure; firm; thin patchy clay films on faces of peds; few pockets and streaks of light yellowish brown sand; strongly acid.

The solum is more than 60 inches thick. All horizons are very strongly acid or strongly acid except where lime has been added. The effective cation-exchange capacity of this soil is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 to 3. It is 3 to 10 inches thick.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. Texture is fine sandy loam, sandy loam, or loamy sand.

The upper part of the Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 to 8. Few or common mottles in shades of red and brown are in some pedons. Texture is clay loam, sandy clay loam, or loam. The lower part of the Bt horizon has colors similar to the upper part of the Bt horizon except that it commonly has few to many pockets of yellowish brown or pale brown sand. Texture is loam or sandy loam.

Stough Series

The Stough series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loamy marine and fluvial sediments. These soils are on terraces of late Pleistocene age. Slopes are less than 1 percent.

Soils of the Stough series are coarse-loamy, siliceous, thermic Fragiaquic Paleudults.

Stough soils commonly are near Brimstone, Cahaba, Guyton, Myatt, and Prentiss soils. Brimstone soils are in slightly lower positions on the landscape than Stough soils and have a high content of sodium in the subsoil. Cahaba soils are on side slopes and low ridges and are reddish throughout. Guyton and Myatt soils are in level to depressional areas and are grayish throughout. Prentiss soils are in slightly higher or more sloping positions and have a fragipan.

Typical pedon of Stough fine sandy loam; 2.5 miles east of St. Tammany, 1.8 miles west of Florenville, 1 mile south of Highway 36, 300 feet east of Liberty Bayou, 30 feet south of timber company road, NE1/4SW1/4 sec. 26, T. 7 S., R. 13 E.

A—0 to 5 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

BE—5 to 12 inches; mottled pale brown (10YR 6/3), light yellowish brown (10YR 6/4), and gray (10YR 5/1) loam; weak medium subangular blocky structure; friable; few medium roots; very strongly acid; clear wavy boundary.

Bt1—12 to 24 inches; mottled light yellowish brown (10YR 6/4), pale brown (10YR 6/3), and light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few root channels and crawfish holes filled with gray (10YR 5/1) fine sandy loam; few fine and medium brown and black concretions; strongly acid; gradual wavy boundary.

Bt2—24 to 37 inches; mottled light yellowish brown (10YR 6/4), light brownish gray (10YR 6/2), and strong brown (7.5YR 5/6) loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brown part is slightly brittle; thin discontinuous clay films on faces of peds; few medium and fine reddish brown and black concretions; strongly acid; gradual wavy boundary.

Bt3—37 to 60 inches; mottled light yellowish brown (10YR 6/4), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) loam; weak coarse subangular blocky structure; friable; thin patchy clay films on vertical faces of peds; strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid except where lime has been added. The effective cation-exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is 3 to 6 inches thick.

Some pedons have Ap or E horizons that have hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4.

The BE horizon is mottled in shades of brown. Texture is sandy loam, fine sandy loam, or loam. Some pedons do not have a BE horizon.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6, or it is mottled in shades of brown and gray. The upper 10 inches of the Bt horizon has mottles with chroma of 2 or less. The lower part of the Bt horizon is compact and brittle in the brown part. Clay content in the upper 20 inches of the Bt horizon is less than 18 percent. Texture is fine sandy loam, loam, sandy loam, or sandy clay loam.

Formation of the Soils

Dr. Brian A. Schumacher, Department of Agronomy, Agricultural Experiment Station, Louisiana State University Agricultural Center, prepared this section.

This section discusses the processes of soil formation and relates them to the soils in the survey area.

Processes of Soil Formation

The processes of soil formation influence the kind and degree of development of soil horizons *(9)*. The factors of soil formation—climate, living organisms, relief, parent material, and time—determine the rate and relative effectiveness of different processes.

Soil-forming processes include those that result in the addition of organic, mineral, and gaseous materials to the soil; the loss of these materials from the soil; the translocation of materials from one point to another within the soil; and the physical and chemical transformation of mineral and organic materials within the soil *(27)*.

Some processes take place simultaneously; for example, in this survey area, the accumulation of organic matter, development of soil structure, and leaching of bases from some soil horizons. Other processes are dependent upon one another. For example, in the formation of gleyed horizons in Barbary soils, iron is first chemically reduced (a process of transformation), then it is leached from the surface layer to subsurface layers (a translocation process). Some soil-forming processes that apply to the soils in St. Tammany Parish are described in the following paragraphs.

Organic matter accumulates, partly decomposes, and is incorporated into all the soils. Organic matter production is greatest in and above the surface layer; therefore, soils are formed in which the surface layer is higher in organic matter content than the deeper layers *(19, 20)*. The Stough soils, for example, have a dark surface layer that is high in organic matter content and a lighter, brownish subsoil that is low in organic matter content. The decomposition and mixing of organic residues into the soil is caused largely by the activity of living organisms. Many of the more stable products of decomposition remain as finely divided materials that give dark color to the soil, increase available water and cation-exchange capacities, contribute to granulation, and serve as a source of plant nutrients *(19, 20)*.

The addition of alluvial sediment on the surface has helped in forming several soils in the parish. Added sediment provides new parent material for soil formation. The soils that are classified as Entisols, such as the Arat and Larose soils, undergo periodic additions of new sediments, as do the Ouachita soils, an Inceptisol, and the Kenner soils, a Histosol. During periods between flooding, the processes of soil formation are limited. Often, new material accumulates faster than the processes of soil formation can appreciably alter the deposited materials *(19, 20)*. This accumulation is evident as depositional strata in the lower horizons of many of the soils, such as the Bibb soils, that are developing in alluvial sediment. Floodwater and rainwater also carry dissolved mineral matter and gases, which are added to the soil as the water percolates through the soil layers. The retreat of floodwater or the downward flow of rainwater through the soil allows new gases to enter the soil and fill the voids.

Loss of components from the soils is one process in their formation. Surface erosion and leaching of bases or free carbonates from the soil are two of the most common losses. Surface runoff and erosion causes a great physical loss of organic matter, nutrients, and mineral materials from the surface layer and sometimes, when erosion is extensive, from layers that were once subsurface layers. Water moving through soil has leached soluble bases and any free carbonates that may have been initially present from some horizons of most of the soils. The influence of leaching, a translocation process, becomes more pronounced as the period of soil development increases.

Highly weathered Ultisols, such as the Ruston and Smithdale soils, have undergone extensive leaching as indicated by their low base status, while the less developed Harahan, Abita, and Brimstone soils (an Inceptisol and 2 Alfisols, respectively) are less weathered and less leached soils that have higher base saturations.

Secondary accumulations of salts, calcium carbonate, and clays are examples of translocation processes commonly occurring in the soils in St. Tammany Parish. Calcium carbonate and other salts dissolved from overlying horizons can be translocated to subsurface horizons and be redeposited at depth. For example, salts and carbonates have been translocated in the Brimstone soils. Other sources and processes can contribute in varying degrees to these secondary accumulations, such as segregation of material within the horizon, upward translocation of materials in solution from deeper horizons during fluctuations of water table levels, and contributions of materials from readily weatherable minerals, such as the plagioclase feldspars *(19, 20)*.

The formation, translocation, and accumulation of clay are processes that have helped develop many of the soils in St. Tammany Parish.

Horizons of secondary accumulations of clay result largely from translocation of clays from upper to lower horizons. As water moves downward it can carry small amounts of clay in suspension. This clay is deposited, and it accumulates at the depths of the water penetration or in horizons where it becomes flocculated or filtered out by fine pores in the soil. Over long periods, such processes can result in distinct horizons of clay accumulation. These distinct horizons are referred to as argillic horizons in Soil Taxonomy. The Cahaba and Latonia soils are examples of soils in the parish that have a subsoil characterized by a secondary accumulation of clay.

Physical and chemical transformations of mineral and organic materials within the soil are major soil forming processes. Several of the transformational processes which occur in St. Tammany Parish are: organic matter decomposition, primary mineral weathering to form clay minerals and oxides, oxidation and reduction of iron and manganese compounds, and the formation of soil structure and fragipans.

Decomposition of organic matter has occurred in all the soils of St. Tammany Parish to some extent. The accumulation and breakdown of organic residues has led to the formation of several organic soils (Histosols), such as the Allemands, Clovelly, Kenner, Lafitte, and Maurepas soils. Organic matter decomposition is also partly responsible for the formation of soil structure in all the soils in the parish. Other agents of structure formation include alternate wetting and drying, secretions of living organisms, clay flocculation, and cementation of soil particles by iron oxides and other chemical compounds in the soil.

Oxidation and reduction of iron and manganese compounds take place in soils that are poorly drained or very poorly drained. Reducing conditions are present when soils are poorly aerated for long periods of time. Under these conditions, iron and manganese are reduced and become more soluble in water. These reduced elements may be removed or translocated from one point to another within the soil by water. Reduced iron compounds, where abundant, give soils the characteristic gray colors and lead to the formation of gleyed horizons (Bg and Cg horizons) in such soils as the Arkabutla, Guyton, Myatt, and Rosebloom soils. The presence of browner mottles in a predominantly gray soil indicates local areas or pockets of oxidizing conditions. The presence of gray mottles in a predominantly brown soil indicates local areas or pockets of reducing conditions.

Two physical transformations which have occurred in the soils of St. Tammany Parish are the formation of soil structure and fragipans. Soil aggregates can be formed by physical compaction caused by the shrinking and swelling of clays during alternate wetting and drying. Soil aggregates are cemented or bound by organic residues, by secretions of living organisms, and by the oxides of iron and manganese. Fragipan formation involves the hardening of the soil possibly through reversible cementation by one or more agents, not necessarily the same agents in all soils, or possibly through hydrogen bonding between silica and alumina in the soil *(34)*. Fragipans have formed in the subsoils of the Prentiss and Savannah soils in St. Tammany Parish.

Factors of Soil Formation

The interaction of five main factors influences the processes of soil formation and results in differences among the soils. These factors are climate, living organisms, relief, parent material, and time *(13)*. The five factors can be further divided into two subgroups, the active and passive soil forming factors, depending upon how they influence soil formation *(14)*. The active soil forming factors are those which supply energy to the soil system to impel the various soil forming processes. The active factors are climate and living organisms, which directly influence soil development. Passive soil forming factors—relief, parent material, and time—do not actively affect soil genesis. Instead, they influence soil development by supplying the initial materials from which the soil is being formed (parent material), by influencing drainage, runoff, and soil moisture conditions (relief), and by influencing the extent or how long the soil forming processes have had to change a soil (time).

The effect of a factor can differ from place to place, but the interaction of all the factors determines the kind of soil that forms. Many of the differences in soils cannot be attributed to differences in the effects of only one factor. For example, the organic matter content in the soils of St. Tammany Parish is influenced by several factors including living organisms, climate, relief, and time. The following paragraphs describe the factors of soil formation as they relate to soils in the survey area.

Climate

St. Tammany Parish is in a region characterized by a humid subtropical climate. Detailed information about climate is in the section "General Nature of the Survey Area."

The climate is relatively uniform throughout the parish. Local differences in the soils are not a result of great differences in atmospheric climate. Climate influences soil formation mainly through the effects of temperature and precipitation. Generally, the warmer the annual temperature and the greater the annual precipitation, the more highly developed a soil will become unless some other soil forming factor plays a more dominant role.

In this parish, the warm average temperatures and large amounts of precipitation favor rapid weathering of readily weatherable minerals in the soils. In spite of this, soils developing on flood plains, such as the Arkabutla and Bibb soils, are weakly developed because new sediment is continually being added to the soil surface and because the length of time the soils are exposed to influences of climate is short. Advanced weathering and leaching are typically indicated by acid soils with low base saturations, such as the Cahaba, Ruston, and Smithdale soils. Weathering of iron-bearing minerals releases iron into the soil. If reducing conditions are prevalent, iron will be reduced, resulting in predominantly gray soil colors as in the Arat, Brimstone, and Myatt soils. Yellows, reds, and some browns indicate that oxidizing conditions are dominant and indicate a soil that is better drained. Oxidation and segregation of iron, as a result of alternating oxidizing and reducing conditions, is indicated by mottled horizons and iron and manganese concretions in most of the soils.

The influence of precipitation is evident in clayey soils that have large amounts of expanding-lattice minerals in which considerable changes in volume occur upon wetting and drying. Wetting and drying cycles and associated volume changes help the formation and stabilization of structural aggregates in these soils. When the wet soils dry, cracks of variable width and depth can form as a result of the decrease in volume. When the cracks form, the depth and extent of cracking are influenced by climate. Formation of deep, wide cracks may shear roots of plants growing in the soil. When these soils are rewetted by rainfall or irrigation, the clays expand and the cracks close. Repeated considerable changes in volume frequently result in structural problems if the soils are used for buildings, roads, and other structures *(19, 20)*. The clays swell and shrink extensively in the Harahan soils.

Living Organisms

Living organisms, including plants, bacteria, fungi, and burrowing animals, are a major influence on the kind and extent of soil horizons that develop. In some cases, living organisms are the predominant agents responsible for the kind of soil that is formed. Where the rate of accumulation of organic matter greatly exceeds its rate of decomposition (generally under poorly or very poorly drained conditions) and sufficient time has passed to allow the buildup of organic materials, organic soils (Histosols), such as the Allemands, Clovelly, Kenner, Lafitte, and Maurepas soils, are formed.

Growth of plants and activity of other organisms disturb the soil, modify porosity, and influence the formation of structure and the incorporation of organic matter. Photosynthesis, the use of energy from the sun to synthesize compounds necessary for plant growth, produces additional organic matter. Growth of plants and their eventual decomposition provide recycling of nutrients from the soil. Decomposition serves as a major source of organic residue. This continual cycling of nutrients helps stem the loss of calcium, magnesium, sodium, potassium, and other essential elements from the soil system through leaching or erosional processes.

Arat and Barbary soils formed primarily under a native vegetation consisting of various swamp grasses, baldcypress, red maple, and water tupelo. Arkabutla, Harahan, and Rosebloom soils formed under mixed hardwood vegetation. A mixed pine forest is the dominant vegetation for the Latonia and Smithdale soils. Larose soils are commonly formed under freshwater marsh grasses. The other mineral soils in St. Tammany Parish formed under a forest vegetation consisting of mixed hardwoods and pines. Some areas of these soils have been cleared for cultivation or other uses.

The organic soils in the parish formed under several different vegetative schemes. Allemands and Kenner soils formed under freshwater marsh grasses and cattails. Clovelly and Lafitte soils formed under coastal marsh grasses. Maurepas soils formed under baldcypress trees and encroaching marsh grasses.

Macroorganisms, such as worms and crayfish, are responsible for the mixing of soils. These organisms carry mineral materials and nutrients upward from subsurface horizons and redeposit them on the soil surface. The movement of these animals through the soil affects soil porosity, permeability, and aeration. The tunnels they make allow water and air to rapidly enter the soil. Mineral and organic matter are decomposed and released into the soil after digestion by certain organisms.

Microorganisms, such as fungi and bacteria, decompose and incorporate organic matter into the soil. These two processes enhance the development of soil structure and generally increase the infiltration rate and available water capacity. The released organic compounds, if stable, generally have a large cation-exchange capacity, which increases the capability of a soil to absorb and store essential nutrients.

Organic matter accumulation depends on the type and number of microorganisms present. Well drained, aerated soils favor large populations of aerobic microorganisms, which use the oxygen from the air to cause the rapid breakdown of organic residue. These organisms are the major decomposers of organic matter in soils and are predominant in the better drained soils, such as the Ouachita, Prentiss, and Ruston soils. The more poorly drained soils, such as the Arat, Bibb, and Brimstone soils, as well as all the Histosols favor populations of anaerobic microbes. These organisms do not require oxygen and decompose organic matter very slowly.

Relief

Relief and other physiographic features influence the soil formation processes by affecting internal soil drainage, surface runoff, erosion and deposition, and exposure to the sun and wind *(19, 20)*.

St. Tammany Parish can generally be divided into 4 provinces based on relief characteristics. These provinces are terrace uplands, stream or marine terrace (Prairie Terrace), recent flood plains, and marshes and swamps. The soils in the marshes and swamps province can be further subdivided into those that are frequently flooded and those that are drained and protected from flooding. The influence of relief on internal soil drainage and on depths and duration of a seasonal high water table is evident in the soils in the different provinces in St. Tammany Parish.

Soils forming on the highest landscape positions, the terrace uplands (province 1), have very gentle or gentle slopes and are moderately well drained or well drained. They have a seasonal high water table that is continually at a depth of 6 feet or more except where the water is perched on a fragipan in the soil. The Ruston and Savannah soils are in this province.

Soils forming on stream and marine terraces of the Prairie Terrace (province 2), the second most elevated landscape province, range from poorly drained to well drained. Slopes range from level to gently sloping. Generally, as slope gradient increases, surface runoff increases and internal drainage becomes less restricted. Soils in this province include the Abita, Brimstone, Cahaba, Guyton, Latonia, Myatt, and Stough soils. Depth to a seasonal high water table in most of these soils ranges from the surface to 3 feet from December to May. The Cahaba and Latonia soils do not have a seasonal high water table within 6 feet of the surface.

The Arkabutla, Bibb, Ouachita, and Rosebloom soils are the main soils on nearly level, recent flood plains (province 3). The soils range from poorly drained to well drained, and the seasonal high water table ranges from a depth of 0.5 foot to 2.5 feet from December to May. The only exception is the well drained Ouachita soil that does not have a seasonal water table within 6 feet of the surface.

Level and very poorly drained soils formed in the marshes and swamps (province 4), and occupy the lowest landscape positions in St. Tammany Parish. The seasonal high water table ranges from 0.5 foot below the surface to as much as 3 feet above the surface. Soils in this group include the Allemands, Arat, Barbary, Clovelly, Harahan, Kenner, Lafitte, Larose, and Maurepas soils. The Harahan soils and some areas of the Allemands soils have been artificially drained and protected from flooding. These soils have level slopes and a seasonal high water table that ranges from a depth of 0.5 foot to 4 feet.

The formation of the Brimstone soils has a unique relationship to relief. The Brimstone soils are on broad flats at an intermediate elevation. These soils have a high content of exchangeable sodium, believed to be carried in water draining from slightly higher, surrounding soils and accumulated in the Brimstone soils.

Parent Material

Parent material has been defined as "the state of the soil system at time zero of soil formation" *(13)* or parent material is what the soil formed from. Generally, the younger the soil, the greater the influence of the parent material on soil properties. The nature of the parent materials largely determines the soil color, texture, reaction, permeability, drainage, soil depth, and degree of leaching. Parent materials also strongly influence the mineralogy and the initial fertility status of a soil.

The soils of St. Tammany Parish formed from either marine or fluvial sediment except the Allemands, Clovelly, Kenner, Lafitte, and Maurepas soils. These five organic soils (Histosols) developed mainly from *in situ* decomposition of plant and animal tissue. In these soils, mineral materials commonly are mixed with organic matter. The abundance of organic matter is more important in the formation and classification of the soils.

Time

The length of time a soil or parent material is exposed to weathering processes influences the kind of soil horizons and the degree of development. Generally, the greater the length of time, the more developed a soil can become. Soils forming on flood plains are subject to continuous additions of new sediment. They show little soil development because of the relatively small amount of time these materials have been exposed to weathering. Well developed soils, such as the Cahaba, Myatt, Ruston, Savannah, and Stough soils, have had sufficient time for advanced soil development.

In St. Tammany Parish, soil development can be grouped into three different time periods. The youngest soils (less than about 10,000 years old) formed in alluvium deposited during Holocene time. These relatively young soils are those that formed on recent flood plains and in the marshes and swamps. Intermediate aged soils developed on coastwise, stream, or marine terraces (Prairie Terrace). The sediments were deposited during late Pleistocene time (approximately 10,000 to 75,000 years ago). Ruston and Savannah soils of the terrace uplands formed in Pre-Pleistocene age sediments of the Citronelle Formation and were deposited about 2 million years ago.

Landforms and Surface Geology

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St. Tammany Parish occupies an area of approximately 880 square miles in southeastern Louisiana. The Pearl River forms its eastern boundary with the State of Mississippi. Lake Pontchartrain and Lake Borgne form the southern boundary. Washington and Tangipahoa Parishes form the northern and western boundaries, respectively.

Four streams and their tributaries provide surface drainage for essentially the entire parish. About one-third of the western part and much of the northern part of the parish are drained by the Tchefuncte River and its tributaries. The Pearl River trends northwest-southeast. It provides drainage for its own flood plain and that of the Bogue Chitto River and for a very narrow band of the parish adjoining the flood plain of these two streams. The Lacombe and Liberty Bayous trend north-south and drain the south-central part of the parish.

Elevations in the parish range from sea level or below along the entire southern edge to approximately 200 feet on the highest interfluves in the northwestern part.

The parish can be divided into 4 general physiographic regions, each characterized by soils formed in a different kind or age of parent material. The northwest part of the parish is a gently sloping to hilly upland, called the High Terraces or the Terrace Uplands province in other parts of the survey. This area is underlain by late Tertiary or very early Pleistocene age deposits of the Citronelle Formation. The highest elevations and the oldest and most dissected land surfaces in the parish are in this area. At intermediate elevations are Pleistocene age terraces that either parallel streams or occur as coastwise terraces of more regional extent. Flood plains of the Pearl, Bogue Chitto, and Tchefuncte Rivers and smaller streams that drain the parish make up about 15 percent of the land area. The southern edge of the parish is a band of marshes and swamps at elevations near sea level. Important relationships among the physiographic, geologic, and soil features in these areas are explained in the following sections.

Coastal Marshes and Swamps

About 12.5 percent of the parish is coastal marshes and swamps. They trend east-west in a band along the southern edge of the parish between the Pleistocene age terraces and the north shore of Lake Pontchartrain. Their position corresponds approximately to the Larose-Allemands-Kenner, Arat, Clovelly-Lafitte, Barbary-Maurepas, and Aquents-Allemands-Harahan map units on the General Soil Map. These soils and the stream flood plain deposits are formed in the youngest sediments in the parish. Deposits on and near the surface are of Holocene age (less than 10,000 years old), and most have been deposited since the formation of the Lake Pontchartrain Basin. The Lake Pontchartrain Basin was formed by embayment of the Gulf of Mexico when the Mississippi River and its distributaries changed courses and abandoned the Cocodrie and St. Bernard deltas 4,000 to 1,800 years ago *(25)*.

Elevations in the coastal marshes and swamps range from a few feet below sea level to only a few feet above sea level. Parts of these areas are continuously flooded, and the rest are subject to frequent flooding. Exceptions are areas that have been artificially drained and are protected by flood control structures. Most of the sediments are continually saturated and have not dried since being deposited. Mineral soils are fluid throughout unless they are protected from flooding. Most of the mineral soils are clayey, and all can have thin organic surface layers. Larose and Barbary soils are clayey. Larose soils formed in marshes, and Barbary soils formed in swamps. Arat soils are less clayey, and they formed in swamps in areas where streams contributed appreciable amounts of silt- and sand-size sediment to the parent material.

Thick deposits of organic materials have accumulated in many of the areas. These deposits are the parent materials of Allemands, Clovelly, Kenner, Lafitte, and Maurepas soils, which are the five organic soils (Histosols) that are mapped in the parish. Most of the organic soils have thin layers of mostly mineral material, particularly in areas where they are adjacent to mineral soils. Mineral soils also may have thin layers of organic materials, especially in areas near the boundary between mineral and organic soils. Overall, the landmass is slowly subsiding *(22)*. Over time, subsidence and the varying flood stages and minor fluctuations in sea level have resulted in considerable variation in the soils. In places, Holocene age deposits overlie buried surfaces of the Pleistocene age terraces. In other places, the materials are mostly Mississippi River alluvium to great depths. In still others, the sediments are dominantly from the Pearl River.

These areas are both brackish marshes and freshwater swamps and marshes. The brackish marshes adjoin Lake Pontchartrain and correspond approximately to the Clovelly-Lafitte map unit on the General Soil Map. The rest of the areas are freshwater marshes and swamps.

Recent Alluvial Plain Deposits

Alluvial plain deposits of the Pearl River and of smaller streams make up about 10 percent of the land area of the parish. These recent deposits are of Holocene age and only a few thousand years old at most. With few exceptions, the areas are subject to annual flooding and deposition of sediments.

The flood plains are characterized by level or nearly level topography marked, in places, by abandoned stream channels that are partly filled with sediment. The Pearl River flood plain is the largest contiguous area of these deposits and corresponds approximately to the Arkabutla-Rosebloom map unit on the General Soil Map. Other alluvial plain deposits correspond approximately to the Ouachita-Bibb map unit along the Bogue Chitto and Tchefuncte Rivers and their tributary streams, and along Lacombe and Liberty Bayous. These streams drain areas of highly weathered soils that are the source of the alluvial plain sediments. Consequently, the alluvial plain deposits are low in weatherable minerals and are parent materials of soils that have naturally low fertility. The area drained by the Pearl River extends northward into central Mississippi.

The watersheds of other streams draining the parish are comparatively small and more local in origin. Only the Bogue Chitto River's watershed extends outside Louisiana to include a small area in southernmost Mississippi. Because of the watershed characteristics, the major soils are different on the alluvial plain of the Pearl River compared to those on other flood plains in the area. The Arkabutla and Rosebloom soils are predominant on the Pearl River flood plain, and the Ouachita and Bibb soils are the major soils on flood plains of other streams.

Soils formed in the recent flood plain deposits along all the streams have minimal profile development and classify as Entisols. In most places, distinct depositional strata are evident at depths of about 2 to 5 feet.

Pleistocene Age Terraces

From 2 to 4 Pleistocene age terraces have been identified in southeastern Louisiana *(10, 21, 24, 26, 28)*. Generally, each terrace represents an accumulation of sediments along major streams and the Gulf Coast during interglacial stages. This process is somewhat similar to the present accumulation. During periods of glaciation, sea level is lowered exposing large areas of recently deposited materials. Streams draining adjoining areas flow onto and across these new surfaces. These extended, consequent streams carry sediments eroded from adjacent areas. Some of the sediments are deposited on the recently exposed surfaces. Receding glaciation results in a rise in sea level and a corresponding rise in the base level of streams. Stream deltas move inland, and sediment accumulation becomes pronounced. Part of the new landmass exposed during glaciation may remain above sea level, forming a terrace subject to subareal weathering and soil formation. Repeated cycles of glaciation can result in a series of terraces, progressing from youngest to oldest with increasing elevation. At least 2 Pleistocene age terraces are identified in St. Tammany Parish.

Deweyville Terrace. The identification of a Deweyville Terrace in St. Tammany Parish is based on the work of Saucier *(25, 26)* and Snead and McCulloh *(28)*. The Deweyville Terrace is generally considered to be the youngest of the Pleistocene age terraces in the area and probably was deposited 20,000 to 25,000 years ago. Stratigraphically, the Deweyville Terrace lies between the Prairie Terrace and the Holocene flood plains. The major areas of the Deweyville Terrace are in the Cahaba-Prentiss-Latonia map unit on the General Soil Map. These areas form a thin, elongated, and disconnected band adjoining and parallel to the west edge of the Pearl River flood plain. In St. Tammany Parish, the Deweyville Terrace occurs only as a stream-paralleling fluvial terrace and at an elevation only a few feet above present stream flood plains. Sediments that make up the Deweyville Terrace are typically more sandy than those of the other Pleistocene terraces or the modern flood plain and are underlain by gravel in many places. The Deweyville Terrace has oversize meander belt features that include abandoned channels and point bar ridges and swales. When compared to Holocene meander belt features of the streams that formed the terrace, these features and the coarser nature of the deposits suggest that the streams had a much higher flow rate when the terrace was deposited than at present.

The Cahaba and Latonia soils are the major soils mapped on the Deweyville Terrace. The sediments in which these and other soils on the terrace formed are erosional detritus from areas of highly weathered soils. The low weatherable mineral content, low base status, and highly weathered nature of these sediments result mostly in the formation of Ultisols on the terrace. The Cahaba, Latonia, and other soils mapped on the Deweyville Terrace adjoining the Pearl River flood plain also are on terraces of other streams in the parish. These terraces may be similar, at least in part, to the terrace along the Pearl River.

Prairie Terrace. The Prairie Terrace occupies large areas in the southern and eastern parts of St. Tammany Parish. The terrace is part of an extensive regional coastwise terrace that extends far beyond the parish boundary on both the east and west sides. The terrace extends up the valleys of streams, such as the Pearl and Bogue Chitto Rivers. These rivers drain land areas older than the terrace. The Prairie Terrace corresponds approximately to the Guyton-Abita-Brimstone and Myatt-Stough-Prentiss map units on the General Soil Map.

The Prairie Terrace is level to gently sloping. Elevation ranges from near sea level in the southernmost part to about 70 feet in the northernmost part. Stream dissection of the terrace surface is minimal, and local relief is rarely more than 10 feet. Lacombe and Liberty Bayous originate on the terrace and drain most of the area. The Tchefuncte River, an extended consequent stream originating on older and higher landmasses, drains a small part of the parish.

The Prairie Terrace probably was deposited during the Sangamon interglacial stage approximately 75,000 to 125,000 years ago *(10, 26)*.

A large number of borings conducted during the course of the survey revealed a consistent stratigraphic sequence among the deposits at depths of generally less than 30 feet throughout the coastwise component of the Prairie Terrace. These same studies showed a consistent relationship between the individual stratigraphic units exposed at the surface and the major soils mapped on the surface. Very clayey strata of undetermined thickness occur at depths of generally less than 30 feet. The strata are not exposed at the surface. Recognizable soil profiles, accumulations of organic matter on the surface, and fragments of wood and other organic remains extracted from the surface of these clayey deposits indicate that they were subareally exposed for a significant period. These strata are, in turn, overlain by fluvial sandy deposits that range in thickness from less than 1 foot to more than 20 feet. The thickness depends upon the location with respect to the ancient streams which served as their source. These more sandy deposits fine upward and are parent materials for the Prentiss, Stough, and Myatt soils.

Surface exposures of the deposits correspond approximately to the Myatt-Stough-Prentiss map unit on the General Soil Map. In low-lying areas, these materials are, in turn, overlain by more silty deposits that have appreciably more clay than the underlying sediments. These deposits are the parent materials of the Abita, Brimstone, and Guyton soils. Surface exposures of these sediments are mostly concentrated near the southern edge of the Prairie Terrace and correspond approximately to the Guyton-Abita-Brimstone map unit on the General Soil Map. The sedimentation environment for most of these materials was probably characterized by the merging of fluvial and marine depositional environments.

High Terraces. The High Terraces are in the northwestern part of the parish and account for about 15 percent of the land area. This area is the oldest, highest, and most dissected part of the parish and corresponds roughly to the Savannah-Ruston map unit on the General Soil Map. The region corresponds approximately to the outcrop area of the Citronelle Formation. The Citronelle Formation generally is considered to be late Pliocene or early Pleistocene in age. The time of deposition was about 2,000,000 years ago. The Citronelle Formation is made up mostly of coarse-textured fluvial deposits consisting of interstratified gravelly sands with lesser amounts of silts and clays and occasional clayey lenses. The source of the sediments, as indicated by mineralogical and other studies *(10, 25, 26)*, is believed to be the western slopes of the Appalachian Mountains far to the east.

The highest elevation of interfluves in the High Terraces ranges from about 200 feet in the northern part to about 70 feet in the southern part. The area is mainly a moderately dissected, very gently sloping or gently sloping upland having local relief of more than 75 feet in places. The area is drained almost entirely by the Tchefuncte River and its tributaries, which form a generally north-south trending dendritic drainage pattern.

Soils that formed on the High Terraces are mostly Ultisols, predominately the Ruston and Savannah soils. Soils on the High Terraces are characterized to great depths by low native fertility levels and low base status. The soils have thick sola and typically have distinct horizons of secondary clay accumulation (argillic horizons). The low base status and low native fertility levels are attributed to the paucity of weatherable minerals in the parent materials and to the long period of exposure to weathering during soil formation. The long duration of soil formation has enabled the thick sola, characterized by distinct argillic horizons, to form.

Although the soils formed in the Citronelle Formation developed mainly in relatively sandy sediments, many have appreciable amounts of silt in and near the surface layer. Investigations conducted during the survey indicate that the oldest land surfaces in St. Tammany Parish may have received between 2 and 3 feet of loess deposits during Pleistocene time. Loess distribution patterns and studies *(21)* indicate that St. Tammany Parish might have received thin deposits of loess. Regionally, the loess deposits of the Lower Mississippi Valley are thicker near the Mississippi River flood plain, and they thin with distance normal to the river. Studies *(20)* indicate that St. Tammany Parish received deposits of a loess older than Peoria loess but received little, if any, of the Peoria loess deposits. Any loess deposited in St. Tammany Parish has long since been eroded from the more steeply sloping landscape positions. In areas where loess deposits remain, pedogenic processes have thoroughly mixed them with the underlying material to depths of 3 feet or more.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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 map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Broad-base terrace. A ridge-type terrace built to control erosion by diverting runoff along the contour at a nonscouring velocity. The terrace is 10 to 20 inches high and 15 to 30 feet wide and has gently sloping sides, a rounded crown, and a dish-shaped channel along the upper side. It may be nearly level or have a grade toward one or both ends.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.

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, i.e., clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazingland for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

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 they are wet 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.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic)—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
Erosion (accelerated)—Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Excess salts (in tables). Excess water-soluble salts in the soil restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium is in the soil. The resulting poor physical properties restrict the growth of plants.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

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 horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Green-manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:
O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.
A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.
E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.
B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a

combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have 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 in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake in inches per hour is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

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).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). In these areas, surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the 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 (in tables). There is a shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-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.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

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.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

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.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium absorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity are—

	SAR
Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). An otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Data recorded in the period 1951-79 at Covington, Louisiana]

Month	Temperature						Precipitation				
	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*	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----	62.4	39.9	51.2	79	16	180	4.88	2.48	6.98	7	.2
February---	65.8	41.3	53.6	82	19	187	5.45	2.89	7.69	7	.1
March------	72.3	47.9	60.1	85	27	326	5.45	2.50	7.97	7	.0
April------	79.6	55.7	67.7	88	35	531	5.02	2.02	7.54	5	.0
May--------	85.6	61.8	73.7	95	43	735	5.02	2.42	7.25	6	.0
June-------	90.9	67.6	79.3	99	55	879	4.46	1.74	7.09	7	.0
July-------	92.0	70.4	81.2	98	63	967	6.78	4.30	9.02	11	.0
August-----	91.3	69.9	80.6	97	59	949	5.38	2.78	7.65	9	.0
September--	87.9	66.4	77.2	96	51	816	5.20	2.07	7.83	7	.0
October----	80.6	54.6	67.6	92	33	546	2.97	0.69	4.80	3	.0
November---	70.9	46.2	58.6	85	24	274	4.14	1.80	6.13	5	.0
December---	64.9	41.5	53.2	81	18	168	6.05	3.21	8.53	8	.0
Yearly:											
Average--	78.7	55.3	67.0	---	---	---	---	---	---	---	---
Extreme--	---	---	---	100	14	---	---	---	---	---	---
Total----	---	---	---	---	---	6,558	61.00	50.27	71.14	82	.3

* 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

[Data recorded in the period 1951-79 at Covington, Louisiana]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 3	March 22	April 6
2 years in 10 later than--	February 21	March 12	March 28
5 years in 10 later than--	February 1	February 21	March 11
First freezing temperature in fall:			
1 year in 10 earlier than--	November 18	November 6	October 26
2 years in 10 earlier than--	November 29	November 13	November 1
5 years in 10 earlier than--	December 19	November 26	November 11

TABLE 3.--GROWING SEASON

[Data recorded in the period 1951-79 at Covington, Louisiana]

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	283	247	214
8 years in 10	295	257	224
5 years in 10	317	277	244
2 years in 10	342	297	265
1 year in 10	361	308	275

TABLE 4.--SUITABILITY AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR MAJOR LAND USES

General soil map unit	Percent of area	Cultivated crops	Pastureland	Woodland	Urban uses	Intensive recreation areas
Savannah-Ruston	15.0	Moderately well suited: low fertility, slope.	Well suited	Well suited	Moderately well suited: wetness, moderate and moderately slow permeability.	Moderately well suited: slope, wetness, moderate and moderately slow permeability.
Guyton-Abita-Brimstone	9.0	Moderately well suited: wetness, low fertility, excess sodium salts in subsoil.	Moderately well suited: wetness, low fertility.	Well suited	Poorly suited: flooding, wetness, slow permeability, low strength for roads.	Poorly suited: wetness, flooding.
Myatt-Stough-Prentiss	41.5	Moderately well suited: wetness, low fertility.	Well suited	Well suited	Poorly suited: wetness, flooding, moderately slow permeability.	Moderately well suited: wetness, flooding, moderately slow permeability.
Cahaba-Prentiss-Latonia	5.0	Moderately well suited: low fertility, droughtiness.	Well suited	Well suited	Moderately well suited: wetness, moderately slow permeability, seepage, cutbanks cave, droughtiness, slope.	Moderately well suited: wetness, moderately slow permeability, slope, droughtiness.
Arkabutla-Rosebloom	10.0	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness.	Moderately well suited: flooding, wetness, moderate seedling mortality, equipment use limitations.	Not suited: flooding, wetness.	Not suited: flooding, wetness.
Ouachita-Bibb	5.0	Poorly suited: flooding, wetness.	Poorly suited: flooding, wetness.	Moderately well suited: flooding, wetness, moderate seedling mortality, equipment use limitations.	Not suited: flooding, wetness.	Not suited: flooding, wetness.

TABLE 4.--SUITABILITY AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR MAJOR LAND USES--Continued

General soil map unit	Percent of area	Cultivated crops	Pastureland	Woodland	Urban uses	Intensive recreation areas
Larose-Allemands-Kenner	4.0	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength, subsidence potential.	Not suited: flooding, ponding, low strength.
Arat	4.0	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength, subsidence potential.	Not suited: flooding, ponding, low strength.
Clovelly-Lafitte	4.0	Not suited: flooding, ponding, low strength, salinity.	Not suited: flooding, ponding, low strength, salinity.	Not suited: flooding, ponding, low strength, salinity.	Not suited: flooding, ponding, low strength, subsidence potential.	Not suited: flooding, ponding, low strength.
Barbary-Maurepas	0.5	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength, subsidence potential.	Not suited: flooding, ponding, low strength.
Aquents-Allemands-Harahan	2.0	Poorly suited: wetness, poor tilth.	Moderately well suited: wetness.	Moderately well suited: equipment use limitations, seedling mortality.	Poorly suited: flooding, wetness, slow and very slow permeability, shrink-swell potential, subsidence potential, low strength for roads.	Poorly suited: flooding, wetness, slow and very slow permeability.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Aa	Abita silt loam, 0 to 2 percent slopes	15,642	2.2
Ab	Abita silt loam, 2 to 5 percent slopes	1,295	0.2
AC	Allemands muck	4,025	0.6
Ad	Allemands muck, drained	2,970	0.4
Aq	Aquents, dredged	4,698	0.7
AR	Arat silty clay loam	23,795	3.3
AT	Arkabutla and Rosebloom soils, frequently flooded	58,324	8.1
BE	Barbary mucky clay	1,445	0.2
Bg	Brimstone-Guyton silt loams	8,935	1.2
Ca	Cahaba fine sandy loam, 1 to 3 percent slopes	11,060	1.5
CV	Clovelly muck	14,645	2.0
Dp	Dumps	90	*
Gt	Guyton silt loam	16,253	2.3
Gy	Guyton silt loam, occasionally flooded	11,244	1.6
Ha	Harahan clay	1,640	0.2
KE	Kenner muck	2,925	0.4
LF	Lafitte muck	9,822	1.4
LR	Larose muck	14,160	2.0
Lt	Latonia fine sandy loam	7,616	1.1
MA	Maurepas muck	1,220	0.2
Md	Maurepas muck, drained	470	*
Mt	Myatt fine sandy loam	63,209	8.8
My	Myatt fine sandy loam, frequently flooded	34,932	4.8
OB	Ouachita and Bibb soils, frequently flooded	31,265	4.3
Pq	Pits	1,205	0.2
Pr	Prentiss fine sandy loam, 0 to 1 percent slopes	36,923	5.1
Pt	Prentiss fine sandy loam, 1 to 3 percent slopes	3,238	0.4
Rs	Ruston fine sandy loam, 1 to 3 percent slopes	1,187	0.1
Rt	Ruston fine sandy loam, 3 to 6 percent slopes	5,110	0.7
Sa	Savannah fine sandy loam, 1 to 3 percent slopes	52,884	7.3
Sh	Savannah fine sandy loam, 3 to 6 percent slopes	25,883	3.6
Sm	Smithdale fine sandy loam, 8 to 12 percent slopes	1,944	0.3
St	Stough fine sandy loam	92,695	12.8
	Water	159,081	22.0
	Total	721,830	100.0

* Less than 0.1 percent.

TABLE 6.--LAND CAPABILITY CLASSES AND 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 generally is not grown on the soil]

Map symbol and soil name	Land capability	Soybeans	Common bermudagrass	Improved bermudagrass	Bahiagrass
		Bu	AUM*	AUM*	AUM*
Aa----------------------- Abita	IIw	30	5.0	10.5	6.5
Ab----------------------- Abita	IIe	25	5.0	10.5	6.5
AC----------------------- Allemands	VIIw	---	---	---	---
Ad----------------------- Allemands	IVw	---	9.0	---	---
Aq. Aquents					
AR----------------------- Arat	VIIIw	---	---	---	---
AT----------------------- Arkabutla and Rosebloom	Vw	---	5.0	---	---
BB----------------------- Barbary	VIIw	---	---	---	---
Bq----------------------- Brimstone-Guyton	IIIw	20	6.0	---	7.0
Ca----------------------- Cahaba	IIe	30	6.0	13.0	9.0
CV----------------------- Clovelly	VIIw	---	---	---	---
Dp. Dumps					
Gt----------------------- Guyton	IIIw	20	5.5	---	7.5
Gy----------------------- Guyton	IVw	---	5.0	---	7.0
Ha----------------------- Harahan	IIIw	---	10.0	---	---
KE----------------------- Kenner	VIIIw	---	---	---	---
LF----------------------- Lafitte	VIIIw	---	---	---	---
LR----------------------- Larose	VIIw	---	---	---	---
Lt----------------------- Latonia	IIs	25	6.0	9.5	8.5

See footnote at end of table.

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Soybeans	Common bermudagrass	Improved bermudagrass	Bahiagrass
		Bu	AUM*	AUM*	AUM*
MA------------------------ Maurepas	VIIIw	---	---	---	---
Md------------------------ Maurepas	IVw	20	11.0	---	7.5
Mt------------------------ Myatt	IVw	---	5.5	---	---
My------------------------ Myatt	Vw	---	5.0	---	---
OB------------------------ Ouachita and Bibb	Vw	---	5.0	---	---
Pg. Pits					
Pr------------------------ Prentiss	IIw	30	6.0	10.0	9.0
Pt------------------------ Prentiss	IIe	30	6.0	10.0	9.0
Rs------------------------ Ruston	IIe	30	5.5	12.0	9.5
Rt------------------------ Ruston	IIIe	25	5.5	12.0	9.5
Sa------------------------ Savannah	IIe	30	5.5	11.0	9.0
Sh------------------------ Savannah	IIIe	25	5.5	11.0	9.0
Sm------------------------ Smithdale	IVe	---	5.0	9.0	8.0
St------------------------ Stough	IIw	25	6.0	11.0	9.0

* 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.

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)
		Acres	Acres	Acres
I	---	---	---	---
II	222,540	69,664	145,260	7,616
III	57,821	30,993	26,828	---
IV	79,837	1,944	77,893	---
V	124,521	---	124,521	---
VI	---	---	---	---
VII	34,275	---	34,275	---
VIII	37,762	---	37,762	---

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]

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Aa, Ab------------- Abita	11W	Slight	Moderate	Slight	Loblolly pine--------	100	11	Loblolly pine, slash pine, longleaf pine.
					Slash pine-----------	95	12	
					Longleaf pine--------	---	--	
					Sweetgum------------	---	--	
					Southern red oak-----	---	--	
					Water oak------------	---	--	
AR----------------- Arat	5W	Slight	Severe	Severe	Water tupelo---------	50	5	Baldcypress.
					Baldcypress----------	50	3	
AT:								
Arkabutla---------	12W	Slight	Moderate	Severe	Cherrybark oak-------	105	12	Eastern cottonwood, green ash, loblolly pine, sweetgum, American sycamore.
					Eastern cottonwood---	110	11	
					Green ash------------	95	4	
					Loblolly pine--------	100	11	
					Nuttall oak----------	110	--	
					Sweetgum------------	100	10	
					Water oak------------	100	7	
Rosebloom---------	9W	Slight	Moderate	Severe	Eastern cottonwood---	100	9	Green ash, eastern cottonwood, loblolly pine, sweetgum.
					Green ash------------	95	--	
					Cherrybark oak-------	95	9	
					Nuttall oak----------	95	--	
					Water oak------------	95	6	
					Willow oak-----------	90	6	
					Sweetgum------------	95	8	
					American sycamore----	80	5	
BB----------------- Barbary	6W	Slight	Severe	Severe	Water tupelo---------	60	6	Baldcypress.
					Baldcypress----------	---	--	
					Black willow---------	---	--	
Bq:								
Brimstone---------	11T	Slight	Moderate	Moderate	Slash pine-----------	85	11	Slash pine, loblolly pine.
					Loblolly pine--------	80	8	
Guyton------------	9W	Slight	Severe	Moderate	Loblolly pine--------	90	9	Loblolly pine, sweetgum.
					Slash pine-----------	90	11	
					Sweetgum------------	---	--	
					Green ash------------	---	--	
					Southern red oak-----	---	--	
					Water oak------------	---	--	
Ca----------------- Cahaba	9A	Slight	Slight	Slight	Loblolly pine--------	87	9	Loblolly pine, slash pine, sweetgum, water oak.
					Slash pine-----------	91	12	
					Shortleaf pine-------	70	8	
					Yellow poplar--------	---	--	
					Sweetgum------------	90	7	
					Southern red oak-----	---	--	
					Water oak------------	---	--	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Gt----------------- Guyton	9W	Slight	Severe	Moderate	Loblolly pine--------	90	9	Loblolly pine, sweetgum.
					Slash pine-----------	90	11	
					Sweetgum-------------	---	--	
					Green ash------------	---	--	
					Southern red oak-----	---	--	
					Water oak------------	---	--	
Gy----------------- Guyton	9W	Slight	Severe	Severe	Loblolly pine--------	90	9	Loblolly pine, sweetgum.
					Slash pine-----------	90	11	
					Sweetgum-------------	---	--	
					Green ash------------	---	--	
					Water oak------------	---	--	
Lt----------------- Latonia	9A	Slight	Slight	Slight	Loblolly pine--------	90	9	Loblolly pine, slash pine.
					Longleaf pine--------	70	6	
					Slash pine-----------	90	11	
Mt, My------------- Myatt	9W	Slight	Severe	Severe	Loblolly pine--------	88	9	Loblolly pine, slash pine, sweetgum.
					Slash pine-----------	92	12	
					Sweetgum-------------	92	8	
					Water oak------------	86	--	
					Southern red oak-----	---	--	
					White oak------------	---	--	
					American sycamore----	---	--	
					Blackgum-------------	---	--	
					Shumard oak----------	---	--	
OB:								
Ouachita----------	9W	Slight	Moderate	Severe	Loblolly pine--------	100	9	Loblolly pine, sweetgum, yellow poplar, American sycamore, eastern cottonwood.
					Sweetgum-------------	100	10	
					Eastern cottonwood---	100	9	
Bibb--------------	9W	Slight	Moderate	Severe	Loblolly pine--------	90	9	Eastern cottonwood, loblolly pine, sweetgum, yellow poplar.
					Sweetgum-------------	90	7	
					Water oak------------	90	6	
					Blackgum-------------	---	--	
Pr, Pt------------- Prentiss	9A	Slight	Slight	Slight	Loblolly pine--------	88	9	Loblolly pine, slash pine.
					Shortleaf pine-------	79	9	
					Sweetgum-------------	90	7	
					Cherrybark oak-------	90	8	
					White oak------------	80	4	
Rs, Rt------------- Ruston	9A	Slight	Slight	Slight	Loblolly pine--------	91	9	Loblolly pine, slash pine, longleaf pine.
					Slash pine-----------	91	12	
					Longleaf pine--------	76	6	
Sa, Sh------------- Savannah	9A	Slight	Slight	Slight	Loblolly pine--------	88	9	Loblolly pine, slash pine, sweetgum, American sycamore, yellow poplar.
					Longleaf pine--------	78	7	
					Slash pine-----------	88	11	
					Sweetgum-------------	85	6	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordi-nation symbol	Management concerns			Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Common trees	Site index	Produc-tivity class*	
Sm----------------- Smithdale	9A	Slight	Slight	Slight	Loblolly pine-------- Longleaf pine-------- Slash pine-----------	86 69 85	9 5 11	Loblolly pine, longleaf pine, slash pine.
St----------------- Stough	9W	Slight	Moderate	Slight	Loblolly pine-------- Cherrybark oak------- Slash pine----------- Sweetgum------------- Water oak------------	90 85 86 85 80	9 4 11 6 5	Loblolly pine, slash pine, sweetgum.

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

TABLE 9.--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]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Aa: Abita	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Ab: Abita	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
AC: Allemands	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: flooding, excess humus, ponding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
Ad: Allemands	Severe: flooding, wetness, percs slowly.	Severe: wetness, excess humus.	Severe: excess humus, wetness.	Severe: wetness, excess humus.	Severe: wetness.
Aq. Aquents					
AR: Arat	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
AT:					
Arkabutla	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding, wetness.
Rosebloom	Severe: flooding, wetness.	Moderate: flooding, wetness, percs slowly.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
BB: Barbary	Severe: flooding, ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Bg:					
Brimstone	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Guyton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ca: Cahaba	Slight	Slight	Moderate: slope.	Slight	Slight.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CV----------------- Clovelly	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: flooding, excess humus, ponding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
Dp. Dumps					
Gt, Gy------------- Guyton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ha----------------- Harahan	Severe: flooding, wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: too clayey.	Severe: too clayey.
KE----------------- Kenner	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
LF----------------- Lafitte	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus, wetness.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.
LR----------------- Larose	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
Lt----------------- Latonia	Slight------------	Slight------------	Slight------------	Slight------------	Moderate: droughty.
MA----------------- Maurepas	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: ponding, flooding, excess humus.
Md----------------- Maurepas	Severe: flooding, excess humus, wetness.	Severe: excess humus.	Severe: excess humus, wetness.	Severe: excess humus.	Severe: excess humus.
Mt----------------- Myatt	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
My----------------- Myatt	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
OB: Ouachita-----------	Severe: flooding.	Moderate: flooding, percs slowly.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Bibb---------------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Pq. Pits					
Pr-------------------- Prentiss	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight----------	Moderate: droughty.
Pt-------------------- Prentiss	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight----------	Moderate: droughty.
Rs, Rt---------------- Ruston	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
Sa, Sh---------------- Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
Sm-------------------- Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
St-------------------- Stough	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	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
Aa----------------- Abita	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Ab----------------- Abita	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AC----------------- Allemands	Very poor.	Very poor.	Very poor.	Very poor.	---	---	Good	Poor	Very poor.	Very poor.	Good.
Ad----------------- Allemands	Poor	Fair	Fair	---	---	Fair	Good	Fair	Fair	Fair	Good.
Aq. Aquents											
AR----------------- Arat	Very poor.	Very poor.	Very poor.	Very poor.	---	Very poor.	Good	Fair	Very poor.	Very poor.	Good.
AT: Arkabutla----------	Poor	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Rosebloom----------	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
BB----------------- Barbary	Very poor.	Very poor.	Very poor.	Very poor.	---	---	Good	Fair	Very poor.	Very poor.	Good.
Bg: Brimstone----------	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Guyton-------------	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Ca----------------- Cahaba	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CV----------------- Clovelly	Very poor.	Very poor.	Very poor.	Very poor.	---	---	Good	Poor	Very poor.	Very poor.	Good.
Dp. Dumps											
Gt----------------- Guyton	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Gy----------------- Guyton	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Ha----------------- Harahan	Fair	Fair	Fair	---	---	Fair	Good	Good	Fair	Fair	Good.
KE----------------- Kenner	Very poor.	Very poor.	Very poor.	---	---	---	Good	Very poor.	Very poor.	---	Good.
LF----------------- Lafitte	Very poor.	Very poor.	Very poor.	---	---	---	Good	Very poor.	Very poor.	---	Good.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	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
LR----------------- Larose	Very poor.	Very poor.	Very poor.	Very poor.	---	---	Good	Fair	Very poor.	Very poor.	Good.
Lt----------------- Latonia	Good	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MA----------------- Maurepas	Very poor.	Very poor.	Very poor.	Very poor.	---	Very poor.	Good	Very poor.	Very poor.	Very poor.	Fair.
Md----------------- Maurepas	Poor	Fair	Fair	Fair	---	Fair	Fair	Very poor.	Poor	Fair	Fair.
Mt, My------------- Myatt	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
OB:											
Ouachita----------	Poor	Fair	Fair	Good	Fair	Fair	Good	Fair	Fair	Good	Fair.
Bibb--------------	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Pg. Pits											
Pr, Pt------------- Prentiss	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Rs----------------- Ruston	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Rt----------------- Ruston	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Sa----------------- Savannah	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Sh----------------- Savannah	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Sm----------------- Smithdale	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
St----------------- Stough	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

TABLE 11.--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. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Aa, Ab------------ Abita	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
AC---------------- Allemands	Severe: excess humus, ponding.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, excess humus.
Ad---------------- Allemands	Severe: excess humus, wetness.	Severe: flooding, subsides, wetness.	Severe: flooding, subsides, wetness.	Severe: wetness, subsides.	Severe: wetness.
Ag. Aquents					
AR---------------- Arat	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding.
AT:					
Arkabutla--------	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding, wetness.
Rosebloom--------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: wetness, flooding.
BB---------------- Barbary	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
Bg:					
Brimstone--------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, low strength.	Severe: wetness.
Guyton-----------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.
Ca---------------- Cahaba	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight-----------	Slight.
CV---------------- Clovelly	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding, excess humus.
Dp. Dumps					

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Gt: Guyton	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.
Gy: Guyton	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
Ha: Harahan	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
KE: Kenner	Severe: excess humus, ponding.	Severe: flooding, low strength, ponding.	Severe: flooding, low strength, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding, excess humus.
LF: Lafitte	Severe: excess humus, ponding.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: subsides, ponding, flooding.	Severe: excess humus, ponding, flooding.
LR: Larose	Severe: excess humus, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: flooding, ponding, excess humus.
Lt: Latonia	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: droughty.
MA: Maurepas	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding.	Severe: ponding, flooding, excess humus.
Md: Maurepas	Severe: excess humus, wetness.	Severe: flooding, low strength, subsides.	Severe: flooding, low strength, subsides.	Severe: subsides.	Severe: excess humus.
Mt: Myatt	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
My: Myatt	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
OB: Ouachita	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
OB: Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Pg. Pits					

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Pr, Pt: Prentiss	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
Rs: Ruston	Slight	Slight	Slight	Moderate: low strength.	Slight.
Rt: Ruston	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
Sa: Savannah	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Sh: Savannah	Severe: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness, droughty.
Sm: Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
St: Stough	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Aa: Abita	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: wetness, too clayey.
Ab: Abita	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: wetness, too clayey.
AC: Allemands	Severe: flooding, ponding, percs slowly.	Severe: flooding, seepage, excess humus.	Severe: flooding, ponding, excess humus.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
Ad: Allemands	Severe: percs slowly, wetness.	Severe: seepage, excess humus.	Severe: excess humus, wetness.	Severe: seepage, wetness.	Poor: excess humus, wetness.
Ag. Aquents					
AR: Arat	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
AT:					
Arkabutla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
Rosebloom	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
BB: Barbary	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Bg:					
Brimstone	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Guyton	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ca: Cahaba	Slight	Severe: seepage.	Severe: seepage.	Slight	Fair: thin layer.
CV: Clovelly	Severe: flooding, ponding, percs slowly.	Severe: flooding, seepage, excess humus.	Severe: ponding, flooding, excess humus.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Dp. Dumps					
Gt----------------- Guyton	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Gy----------------- Guyton	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Ha----------------- Harahan	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
KE----------------- Kenner	Severe: flooding, percs slowly.	Severe: flooding, seepage, excess humus.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
LF----------------- Lafitte	Severe: flooding, ponding, subsides.	Severe: seepage, flooding, excess humus.	Severe: flooding, ponding, seepage.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
LR----------------- Larose	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding, excess humus.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, ponding, hard to pack.
Lt----------------- Latonia	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
MA----------------- Maurepas	Severe: flooding, ponding, poor filter.	Severe: seepage, flooding, excess humus.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.
Md----------------- Maurepas	Severe: poor filter, subsides, wetness.	Severe: seepage, excess humus, wetness.	Severe: seepage, wetness, excess humus.	Severe: seepage, wetness.	Poor: excess humus, wetness.
Mt----------------- Myatt	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
My----------------- Myatt	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
OB: Ouachita-----------	Severe: flooding, percs slowly.	Severe: flooding.	Severe: flooding, seepage.	Severe: flooding.	Fair: too clayey.
Bibb---------------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Pg. Pits					
Pr, Pt. Prentiss	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
Rs, Rt. Ruston	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Sa, Sh. Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Sm. Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
St. Stough	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Aa, Ab: Abita	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
AC: Allemands	Poor: wetness.	Probable: excess humus.	Probable: excess humus.	Poor: excess humus, wetness.
Ad: Allemands	Poor: thin layer, wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
Aq. Aquents				
AR: Arat	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
AT:				
Arkabutla	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Rosebloom	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BB: Barbary	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Bg:				
Brimstone	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ca: Cahaba	Good	Probable	Improbable: too sandy.	Good.
CV: Clovelly	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
Dp. Dumps				
Gt, Gy: Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ha: Harahan	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
KE-------------------- Kenner	Poor: wetness, excess humus.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
LF-------------------- Lafitte	Poor: excess humus, wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
LR-------------------- Larose	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
Lt-------------------- Latonia	Good-----------------	Probable-------------	Improbable: too sandy.	Fair: thin layer.
MA-------------------- Maurepas	Poor: wetness, excess humus.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
Md-------------------- Maurepas	Poor: low strength, excess humus.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus.
Mt, My---------------- Myatt	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
OB:				
Ouachita-------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Bibb-----------------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Pg. Pits				
Pr, Pt---------------- Prentiss	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Rs, Rt---------------- Ruston	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Sa, Sh---------------- Savannah	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Sm-------------------- Smithdale	Good-----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
St-------------------- Stough	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.

TABLE 14.--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. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Aa: Abita	Slight	Moderate: wetness, piping.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
Ab: Abita	Moderate: slope.	Moderate: wetness, piping.	Slope, percs slowly.	Slope, wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
AC: Allemands	Severe: seepage.	Severe: excess humus, ponding.	Flooding, percs slowly, ponding.	Flooding, ponding, percs slowly.	Ponding	Wetness, percs slowly.
Ad: Allemands	Severe: seepage.	Severe: excess humus, wetness.	Percs slowly, subsides.	Percs slowly, wetness.	Wetness	Wetness, percs slowly.
Aq. Aquents						
AR: Arat	Slight	Severe: ponding, piping.	Ponding, flooding, percs slowly.	Ponding, flooding, percs slowly.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
AT:						
Arkabutla	Moderate: seepage.	Severe: wetness.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
Rosebloom	Slight	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
BB: Barbary	Slight	Severe: excess humus, hard to pack, ponding.	Ponding, percs slowly, flooding.	Ponding, percs slowly, flooding.	Ponding, percs slowly.	Wetness, percs slowly.
Bg:						
Brimstone	Slight	Severe: wetness.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly, erodes easily.
Guyton	Moderate: seepage.	Severe: piping, wetness.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Ca: Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Favorable	Favorable	Favorable.
CV: Clovelly	Severe: seepage.	Severe: ponding, excess humus.	Flooding, percs slowly, subsides.	Flooding, ponding, percs slowly.	Ponding	Wetness, percs slowly, excess salt.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Dp. Dumps						
Gt Guyton	Moderate: seepage.	Severe: piping, wetness.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Gy Guyton	Moderate: seepage.	Severe: piping, wetness.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Ha Harahan	Slight	Severe: excess humus, hard to pack, wetness.	Percs slowly, subsides.	Wetness, slow intake, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
KE Kenner	Severe: seepage.	Severe: excess humus, ponding.	Ponding, percs slowly, flooding.	Flooding, ponding, percs slowly.	Ponding	Wetness, percs slowly.
LF Lafitte	Severe: seepage.	Severe: excess humus, ponding.	Ponding, flooding, subsides.	Ponding, flooding, excess salt.	Ponding	Wetness, excess salt.
LR Larose	Slight	Severe: excess humus, hard to pack, ponding.	Ponding, percs slowly, flooding.	Ponding, percs slowly, flooding.	Ponding, percs slowly.	Wetness, percs slowly.
Lt Latonia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty	Too sandy	Droughty.
MA Maurepas	Severe: seepage.	Severe: excess humus, ponding.	Ponding, flooding, subsides.	Ponding, flooding.	Ponding	Wetness.
Md Maurepas	Severe: seepage.	Severe: excess humus, wetness.	Subsides	Wetness	Wetness	Wetness.
Mt Myatt	Moderate: seepage.	Severe: piping, wetness.	Poor outlets	Wetness	Wetness	Wetness.
My Myatt	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
OB: Ouachita	Slight	Severe: piping.	Deep to water	Erodes easily, flooding.	Erodes easily	Percs slowly.
Bibb	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Pq. Pits						
Pr, Pt: Prentiss	Moderate: seepage.	Severe: piping.	Favorable	Wetness, droughty, rooting depth.	Wetness, rooting depth.	Droughty, rooting depth.
Rs: Ruston	Moderate: seepage.	Severe: thin layer.	Deep to water	Favorable	Favorable	Favorable.
Rt: Ruston	Moderate: seepage, slope.	Severe: thin layer.	Deep to water	Slope	Favorable	Favorable.
Sa: Savannah	Moderate: seepage.	Severe: piping.	Favorable	Wetness, droughty, rooting depth.	Wetness, rooting depth.	Rooting depth.
Sh: Savannah	Moderate: seepage.	Severe: piping.	Slope	Wetness, rooting depth, slope.	Wetness, rooting depth.	Rooting depth.
Sm: Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
St: Stough	Slight	Moderate: piping, wetness.	Favorable	Wetness, droughty.	Erodes easily, wetness.	Wetness, erodes easily, droughty.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated. Some soils may have Unified classifications and USDA textures in addition to those shown. In general, the dominant classifications and textures are shown]

Map symbol and soil name	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	
Aa--------------- Abita	0-4	Silt loam--------	ML, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-7
	4-23	Silt loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	20-40	4-20
	23-48	Silt loam, loam, silty clay loam.	CL, CH	A-6, A-7-6	0	100	100	95-100	80-95	35-55	20-35
	48-62	Silt loam, silty clay loam, loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	30-50	15-30
Ab--------------- Abita	0-5	Silt loam--------	ML, CL-ML	A-4	0	100	100	90-100	70-90	<30	NP-7
	5-29	Silt loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	20-40	4-20
	29-45	Clay loam, loam, silty clay loam.	CL, CH	A-6, A-7-6	0	100	100	95-100	80-95	35-55	20-35
	45-60	Clay loam, silty clay loam, loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	30-50	15-30
AC--------------- Allemands	0-48	Muck-------------	PT	A-8	0	---	---	---	---	---	---
	48-58	Clay, mucky clay	MH, OH, CH	A-7-5	0	100	100	95-100	80-100	65-90	30-50
	58-75	Clay, silty clay loam.	CH, CL, ML, MH	A-7-6, A-6, A-5	0	100	100	85-95	75-95	30-75	6-45
Ad--------------- Allemands	0-38	Muck-------------	PT	A-8	0	---	---	---	---	---	---
	38-74	Clay, silty clay loam.	CH, CL, ML, MH	A-7-6, A-6, A-5	0	100	100	85-100	75-95	30-75	6-45
Aq. Aquents											
AR--------------- Arat	0-10	Silty clay loam	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	75-95	<40	NP-22
	10-70	Silty clay loam, silt loam, mucky silty clay loam.	CL, CL-ML	A-6, A-4, A-7-6	0	100	100	90-100	80-95	22-45	6-25
AT: Arkabutla--------	0-4	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-95	25-35	7-15
	4-65	Silty clay loam, loam, silt loam.	CL	A-6, A-7	0	100	100	85-100	70-90	30-45	12-25
Rosebloom--------	0-65	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	100	90-100	80-95	28-40	9-20
BB--------------- Barbary	0-4	Mucky clay-------	OH, MH, CH	A-8, A-7-5	0	100	100	100	95-100	70-90	35-45
	4-65	Mucky clay, clay	OH, MH	A-7-5, A-8	0	100	100	100	95-100	70-90	35-45

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
Bg:											
Brimstone-------	0-5	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-90	15-38	6-17
	5-33	Silt loam, silty clay loam, very fine sandy loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	26-48	11-33
	33-66	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	26-48	11-33
Guyton----------	0-28	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	28-36	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	36-66	Silt loam, silty clay loam, clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	50-95	<40	NP-18
Ca--------------- Cahaba	0-7	Fine sandy loam	SM	A-4, A-2-4	0	95-100	95-100	65-90	30-45	---	NP
	7-34	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	8-15
	34-65	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-85	10-35	---	NP
CV--------------- Clovelly	0-49	Muck-------------	PT	A-8	0	---	---	---	---	---	---
	49-72	Clay, silty clay, mucky clay.	CH, CL, MH, ML	A-7-6, A-7-5	0	100	100	95-100	85-95	47-87	25-45
Dp. Dumps											
Gt--------------- Guyton	0-22	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	22-50	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	50-64	Silt loam, silty clay loam, sandy clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	50-95	<40	NP-18
Gy--------------- Guyton	0-27	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	27-48	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	48-64	Silt loam, silty clay loam, clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	50-95	<40	NP-18
Ha--------------- Harahan	0-6	Clay-------------	OH, MH, CH	A-7-5, A-8, A-7-6	0	100	100	100	95-100	60-90	35-50
	6-21	Clay, silty clay	CH, MH	A-7-6, A-7-5	0	100	100	100	95-100	60-90	35-50
	21-60	Clay, silty clay, mucky clay.	OH, MH, CH	A-7-5, A-8, A-7-6	0	100	100	100	95-100	60-90	35-50

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
KE------- Kenner	0-14	Muck-------	PT	A-8	0	---	---	---	---	---	---
	14-16	Clay, silty clay, mucky clay.	MH, OH	A-7-5	0	100	100	100	95-100	70-100	30-55
	16-45	Muck-------	PT	A-8	0	---	---	---	---	---	---
	45-46	Clay, silty clay, mucky clay.	MH, OH, CH	A-7-5	0	100	100	100	95-100	70-100	30-55
	46-75	Muck-------	PT	A-8	0	---	---	---	---	---	---
LF------- Lafitte	0-84	Muck-------	PT	A-8	0	---	---	---	---	---	---
	84-95	Variable-------	---	---	---	---	---	---	---	---	---
LR------- Larose	0-2	Muck-------	PT	A-8	0	---	---	---	---	---	---
	2-64	Clay, silty clay, mucky clay.	CH	A-7-5	0	100	100	100	90-100	60-87	30-52
Lt------- Latonia	0-4	Fine sandy loam	SM	A-2-4, A-4	0	90-100	85-100	60-75	30-50	---	NP
	4-26	Sandy loam, loam, fine sandy loam.	SM	A-2-4, A-4	0	90-100	85-100	60-85	30-50	---	NP
	26-62	Sand, loamy sand	SM, SP-SM	A-2-4	0	90-100	85-100	50-75	10-30	---	NP
MA------- Maurepas	0-75	Muck-------	PT	A-8	0	---	---	---	---	---	---
Md------- Maurepas	0-70	Muck-------	PT	A-8	0	---	---	---	---	---	---
Mt------- Myatt	0-16	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	95-100	95-100	60-90	30-70	<25	NP-5
	16-50	Loam, sandy clay loam, clay loam.	SM, SC, ML, CL	A-4	0	95-100	95-100	80-100	40-80	<30	NP-10
	50-64	Sandy clay loam, clay loam.	SM-SC, SC, CL-ML, CL	A-6, A-4, A-2	0	75-100	60-90	60-80	30-70	16-40	5-20
My------- Myatt	0-14	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	95-100	95-100	60-90	30-70	<25	NP-5
	14-58	Loam, sandy clay loam, clay loam.	SM, SC, ML, CL	A-4	0	95-100	95-100	80-100	40-80	<30	NP-10
	58-68	Sandy clay loam, clay loam.	SM-SC, SC, CL-ML, CL	A-6, A-4, A-2	0	75-100	60-90	60-80	30-70	16-40	5-20
OB:											
Ouachita-------	0-9	Silt loam-------	ML, CL, CL-ML	A-4, A-6	0	100	100	85-100	75-95	<30	NP-12
	9-60	Silt loam, loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	100	100	85-100	80-100	25-40	5-20
Bibb-------	0-5	Loam-------	ML, CL-ML	A-4	0-5	95-100	90-100	80-90	50-80	<25	NP-7
	5-60	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
Pq. Pits											

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
Pr---------------- Prentiss	0-25	Fine sandy loam	SC, SM-SC, SM	A-4	0	100	100	65-85	36-50	<30	NP-10
	25-62	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	0	100	100	70-100	40-75	20-35	4-12
Pt---------------- Prentiss	0-22	Fine sandy loam	SC, SM-SC, SM	A-4	0	100	100	65-85	36-50	<30	NP-10
	22-63	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	0	100	100	70-100	40-75	20-35	4-12
Rs---------------- Ruston	0-11	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	11-28	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	28-33	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<27	NP-7
	33-74	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
Rt---------------- Ruston	0-17	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	17-38	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	38-44	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<27	NP-7
	44-64	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
Sa---------------- Savannah	0-10	Fine sandy loam	SM, ML	A-2-4, A-4	0	98-100	90-100	60-100	30-65	<25	NP-4
	10-29	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	0	98-100	90-100	80-100	40-80	23-40	7-19
	29-62	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	0	94-100	90-100	60-100	30-80	23-43	7-19
Sh---------------- Savannah	0-7	Fine sandy loam	SM, ML	A-2-4, A-4	0	98-100	90-100	60-100	30-65	<25	NP-4
	7-23	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	0	98-100	90-100	80-100	40-80	23-40	7-19
	23-60	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	0	94-100	90-100	60-100	30-80	23-43	7-19
Sm---------------- Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	10-45	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	45-62	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10
St---------------- Stough	0-24	Fine sandy loam	SM-SC, SM, ML, CL-ML	A-4	0	100	100	65-85	35-65	<25	NP-7
	24-37	Loam, fine sandy loam.	ML, CL, CL-ML	A-4	0	100	100	75-95	50-75	<25	NP-8
	37-60	Sandy loam, sandy clay loam, loam.	SC, CL	A-4, A-6	0	100	100	65-90	40-65	25-40	8-15

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH	Mmhos/cm				Pct
Aa----------------- Abita	0-4	2-12	1.35-1.65	0.6-2.0	0.16-0.23	3.6-7.3	<2	Low----------	0.49	5	.5-2
	4-23	12-32	1.35-1.65	0.2-0.6	0.19-0.21	4.5-7.3	<2	Low----------	0.43		
	23-48	20-45	1.35-1.75	0.06-0.2	0.15-0.18	4.5-6.5	<2	Moderate----	0.37		
	48-62	20-40	1.35-1.75	0.06-0.2	0.15-0.18	5.1-7.8	<2	Moderate----	0.37		
Ab----------------- Abita	0-5	2-12	1.35-1.65	0.6-2.0	0.16-0.23	3.6-7.3	<2	Low----------	0.49	5	.5-2
	5-29	12-32	1.35-1.65	0.2-0.6	0.19-0.21	4.5-7.3	<2	Low----------	0.43		
	29-45	20-45	1.35-1.75	0.06-0.2	0.15-0.18	4.5-6.5	<2	Moderate----	0.37		
	45-60	20-40	1.35-1.75	0.06-0.2	0.15-0.18	5.1-7.8	<2	Moderate----	0.37		
AC----------------- Allemands	0-48	---	0.05-0.25	>2.0	0.20-0.50	5.1-7.8	<4	Low----------	----	---	---
	48-58	---	0.05-0.25	>2.0	0.20-0.50	6.1-8.4	<4	Low----------	----		
	58-75	60-95	0.15-1.00	<0.06	0.14-0.18	6.1-8.4	<4	Low----------	0.32		
Ad----------------- Allemands	0-38	---	0.05-0.25	>2.0	0.20-0.50	3.6-7.8	<4	Low----------	----	---	30-85
	38-57	---	0.05-0.25	>2.0	0.20-0.50	3.6-7.8	<4	Low----------	----		
	57-74	60-95	0.15-1.00	<0.06	0.14-0.18	3.6-8.4	<4	Low----------	0.32		
Aq. Aquents											
AR----------------- Arat	0-10	27-35	0.25-1.00	0.6-2.0	0.18-0.23	5.1-7.3	<2	Low----------	0.43	---	---
	10-70	14-35	0.25-1.00	0.06-0.2	0.18-0.20	5.6-7.8	<2	Low----------	0.37		
AT:											
Arkabutla--------	0-4	5-25	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	<2	Low----------	0.43	5	1-3
	4-65	20-35	1.45-1.55	0.6-2.0	0.18-0.21	4.5-6.0	<2	Low----------	0.32		
Rosebloom--------	0-65	18-25	1.40-1.55	0.6-2.0	0.20-0.22	5.1-6.0	<2	Low----------	0.43	5	1-3
BB----------------- Barbary	0-4	45-90	0.25-1.00	2.0-6.0	0.20-0.50	6.6-7.8	<2	Low----------	----	---	---
	4-65	60-95	0.25-1.00	<0.06	0.18-0.20	6.6-8.4	<2	Low----------	0.32		
Bg:											
Brimstone--------	0-5	5-14	1.35-1.65	0.6-2.0	0.13-0.20	5.1-7.8	<2	Low----------	0.49	3	.5-2
	5-33	17-32	1.35-1.70	0.06-0.2	0.10-0.16	5.6-8.4	<2	Moderate----	0.43		
	33-66	20-35	1.35-1.70	0.06-0.2	0.10-0.16	6.6-8.4	<2	Moderate----	0.43		
Guyton-----------	0-28	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	<2	Low----------	0.43	5	<2
	28-36	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	<2	Low----------	0.37		
	36-66	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	<2	Low----------	0.37		
Ca----------------- Cahaba	0-7	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	<2	Low----------	0.24	5	.5-2
	7-34	18-35	1.35-1.60	0.6-2.0	0.12-0.20	4.5-6.0	<2	Low----------	0.28		
	34-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	<2	Low----------	0.24		
CV----------------- Clovelly	0-49	---	0.05-0.25	>2.0	0.10-0.45	6.6-8.4	4-8	Low----------	----	---	30-60
	49-72	50-90	0.15-1.00	<0.06	0.11-0.18	7.4-8.4	4-8	Low----------	0.28		
Dp. Dumps											
Gt----------------- Guyton	0-22	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	<2	Low----------	0.43	5	<2
	22-50	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	<2	Low----------	0.37		
	50-64	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	<2	Low----------	0.37		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH	Mmhos/cm				Pct
Gy---------------- Guyton	0-27	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	<2	Low----------	0.43	5	<2
	27-48	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	<2	Low----------	0.37		
	48-64	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	<2	Low----------	0.37		
Ha---------------- Harahan	0-6	50-95	0.50-1.50	<0.06	0.11-0.30	5.1-7.3	<2	Very high----	0.37	5	2-25
	6-21	60-95	1.20-1.50	<0.06	0.11-0.20	5.1-7.3	<2	Very high----	0.37		
	21-60	60-95	0.25-1.00	<0.06	0.11-0.30	6.6-8.4	<2	Very high----	0.37		
KE---------------- Kenner	0-14	---	0.05-0.25	>2.0	0.20-0.50	5.6-7.8	<4	Low----------	----	---	---
	14-16	45-85	0.15-1.00	<0.06	0.12-0.18	5.6-7.8	<4	Low----------	0.32		
	16-45	---	0.05-0.50	>6.0	0.20-0.50	5.6-7.8	<4	Low----------	----		
	45-46	45-85	0.15-1.00	<0.06	0.12-0.18	5.6-7.8	<4	Low----------	0.32		
	46-75	---	0.05-0.50	>6.0	0.20-0.50	5.6-7.8	<4	Low----------	----		
LF---------------- Lafitte	0-84	---	0.05-0.25	2.0-6.0	0.18-0.45	6.1-8.4	4-8	Low----------	----	---	---
	84-95	---	---	---	---	---	---	-------------	----		
LR---------------- Larose	0-2	---	0.05-0.25	>2.0	0.20-0.50	5.6-7.8	<4	Low----------	----	---	---
	2-64	50-80	0.15-1.00	<0.06	0.14-0.18	6.1-8.4	<4	Low----------	0.28		
Lt---------------- Latonia	0-4	10-20	1.40-1.50	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low----------	0.20	4	.5-2
	4-26	10-16	1.40-1.50	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low----------	0.20		
	26-62	3-10	1.40-1.50	6.0-20	0.05-0.10	4.5-5.5	<2	Very low-----	0.17		
MA---------------- Maurepas	0-75	---	0.05-0.25	>2.0	0.20-0.50	5.6-8.4	<4	Low----------	----	---	---
Md---------------- Maurepas	0-70	---	0.05-0.25	>2.0	0.20-0.50	3.6-8.4	<4	Low----------	----	---	---
Mt---------------- Myatt	0-16	7-20	1.30-1.60	0.6-2.0	0.11-0.20	4.5-6.0	<2	Low----------	0.28	5	.5-4
	16-50	18-35	1.30-1.50	0.2-2.0	0.12-0.20	3.6-5.5	<2	Low----------	0.28		
	50-64	7-30	1.30-1.50	0.2-2.0	0.10-0.20	3.6-5.5	<2	Low----------	0.24		
My---------------- Myatt	0-14	7-20	1.30-1.60	0.6-2.0	0.11-0.20	4.5-6.0	<2	Low----------	0.28	5	.5-4
	14-58	18-35	1.30-1.50	0.2-2.0	0.12-0.20	3.6-5.5	<2	Low----------	0.28		
	58-68	7-30	1.30-1.50	0.2-2.0	0.10-0.20	3.6-5.5	<2	Low----------	0.24		
OB:											
Ouachita---------	0-9	8-25	1.25-1.60	0.6-2.0	0.15-0.24	4.5-5.5	<2	Low----------	0.37	5	1-2
	9-60	18-35	1.25-1.60	0.2-0.6	0.15-0.24	4.5-5.5	<2	Low----------	0.32		
Bibb-------------	0-5	2-18	1.20-1.55	0.6-2.0	0.15-0.20	4.5-5.5	<2	Low----------	0.28	5	.5-2
	5-60	2-18	1.30-1.60	0.6-2.0	0.12-0.20	4.5-5.5	<2	Low----------	0.37		
Pq. Pits											
Pr---------------- Prentiss	0-25	5-18	1.50-1.60	0.6-2.0	0.12-0.16	4.5-5.5	<2	Low----------	0.28	3	1-3
	25-62	10-20	1.65-1.75	0.2-0.6	0.06-0.09	4.5-5.5	<2	Low----------	0.24		
Pt---------------- Prentiss	0-22	5-18	1.50-1.60	0.6-2.0	0.12-0.16	4.5-5.5	<2	Low----------	0.28	3	1-3
	22-63	10-20	1.65-1.75	0.2-0.6	0.06-0.09	4.5-5.5	<2	Low----------	0.24		
Rs---------------- Ruston	0-11	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.0	<2	Low----------	0.28	5	.5-2
	11-28	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	<2	Low----------	0.28		
	28-33	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	<2	Low----------	0.32		
	33-74	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	<2	Low----------	0.28		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH	Mmhos/cm				Pct
Rt---------------- Ruston	0-17	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.0	<2	Low----------	0.28	5	.5-2
	17-38	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	<2	Low----------	0.28		
	38-44	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	<2	Low----------	0.32		
	44-64	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	<2	Low----------	0.28		
Sa---------------- Savannah	0-10	3-16	1.45-1.65	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low----------	0.24	3	.5-3
	10-29	18-32	1.55-1.75	0.6-2.0	0.13-0.20	3.6-5.5	<2	Low----------	0.28		
	29-62	18-32	1.60-1.80	0.2-0.6	0.05-0.10	3.6-5.5	<2	Low----------	0.24		
Sh---------------- Savannah	0-7	3-16	1.45-1.65	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low----------	0.24	3	.5-3
	7-23	18-32	1.55-1.75	0.6-2.0	0.13-0.20	3.6-5.5	<2	Low----------	0.28		
	23-60	18-32	1.60-1.80	0.2-0.6	0.05-0.10	3.6-5.5	<2	Low----------	0.24		
Sm---------------- Smithdale	0-10	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	<2	Low----------	0.28	5	.5-2
	10-45	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	<2	Low----------	0.24		
	45-62	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	<2	Low----------	0.28		
St---------------- Stough	0-24	5-15	1.40-1.55	0.6-2.0	0.12-0.18	4.5-5.5	<2	Low----------	0.37	3	---
	24-37	8-18	1.45-1.60	0.2-0.6	0.07-0.11	4.5-5.5	<2	Low----------	0.37		
	37-60	5-27	1.55-1.65	0.2-0.6	0.07-0.11	4.5-5.5	<2	Low----------	0.37		

TABLE 17.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro- logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
Aa, Ab------- Abita	C	None-------	---	---	1.0-3.0	Apparent	Dec-Apr	---	---	High-----	Moderate.
AC----------- Allemands	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	8-25	16-51	High-----	Moderate.
Ad----------- Allemands	D	Rare-------	---	---	0.5-4.0	Apparent	Jan-Dec	8-25	16-51	High-----	High.
Aq. Aquents											
AR----------- Arat	D	Frequent---	Very long.	Jan-Dec	+3-0.5	Apparent	Jan-Dec	2-6	6-15	High-----	Moderate.
AT:											
Arkabutla-----	C	Frequent---	Brief to very long.	Jan-Apr	1.0-1.5	Apparent	Jan-Apr	---	---	High-----	Moderate.
Rosebloom-----	D	Frequent---	Brief to very long.	Jan-Mar	0-1.0	Apparent	Jan-Mar	---	---	High-----	Moderate.
BB----------- Barbary	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	3-12	6-15	High-----	Moderate.
Bg:											
Brimstone-----	D	Rare-------	---	---	0-1.5	Perched	Dec-Apr	---	---	High-----	Low.
Guyton--------	D	Rare-------	---	---	0-1.5	Perched	Dec-May	---	---	High-----	High.
Ca----------- Cahaba	B	None-------	---	---	>6.0	---	---	---	---	Moderate	Moderate.
CV----------- Clovelly	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	8-20	16-51	High-----	Moderate.
Dp. Dumps											
Gt----------- Guyton	D	Rare-------	---	---	0-1.5	Perched	Dec-May	---	---	High-----	High.
Gy----------- Guyton	D	Occasional	Very brief to long.	Jan-Dec	0-1.5	Perched	Dec-May	---	---	High-----	High.
Ha----------- Harahan	D	Rare-------	---	---	1.0-3.0	Apparent	Jan-Dec	2-5	4-10	High-----	Moderate.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Dura-tion	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
KE------------- Kenner	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	15-30	>51	High-----	Moderate.
LF------------- Lafitte	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	15-30	>51	High-----	Moderate.
LR------------- Larose	D	Frequent---	Very long.	Jan-Dec	+2-0.5	Apparent	Jan-Dec	2-8	5-15	High-----	Moderate.
Lt------------- Latonia	B	None--------	---	---	>6.0	---	---	---	---	Low------	Moderate.
MA------------- Maurepas	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	15-30	>51	High-----	Moderate.
Md------------- Maurepas	D	Rare--------	---	---	1.0-3.0	Apparent	Jan-Dec	15-30	>51	High-----	High.
Mt------------- Myatt	D	Rare--------	---	---	0-1.0	Apparent	Nov-Apr	---	---	High-----	High.
My------------- Myatt	D	Frequent---	Brief	Nov-Mar	0-1.0	Apparent	Nov-Apr	---	---	High-----	High.
OB:											
Ouachita------	C	Frequent---	Brief	Dec-May	>6.0	---	---	---	---	Moderate	Moderate.
Bibb----------	C	Frequent---	Brief	Dec-May	0.5-1.5	Apparent	Dec-Apr	---	---	High-----	High.
Pg. Pits											
Pr, Pt--------- Prentiss	C	None--------	---	---	2.0-2.5	Perched	Jan-Mar	---	---	Moderate	High.
Rs, Rt--------- Ruston	B	None--------	---	---	>6.0	---	---	---	---	Moderate	Moderate.
Sa, Sh--------- Savannah	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	---	---	Moderate	High.
Sm------------- Smithdale	B	None--------	---	---	>6.0	---	---	---	---	Low------	Moderate.
St------------- Stough	C	None--------	---	---	1.0-1.5	Perched	Jan-Apr	---	---	Moderate	High.

TABLE 18.--FERTILITY TEST DATA ON SELECTED SOILS

[Analyses by the Soil Fertility Laboratory, Louisiana Agricultural Experiment Station. The symbol < means less than. Absence of a figure means data are unavailable]

Soil name and sample number	Depth	Horizon	pH 1:1 H_2O	Organic matter content	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity (aluminum)	Effective cation-exchange capacity (sodium)
	In			Pct	Ppm	Meq/100g								Pct	Pct	Pct
Allemands muck: 1/ (S83LA-103-2)	0-12	Oa1	---	67.31	5	18.0	37.2	1.6	50.0	0.2	0.2	42.6	148.7	71.4	0.2	33.6
	12-30	Oa2	---	60.53	5	17.7	37.4	1.6	58.5	0.2	0.1	45.4	160.9	71.8	0.2	36.4
	30-48	Oa3	---	71.73	5	10.8	33.8	1.3	47.0	0.1	0.4	48.2	148.0	67.4	0.1	31.8
	48-58	Abg	---	4.83	5	6.4	12.3	0.8	8.6	0.5	0.3	23.0	55.5	58.6	1.5	15.5
	58-75	Cg	---	2.36	5	10.5	6.9	0.4	3.8	0.3	0.1	7.6	25.1	69.7	1.7	15.1
Allemands muck, drained: 2/ (S83LA-103-4)	0-18	Oa1	---	31.30	<5	5.9	8.8	0.3	4.4	0.1	0.1	5.9	25.3	76.7	0.5	17.4
	18-38	Oa2	---	72.00	5	19.2	24.0	0.4	22.8	1.8	0.7	43.7	40.1	60.3	2.6	20.7
	38-57	Abg	4.1	12.53	70	6.2	8.7	0.5	3.8	1.6	1.0	24.4	43.6	44.0	7.3	8.7
	57-74	Cg	5.1	0.41	5	11.5	10.8	0.4	5.4	0.5	0.1	6.7	34.8	80.7	1.7	15.5
Arat silty clay loam: 1/ (S83LA-103-13)	0-10	A	---	4.83	36	6.5	12.9	0.5	5.5	0.2	0.3	18.5	43.9	57.9	0.8	12.5
	10-45	Cg1	---	5.72	25	10.2	15.2	0.9	9.8	0.0	0.3	19.3	55.4	65.2	0.0	17.7
	45-70	Cg2	---	3.06	15	12.0	10.0	0.4	8.8	0.0	0.2	16.0	47.2	66.1	0.0	18.6
Arkabutla silt loam: 1/ (S83LA-103-8)	0-4	A	---	2.36	18	3.2	1.1	0.2	0.3	3.6	0.4	12.9	17.7	27.1	40.9	1.7
	4-12	Bw	---	0.85	5	2.4	0.6	0.1	0.2	4.6	0.5	10.1	13.4	24.6	54.8	1.5
	12-33	Bg1	---	0.19	5	2.2	0.4	0.1	0.2	5.0	0.0	8.1	11.0	26.4	63.3	1.8
	33-65	Bg2	---	0.06	5	1.6	0.6	0.1	0.3	6.3	0.5	9.5	12.1	21.5	67.0	2.5
Barbary mucky clay: 1/ (S83LA-103-1)	0-4	A1	---	18.29	88	21.1	11.3	0.7	8.9	0.0	0.0	25.0	67.0	62.7	0.0	13.3
	4-14	A2	---	4.79	26	18.1	9.6	0.5	7.1	0.2	0.3	21.3	56.6	62.4	0.6	12.5
	14-35	Cg1	---	1.34	5	11.6	6.9	0.1	3.8	0.2	0.3	9.5	31.9	70.2	0.9	11.9
	35-65	Cg2	---	0.72	5	11.9	6.1	0.1	3.1	0.3	0.1	5.3	26.5	80.0	1.4	11.7
Bibb loam: 1/ (S82LA-103-27)	0-5	A	---	1.91	5	0.4	0.2	0.1	0.1	1.3	0.2	5.0	5.8	13.8	56.5	1.7
	5-10	Ag	---	1.07	5	0.3	0.1	<0.1	0.1	0.8	0.3	4.5	5.0	10.0	50.0	2.0
	10-32	Cg1	---	0.59	5	0.2	0.1	<0.1	0.1	1.7	0.3	3.5	3.9	10.3	70.8	2.6
	32-60	Cg2	---	2.58	5	0.2	0.1	<0.1	0.2	1.4	0.3	5.0	5.5	9.1	63.6	3.6
Cahaba fine sandy loam: 1/ (S82LA-103-26)	0-7	Ap	5.9	0.46	146	1.6	0.3	0.2	0.1	0.0	0.2	0.8	3.0	73.3	0.0	3.3
	7-16	Bt1	6.0	0.28	63	3.6	0.8	0.1	0.2	0.0	0.4	2.5	7.2	65.3	0.0	2.8
	16-34	Bt2	5.6	0.10	5	1.8	0.6	0.1	0.2	1.4	0.6	5.0	7.7	35.1	29.8	2.6
	34-53	BC	5.3	<0.01	5	0.4	0.1	<0.1	0.2	1.3	0.6	2.2	2.9	24.1	50.0	6.9
	53-65	C	5.4	<0.01	5	0.3	0.1	<0.1	0.1	0.4	0.3	1.0	1.5	33.3	33.3	6.7
Clovelly muck: 1/ (S83LA-103-10)	0-12	Oa1	---	48.71	46	8.8	16.2	2.5	42.0	0.0	0.2	16.2	117.3	86.2	0.0	35.8
	12-49	Oa2	---	42.22	38	14.6	30.0	2.5	45.1	0.0	0.4	29.4	147.1	80.0	0.0	30.7
	49-72	Cg	---	0.58	22	11.7	21.7	0.2	2.2	0.6	1.0	2.6	8.5	69.4	0.0	25.9

TABLE 18.--FERTILITY TEST DATA ON SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	pH 1:1 H_2O	Organic matter content	Extractable phosphorus	Exchangeable cations						Total acidity	Cation-exchange capacity (sum)	Base saturation (sum)	Saturation	
						Ca	Mg	K	Na	Al	H				Sum of cation-exchange capacity (aluminum)	Effective cation-exchange capacity (sodium)
	In			Pct	Ppm	Meq/100g								Pct	Pct	Pct
Harahan clay: 1/ (S83LA-103-5)	0-6	A	---	6.50	<5	3.6	5.6	0.3	1.4	3.9	0.2	18.5	26.1	41.8	26.0	5.4
	6-17	Bw1	---	2.05	<5	3.9	7.1	0.2	1.6	2.6	0.8	10.4	23.2	55.2	16.0	6.5
	17-21	Bw2	---	1.27	<5	6.2	8.2	0.3	3.0	1.8	0.4	11.2	28.9	61.2	9.0	10.4
	21-42	Cg1	---	1.27	<5	7.2	9.3	0.3	3.6	1.8	0.7	11.2	31.6	64.6	7.9	11.4
	42-60	Cg2	---	0.88	<5	8.8	9.9	0.3	4.0	0.9	0.3	7.6	30.6	75.2	3.7	13.1
Kenner muck: 1/ (S82LA-103-12)	0-14	Oa	---	57.02	8	26.0	39.4	0.9	33.3	0.2	0.4	35.3	134.9	73.8	0.2	24.7
	14-16	Cg	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	16-45	O'a	---	64.09	6	14.6	30.0	0.4	25.3	0.0	0.3	24.5	95.1	74.2	0.0	26.9
	45-46	C'g	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	46-75	O''a	---	30.27	<5	16.3	26.8	0.5	16.6	0.2	0.3	32.7	92.9	64.8	0.3	17.9
Lafitte muck: 1/ (S83LA-103-3)	0-10	Oa1	---	---	5	10.5	19.0	1.4	25.9	0.2	0.0	18.0	74.8	75.9	0.4	34.6
	10-21	Oa2	---	57.87	5	12.2	21.7	1.2	25.8	0.0	0.1	17.4	78.3	77.8	0.0	33.0
	21-38	Oa3	---	76.41	5	12.1	24.8	1.4	32.2	0.0	0.0	18.2	88.7	79.5	0.0	36.3
	38-54	Oa4	---	64.67	5	14.7	28.3	1.1	35.9	0.0	0.1	29.4	109.4	73.1	0.0	32.8
	54-84	Oa5	---	49.66	5	18.0	33.3	1.1	37.4	0.0	0.3	33.0	122.8	73.1	0.0	30.5
	84-95	Cg	---	11.61	5	10.7	16.3	1.1	12.5	0.0	0.0	10.4	51.0	79.6	0.0	24.5
Larose muck: 1/ (S83LA-103-14)	0-2	Oa	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2-11	A	---	---	37	7.7	14.1	1.3	7.8	1.2	1.1	17.1	48.0	64.4	3.6	16.3
	11-32	Cg1	---	4.79	49	8.0	15.8	1.6	12.4	0.8	2.8	19.0	56.8	66.5	1.9	21.8
	32-64	Cg2	---	4.88	52	7.5	14.9	1.2	11.4	2.6	3.5	19.6	54.6	64.1	6.3	20.9
Latonia fine sandy loam: 1/ (S82LA-103-17)	0-4	A	4.6	3.06	5	0.3	0.1	0.1	0.1	3.1	0.5	13.9	14.5	4.1	73.8	0.7
	4-8	BA	5.0	0.54	5	0.2	0.1	<0.1	0.1	1.9	0.4	4.3	4.7	8.5	70.4	2.1
	8-26	Bt	5.2	0.24	5	0.4	0.1	<0.1	0.2	1.6	0.4	2.4	3.1	22.6	59.3	6.5
	26-40	2C1	5.3	0.07	5	0.4	0.1	<0.1	0.1	1.0	0.0	1.9	2.5	24.0	62.5	4.0
	40-62	2C2	5.4	<0.01	5	0.3	<0.1	<0.1	0.1	0.5	0.1	1.0	1.4	28.6	50.0	7.1
Maurepas muck: 1/ (S83LA-103-6)	0-10	Oa1	---	59.73	9	20.2	26.3	0.4	12.2	0.0	0.2	37.5	96.6	61.2	0.0	12.6
	10-25	Oa2	---	65.85	5	20.4	34.2	0.4	21.3	0.0	0.2	41.7	118.0	64.7	0.0	18.1
	25-42	Oa3	---	90.48	5	18.3	35.8	0.5	31.1	0.0	0.2	41.7	127.4	67.3	0.0	24.4
	42-75	Oa4	---	83.11	5	15.8	25.2	0.6	36.3	0.2	0.3	47.0	124.9	62.4	0.3	29.1
Myatt fine sandy loam: 1/ (S83LA-103-15)	0-6	A	---	3.11	5	1.8	0.3	1.2	0.1	3.2	0.8	9.8	13.2	25.8	43.2	0.8
	6-14	Eg	---	0.85	5	1.2	0.2	0.1	0.2	4.5	1.3	7.3	9.0	18.9	60.0	2.2
	14-28	Btg1	---	0.56	5	0.1	0.1	<0.1	0.5	4.7	0.8	7.3	8.0	8.7	75.8	6.3
	28-40	Btg2	---	0.67	5	0.1	0.1	<0.1	0.5	6.3	1.1	9.3	10.0	7.0	77.8	5.0
	40-58	BCg	---	0.32	5	0.8	0.2	0.1	0.3	8.3	1.6	12.9	14.3	9.8	73.5	2.1
	58-68	Cg	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 18.--FERTILITY TEST DATA ON SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	pH 1:1 H_2O	Organic matter content	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity (aluminum)	Saturation: Effective cation-exchange capacity (sodium)
	In			Pct	Ppm	Meq/100g								Pct	Pct	Pct
Ouachita silt loam: 1/ (S82LA-103-27)	0-9	A	5.2	4.43	8	0.2	0.1	0.1	0.2	2.8	0.4	20.5	21.1	2.8	73.7	0.9
	9-15	Bw1	5.3	0.77	3	0.2	0.1	<0.1	0.1	2.1	0.2	11.0	11.4	3.5	77.8	0.9
	15-27	Bw2	5.3	0.10	5	0.2	0.4	<0.1	0.2	3.3	0.1	5.5	6.3	12.7	78.6	3.2
	27-46	Bw3	5.2	0.06	5	0.2	0.3	<0.1	0.2	3.7	0.1	7.0	7.7	9.1	82.2	2.6
	46-60	Bw4	5.2	<0.01	5	0.2	0.2	<0.1	0.2	3.6	0.0	6.5	7.1	8.5	85.7	2.8
Prentiss fine sandy loam: 1/ (S82LA-103-15)	0-5	A	4.9	2.58	5	0.2	0.1	<0.1	0.1	2.4	0.2	9.7	10.1	4.0	80.0	1.0
	5-17	Bw1	4.9	0.15	5	0.2	<0.1	<0.1	0.2	2.2	0.4	3.9	4.3	9.3	73.3	4.7
	17-25	Bw2	5.0	0.02	5	0.2	<0.1	<0.1	0.2	3.3	0.1	5.3	5.7	7.0	86.8	3.5
	25-48	Btx1	5.1	0.07	5	0.2	<0.1	<0.1	0.2	2.3	0.3	2.9	3.3	12.1	76.7	6.1
	48-62	Btx2	5.3	<0.01	5	0.2	<0.1	<0.1	0.2	1.2	0.3	1.9	2.3	17.4	63.2	8.7
Rosebloom silt loam: 1/ (S83LA-103-9)	0-5	A	---	2.67	17	4.5	1.2	0.3	0.3	2.3	0.9	10.5	16.8	37.5	24.2	1.8
	5-27	Bg1	---	0.63	5	3.8	0.9	0.1	0.2	4.1	0.4	9.2	14.2	35.2	43.2	1.4
	27-39	Bg2	---	0.28	5	3.7	1.0	0.1	0.2	4.7	0.3	9.2	14.2	35.2	47.0	1.4
	39-65	Bg3	---	0.15	5	4.3	1.4	0.1	0.2	5.0	0.4	9.0	15.0	40.0	43.9	1.3
Ruston fine sandy loam: 1/ (S81LA-103-11)	0-5	Ap	---	1.38	108	0.3	<0.1	0.3	0.2	1.2	0.6	3.9	4.7	17.0	46.2	4.3
	5-23	Bt1	5.4	0.10	5	1.5	0.6	0.1	0.2	1.8	0.6	4.8	7.2	33.3	37.5	2.8
	23-33	Bt2	5.4	0.02	5	1.4	0.6	0.1	0.2	1.4	0.3	3.4	5.7	40.0	35.0	3.5
	33-44	B/E	5.4	0.02	5	0.8	0.5	<0.1	0.1	1.4	0.3	2.4	3.8	36.8	45.2	2.6
	44-64	Bt	5.3	0.02	5	0.6	0.7	<0.1	0.3	2.2	0.0	3.4	5.0	32.0	57.9	6.0
Smithdale fine sandy loam: 1/ (S82LA-103-20)	0-4	A	5.1	1.78	5	0.3	0.5	0.2	0.2	1.8	0.5	8.2	9.6	12.5	51.4	2.1
	4-10	E	5.3	0.63	5	0.3	0.6	0.1	0.3	2.4	0.4	6.2	7.5	17.3	58.5	4.0
	10-31	Bt1	5.5	0.06	5	0.2	0.6	<0.1	0.2	2.2	0.5	7.2	8.2	12.2	59.5	2.4
	31-45	Bt2	5.5	0.10	5	0.7	0.3	0.1	0.2	2.7	0.6	6.7	8.0	16.3	58.7	2.5
	45-62	Bt3	5.4	<0.01	5	0.2	0.3	<0.1	0.3	1.9	0.3	4.3	5.1	15.7	63.3	5.9
Stough fine sandy loam: 1/ (S82LA-103-1)	0-5	A	4.8	2.84	5	0.3	0.1	<0.1	0.2	3.1	1.1	12.0	12.6	4.8	64.6	1.6
	5-12	B/E	5.0	0.28	5	0.2	<0.1	<0.1	0.1	1.7	0.4	2.4	2.7	11.1	70.8	3.7
	12-24	Bt1	5.1	0.10	5	0.2	0.1	<0.1	0.2	1.9	0.4	3.4	3.9	12.8	67.9	5.1
	24-37	Bt2	5.2	0.06	5	0.2	0.1	<0.1	0.2	2.0	0.5	3.4	3.9	12.8	66.7	5.1
	37-60	Bt3	5.3	0.02	5	0.3	0.6	<0.1	0.2	4.9	0.7	6.3	7.4	14.9	63.6	2.7

1/ This pedon is the same as the typical pedon for the series. For the description and location of the soil, see the section "Soil Series and Their Morphology."

2/ Pedon location: 2.5 miles west of Madisonville, 0.3 mile north of Lake Pontchartrain, 0.5 mile east of Miltons Island, NW1/4SE1/4 sec. 33, T. 8 S., R. 11 E.

TABLE 19.--PHYSICAL TEST DATA OF SELECTED SOILS

[Analysis by Soil Characterization Laboratory of the Louisiana Agricultural Experiment Station. The symbol < means less than]

Soil name and sample number	Horizon	Depth	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.10-0.05 mm)	Total (2.0-0.05 mm)	Silt (0.25-0.002 mm)	Clay (0.002 mm)	Water content at tension: 1/3 bar	15 bar	Bulk density: Air dry	Field moist	Oven dry
		In	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct (wt)	Pct (wt)	G/cm^3	G/cm^3	G/cm^3
Abita silt loam: 4/ (S81LA-103-3)	Ap	0-4	2.3	0.8	0.5	5.2	21.2	30.0	65.6	4.4	21.9	4.6	1.56	1.54	1.58
	BA	4-15	0.8	0.4	0.4	3.0	17.8	22.4	59.1	18.5	23.3	8.6	1.59	1.53	1.60
	Bt/E	15-23	0.5	0.3	0.2	3.0	17.0	21.0	56.1	22.9	24.7	10.3	1.73	1.57	1.73
	Bt	23-33	0.4	0.3	0.2	3.0	18.0	21.9	51.3	26.8	27.8	11.9	1.71	1.64	1.73
	Btg1	33-48	0.4	0.3	0.3	3.6	20.5	25.1	48.6	26.3	27.7	11.7	1.33	1.64	1.75
Brimstone silt loam: 4/ (S81LA-103-2)	Ap	0-5	0.1	0.2	1.3	4.4	14.6	20.6	72.5	6.9	27.6	4.6	1.52	1.51	1.54
	Eg	5-17	0.2	0.4	1.1	4.3	14.7	20.7	69.9	9.4	23.5	4.8	1.61	1.60	1.64
	E/Bn	17-24	0.2	0.4	1.0	2.7	13.1	17.4	68.8	14.5	25.6	7.2	1.58	1.58	1.60
	Bn/E	24-33	<0.1	0.5	1.3	4.4	14.8	21.0	57.7	22.0	30.1	11.0	1.76	1.65	1.79
	Btng1	33-45	0.1	0.6	0.7	4.1	11.3	16.8	57.7	25.3	32.8	14.2	1.84	1.68	1.86
	Btng2	45-66	0.1	0.3	0.7	4.2	13.6	18.9	60.0	20.6	28.9	11.1	1.86	1.75	1.88
Guyton silt loam: 4/ (S81LA-103-1)	A	0-5	<0.1	<0.1	0.7	5.8	15.3	21.9	66.6	11.5	29.0	6.9	1.42	1.37	1.43
	Eg1	5-20	<0.1	<0.1	0.5	5.6	14.5	20.7	67.0	12.3	27.2	6.7	1.49	1.46	1.49
	Eg2	20-28	<0.1	0.3	0.5	5.2	14.0	20.0	66.8	13.2	27.4	6.8	1.51	1.49	1.52
	B/E	28-36	<0.1	<0.1	<0.1	4.4	12.3	16.8	61.8	21.4	28.7	9.7	1.78	1.62	1.82
	Btg	36-66	<0.1	0.1	0.4	3.9	11.8	16.2	62.1	21.7	28.7	11.4	1.91	1.67	1.91
Guyton silt loam: 1/ (S81LA-103-4)	Ap	0-4	0.1	0.5	1.8	6.6	26.7	35.7	61.4	2.9	24.0	3.6	1.92	1.66	1.95
	Eg1	4-17	<0.1	0.2	1.3	6.7	26.8	35.0	55.8	9.2	17.3	4.0	1.30	1.28	1.30
	Eg2	17-27	<0.1	0.2	1.2	6.0	25.3	32.7	55.2	12.1	20.5	5.2	1.54	1.54	1.54
	B/E	27-34	<0.1	0.1	0.9	5.6	23.5	30.1	48.8	21.1	26.4	9.1	1.60	1.59	1.62
	Btg1	34-48	<0.1	0.1	0.7	4.5	19.7	25.0	45.5	29.5	29.9	12.9	1.68	1.62	1.78
	Btg2	48-64	<0.1	0.1	0.9	6.3	24.9	32.2	44.3	23.5	26.4	11.4	1.76	1.70	1.78
Savannah fine sandy loam: 2/ (S81LA-103-5)	Ap	0-5	1.0	0.9	2.6	19.8	14.4	38.7	52.1	9.2	22.1	5.6	1.90	1.74	1.93
	Bt1	5-24	0.7	0.5	1.5	16.9	11.8	31.4	46.0	22.6	22.2	9.3	1.48	1.44	1.50
	Bt2	24-34	0.5	0.4	1.3	17.8	11.7	31.7	40.8	27.5	24.0	11.7	1.60	1.55	1.62
	Btx1	34-54	0.2	0.6	1.2	20.9	11.1	34.0	33.0	33.0	24.0	14.6	1.54	1.45	1.57
	Btx2	54-62	0.2	1.1	1.4	31.1	9.0	42.8	29.1	28.1	24.5	15.9	1.69	1.65	1.71
Savannah fine sandy loam: 3/ (S81LA-103-9)	Ap	0-6	3.4	4.6	5.0	7.8	7.4	28.2	60.5	11.3	29.7	8.7	1.50	1.48	1.51
	Bt1	6-17	3.3	3.3	3.6	7.0	7.2	24.4	59.0	16.6	23.6	8.0	1.56	1.54	1.57
	Bt2	17-26	3.6	5.3	4.3	6.6	6.6	26.4	54.5	19.1	23.8	9.5	1.59	1.56	1.61
	Bt3	26-37	2.0	5.6	5.0	7.6	7.6	27.8	50.5	21.7	22.9	11.0	1.67	1.62	1.71
	Btx1	37-52	1.6	3.7	3.0	7.3	8.5	24.1	48.9	27.0	25.8	14.3	1.66	1.62	1.71
	Btx2	52-72	2.8	8.4	5.7	6.8	8.2	31.9	33.0	35.1	26.4	15.1	1.68	1.62	1.78

TABLE 19.--PHYSICAL TEST DATA OF SELECTED SOILS--Continued

1/ Pedon location: 1.5 miles east of Mandeville, 0.5 mile south of Highway 190, 0.4 mile north of Highway 1089 in Fontainebleau State Park, 500 feet north of camping area, Spanish Land Grant 37, T. 7 S., R. 11E.

2/ Pedon location: 4 miles northwest of Talisheek, 4 miles southwest of Bush, 3 miles north of Highway 435, 2.5 miles south of Highway 21, 100 feet east of Moneyhill Plantation Road, 20 feet north of section line, SE1/4SE1/4 sec. 36, T. 5 S., R. 12 E.; in an area of Savannah fine sandy loam, 1 to 3 percent slopes. This pedon has mottles in the fragipan layer that have chroma of 3 rather than 2. In addition, the Bt horizon is thicker than allowed for the series.

3/ Pedon location: 3 miles northwest of Waldheim, 2.4 miles east of Lee Road, 0.3 mile north of Pat O'Brien Road, 500 feet west of Highway 1082, 200 feet south of farm road, NE1/4NW1/4 sec. 30, T. 5 S., R. 12 E.; in an area of Savannah fine sandy loam, 1 to 3 percent slopes. This pedon is a taxadjunct to the Savannah series because the sand content in the A and B horizons is slightly lower than allowed in the series range. In addition, the Bt horizon is thicker than allowed.

4/ This pedon is the same as the typical pedon for the series. For the description and location of the soil, see the section "Soil Series and Their Morphology."

TABLE 20.--CHEMICAL TEST DATA ON SELECTED SOILS

[Analysis by Soil Characterization Laboratory of the Louisiana Agricultural Experiment Station. The symbol < means less than]

Soil name and sample number	Horizon	Depth	Exchangeable bases: Calcium	Exchangeable bases: Magnesium	Exchangeable bases: Potassium	Exchangeable bases: Sodium	Extractable acidity	Cation exchange capacity (NH_4OAc)	Base saturation (NH_4OAc)	Organic matter	pH H_2O 1:1	pH KCl 1:1	pH $CaCl_2$ 1:2	Extractable iron	Extractable aluminum	Extractable hydrogen	Bray No. 1 Extractable phosphorus
		In	Meq/100g	Meq/100g	Meq/100g	Meq/100g	Meq/100g	Meq/100g	Pct	Pct				Pct	Meq/100g	Meq/100g	Ppm
Abita silt loam: 4/ (S81LA-103-3)	Ap	0-4	4.7	2.0	0.2	0.1	5.6	15.4	24.1	0.9	7.1	5.9	6.2	0.2	0.0	0.0	14
	BA	4-15	1.2	1.1	0.2	0.1	7.8	11.2	23.3	0.1	6.6	4.0	4.2	0.2	0.0	0.0	<5
	Bt/E	15-23	0.8	1.2	0.2	0.3	9.6	10.6	23.6	<0.1	5.0	3.9	4.1	0.5	8.0	0.7	<5
	Bt	23-33	0.8	1.8	0.2	0.7	9.7	13.4	26.1	<0.1	4.9	3.8	4.1	0.4	10.1	1.5	<5
	Btg1	33-48	1.6	2.8	0.2	1.2	11.9	13.3	43.6	<0.1	5.4	3.8	4.2	0.3	7.2	0.8	<5
Brimstone silt loam: 4/ (S81LA-103-2)	Ap	0-5	4.7	2.0	0.3	0.1	5.8	6.8	104.0	0.9	6.2	5.5	5.7	0.2	0.0	0.0	<5
	Eg	5-17	4.0	2.2	0.4	0.2	4.4	6.5	103.0	0.3	6.9	6.0	6.3	0.2	0.0	0.0	<5
	E/Bn	17-24	4.6	3.5	0.2	0.8	2.1	8.7	105.0	0.2	7.2	5.9	6.4	0.3	0.0	0.0	<5
	Bn/E	24-33	6.0	4.8	0.2	2.4	4.0	13.0	103.0	0.1	7.3	6.0	6.6	0.4	0.0	0.0	<5
	Btng1	33-45	7.0	5.5	0.2	4.2	5.9	22.2	96.1	<0.1	7.1	5.9	6.6	0.5	0.0	0.0	<5
	Btng2	45-66	5.4	4.4	0.2	3.3	5.3	13.1	102.0	<0.1	7.1	5.8	6.5	0.5	0.0	0.0	<5
Guyton silt loam: 4/ (S81LA-103-1)	A	0-5	6.2	0.3	0.1	0.1	4.0	10.5	13.8	1.3	5.9	4.9	4.1	0.1	0.0	0.1	<5
	Eg1	5-20	1.2	0.2	0.1	<0.1	6.2	8.4	19.0	0.7	5.1	4.0	5.1	0.2	4.1	0.5	<5
	Eg2	20-28	1.2	0.6	0.2	0.2	5.2	8.0	27.0	0.6	5.2	3.9	4.2	0.2	3.9	0.2	<5
	B/E	28-36	3.9	3.0	0.3	0.5	5.0	11.1	101.0	0.2	5.3	3.9	4.4	0.4	3.2	0.0	<5
	Btg	36-66	6.8	5.4	0.3	0.7	2.9	13.1	101.0	0.1	6.0	4.6	5.2	0.6	0.0	0.4	<5
Guyton silt loam: 1/ (S81LA-103-4)	Ap	0-4	4.6	0.3	0.2	0.1	7.4	6.8	10.3	1.3	4.6	3.8	3.8	0.1	2.1	0.1	<5
	Eg1	4-17	4.8	0.7	0.1	0.1	3.0	4.9	27.5	0.1	4.8	4.0	4.0	0.2	3.6	0.2	<5
	Eg2	17-27	4.9	1.1	0.1	0.1	4.5	7.4	29.7	0.1	4.9	4.1	4.1	0.2	4.3	0.4	<5
	B/E	27-34	5.0	2.1	0.2	0.7	5.0	10.9	51.4	0.1	5.0	4.1	4.1	0.3	6.1	0.6	<5
	Btg1	34-48	4.8	3.7	0.2	1.2	5.3	16.8	63.5	<0.1	4.8	4.1	4.1	0.4	4.5	0.7	<5
	Btg2	48-64	4.8	3.8	0.2	1.6	3.2	15.4	74.0	<0.1	4.8	4.4	4.4	0.8	1.1	0.6	<5
Savannah fine sandy loam: 2/ (S81LA-103-5)	Ap	0-5	0.6	0.2	0.2	<0.1	6.3	8.4	13.1	1.4	4.9	4.1	4.3	0.2	1.8	0.2	4
	Bt1	5-24	0.3	0.6	0.1	0.1	4.8	5.4	20.4	0.2	5.0	4.1	4.3	0.6	2.9	0.5	4
	Bt2	24-34	0.1	0.4	0.1	0.1	4.9	5.0	14.0	0.1	5.1	4.1	4.3	0.9	3.4	0.2	4
	Btx1	34-54	0.1	0.5	0.1	0.2	5.0	5.2	18.6	<0.1	5.1	4.1	4.3	1.2	3.7	0.0	2
	Btx2	54-62	0.1	0.7	0.1	0.2	4.8	6.1	18.0	<0.1	5.2	4.1	4.3	1.0	3.3	0.2	<1
Savannah fine sandy loam: 3/ (S81LA-103-9)	Ap	0-6	2.4	0.4	0.4	<0.1	7.5	9.8	33.7	2.0	5.2	4.3	4.5	0.5	0.7	0.6	<5
	Bt1	6-17	0.4	0.2	0.2	0.2	4.2	5.4	18.0	0.2	5.1	4.2	4.4	0.3	2.1	0.4	<5
	Bt2	17-26	0.2	0.2	0.2	0.1	5.1	5.7	12.3	0.1	5.1	4.2	4.3	0.6	3.3	0.6	<5
	Bt3	26-37	0.3	0.3	0.1	<0.1	5.0	5.9	13.6	0.1	5.0	4.2	4.3	0.8	2.8	0.8	<5
	Btx1	37-52	0.2	0.5	0.1	0.2	5.5	7.4	13.5	<0.1	5.0	4.1	4.2	1.2	3.1	0.6	<5
	Btx2	52-72	1.0	1.2	0.1	0.1	5.0	9.1	26.4	<0.1	5.2	4.1	4.4	2.2	3.0	0.6	<5

TABLE 20.--CHEMICAL TEST DATA ON SELECTED SOILS--Continued

1/ Pedon location: 1.5 miles east of Mandeville, 0.5 mile south of Highway 190, 0.4 mile north of Highway 1089 in Fontainebleau State Park, 500 feet north of camping area, Spanish Land Grant 37, T. 7 S., R. 11 E.

2/ Pedon location: 4 miles northwest of Talisheek, 4 miles southwest of Bush, 3 miles north of Highway 435, 2.5 miles south of Highway 21, 100 feet east of Moneyhill Plantation Road, 20 feet north of section line, SE1/4SE1/4 sec. 36, T. 5 S., R. 12 E.; in an area of Savannah fine sandy loam, 1 to 3 percent slopes. This pedon has mottles in the fragipan layer that have chroma of 3 rather than 2. In addition, the Bt horizon is thicker than allowed for the series.

3/ Pedon location: 3 miles northwest of Waldheim, 2.4 miles east of Lee Road, 0.3 mile north of Pat O'Brien Road, 500 feet west of Highway 1082, 200 feet south of farm road, NE1/4NW1/4 sec. 30, T. 5 S., R. 12 E.; in an area of Savannah fine sandy loam, 1 to 3 percent slopes. The pedon is a taxadjunct to the Savannah series because the sand content in the A and B horizons is slightly lower than allowed in the series range. In addition, the Bt horizon is thicker than allowed.

4/ This pedon is the same as the typical pedon for the series. For the description and location of the soil, see the section "Soil Series and Their Morphology."

TABLE 21.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Abita	Fine-silty, siliceous, thermic Glossaquic Paleudalfs
Allemands	Clayey, montmorillonitic, euic, thermic Terric Medisaprists
Arat	Fine-silty, siliceous, nonacid, thermic Typic Hydraquents
*Arkabutla	Fine-silty, mixed, acid, thermic Aeric Fluvaquents
Barbary	Very-fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Brimstone	Fine-silty, siliceous, thermic Glossic Natraqualfs
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Clovelly	Clayey, montmorillonitic, euic, thermic Terric Medisaprists
Guyton	Fine-silty, siliceous, thermic Typic Glossaqualfs
Harahan	Very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Kenner	Euic, thermic Fluvaquentic Medisaprists
Lafitte	Euic, thermic Typic Medisaprists
Larose	Very-fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Latonia	Coarse-loamy, siliceous, thermic Typic Hapludults
Maurepas	Euic, thermic Typic Medisaprists
Myatt	Fine-loamy, siliceous, thermic Typic Ochraquults
Ouachita	Fine-silty, siliceous, thermic Fluventic Dystrochrepts
Prentiss	Coarse-loamy, siliceous, thermic Glossic Fragiudults
*Rosebloom	Fine-silty, mixed, acid, thermic Typic Fluvaquents
Ruston	Fine-loamy, siliceous, thermic Typic Paleudults
Savannah	Fine-loamy, siliceous, thermic Typic Fragiudults
Smithdale	Fine-loamy, siliceous, thermic Typic Hapludults
Stough	Coarse-loamy, siliceous, thermic Fragiaquic Paleudults

* The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series.

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