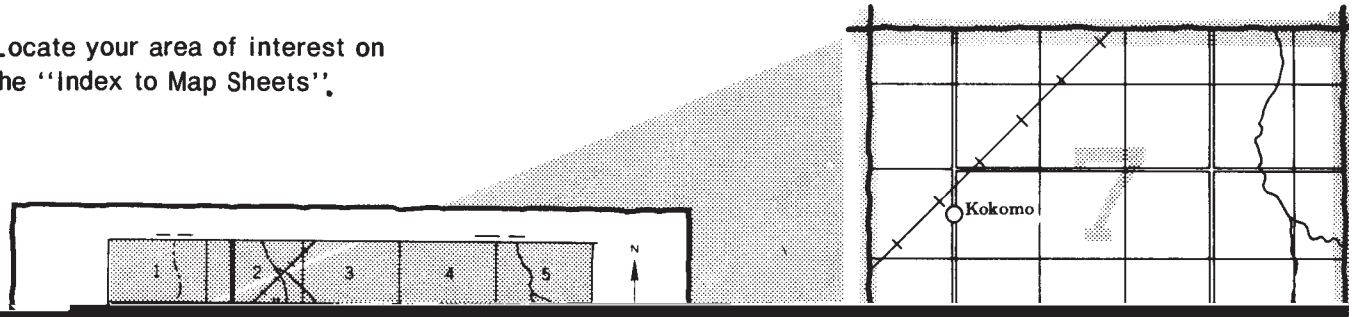
United States Department of Agriculture

Soil Conservation Service

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

Soil Survey of Grant Parish, Louisiana

1. Locate your area of interest on the "Index to Map Sheets".



Turn to ''Index to Soil Map Units''

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. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1980. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1981. This survey was made cooperatively by the Soil Conservation Service, the Forest Service, the Louisiana Agricultural Experiment Station, and the Louisiana Soil and Water Conservation Committee. It is part of the technical assistance furnished to the Grant 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.

Cover: Soybeans growing on Roxana very fine sandy loam.

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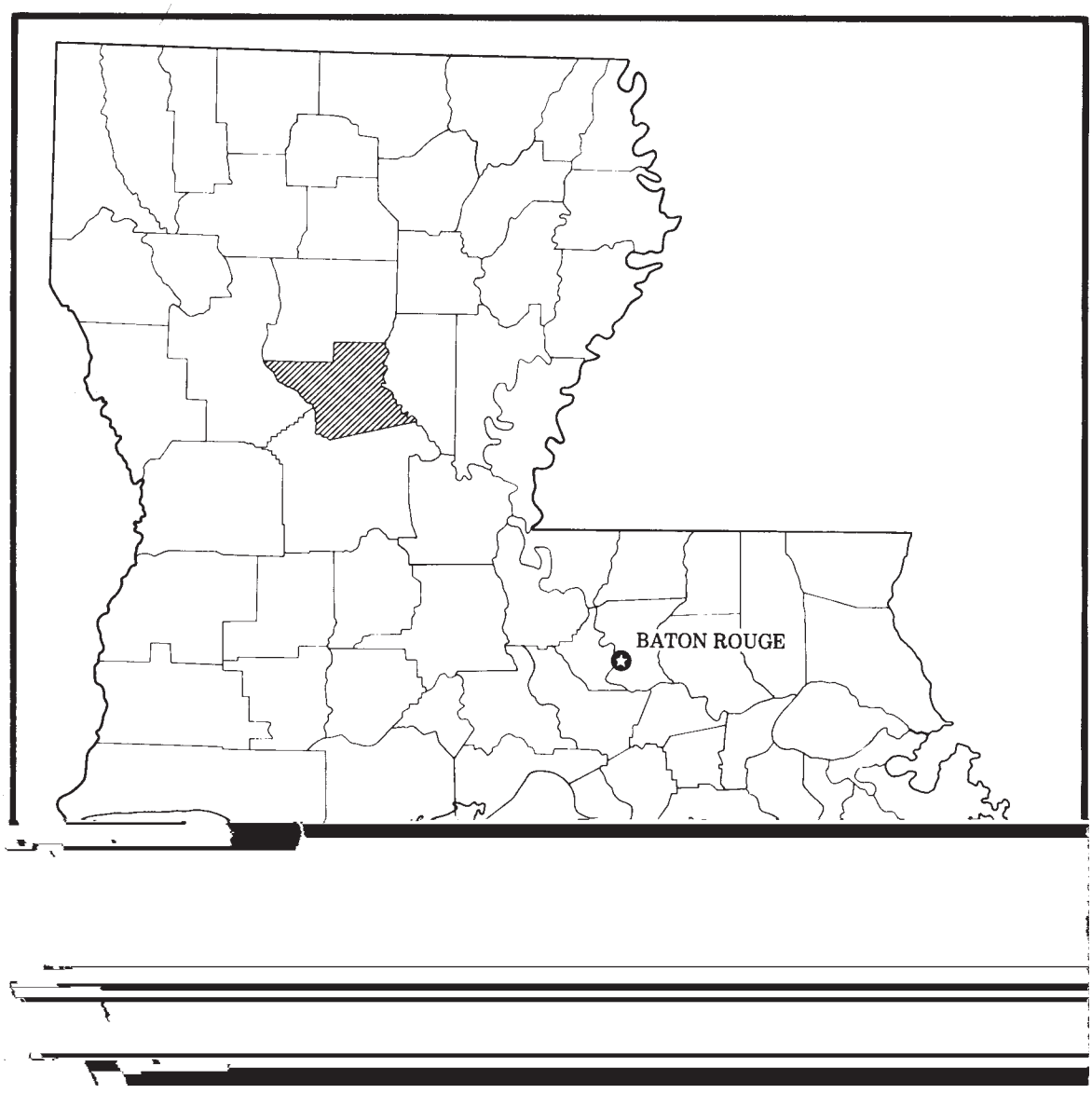
Summary of Tables

Foreword

This soil survey contains information that can be used in land-planning programs in Grant 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 shallow to bedrock. 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


BATON ROUGE

Soil Survey of Grant Parish, Louisiana

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United States Department of Agriculture, Soil Conservation Service,
in cooperation with Forest Service,
the Louisiana Agricultural Experiment Station,
and Louisiana Soil and Water Conservation Committee

GRANT PARISH is in the central part of Louisiana, about 120 miles northwest of Baton Rouge and about 12 miles north of Alexandria. The total area, including 625 acres of small bodies of water, is 417,702 acres. The total area, including 7,232 acres of large bodies of water, is 424,934 acres. The population in 1980 was 16,702. Colfax, the parish seat, has a population of about 1,900. About 80 percent of the population is rural. The parish is mostly in woodland or is used for farming. About 82 percent of the land is woodland, and the rest is mainly cultivated cropland and pastureland. About 139,686 acres of the woodland is within the Kisatchie National Forest. There is no significant trend toward a change in land use.

The parish is made up of two general areas: the forested Terrace Uplands, which are used mainly for commercial woodland production, and the Flood Plains, which are used for both cropland and woodland. The elevation ranges from about 300 feet above sea level on the Terrace Uplands to as low as 40 feet above sea level on the flood plains of the Little River.

Descriptions, names, and delineations of soils in this soil survey do not fully agree with those on soil maps for adjacent parishes. Differences are the result of better information on soils, modifications in series concepts, intensity of mapping, or the extent of soils within the survey.

General Nature of the Survey Area

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

Farming

Most of Grant Parish is forested. The economy depends mainly on the production of timber and the manufacture of timber products. Farming is another important source of income. The oil and gas industries also contribute to the economic growth of the parish.

In 1980 about 82 percent of the parish was woodland, and the rest was mainly cropland and pastureland. The principal crop is soybeans. Small grains, corn, and truck and garden crops are also important.

According to the 1979 annual report of the Louisiana Cooperative Extension Service, gross farm value for forestry products was about 7.4 million dollars; for soybeans, 5.9 million dollars; and for truck crops, 0.25 million dollars. Total livestock production grossed about 3.9 million dollars in 1978. Gross value of pecan production was about 50 thousand dollars.

The acreage of cotton and corn has significantly decreased during the past 15 years. These crops have been replaced mostly by soybeans.

Climate

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

Table 1 gives data on temperature and precipitation for the survey area as recorded at Belah, Louisiana, in the period 1952 to 1977. 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 49 degrees F, and the average daily minimum temperature is 38 degrees. The lowest temperature on record, which occurred at Belah on January 12, 1962, is 6 degrees. In summer the average temperature is 81 degrees, and the average daily maximum temperature is 92 degrees. The highest recorded temperature, which occurred on August 6, 1964, is 106 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 58 inches. Of this, 29 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

Chickasaw Indians and forced to return to the Mississippi River.

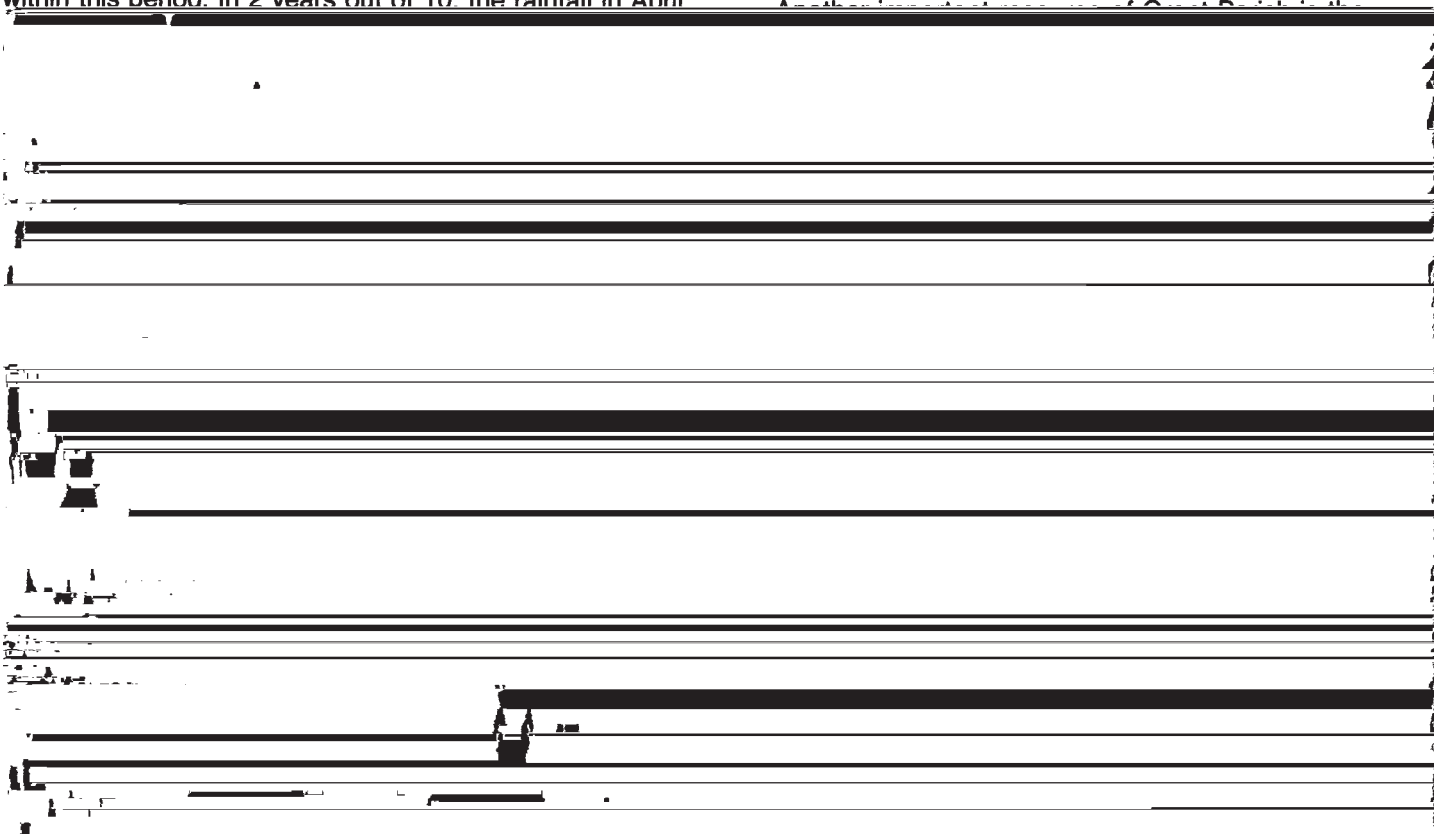
Grant Parish lies on high land above the swamps of southern Louisiana. This area became a route for early explorers and pioneers who looked for land to settle west from Natchez and south from Natchitoches.

Before the advent of white men, this region was inhabited by various tribes of American Indians. The early inhabitants were sedentary farmers who placed only secondary reliance on hunting and fishing. Arrowheads, tomahawks, pottery, and other relics are still found in abundance at sites in many parts of the parish.

From earliest times, farming has been the chief occupation of the people of Grant Parish. The first farmers settled on large plantations along the Red River. Sugarcane and cotton were grown.

The terrace uplands in this area were settled by small independent farmers. The open areas in the forests were excellent pasture, and raising livestock became an early enterprise.

Prospecting for oil began in the northeastern part of the parish in the early 1920's. Over a dozen wildcat tests were made in the area before commercial production became feasible. Because production began at a depth of about 1,500 feet, drilling was not expensive. Salt water content was a problem on the first wells, however, and many wells were abandoned soon after completion.



Nantachie Lake is a manmade lake that is used mainly for recreation. It has a 77-square mile drainage area. This area had a maximum discharge of 9,470 cubic feet per second on April 13, 1974. The drainage area has no flow at times during most years (*34*).

Iatt Lake, also a manmade recreational lake, has a drainage area of 242 square miles. This reservoir is suitable for water supply (*31*).

The Red River also supplies water for part of Grant Parish. The river has a low flow of about 4,400 cubic feet per second. Bacterial pollution is a serious problem within the entire reach of the river. Salmonella was

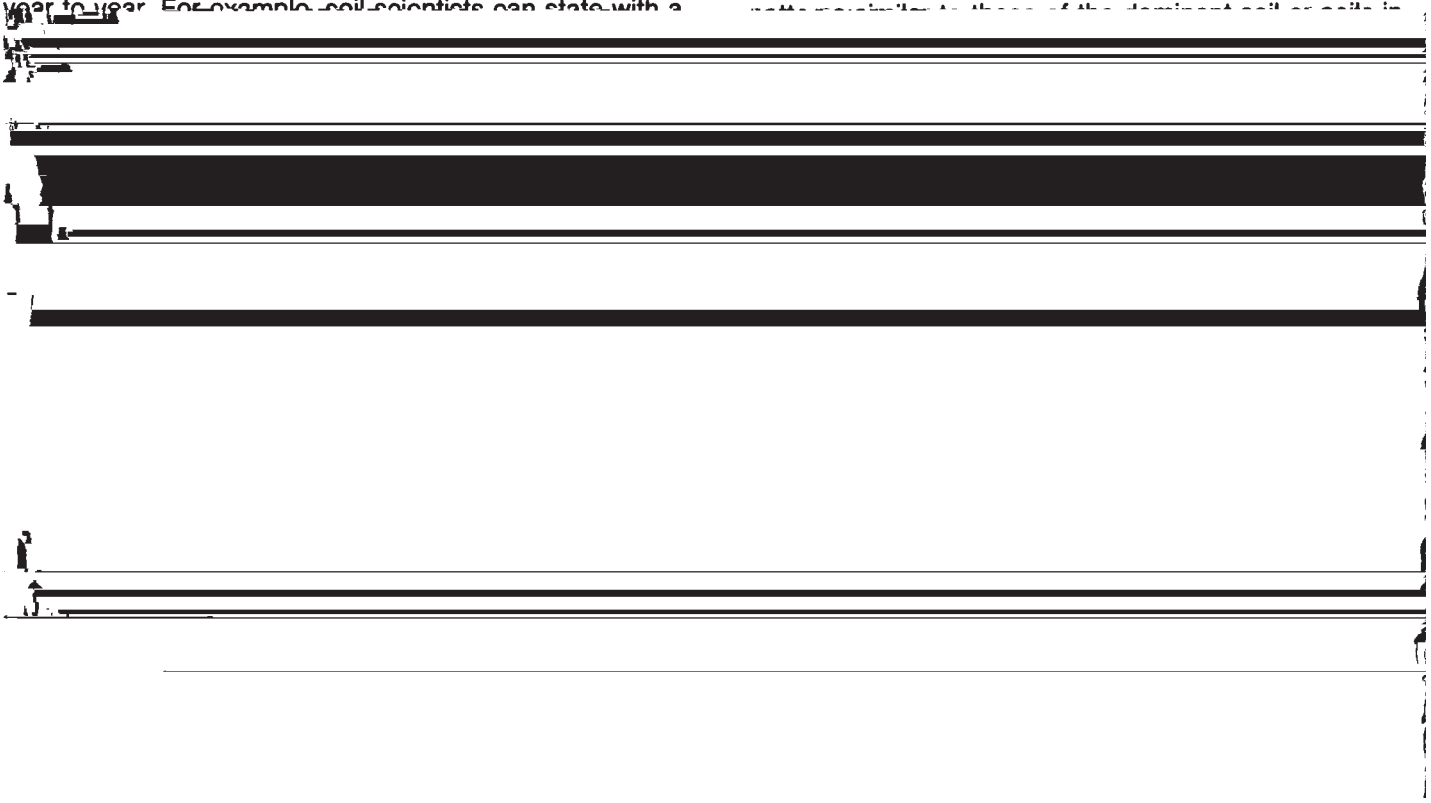
The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey 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.

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

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. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral



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 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 potential of each, in relation to that of the other map units, for major land uses and shows soil properties that limit use. Soil potential ratings are based on the practices commonly used in the survey area to

Areas on Terrace Uplands Dominated by Level to Gently Sloping Soils That Have a Loamy Surface Layer and Subsoil

The two map units in this group consist of moderately well drained and poorly drained, loamy soils.

These map units make up about 23 percent of the parish. Most of the area is in woodland. Areas in pasture and cropland are small and scattered. Wetness is the main limitation of the soils for most uses.

1. Malbis-Glenmora

Gently sloping and very gently sloping, moderately well drained soils

This map unit consists of soils on broad ridgetops and gentle side slopes. Slopes range from 1 to 5 percent.

This unit makes up about 12 percent of the parish. It is about 67 percent Malbis soils, 30 percent Glenmora soils, and 3 percent soils of minor extent.

The gently sloping Malbis soils are on broad ridgetops and side slopes. The very gently sloping Glenmora soils are on broad ridgetops. Malbis soils have a surface layer of fine sandy loam and a subsoil of clay loam and sandy

clay loam. Glenmora soils have a surface layer of silt

This map unit is moderately well suited to most urban uses. Wetness and moderately slow and slow permeability are the main limitations.

2. Caddo-Glenmora-Guyton

Level, poorly drained soils and very gently sloping, moderately well drained soils

This map unit consists of soils on broad flats, in depressional areas, and in drainageways and soils on broad ridgetops and side slopes. Slopes range from 0 to 3 percent.

This unit makes up about 11 percent of the parish. It is about 44 percent Caddo soils, 31 percent Glenmora soils, 20 percent Guyton soils, and 5 percent soils of minor extent.

The poorly drained Caddo soils are on broad flats. They have a surface layer of grayish brown silt loam and a subsoil of light brownish gray and gray silty clay loam. The moderately well drained, very gently sloping Glenmora soils are mainly on broad ridgetops. They have a surface layer of dark grayish brown silt loam and a subsoil of yellowish brown and gray silt loam and silty clay loam. The poorly drained Guyton soils are on broad flats and in depressional areas and drainageways. They have a surface layer of grayish brown silt loam and a subsoil of grayish brown silty clay loam and light brownish gray silt loam.

Of minor extent in this Caddo-Glenmora-Guyton map unit are the moderately well drained Cadeville soils on side slopes.

Most of the acreage of this map unit is in woodland. A small acreage is used for pasture.

This map unit is well suited to woodland. It has high potential for pine trees. Guyton soils also have high potential for hardwood trees. Limited use of equipment and seedling mortality are the main concerns. Flooding is

Areas on Terrace Uplands Dominated by Very Gently Sloping to Hilly Soils That Have a Loamy Surface Layer and a Loamy or Clayey Subsoil

The five map units in this group consist of well drained to somewhat poorly drained soils that have a loamy surface layer and a loamy or clayey subsoil.

These map units make up about 55 percent of the parish. Most of the acreage is in woodland. Areas used for pasture and cropland are small and scattered. Slope and low fertility are the main limitations for most agricultural uses. Moderate to very slow permeability, slope, and moderate to high shrink-swell potential are the main limitations for urban uses.

3. Gore-Kolin

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

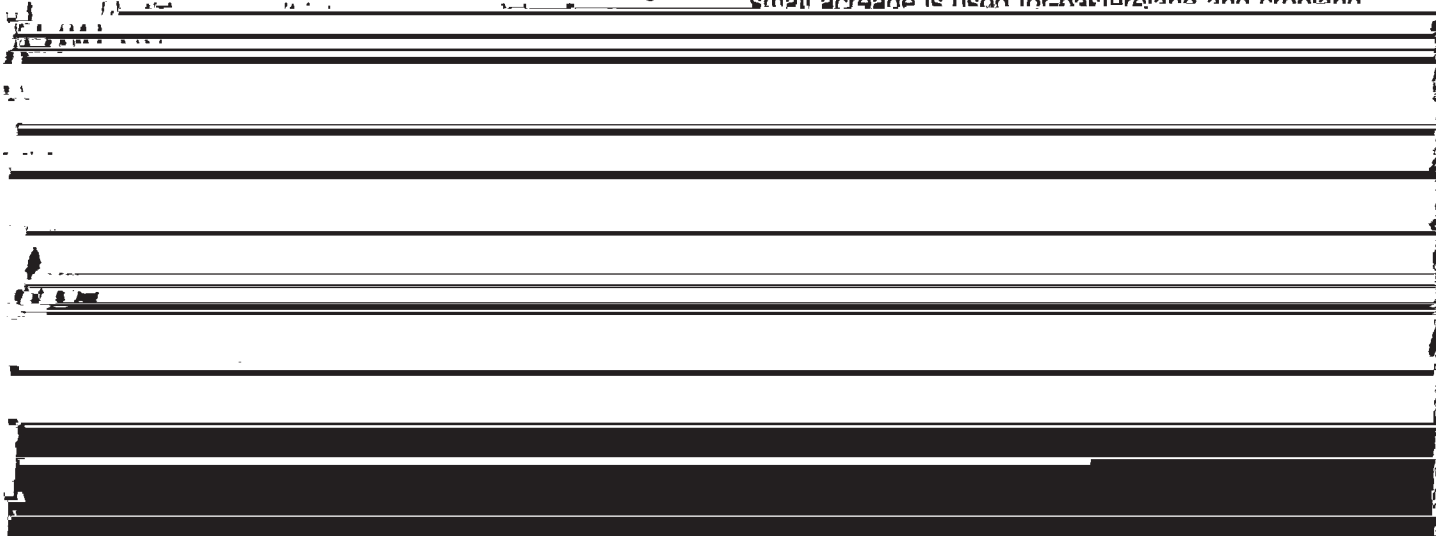
This map unit consists of soils on ridgetops and side slopes in the terrace uplands. Slopes range from 1 to 12 percent.

This unit makes up about 8 percent of the parish. It is about 65 percent Gore soils, 18 percent Kolin soils, and 17 percent soils of minor extent.

The gently sloping to strongly sloping Gore soils are mainly on side slopes along drainageawys. They have a surface layer of silt loam and a subsoil of silty clay loam, silty clay, and clay. The underlying material is clay. The very gently sloping Kolin soils are mainly on broad ridgetops. They have a surface layer of silt loam and a subsoil that is silty clay loam in the upper part and silty clay in the lower part.

Of minor extent in this map unit are the poorly drained Guyton soils in depressional areas on broad ridgetops.

Most of the acreage of this map unit is in woodland. A small acreage is used for pasture and cropland



needed if roads and building foundations are constructed. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with soils that have low shrink-swell potential.

4. Cadeville-Metcalf

Gently sloping to strongly sloping, moderately well drained soils and nearly level, somewhat poorly drained soils that have a loamy surface layer and a loamy or

5. Smithdale-Ruston

Gently sloping to strongly sloping, well drained soils that have a loamy surface layer and a loamy subsoil

This map unit consists of moderately sloping and strongly sloping soils on side slopes and gently sloping soils on narrow ridgetops. The landscape is dissected by many small drainageways. Slopes range from 1 to 12 percent.

many small drainageways. Slopes range from 1 to 12 percent.

This unit makes up about 7 percent of the parish. It is about 73 percent Cadeville soils, 21 percent Ruston soils, and 6 percent soils of minor extent.

The moderately well drained, gently sloping to strongly sloping Cadeville soils are on ridgetops and side slopes. They have a surface layer of very fine sandy loam and a subsoil of clay, silty clay, and silty clay loam. The underlying material is silty clay, silty clay loam, and very fine sandy loam. The well drained, gently sloping Ruston soils are on ridgetops. They have a surface layer of fine sandy loam and a subsoil of sandy clay loam and fine sandy loam.

Of minor extent in this map unit are the well drained Smithdale soils on upper side slopes and the moderately well drained Malbis soils on some of the broader ridgetops.

Most of the acreage of this map unit is in woodland. A small acreage is used for pasture.

This map unit is moderately well suited to woodland. Cadeville soils have moderately high potential for pine trees, and Ruston soils have high potential. The use of equipment is severely limited on the Cadeville soils because of the clayey subsoil. Ruston soils have few limitations for use and management. Some areas, however, are within an abandoned military bombing range site. In these areas the use of equipment is severely limited because of the possibility of unexploded bombs.

This map unit is poorly suited to cultivated crops. Low fertility is a limitation, and erosion is a severe hazard on the steeper slopes. Areas of this map unit within the military bombing range site are not suitable for crops.

The soils in this map unit are moderately well suited to pasture. Low fertility, the hazard of erosion, and limited use of equipment are the main concerns. Areas within the military bombing range site are better suited to native grass pasture than to other uses.

This map unit is poorly suited to urban uses. Steepness of slopes, moderate and high shrink-swell potential, and moderate and very slow permeability are the main limitations.

7. Rigolette-Kisatchie

Hilly, somewhat poorly drained and well drained soils that have a loamy or sandy surface layer and a loamy or clayey subsoil

This map unit consists of soils on narrow ridgetops and soils on short, moderately sloping to steep, irregular side slopes that are dissected by numerous drainageways.

This unit makes up about 1 percent of the parish. It is about 38 percent Rigolette soils, 32 percent Kisatchie soils, and 30 percent soils of minor extent.

The somewhat poorly drained Rigolette soils are on plane and concave side slopes and on benches at midslope. They have a surface layer of loamy fine sand and a subsoil that is fine sandy loam and sandy clay loam in the upper part and silty clay in the lower part. The underlying material is silty clay. Kisatchie soils are on convex side slopes. They have a surface layer of very fine sandy loam and a subsoil of clay loam and silty clay. The underlying material is sandstone.

Of minor extent in this map unit are the well drained Briley, Ruston, and Smithdale soils on narrow ridgetops and upper side slopes and the moderately well drained Cadeville soils on plane and convex side slopes. Outcrops of sandstone and siltstone are on the surface in places.

All of the acreage of this map unit is in woodland, mainly pine trees.

This map unit is poorly suited to woodland, and it has poor potential for pine trees. Moderate seedling mortality and a moderate hazard of erosion are the main concerns in producing and harvesting trees. The use of equipment is severely limited on the steeper areas because of sandstone or siltstone outcrops, and wetness is an additional limitation to the use of equipment on the Rigolette soil. In addition, trees are subject to windthrow because of limited rooting depth. Some of these soils are within an abandoned military bombing range site and the use of equipment is severely restricted because of the possibility of unexploded bombs.

This map unit is poorly suited to cultivated crops. Slopes are generally too steep, and the hazard of erosion is too severe for cultivation. Areas of this map unit within the military bombing range site are not suitable for use as cropland.

The soils in this map unit are poorly suited to use as pasture. Steep slopes and rock outcrops are severe limitations. Areas within the military bombing range site are best suited to native grasses.

This map unit is poorly suited to most urban uses. Slopes, rock outcrop, high shrink-swell potential, and very slow permeability are the main limitations. Areas within the military bombing range site are not suitable for urban uses.

Areas on Flood Plains and Natural Levees Dominated by Level and Gently Undulating, Loamy and Clayey Soils

The four map units in this group consist of well drained, somewhat poorly drained, and poorly drained, loamy and clayey soils on flood plains of rivers and streams.

These areas make up 22 percent of the parish. Most areas are cleared and are used for cropland and pasture. Frequently flooded map units are mainly in woodland. Wetness from the seasonal high water table and flooding are the main limitations to most agricultural and urban uses.

8. Guyton-Cascilla

Level, poorly drained and well drained soils that are loamy throughout

This map unit consists of soils on narrow flood plains of small streams that drain the terrace uplands. The soils are subject to frequent flooding, especially during the winter months.

This unit makes up about 9 percent of the parish. It is about 55 percent Guyton soils, 35 percent Cascilla soils, and 10 percent soils of minor extent.

The poorly drained Guyton soils have a surface layer of silt loam and a subsoil of silt loam and silty clay loam. The well drained Cascilla soils have a surface layer and subsoil of silt loam. The underlying material is fine sandy loam.

Of minor extent in this map unit are the well drained Cahaba soils on adjacent, low stream terraces.

The soils making up this map unit are used mainly for woodland. A few small areas are used for pasture.

This map unit is moderately well suited to woodland. The Guyton soil has high potential for pine and hardwood trees, and the Cascilla soil has very high potential. However, flooding and wetness can severely limit the use of equipment during winter months. Seedling mortality is moderate.

This map unit is poorly suited to cultivated crops. The area generally is flooded too frequently for this use.

The soils in this unit are moderately well suited to pasture. Wetness from flooding and low fertility are the main limitations.

This map unit is not suited to urban uses. The hazard of flooding is generally too severe for this use.

9. Moreland-Armistead-Latanier

Level and gently undulating, somewhat poorly drained soils that have a clayey or loamy surface layer and a

of silty clay. The underlying material is silt loam and very fine sandy loam. Latanier soils have a seasonal high water table from December to April.

Of minor extent in this map unit are the well drained Gallion and Roxana soils on high positions on natural levees of the Red River and its distributaries.

Most of the acreage of this map unit is used for soybeans. A few small areas are used for woodland and pastureland.

This map unit is moderately well suited to cultivated crops. Wetness and poor tilth are the main limitations. Flooding is a hazard in places. A surface drainage system is needed for most crops. Conservation tillage and return of crop residue to the soil help to improve soil tilth.

The soils in this map unit are well suited to pasture. Wetness is the main limitation. Flooding is a hazard in places. Restricted grazing during wet periods helps to keep the pasture in good condition.

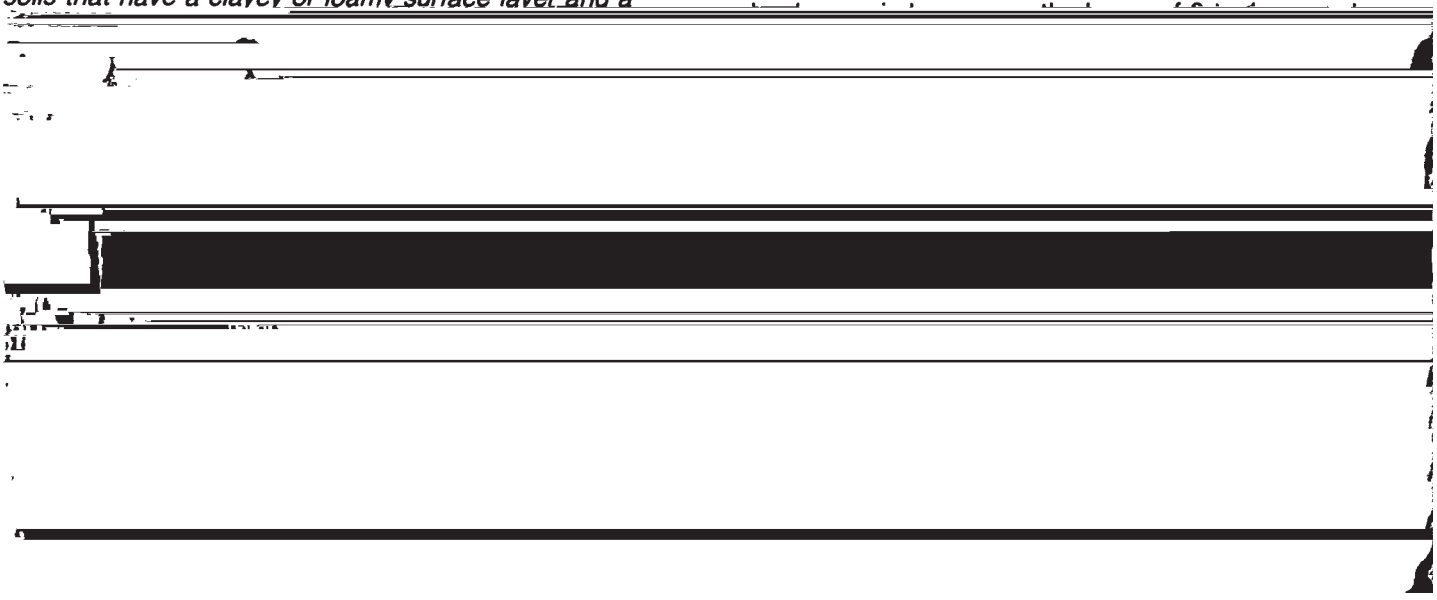
This map unit is well suited to woodland. The soils have high potential for hardwood trees. However, use of equipment is severely limited because of wetness. Seedling mortality is moderate.

This map unit is poorly suited to urban uses. Moderate to very high shrink-swell potential, slow and very slow permeability, wetness, and flooding are the main limitations.

10. Roxana-Gallion-Norwood

Level and gently undulating, well drained soils that are loamy throughout

This map unit consists of soils on natural levees of the Red River and its distributaries. Most areas are protected from flooding by manmade levees. In most areas the

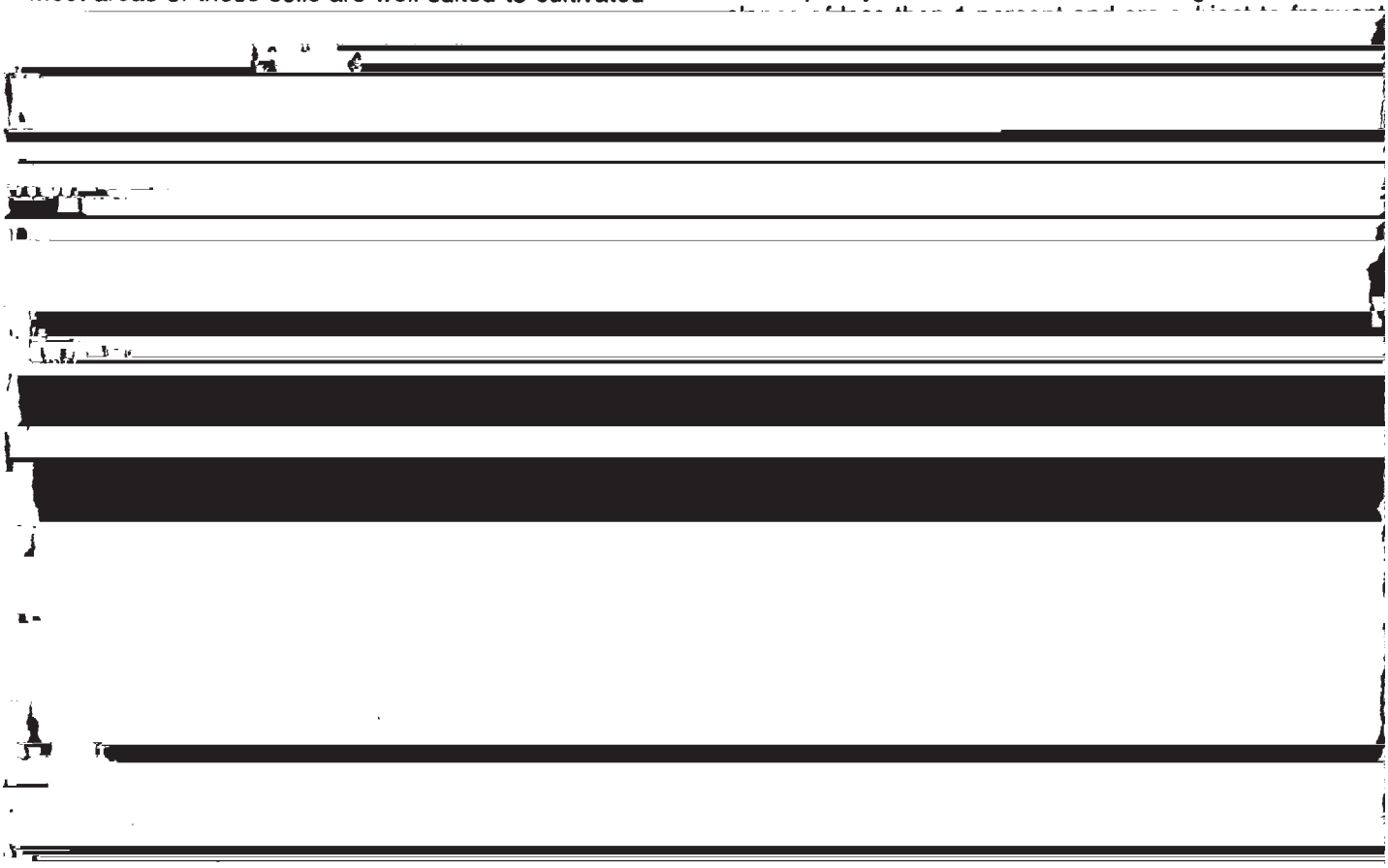


Most of the acreage of this map unit is used for soybeans, corn, cotton, and grain sorghum. A few small areas are used as pastureland and woodland.

Most areas of these soils are well suited to cultivated

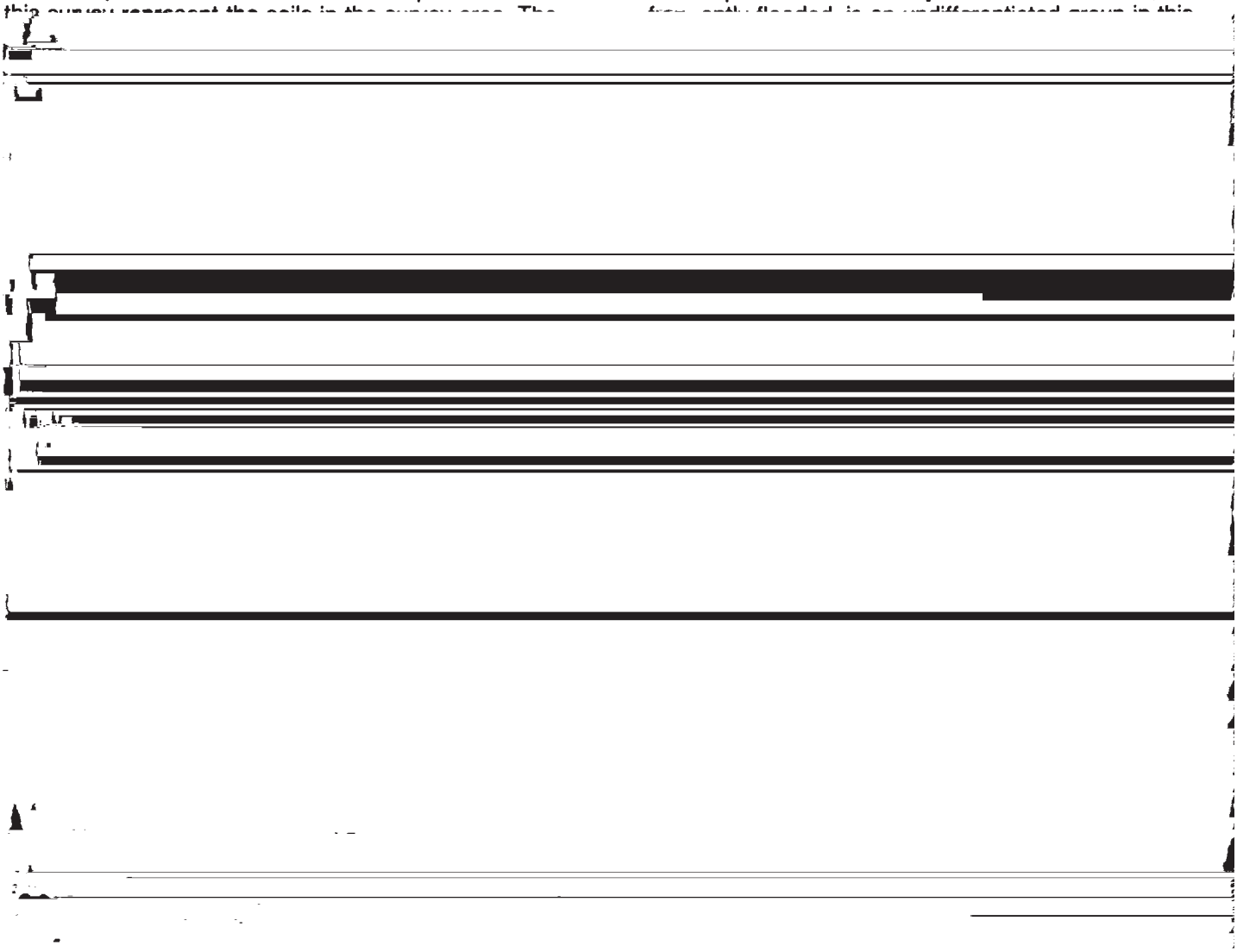
This unit makes up about 2 percent of the parish. It is about 84 percent Una soils, 15 percent Urbo Variant soils, and 1 percent soils of minor extent.

The poorly drained Una soils have long, smooth



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



made up of all of them. Guyton and Cascilla soils, frequently flooded, is an undifferentiated group in this

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 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.

from about 30 to 400 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is about 14 inches thick. It is dark brown, slightly acid clay in the upper part and dark reddish brown, neutral silty clay in the lower part. The next layer is dark brown, neutral silt loam. The subsoil is reddish brown, mildly alkaline silty clay loam in the upper part and yellowish red, mildly alkaline silt loam in the lower part. The underlying material to a depth of about 75 inches is yellowish red, moderately alkaline silt loam.

Included with this soil in mapping are a few small areas of Latanier and Moreland soils. These areas make up about 10 percent of the map unit. The Latanier soils are on slightly higher positions than Armistead soil and do not have strongly expressed subsoil horizons. The Moreland soils are on lower positions and have a more clayey subsoil.

This Armistead soil has high fertility. Water moves through the upper part of the soil at a slow rate and through the lower part at a moderately slow rate. Water runs off the surface at a slow rate and stands in low places for short periods after heavy rains. The surface layer of this soil is very sticky when wet and dries slowly. A seasonal high water table fluctuates between a depth of about 1.5 and 3 feet from the surface from December through April. The surface layer of this soil has high shrink-swell potential, and the subsoil has low shrink-swell potential. Adequate water is available to plants in most years.

Most of the acreage of this soil is used for cropland. A small acreage is in pasture.

This soil is well suited to cultivated crops. The main crops are cotton, wheat, oats, and grain sorghum. Wetness, slow intake of water, and poor tilth are the main limitations. Proper arrangement of rows, surface field ditches, and vegetated outlets are needed to

native woodland. Restricted use of equipment and seedling mortality caused by wetness are the main concerns in producing and harvesting timber. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable understory plants. Conventional methods of harvesting timber generally are suitable, but the soil may become compacted if it is wet and heavy equipment is used.

This soil is moderately well suited to urban uses. Wetness is the main limitation for building site development and for most sanitary facilities. Drainage is needed if roads and building foundations are constructed. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability.

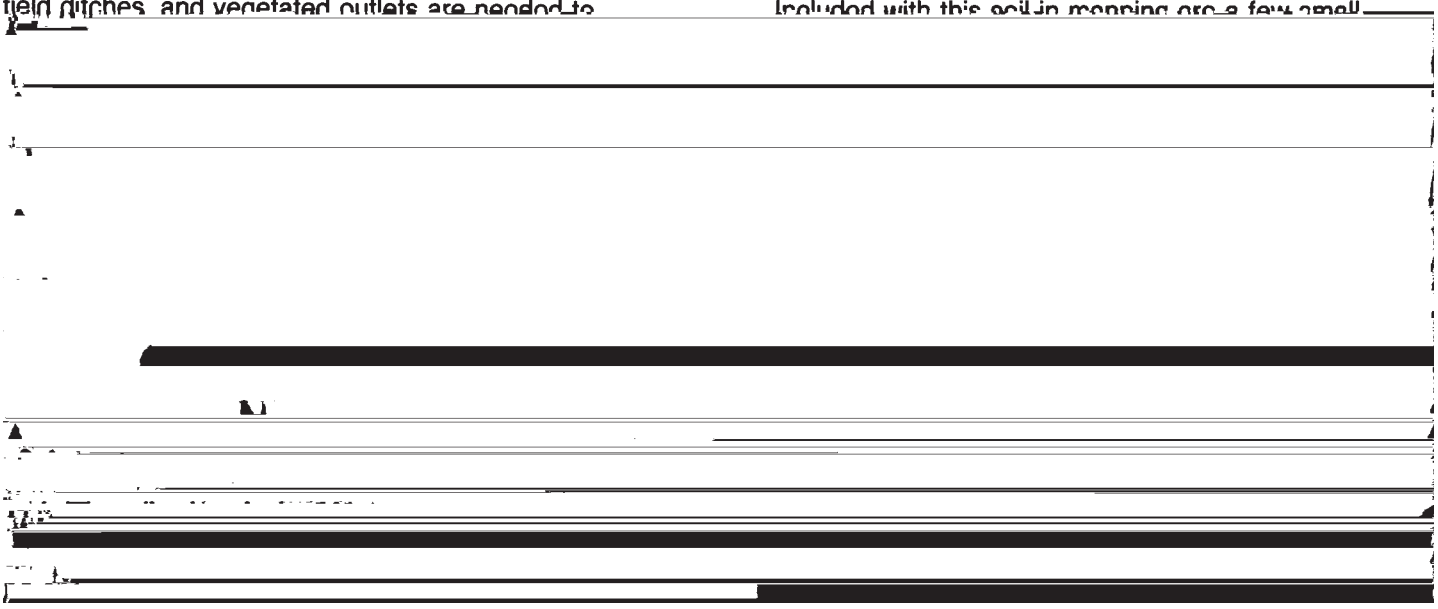
This soil is poorly suited to most recreational uses. It is limited mainly by the clay surface layer. Areas used for playgrounds can be improved by providing good surface drainage and by coating the area with several inches of loamy fill material.

This Armistead soil is in capability subclass IIw and woodland group 2w.

Br—Briley loamy fine sand, 5 to 12 percent slopes. This sloping, well drained soil is on narrow ridgetops and side slopes in the terrace uplands. This soil is sandy to moderate depths and loamy below. Areas range from about 10 acres to 80 acres.

The surface layer is dark grayish brown, medium acid loamy fine sand about 7 inches thick. The subsurface layer is light yellowish brown loamy fine sand. It is medium acid in the upper part and strongly acid in the lower part. The subsoil to a depth of about 65 inches is yellowish red, very strongly acid sandy clay loam in the upper part and yellowish red, very strongly acid fine sandy loam in the lower part.

Included with this soil in mapping are a few small



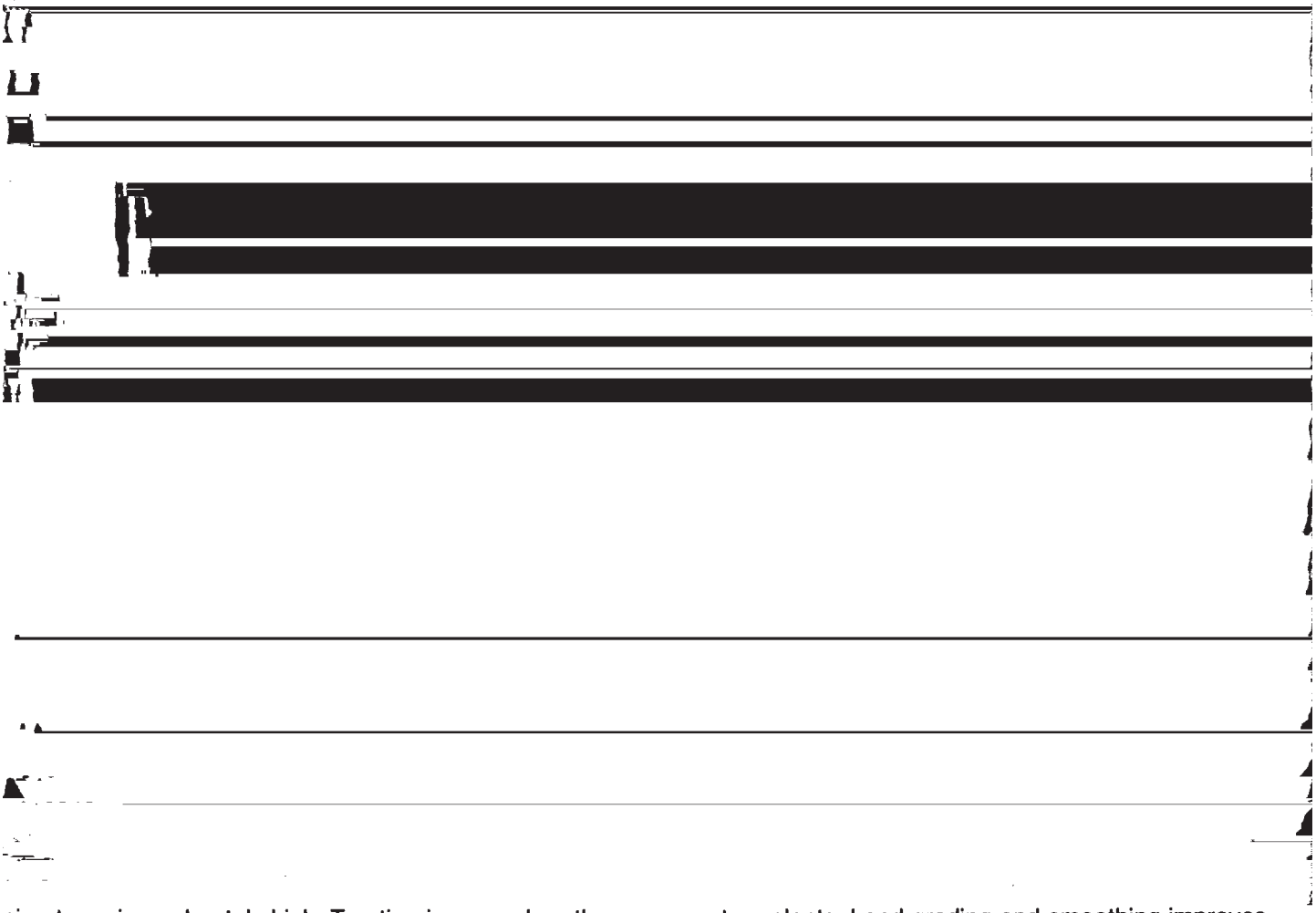
conserve moisture and control erosion. Most crops respond well to additions of fertilizer and lime.

This soil is moderately well suited to pasture. Droughtiness, slope, low fertility, and the hazard of erosion are the main limitations. Pasture plants are difficult to establish because of droughtiness. Suitable pasture plants are improved bermudagrass, weeping lovegrass, bahiagrass, and crimson clover. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is slow to dry out in the spring; however, crops suffer from lack of water during dry periods in the summer and fall of most years. The shrink-swell potential is low.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to cultivated crops. The main crops are corn and soybeans. Wetness is the main limitation. Potentially toxic levels of exchangeable aluminum within the rooting zone are also a limitation. A



pine trees is moderately high. Traction is poor when the surface layer of this soil is dry, and seedling mortality is generally moderately high because of droughtiness. Conventional methods of harvesting trees can be used.

This soil is moderately well suited to urban uses. Steepness of slopes and the hazard of erosion are the main limitations. Cutbanks of shallow excavations cave easily. Preserving the existing plant cover during construction helps to control erosion. Plant cover can be established and maintained by properly fertilizing, seeding, mulching, and shaping of slopes.

This soil is moderately well suited to recreational pasture plants. Land grading and smoothing improves the surface drainage and permits more efficient use of farm equipment. Surface crusting and soil compaction can be reduced by returning crop residue to the soil. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of exchangeable aluminum.

This soil is well suited to pasture. Wetness and low fertility are the main limitations. Suitable pasture plants are common bermudagrass, bahiagrass, ryegrass, tall fescue, white clover, and southern winterpeas. Grazing when the soil is wet results in compaction of the surface

the lower part. The underlying material to a depth of about 65 inches is stratified, light brownish gray silty clay and yellowish brown very fine sandy loam. It is extremely acid.

Included with this soil in mapping are a few small areas of Mayhew and Metcalf soils. These areas make up about 15 percent of the map unit. The poorly drained Mayhew soils are on broad flats and are gray throughout. The somewhat poorly drained Metcalf soils are on broad ridgetops and have a subsoil that is loamy in the upper part.

This Cadeville 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 very slow rate. Water runs off the surface at a medium rate. The subsoil swells and shrinks markedly upon wetting and drying. Adequate water is available to plants in most years.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to woodland. The potential for pine trees is moderately high. Moderate seedling mortality and severely restricted use of equipment because of the clay subsoil are the main concerns in producing and harvesting timber. Because the clay subsoil is sticky when wet, most planting and harvesting equipment can be used only during dry periods. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

[redacted]

been removed and the clay subsoil exposed. Mulching and fertilizing these cut areas help to establish plants. In areas where septic tank absorption fields are installed, the use of sandy backfill for the trench and long absorption lines helps to compensate for the very slow permeability. High shrink-swell potential is a limitation in most areas where the soil is used for building site development. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

This soil is poorly suited to recreational development. Very slow permeability is the main limitation. Erosion and sedimentation can be controlled and the beauty of the area enchanced by maintaining adequate plant cover.

This Cadeville soil is in capability subclass IVe and woodland group 3c.

Ce—Cadeville very fine sandy loam, 5 to 12 percent slopes. This moderately sloping to strongly sloping, moderately well drained soil is on side slopes in the terrace uplands. Areas range from about 40 acres to 600 acres.

Typically, the surface layer is brown, strongly acid very fine sandy loam about 4 inches thick. The subsurface layer is brown, strongly acid very fine sandy loam about 3 inches thick. The subsoil is yellowish red, mottled, strongly acid silty clay in the upper part; light brownish gray, mottled, very strongly acid silty clay in the middle part; and gray, mottled, very strongly acid silty clay loam in the lower part. The underlying material to a depth of about 65 inches is gray silty clay loam that has thin

[redacted]

contructing diversions and by seeding the cuts and fills. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable

lower part. The underlying material to a depth of about 65 inches is strongly brown, strongly acid loamy sand.

Included with this soil in mapping are a few small

[redacted]

of the subsoil are yellowish red, slightly acid silty clay loam. The lower part is yellowish red, slightly acid very fine sandy loam. The underlying material to a depth of

River by earthern levees. Areas range from about 30 acres to 700 acres. Slope is dominantly less than 1 percent.

by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Excess water can be removed by using surface ditches and by proper grading.

This soil is well suited to recreational development. It has few limitations for this use.

This Gallion soil is in capability subclass IIw and woodland group 2o.

Gc—Gallion silt loam, occasionally flooded. This level, well drained soil is on natural levees of the Red River and its distributaries. It is not protected by manmade levees and floods occasionally. Areas range from about 20 acres to 400 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is dark grayish brown, medium acid silt loam about 9 inches thick. The subsoil is yellowish red, medium acid silt loam in the upper part and reddish brown, slightly acid silt loam in the lower part. The underlying material to a depth of about 65 inches is yellowish red, mildly alkaline very fine sandy loam.

Included with this soil in mapping are a few small areas of Moreland and Roxana soils. These areas make up about 10 percent of the map unit. Moreland soils are on lower positions than Gallion soils and are in the tillage pan. Tilth and fertility can be improved by returning crop residue to the soil.

This soil is well suited to woodland. The potential for hardwood trees is high; however, few areas remain in woodland.

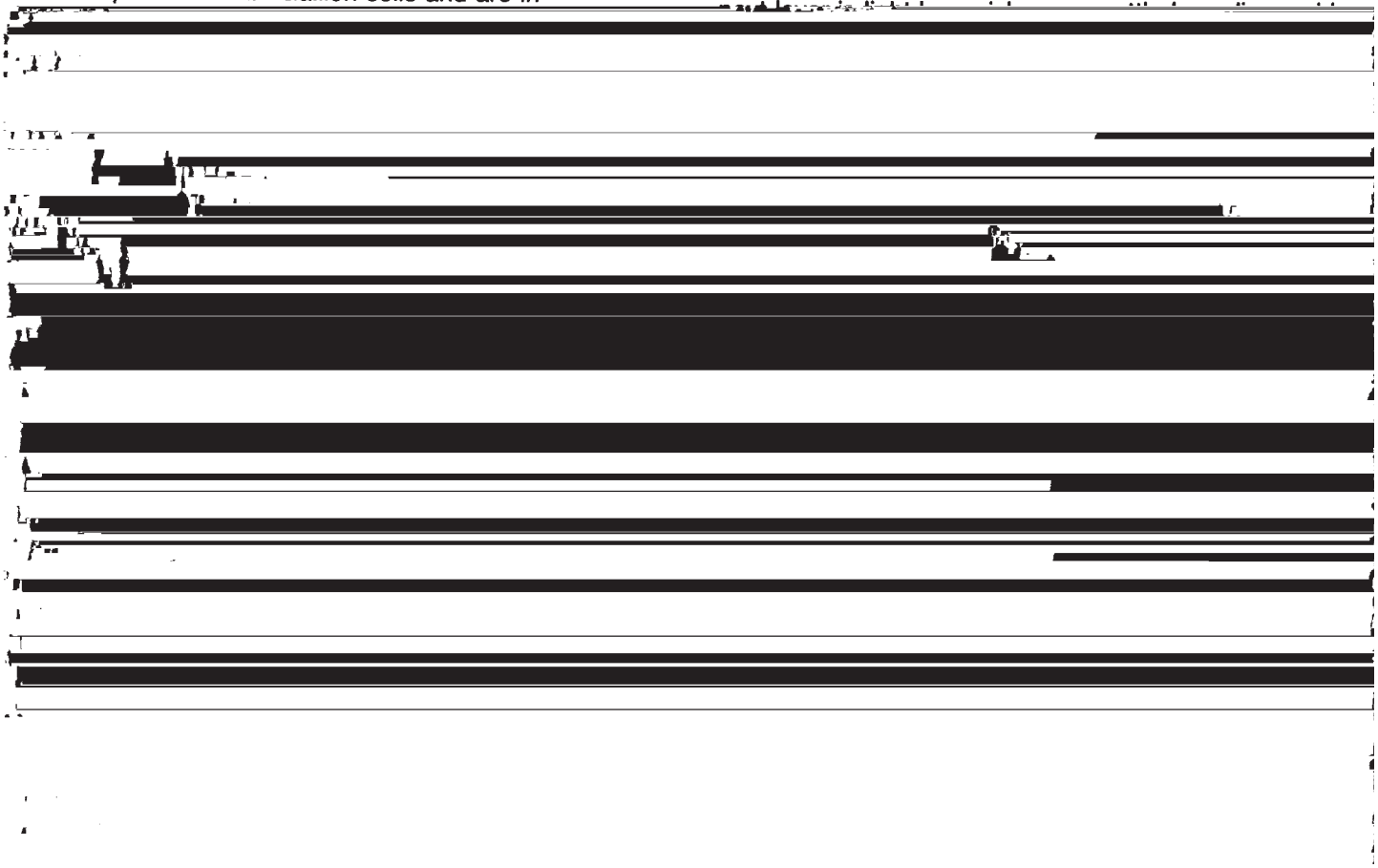
This soil is poorly suited to urban uses. Wetness caused by flooding is the main limitation. Large earthern levees are needed to protect this soil from overflows from the Red River.

This soil is moderately well suited to recreational development. Flooding is the main limitation. Protection from flooding is needed.

This soil is in capability sublcass 2w and woodland group 2o.

Gn—Glenmora silt loam, 1 to 3 percent slopes. This very gently sloping, moderately well drained soil is on broad ridges and on side slopes along drainageways in the terrace uplands. Areas range from about 150 acres to 400 acres.

Typically, the surface layer is dark grayish brown, strongly acid silt loam about 5 inches thick. The subsurface layer is brown, medium acid silt loam about 4 inches thick. The subsoil is yellowish brown, medium acid silt loam and silty clay loam in the upper part. The

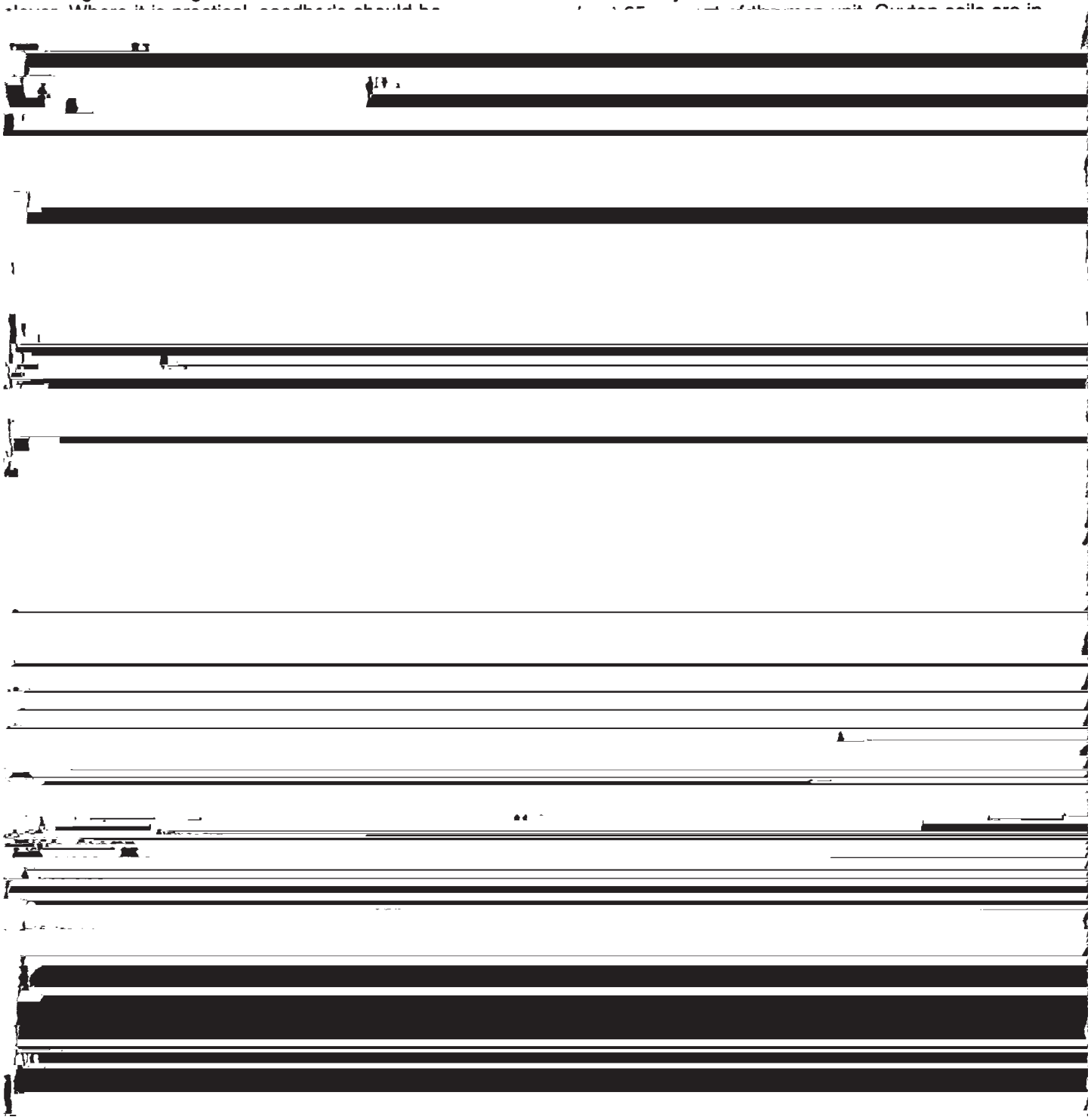


and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and the hazard of erosion are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, vetch, and white

brownish gray and gray, mottled, very strongly acid and strongly acid silty clay and clay in the lower part. The underlying material to a depth of about 65 inches is yellowish red, mottled, medium acid clay.

Included with this soil in mapping are a few small areas of Guyton and Kolin soils. These areas make up



This soil is moderately well suited to recreational development. Very slow permeability is the main limitation. The hazard of erosion is a concern in areas where paths and trails are developed.

This Gore soil is in capability subclass IVe and woodland group 3c.

Gr—Gore silt loam, 5 to 12 percent slopes. This moderately sloping and strongly sloping, moderately well drained soil is on side slopes in the terrace uplands. Areas range from about 15 acres to 200 acres.

The surface layer is dark brown, medium acid silt loam about 4 inches thick. The subsurface layer is pale brown, medium acid very fine sandy loam about 5 inches thick. The subsoil is red, mottled, very strongly acid and strongly acid silty clay in the upper part; light brownish gray, very strongly acid silty clay in the next part; yellowish red, very strongly acid silty clay below that; and yellowish red, medium acid clay in the lower part. The underlying material to a depth of about 80 inches is construction should be disturbed. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. The limitation of very slow permeability can be overcome to some extent by increasing the size of septic tank absorption fields.

This soil is moderately well suited to recreational development. Slope and very slow permeability are the main limitations. Paths and trails should extend across the slope. Plant cover can be maintained by controlling traffic.

This Gore soil is in capability subclass VIe and woodland group 3c.

Gu—Guyton silt loam. This level, poorly drained soil is on broad flats and in depressional areas in the terrace uplands. Areas range from about 20 acres to 200 acres. Slope is dominantly less than 1 percent.

during the rainy period, which generally extends from December through May.

This soil is moderately well suited to cultivated crops. The main crops are soybeans and corn. Wetness and potentially toxic levels of aluminum within the rooting zone are the main limitations. Surface crusting is also a problem. The surface layer of this soil remains wet for long periods after heavy rains; however, plants generally suffer from lack of water during dry periods in summer and fall of most years. A drainage system is needed for most cultivated crops and pasture plants. Crusting of the surface and compaction can be reduced by returning crop residue to the soil. Crops respond well to additions of lime and fertilizer, which help to overcome the low

major limitation to use and management of these soils. For this reason, separation of the soils would be of little value to the land user. The detail in mapping, however, is adequate for the expected use of the soils.

Typically, the Guyton soil has a surface layer of brown, strongly acid silt loam about 4 inches thick. The subsurface layer is light brownish gray, mottled, very strongly acid silt loam about 21 inches thick. The subsoil is gray, mottled, very strongly acid silty clay loam in the upper part and gray, mottled, very strongly acid silt loam in the lower part. The underlying material to a depth of about 96 inches is light brownish gray, mottled, very strongly acid silt loam.

The Guyton soil has low fertility and moderately high

moderately high. Trees should be water-tolerant, and they should be planted or harvested during dry periods. Conventional methods of harvesting timber generally can be used, but use of equipment may be limited during the rainy period, which is generally from December to May. In areas that are in the abandoned military bombing range site, only natural regeneration of vegetation is possible. Harvesting equipment used in these areas is limited to vehicles that have rubber tires.

This map unit generally is moderately well suited to pasture. In areas within the abandoned military bombing range site, however, it is suited only to native grasses. If these soils are used for pasture, the establishment of a suitable stand is difficult because of overflow and low fertility. Wetness limits the choice of plants and the period of grazing. Unexploded bombs are a limitation in areas within the military bombing range site. Suitable pasture plants in areas other than within the bombing range are common bermudagrass, singletary peas, and vetch. Native grasses are best suited to areas within the bombing range. The use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition.

The soils in this map unit generally are poorly suited to cultivated crops. The hazard of flooding is too severe for this use. In addition, areas within the abandoned bombing range site are limited because of the possibility of unexploded bombs.

This map unit is not suited to urban uses. The hazard of flooding is too severe for this use.

This map unit is poorly suited to recreational development. It is limited mainly by the hazard of flooding and wetness. Picnic areas and paths and trails can be developed, but use is limited to dry periods.

These Guyton and Cascilla soils are in capability subclass Vw. The Guyton soil is in woodland group 2w, and the Cascilla soil is in woodland group lw.

Ko—Kolin silt loam, 1 to 3 percent slopes. This very gently sloping, moderately well drained soil is in the terrace uplands. Areas range from about 30 acres to 400 acres.

Typically, the surface layer is dark brown, strongly acid silt loam about 3 inches thick. The subsurface layer is brown, strongly acid silt loam about 3 inches thick. The subsoil to a depth of about 28 inches is strong brown and yellowish brown, strongly acid silty clay loam. It is red, mottled, very strongly acid silty clay in the next layer; strong brown, mottled, strongly acid silty clay in the next layer; and yellowish red, mottled, strongly acid silty clay below that to a depth of about 74 inches.

Included with this soil in mapping are a few small areas of Gore and Guyton soils. These areas make up about 10 percent of the map unit. Gore soils are on side slopes. They have a subsoil that is more clayey in the upper part than that of Kolin soil. Guyton soils are in depressional areas. They are poorly drained and are loamy throughout.

This Kolin 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 the subsoil at a moderately slow rate and through the lower part at a very slow rate. Water runs off the surface at a slow rate. A seasonal high water table fluctuates between a depth of about 1.5 feet and 3 feet from December through April. This soil has moderate shrink-swell potential in the upper part of the subsoil and high shrink-swell potential in the lower part. Plants are damaged by lack of water during dry periods in summer and fall in some years.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to woodland. The potential for pine trees is moderately high. Moderately restricted use of equipment because of wetness is the main management concern. Conventional methods of harvesting timber generally are suitable, but the soil may become compacted if it is wet and heavy equipment is used. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable understory plants.

This soil is well suited to pasture. Low fertility and a moderate hazard of erosion are the main limitations. Suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, coastal bermundagrass, ball clover, crimson clover, and arrowleaf clover. Applications of lime and fertilizer are needed for good growth of forage plants. Where practical, seedbeds should be prepared on the contour or across the slope. Rotation grazing helps to maintain the quality of forage.

This soil is moderately well suited to cultivated crops. Low fertility, a moderate hazard of erosion, and potentially toxic levels of exchangeable aluminum within the rooting zone are the main limitations. The most suitable crops are soybeans, corn, and sweet potatoes. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Proper arrangement of rows and the use of surface ditches and vegetative cover for outlets are needed to remove excess surface water. Crop residue left on or near the surface helps to maintain tilth and control erosion. Crops respond to applications of fertilizer and lime, which help to overcome the low fertility and reduce the high levels of exchangeable aluminum.

This soil is poorly suited to urban uses. Wetness, very slow permeability, and high shrink-swell potential are the main limitations. Drainage is needed if roads and building foundations are constructed. Septic tank absorption fields do not function properly during rainy periods because of wetness and very slow permeability. The use of sandy backfill for the trench and long absorption lines helps to compensate for the very slow permeability. If

the density of housing is moderate to high, community sewage sytems are needed to prevent contamination of the water supplies. Buildings and roads can be designed to offset the effects of shrinking and swelling.

This soil is poorly suited to recreational development. Wetness and very slow permeability are the main limitations. Drainage should be provided for camp areas, picnic areas, playgrounds, and trails.

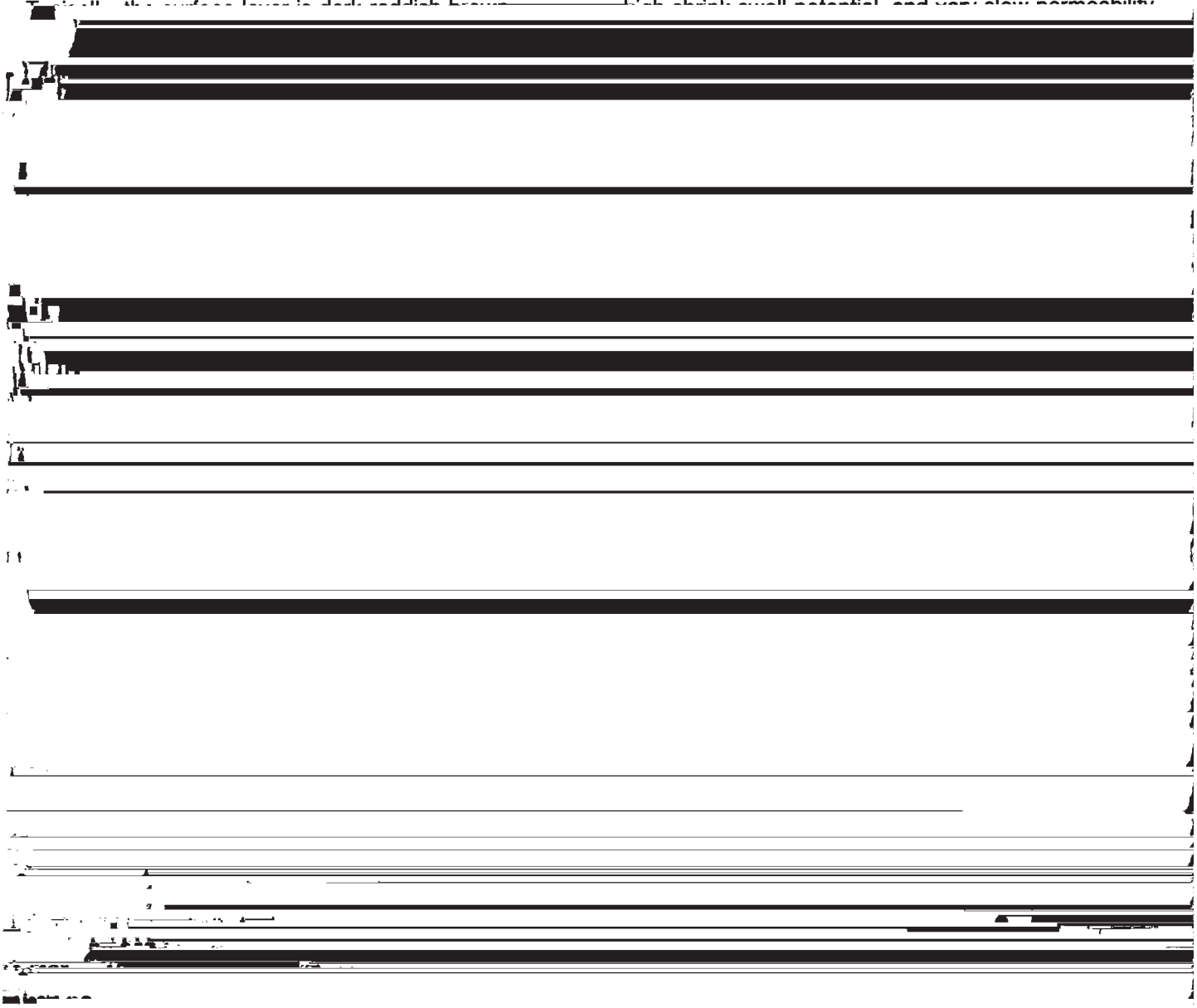
This Kolin soil is in capability subclass IIe and woodland group 3w.

La—Latanier clay. This level, somewhat poorly drained soil is on the alluvial plains of the Red River. Areas range from about 30 acres to 400 acres. Slope is dominantly less than 1 percent.

and common bermudagrass. White clover, vetch, southern winterpeas, and red clover are adapted cool-season legumes. A properly designed drainage system is needed to remove excessive water on the surface. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition.

This soil is well suited to woodland. The potential for hardwood trees is high; however, few areas remain in woodland. If this soil is used for the production of timber, planting and harvesting should be done during dry periods. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable understory plants.

This soil is poorly suited to urban uses. Wetness, very



Most of the acreage of this soil is in woodland. A small acreage is in pasture and cropland.

This soil is well suited to woodland. The potential for pine trees is high. This soil has few limitations for use and management; however, management that minimizes the risk of erosion should be used in harvesting timber.

This soil is well suited to pasture. Low fertility and slope are the main limitations. Erosion is a hazard during the establishment of grasses. Suitable pasture plants are

Included with this soil in mapping are a few small areas of Cadeville, Kisatchie, and Metcalf soils. These areas make up about 15 percent of the map unit. The moderately well drained Cadeville soils are on steeper side slopes. They have a redder subsoil than Mayhew soils. The well drained Kisatchie soils are also on steeper side slopes and are underlain by sandstone or siltstone at moderate depths. The somewhat poorly drained Metcalf soils are on slightly higher ridgetops. They have a browner subsoil than Mayhew soils.

foundations are constructed. Very slow permeability and the high water table increase the possibility of failure of septic tank absorption fields. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

This soil is poorly suited to recreational development. Very slow permeability and wetness are the main limitations. Adequate drainage should be provided for camp areas, picnic areas, and playgrounds.

This Mayhew soil is in capability subclass IIIw and woodland group 2w.

Mf—Metcalf very fine sandy loam. This nearly level, somewhat poorly drained soil is on ridge crests and flat interstream divides in the terrace uplands. Areas range

Figure 1.—Sweet potatoes growing on Malbis fine sandy loam, 1 to 5 percent slopes.

Figure 2.—Soybeans planted on the contour help to control erosion on this area of Malbis fine sandy loam, 1 to 5 percent slopes.

from about 20 acres to 400 acres. Slopes range from 0 [illegible] inches is light brownish gray, mottled, very strongly acid

The poorly drained Mayhew soils are on broad interstream divides. They are gray throughout.

This Metcalf soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through the soil at a very slow rate. Water runs off the surface at a medium rate. A seasonal high water table fluctuates between a depth of about 1.5 and 2.5 feet from December through April. The surface layer of this soil remains wet for long periods after heavy rains. This soil has low shrink-swell potential in the upper part of the subsoil and high shrink-swell

Mn—Moreland silt loam, overwash. This level, somewhat poorly drained soil is on the lower parts of natural levees of the Red River and its distributaries. Areas range from about 50 acres to 250 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is about 11 inches thick. It is dark brown, neutral silt loam in the upper part and dark reddish brown, slightly acid silt loam in the lower part. The subsoil to a depth of about 65 inches is reddish brown, neutral clay in the upper part and reddish brown, mildly alkaline clay and silty clay in the lower part

prevent or prolong natural or artificial reestablishment of trees.

This soil is poorly suited to urban uses. Very high shrink-swell potential, flooding, and wetness are the main limitations. Drainage is needed if roads and building foundations are constructed. Use of sandy backfill for the trench and long absorption lines helps to compensate for the very slow permeability. The effects of shrinking and swelling can be minimized by using proper engineering design and by backfilling with material that has low shrink-swell potential. Constructing ring levees around urban areas can prevent damage to buildings from flooding.

This soil is poorly suited to recreational development. Wetness, flooding, and very slow permeability are the main limitations. A properly designed drainage system helps to improve most recreational areas.

This Moreland soil is in capability subclass IIIw and woodland group 2w.

Mo—Moreland silty clay loam. This level, somewhat poorly drained soil is on the lower parts of natural levees of the Red River and its distributaries. Areas range from about 15 acres to 400 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is about 12 inches thick. It is dark brown, mildly alkaline silty clay loam in the upper part and dark reddish brown, mildly alkaline silty clay loam in the lower part. The subsoil to a depth of about 65 inches is reddish brown, moderately alkaline silty clay in the upper part; dark reddish brown, moderately alkaline clay and silty clay in the middle part; and reddish brown, moderately alkaline silty clay in the lower part.

Included with this soil in mapping are a few small areas of Gallion, Norwood, and Moreland silt loam soils. These areas make up about 10 percent of the map unit. The well drained Gallion and Norwood soils are on slightly higher parts of the natural levees and are loamy

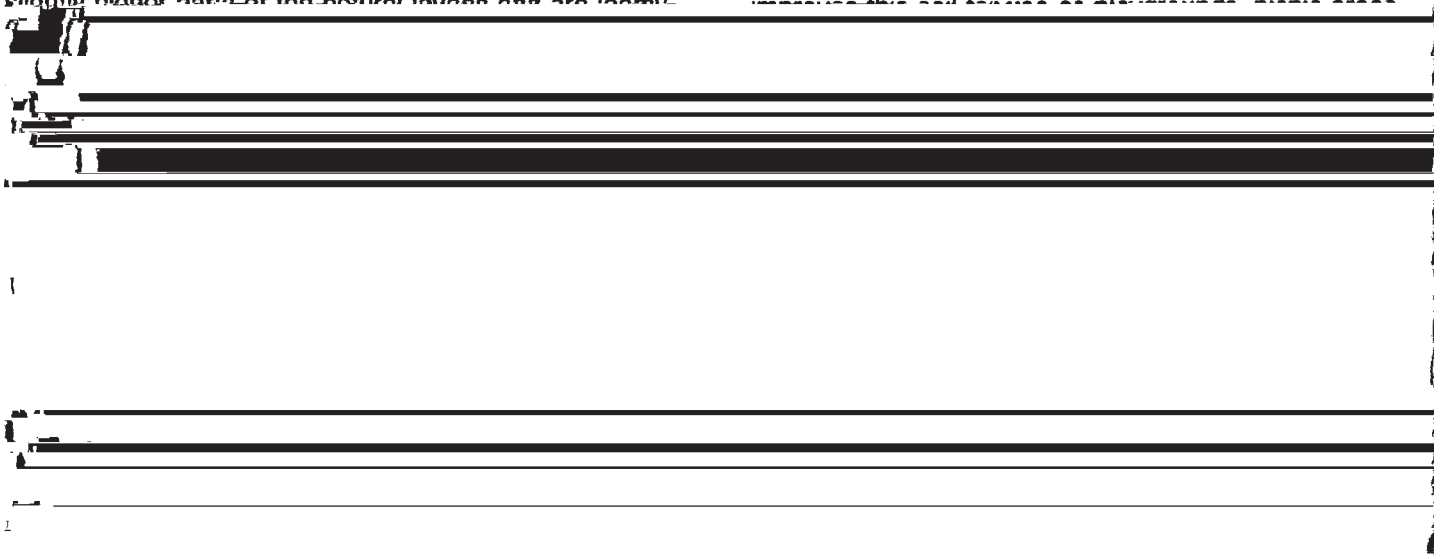
surface ditches and vegetative cover for outlets are needed to remove excess surface water. Land grading and smoothing also help to remove excess water. Crop residue left on or near the surface helps to maintain tilth and control erosion.

This soil is well suited to pasture. Wetness, however, limits the choice of plants and the period of grazing. Suitable pasture plants are common bermudagrass, dallisgrass, ryegrass, tall fescue, white clover, red clover, southern winterpeas, and vetch. Grazing when the soil is wet results in compaction of the surface layer. Excessive water on the surface can be removed by constructing surface ditches. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition.

This soil is well suited to woodland. It has high potential for hardwood trees. Wetness and restricted use of equipment are the main concerns in producing and harvesting timber. Proper site preparation is needed to offset initial plant competition, and spraying can be used to control subsequent growth. Conventional methods of harvesting timber generally can be used, but use may be limited during rainy periods. The rainy season is generally from December to April.

This soil is poorly suited to urban uses. Wetness, flooding, and very high shrink-swell potential are the main limitations. Excess water can be removed by constructing surface ditches and by providing the proper grade. Use of sandy backfill for the trench and long absorption lines helps to compensate for the very slow permeability. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

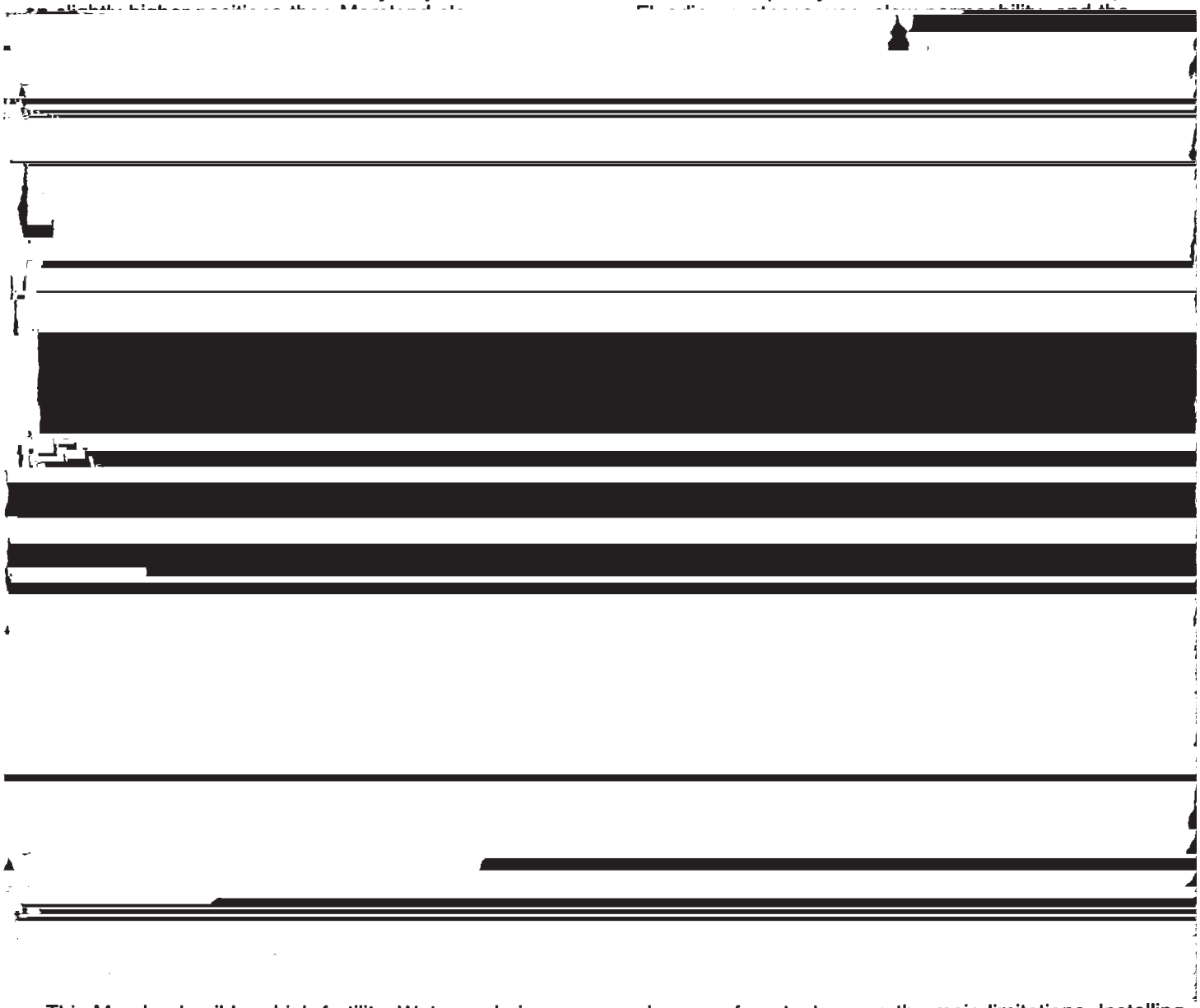
This soil is poorly suited to recreational facilities. Wetness, flooding, and very slow permeability are the main limitations. A properly designed drainage system



and Moreland silty clay loam soils. These areas make up about 10 percent of the map unit. The somewhat poorly drained Armistead and Latanier soils are on slightly higher positions than Moreland clay, and they are underlain by loamy alluvium. The well drained Gallion soils are on natural levees and are loamy throughout. Moreland silt loam and Moreland silty clay loam soils are

main limitations. Drainage is needed if roads and building foundations are constructed. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Flooding can be controlled by constructing levees.

This soil is poorly suited to recreational development.



This Moreland soil has high fertility. Water and air move through the soil at a very slow rate. Water runs off the surface at a slow rate and stands in low places for long periods after heavy rains. The surface layer of this soil is sticky when wet and hard when dry. A seasonal high water table fluctuates between a depth of about 1.5 feet and the surface from December to April. This soil swells and shrinks markedly upon wetting and drying. It

clayey surface texture are the main limitations. Installing a drainage system and coating the surface with several inches of loamy material improve areas to be used for playgrounds, picnic areas, and camp areas.

This Moreland soil is in capability subclass IIIw and woodland group 2w.

Mt—Moreland clay, gently undulating. This gently

smoothing, but in places the movement of large amounts of soil will be needed. Tilth can be improved by returning crop residue to the soil.

This soil is well suited to pasture. Wetness is the main limitation. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. The main suitable pasture plants are common bermudagrass, dallisgrass, ryegrass, tall fescue, and white clover. Excessive water on the surface can be removed by using a properly designed drainage system. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Fertility generally is sufficient for sustained production of high quality, nonirrigated pasture.

This soil is well suited to woodland. It has high potential for hardwood trees. Wetness, however, limits the use of equipment. Because the clayey surface layer is sticky when wet, most planting and harvesting equipment can be used only during dry periods.

This soil is poorly suited to urban uses. Wetness, flooding, and very high shrink-swell potential are the main limitations. Excess water can be removed by using surface ditches and providing the proper grade. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Protection from flooding is needed in areas where buildings and sanitary facilities are constructed.

This soil is poorly suited to recreational uses. Wetness, flooding, and very slow permeability are the main limitations. Areas used for playgrounds and picnic areas can be improved by covering the area with several inches of loamy material.

This Moreland soil is in capability subclass IIIw and woodland group 2w.

Mw—Moreland clay, occasionally flooded. This level soil is on the flood plains between the Red River and the protection levee, below the spillways of Iatt and Nantachie Lakes, and in depressional areas along Bayou Rigolette. It is subject to occasional flooding for brief to long periods. Areas range from about 20 acres to 400 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is about 11 inches thick. It is dark brown, neutral clay in the upper part and dark reddish brown, neutral clay in the lower part. The subsoil to a depth of about 65 inches is reddish brown, mildly alkaline clay in the upper part and dark reddish brown, moderately alkaline silty clay and clay in the lower part.

Included with this soil in mapping are a few areas of Armistead, Gallion, Latanier, and Yorktown soils. These areas make up about 15 percent of the map unit. The somewhat poorly drained Armistead and Latanier soils are on slightly higher positions than this Moreland clay, and they are underlain by loamy alluvium at moderate depths. The well drained Gallion soils are on natural levees on higher positions and are loamy throughout. The very poorly drained Yorktown soils are ponded. They are in backswamps, sloughs, and abandoned channels and have a grayer subsoil than this Moreland clay.

This Moreland soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a slow rate and stands in low places for long periods after heavy rains. This soil is subject to occasional flooding on a yearly basis. It is subject to occasional flooding for brief to long periods during the cropping season. The surface layer of this soil is sticky when wet and hard when dry. A seasonal high water table fluctuates between a depth of about 1.5 feet and the surface from December to April. The soil swells and shrinks markedly upon wetting and drying. Adequate water is available to plants in most years.

Most of the acreage of this soil is used for cultivated crops. A small acreage is in pasture and woodland.

This soil is moderately well suited to cultivated crops. The main crops are soybeans and small grains. The level terrain and high fertility provide favorable conditions for the growth of crops. Wetness, the hazard of flooding, and poor tilth are the main concerns. This soil is difficult to keep in good tilth. It can be worked only within a narrow range of moisture content. Proper arrangement of rows and the use of surface ditches and vegetative cover for outlets are needed to remove excess surface water. Land grading and smoothing also help to remove excess water. 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.

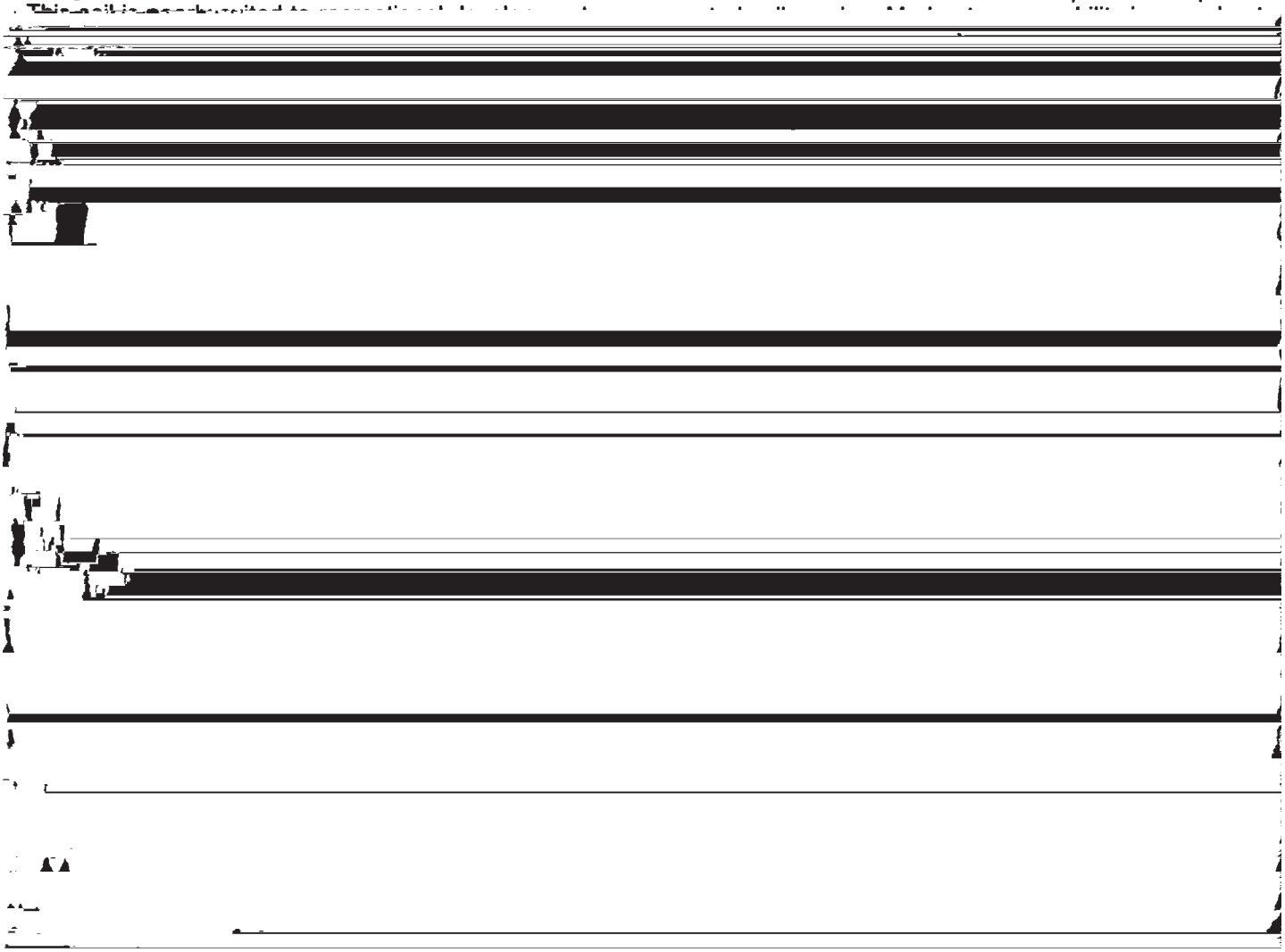
This soil is moderately well suited to pasture. Wetness and the hazard of flooding are the main limitations. Wetness limits the choice of plants and the period of grazing. The main suitable pasture plants are common bermudagrass, dallisgrass, ryegrass, white clover, and tall fescue. Grazing when the soil is wet results in compaction of the surface layer. The fertility level generally is sufficient for sustained production of high quality, nonirrigated pasture. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition.

This soil is moderately well suited to woodland. It has moderately high potential for hardwood trees. Most areas, however, have been cleared for use as cropland. Severe seedling mortality and restricted use of equipment because of wetness are the main concerns in producing and harvesting timber. Trees should be water-tolerant, and they should be planted or harvested during dry periods. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods.

This soil is poorly suited to urban uses. The hazard of flooding, wetness, very high shrink-swell potential, and

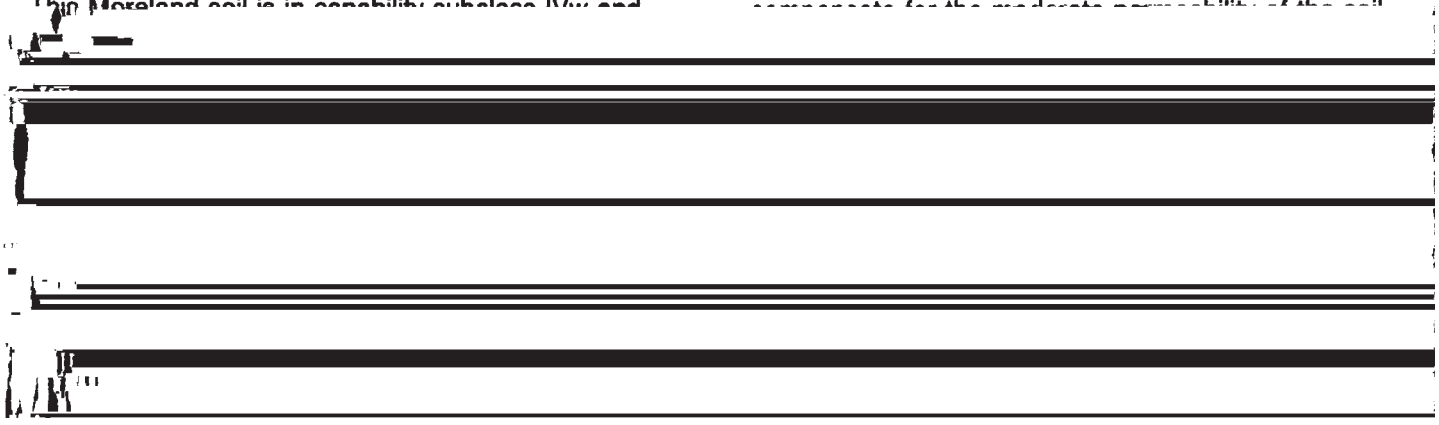
very slow permeability are the main limitations. Protection from flooding is needed in areas where buildings are constructed.

The soil is well suited to urban uses. Erosion is a slight hazard on disturbed areas. Revegetating disturbed areas around construction sites as soon as possible helps to



The hazard of flooding, wetness, and the clayey surface layer are the main limitations.

limitation if septic tank absorption fields are installed. Increasing the length of the absorption lines helps to



surface helps to conserve moisture, maintain tilth, and short periods after heavy rains. The shrink-swell potential

and parking areas. The sand is used as a mixture for hot mix, concrete, and mortar sand. A mixture of sand, clay, and gravel, locally called "pitrun," is also used as building material.

Most areas of this map unit are bare of vegetation. Scattered trees and sparse stands of grass grow in a few of the abandoned pits.

Gravel pits are not suited to cropland, woodland, pasture, or to urban uses and recreational uses unless major reclamation is done.

Pits, gravel, is in capability subclass VIIs. It is not

clayey underlying material from December to April. Effective rooting depth ranges from about 20 to 40 inches. The subsoil has moderate shrink-swell potential. Plants are damaged because of lack of water during dry periods in summer and fall of most years.

Typically, the Kisatchie soil has a surface layer about 8 inches thick. It is very dark gray, very strongly acid very fine sandy loam in the upper part and dark grayish brown, very strongly acid very fine sandy loam in the lower part. The subsoil is grayish brown, very strongly acid clay loam in the upper part and pale brown, very

areas within the old military bombing range site. Low fertility, steep slopes, sandstone or siltstone outcrops, and limited choice of pasture plants are the main limitations. Suitable pasture plants are common bermudagrass and bahiagrass. Use of proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

These soils are poorly suited to cultivated crops. They are limited mainly by steep slopes, sandstone or siltstone outcrops, low fertility, and low to moderate available water capacity. Cultivation is not feasible in areas that are within the military bombing range site because of the possibility of unexploded bombs.

These soils are poorly suited to urban uses. They are not suited to areas that are within the old military bombing range site. Steep slopes, rock outcrops, wetness, very slow permeability, and high shrink-swell potential are the main limitations. Erosion is a hazard in the steeper areas. Only that part of the site used for construction should be disturbed. Structures to divert runoff are needed if buildings and roads are to be constructed. Reestablishment of plants is difficult in areas that have had the surface layer removed and the subsoil exposed, but mulching and fertilizing the cut areas help to establish the plants. Seepage from sanitary

Latanier and Moreland soils are on lower positions and have a more clayey subsoil. Norwood soils are on slightly lower positions and have more clay in the profile between depths of 10 and 40 inches.

This Roxana soil has high fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. This soil dries quickly after rains. A seasonal high water table fluctuates between depths of about 4 and 6 feet from December to April. Plants are damaged because of lack of water during dry periods in summer and fall of some years. This soil has low shrink-swell potential.

Most of the acreage of this soil is used for cultivated crops. A small acreage is in pasture.

This soil is well suited to cultivated crops. The main crops are soybeans, cotton, corn, wheat, oats, and grain sorghum. This soil has few limitations. It is friable and easy to keep in good tilth and can be worked over a wide range of moisture content. Excessive cultivation can result in the formation of a tillage pan, but this pan can be broken by subsoiling when the soil is dry. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.

This soil is well suited to pasture. It has few limitations for this use. Suitable pasture plants are improved

and swales. The ridges range from 3 to 5 feet high and are 100 to 200 feet wide. The swales are about 100 to 150 feet wide. Slopes range from 0 to 3 percent.

Typically, the surface layer is reddish brown, mildly alkaline very fine sandy loam about 5 inches thick. The underlying material to a depth of about 65 inches is brown, moderately alkaline very fine sandy loam in the upper part; yellowish red, moderately alkaline loamy very fine sand in the middle part; and yellowish red, moderately alkaline silt loam and [illegible] loam in

to remove excess surface water. Excessive cultivation can result in the formation of a tillage pan, but this pan can be broken by subsoiling when the soil is dry. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.

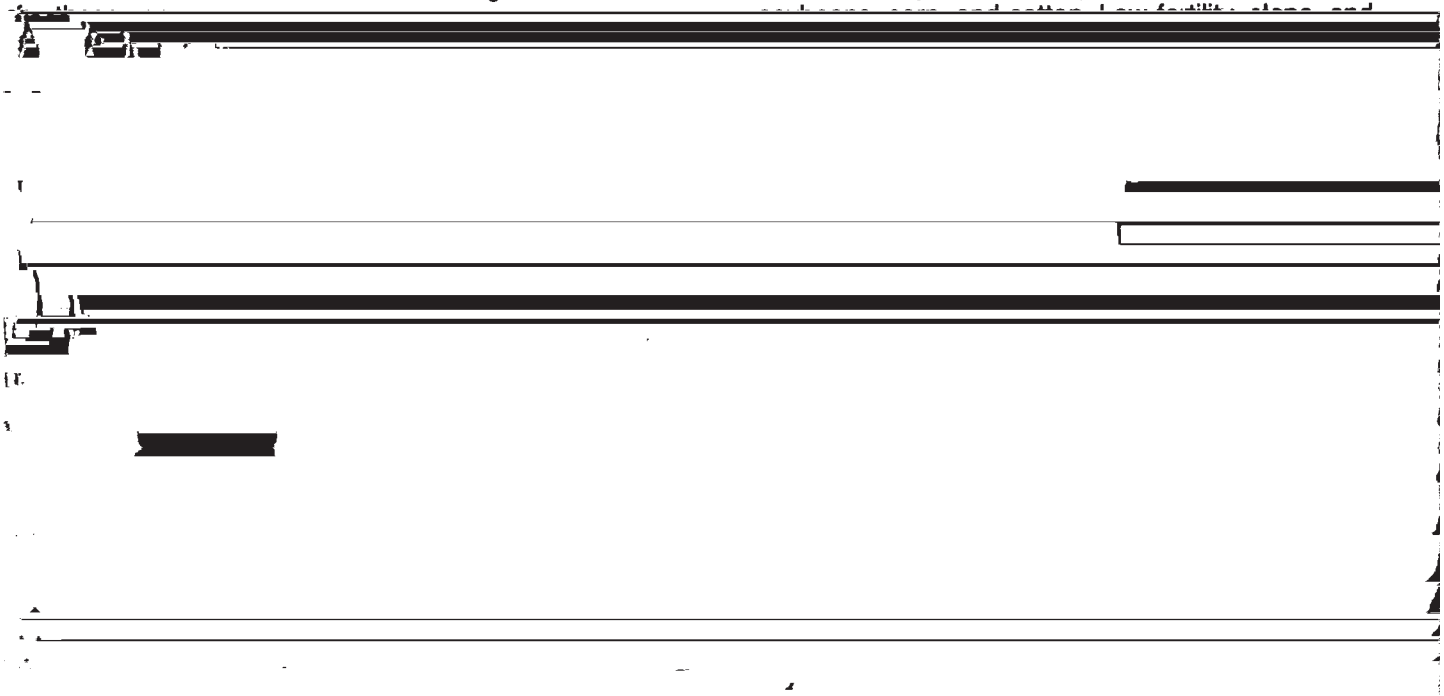
This soil is poorly suited to urban uses. Wetness and moderate permeability are limitations in areas where sanitary facilities are constructed. This soil can be protected against flooding if ring levees are constructed [illegible]

cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is moderately well suited to pasture. Flooding is the main limitation. The period of grazing and choice of pasture plants are limited because of flooding. A suitable pasture plant is common bermudagrass. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. During periods of flooding cattle need to be moved to adjacent protected areas or to pasture at a higher elevation.

This soil is generally not suited to cultivated crops. The hazard of flooding is too severe for this use.

This soil is generally not suited to urban and recreational uses. The hazard of flooding is too severe



This Roxana soil is in capability subclass Vw and woodland group 1o.

Rp—Ruston fine sandy loam, 1 to 5 percent slopes. This gently sloping, well drained soil is on narrow ridgetops in the terrace uplands. Areas range from about 10 acres to 350 acres.

Typically, the surface layer is about 4 inches thick. It is brown, strongly acid fine sandy loam. The subsurface layer is light yellowish brown, strongly acid fine sandy loam about 10 inches thick. The subsoil extends to a depth of about 75 inches. It is reddish brown, very strongly acid sandy clay loam in the upper part; yellowish red, very strongly acid fine sandy loam in the middle part; and red, very strongly acid sandy clay loam in the lower part.

Included with this soil in mapping are a few small areas of Briley, Malbis, and Smithdale soils. These areas

Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and the hazard of erosion when pasture plants are being established are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, and crimson clover. Additions of fertilizer and lime are needed for optimum growth of grasses and legumes. Seedbeds should be prepared on the contour or across the slope where it is practical. Rotation grazing helps to maintain the quality of forage.

This soil is moderately well suited to cultivated crops. The main crops are sweet potatoes, watermelons,

potentially toxic levels of exchangeable aluminum within the rooting zone are the main limitations. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. The use of minimum tillage and the construction of terraces and grassed waterways also help to control erosion. Most crops respond well to additions of lime and fertilizer, which help to overcome the low fertility and moderately high levels of exchangeable aluminum.

This soil is moderately well suited to urban uses. Moderate permeability is a limitation if septic tank absorption fields are installed, but this limitation can be overcome by increasing the size of the absorption field. The hazard of erosion is a limitation in areas where buildings are constructed. Revegetating disturbed areas around construction sites as soon as possible helps to

and intermittent streams. Slopes range from 5 to 12 percent.

The number of observations made in these areas was fewer than in other areas because the possibility of unexploded bombs severely restricts accessibility and limits the use and management of the soils. The detail in mapping, however, is adequate for the expected use of the soils.

Typically, the Ruston soil has a surface layer of dark grayish brown, strongly acid fine sandy loam about 5 inches thick. The subsurface layer is light yellowish brown, strongly acid fine sandy loam about 5 inches thick. The subsoil extends to a depth of about 80 inches. It is yellowish red, strongly acid sandy clay loam in the upper part; yellowish red, strongly acid fine sandy loam in the middle part; and yellowish red, very strongly acid fine sandy loam in the lower part. In places small amounts of gravel are throughout the profile.

The Ruston soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. This soil dries quickly after rains. Plants generally are damaged because of lack of water during dry periods in summer and fall of most years. The shrink-swell potential is low.

Typically, the Cadeville soil has a surface layer of dark grayish brown, strongly acid very fine sandy loam about 4 inches thick. The subsurface layer is yellowish brown, strongly acid very fine sandy loam about 3 inches thick. The subsoil is yellowish red, mottled, strongly acid silty clay in the upper part and light brownish gray, mottled, very strongly acid clay in the lower part. The underlying material to a depth of about 65 inches is brownish gray, mottled, very strongly acid silty clay.

The Cadeville soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a very slow rate. Water runs off the surface at a rapid rate. This soil has high shrink-swell potential in the subsoil. Plants generally are damaged because of lack of water during dry periods in summer and fall of most years.

Included with these soils in mapping are a few small areas of Briley, Malbis, and Smithdale soils. These areas make up about 15 percent of the map unit. Briley soils are on narrow, convex ridgetops and upper side slopes. They have a sandy surface layer and a sandy subsurface layer. Malbis soils are on broad ridgetops and on the lower parts of some side slopes. They have plinthite nodules in the subsoil and are loamy throughout. Smithdale soils are midway on the side slopes and are loamy throughout.

The entire acreage of these soils is in woodland within an abandoned military bombing range site in the national forest.

Unless all unexploded bombs are removed, these soils are not suited to cropland, pasture, urban uses, or recreational development.

These soils are well suited to woodland. Ruston soil has high potential for pine trees, and Cadeville soil has moderately high potential for pine trees. Restricted use of equipment because of the hazard of live explosives is the main concern in producing and harvesting timber. Harvesting equipment is limited to vehicles that have rubber tires. Reestablishment of trees after harvest is possible only by natural regeneration.

These Ruston and Cadeville soils are in capability subclass IVe. The Ruston soil is in woodland group 2o, and the Cadeville soil is in woodland group 3c.

RS—Ruston-Smithdale association, moderately rolling. The well drained Ruston and Smithdale soils are in the terrace uplands and are within an abandoned military bombing range site. The landscape is one of gently sloping ridgetops and moderately sloping side slopes. Areas, which range from 150 to 640 acres, are about 50 percent Ruston soil and about 35 percent Smithdale soil.

The Ruston soil is on the narrow ridgetops. The Smithdale soil is on short side slopes that are dissected by many short drainageways and intermittent streams.

The number of observations made in these areas was fewer than in other areas because the possibility of unexploded bombs severely restricts accessibility and limits the use and management of the soils. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from 1 to 8 percent.

Typically, the Ruston soil has a surface layer of dark grayish brown, strongly acid fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown, strongly acid fine sandy loam about 4 inches thick. The subsoil extends to a depth of about 75 inches. It is red and yellowish red, very strongly acid sandy clay loam in the upper part; and yellowish red and red, very strongly acid sandy clay loam in the lower part. In places small amounts of gravel are throughout the profile.

The Ruston soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. This soil dries quickly after rains. Plants generally are damaged because of lack of water during dry periods in summer and fall of most years. The shrink-swell potential is low.

Typically, the Smithdale soil has a surface layer of dark grayish brown, strongly acid fine sandy loam about 6 inches thick. The subsoil extends to a depth of about 72 inches. It is red, strongly acid sandy clay loam in the upper part; yellowish red, and yellowish red and strong brown, strongly acid sandy loam in the lower part. In places small amounts of gravel are throughout the profile.

The Smithdale soil has low fertility and high levels of exchangeable aluminum within the rooting zone that are potentially toxic to most crops. Water and air move through this soil at a moderate rate. Runoff is rapid, and the hazard of water erosion is severe. This soil dries quickly after rains. Plants generally are damaged because of lack of water during summer and fall of most years. The shrink-swell potential is low.

Included with these soils in mapping are a few small areas of Briley, Cadeville, and Malbis soils. These areas make up about 15 percent of the map unit. Briley soils are on narrow ridgetops. They have a sandy surface layer and a sandy subsurface layer. Cadeville soils are on the lower part of side slopes. They have more clay in the subsoil than Ruston and Smithdale soils. Malbis soils are on broader ridgetops. They have plinthite in the subsoil.

These soils are entirely in woodland. All of the areas are in an abandoned military bombing range site within the boundaries of a national forest.

Unless all unexploded bombs are removed, these soils are not suited to cropland, pasture, urban uses, or recreational development.

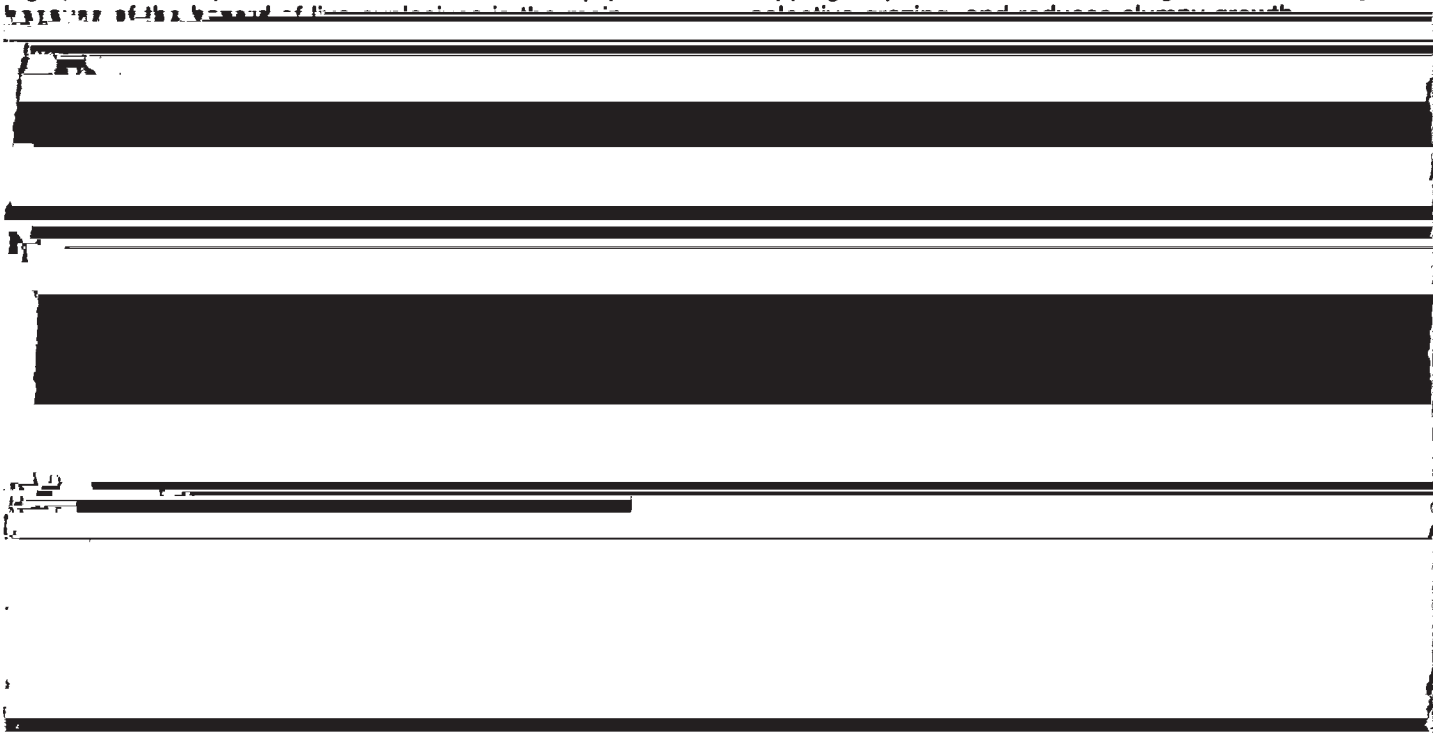
These soils are well suited to woodland. They have high potential for pine trees. Restricted use of equipment [redacted]

crops. Water and air move through the soil at a moderate rate. Runoff is rapid, and the hazard of water erosion is severe. This soil dries quickly after rains. Plants generally are damaged because of lack of water during dry periods in summer and fall of most years. The shrink-swell potential is low.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is well suited to woodland. It has high potential for pine trees. Management that minimizes the risk of erosion is important in harvesting timber. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and a severe hazard of erosion during seedbed preparation are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, and crimson clover. Additions of fertilizer and lime are needed for optimum growth of grasses and legumes. Where practical, seedbeds should be prepared on the contour or across the slopes. Periodic mowing and clipping helps to maintain uniform growth, discourages [redacted]

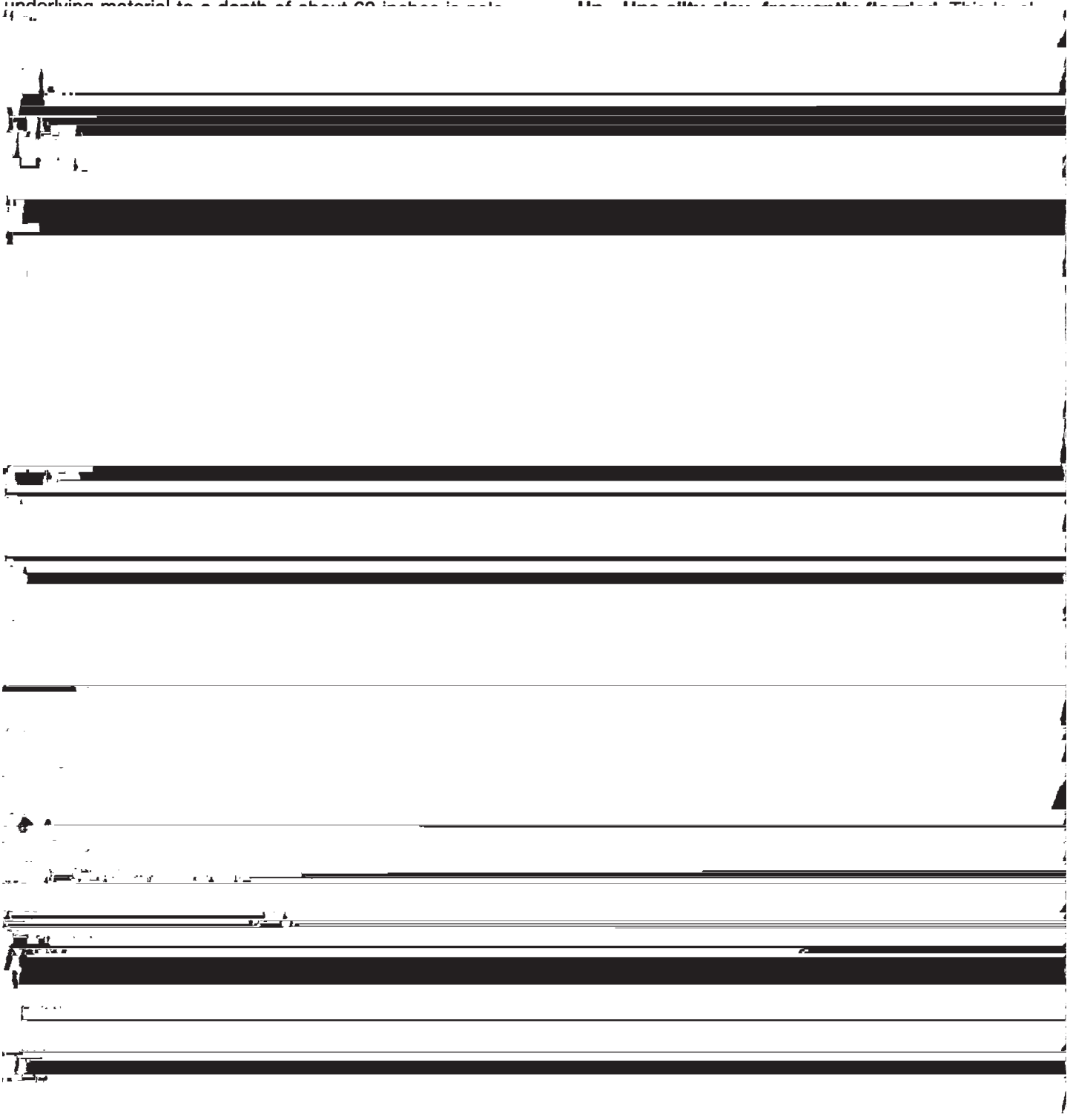


Typically, the surface layer is dark grayish brown, moderately alkaline silty clay loam about 6 inches thick. The subsoil is light yellowish brown, moderately alkaline silty clay in the upper part and pale yellow, moderately alkaline silty clay in the middle and lower parts. The underlying material to a depth of about 60 inches is pale

beauty of the area enhanced if adequate plant cover is maintained.

This Sumter soil is in capability subclass IIIe and woodland group 4c.

Un—Una silty clay, frequently flooded. This level



potential are additional limitations. Major flood control structures combined with extensive local drainage systems are needed to protect this soil from flooding.

This Una soil is in capability subclass Vw and woodland group 2w.

Uo—Urbo Variant silty clay loam, occasionally flooded. This very gently sloping, somewhat poorly drained soil is on low ridges within the alluvial plain of the Little River. Areas range from about 15 acres to 250 acres. Slopes range from 1 to 3 percent.

Typically, the surface layer is dark grayish brown, strongly acid silty clay loam about 4 inches thick. The subsoil is grayish brown, mottled, strongly acid silty clay loam in the upper part; grayish brown, mottled, very strongly acid silty clay loam in the middle part; and light brownish gray, mottled, very strongly acid sandy clay loam in the lower part. The substratum is

Grazing when the soil is wet results in compaction of the surface layer. During periods of flooding, cattle should be moved to adjacent protected areas or to pastures at a higher elevation.

This soil is poorly suited to cultivated crops. Wetness, the hazard of flooding, and medium fertility are the main limitations. Crops that can be planted late in spring, such as soybeans and small grains, are best suited.

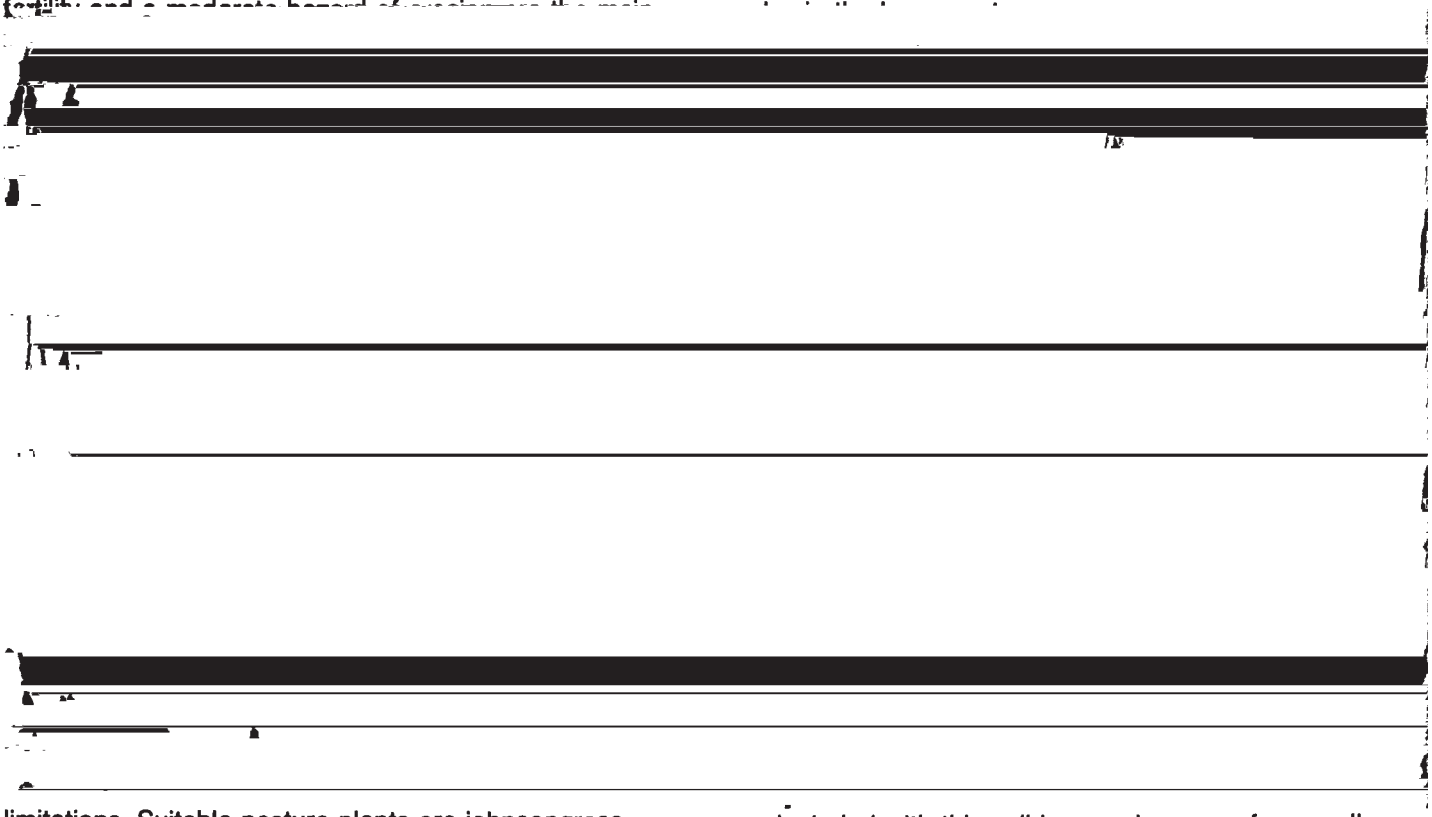
This soil is not suited to urban uses and recreational development. The hazard of flooding is too severe for these uses.

This soil is in capability subclass IVw and woodland group 3w.

Va—Vaiden silty clay, 1 to 5 percent slopes. This gently sloping, somewhat poorly drained soil is on broad interstream divides in the terrace uplands. Areas range

cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is moderately well suited to pasture. Low fertility and a moderate hazard of erosion are the main



limitations. Suitable pasture plants are johnsongrass, vetch, and bahiagrass. Additions of lime and fertilizer promote good growth of forage plants. Where it is practical, seedbeds should be prepared on the contour

depth of about 65 inches is gray and dark gray, mottled, slightly acid and neutral clay in the upper and middle parts and reddish brown, mottled, moderately alkaline

Included with this soil in mapping are a few small areas of Armistead, Latanier, and Moreland soils. All of these soils are on higher positions than Yorktown soils. Armistead and Latanier soils have loamy underlying

Prime Farmland

Prime farmland, as defined by the U.S. Department of Agriculture, is that land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high crop yields if acceptable farming methods are used. Prime farmland produces the highest yields with minimal inputs of energy and money, and farming it results in the least damage to the environment. Prime farmland is of major importance in satisfying the nation's short- and long-range needs for food and fiber. The supply of high quality farmland is limited, and it should be used with wisdom and foresight.

Prime farmland does not include any soil now being used for urban and built-up land or water areas. It includes only those prime farmland soils that are now used for cropland, pastureland, or woodland.

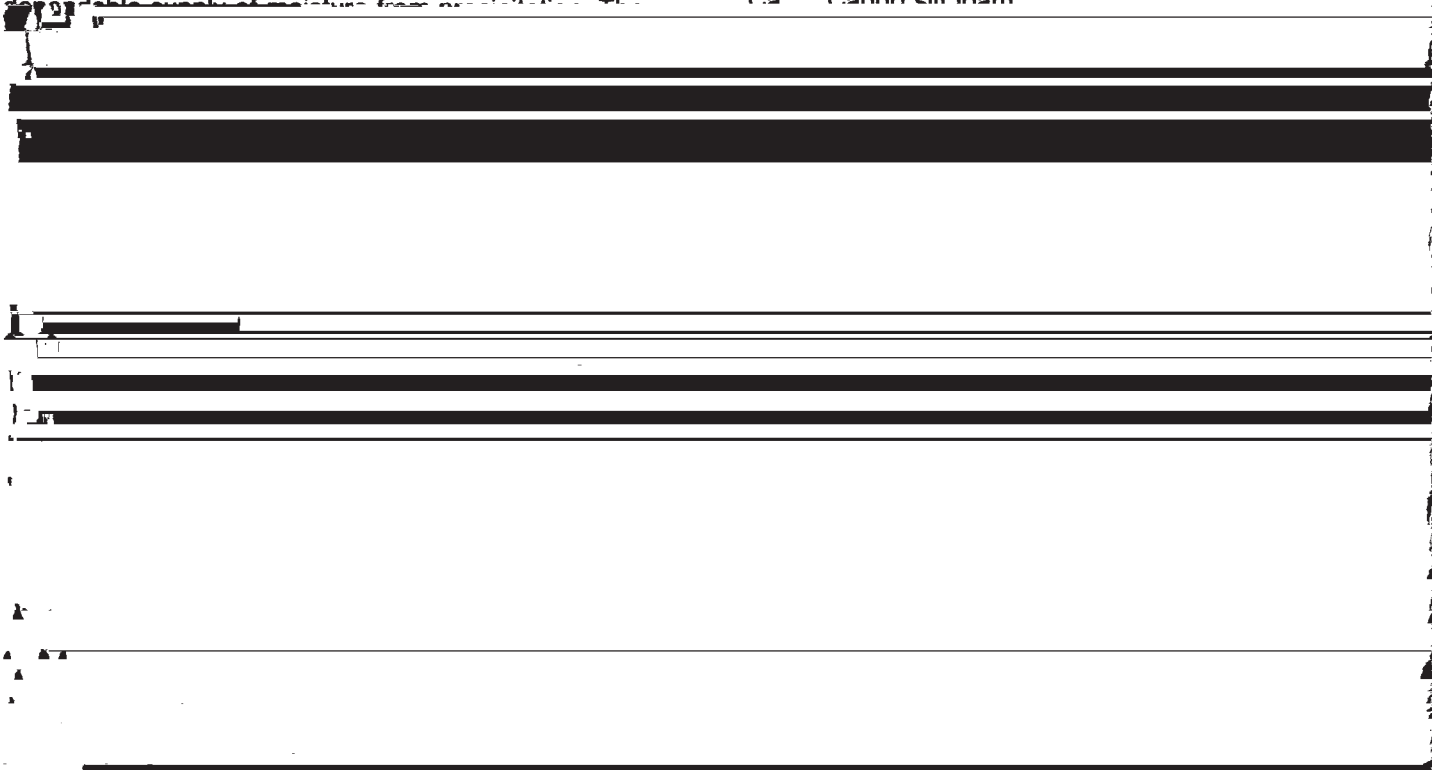
Prime farmland soils usually have an adequate and

Soils that have limitations—a seasonal high water table, flooding, or inadequate moisture—may qualify for prime farmland if these limitations are overcome by drainage or flood control. However, only those soils that have few limitations and need no additional improvements to qualify for prime farmland are included.

The following map units meet the soil requirements for prime farmland, unless it is urban or built-up land. Urban and built-up land is any contiguous unit of land 10 acres or more that is used as residential sites, industrial sites, commercial sites, construction sites, institutional sites, public administrative sites, railroad yards, small parks, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures and spillways, or similar uses.

Ad Armistead clay

Ca Caddo silt 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 in 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 potentials 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 in harmony with the natural soil.

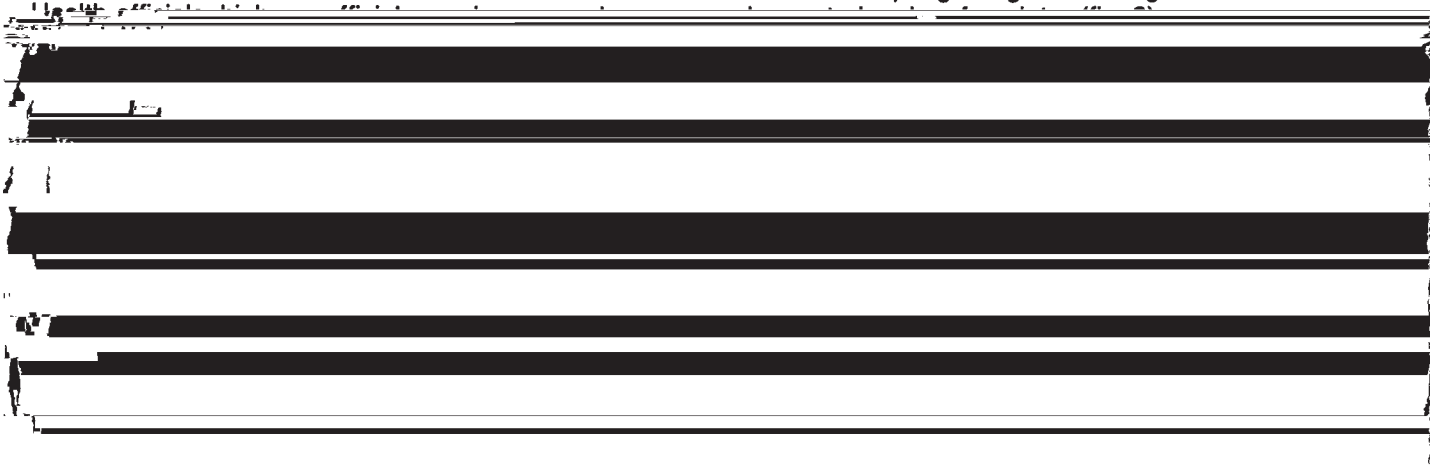
Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

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.

About 30,105 acres in Grant Parish was used for crops and pasture in 1978, according to the United States Census of Agriculture. About 19,058 acres was used for crops, mainly soybeans, and more than 11,047 acres was used for pasture. The acreage in crops has been gradually increasing as woodland and pastureland have been converted to use as cropland.

Differences in crop suitability and management needs are the result of differences in soil characteristics, such as fertility levels, erodibility, organic matter content, availability of water for plant growth, drainage, and the hazard of flooding. Cropping systems and soil tillage are additional important parts of management. Because the soil pattern of a farm is unique, each farm 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 applied widely to the soils of Grant Parish.

Perennial grasses or legumes or mixtures of grasses and legumes are grown for pasture and hay. These mixtures generally consist of either a summer or a winter perennial grass and a suitable legume. In addition, many farmers seed small grains or ryegrass in the fall for winter and spring forage. Excess grass in summer is



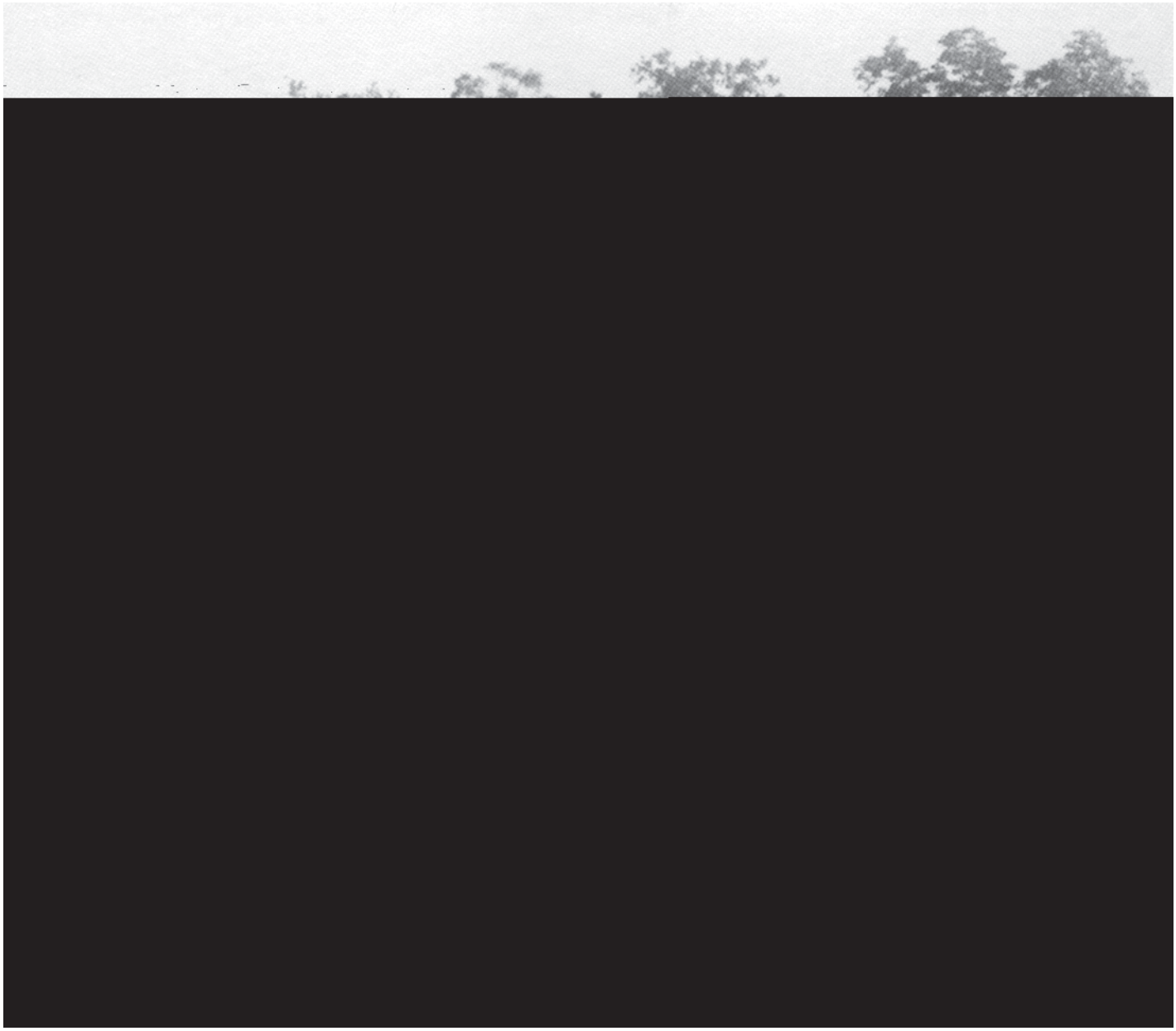


Figure 3.—Coastal bermudagrass cut for hay on Gallion silt loam.

Additional forage is sometimes obtained by grazing the understory native plants in woodland. The amount of forage volume varies according to 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 amounts of forage can be obtained if these areas are properly managed. Stocking rates and grazing periods need to be carefully controlled to achieve optimum forage production and also to maintain an adequate cover of understory plants to prevent erosion.

Fertilization and liming. The amount of fertilizer needed depends upon (1) the crop to be grown, (2) past cropping history, (3) the level of yield desired, and (4) the soil phase. Specific recommendations should be based on laboratory analysis of soil samples.

A soil sample for laboratory testing should consist of a single soil phase and should represent no more than 10 acres. Agricultural agencies in the parish can supply detailed information and instruction regarding soil

plants. This rainfall pattern favors the growth of early maturing crops.

Cropping system. A good cropping system includes a

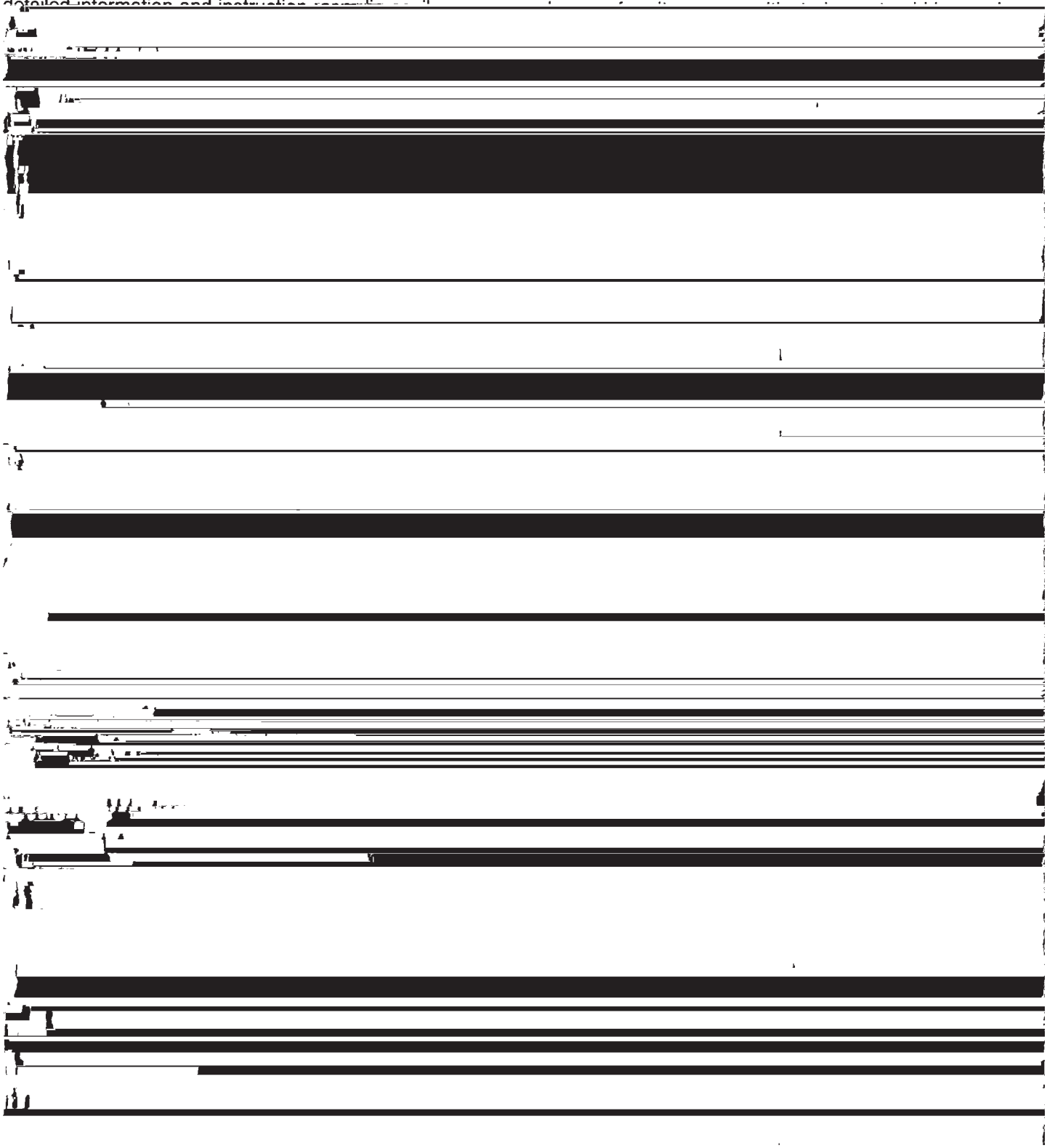


Figure 4.—Wheat harvesting on Roxana very fine sandy loam. This wheat, which was planted in the fall, will be followed by soybeans to be planted in spring and early in summer.

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.

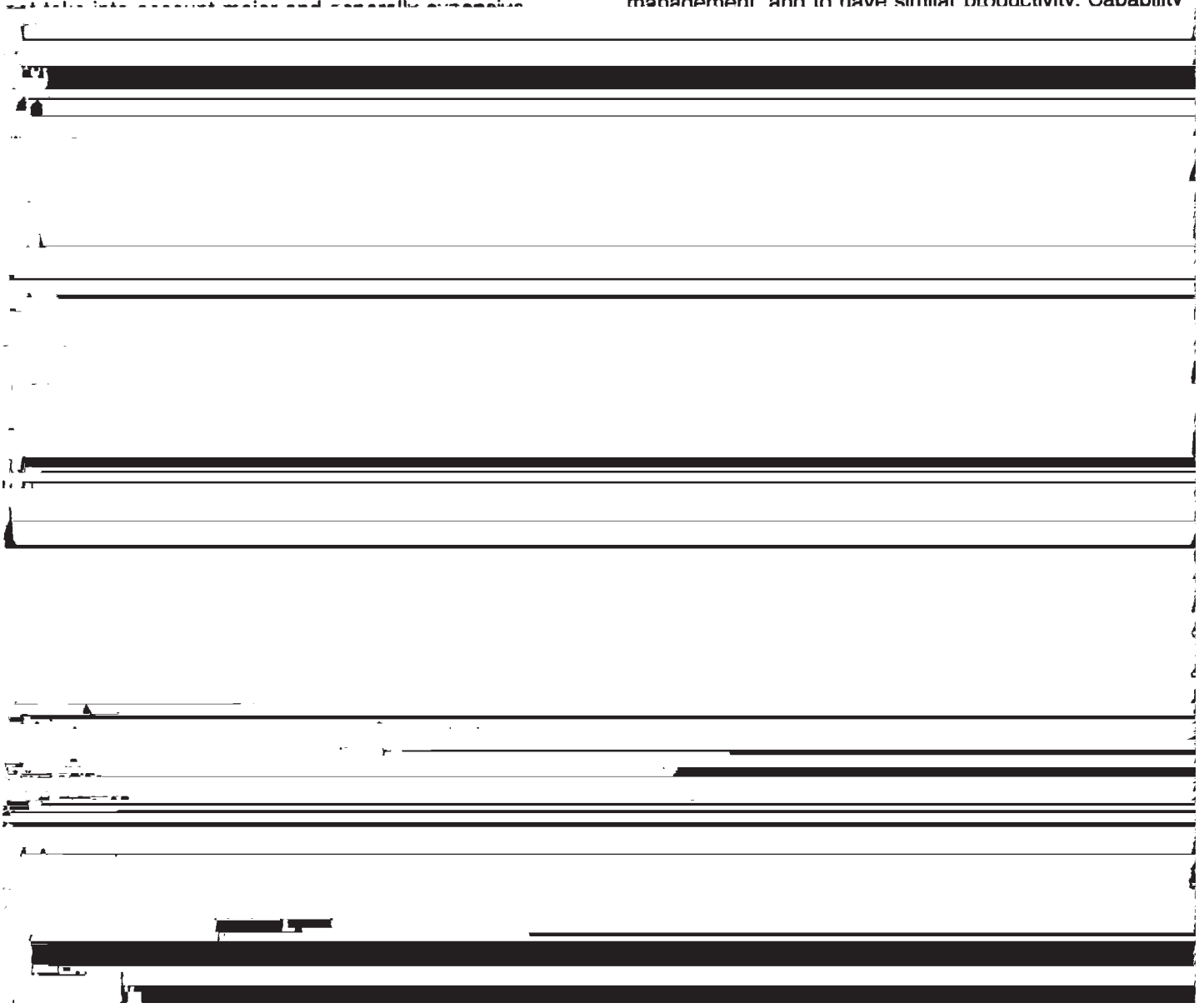
Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does [illegible]

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

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

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability



89 percent own less than 80 acres and 99 percent own less than 500 acres.

Clear-cutting by prescription is being carried on by the U.S. Forest Service, timber companies, and some nonindustrial timberland owners. Most of the clear cuts are followed by site preparation and tree planting or direct seeding. According to Louisiana Office of Forestry records, 212 plantations were made from 1931 to 1965. These plantations covered 15,011 acres.

Prescribed burning is practiced in many pine stands. This practice helps to reduce excessive fuel, control undesirable vegetation, improve wildlife habitat, and promote forage plant management. Easier site preparation for planting or seeding, better conditions for natural regeneration, and control of brown spot needle disease in longleaf pine are additional benefits of prescribed burning. Timberland owners are encouraged to follow improved harvesting methods so that wood can be produced on a sustained yield basis. Assistance is available from state and federal agency personnel, consulting foresters, and others.

Table 8 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation, *w*, indicates excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil and *s*, sandy texture. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w, d, c, and s.

In table 8, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

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

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

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

Recreation

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, 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 recreation 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

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 mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes

winter cover due to the large areas of open fields. The Red River and associated habitats serve as a primary migration route for waterfowl and provide resting habitat for migrating waterfowl in fall and spring.

Most of the 356,400 acres of forest is in the uplands. This forested area has low to high populations of wildlife. White-tailed deer, gray and fox squirrels, swamp and cottontail rabbits, wild turkeys, woodcocks, coyotes, foxes, mink, raccoons, opossums, beaver, nutria, mallards, wood ducks, various species of wading birds, reptiles, amphibians, and many other nongame animals

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 habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or

producing shrubs that are suitable for planting on soils rated *good* are red mulberry, redbay, and mayhew.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth 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,

[redacted]

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

[redacted]

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings without basements, small commercial buildings, local roads and

[redacted]

shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and

surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many

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, coarse fragments, and slope affect the ease of removing and spreading the material

stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or

soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

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

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

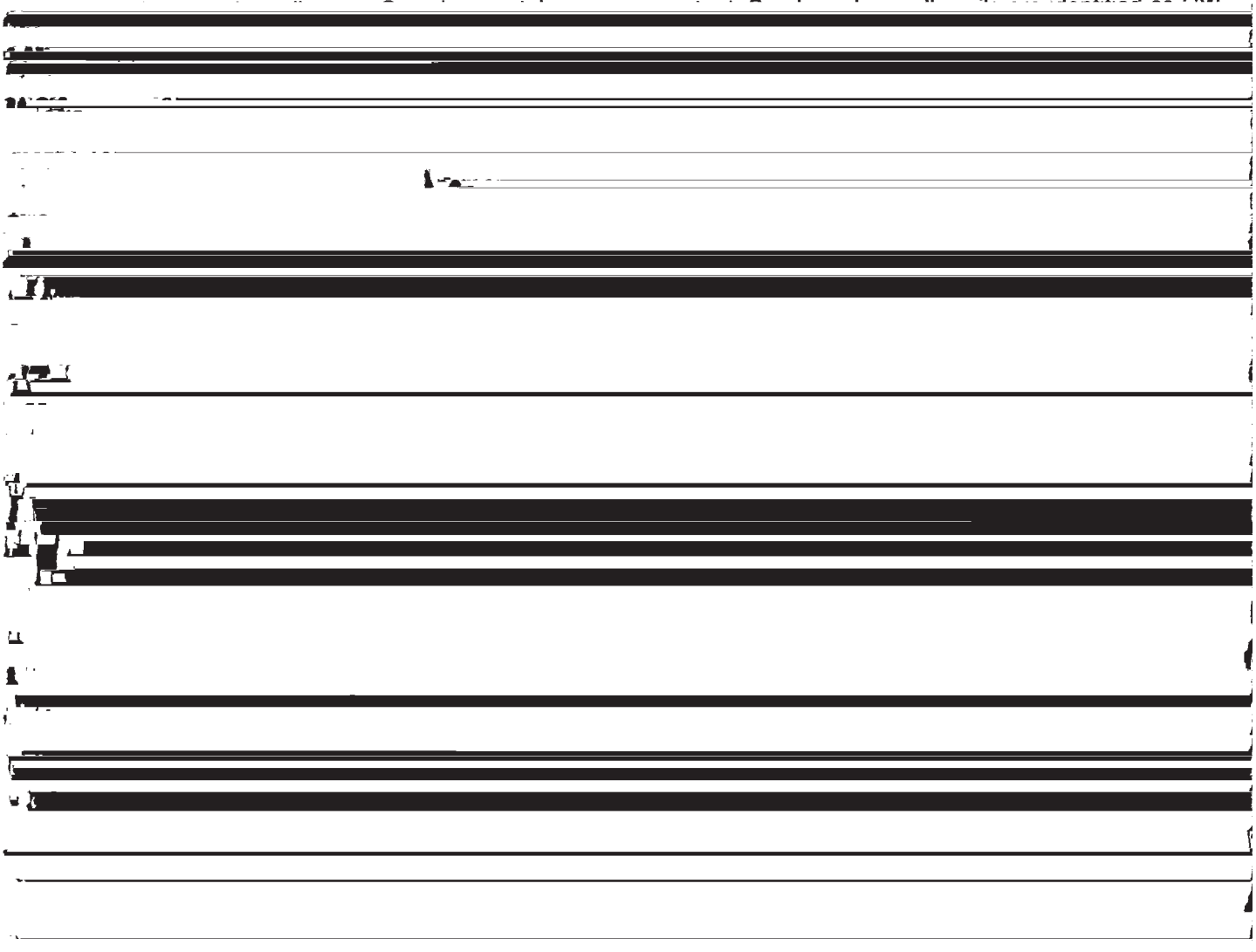
Soil Properties

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

Classification of the soils is determined according to the Unified soil classification system (*4*) and the system adopted by the American Association of State Highway and Transportation Officials (*3*).

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



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

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

Physical and Chemical Properties

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.

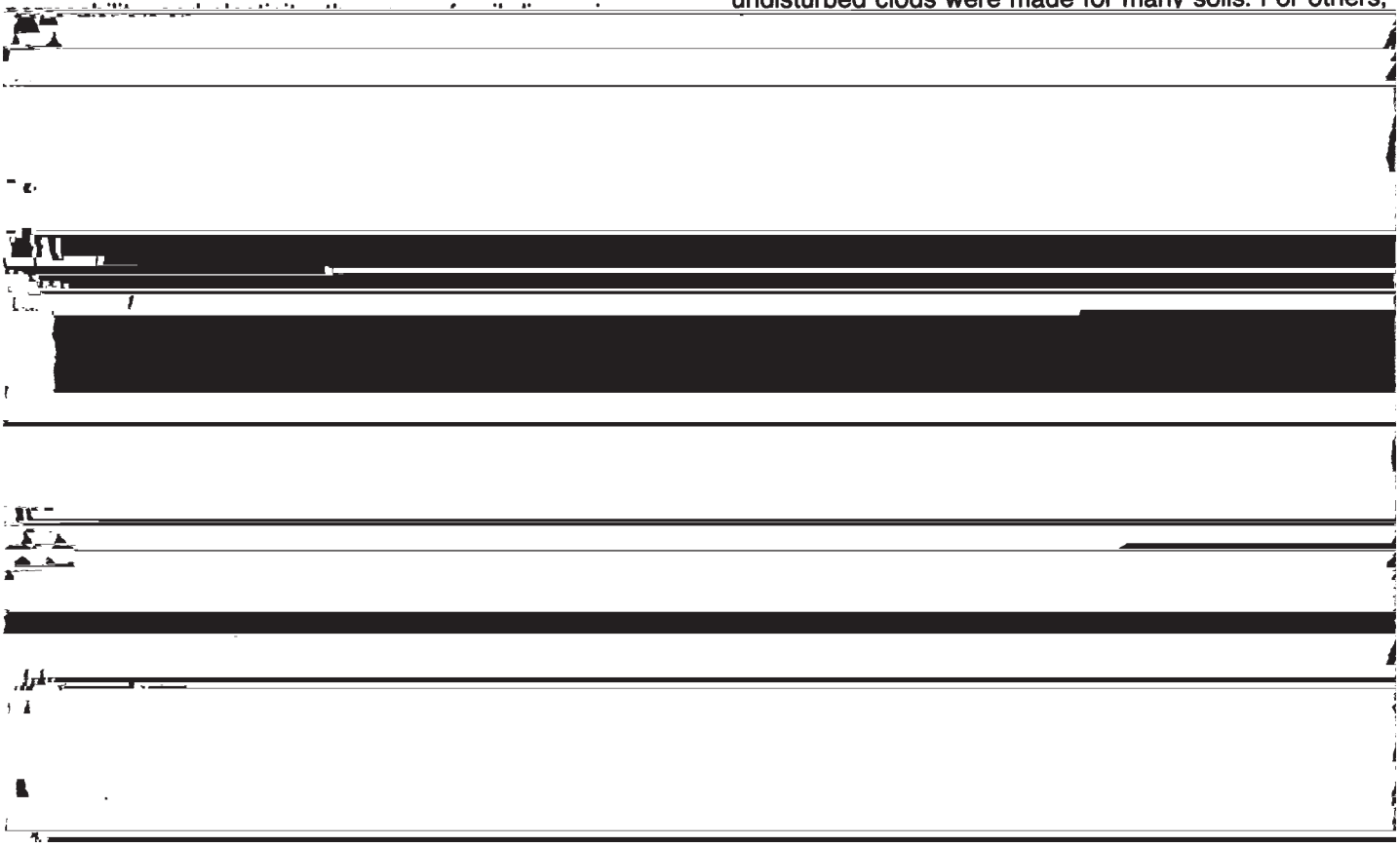
Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential,

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

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.

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,



Organic matter is the plant and animal residue in the soil at various stages of decomposition.

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

November 30. Duration and months are shown only for flooding during the cropping season because ratings are not critical in tables 9, 11, and 12.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. For yearly flooding, *none* means that flooding is not probable; *rare* that it is

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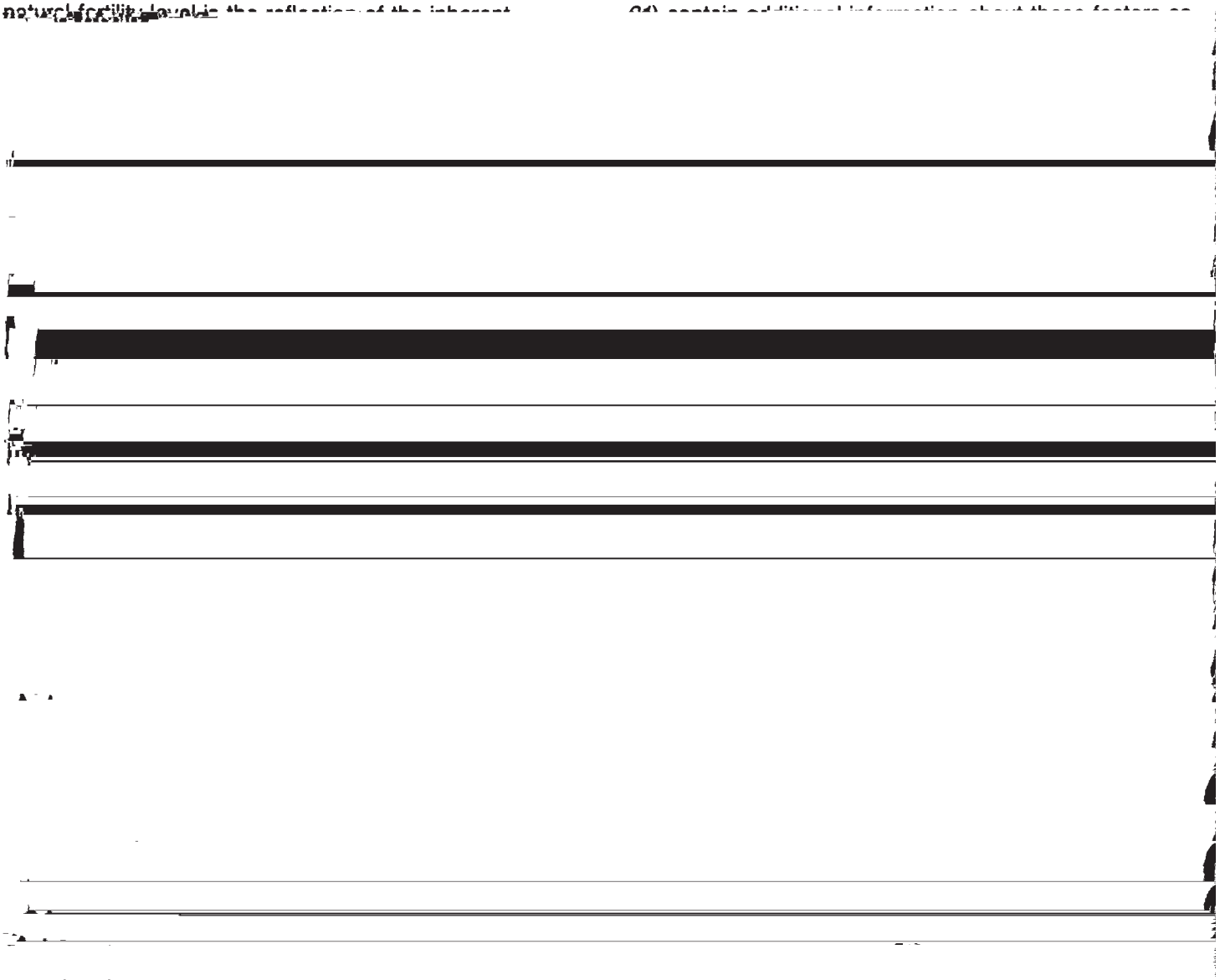


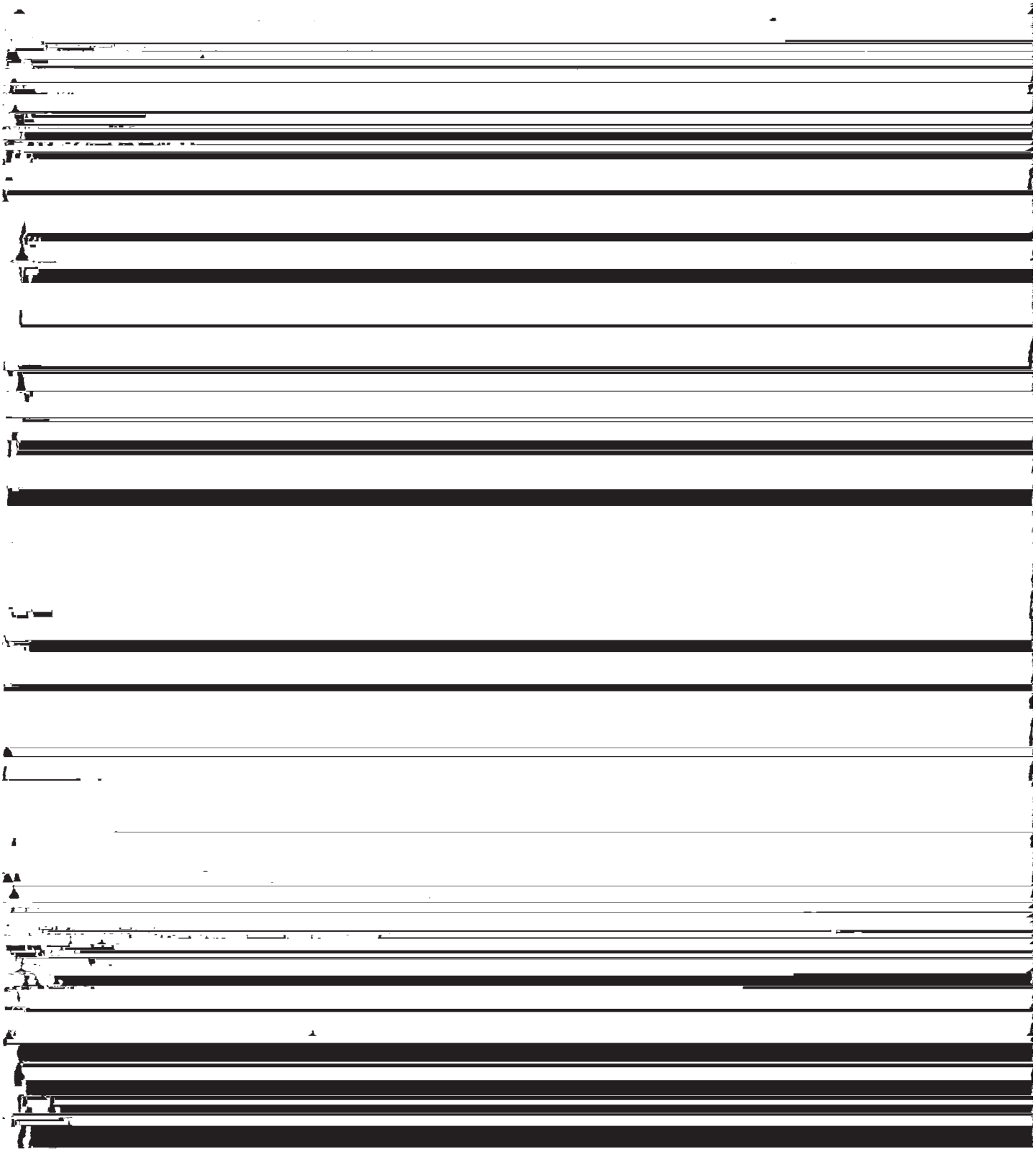
capacity of a soil to supply the nutrients required by plants and to provide a favorable chemical environment for the roots of plants. Plant nutrient deficiencies as well as excessive quantities of some elements may limit the yields of crops grown on some of the soils in Grant Parish.

In evaluating the fertility of a soil, the quantities of available plant nutrient elements are considered. The elements can be determined by either a soil test or plant tissue analyses, or both. Also considered are chemical characteristics of the soil that might have a detrimental effect on plant growth. During the survey, samples were collected from each horizon to a depth of at least 40 inches at representative sites of the soils mapped. The samples were analyzed to determine the organic matter content, soil reaction (pH), extractable phosphorus (P), cation exchange capacity and exchangeable calcium

well as the guidelines (*21*) used for various nutrient levels in this discussion.

The cation exchange capacity is almost entirely the result of the amount and kind of clay and organic matter present in a soil. For example, Moreland soil, which has large amounts of clay throughout, has a high cation exchange capacity in all horizons. In contrast, the Cascilla and Roxana soils, which have relatively small amounts of clay, have much lower cation exchange capacities. Many of the soils mapped in Grant Parish have more clay in the subsoil horizons than in the surface horizons. As a result, these soils frequently have a greater cation exchange capacity in the subsoil than in the surface horizon. The cation exchange capacity in the Rigolette soil, for example, is 9.8 milliequivalents per 100 grams of soil in the surface layer and 41.0 milliequivalents per 100 grams of soil in some of the

with calcium, 10 to 20 percent saturation with magnesium, 2 to 5 percent saturation with potassium, humid subtropical climate such as that of Grant Parish. The source of the Na in these soils has not been

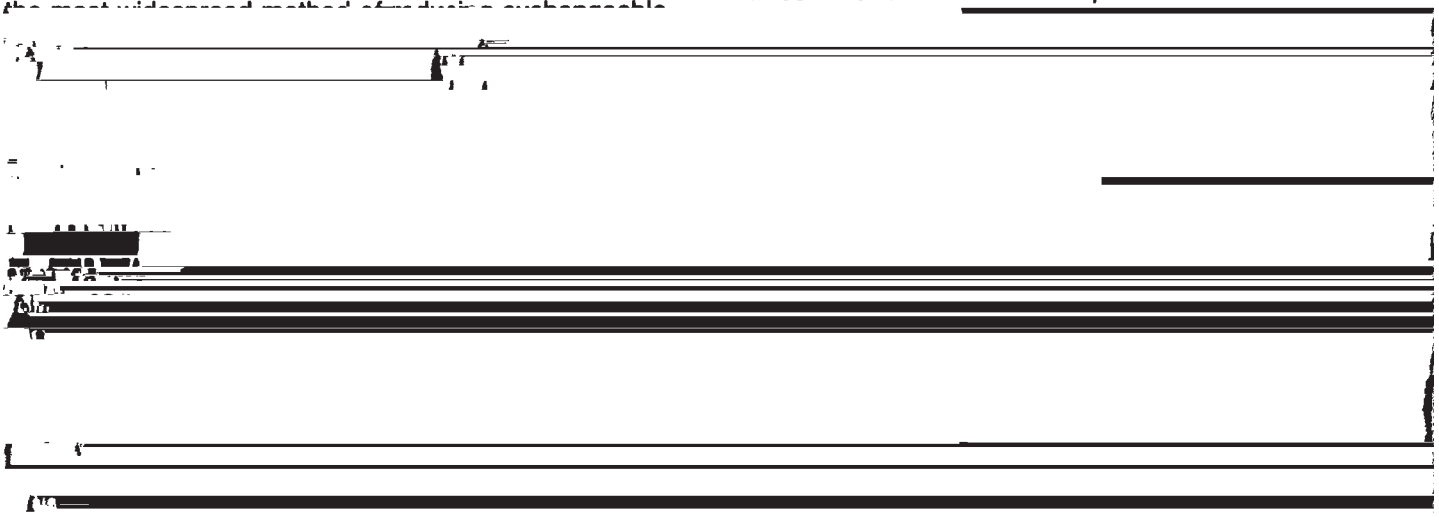


soils having pH 5.5 or less (*18, 19*). Potentially toxic levels of exchangeable A1 have not been found in soils having high pH values.

Soil treatments or other cultural methods that reduce or avoid problems associated with high levels of exchangeable A1 have not been thoroughly studied in Louisiana. Liming soil horizons to above 5.5 is probably

surface horizons are more common for Mn than A1. Toxicity caused by high levels of Mn is more common in wet years than in dry years.

Soils that developed in recent Red River alluvium, such as Armistead, Roxana, Latanier, Moreland, Norwood, and Gallion soils, have free calcium carbonate in some or all horizons. The presence of calcium



Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*29*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil 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

The somewhat poorly drained Latanier soils are in slightly higher positions and do not have an argillic horizon. The somewhat poorly drained Moreland soils are in positions similar to those of the Armistead soils and are clayey throughout.

Typical pedon of Armistead clay, 3 miles southeast of Colfax, 2 miles east of Highway 8, 1.3 miles north of Highway 492, 270 feet south of gate, 150 feet west of fence, center of sec. 50, T. 6 N., R. 3 W.

Ap—0 to 5 inches; dark brown (7.5YR 3/2) clay; common fine faint yellowish red mottles; weak medium subangular blocky structure; firm; few medium and fine roots; common fine reddish brown stains; slightly acid; clear smooth boundary.

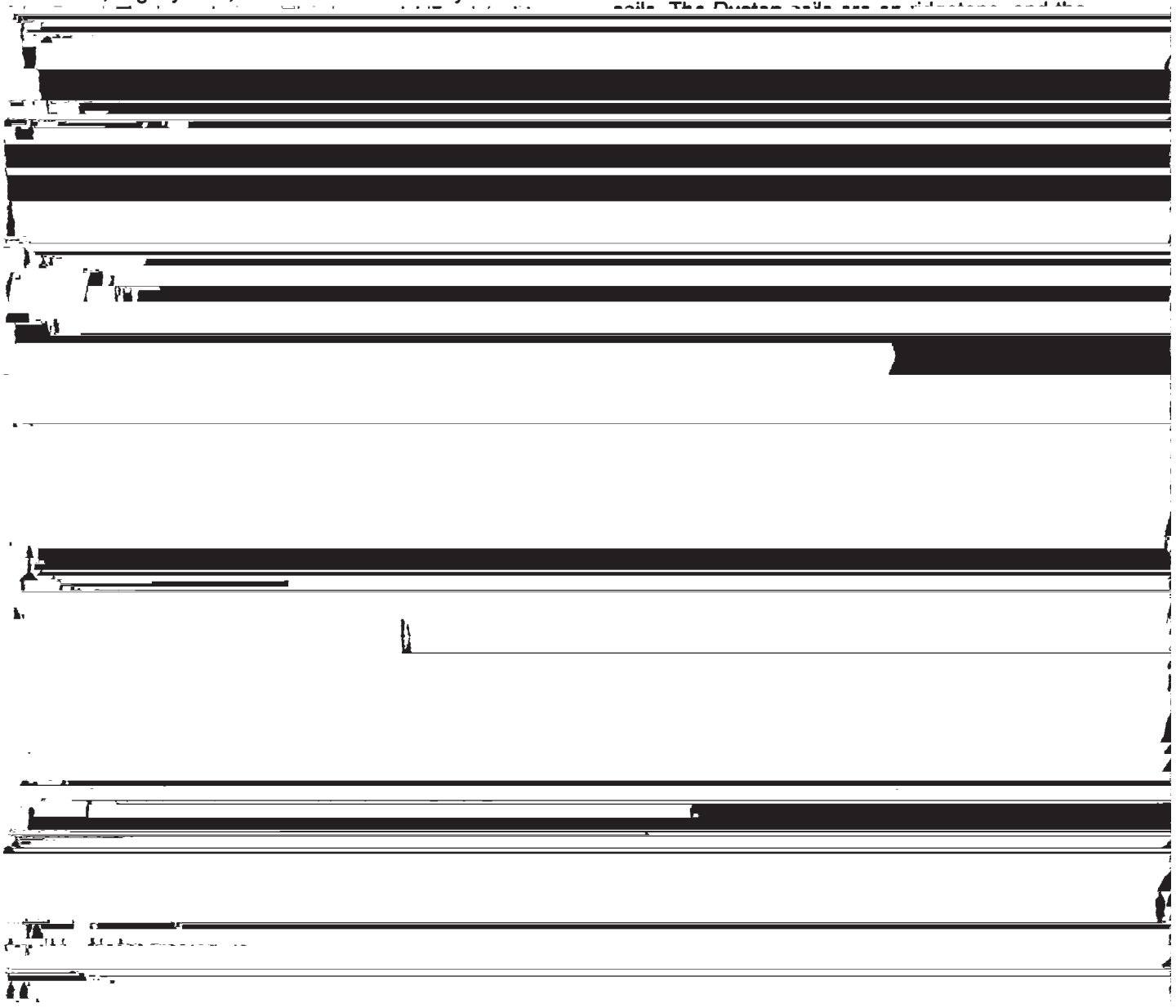
The IIC horizon is similar in color and reaction to the IIBt horizon. It is silty clay loam, silt loam, loam, or very fine sandy loam.

Briley Series

The Briley series consists of well drained, moderately permeable soils that formed in sandy and loamy sediment. These soils are on convex ridgetops and side slopes in the terrace uplands. Slopes range from 5 to 12 percent.

Soils of the Briley series are loamy, siliceous, thermic Arenic Paleudults.

Briley soils commonly are near Ruston and Smithdale soils. The Ruston soils are on ridgetops and the



Caddo Series

The Caddo series consists of poorly drained, slowly permeable soils that formed in loamy sediment. These soils are on broad flats in the terrace uplands. Slopes are less than 1 percent.

Soils of the Caddo series are fine-silty, siliceous, thermic Typic Glossaqualfs.

Caddo soils commonly are near Glenmora and Guyton soils. Glenmora soils are in higher positions and are not so gray as Caddo soils. The Guyton soils are in lower positions and do not have red mottles in the subsoil.

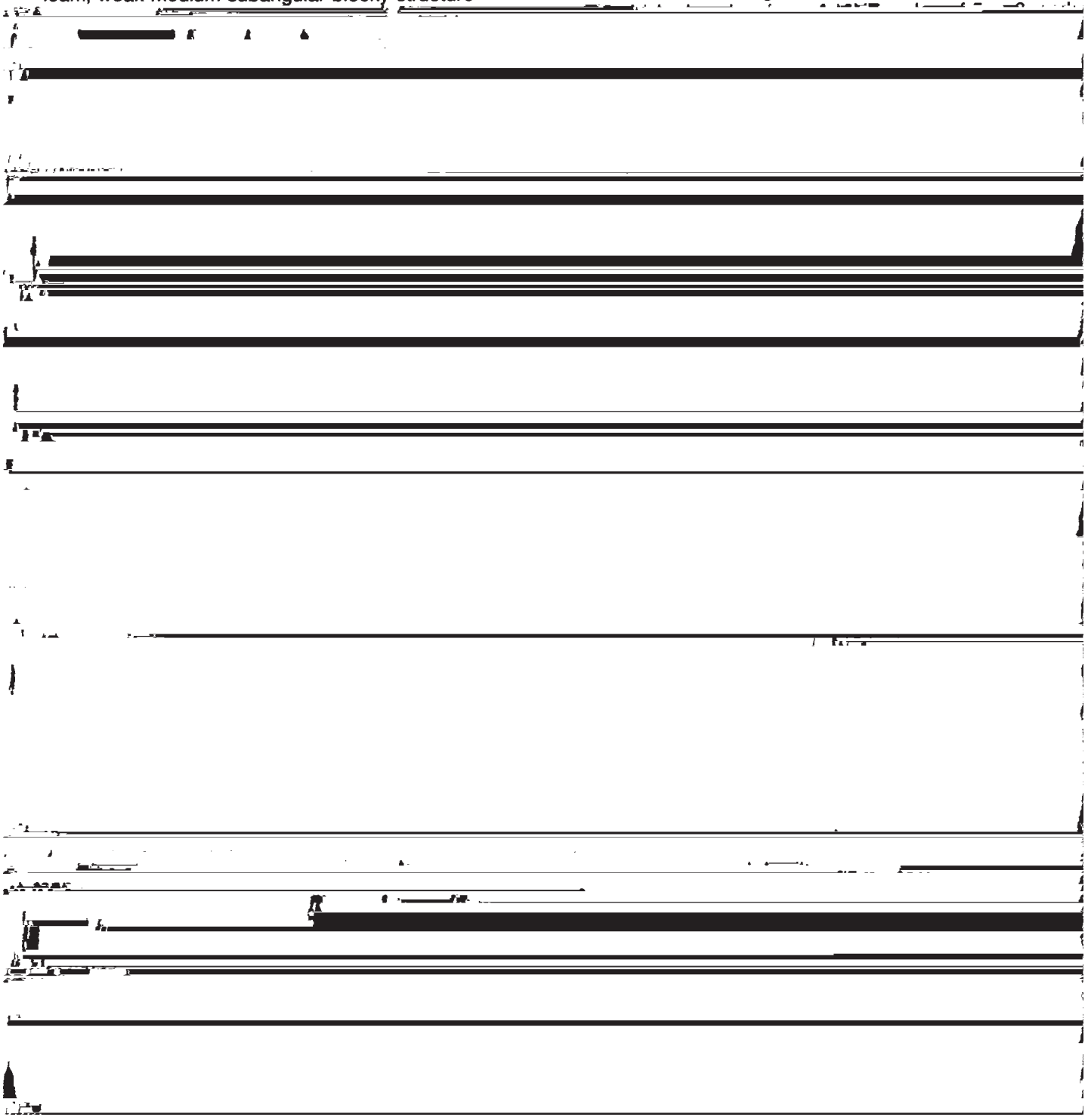
mottles; weak medium subangular blocky structure; firm; very strongly acid.

The solum ranges from 60 to 100 inches in thickness. Reaction ranges from very strongly acid to medium acid throughout. The effective cation exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum in the control section to a depth of 30 inches or more.

The A1 horizon has hue of 10YR, value of 5, and chroma of 2, or value of 4 and chroma of 1 or 2. It is 2 to 6 inches thick.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) very fine sandy loam; weak fine granular structure; friable; many fine and medium roots; few coarse roots; extremely acid; clear smooth boundary.
A2—3 to 6 inches; brown (10YR 5/3) very fine sandy loam; weak medium subangular blocky structure

The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is 2 to 5 inches thick and ranges from extremely acid to medium acid. In the control section, to a depth of 30 inches or more, the effective cation exchange capacity of this soil is 20 to 50 percent saturated with exchangeable aluminum.



clay loam; moderate medium subangular blocky structure; firm; common fine discontinuous random tubular impeded pores; common discontinuous distinct thick clay films on vertical faces of peds; strongly acid; gradual wavy boundary.

B3—40 to 48 inches; yellowish red (5YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few patchy faint thin clay films on vertical faces of some peds; few sand pockets; few light yellowish brown (10YR 6/4) stains; strongly acid; gradual wavy boundary.

and have an argillic horizon.

Typical pedon of Cascilla silt loam, in an area of Guyton and Cascilla soils, frequently flooded, 3 miles south of Bentley, 1,420 feet east of Highway 167, 20 feet south of parish road, SE1/4NE1/4 sec. 29, T. 6 N., R. 1 W.

Ap—0 to 8 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; few fine roots; very friable; very strongly acid; clear wavy boundary.

Gallion Series

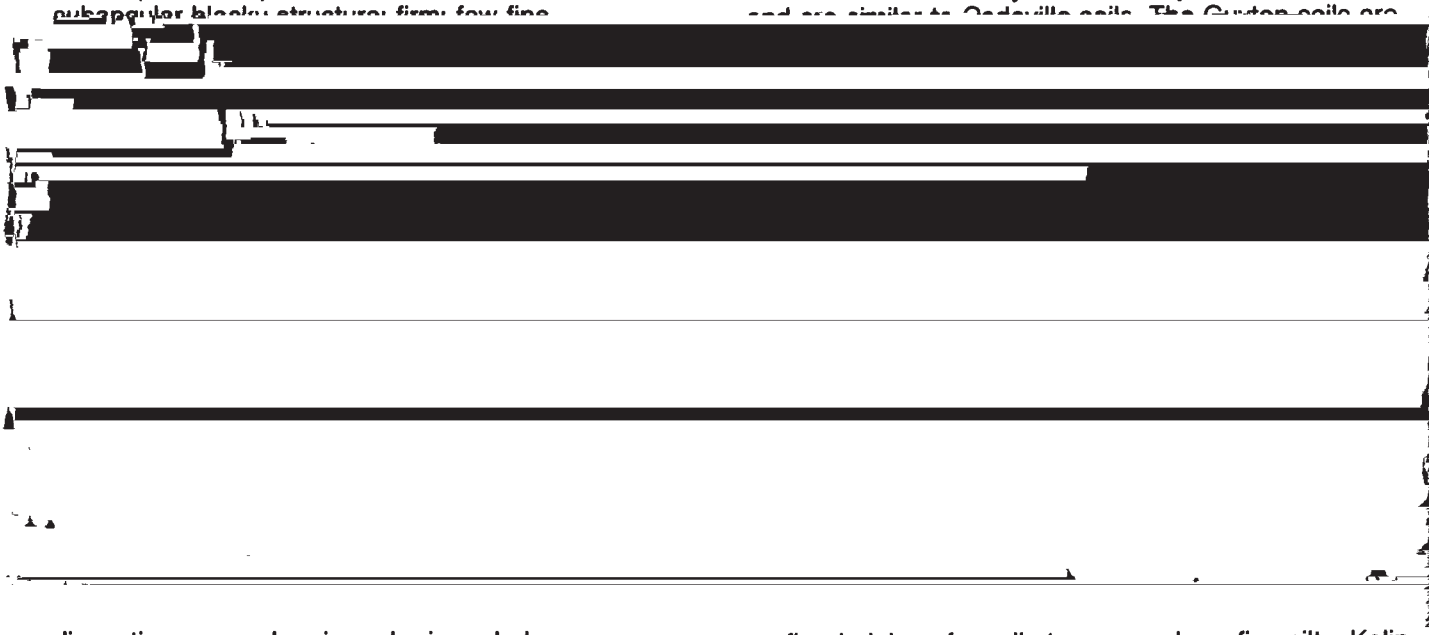
The Gallion series consists of well drained, moderately permeable soils that formed in loamy alluvium. These soils are on natural levees of former channels of the Red River and its distributaries. Slopes are less than 1 percent.

acid to mildly alkaline. It is silt loam, clay loam, or silty clay loam.

The B3 horizon has a color range similar to that of the B2t horizon. It ranges from slightly acid to moderately alkaline and is very fine sandy loam, silt loam, loam, clay loam, or silty clay loam. Some pedons have carbonates.

The C horizon is similar in color, reaction, and texture

(7.5YR 5/6) silty clay loam (B2t); light brownish gray (10YR 6/2) silt (A'2) on exterior of peds makes up 15 percent of horizon; many medium prominent red (2.5YR 4/8) and common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine



discontinuous random irregular impeded pores; common discontinuous distinct thick clay films on faces of some peds; medium acid; clear wavy boundary.

B22t—38 to 54 inches; gray (10YR 6/1) silty clay loam; many coarse distinct yellowish brown (10YR 5/6) and few fine prominent red mottles; moderate medium subangular blocky structure; firm; common discontinuous distinct thick clay films on faces of peds; medium acid; clear smooth boundary.

B23t—54 to 69 inches; mottled yellowish brown (10YR 5/6) and gray (10YR 6/1) silty clay loam; few fine prominent red mottles; weak medium subangular blocky structure; firm; few discontinuous distinct thick clay films on faces of peds; medium acid; clear wavy boundary.

C—69 to 80 inches; yellowish red (5YR 5/6) silty clay; common medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; massive; firm; medium acid.

The thickness of the solum ranges from 60 to 100 inches. The soil ranges from very strongly acid to medium acid throughout the profile. The effective cation exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum in the control section to a depth of 30 inches or more.

The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. It is 4 to 7 inches thick.

The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 2 or 3. It is silt loam or very fine sandy loam

sediment. These soils are in terrace uplands. Slopes range from 1 to 12 percent.

Soils of the Gore series are fine, mixed, thermic Vertic Paleudalfs.

Gore soils commonly are near Guyton and Kolin soils and are similar to Cadeville soils. The Guyton soils are on flood plains of small streams and are fine-silty. Kolin soils are in slightly higher positions and are fine-silty. Cadeville soils are in higher positions on a different landscape. They are grayer throughout than Gore soils and have montmorillonitic clay mineralogy.

Typical pedon of Gore silt loam, 1 to 5 percent slopes, 2.75 miles southeast of Montgomery, 0.4 mile southwest of Highway 71, 210 feet southeast of logging road, NW1/4NW1/4 sec. 35, T. 8 N., R. 5 W.

A1—0 to 4 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; few coarse roots and common fine roots; medium acid; clear wavy boundary.

A2—4 to 7 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; common fine roots; few fine discontinuous random tubular impeded pores; strongly acid; clear wavy boundary.

B1—7 to 10 inches; strong brown (7.5YR 5/6) silty clay loam; few medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; common fine roots; few fine discontinuous random tubular impeded pores; strongly acid; clear smooth boundary.

B21t—10 to 18 inches; yellowish red (5YR 5/6) silty clay; common medium distinct strong brown (7.5YR 5/6) and few fine faint light yellowish brown mottles; moderate medium subangular blocky structure; firm; common patchy faint thin clay films on vertical faces of peds; very strongly acid; gradual smooth

mottles; weak medium subangular blocky structure; firm; pressure faces on some vertical and horizontal surfaces of peds; strongly acid; clear wavy boundary.

C—57 to 65 inches; yellowish red (5YR 5/6) clay; common fine distinct gray mottles; massive; firm; medium acid.

The thickness of the solum ranges from 40 to 60 inches. The effective cation exchange capacity of this soil is 50 percent or more saturated with exchangeable aluminum in the control section to a depth of 30 inches or more.

The A1 horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. It is 2 to 4 inches thick and is very strongly acid to medium acid. It is typically silt loam, although the range includes very fine sandy loam.

The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. It is strongly acid to medium acid and is silt loam or very fine sandy loam. The thickness of the A2 horizon ranges from 0 to 5 inches.

The upper part of the B2t horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 4 to 6. The lower

roots and common medium roots; few fine concretions of iron and manganese oxides; oxidation stains around root channels; very strongly acid; clear smooth boundary.

A21g—6 to 14 inches; light brownish gray (10YR 6/2) silt loam; few fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable; few medium and fine roots; common very fine discontinuous random tubular impeded pores; few fine concretions of iron and manganese oxides; oxidation stains around root channels; strongly acid; clear wavy boundary.

A22g—14 to 24 inches; light gray (10YR 7/1) silt loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine discontinuous random tubular impeded pores; few fine medium concretions of iron and manganese oxides; oxidation stains around roots; strongly acid; clear irregular boundary.

B&A—24 to 35 inches; grayish brown (10YR 5/2) silty clay loam (B2t); few medium distinct yellowish brown

brown or gray.

Kisatchie Series

The Kisatchie series consists of well drained, very slowly permeable soils that formed in clayey sediment over siltstone or sandstone. These soils are in terrace uplands. Slopes range from 5 to 20 percent.

Soils of the Kisatchie series are fine, montmorillonitic

saturated with exchangeable aluminum in the control section to a depth of 30 inches or more.

The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is 3 to 6 inches thick and is very strongly acid or strongly acid. Typically, the A1 horizon is very fine sandy loam, although fine sandy loam and silt loam are within the range.

The A12 horizon has hue of 10YR, value of 4, and

discontinuous random tubular impeded pores; common discontinuous distinct thick clay films on faces of some peds; common medium concretions of iron and manganese oxides; light yellowish brown stains in and around root channels; strongly acid; clear smooth boundary.

B22t—13 to 20 inches; strong brown (7.5YR 5/6) silty clay loam; many medium distinct yellowish brown (10YR 5/6) and many fine prominent red mottles; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; firm; few fine roots, few medium roots; many medium discontinuous random tubular impeded pores; common continuous distinct thick clay films on surfaces of peds; few medium concretions of iron and manganese oxides; strongly acid; clear wavy boundary.

B&A'2—20 to 28 inches; yellowish brown (10YR 5/6) silty clay loam (B2t); gray (10YR 6/1) silt coatings 2 to 10 millimeters thick surrounding peds (A2); common medium distinct light yellowish brown (10YR 6/4) and common medium prominent red (2.5YR 4/8) mottles; strong coarse subangular blocky structure parting to moderate medium subangular blocky; firm; few fine roots; few fine

The A1 horizon has hue of 10YR, value of 3, and chroma of 1 or 2, or it has value of 4 and chroma of 1 to 3. It is 3 to 7 inches thick and ranges from strongly acid to slightly acid.

The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 to 3. It ranges from strongly acid to slightly acid.

The B2t horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 6 to 8. It is silty clay loam or silt loam and ranges from very strongly acid to medium acid.

The IIB horizon has hue of 2.5YR, 7.5YR, or 5YR, value of 4 or 5, and chroma of 6 to 8. It is clay or silty clay and ranges from very strongly acid to slightly acid.

Latanier Series

The Latanier series consists of somewhat poorly drained, very slowly permeable soils that formed in clayey over loamy alluvium. These soils are on alluvial plains of the Red River. Slopes are less than 1 percent.

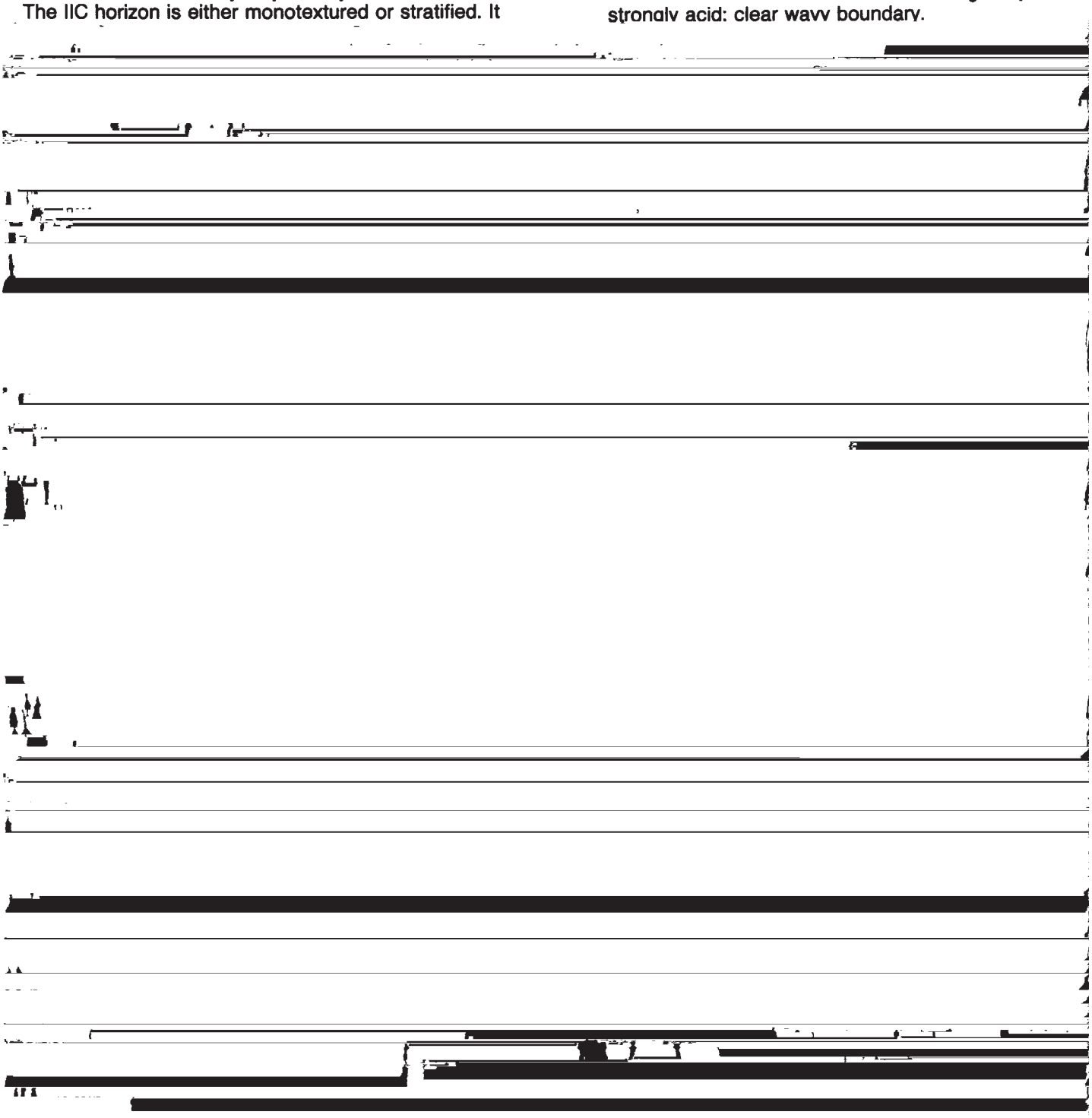
Soils of the Latanier series are clayey over loamy, mixed, thermic Vertic Hapludolls.

Latanier soils commonly are near Armistead, Gallion, and Moreland soils. Armistead soils are in slightly higher positions on the landscape and have less than 20 inches

The A horizon has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 5YR, value of 3, and chroma of 2 or 3. It is silty clay or clay.

The B2 horizon has hue of 2.5YR, value of 3 or 4, and chroma of 4; or it has hue of 5YR, value of 3 or 4, and chroma of 3 or 4. It is silty clay or clay.

The IIC horizon is either monotextured or stratified. It moderate medium subangular blocky; firm; common fine discontinuous random tubular impeded pores; common discontinuous distinct thick clay films on surfaces of peds; 15 percent plinthite nodules; few seams of light gray (10YR 7/1) silt loam about 10 millimeters wide and 10 centimeters long; very strongly acid; clear wavy boundary.



A1—0 to 5 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine granular blocky structure; friable; common fine and few coarse roots; very strongly acid; clear smooth boundary.
B21tg—5 to 20 inches; gray (10YR 6/1) silty clay; many medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; slightly plastic; few medium roots; few patchy faint thin clay films on surfaces of some peds; very strongly acid; gradual wavy boundary.
B22tg—20 to 35 inches; light brownish gray (1.5Y 6/2) silty clay; few medium distinct yellowish brown (10YR 5/6) mottles; strong medium subangular blocky structure; firm; plastic; few fine roots; few patchy faint thin clay films on surfaces of some peds; strongly acid; gradual wavy boundary.
B23tg—35 to 60 inches; light brownish gray (2.5Y 6/2) silty clay; few fine faint light olive brown mottles; strong medium angular blocky structure; firm; plastic; many distinct pressure faces on surfaces of peds; few slickensides that do not intersect; strongly acid; gradual wavy boundary.
B3g—60 to 75 inches; mottled gray (10YR 6/1) and yellowish brown (10YR 5/6) silty clay; strong medium angular blocky structure; firm; plastic; few slickensides that do not intersect; very strongly acid.

The thickness of the solum ranges from 40 to more than 80 inches. Reaction ranges from very strongly acid to medium acid throughout. The effective cation exchange capacity is 50 percent or more saturated with exchangeable aluminum in the control section to a depth of 30 inches or more.

The A1 horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. It is 2 to 6 inches thick. Typically, the A horizon is silty clay loam; however, the range includes silt loam.

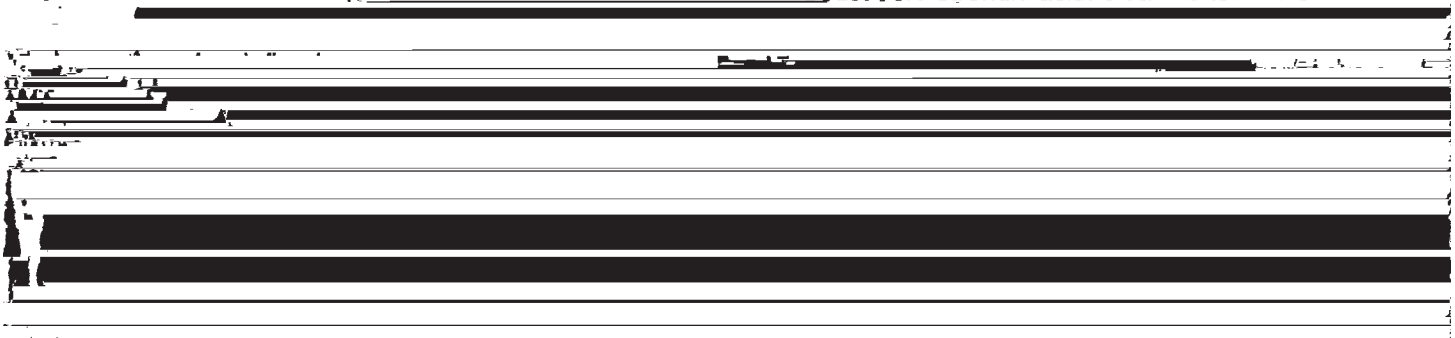
The B2t horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. The lower part of the B2t horizon and the B3 horizon are mottled in shades of gray, yellow, and brown. The B2t and B3 horizons are clay or silty clay.

Mayhew soils in Grant Parish are taxadjuncts to the Mayhew series because the percent base saturation in

Metcalf soils are similar to Kolin soils and commonly are near Cadeville and Mayhew soils. The Kolin soils are in different positions on the landscape and do not have tongues of gray silt loam in the subsoil. The Cadeville soils are on side slopes along drainageways and have more clay in the upper part of the subsoil. The Mayhew soils are in slightly lower positions than Metcalf soils and have a fine textured control section.

Typical pedon of Metcalf very fine sandy loam, 7 miles north of Williana, 1,056 feet east of the intersection of Highway 167 and U.S. Forest Service Road 613, 35 feet north of U.S. Forest Service Road 613, NE1/4NE1/4 sec. 16, T. 9 N., R. 2 W.

A1—0 to 4 inches; brown (10YR 4/3) very fine sandy loam; weak fine granular structure; friable; few coarse and common medium and fine roots; few fine discontinuous random tubular impeded pores; very strongly acid; clear wavy boundary.
A2—4 to 7 inches; light yellowish brown (10YR 6/4) silt loam; common medium faint yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; few medium roots and few fine roots; few fine discontinuous random tubular impeded pores; very strongly acid; clear smooth boundary.
B21t—7 to 15 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; few medium and few fine roots; few medium discontinuous random tubular impeded pores; common patchy distinct thick clay skins on surfaces of some peds; few fine concretions of iron and manganese oxides; light yellowish brown coatings on vertical surfaces of some peds; very strongly acid; clear wavy boundary.
B22t—15 to 23 inches; yellowish brown (10YR 5/6) silt loam; common fine prominent red and few fine distinct grayish brown mottles; moderate medium subangular blocky structure; friable; few medium and fine roots; common fine discontinuous random tubular impeded pores; common patchy distinct thick clay films on surfaces of some peds; light yellowish brown (10YR 6/4) coatings on surfaces of some peds; very strongly acid; clear wavy boundary.



blocky; friable; few fine discontinuous random tubular impeded pores; few patchy faint thin clay films on surfaces of some peds; tongues of light gray (10YR 7/1) silt (A2) 1 to 1.5 centimeters wide make up as much as 30 percent of the horizon; strongly acid; clear wavy boundary.

IIB24t—37 to 48 inches; light brownish gray (10YR 6/2) clay loam; common medium distinct yellowish brown (10YR 5/6) and few medium prominent red (2.5YR 4/8) mottles; weak coarse prismatic structure

the lower parts of natural levees of the Red River and its distributaries. Slopes range from 0 to 3 percent.

Soils of the Moreland series are fine, mixed, thermic Vertic Hapludolls.

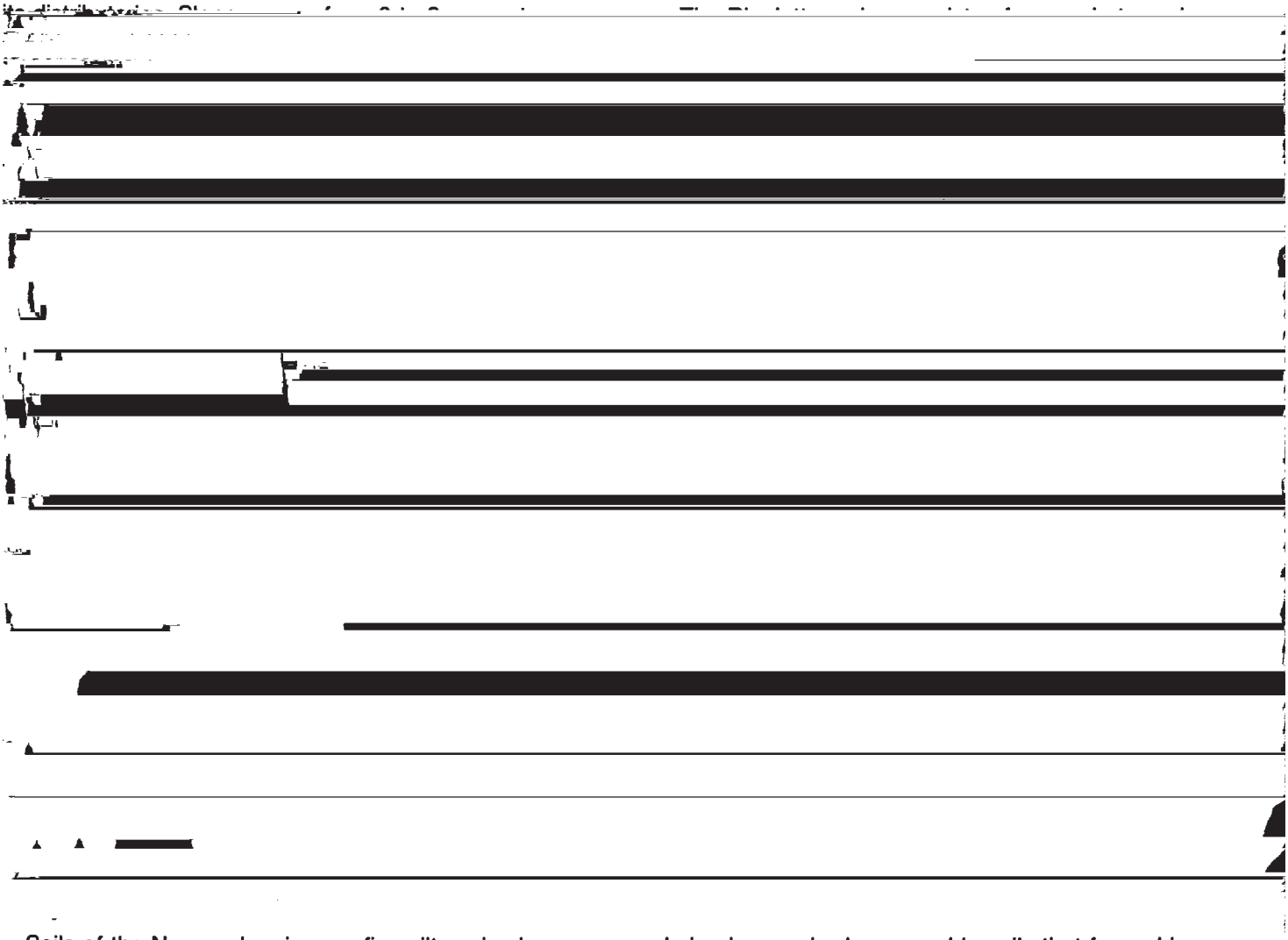
Moreland soils commonly are near Armistead, Gallion, Latanier, Norwood, Roxana, and Yeadtown soils.

Armistead and Latanier soils are on slightly higher positions than Moreland soils, and they are underlain by loamy material. Gallion, Norwood, and Roxana soils are

The B3 horizon has hue of 5YR, value of 3, and chroma of 4; or it has value of 4 and chroma of 3 or 4. It is neutral to moderately alkaline. The B3 horizon is silty clay, clay, or silty clay loam. A buried A horizon of silt loam, silty clay loam, clay, or silty clay is in some pedons between depths of 40 and 60 inches.

Norwood Series

The Norwood series consists of well drained, moderately permeable soils that formed in silty alluvium. These soils are on natural levees of the Red River and



Soils of the Norwood series are fine-silty, mixed (calcareous), thermic Typic Udifluvents.

Norwood soils commonly are near Gallion, Latanier, Moreland, and Roxana soils. Gallion soils are on slightly older natural levees and have a subsoil that is more acid. Roxana soils are on slightly higher parts of natural levees and are coarse-silty. Latanier and Moreland soils are in lower positions than Norwood soils and have a

The A horizon has hue of 5YR, value of 4 or 5, and chroma of 3 or 4. It is 3 to 14 inches thick and is silty clay loam or silt loam.

The B2 horizon has hue of 5YR, value of 4 or 5, and chroma of 3 to 6. It is silty clay loam or silt loam.

The C horizon has hue of 5YR, value of 4 to 6, and chroma of 3 to 6. It is silty clay loam, silt loam, or very fine sandy loam. Thin strata of finer and coarser material are common.

Rigolette Series

drained, very slowly permeable soils that formed in loamy sediment over clayey sediment. These soils are moderately sloping to moderately steep and are in terrace uplands. Slopes range from 5 to 15 percent.

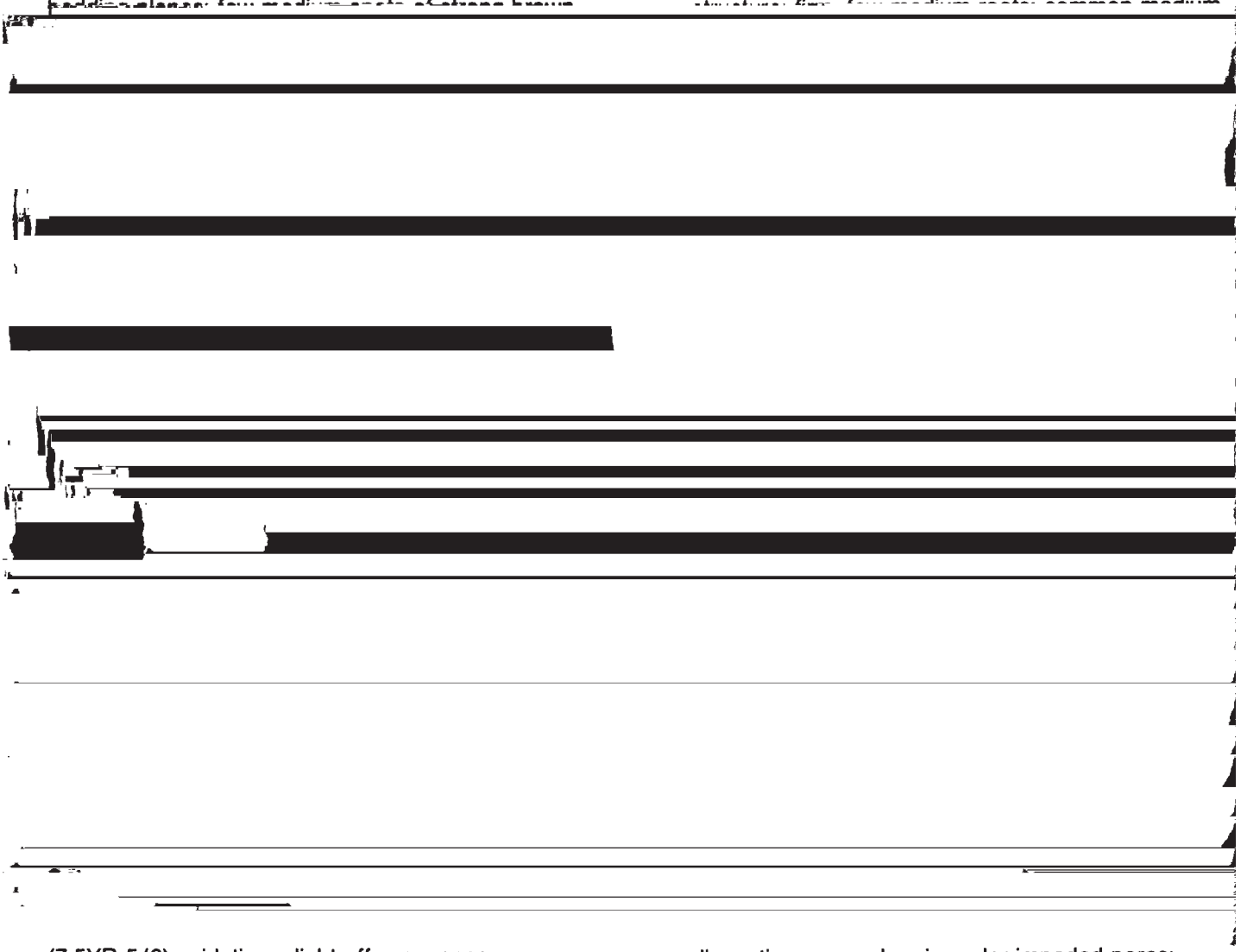
Soils of the Rigolette series are fine-loamy, siliceous, thermic Typic Ochraqualfs.

Rigolette soils commonly are near Briley, Cadeville, Kisatchie, Ruston, and Smithdale soils. The Briley soils

[redacted]

weak bedding planes; common fine black bodies; moderately alkaline; clear smooth boundary.

C2—15 to 26 inches; yellowish red (5YR 5/6) loamy very fine sand; massive; very friable; common fine



(7.5YR 5/6) oxidation; slight effervescence; moderately alkaline; gradual wavy boundary.

C3—26 to 44 inches; yellowish red (5YR 4/6) silt loam; massive; very friable; few fine bedding planes; slight effervescence; moderately alkaline; gradual wavy boundary.

C4—44 to 65 inches; yellowish red (5YR 5/6) very fine sandy loam; massive; common bedding planes; slight effervescence; moderately alkaline.

Bedding planes are evident in the 10- to 40-inch control section.

The A horizon has hue of 5YR, value of 3 or 4, and chroma of 4 to 6. It is 3 to 7 inches thick and ranges from slightly acid to moderately alkaline. It is silt loam,

friable; few fine and common coarse roots; strongly acid; gradual smooth boundary.

B21t—14 to 33 inches; reddish brown (5YR 4/4) sandy clay loam; moderate medium subangular blocky

discontinuous random irregular impeded pores; common discontinuous distinct thick clay films on surfaces of peds; yellowish red (5YR 5/6) in interior of peds; very strongly acid; clear smooth boundary.

B22t—33 to 43 inches; yellowish red (5YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine discontinuous random irregular impeded pores; few discontinuous distinct thick clay films on vertical surfaces of peds; very strongly acid; gradual wavy boundary.

B&A'2—43 to 58 inches; yellowish red (5YR 5/6) fine sandy loam (B2t); weak medium subangular blocky structure; friable; common fine discontinuous random irregular impeded pores; common patchy thin faint clay films on surfaces of some peds; about

loam or sandy loam. The A'2 part makes up as much as 50 percent of the B&A'2 horizon.

Smithdale Series

The Smithdale series consists of well drained, moderately permeable soils that formed in loamy sediment. These soils are on side slopes in terrace uplands. Slopes range from 5 to 12 percent.

Soils of the Smithdale series are fine-loamy, siliceous, thermic Typic Paleudults.

Smithdale soils commonly are near Briley, Cadeville, Malbis, and Ruston soils and are similar to Cahaba soils. The Briley soils are on ridgetops and side slopes and have sandy surface and subsurface layers 20 to 40 inches thick. The Cadeville soils are on side slopes at a lower elevation than Smithdale soils and have a clayey subsoil. The Cahaba soils are on low stream terraces and have a thinner solum. The Malbis soils are in more nearly level areas on ridgetops and have plinthite in the subsoil. The Ruston soils are on ridgetops and have a bisequal profile.

Typical pedon of Smithdale fine sandy loam, 5 to 12 percent slopes, 3.5 miles northwest of Dry Prong, 1,400 feet south of the intersection of U.S. Forest Service Roads 196A and 133, 50 feet west of U.S. Forest Service Road 133, NW1/4NW1/4 sec. 3, T. 7 N., R. 2 W.

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

A2—4 to 9 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; very friable; few medium and fine roots; strongly acid; clear smooth boundary.

B21t—9 to 24 inches; yellowish red (5YR 5/6) sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine discontinuous random

The thickness of the solum ranges from 60 inches to more than 100 inches. The soil is very strongly acid or strongly acid throughout. The content of gravel ranges from 0 to about 10 percent, by volume, throughout the profile.

The A1 horizon has hue of 10YR, value of 3, and chroma of 2, or it has value of 4 and chroma of 1 to 3. Typically, it is fine sandy loam; however, sandy loam and loamy sand are within the range. The thickness ranges from 3 to 10 inches.

The A2 and Ap horizons have hue of 10YR, value of 4 or 5, and chroma of 2 to 6. Typically, they are fine sandy loam; however, sandy loam and loamy sand are within the range.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. The upper part of the Bt horizon is sandy clay loam, clay loam, or loam. The lower part of the Bt horizon has few to many pockets of uncoated sand grains. It is sandy loam or loam.

Sumter Variant

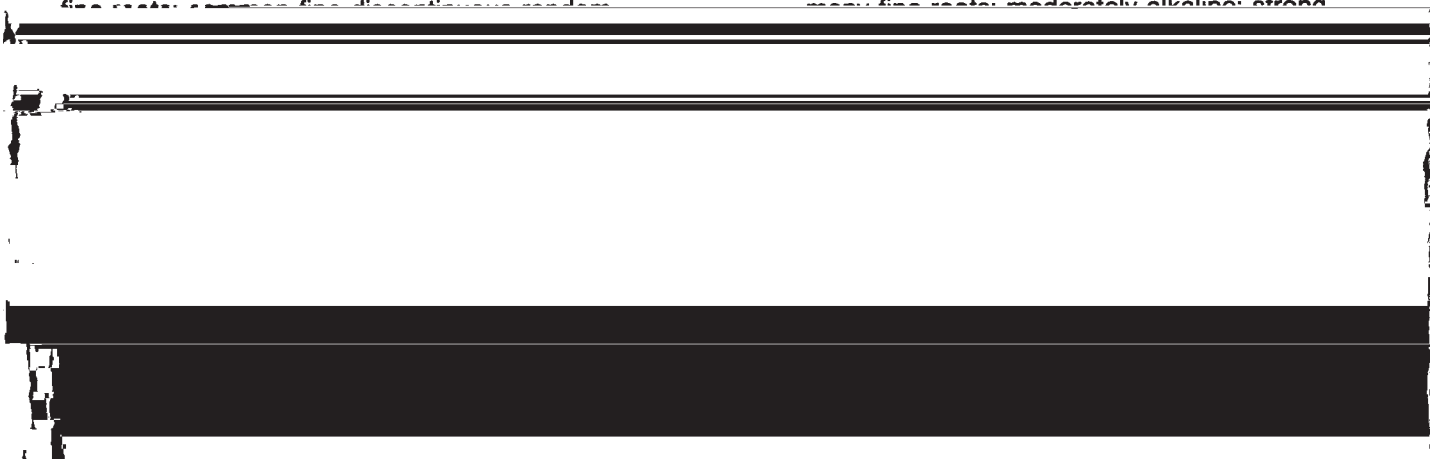
The Sumter Variant consists of well drained, slowly permeable soils that formed in calcareous, clayey sediment. These soils are in terrace uplands. Slopes range from 1 to 5 percent.

Sumter Variant soils are fine-silty, carbonatic, thermic Rendollic Eutrochrepts.

Sumter Variant soils commonly are near Cadeville and Vaiden soils. The Cadeville soils are on side slopes and are acid throughout. The Vaiden soils are on interstream divides and are more acid in the upper part of the solum than Sumter Variant soils.

Typical pedon of Sumter Variant silty clay loam, 1 to 5 percent slopes, 7.5 miles north of Williana, 150 feet south of U.S. Forest Service Road 613A, NW1/4,SW1/4 sec. 5, T. 9 N., R. 2 W.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine granular structure; friable; many fine roots; moderately alkaline; strong



of carbonates; strong effervescence; moderately alkaline; gradual smooth boundary.

B3—20 to 28 inches; pale yellow (2.5Y 7/4) silty clay; common fine and medium yellowish brown (10YR 5/6) mottles; common fine and medium faint light brownish gray (2.5Y 6/2) mottles; moderate fine subangular blocky structure; firm; common fine and medium concretions of carbonates; few soft accumulations of carbonates; strong effervescence; moderately alkaline; clear smooth boundary.

C—28 to 60 inches; pale yellow (5Y 7/3) silty clay; common fine and medium distinct yellowish brown (10YR 5/6) and common fine and medium faint light brownish gray (2.5Y 6/2) mottles; massive; few bedding planes; common fine and medium concretions of carbonates; few soft accumulations of carbonates; strong effervescence; moderately alkaline.

The solum is 20 to 40 inches thick. The calcium carbonate equivalent ranges from 40 to 65 percent. The soil is mildly alkaline or moderately alkaline throughout.

The A horizon has hue of 10YR, 2.5Y, or 5Y, value of 3 or 4, and chroma of 1 or 2. It is 4 to 7 inches thick.

The B1 horizon has hue of 2.5Y, value of 6 or 7, and chroma of 4. In some pedons it has hue of 5Y, value of 5 or 6, and chroma of 3. It is silty clay, clay, or silty clay loam.

The B2 horizon has hue of 2.5Y, value of 6 or 7, and chroma of 4, or it has hue of 5Y, value of 5 to 7, and chroma of 3 or 4. It is silty clay or clay. Soft or hard accumulations of lime are few or common.

The B3 horizon has hue of 2.5Y, value of 5 to 7, and chroma of 4, or it has hue of 5Y, value of 6 or 7, and chroma of 3 or 4. It is silty clay or clay. Soft or hard accumulations of lime are few or common.

medium angular blocky structure; firm; common fine roots; common medium discontinuous irregular impeded pores; common dark brown organic stains; strongly acid; clear wavy boundary.

B21g—6 to 15 inches; dark gray (10YR 4/1) silty clay; common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm, plastic, sticky; few fine roots and common medium roots; oxidation stains in root channels; very strongly acid; gradual wavy boundary.

B22g—15 to 31 inches; gray (10YR 5/1) silty clay; few medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure parting to moderate fine angular blocky; firm, plastic, sticky; few coarse and fine roots; few soft black concretions; very strongly acid; gradual wavy boundary.

B23g—31 to 80 inches; gray (10YR 5/1) silty clay; few fine distinct strong brown mottles; weak angular blocky structure; firm, plastic, sticky; very strongly acid.

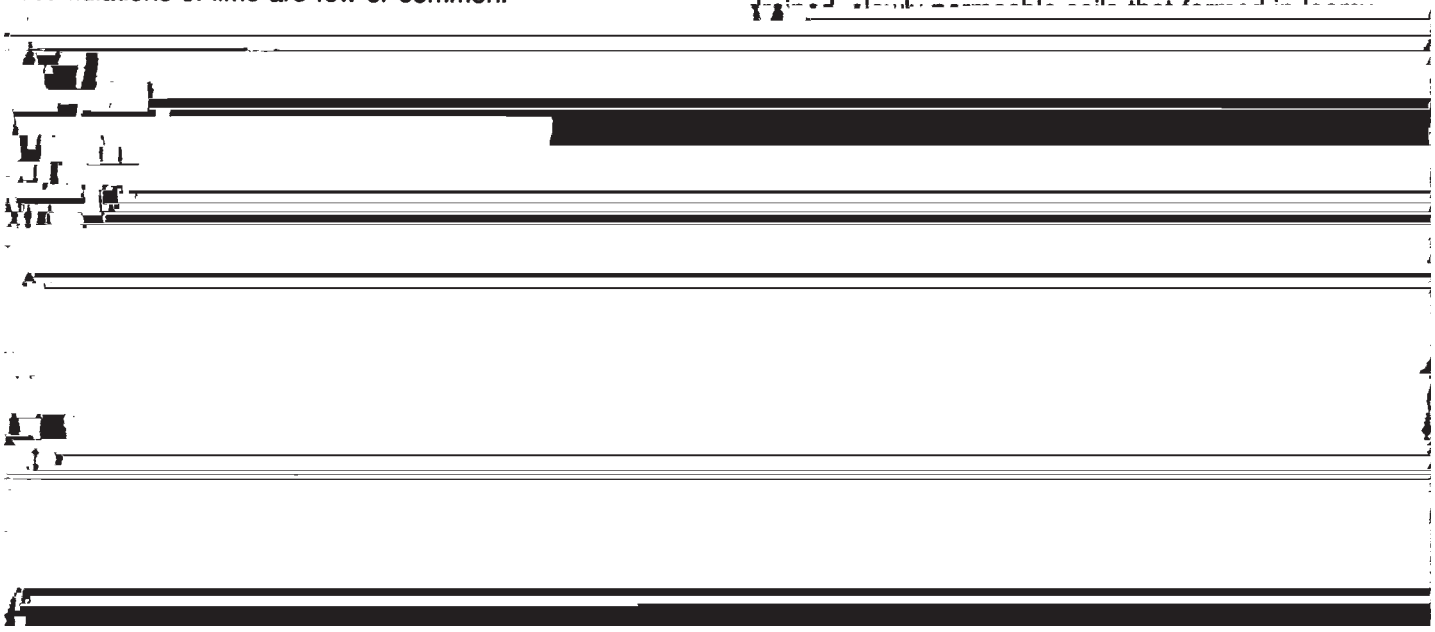
The solum is more than 60 inches thick. The soil is very strongly acid or strongly acid throughout.

The A1 horizon has hue of 10YR, 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is 4 to 6 inches thick. Typically, the A1 horizon is silty clay; however, it ranges from clay to silty clay loam.

The Bg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 7, and chroma of 1 or 2. It is clay or silty clay.

Urbo Variant

The Urbo Variant consists of somewhat poorly



B21g—4 to 22 inches; grayish brown (2.5Y 5/2) silty clay loam; common medium distinct strong brown mottles (7.5YR 5/6); moderate medium subangular blocky structure; firm; few medium roots; few fine discontinuous irregular impeded pores; strongly acid; clear wavy boundary.

B22g—22 to 31 inches; grayish brown (10YR 5/2) silty clay loam; many medium distinct strong brown (7.5YR 5/8) and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few medium and fine roots; very strongly acid; clear wavy boundary.

IIB3g—31 to 46 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and many medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; firm; very strongly acid; clear wavy boundary.

IICg—46 to 70 inches; gray (10YR 6/1) fine sandy loam; many coarse distinct yellowish brown (10YR 5/6) mottles; massive with common thin bedding planes; very friable; few strong brown (7.5YR 5/8) stains; very strongly acid.

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Typical pedon of Vaiden silty clay, 1 to 5 percent slopes, 8.4 miles northeast of Williana, 50 feet south of U.S. Forest Service Road 613, SW1/4SE1/4 sec. 6, T. 9 N., R. 2 W.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) silty clay; moderate medium granular structure; firm; common fine roots; strongly acid; abrupt wavy boundary.

B21t—3 to 11 inches; yellowish brown (10YR 5/4) clay; many medium distinct light brownish gray (2.5Y 6/2) mottles; moderate medium angular and subangular blocky structure; firm; common medium roots; strongly acid; gradual wavy boundary.

B22t—11 to 21 inches; yellowish brown (10YR 5/4) clay; common medium prominent red (2.5YR 4/8) and few fine distinct grayish brown mottles; moderate medium subangular blocky structure; firm; few fine roots; common intersecting slickensides; strongly acid; gradual wavy boundary.

C1—21 to 32 inches; gray (10YR 6/1) clay; common fine distinct strong brown (7.5YR 5/6), few medium prominent red and few fine faint grayish brown mottles; massive; firm; common intersecting

[redacted]

sloughs, and abandoned channels of the Red River and its distributaries. Slopes are dominantly less than 1 percent.

Soils of the Yorktown series are very-fine, montmorillonitic, nonacid, thermic Typic Fluvaquents.

Yorktown soils are similar to Una and Urbo Variant soils and commonly are near Armistead, Latanier, and Moreland soils. Una and Urbo Variant soils are on the flood plain of the Little River and its distributaries and are more acid throughout than Yorktown soils. Armistead, Latanier, and Moreland soils are in higher positions than Yorktown soils and are redder throughout. In addition, these soils crack to a depth of 20 inches or more in most years.

Typical pedon of Yorktown silty clay, 1.4 miles north-northeast of Aloha, 5,000 feet northeast of Highway 71, 150 feet east of fence, NE1/4SW1/4 sec. 10, T. 7 N., R. 4 W.

A1—0 to 5 inches; grayish brown (10YR 5/2) silty clay; few fine distinct dark brown mottles; weak coarse subangular blocky structure; very sticky, firm; many fine roots; medium acid; abrupt smooth boundary.

B21g—5 to 17 inches; gray (10YR 5/1) clay; common fine prominent yellowish red mottles; moderate coarse angular blocky structure; very sticky, very firm; common fine roots; slightly acid; clear smooth boundary.

B22g—17 to 32 inches; dark gray (10YR 4/1) clay; many medium prominent yellowish red (5YR 5/6) mottles; moderate medium angular blocky structure; very sticky, very firm; few common roots; common fine black bodies; neutral; clear smooth boundary.

B23g—32 to 45 inches; dark gray (5Y 4/1) clay; many fine prominent yellowish red and common fine distinct yellowish brown mottles; moderate medium angular blocky structure; very sticky, very firm; few fine roots; neutral; clear smooth boundary.

B3—45 to 65 inches; reddish brown (5YR 4/4) clay; many medium distinct greenish gray (5BG 5/1) and few medium distinct gray (10YR 5/1) mottles; moderate medium angular blocky structure; sticky, very firm; few fine pressure faces; moderately alkaline.

The solum ranges from 50 to 80 inches in thickness. Depth to the more reddish B3 horizon ranges from 40 to 50 inches.

The A horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. It is 4 to 10 inches thick and ranges from medium acid to neutral. It is typically silty clay; however, clay is within the range.

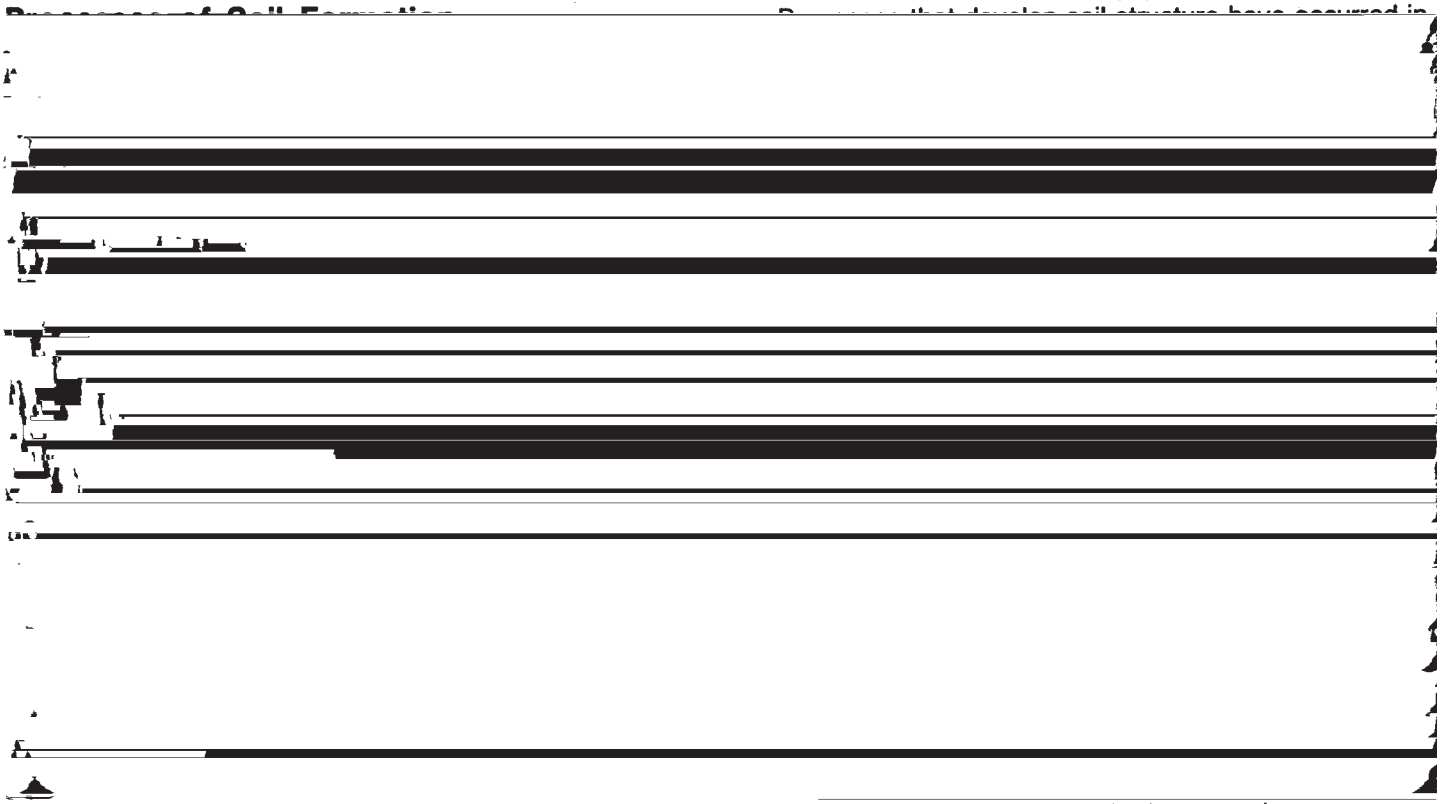
The B2g horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1. Mottles are fine or medium and yellowish red or strong brown. The B2g horizon ranges from medium acid to neutral.

The B3 horizon has hue of 5YR or 2.5YR, value of 3 to 5, and chroma of 3 or 4. Mottles in shades of gray range from few to common. The B3 horizon is mildly alkaline or moderately alkaline. In some pedons it is calcareous.

Formation of the Soils

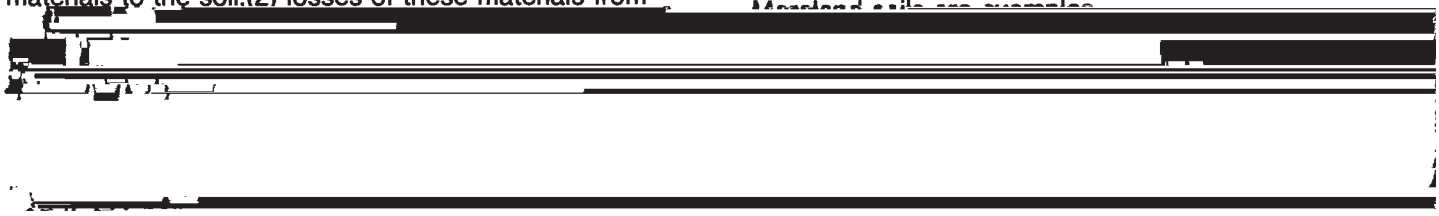
In this section, the processes of soil formation are discussed and related to the soils in the survey area.

deposits on natural levees of the Red River, and Armistead, Latanier, and Moreland soils formed in areas that have accumulations of clayey backswamp deposits.



The processes of soil formation are those actions or events in soils that influence the kind and degree of development of soil horizons. The rate and relative effectiveness of different processes are determined by the factors of soil formation: climate, living organisms, relief, parent material, and time.

Important soil forming processes are those that result in (1) additions of organic, mineral, and gaseous materials to the soil;(2) losses of these materials from all of the soils. Plant roots and other organisms contribute to the rearrangement of soil material into secondary aggregates. The decomposition of organic residue and the secretions of organisms serve as cementing agents that help to stabilize the structural aggregates. Alternate wetting and drying together with shrinking and swelling contribute to the development of structural aggregates, particularly in soils that have appreciable amounts of clay. Armistead, Latanier, and



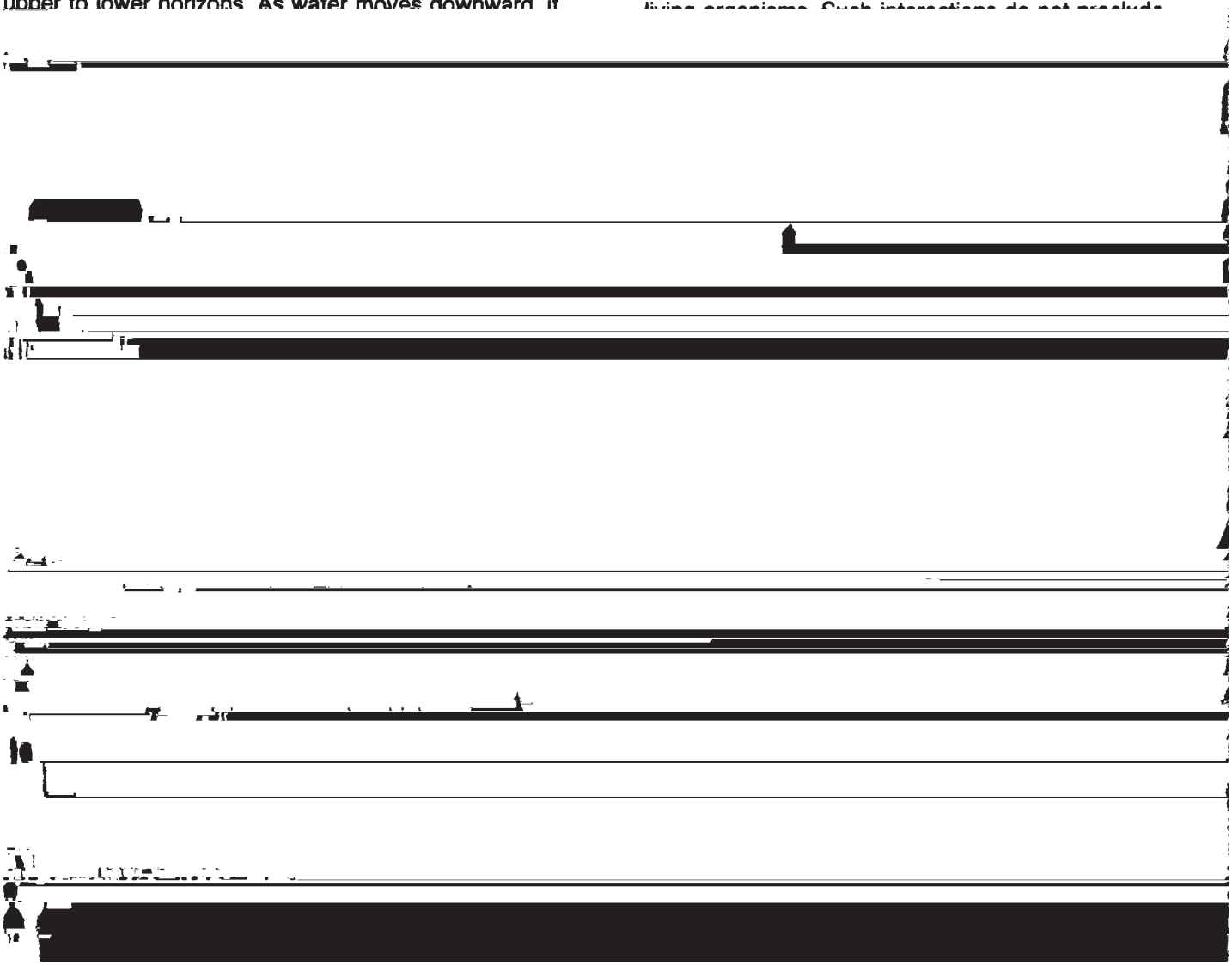
uplands that formed in deposits of Tertiary age are generally acid throughout and are the most highly leached soils in the parish. Although the soils that formed in sediment of Pleistocene age may be highly leached, particularly in the upper horizons, they are generally less severely leached than soils that formed in older deposits of Tertiary age.

The formation, translocation, and accumulation of clay in the profile have been important processes during the formation of most of the soils in Grant Parish. Silicon and aluminum released as a result of weathering of minerals, such as hornblende, amphibole, and feldspars, can recombine with the components of water to form secondary clay minerals, such as kaolinite. Layered silicate minerals, such as biotite, glauconite, and montmorillonite, also can weather to form other clay minerals, such as vermiculite or kaolinite. Clay accumulates in horizons largely by translocation from upper to lower horizons. As water moves downward, it

from the integrated effect of climate and living matter acting on parent material, as conditioned by relief over periods of time.

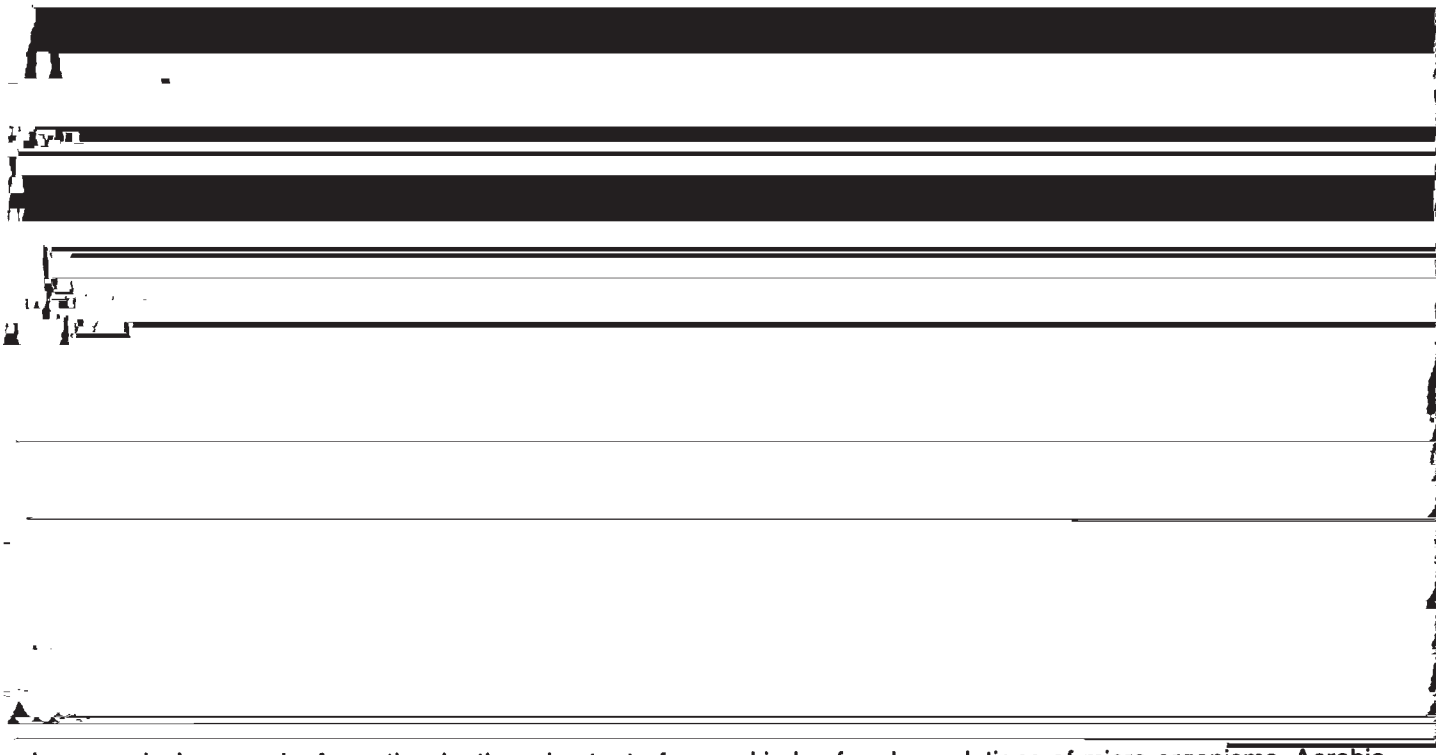
The interaction of five main factors influences the processes of soil formation and results in differences among the soils. These factors are the physical and chemical composition of the parent material; the kind of plants and other organisms living in and on the soil; the relief of the land and its effect on runoff and soil temperature and moisture conditions; and the length of time it took the soil to form.

The effect of any one factor can differ from place to place, but the interaction of all the factors determines the kind of soil that forms. Because of these interactions, many of the differences in soils cannot be attributed to differences in only one factor. For example, organic matter content in the soils of Grant Parish is influenced by several factors including relief, parent material, and living organisms. Such interactions do not preclude



When wet soils become dry, cracks of variable width and depth develop as the soil mass decreases in

Differences in the amount of organic matter that has accumulated in and on the soils is influenced by the



volume, and when cracks form, the depth and extent of cracking are influenced by climate. Repeated large changes in volume frequently result in structural problems for buildings, roads, and other structures. Deep, wide cracks may shear the roots of some plants growing in the soil. Where cracks are present, much of the water from initial rainfall or irrigation is filtered through the cracks. Once the soil becomes wet, however, infiltration rates are slow or very slow. Cracks form extensively in Armistead, Latanier, Mayhew, Vaiden, and Moreland soils late in summer and early in fall at which time the soils are driest. During this time, cracks of an inch or more in width and extending to a depth of more than 20 inches are formed most years. Cracks that

kinds of and populations of micro-organisms. Aerobic organisms use oxygen from the air and are chiefly responsible for the decomposition of organic matter through rapid oxidation of organic residue. These organisms are most abundant and prevail for longer periods in the better drained, more aerated soils.

In the more poorly drained soils, anaerobic organisms are predominant for longer periods during the year. Anaerobic organisms do not require oxygen from the air, and they decompose organic residue very slowly. Differences in decomposition by micro-organisms can result in larger accumulations of organic matter in soils that have restricted drainage than in better drained soils. In general, the content of organic matter is higher in

significant factor in determining their susceptibility to erosion. The characteristics, distribution, and depositional sequence of the parent materials are more thoroughly discussed in the section "Landforms and Surface Geology".

Parent material and time are independent factors of soil formation. For example, a particular kind of parent material may have been exposed to the processes of soil formation for periods ranging from a few years or less to more than a million years. The kinds of horizons and degree of development within a soil are influenced by the length of time of soil formation. Long periods of time are generally required for prominent horizons to form. In the survey area differences in the time of soil formation may amount to thousands of years for some soils.

The soils in Grant Parish formed in parent materials deposited during three or more different geologic time periods. Recent alluvial deposits of the Red River, Little River, and other streams are the parent materials of the youngest soils. The Holocene (Recent) deposits of the Red River are the parent materials of Armistead, Latanier, Gallion, Moreland, Yorktown, Norwood, and Roxana soils. Reddish hues and the presence of free carbonates are prominent characteristics of these sediments at the time of deposition. Roxana, Latanier, Yorktown, Norwood, and Moreland soils formed in the youngest deposits and have undergone only slight leaching in the short period since decomposition. Soil reaction in these soils is neutral or alkaline throughout in places, and free carbonates are present throughout most or all of the solum. The natural fertility level of the surface horizon in these soils is higher than that of other soils in the parish. Roxana soils formed in deposits near the river, and they have more sand than other soils in the flood plain. Norwood soils formed in loamy deposits on natural levees, and Moreland and Yorktown soils formed in clayey backswamp areas. Armistead soils formed in areas where thin layers of more recent clayey sediments were deposited on soils that formed in older

is acid in the surface horizon and becomes more alkaline as depth increases. Gallion soils typically are more acid and have lower natural fertility levels than other soils that formed in more recent Holocene deposits.

Areas of Urbo Variant soils formed mainly in old alluvial deposits of late Pleistocene or early Holocene age along the Little River. These soils formed in loamy deposits on low, convex ridges, and Una soils formed in the clayey, recent alluvial deposits in low areas between the ridges. The Urbo Variant soils have a thin surface layer of more recent loamy alluvium throughout most of the area. In most places soil reaction is less acid in the thin, loamy surface layer than in the underlying horizons.

Areas of Guyton and Cahaba soils are on terraces adjacent to and generally parallel to the present streams that drain the uplands. These soils formed in old alluvium of late Pleistocene or early Holocene age that derived from erosion of the surrounding uplands. Cahaba soils formed in the most sandy sediments eroded from the soils in the uplands. They are at the highest elevations on the stream terraces and are loamy throughout. Guyton soils formed in parent materials having less sand and more silt. Both Cahaba and Guyton soils are highly weathered and leached and are acid throughout the solum. These soils have a B horizon of secondary accumulation of clay. Guyton soils are Alfisols, whereas Cahaba soils that have a lower base status are Ultisols.

These areas of post-Prairie sediments are identified as Deweyville Terrace and are approximately 20,000 years old (*9, 10*). The sediments, which are mostly from surface horizons of surrounding soils, may be low in bases and weatherable minerals at the time of deposition. Because of this, some of the soils that developed in these preweathered materials may have a lower base status and fewer weatherable minerals than many of the soils that developed on the older Prairie Terrace. For example, Cahaba soils are lower in bases and have fewer weatherable minerals than any other soil developed on the Prairie Terrace formation.

Deposits of four Pleistocene terrace formations, the

areas the reaction and base status do not increase at greater depths because of the highly weathered and leached condition of the soils. In some areas Briley, Ruston, Smithdale, and Malbis soils formed in deposits that may be of Tertiary age.

more clayey than the A horizon. The natural fertility of these soils is low throughout the profile. The Sumter Variant soil is the only exception to these statements about the soils that formed in Tertiary age sediments. Sumter Variant soils formed in marly clays. These soils

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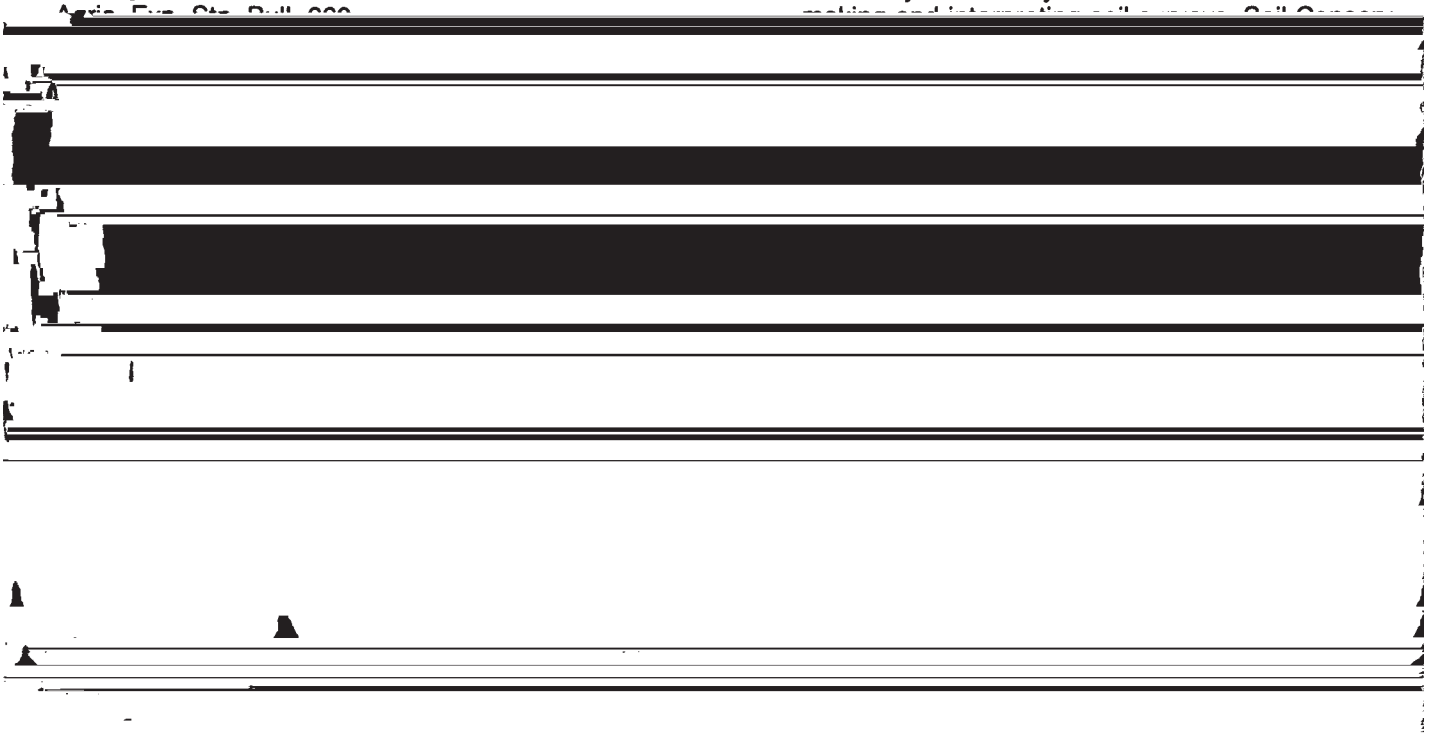

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Glossary

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

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.

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.

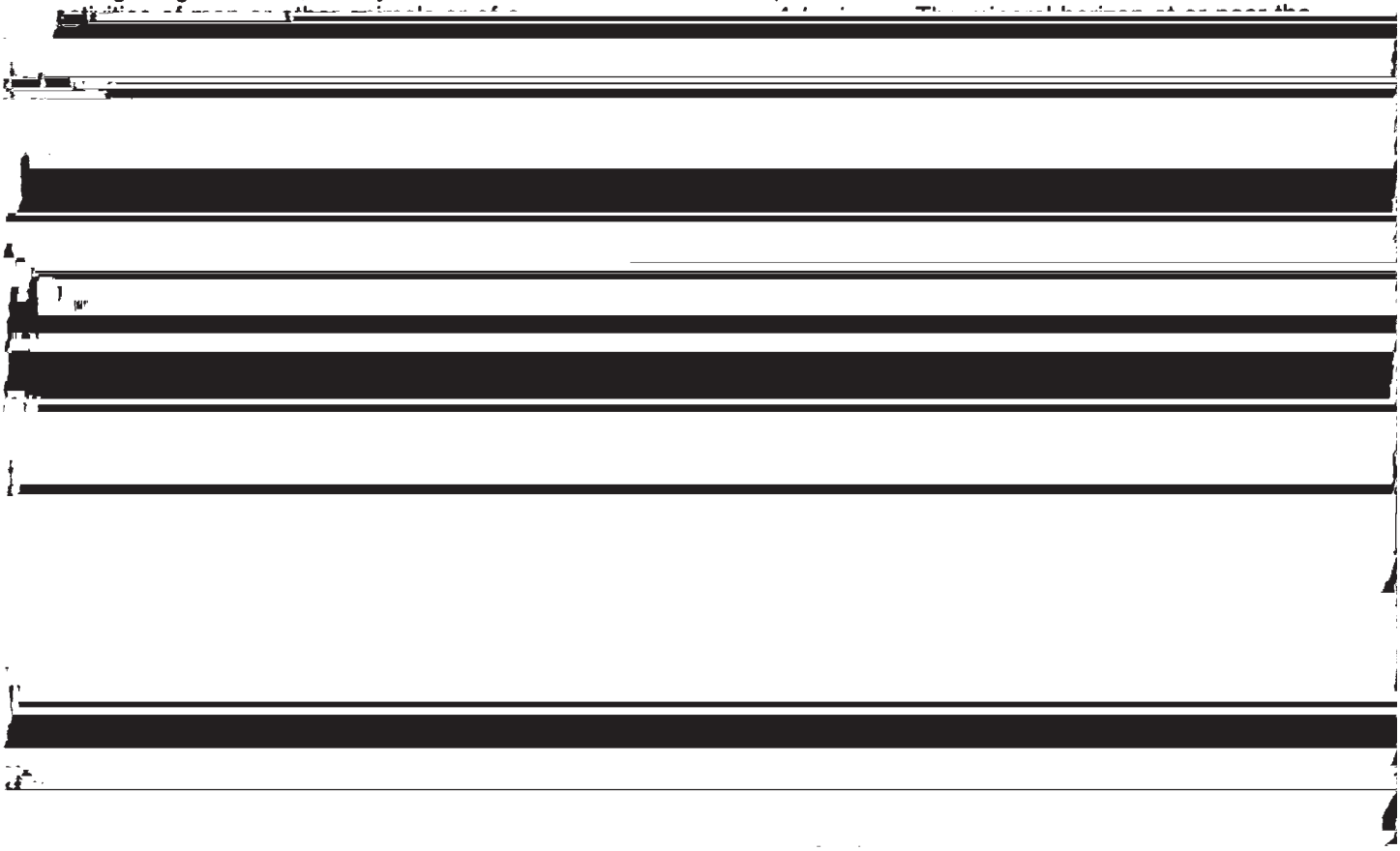
Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of

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

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.



catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

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.

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.*

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 (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a

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.

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.

Parent material. The unconsolidated organic and mineral material in which soil forms.

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

be removed only by percolation or evapotranspiration.

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 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

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

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

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface 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 across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

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). Otherwise suitable soil material 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.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1952-77 at Belah, 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[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	57.3	36.0	46.7	80	13	79	4.51	2.34	6.29	7	.5
February---	62.1	38.9	50.5	81	19	133	4.94	2.78	6.69	7	.6
March------	69.2	45.9	57.6	86	25	277	5.85	2.85	8.30	7	.2
April------	78.1	55.4	66.8	89	34	504	5.54	2.07	8.32	6	.0
May--------	84.3	61.9	73.1	95	45	716	6.08	2.99	8.60	7	.0
June-------	90.8	67.9	79.3	99	54	879	3.51	1.25	5.32	6	.0
July-------	93.3	70.6	82.0	102	61	992	5.38	2.99	7.33	8	.0

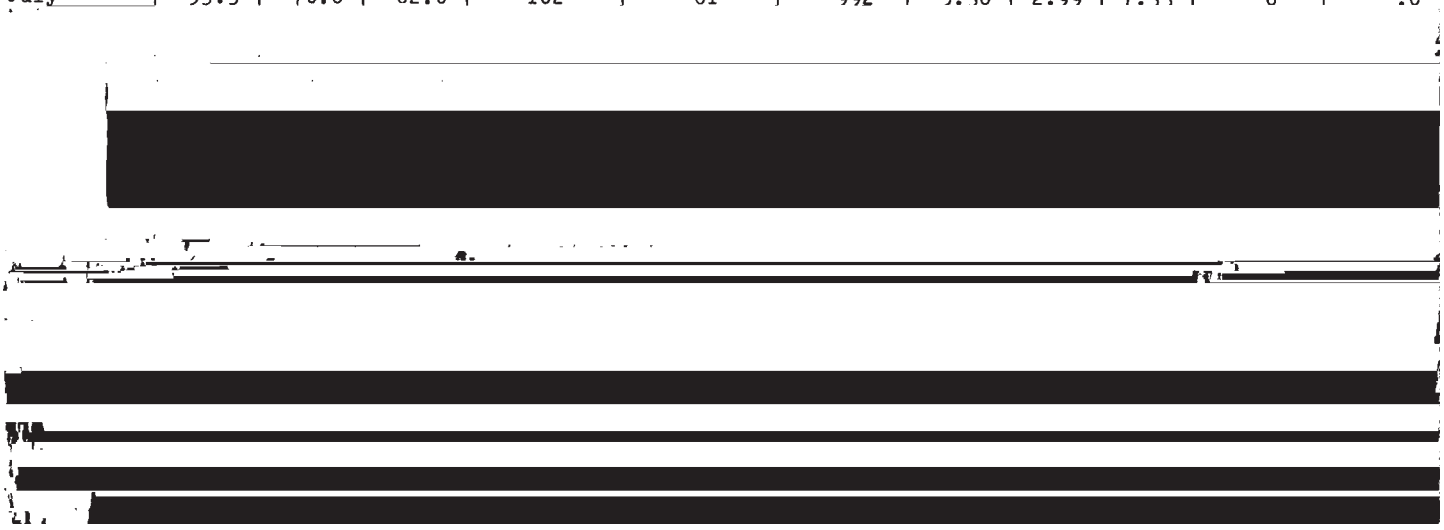


TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1952-77 at Belah, 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 13	March 22	March 29
2 years in 10 later than--	March 2	March 14	March 23
5 years in 10 later than--	February 10	February 28	March 13
First freezing temperature in fall:			
1 year in 10 earlier than--	November 15	November 4	October 26
2 years in 10 earlier than--	November 24	November 11	October 31
5 years in 10 earlier than--	December 11	November 25	November 9

TABLE 3.--GROWING SEASON

[Recorded in the period 1952-77 at Belah, Louisiana]

Probability	Length of growing season if daily minimum temperature is--		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	271	239	217
8 years in 10	282	249	225
5 years in 10	303	269	241
2 years in 10	324	289	256
1 year in 10	335	300	264

TABLE 4.--SUITABILITY AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR SPECIFIED USES

Map unit	Percent of area	Cultivated crops	Pasture	Woodland	Urban uses
1. Malbis-Glenmora----------	12	Well suited----------	Well suited--------	Well suited-------	Moderately well suited: wetness, moderately slow and slow permeability.
2. Caddo-Glenmora-Guyton----	11	Moderately well suited: wetness, slope.	Well suited--------	Well suited-------	Poorly suited: wetness, slow permeability.
3. Gore-Kolin---------------	8	Poorly suited: slope.	Moderately well suited: slope.	Moderately well suited: wetness, clayey subsoil.	Poorly suited: wetness, very slow permeability, shrink-swell, slope.
4. Cadeville-Metcalf--------	8	Poorly suited: slope, wetness.	Moderately well suited: slope.	Moderately well suited: wetness, clayey subsoil.	Poorly suited: very slow permeability, shrink-swell, wetness, slope.
5. Smithdale-Ruston---------	31	Poorly suited: slope.	Well suited--------	Well suited-------	Moderately well suited: slope.
6. Cadeville-Ruston---------	7	Poorly suited: slope.	Moderately well suited: slope.	Moderately well suited: clayey subsoil.	Poorly suited: slope, shrink-swell, moderate and slow permeability.
7. Rigolette-Kisatchie------	1	Poorly suited: slope, rock outcrops.	Poorly suited: slope, rock outcrops.	Poorly suited: slope, shallow rooting zone, rock outcrops.	Poorly suited: slope, rock outcrops, shrink-swell, very slow permeability, wetness.
8. Guyton-Cascilla----------	9	Poorly suited: wetness, flooding.	Moderately well suited: wetness, flooding.	Moderately well suited: wetness, flooding.	Not suited: wetness, flooding.
9. Moreland-Armistead-Latanier----------	6	Moderately well suited: wetness, poor tilth.	Well suited--------	Well suited-------	Poorly suited: wetness, flooding, shrink-swell, slow and very slow permeability.
10. Roxana-Gallion-Norwood---	5	Well suited----------	Well suited--------	Well suited-------	Moderately well suited: moderate permeability, shrink-swell.
11. Una-Urbo Variant---------	2	Poorly suited: wetness, flooding.	Poorly suited: wetness, flooding.	Moderately well suited: wetness, flooding.	Not suited: wetness, flooding.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ad	Armistead clay	3,193	0.8
Br	Briley loamy fine sand, 5 to 12 percent slopes	1,716	0.4
Ca	Caddo silt loam	20,548	4.9
Cd	Cadeville very fine sandy loam, 2 to 5 percent slopes	13,549	3.2
Ce	Cadeville very fine sandy loam, 5 to 12 percent slopes	31,293	7.4
Ch	Cahaba fine sandy loam, 1 to 3 percent slopes	1,362	0.3
Ga	Gallion silt loam	4,515	1.1
Gb	Gallion silty clay loam	3,300	0.8

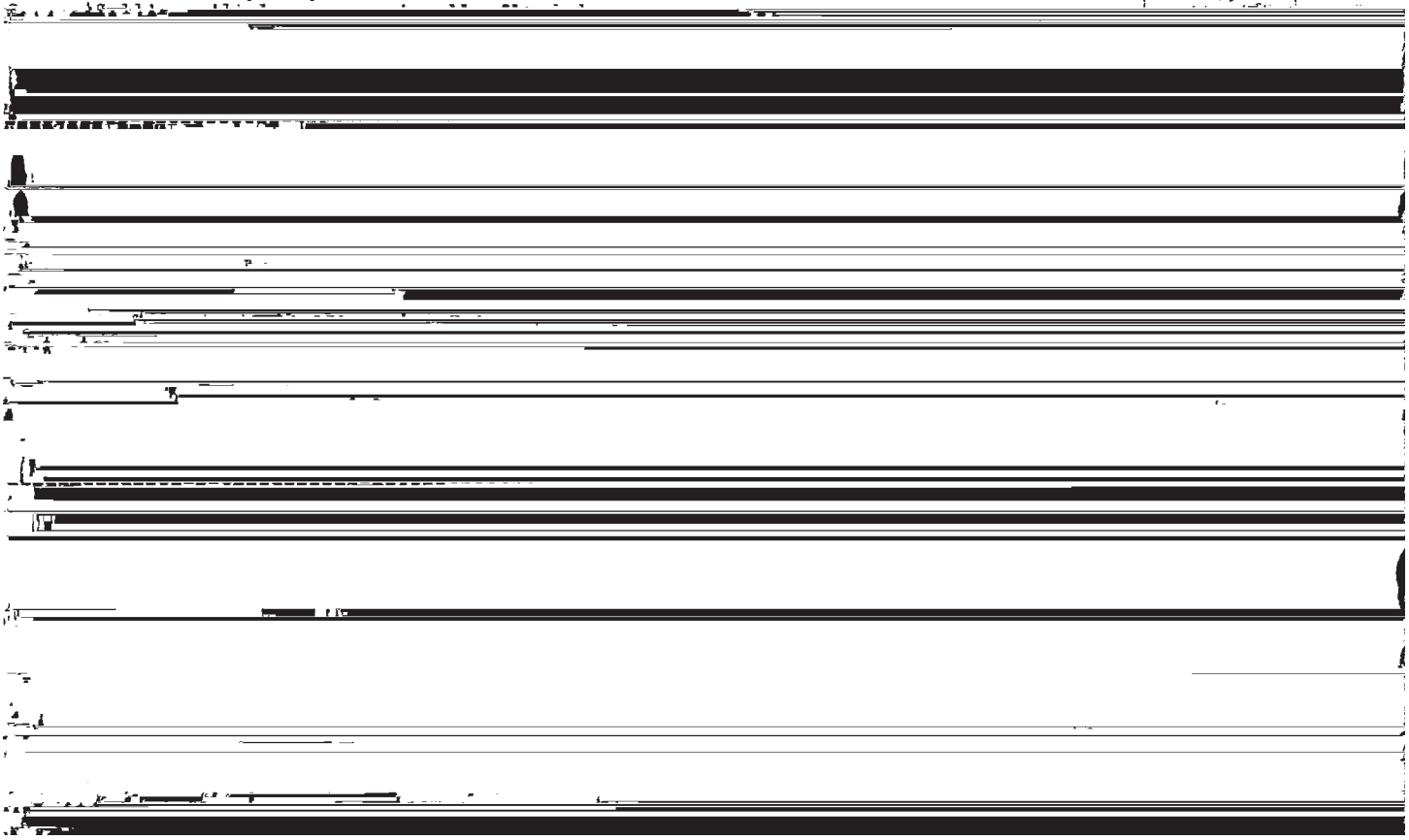


TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield figure 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	Corn	Cotton lint	Soybeans	Common bermudagrass	Improved bermudagrass	Bahiagrass
	Bu	Lbs	Bu	AUM*	AUM*	AUM*
Ad---------- Armistead	---	675	35	6.0	12.0	8.5
Br---------- Briley	40	275	20	---	8.0	4.0
Ca---------- Caddo	60	---	24	5.0	---	6.5
Cd---------- Cadeville	45	---	22	4.5	7.5	5.0
Ce---------- Cadeville	---	---	---	4.0	6.5	4.0
Ch---------- Cahaba	85	750	30	6.0	9.5	5.5
Ga---------- Gallion	90	875	40	7.0	15.0	9.5
Gb---------- Gallion	85	825	40	7.0	13.0	9.5
Gc---------- Gallion	80	800	35	7.0	12.5	9.0
Gn---------- Glenmora	70	550	30	5.0	9.5	7.0
Go---------- Gore	45	---	23	4.5	7.5	5.5
Gr---------- Gore	---	---	---	4.0	7.0	4.5
Gu---------- Guyton	55	---	23	5.5	---	6.0
GY---------- Guyton and Cascilla	---	---	---	4.5	---	---
Ko---------- Kolin	60	---	30	5.5	11.0	7.5
La---------- Latanier	---	---	37	6.0	12.0	---
Ma---------- Malbis	70	550	30	5.0	9.5	7.5
Me---------- Mayhew	---	---	24	4.5	10.0	6.0
Mf---------- Metcalf	60	---	30	5.0	11.0	7.0
Mn, Mo, Mr---------- Moreland	---	---	35	6.0	12.0	---
Mt---------- Moreland	---	---	33	5.5	11.0	---

See footnote at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Cotton lint	Soybeans	Common bermudagrass	Improved bermudagrass	Bahiagrass
	Bu	Lbs	Bu	AUM*	AUM*	AUM*
Mw---------- Moreland	---	---	30	5.5	---	---
Nd, No---------- Norwood	90	875	40	8.5	15.5	9.0
Nr---------- Norwood	85	850	35	8.0	14.0	8.0
Pt**. Pits						
RK**: Rigolette----------	---	---	---	4.0	---	5.0
Kisatchie----------	---	---	---	3.5	---	4.0
Rm---------- Roxana	85	850	35	8.5	15.5	8.5
Rn---------- Roxana	---	---	35	8.5	15.0	---
Ro---------- Roxana	---	---	---	6.0	---	---
Rp---------- Ruston	65	600	25	5.5	10.0	7.0
RR**: Ruston----------	---	---	---	---	---	---
Cadeville----------	---	---	---	---	---	---
RS**: Ruston----------	---	---	---	---	---	---
Smithdale----------	---	---	---	---	---	---
Sm---------- Smithdale	---	---	---	5.0	9.0	6.0
St---------- Sumter Variant	---	---	---	---	---	5.0
Un---------- Una	---	---	---	4.0	---	---
Uo---------- Urbo Variant	---	---	---	4.5	---	---
Va---------- Vaiden	40	---	25	---	---	6.5
Yo---------- Yorktown	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
I	9,426	---	---	---
II	92,553	73,511	19,042	---
III	105,432	56,834	48,598	---
IV	103,709	98,995	4,714	---
V	55,980	---	55,980	---
VI	51,935	51,935	---	---
VII	1,753	---	780	973
VIII	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
Ad---------- Armistead	2w	Slight	Moderate	Moderate	Green ash----------	80	Eastern cottonwood, American sycamore.
					Cherrybark oak-------	90	
					Water oak----------	90	
					Pecan----------	---	
					Sweetgum----------	90	
					American sycamore----	---	
					Eastern cottonwood---	110	
Br---------- Briley	3s	Slight	Slight	Moderate	Loblolly pine--------	80	Loblolly pine, slash pine.
					Shortleaf pine-------	70	
					Slash pine----------	---	
Ca---------- Caddo	2w	Slight	Severe	Moderate	Loblolly pine--------	95	Loblolly pine.
					Sweetgum----------	---	
					Water oak----------	---	
Cd, Ce---------- Cadeville	3c	Slight	Severe	Moderate	Loblolly pine--------	80	Loblolly pine, slash pine.
					Shortleaf pine-------	70	
Ch---------- Cahaba	2o	Slight	Slight	Slight	Loblolly pine--------	87	Loblolly pine, slash pine, yellow-poplar, sweetgum.
					Slash pine----------	91	
					Yellow-poplar--------	---	
					Sweetgum----------	90	
Ga, Gb, Gc--------- Gallion	2o	Slight	Slight	Slight	Green ash----------	80	Eastern cottonwood, American sycamore.
					Cherrybark oak-------	95	
					Sweetgum----------	83	
					Water oak----------	---	
					Pecan----------	---	
					American sycamore----	---	
					Eastern cottonwood---	100	
Gn---------- Glenmora	2w	Slight	Moderate	Slight	Loblolly pine--------	93	Loblolly pine, slash pine.
					Slash pine----------	---	
					Longleaf pine--------	---	
					Sweetgum----------	---	
					Water oak----------	---	
					Cherrybark oak-------	---	
Go, Gr---------- Gore	3c	Slight	Moderate	Moderate	Loblolly pine--------	76	Loblolly pine.
					Shortleaf pine-------	---	
Gu---------- Guyton	2w	Slight	Severe	Moderate	Loblolly pine--------	90	Loblolly pine, sweetgum.
					Slash pine----------	90	
					Sweetgum----------	---	
					Green ash----------	---	
					Southern red oak-----	---	
					Water oak----------	---	
GY*: Guyton----------	2w	Slight	Severe	Moderate	Loblolly pine--------	90	Loblolly pine, sweetgum.
					Slash pine----------	90	
					Sweetgum----------	---	
					Green ash----------	---	
					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			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
GY*:							
Cascilla	1w	Slight	Moderate	Moderate	Cherrybark oak	112	Cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, American sycamore, yellow-poplar.
					Eastern cottonwood	110	
					Loblolly pine	93	
					Nuttall oak	114	
					Water oak	104	
					Sweetgum	102	
					Yellow-poplar	115	
Ko Kolin	3w	Slight	Moderate	Slight	Loblolly pine	80	Loblolly pine.
					Shortleaf pine	---	
La Latanier	2w	Slight	Moderate	Moderate	Green ash	80	Eastern cottonwood, American sycamore.
					Cherrybark oak	90	
					Water oak	90	
					Pecan	---	
					Sweetgum	90	
					Eastern cottonwood	110	
					American sycamore	---	
					Sugarberry	---	
Ma Malbis	2o	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine, slash pine.
					Slash pine	90	
					Longleaf pine	80	
Me Mayhew	2w	Slight	Severe	Slight	Water oak	80	Loblolly pine, slash pine, sweetgum.
					White oak	---	
					Loblolly pine	90	
					Sweetgum	90	
Mf Metcalf	2w	Slight	Moderate	Slight	Loblolly pine	92	Loblolly pine.
					Shortleaf pine	74	
					Sweetgum	---	
Mn, Mo, Mr, Mt Moreland	2w	Slight	Severe	Moderate	Green ash	75	Eastern cottonwood, American sycamore.
					Eastern cottonwood	100	
					Sweetgum	90	
					American sycamore	---	
					Water oak	90	
					Cherrybark oak	90	
					Sugarberry	---	
Mw Moreland	3w	Slight	Severe	Severe	Green ash	70	Eastern cottonwood, American sycamore.
					Eastern cottonwood	90	
					Sweetgum	80	
					Water oak	80	
					Cherrybark oak	80	
Nd, No, Nr Norwood	1o	Slight	Slight	Slight	Eastern cottonwood	100	Eastern cottonwood. American sycamore, sweetgum.
					Sugarberry	---	
RK*:							
Rigolette	5d	Moderate	Moderate	Moderate	Loblolly pine	50	Loblolly pine.
					Shortleaf pine	50	
Kisatchie	5d	Moderate	Moderate	Moderate	Loblolly pine	50	Loblolly pine.
					Shortleaf pine	45	
Rm, Rn, Ro Roxana	1o	Slight	Slight	Slight	Eastern cottonwood	115	Eastern cottonwood, American sycamore.
					Sweetgum	100	
					Pecan	---	
					American sycamore	---	
					Water oak	---	
					Cherrybark oak	---	
					Sugarberry	---	
Rp Ruston	2o	Slight	Slight	Slight	Loblolly pine	91	Loblolly pine, slash pine, longleaf pine.
					Slash pine	91	
					Longleaf pine	76	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
RR*,**:							
Ruston	2o	Slight	Severe	Slight	Loblolly pine	91	Loblolly pine, slash pine, longleaf pine.
					Slash pine	91	
					Longlear pine	76	
Cadeville	3c	Slight	Severe	Moderate	Loblolly pine	80	Loblolly pine, slash pine.
					Shortleaf pine	70	
RS*,**:							
Ruston	2o	Slight	Severe	Slight	Loblolly pine	91	Loblolly pine, slash pine, longleaf pine.
					Slash pine	91	
					Longleaf pine	76	
Smithdale	2o	Slight	Severe	Slight	Loblolly pine	86	Loblolly pine, slash pine, longleaf pine.
					Slash pine	85	
					Longleaf pine	69	
Sm	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, pine pine, longleaf pine.
Smithdale					Slash pine	85	
					Longleaf pine	69	
St	4c	Moderate	Moderate	Moderate	Eastern redcedar	37	Eastern redcedar.
Sumter Variant							
Un	2w	Slight	Moderate	Severe	Sweetgum	90	Sweetgum, green ash, Nuttall oak, water tupelo, baldcypress.
Una					Eastern cottonwood	85	
					Green ash	75	
					Cherrybark oak	90	
					Nuttall oak	95	
					Water oak	90	
					Willow oak	90	
					Water tupelo	80	
					Baldcypress	---	
Uo	3w	Slight	Moderate	Slight	Cherrybark oak	80	Green ash, baldcypress, eastern cottonwood, Nuttall oak, willow oak, sweetgum, American sycamore.
Urbo Variant					Nuttall oak	80	
					Water oak	80	
					Water hickory	---	
					Eastern cottonwood	90	
					Common persimmon	---	
					Honeylocust	---	
					Baldcypress	---	
					Willow oak	---	
Va	3c	Slight	Moderate	Moderate	Loblolly pine	79	Loblolly pine, eastern redcedar.
Vaiden					Shortleaf pine	66	
					Eastern redcedar	45	
					Southern red oak	70	
Yo	4w	Slight	Severe	Severe	Baldcypress	70	Baldcypress, green ash, water tupelo.
Yorktown					Water tupelo	---	
					Water hickory	---	
					Green ash	---	

* See description of the map unit for composition and behavior characteristics of the map unit.

** Ratings are severe because soil areas are within a military bombing range site.

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
Ad---------- Armistead	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.
Br---------- Briley	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
Ca---------- Caddo	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Cd---------- Cadeville	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Severe: erodes easily.	Slight.
Ce---------- Cadeville	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: slope.
Gb----------	Slight	Slight	Moderate:	Slight	Slight.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ma---------- Malbis	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
Me---------- Mayhew	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Mf---------- Metcalf	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
Mn, Mo---------- Moreland	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Mr, Mt, Mw---------- Moreland	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
Nd, No---------- Norwood	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
Nr---------- Norwood	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
Pt*. Pits					
RK*: Rigolette----------	Severe: wetness, percs slowly.	Severe: percs slowly, wetness.	Severe: slope, wetness, percs slowly.	Severe: wetness.	Moderate: wetness, droughty, slope.
Kisatchie----------	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Severe: slope.
Rm---------- Roxana	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
Rn---------- [illegible]	Severe: [illegible]	Slight----------	Moderate: [illegible]	Slight----------	Moderate: [illegible]
Ro---------- [illegible]	Severe: [illegible]	Moderate: [illegible]	Severe: [illegible]	Moderate: [illegible]	Severe: [illegible]

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
RS*, **: Smithdale	Severe	Severe	Severe	Severe	Severe.
Sm Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
St Sumter Variant	Moderate: percs slowly.	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: erodes easily.	Slight.
Un Una	Severe: flooding, wetness,	Severe: too clayey, wetness,	Severe: too clayey, wetness,	Severe: wetness, too clayey.	Severe: wetness, flooding,

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
Ad---------- Armistead	Fair	Fair	Fair	Good	---	Good	Good	Fair	Fair	Good	Fair.
Br---------- Briley	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ca---------- Caddo	Fair	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
Cd---------- Cadeville	Fair	Good	Good	Poor	Good	Fair	Poor	Very poor.	Good	Good	Very poor.
Ce---------- Cadeville	Fair	Good	Good	Poor	Good	Fair	Very poor.	Very poor.	Good	Good	Very poor.
Ch---------- Cahaba	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ga, Gb---------- Gallion	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
Gc---------- Gallion	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
Gn---------- Glenmora	Good	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
Go, Gr---------- Gore	Poor	Good	Good	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Gu---------- Guyton	Fair	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
GY*:											
Guyton----------	Poor	Fair	Fair	Fair	Good	Fair	Good	Good	Poor	Fair	Good.
Cascilla----------	Poor	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Ko---------- Kolin	Good	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
La---------- Latanier	Fair	Fair	Fair	Good	---	Good	Good	Good	Fair	Good	Good.
Ma---------- Malbis	Good	Good	Good	Fair	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Me---------- Mayhew	Poor	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Mf---------- Metcalf	Fair	Good	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Mn, Mo, Mr, Mt----- Moreland	Fair	Fair	Fair	Good	---	Good	Good	Good	Fair	Good	Good.
Mw---------- Moreland	Fair	Fair	Fair	Good	---	Good	Good	Good	Fair	Good	Good.
Nd, No---------- Norwood	Good	Good	Fair	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.

See footnote at end of table.

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
Nr---------- Norwood	Fair	Good	Fair	Good	---	Fair	Poor	Very poor.	Fair	Good	Very poor.
Pt*. Pits											
RK*: Rigolette----------	Poor	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Kisatchie----------	Poor	Fair	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Rm---------- Roxana	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
Rn---------- Roxana	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
Ro---------- Roxana	Poor	Fair	Fair	Good	---	Good	Poor	Very poor.	Fair	Good	Very poor.
Rp---------- Ruston	Good	Good	Good	Fair	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RR*,**: Ruston----------	Very poor.	Very poor.	Good	Fair	Good	Good	Poor	Very poor.	Very poor.	Good	Very poor.
Cadeville----------	Very poor.	Very poor.	Good	Poor	Good	Fair	Very poor.	Very poor.	Very poor.	Good	Very poor.
RS*,**: Ruston----------	Very poor.	Very poor.	Good	Fair	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Smithdale----------	Very poor.	Very poor.	Good	Good	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Sm---------- Smithdale	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
St---------- Sumter Variant	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Un---------- Una	Poor	Fair	Fair	Fair	---	Fair	Good	Good	Fair	Fair	Good.
Uo---------- Urbo Variant	Poor	Fair	Fair	Fair	---	Fair	Fair	Fair	Poor	Fair	Fair.
Va---------- Vaiden	Fair	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Yo---------- Yorktown	Very poor.	Very poor.	Very poor.	Poor	Poor	Poor	Poor	Good	Very poor.	Very poor.	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

** Ratings are very poor because soil areas are within a military bombing range site.

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 but 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
Ad---------- Armistead	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Severe: too clayey.
Br---------- Briley	Severe: cutbanks cave.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Ca---------- Caddo	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Cd---------- Cadeville	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
Ce---------- Cadeville	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: slope.
Ch---------- Cahaba	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
Ga, Gb---------- Gallion	Slight----------	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
Gc---------- Gallion	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Moderate: flooding.
Gn---------- Glenmora	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.	Slight.
Go---------- Gore	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
Gr---------- Gore	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: slope.
Gu---------- Guyton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
GY*: Guyton----------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Cascilla---------	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
Ko---------- Kolin	Severe: wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
La---------- Latanier	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.

See footnote at end of table.

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
Ma---------- Malbis	Moderate: wetness.	Slight----------	Slight----------	Moderate: low strength.	Slight.
Me---------- Mayhew	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness.
Mf---------- Metcalf	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
Mn, Mo---------- Moreland	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness.	Severe: wetness.
Mr, Mt---------- Moreland	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness.	Severe: wetness, too clayey.
Mw---------- Moreland	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.	Severe: wetness, too clayey.
Nd, No, Nr-------- Norwood	Slight----------	Slight----------	Slight----------	Severe: low strength.	Slight.
Pt*. Pits					
RK*: Rigolette---------	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: wetness.	Moderate: wetness, droughty. slope.
Kisatchie---------	Severe: slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Rm---------- Roxana	Severe: cutbanks cave.	Slight----------	Slight----------	Slight----------	Slight.
Rn---------- Roxana	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.

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
RS*,**: Smithdale	Slight	Slight	Moderate: slope.	Slight	Slight.
Sm: Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
St: Sumter Variant	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe low strength, shrink-swell.	Slight.
Un: Una	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding, too clayey.
Uo: Urbo Variant	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: low strength, flooding.	Severe: wetness, flooding.
Va: Vaiden	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Severe: too clayey.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "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 but does not eliminate the need for onsite investigation.]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ad Armistead	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Br Briley	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: seepage.	Fair: slope.
Ca Caddo	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Cd Cadeville	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
Ce Cadeville	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Ch Cahaba	Slight	Severe: seepage.	Severe: seepage.	Slight	Fair: thin layer.
Ga, Gb Gallion	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
Gc Gallion	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Fair: too clayey.
Gn Glenmora	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Go Gore	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
Gr Gore	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Gu 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.
Cascilla	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.

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
Ma---------- Malbis	Severe: wetness, percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
Me---------- Mayhew	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Mf---------- Metcalf	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Poor: thin layer.
Mn, Mo, Mr, Mt------ Moreland	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Mw---------- Moreland	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Nd, No---------- Norwood	Moderate: percs slowly.	Moderate: seepage	Moderate: too clayey	Slight----------	Fair: too clayey.
Nr---------- Norwood	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight----------	Fair: too clayey.
Pt*. Pits					
RK*: Rigolette----------	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness, too clayey.	Severe: seepage, wetness.	Poor: too clayey, hard to pack, wetness.
Kisatchie----------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Rm---------- Roxana	Moderate: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Moderate: wetness.	Fair: thin layer.
Rn, Ro---------- Roxana	Severe: flooding.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Fair: thin layer.

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
RS*,**: Ruston	Severe	Severe	Severe	Severe	Poor.
Smithdale	Severe	Severe: seepage.	Severe	Severe: seepage.	Poor.
Sm Smithdale	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
St Sumter Variant	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
Un Una	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Uo Urbo Variant	Severe: wetness, percs slowly, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Poor: hard to pack, wetness.
Va Vaiden	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
Yo	Severe:	Severe:	Severe:	Severe:	Poor:

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ad Armistead	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Br Briley	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, slope.
Ca Caddo	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Cd, Ce Cadeville	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Ch Cahaba	Good:	Improbable: excess fines.	Improbable: excess fines.	Good.
Ga Gallion	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Gb Gallion	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Gc Gallion	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Gn Glenmora	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Go, Gr Gore	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Gu Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
GY*: Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Cascilla	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Ko Kolin	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
La Latanier	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Ma Malbis	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Me Mayhew	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
Mf Metcalf	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Mn, Mo---------- Moreland	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Mr, Mt, Mw---------- Moreland	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Nd---------- Norwood	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
No---------- Norwood	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Nr---------- Norwood	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Pt*. Pits				
RK*: Rigolette----------	Poor: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, thin layer, slope.
Kisatchie----------	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Rm, Rn, Ro---------- Roxana	Fair: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
Rp---------- Ruston	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
RR*,**: Ruston----------	Poor----------	Improbable: excess fines.	Improbable: excess fines.	Poor.
Cadeville----------	Poor----------	Improbable: excess fines.	Improbable: excess fines.	Poor.
RS*,**: Ruston----------	Poor----------	Improbable: excess fines.	Improbable: excess fines.	Poor.
Smithdale----------	Poor----------	Improbable: excess fines.	Improbable: excess fines.	Poor.
Sm---------- Smithdale	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
St---------- Sumter Variant	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Un---------- Una	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Uo---------- Urbo Variant	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

See footnotes at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Va---------- Vaiden	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Yo---------- Yorktown	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

** Ratings are poor because soil areas are within a military bombing range site.

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 but does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Ad---- Armistead	Slight----	Severe: piping, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness.	Erodes easily, percs slowly.
Br---- Briley	Moderate: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Slope----	Droughty, slope.
Ca---- Caddo	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Cd---- Cadeville	Moderate: slope.	Moderate: piping, hard to pack.	Severe: no water.	Deep to water	Erodes easily, percs slowly.	Erodes easily, percs slowly.
Ce---- Cadeville	Severe: slope.	Moderate: piping, hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.
Ch---- Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Favorable----	Favorable.
Ga---- Gallion	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Gb---- Gallion	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Favorable----	Favorable.
Gc---- Gallion	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Gn---- Glenmora	Moderate: seepage.	Moderate: piping, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
Go---- Gore	Moderate: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Erodes easily, percs slowly.	Erodes easily, rooting depth.
Gr---- Gore	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily, percs slowly.	Slope, erodes easily, rooting depth.
Gu---- Guyton	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
GY*: Guyton----	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Cascilla----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Ko---- Kolin	Slight----	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly---	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
La---------- Latanier	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Ma---------- Malbis	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Favorable------	Favorable.
Me---------- Mayhew	Slight---------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness.	Wetness, erodes easily.
Mf---------- Metcalf	Slight---------	Moderate: piping, wetness.	Severe: no water.	Percs slowly---	Erodes easily, wetness.	Erodes easily, percs slowly.
Mn, Mo---------- Moreland	Slight---------	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Mr, Mt---------- Moreland	Slight---------	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly---	Wetness, percs slowly.	Wetness, percs slowly.
Mw---------- Moreland	Slight---------	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
Nd, No, Nr-------- Norwood	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Pt*. Pits						
RK*: Rigolette--------	Severe: slope.	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Wetness, slope, droughty.
Kisatchie--------	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Rm, Rn, Ro-------- Roxana	Moderate: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water	Erodes easily	Erodes easily.
Rp---------- Ruston	Moderate: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Favorable------	Favorable.
RR*;**: Ruston----------	Severe---------	Severe---------	Severe---------	Deep to water	Favorable------	Favorable.
Cadeville--------	Severe---------	Severe---------	Severe---------	Deep to water	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.

See footnotes at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
RS*;**:						
Ruston	Severe	Severe	Severe	Deep to water	Favorable	Favorable.
Smithdale	Severe	Severe	Severe	Deep to water	Favorable	Favorable.
Sm Smithdale	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope.
St Sumter Variant	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Erodes easily, percs slowly.	Erodes easily, percs slowly.
Un Una	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
Uo Urbo Variant	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Va Vaiden	Moderate: slope.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, slope.	Wetness, percs slowly.	Wetness, percs slowly.
Yo Yorktown	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, percs slowly.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

** Ratings are severe because soil areas are in a military bombing range site.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ad---------- Armistead	0-14	Clay----------	CH	A-7-6, A-7-5	0	100	100	100	95-100	51-70	25-40
	14-75	Silt loam, silty clay loam, loam.	ML, CL, CL-ML	A-4, A-6	0	100	100	95-100	75-100	<40	NP-20
Br---------- Briley	0-30	Loamy fine sand	SM	A-2-4, A-4	0	97-100	95-100	80-100	17-45	<25	NP-4
	30-65	Fine sandy loam, sandy clay loam.	SC, CL	A-4, A-6	0	95-100	95-100	85-100	36-65	22-39	8-22
Ca---------- Caddo	0-21	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	70-95	<27	NP-7
	21-80	Silt loam, loam, silty clay loam.	CL	A-6	0	100	100	85-100	50-90	30-40	11-18
Cd---------- Cadeville	0-6	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	55-65	<28	NP-7
	6-48	Silty clay, clay	CH, CL	A-7-6	0	100	100	95-100	80-95	41-60	22-35
	48-65	Clay, silty clay, silty clay loam.	CH, CL	A-7-6, A-6	0	100	100	95-100	75-95	30-55	12-30
Ce---------- Cadeville	0-7	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	55-65	<28	NP-7
	7-42	Silty clay, clay	CH, CL	A-7-6	0	100	100	95-100	80-95	41-60	22-35
	42-65	Clay, silty clay, silty clay loam.	CH, CL	A-7-6, A-6	0	100	100	95-100	75-95	30-55	12-30
Ch---------- Cahaba	0-8	Fine sandy loam	SM	A-4, A-2-4	0	95-100	95-100	65-90	30-45	---	NP
	8-48	Sandy clay loam, loam, sandy loam.	SC, CL	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	8-15
	48-65	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-85	10-35	---	NP
Ga---------- Gallion	0-8	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	100	100	100	90-100	<28	NP-11
	8-34	Silt loam, silty clay loam, clay loam.	CL	A-6	0	100	100	100	90-100	28-40	11-17
	34-65	Stratified silty clay loam to very fine sandy loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	23-34	4-12
Gb---------- Gallion	0-6	Silty clay loam	CL	A-6	0	100	100	100	90-100	33-40	15-20
	6-41	Silt loam, silty clay loam, clay loam.	CL	A-6	0	100	100	100	90-100	28-40	11-17
	41-65	Stratified silty clay loam to very fine sandy loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	23-34	4-12
Gc---------- Gallion	0-9	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	100	100	100	90-100	<28	NP-11
	9-39	Silt loam, silty clay loam, clay loam.	CL	A-6	0	100	100	100	90-100	28-40	11-17
	39-65	Stratified silty clay loam to very fine sandy loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	23-34	4-12

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

[redacted]

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	
Me----------	0-5	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	36-50	15-28
Mayhew	5-35	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	100	100	95-100	85-95	46-75	25-50
	35-75	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	90-100	90-100	75-90	45-80	25-50
Mf----------	0-4	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	90-100	65-90	<25	NP-6
Metcalf	4-37	Silt loam, loam, clay loam.	CL	A-6	0	100	100	90-100	65-95	31-40	11-18
	37-75	Silty clay, clay, clay loam.	CH, CL	A-7-6	0	100	100	95-100	85-100	46-66	20-38
Mn----------	0-11	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	95-100	85-100	18-31	3-13
Moreland	11-38	Clay, silty clay	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
	38-65	Clay, silty clay loam, silty clay.	CH, CL	A-7-6, A-6	0	100	100	100	90-100	35-74	25-45
Mo----------	0-12	Silty clay loam	CL	A-6, A-7-6	0	100	100	100	90-100	30-50	12-25
Moreland	12-44	Clay, silty clay	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
	44-65	Clay, silty clay loam, silty clay.	CH, CL	A-7-6, A-6	0	100	100	100	90-100	35-74	25-45
Mr----------	0-10	Clay----------	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
Moreland	10-31	Clay, silty clay	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
	31-66	Clay, silty clay loam, silty clay.	CH, CL	A-7-6, A-6	0	100	100	100	90-100	35-74	25-45
Mt----------	0-5	Clay----------	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
Moreland	5-36	Clay, silty clay	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
	36-65	Clay, silty clay loam, silty clay.	CH, CL	A-7-6, A-6	0	100	100	100	90-100	35-74	25-45
Mw----------	0-11	Clay----------	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
Moreland	11-40	Clay, silty clay	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
	40-65	Clay, silty clay loam, silty clay.	CH, CL	A-7-6, A-6	0	100	100	100	90-100	35-74	25-45
Nd----------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	95-100	51-90	20-35	4-15
Norwood	8-20	Silt loam, silty clay loam, loam.	CL	A-6, A-7, A-4	0	100	100	90-100	60-98	25-46	7-26
	20-66	Silt loam, very fine sandy loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6, A-7	0	100	100	90-100	70-98	20-45	2-25
No----------	0-8	Silty clay loam	CL, CH	A-6, A-7	0	100	100	95-100	85-98	30-55	15-35
Norwood	8-23	Silt loam, silty clay loam, loam.	CL	A-6, A-7, A-4	0	100	100	90-100	60-98	25-46	7-26
	23-67	Silt loam, very fine sandy loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6, A-7	0	100	100	90-100	70-98	20-45	2-25
Nr----------	0-13	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	95-100	51-90	20-35	4-15
Norwood	13-37	Silt loam, silty clay loam, loam.	CL	A-6, A-7, A-4	0	100	100	90-100	60-98	25-46	7-26
	37-75	Silt loam, very fine sandy loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6, A-7	0	100	100	90-100	70-98	20-45	2-25

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Pt*. Pits											
RK*:											
Rigolette-------	0-12	Loamy fine sand	SM, SM-SC	A-2	0	100	100	60-80	20-35	<20	NP-10
	12-17	Fine sandy loam, loam, sandy clay loam.	SM, SC, CL, SM-SC	A-2, A-4, A-6	0	100	100	70-95	30-60	15-40	4-21
	17-32	Loam, sandy clay loam.	SC, CL	A-6	0	100	100	70-90	35-65	17-40	7-21
	32-75	Clay, silty clay	CL, CH	A-7-6	2-25	80-98	80-95	75-90	55-85	47-80	22-50
Kisatchie-------	0-8	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-100	50-75	<25	NP-4
	8-24	Silty clay, silty clay loam, clay.	CH, CL	A-7-6	0	100	100	90-100	85-95	45-65	22-36
	24-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Rm---------- Roxana	0-6	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-100	50-75	<27	NP-7
	6-65	Silt loam, very fine sandy loam, loamy very fine sand.	ML, CL-ML	A-4	0	100	100	85-100	50-85	<27	NP-7
Rn, Ro---------- Roxana	0-5	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-100	50-75	<27	NP-7
	5-65	Silt loam, very fine sandy loam, loamy very fine sand.	ML, CL-ML	A-4	0	100	100	85-100	50-85	<27	NP-7
Rp---------- Ruston	0-14	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	14-33	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	33-58	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
	58-75	Sandy clay loam, clay loam, fine sandy loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
RR*:											
Ruston----------	0-10	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	10-40	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	40-50	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
	50-80	Sandy clay loam, clay loam, fine sandy loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
Cadeville-------	0-7	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	55-65	<28	NP-7
	7-24	Silty clay, clay	CH, CL	A-7-6	0	100	100	95-100	80-95	41-60	22-35
	24-65	Clay, silty clay, silty clay loam.	CH, CL	A-7-6, A-6	0	100	100	95-100	75-95	30-55	12-30

See footnote at end of table.

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	
RS*:											
Ruston	0-7	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	7-41	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	41-47	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
	47-75	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
Smithdale	0-6	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	6-36	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	36-72	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Sm	0-9	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
Smithdale	9-24	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	24-65	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
St	0-6	Silty clay loam	CL	A-7-6	0	100	100	95-100	85-95	26-40	11-33
Sumter Variant	6-28	Silty clay loam, silty clay, clay.	CH, CL	A-7-6, A-6	0	100	100	95-100	85-95	35-55	16-32
	28-60	Silty clay, clay	CH, CL	A-7-6	0	100	100	95-100	85-95	45-65	22-42
Un	0-6	Silty clay	CH, CL	A-7	0	100	100	90-100	75-95	41-65	20-40
Una	6-80	Clay, silty clay loam, silty clay.	CH, CL	A-7	0	100	100	90-100	75-95	41-65	20-40
Uo	0-4	Silty clay loam	CL	A-6, A-7-6	0	100	100	95-100	85-95	28-45	14-28
Urbo Variant	4-31	Silty clay loam	CL, CH	A-6, A-7-6	0	100	100	95-100	85-95	32-51	14-33
	31-46	Sandy clay loam, loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	100	80-90	45-75	16-40	5-22
	46-70	Fine sandy loam, loam, very fine sandy loam.	ML, CL, SM, SC	A-4, A-6	0	100	100	70-85	40-70	16-38	3-19
Va	0-3	Silty clay	MH, CH	A-7	0	100	100	95-100	70-90	50-60	20-30
Vaiden	3-21	Clay	CH, MH	A-7	0	100	100	95-100	85-95	50-90	30-50
	21-75	Clay	CH	A-7	0	100	100	95-100	85-95	50-90	30-52
Yo	0-5	Silty clay	MH, CH, OH	A-7	0	100	100	100	95-100	55-75	24-45
Yorktown	5-45	Clay	CH	A-7	0	100	100	100	95-100	60-80	32-50
	45-65	Clay	CH	A-7	0	100	100	95-100	90-100	60-80	32-50

* See description of the map unit for composition and behavior characteristics of the map unit.

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 data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
Ad----------	0-14	40-55	1.20-1.35	0.06-0.2	0.18-0.20	6.1-8.4	High----------	0.32	5	2-4
Armistead	14-75	14-30	1.35-1.65	0.2-0.6	0.18-0.22	6.1-8.4	Low----------	0.37		
Br----------	0-30	5-18	1.50-1.65	6.0-20	0.07-0.11	4.5-6.5	Low----------	0.20	5	<1
Briley	30-65	15-35	1.55-1.69	0.6-2.0	0.13-0.17	4.5-6.0	Low----------	0.24		
Ca----------	0-21	14-27	1.35-1.70	0.6-2.0	0.18-0.23	4.5-6.0	Low----------	0.49	5	.5-2
Caddo	21-80	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-6.0	Low----------	0.37		
Cd----------	0-6	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low----------	0.43	5	.5-1
Cadeville	6-48	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High----------	0.32		
	48-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High----------	0.32		
Ce----------	0-7	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low----------	0.43	5	.5-1
Cadeville	7-42	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High----------	0.32		
	42-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High----------	0.32		
Ch----------	0-8	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
Cahaba	8-48	18-35	1.35-1.60	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.28		
	48-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
Ga----------	0-8	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.3	Low----------	0.43	5	.5-2
Gallion	8-34	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate-----	0.32		
	34-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low----------	0.37		
Gb----------	0-6	27-35	1.35-1.65	0.6-2.0	0.20-0.22	5.6-7.3	Moderate-----	0.32	5	.5-2
Gallion	6-41	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate-----	0.32		
	41-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low----------	0.37		
Gc----------	0-9	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.3	Low----------	0.43	5	.5-2
Gallion	9-39	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate-----	0.32		
	39-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low----------	0.37		
Gn----------	0-9	8-22	1.35-1.65	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49	5	.5-2
Glenmora	9-30	18-35	1.35-1.65	0.6-2.0	0.18-0.20	4.5-6.0	Low----------	0.43		
	30-69	27-35	1.35-1.70	0.06-0.2	0.18-0.20	4.5-6.0	Moderate-----	0.43		
	69-80	35-45	1.35-1.70	0.06-0.2	0.14-0.20	4.5-6.0	High----------	0.37		
Go----------	0-10	5-15	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	5	.5-4
Gore	10-57	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High----------	0.32		
	57-65	40-80	1.30-1.75	<0.06	0.14-0.18	4.5-8.4	High----------	0.32		
Gr----------	0-9	5-15	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	5	.5-4
Gore	9-56	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High----------	0.32		
	56-80	40-80	1.30-1.75	<0.06	0.14-0.18	4.5-8.4	High----------	0.32		
Gu----------	0-24	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	<2
Guyton	24-54	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		
	54-65	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	Low----------	0.37		
GY*:										
Guyton----------	0-25	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	<2
	25-50	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
La	0-6	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high	0.32	5	.5-4
Latanier	6-34	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high	0.32		
	34-65	10-27	1.30-1.65	0.06-2.0	0.18-0.22	6.6-8.4	Low	0.37		
Ma	0-6	10-25	1.35-1.70	0.6-2.0	0.10-0.15	4.5-6.0	Low	0.24	5	.5-1
Malbis	6-14	18-33	1.40-1.70	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.28		
	14-43	20-35	1.40-1.70	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.28		
	43-64	20-35	1.40-1.70	0.2-0.6	0.12-0.17	4.5-5.5	Low	0.28		
Me	0-5	10-40	1.35-1.45	0.06-0.2	0.20-0.22	4.5-6.0	Moderate	0.37	5	1-3
Mayhew	5-35	35-60	1.20-1.55	<0.06	0.18-0.20	4.5-6.0	High	0.32		
	35-75	35-75	1.20-1.55	<0.06	0.18-0.20	4.5-6.0	High	0.32		
Mf	0-4	8-22	1.35-1.65	0.6-2.0	0.12-0.18	3.6-6.0	Low	0.49	5	.5-2
Metcalf	4-37	18-27	1.35-1.65	0.2-0.6	0.15-0.20	3.6-6.0	Low	0.37		
	37-75	40-60	1.20-1.55	<0.06	0.15-0.18	3.6-6.0	High	0.32		
Mn	0-11	18-27	1.40-1.65	0.6-2.0	0.21-0.23	6.1-7.8	Low	0.43	5	2-4
Moreland	11-38	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High	0.32		
	38-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high	0.32		
Mo	0-12	27-39	1.45-1.75	0.06-0.2	0.19-0.21	6.1-7.8	Moderate	0.37	5	2-4
Moreland	12-44	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High	0.32		
	44-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high	0.32		
Mr	0-10	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high	0.32	5	2-4
Moreland	10-31	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High	0.32		
	31-66	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high	0.32		
Mt	0-5	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high	0.32	5	2-4
Moreland	5-36	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High	0.32		
	36-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high	0.32		
Mw	0-11	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high	0.32	5	2-4
Moreland	11-40	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High	0.32		
	40-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high	0.32		
Nd	0-8	10-27	1.35-1.65	0.6-2.0	0.17-0.21	7.4-8.4	Low	0.43	5	.5-2
Norwood	8-20	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low	0.43		
	20-66	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low	0.43		
No	0-8	27-40	1.35-1.65	0.6-2.0	0.18-0.22	7.4-8.4	Moderate	0.32	5	.5-2
Norwood	8-23	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low	0.43		
	23-67	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low	0.43		
Nr	0-13	10-27	1.35-1.65	0.6-2.0	0.17-0.21	7.4-8.4	Low	0.43	5	.5-2
Norwood	13-37	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low	0.43		
	37-75	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low	0.43		
Pt*.										
Pits										
RK*:										
Rigolette	0-12	3-10	1.35-1.70	6.0-20.0	0.07-0.11	4.5-5.5	Low	0.20	4	.5-1
	12-17	18-30	1.35-1.65	0.6-2.0	0.11-0.20	4.5-5.5	Low	0.32		
	17-32	20-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.32		
	32-75	50-70	1.20-1.60	<0.06	0.08-0.11	3.6-5.5	High	0.32		
Kisatchie	0-8	10-27	1.35-1.65	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.43	3	.5-2
	8-24	35-55	1.20-1.70	<0.06	0.15-0.18	3.6-5.0	High	0.32		
	24-60	---	---	---	---	---	---	---		
Rm	0-6	5-27	1.35-1.80	0.6-2.0	0.10-0.21	6.1-8.4	Low	0.43	5	.5-2
Roxana	6-65	10-18	1.35-1.80	0.6-2.0	0.10-0.19	6.6-8.4	Low	0.37		
Rn, Ro	0-5	5-27	1.35-1.80	0.6-2.0	0.10-0.21	6.1-8.4	Low	0.43	5	.5-2
Roxana	5-65	10-18	1.35-1.80	0.6-2.0	0.10-0.19	6.6-8.4	Low	0.37		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm^3	In/hr	In/in	pH				Pct
Rp	0-14	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low	0.28	5	.5-2
Ruston	14-33	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28		
	33-58	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.32		
	58-75	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28		
RR*:										
Ruston	0-10	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low	0.28	5	.5-2
	10-40	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28		
	40-50	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.32		
	50-80	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28		
Cadeville	0-7	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low	0.43	5	.5-1
	7-24	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High	0.32		
	24-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High	0.32		
RS*:										
Ruston	0-7	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low	0.28	5	.5-2
	7-41	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28		
	41-47	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.32		
	47-75	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28		
Smithdale	0-6	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	6-36	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	36-72	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Sm	0-9	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
Smithdale	9-24	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	24-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
St	0-6	27-39	1.35-1.65	0.06-2.0	0.12-0.17	7.4-8.4	High	0.37	5	1-5
Sumter Variant	6-28	35-57	1.20-1.65	0.06-2.0	0.12-0.17	7.4-8.4	High	0.37		
	28-60	40-60	1.20-1.50	0.06-2.0	0.12-0.17	7.4-8.4	High	0.37		
Un	0-6	28-45	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High	0.32	5	1-3
Una	6-80	28-55	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High	0.28		
Uo	0-4	25-38	1.35-1.65	0.2-0.6	0.16-0.22	4.5-5.5	Moderate	0.43	5	.5-2
Urbo Variant	4-31	27-35	1.35-1.65	0.06-0.2	0.18-0.22	4.5-5.5	Moderate	0.37		
	31-46	20-35	1.35-1.65	0.06-0.2	0.12-0.20	4.5-5.5	Moderate	0.32		
	46-70	10-25	1.35-1.65	0.2-0.6	0.11-0.20	4.5-5.5	Low	0.32		
Va	0-3	25-55	1.20-1.40	0.06-0.2	0.10-0.15	4.5-6.5	High	0.32	4	.5-2
Vaiden	3-21	60-75	1.20-1.40	<0.06	0.10-0.15	4.5-6.0	Very high	0.32		
	21-75	40-75	1.20-1.40	<0.06	0.10-0.15	4.5-7.8	Very high	0.32		
Yo	0-5	40-65	1.15-1.45	<0.06	0.12-0.18	5.6-7.3	High	0.32	5	1-5
Yorktown	5-45	60-80	1.15-1.45	<0.06	0.12-0.18	5.6-7.3	Very high	0.32		
	45-65	60-80	1.15-1.45	<0.06	0.12-0.18	7.4-8.4	Very high	0.32		

* See description of the map unit for composition and behavior characteristics of the map unit.

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]

Map symbol and soil name	Hydrologic group	Flooding				High water table			Risk of corrosion	
		Yearly	Cropping seasons			Depth	Kind	Months	Uncoated steel	Concrete
			Frequency	Duration	Months					
						Ft				
Ad---------- Armistead	C	None------	None--------	---	---	1.5-3.0	Apparent	Dec-Apr	High-----	Low.
Br---------- Briley	B	None------	None--------	---	---	>6.0	---	---	Moderate	High.
Ca---------- Caddo	D	None------	None--------	---	---	0-2.0	Apparent	Dec-Apr	High-----	Moderate.
Cd, Ce---------- Cadeville	D	None------	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Ch---------- Cahaba	B	None------	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Ga, Gb---------- Gallion	B	None------	None--------	---	---	>6.0	---	---	Moderate	Low.
Gc---------- Gallion	B	Occasional	Occasional	Brief to long.	Jun-Nov	>6.0	---	---	Moderate	Low.
Gn---------- Glenmora	C	None------	None--------	---	---	2.0-3.0	Apparent	Dec-Apr	High-----	Moderate.
Go, Gr---------- Gore	D	None------	None--------	---	---	>6.0	---	---	High-----	Low.
Gu---------- Guyton	D	None------	None--------	---	---	0-1.5	Perched	Dec-May	High-----	Moderate.
GY*: Guyton----------	D	Frequent--	Frequent----	Very brief to long.	Jun-Nov	0-1.5	Perched	Dec-May	High-----	Moderate.
Cascilla---------	B	Frequent--	Frequent----	Brief to very long.	Jun-Nov	>6.0	---	---	Low------	Moderate.
Ko---------- Kolin	C	None------	None--------	---	---	1.5-3.0	Perched	Dec-Apr	High-----	Moderate.
La---------- Latanier	D	None------	None--------	---	---	1.0-3.0	Apparent	Dec-Apr	High-----	Low.
Ma---------- Malbis	B	None------	None--------	---	---	2.5-4.0	Perched	Dec-Mar	Moderate	Moderate.
Me---------- Mayhew	D	None------	None--------	---	---	0-1.0	Apparent	Jan-Mar	High-----	High.
Mf---------- Metcalf	D	None------	None--------	---	---	1.5-2.5	Perched	Dec-Apr	High-----	Moderate.
Mn, Mo, Mr, Mt---- Moreland	D	Rare------	Rare--------	---	---	0-1.5	Perched	Dec-Apr	High-----	Low.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding				High water table			Risk of corrosion	
		Yearly	Cropping seasons			Depth	Kind	Months	Uncoated steel	Concrete
			Frequency	Duration	Months					
						Ft				
Mw---------- Moreland	D	Occasional	Occasional	Brief to long.	Jun-Nov	0-1.5	Perched	Dec-Apr	High-----	Low.
Nd, No, Nr--------- Norwood	B	None------	None--------	---	---	>6.0	---	---	High-----	Low.
Pt*. Pits										
RK*:										
Rigolette---------	C	None------	None--------	---	---	0-1.5	Perched	Jan-Mar	High-----	High.
Kisatchie---------	D	None------	None--------	---	---	>6.0	---	---	High-----	High.
Rm---------- Roxana	B	None------	None--------	---	---	4.0-6.0	Apparent	Dec-Apr	Low------	Low.
Rn---------- Roxana	B	Occasional	Occasional	Brief-----	Jun-Nov	4.0-6.0	Apparent	Dec-Apr	Low------	Low.
Ro---------- Roxana	B	Frequent--	Frequent----	Brief to long.	Jun-Nov	4.0-6.0	Apparent	Dec-Apr	Low------	Low.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RR*:										
Ruston----------	B	None------	None--------	---	---	>6.0	---	---	Moderate	Moderate.

8.--PHYSICAL TEST DATA

iana Agricultural Experiment Station. Dashes indicate analysis was

distribution					Water content at tension		Bulk density			
ne	Very fine	Total	Silt	Clay	1/3	15	Air	Oven	Field moisture	COLE
25-0mm	0.10-0.05mm	2.0-0.05mm	0.05-0.002mm	<0.002 mm	Bar	Bar	dry	dry		
ct	Pct	Pct	Pct	Pct	Pct	Pct	G/CC	G/CC	G/CC	
.52	28.34	43.46	43.70	12.84	26.34	11.09	1.17	1.17	1.28	--
.86	36.51	43.97	38.19	17.84	19.70	7.34	1.62	1.63	1.61	0.00
.69	11.71	13.44	25.31	61.25	45.69	22.54	1.75	1.78	1.42	0.08
.66	8.76	9.84	27.09	53.07	45.30	22.42	1.87	1.92	1.49	0.09
.42	10.48	11.40	27.76	60.84	45.23	22.39	1.90	1.94	1.52	0.09
.29	5.59	6.17	33.66	60.92	47.84	22.83	1.86	1.89	1.48	0.09
.27	9.96	10.47	31.10	58.43	49.65	22.82	1.72	1.74	1.49	0.05
.70	17.70	60.20	27.30	12.60	10.26	2.48	1.52	1.53	1.52	0.00
.70	13.90	42.40	24.30	33.30	17.70	10.10	1.70	1.72	1.62	0.02
.20	15.50	43.50	20.50	36.00	19.41	10.24	1.73	1.76	1.70	0.01
.60	14.90	46.70	22.70	30.60	16.29	9.38	1.79	1.81	1.78	0.01
.60	14.40	45.90	21.00	33.10	15.76	9.38	1.82	1.85	1.79	0.01
.50	14.50	49.90	16.50	33.60	15.48	7.48	1.82	1.85	1.83	0.00
.82	40.66	47.34	45.04	7.62	20.05	4.14	1.37	1.38	1.37	0.00
.34	36.43	39.89	50.01	10.10	22.58	4.37	1.59	1.57	1.58	0.00
.35	33.96	36.84	45.31	17.85	22.00	8.62	1.68	1.68	1.66	0.00
.98	25.06	27.95	44.38	25.67	32.03	10.33	1.62	1.63	1.59	0.01
.16	28.97	30.81	46.02	23.14	26.63	9.69	1.62	1.64	1.58	0.01
.08	28.64	30.92	46.00	23.08	26.01	10.53	1.57	1.58	1.57	0.00
.27	26.92	28.84	37.35	33.81	33.65	14.28	1.89	1.89	1.82	0.01
.23	25.59	28.31	35.14	36.55	37.59	16.62	1.72	1.75	1.55	0.04
.85	20.12	22.11	27.67	50.22	46.32	21.72	1.72	1.76	1.52	0.05
.10	24.93	74.54	12.89	12.57	10.26	2.48	1.37	1.37	1.37	0.00
.55	26.36	72.63	14.80	12.57	17.70	10.10	1.57	1.58	1.60	0.00
.84	17.88	49.07	20.28	30.65	19.41	10.24	1.76	1.78	1.71	0.01
.12	21.87	66.74	27.17	10.09	16.29	9.38	1.73	1.74	1.72	0.00
.31	28.48	73.91	18.55	7.54	15.76	9.38	1.72	1.75	1.74	0.00
.00	27.22	75.15	17.30	7.54	15.48	7.48	1.80	1.81	1.82	0.00
.40	21.05	71.94	5.16	22.90	16.17	11.32	1.84	1.83	1.79	0.01

TABLE 19.--CHEMICAL TEST DATA

[Analysis by Soil Characterization Laboratory of the Louisiana Agricultural Experiment Station]

Soil and sample number	Horizon	Depth from surface	Extractable bases				Extractable acidity	Cation exchange capacity (NH_4OAc)	Base saturation	Organic carbon	Nitrogen	pH			Extractable iron	Extractable aluminum	Extractable hydrogen	Extractable phosphorus
			Ca	Mg	K	Na						1:1 H_2O	1:1 KCl	1:2 $CaCl_2$				
		In	Meq/100g						Pct	Pct	Pct				Pct	Meq/100g		ppm
Cadeville very fine sandy loam: (S79LA43-5)	A1	0-3	3.36	2.68	0.20	0.00	14.83	15.6	40.4	4.26	0.20	4.39	3.60	4.04	1.04	0.95	0.60	3.64
	A2	3-6	3.58	2.19	0.11	0.10	4.37	9.9	60.5	0.64	0.04	5.07	3.97	4.41	1.28	0.83	0.27	3.64
	B21t	6-17	3.42	7.41	0.49	0.66	16.19	26.5	64.1	0.29	0.04	4.90	3.65	4.29	1.83	4.60	0.10	3.64
	B22t	22-32	4.13	8.31	0.69	1.52	24.07	28.4	51.6	0.21	0.03	4.26	2.99	3.62	1.14	12.55	0.00	3.64
	B23t	32-41	3.66	9.29	0.69	2.58	20.16	29.0	55.9	0.21	0.02	3.95	2.83	3.49	0.85	10.80	0.00	1.82
	B24t	41-48	4.11	10.68	0.81	3.82	21.30	30.0	64.7	0.17	0.03	3.77	2.79	3.46	0.81	10.10	0.00	0.91
	C	48-65	4.32	11.66	0.85	5.60	16.40	27.9	76.8	0.11	0.02	3.86	3.02	3.68	0.39	6.60	0.00	1.82
Malbis fine sandy loam: (S79LA43-1)	Ap	0-6	0.50	0.00	0.10	0.00	4.36	4.0	37.5	0.86	0.05	5.10	3.94	4.14	0.32	0.45	0.23	1.92
	B21t	6-14	0.54	1.72	0.11	0.00	8.73	7.9	29.6	0.23	0.02	4.64	3.66	3.86	1.54	3.50	0.00	1.34
	B22t(1)	14-24	0.04	1.40	0.09	0.00	9.05	8.5	18.0	0.11	0.02	4.73	3.66	3.84	1.53	4.10	0.00	0.96
	B22t(2)	24-35	0.00	0.72	0.08	0.00	7.66	16.9	4.7	0.05	0.01	4.64	3.68	3.86	1.55	3.40	0.05	0.96
	B23t	35-43	0.00	1.17	0.07	0.00	6.92	5.9	21.0	0.08	0.02	4.67	3.63	3.80	1.51	3.60	0.00	0.96
	B24t	43-64	0.00	1.56	0.04	0.00	6.60	7.0	23.6	0.04	0.01	4.70	3.62	3.84	1.67	3.70	0.00	1.92
Metcalf very fine sandy loam: (S79LA43-4)	A1	0-4	1.84	0.82	0.07	0.02	7.88	7.8	35.3	1.35	0.07	4.72	3.77	4.15	0.55	0.90	0.20	5.45
	A2	4-7	0.77	0.75	0.05	0.01	8.16	5.8	27.2	0.46	0.03	4.70	3.65	3.97	0.50	2.05	0.30	6.36
	B21t	7-15	0.96	1.43	0.07	0.12	10.33	9.6	26.9	0.29	0.03	4.69	3.49	3.88	0.95	5.65	0.00	1.68
	B22t	15-23	0.50	1.30	0.12	0.20	13.42	11.3	18.8	0.20	0.02	4.80	3.50	3.77	1.29	7.80	0.00	1.82
	B23t	23-30	0.25	1.01	0.07	0.30	13.20	11.6	14.1	0.14	0.02	4.83	3.46	3.77	1.18	6.53	0.00	3.64
	B&A'	30-37	0.69	1.66	0.08	0.65	12.35	11.9	25.9	0.14	0.02	5.15	3.39	3.80	1.09	6.95	0.00	2.73
	IIB24t	37-48	2.38	4.61	0.16	1.89	11.93	17.7	51.1	0.12	0.01	4.82	3.24	3.82	1.17	7.75	0.05	3.64
	IIB25t	48-61	0.58	1.77	0.05	0.00	14.27	7.8	30.8	0.07	0.01	4.44	2.97	3.74	0.60	6.65	0.00	3.64
	IIC	61-75	5.33	10.76	0.48	4.79	12.99	24.6	86.8	0.07	0.02	4.19	2.93	3.70	0.69	4.86	0.13	3.64
Ruston fine sandy loam: (S79LA43-2)	A1	0-4	1.22	0.24	0.11	0.07	3.83	3.3	49.7	0.81	0.05	5.27	4.54	4.72	0.20	0.04	0.13	2.31
	A2	4-14	0.05	0.00	0.09	0.00	1.38	1.6	8.8	0.19	0.02	5.12	4.24	4.49	0.22	0.33	0.07	0.96
	B21t	14-33	1.42	2.24	0.31	0.11	5.22	8.0	56.0	0.11	0.02	4.94	3.80	4.22	1.22	1.20	0.10	0.96
	B22t	33-43	0.00	0.35	0.13	0.00	2.88	2.9	16.6	0.04	0.01	4.74	3.81	3.96	0.54	1.55	0.00	0.96
	B&A'2	43-58	0.00	0.22	0.09	0.01	2.13	2.2	14.5	0.03	0.02	4.69	3.97	3.98	0.40	1.10	0.05	1.92
	B'21t	58-69	0.00	0.50	0.10	0.01	2.45	2.5	24.4	0.00	0.01	4.81	3.82	4.03	0.49	1.00	0.35	3.85
	B'22t	69-75	5.51	2.66	0.20	0.04	6.92	7.1	58.9	0.04	0.01	4.67	3.62	3.93	1.17	3.15	0.00	2.88

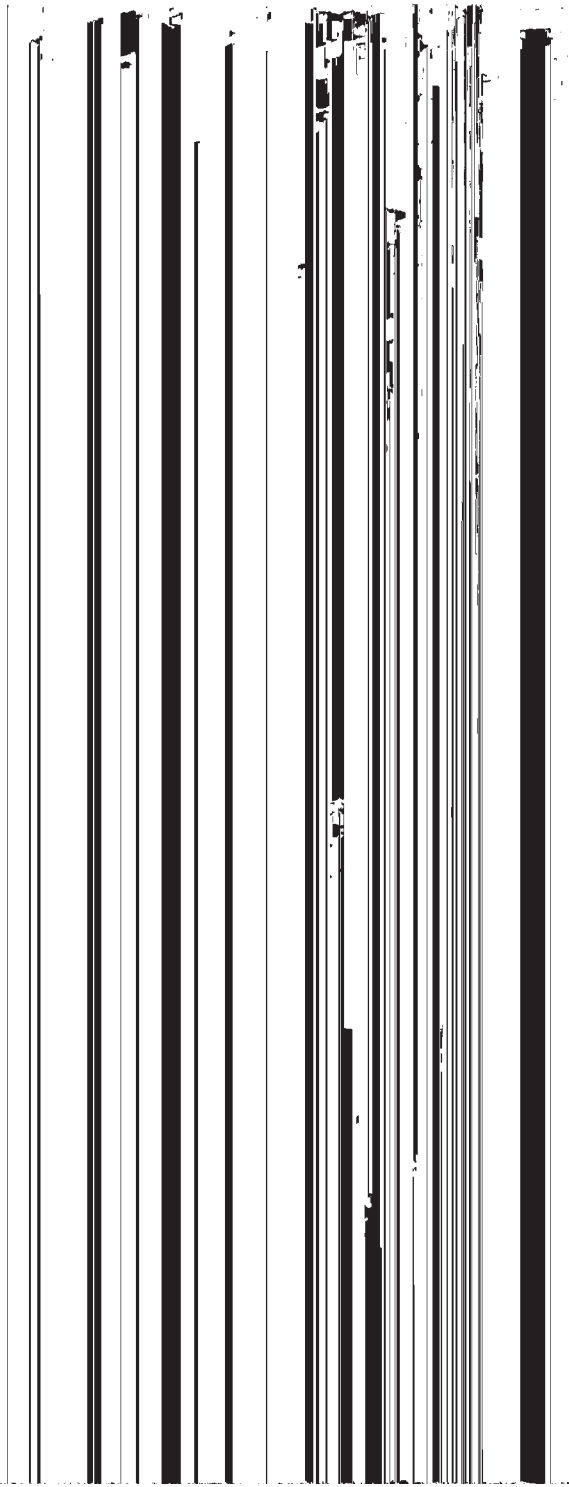


TABLE 20.--CHEMICAL TEST DATA

[Louisiana Agricultural Experiment Station. The symbol TR means trace. The symbol --- means data were not available]

Organic matter content	P	Exchangeable cations						Extractable acidity	Cation exchange capacity (sum)	Percent base saturation (sum)	Percent saturation	
		Ca	Mg	K	Na	Al	H				Al	Na
Pct	Ppm	Meq/100g										
---	93	13.9	7.7	0.7	0.3	0.0	0.3	3.9	26.5	85.3	0.0	1.1
---	159	19.5	9.3	0.2	0.2	0.0	0.3	5.8	36.0	81.1	0.0	<1.0
---	79	12.5	5.3	0.2	0.2	0.0	0.2	1.0	19.2	94.8	0.0	1.0
---	102	10.7	4.7	0.2	0.2	0.0	0.2	1.9	17.7	89.3	0.0	1.1
---	115	8.5	3.6	0.2	0.1	0.0	0.3	1.0	13.4	92.5	0.0	<1.0
0.73	5	2.0	0.8	0.1	0.1	1.4	0.3	10.4	13.4	22.4	29.8	<1.0
0.10	5	1.1	0.8	TR	0.1	2.6	0.8	4.4	6.4	31.3	48.1	1.6
0.20	5	1.0	0.7	TR	0.3	3.2	0.8	5.8	7.8	25.6	53.3	3.8
0.15	5	2.8	2.0	0.1	1.5	4.4	0.8	7.6	14.0	45.7	39.3	10.7
0.07	5	4.5	3.6	0.1	3.6	3.7	0.9	12.0	23.7	49.4	22.6	15.2
0.07	5	6.9	5.4	0.2	5.0	4.6	0.8	13.6	31.1	56.3	20.1	16.1
1.10	5	1.0	0.4	0.1	0.1	0.5	0.4	2.4	4.0	40.0	20.0	2.5
0.25	5	0.9	0.5	0.1	0.1	0.5	0.3	2.9	4.5	35.6	20.8	2.2
0.15	5	0.6	1.1	0.1	TR	1.8	0.9	3.3	5.1	35.3	40.0	<1.0
0.04	5	0.3	0.4	0.1	TR	1.3	0.7	3.3	4.1	19.5	46.4	<1.0
0.02	5	0.2	0.2	TR	TR	0.7	0.3	2.9	3.3	12.1	50.0	<1.0
0.01	6	0.2	0.2	0.1	TR	0.8	0.6	2.9	3.4	14.7	42.1	<1.0
0.09	6	0.4	0.1	0.1	TR	2.7	0.5	9.7	10.3	5.8	71.1	<1.0
0.01	5	0.3	0.2	TR	TR	3.1	0.8	8.0	8.5	5.9	70.5	<1.0
0.02	5	0.2	0.2	0.1	TR	3.5	0>8	?.6	7.7	6.5	72.9	<1.0
TR	5	0.2	0.2	0.1	TR	4.3	0.0	7.8	8.3	6.0	89.6	<1.0
TR	7	0.2	0.4	0.2	TR	4.8	0.6	6.8	7.6	10.5	77.4	<1.0
0.01	39	4.8	3.0	0.2	0.1	0.0	0.3	2.4	10.5	77.1	0.0	1.0
0.17	84	12.1	7.6	0.3	0.1	0.0	0.2	3.6	23.9	84.8	0.0	<1.0
0.01	36	6.6	4.1	0.2	TR	0.0	0.2	4.0	14.9	73.2	0.0	<1.0
0.05	49	6.0	4.0	0.2	TR	0.0	0.2	4.8	15.0	68.0	0.0	<1.0
TR	129	6.5	4.7	0.2	TR	0.0	0.2	2.4	13.8	82.6	0.0	<1.0
2.67	6	5.3	1.3	0.1	0.2	0.0	0.3	10.7	17.6	39.2	0.0	1.1
0.23	5	1.8	1.1	TR	0.2	1.4	0.5	6.0	9.1	34.1	28.0	2.2
0.15	5	1.5	1.2	TR	0.2	2.5	0.3	5.4	8.3	34.9	43.9	2.4
0.09	5	0.6	1.0	0.1	0.3	4.1	0.1	4.8	6.8	29.4	66.1	4.4
0.04	5	1.1	1.5	0.1	0.6	5.6	0.4	9.8	13.1	25.2	60.2	4.6
0.02	5	2.3	2.4	0.1	1.0	4.8	0.0	8.1	13.9	41.7	45.3	7.2
TR	5	5.9	5.2	0.2	2.1	2.2	0.7	7.2	20.7	65.2	13.5	10.1
TR	5	9.4	7.7	0.2	3.3	0.8	0.5	6.4	26.9	76.2	3.7	12.3
1.12	5	0.7	0.3	0.1	TR	1.4	0.6	9.6	10.7	10.3	45.2	<1.0
0.23	5	1.2	0.3	TR	TR	0.8	0.7	8.0	9.5	15.8	26.7	<1.0
TR	5	1.7	0.5	TR	0.1	0.3	0.4	3.9	6.2	37.1	10.0	1.6
0.01	5	2.1	1.3	0.1	1.7	1.6	0.7	13.6	18.8	27.7	21.3	9.0
TR	5	1.0	1.2	0.1	2.8	1.6	1.0	10.8	15.9	32.1	20.8	17.6
TR	5	0.3	1.2	0.1	3.1	3.0	0.7	6.0	10.7	43.9	35.7	29.0
1.07	5	1.5	0.9	0.1	1.8	2.3	0.7	6.4	10.7	40.2	31.5	16.7
0.81	5	1.5	1.0	0.1	TR	2.2	0.7	7.6	10.2	25.5	40.0	<1.0
0.23	5	3.4	2.6	0.2	TR	5.4	1.1	13.2	19.4	32.0	42.5	<1.0
0.09	5	2.3	2.0	0.2	TR	6.6	1.5	13.6	18.2	25.3	52.0	<1.0

TABLE 20.--CHEMICAL TEST DATA--Continued

Soil sample and number	Depth from surface	Horizon	pH 1:1 H_2O	Organic matter content	P	Exchangeable cations						Extractable acidity	Cation exchange capacity (sum)	Percent base saturation (sum)	Percent saturation	
						Ca	Mg	K	Na	Al	H				Al	Na
	In			Pct	Ppm	Meq/100g										
Kolin silt loam: (S79LA43-6)	0-3	A1	5.2	1.70	16	3.6	1.5	0.2	TR	0.3	0.5	7.8	13.1	40.5	4.9	<1.0
	3-6	A2	5.2	0.88	6	2.5	1.4	0.1	TR	0.3	0.7	2.0	6.0	66.7	6.0	<1.0
	6-13	B21t	5.3	0.36	5	2.6	2.6	0.1	TR	5.0	1.0	10.7	16.0	33.1	48.5	<1.0
	13-20	B22t	5.3	0.25	5	2.1	2.6	0.2	0.1	6.8	1.3	15.6	20.6	24.3	51.9	<1.0
	20-28	B&A'2	5.5	0.12	5	1.3	2.3	0.2	0.2	7.4	1.4	13.6	17.6	22.7	57.8	1.1
	28-39	IIB24t	5.5	0.09	5	1.3	2.3	0.2	0.2	10.2	1.8	19.4	24.4	20.5	60.0	<1.0
	39-49	IIB25t	5.5	0.02	9	2.5	3.3	0.3	0.4	9.5	0.8	16.0	24.4	34.4	51.4	1.6
	49-74	IIB3t	5.2	0.02	5	4.4	5.2	0.2	0.7	4.2	0.9	10.0	22.4	55.4	24.0	3.1
Latanier clay: (S79LA43-7)	0-6	Ap	6.8	2.10	117	19.3	7.5	0.5	0.2	0.0	0.2	6.8	34.3	80.2	0.0	<1.0
	6-25	B21	8.1	0.36	192	29.5	7.2	0.4	0.3	0.0	0.3	2.9	40.3	90.8	0.0	<1.0
	25-34	B22	8.1	0.33	183	31.6	10.0	0.5	0.4	0.0	0.2	1.9	44.4	95.7	0.0	<1.0
	34-54	IIC1	7.9	0.12	66	7.5	2.8	0.2	0.1	0.0	0.2	0.0	10.6	100.0	0.0	<1.0
	54-65	IIC2	7.9	0.02	70	5.0	2.1	0.2	0.1	0.0	0.2	0.0	7.4	100.0	0.0	1.4
Mayhew silty clay loam: (S79LA43-8)	0-5	Ap	4.6	1.49	5	5.7	2.4	0.2	0.1	1.4	0.6	9.6	18.0	46.7	13.5	<1.0
	5-20	B21tg	5.0	0.07	5	2.6	2.3	0.2	0.2	11.0	3.2	16.8	22.1	24.0	56.4	<1.0
	20-35	B22tg	5.1	0.01	5	1.3	2.4	0.2	0.4	11.8	1.4	20.1	24.4	17.6	67.5	1.6
	35-60	B23tg	5.0	0.01	5	2.0	3.3	0.2	0.7	12.2	1.8	26.1	32.3	19.2	60.4	2.2
	60-75	B3g	4.6	TR	5	4.6	5.9	0.4	1.7	14.8	1.2	30.5	43.1	29.2	51.7	3.9
Moreland clay: (S78LA43-3)	0-4	Ap	7.1	1.70	161	27.8	7.2	0.9	0.1	0.0	0.3	6.8	42.8	84.1	0.0	<1.0
	4-10	A1	7.7	1.78	112	28.5	6.7	0.6	0.1	0.0	0.3	7.8	43.7	82.0	0.0	<1.0
	10-19	B21	7.8	0.23	195	26.3	8.3	0.6	0.3	0.0	0.2	7.6	43.1	82.4	0.0	<1.0
	19-31	B22	7.8	0.15	233	31.5	10.4	0.6	0.4	0.0	0.3	4.4	47.3	90.7	0.0	<1.0
	31-46	B31	7.9	0.23	229	31.7	11.8	0.6	0.8	0.0	0.2	4.8	49.7	90.3	0.0	1.6
	46-66	B32	7.8	0.28	199	29.7	15.0	0.6	1.5	0.0	0.2	3.6	50.4	92.9	0.0	3.0
Norwood silt loam: (S79LA43-9)	0-8	Ap	7.4	0.44	248	9.3	1.5	0.6	0.1	0.0	0.2	2.0	13.5	85.2	0.0	<1.0
	8-20	B2	8.1	0.07	131	23.0	3.8	0.2	0.1	0.0	0.3	3.9	31.0	87.4	0.0	<1.0
	20-33	C1	8.2	0.07	130	21.9	4.2	0.2	0.1	0.0	0.2	1.9	28.3	93.3	0.0	<1.0
	33-46	C2	8.2	0.01	120	19.9	3.6	0.2	0.2	0.0	0.2	1.0	24.9	96.0	0.0	<1.0
	46-66	C3	8.1	0.07	103	24.2	6.3	0.3	0.2	0.0	0.2	1.6	32.6	95.1	0.0	<1.0
Rigolette loamy fine sand: (S80LA43-1)	0-4	A1	5.1	0.57	7	0.4	0.1	TR	TR	0.6	0.7	9.3	9.8	5.0	33.5	<1.0
	4-12	A2	5.2	0.07	5	0.5	0.3	TR	TR	1.5	0.7	8.7	9.5	8.4	50.0	<1.0
	12-17	B1	5.0	0.09	5	1.0	0.7	0.1	0.1	3.0	0.7	9.3	11.2	17.0	53.6	<1.0
	17-22	B21tg	5.0	0.12	5	1.4	1.4	0.1	0.1	4.2	1.0	14.0	17.0	17.6	51.2	<1.0
	22-32	B22tg	5.0	0.15	5	1.5	1.6	0.1	0.1	4.4	0.5	14.0	17.3	19.1	53.7	<1.0
	32-37	IIB23tgb	4.7	0.12	5	5.1	6.1	0.3	0.3	9.1	1.2	22.3	34.1	34.6	41.2	<1.0
	37-49	IIC1g	4.7	0.09	5	5.5	6.3	0.3	0.3	9.0	1.0	28.6	41.0	30.2	40.2	<1.0
	49-61	IIC2g	4.9	0.04	5	3.1	3.3	0.2	0.2	3.2	0.8	14.6	21.4	31.8	29.6	<1.0
	61-75	IIC3g	4.5	0.02	5	8.0	8.0	0.4	0.4	5.7	1.0	15.5	32.3	52.0	24.3	1.2
Roxana very fine sandy loam: (S78LA43-4)	0-6	Ap	7.2	0.57	254	6.8	1.7	0.5	TR	0.0	0.0	0.0	9.0	100.0	0.0	<1.0
	6-15	C1	8.0	0.17	146	9.5	1.3	0.2	TR	0.0	0.9	0.0	11.0	100.0	0.0	<1.0
	15-26	C2	8.4	0.02	101	9.0	1.0	0.1	TR	0.0	0.0	0.0	10.1	100.0	0.0	<1.0
	26-44	C3	8.4	0.09	98	14.6	2.0	0.1	TR	0.0	0.0	0.0	16.7	100.0	0.0	<1.0
	44-65	C4	8.4	0.01	118	3.9	1.4	TR	0.1	0.0	0.0	0.0	5.4	100.0	0.0	1.9
Smithdale fine sandy loam: (S79LA43-10)	0-7	A1	4.5	1.81	8	1.0	0.3	0.1	TR	2.0	0.4	11.4	12.9	11.6	52.6	<1.0
	7-13	A2	5.2	0.78	5	1.0	0.5	TR	0.1	0.8	0.5	5.8	7.4	21.6	27.6	1.4
	13-30	B21t	5.4	0.17	5	0.5	1.1	0.1	0.1	5.8	0.6	10.7	12.5	14.4	70.7	<1.0
	30-57	B22t	5.3	0.07	5	0.2	0.5	0.1	0.1	5.0	0.6	8.9	9.8	9.2	76.9	1.0
	57-80	B23t	5.3	0.54	5	0.2	0.3	0.1	TR	3.2	0.5	9.7	10.3	8.0	74.4	<1.0

TABLE 21.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Armistead	Fine-silty, mixed, thermic Aquic Argiudolls
Briley	Loamy, siliceous, thermic Arenic Paleudults