SOIL SURVEY

BIG CYPRESS INDIAN RESERVATION

BROWARD COUNTY

SOIL SURVEY TABLE OF CONTENTS:

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE,
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SOIL SURVEY OF BIG CYPRESS INDIAN RESERVATION, BROWARD COUNTY,

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HOW THIS SURVEY WAS MADE

Field work for this soil survey update was completed in 1992 and 1993. To survey the soils and to correlate the soils and interpretations of this soil survey, conventional methods were used to document the type and variability of soils occurring within the soil survey areas. Landform were located, identified, and delineated. The types of soils occurring on these landforms were also identified. During the progress of field studies, soil boundaries were located and tested to determine their accuracy. In some areas, boundaries were changed or readjusted.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named soils according to nationwide, uniform procedures. The soil series and the soil phase are the categories of soil classification (Soil Survey Staff, 1975) most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Perdido and Escambia for example, are the names of two soil series. All the soils in the United States having the same series names are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface layer and in slope, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Chobee sandy loam, depressional is a phase of the Chobee series.

After a guide for classifying and naming the soils has been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show field borders, trees, canals, ditches, roads, and other details that help in drawing boundaries accurately. Also utilized were 1992 false color infrared photographs. The soil map at the back of this report were prepared from the aerial photographs.

The areas shown on a soil map are called map units. On most maps detailed enough to be useful in planning the management of fields, a map unit is nearly equivalent to a soil phase. It is not exactly equivalent because it is not practical to show on such a map all the small, scattered bits of soil of some kind that have been seen within an area that is dominantly of a recognized soil phase.

Soil scientists observe how soils behave when used as a growing medium for native and cultivated plants, and as material for structure, foundations for structures, or covering for structures. They relate this behavior to properties of the soils. For example, they observe that filter fields for on-site disposal of sewage fail on a given kind of soil, and they relate this to the slow permeability of the soil or its high water table.

They see that streets, road pavements, and foundations for houses are cracked on a named kind of soil and relate this failure to a high organic content. Thus, they use observation and knowledge of soil properties, together with available research data, to predict limitations or suitability of soils for present and potential uses.

HOW TO USE THIS REPORT

This report contains information that can be applied in managing fields, pastures, rangeland, and citrus and vegetable production; help in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, recreation, and development.

Locating Soils: All the soils of this area are shown on the detailed map at the back of this report. On this map sheet soil areas are outlined and are identified by symbols. All areas marked with the same symbol in this survey area are the same kind of soil. The soil symbol is inside the area.

CLIMATE

Broward County has a warm humid-subtropic climate. Summers have long, warm, and humid. Winters are mild and short. The Atlantic Ocean moderates high temperatures in summer and lows in winter along the coast; however, the ocean's effect diminishes appreciably a few miles inland. The average annual temperature is 73 degrees F, and rainfall averages 58 inches a year.

Rainfall is the main form of precipitation. Sixty percent of the rain falls during June, July, August, and September, although unusual amounts may fall during any month. The greatest amount of rain falls in June and September. December, January, and February have the least rain. A large portion of the rain falls during the afternoon and evening as thundershowers or showers. These showers, which occur on 40 percent of the days, are widely scattered, short and often violent. Sometimes 2 to 4 inches or more of rain falls within 1 or 2 hours.

Winters may bring gentle rains of long duration, usually 1 to 3 days. Long-lasting showers in summer usually are associated with tropical disturbances. Rainfall of more than 8 inches during some 24-hour period can be expected in about 1 year in 8, usually when a hurricane passes through the area.

Snow is very rare. Hailstorms are also infrequent and cover very restricted areas, so damage is restricted. Ground fog is usually confined to the night and early morning in late fall, winter and early spring. The sun usually dissipates the fog very quickly.

The Atlantic Ocean tempers the cold of winter, and causes cool sea breezes to move across the land on summer days. The average highest temperature in summer is 90 degrees F. Cloudiness and associated thundershowers and showers relieve the heat. The average lowest temperature in winter is 56 degrees. The highest recorded temperature is 100 degrees, and the lowest is 28 degrees.

Winter is mild but is punctuated by periodic invasions of cold air masses from the north. These cold periods last 1 to 3 days. The second day is usually the coldest because during the night, under clear skies, radiational cooling is accelerated and temperatures plummets during the early morning. Table 1 gives data on temperature and precipitation for the survey area.

TABLE 1 - Climate; Temperature and Precipitation

Month	Temperature			Precipitation
	Average Daily High (degrees F)	Average Daily Low (degrees F)	Average (degrees F)	Rainfall Average (inches)
January	75.5	54.2	75.5	1.59
February	76.9	53.8	65.4	1.66
March	79.5	56.3	67.9	3.02
April	82.9	60.3	71.6	3.36
May	86.5	64.7	75.6	4.17
June	88.5	70.1	79.3	9.51
July	90.5	72.1	81.3	8.25
August	90.5	72.8	81.7	8.28
September	85.3	69.4	77.4	9.00
October	84.4	68.5	76.5	5.22
November	78.7	60.6	69.6	2.34
December	76.0	55.6	65.8	1.49
Year	82.9	63.2	73.1	57.89

Hurricanes, with high winds and accompanying rainfall, can destroy crops by wind damage and flooding. There is also a greater erosion potential when more than one half inch of rain falls within an hour or two.

At the other extreme, there is an occasional short drought in the winter, when crops and other plants are beginning to grow. This moisture deficit can damage crops, pastures, and gardens, and can only be overcome by supplemental irrigation.

SOILS OF BIG CYPRESS INDIAN RESERVATION, BROWARD COUNTY

Soil Survey Soil Map Units

On the following pages detailed soil survey map unit descriptions are given for each type of soil in the survey area.

Table 2 - Soil Survey Map Units; Symbols, Names, Acreages, and Percents

Map Symbol	Map Unit Name	Acres	Percent
11	Boca sand, slough	105	1
13	Gentry mucky sand, depressional	90	1
19	Gator muck, depressional	620	6
23	Hallandale sand, slough	400	4
34	Chobee sandy loam, depressional	120	2
44	Jupiter mucky sand, prairie	3700	37
65	Plantation muck, depressional	1850	19
66	Margate mucky sand, prairie	3060	31
75	Udorthents, diked	20	*
W	Water	35	*
	TOTALS	10000	100

11 - BOCA, SLOUGH

Setting and General Soil Properties - This map unit consists of level, poorly drained soils; predominantly on sloughs. These soils also occur on low flatwoods, and low hammocks. They have sandy surface and subsurface layers over limestone bedrock. The limestone bedrock is at a depth of 24 to 40 inches.

Agronomic Soil Properties - The root zone of these hydric soils is limited be a seasonal high water table at or near the surface and the limestone bedrock. The available water capacity is low to very low in the root zone. Natural fertility is low but crop response to nutrients is moderate. The internal drainage is slow under natural conditions but the response to artificial drainage is rapid.

Water Table - In normal years these soils have a seasonal high water table at a depth of 6 inches or less for 2 to 6 months. In other months the water table is usually below this depth. During periods of high rainfall the water table may be as much as 3 inches above the surface for periods of brief duration.

Pasture Suitability - These soils are only fairly suited to pastures and hay crops. Low to very low available water capacity is the main limitation. Improved grasses such as the improved bahiagrasses are adapted. Several varieties of clovers are also well adapted where properly managed. Moderate yields require nutrient management, water table management, and controlled grazing to prevent overgrazing.

Cultivated Crop Suitability - These hydric soils are poorly suited to cultivated crops because of wetness and the depth to bedrock; cultivation is not recommended. If they are cultivated the variety of crops is very limited without an adequate total water table management system. Crop rotations should include close growing crops on the land at least two-thirds of the time. Nutrient management maximizes yields. Soil improving cover crops and all crop residues should be left on the ground.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these hydric soils.

Irrigation Management - If cultivated, highest yields require irrigation during periods of low rainfall either subirrigated through a water table management system or by sprinklers.

Citrus Production - These hydric soils are poorly suited to citrus crops. Soil depth and the low to very low available water capacity are severe limitations that are difficult to overcome. If citrus crops are grown on these soils, a total water table management system including irrigation is needed. Nutrient management maximizes yields.

Water Table Management - If cropped, these hydric soils need a total water table management system to remove excess water rapidly and provide a means of applying subirrigation. Tile drains, open ditches, and/or tail-race recovery systems may be needed to maintain the preferred water table depths for the planted crop. To obtain adequate drainage, the spacing of tile drains is important. Tile drains may be used for subirrigation during periods of low rainfall.

Rangeland Management - This Slough range site has the potential for producing significant amounts of high quality forage from a variety of high quality forage plants such as maidencanes, bluestems, and panicums. Sites in excellent condition produce 3000 to 6000 pounds per acre annually. Four to 16 acres or more are usually needed per animal unit. Forage is usually 85% grasses and grass-like plants and 15% herbaceous plants.

Wildlife Management - These soils are well suited to snakes, frogs, salamanders, raccoons, and wading birds. The grass dominated vegetation is a highly valued food source for quail and deer; however, it provides poor cover for these and most other wildlife species except at its cofluence with other communities.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a medium or high potential for pesticide leaching to groundwater and a medium to high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff to surface runoff.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a list of pesticides suited to each pest. This list also contains Relative Leaching Potential Index (RLPI) and Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RLPI value, RRPI value, Health Advisory Level (HAL or HALEQ) value, and Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown or according to the producer's goals, whichever is lower.

Urban Development - Suitability is poor for most urban uses because of a seasonal high water table and bedrock within 20 inches of the soil surface, fine textured soil material near the soil surface. House or small building pads can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. Landscape considerations should include use of species that are adapted to wetness, alkalinity, and fine textured soils.

Septic Tank Absorption Fields - These soils have severe limitations for septic tank absorption fields. High water table, bedrock, and fine textured soil material interfere with the absorption of effluent from septic tanks and creates a risk of contamination to adjacent surface waters and system failure. Absorption fields can be mounded or fine textured soil layers can be excavated and replaced with suitable soil material. Absorption field laterals should be installed downslope from dwellings.

Local Roads and Streets - These soils have severe limitations for local roads and streets. They can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. An engineer or soil scientist should be consulted to determine the shrink-swell potential of near surface soil material. Additional design precautions can be planned if shrink-swell is determined to be a concern.

13 - GENTRY MUCKY SAND, DEPRESSIONAL

Setting and General Soil Properties - This map unit consists of level, very poorly drained mineral soils on depressional areas. They have thin layers of mucky mineral and sandy and loamy subsurface materials over limestone bedrock. The limestone bedrock is at a depth of 40 to 72 inches.

Agronomic Soil Properties - The root zone is limited by water that is above the surface in wet seasons. The available water capacity averages high in the root zone. Natural fertility is high. The internal drainage rate is very slow in the natural condition and seepage water seeps from the soil in wet seasons.

Water Table - In normal years these soils have a seasonal high water table that is 6 to 12 inches above the surface for 2 to 6 months of most years. Only rarely is the water table below the surface for an extended period.

Pasture Suitability - If water control measures are established, these soil would be moderately well to well suited to improved pastures. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom used for improved pasture.

Cultivated Crop Suitability - If water control measures are established, these soils would be moderately well to well suited to cultivated crops. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom, used for crops production.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these soils.

Irrigation Management - Irrigation management is not a normal practice on these soils.

Water Table Management - Due to the lack of adequate outlets, water table management is a difficult practice to install on these soils. It is also a difficult practice to maintain if installed.

Rangeland Management - This Freshwater Marsh and Ponds range site has the potential for producing significant amounts of high quality forage from a variety of high quality forage plants. Sites in excellent condition produce 5000 to 10000 pounds per acre annually. Three to 13 acres or more are usually needed per animal unit. Forage is usually 80% grasses and grass-like plants, 5% trees and shrubs, and 15% herbaceous plants.

Wildlife Management - These soils are well suited to a wide variety of wetland wildlife species including waterfowl, reptiles, amphibians, and mammals. These species must withstand ponding of long or very long duration. Inhabitants include mink, otter, raccoons, herons, bitterns, ibis, cranes, snipe, ducks, kites, killdeer, caracara, and hawks. This community also serves as a water source for species from surrounding communities.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a low potential for pesticide leaching to groundwater and a medium or high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to groundwater and a medium or high potential for phosphorous runoff to surface water.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a listing of pesticides suited to each pest. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RRPI value and a larger Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown, or according to the producer's goals, whichever is lower.

Urban Development - These soils are generally unsuited to most urban uses because of ponding and low bearing strength of the soil. Dwellings and small buildings can be constructed on pilings driven to suitable depths, however, access may be limited during periods when water tables are highest. Drainage may be impractical in many areas because of a lack of suitable outlets. Landscaping considerations should include use of species that are adapted to ponded water.

Septic Tank absorption Fields - These soils have severe limitations for septic tank absorption fields. Ponded water tables interfere with the absorption of effluent from septic tanks and pose risks of contamination to adjacent surface waters.

Local Roads and Streets - These soils have severe limitations for local roads and streets. Road and street surfaces may subside, crack or ripple if sufficient fill is not used as a base. When possible, existing soil material should be removed and filled with suitable soil material to prevent subsidence and damage to road surfaces.

19 - GATOR MUCK, DEPRESSIONAL

Setting and General Soil Properties - This map unit consists of nearly level, very poorly drained organic soils on depressional areas. They have thick layers of muck and sandy and loamy subsurface materials over limestone bedrock. The limestone bedrock is at a depth of 40 to 72 inches.

Agronomic Soil Properties - The root zone is limited by water that is above the surface in wet seasons. The available water capacity averages high in the root zone. Natural fertility is high. The internal drainage rate is very slow in the natural condition and seepage water seeps from the soil in wet seasons.

Water Table - In normal years these soils have a seasonal high water table that is 6 to 18 inches above the surface for 2 to 6 months of most years. Only rarely is the water table below the surface for an extended period.

Pasture Suitability - If water control measures are established, these soil would be moderately well to well suited to improved pastures. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom used for improved pasture.

Cultivated Crop Suitability - If water control measures are established, these soils would be moderately well to well suited to cultivated crops. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom used for crop production.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these soils.

Irrigation Management - Irrigation management is not a normal practice on these soils.

Water Table Management - Due to the lack of adequate outlets, water table management is a difficult practice to install on these soils. It is also a difficult practice to maintain if installed.

Rangeland Management - This Freshwater Marsh and Ponds range site has the potential for producing significant amounts of high quality forage from a variety of high quality forage plants. Sites in excellent condition produce 5000 to 10000 pounds per acre annually. Three to 13 acres or more are usually needed per animal unit. Forage is usually 80% grasses and grass-like plants, 5% trees and shrubs, and 15% herbaceous plants.

Wildlife Management - These soils are well suited to a wide variety of wetland wildlife species including waterfowl, reptiles, amphibians, and mammals. These species must withstand ponding of long or very long duration. Inhabitants include mink, otter, raccoons, herons, bitterns, ibis, cranes, snipe, ducks, kites, killdeer, caracara, and hawks. This community also serves as a water source for species from surrounding communities.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a low potential for pesticide leaching to groundwater and a medium or high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to groundwater and a medium or high potential for phosphorous runoff to surface water.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a listing of pesticides suited to each pest. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RRPI value and a larger Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown, or according to the producer's goals, whichever is lower.

Urban Development - These soils are generally unsuited to most urban uses because of ponding and low bearing strength of the soil. Dwellings and small buildings can be constructed on pilings driven to suitable depths, however, access may be limited during periods when water tables are highest. Drainage may be impractical in many areas because of a lack of suitable outlets. Landscaping considerations should include use of species that are adapted to ponded water and organic soils.

Septic Tank absorption Fields - These soils have severe limitations for septic tank absorption fields. Ponded water tables and organic soil materials interfere with the absorption of effluent from septic tanks and pose risks of contamination to adjacent surface waters.

Local Roads and Streets - These soils have severe limitations for local roads and streets. Road and street surfaces may subside, crack or ripple if sufficient fill is not used as a base. When possible, organic soil material should be removed and filled with suitable soil material to prevent subsidence and damage to road surfaces.

23 - HALLANDALE, SLOUGH

Setting and General Soil Properties - This map unit consists of level, poorly drained soils; predominantly on sloughs. These soils also occur on low flatwoods, and low hammocks. They have sandy surface and subsurface layers over limestone bedrock. The limestone bedrock is at a depth of 5 to 20 inches.

Agronomic Soil Properties - The root zone of these hydric soils is limited be a seasonal high water table at or near the surface and the limestone bedrock. The available water capacity is low to very low in the root zone. Natural fertility is low but crop response to nutrients is moderate. The internal drainage is slow under natural conditions but the response to artificial drainage is rapid.

Water Table - In normal years these soils have a seasonal high water table at a depth of 6 inches or less for 2 to 6 months. In other months the water table is usually below this depth. During periods of high rainfall the water table may be as much as 3 inches above the surface for periods of brief duration.

Pasture Suitability - These soils are only fairly suited to pastures and hay crops. Low to very low available water capacity is the main limitation. Improved grasses such as the improved bahiagrasses are adapted. Several varieties of clovers are also well adapted where properly managed. Moderate yields require nutrient management, water table management, and controlled grazing to prevent overgrazing.

Cultivated Crop Suitability - These hydric soils are poorly suited to cultivated crops because of wetness and the depth to bedrock; cultivation is not recommended. If they are cultivated the variety of crops is very limited without an adequate total water table management system. Crop rotations should include close growing crops on the land at least two-thirds of the time. Nutrient management maximizes yields. Soil improving cover crops and all crop residues should be left on the ground.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these hydric soils.

Irrigation Management - If cultivated, highest yields require irrigation during periods of low rainfall either subirrigated through a water table management system or by sprinklers.

Citrus Production - These hydric soils are poorly suited to citrus crops. Soil depth and the low to very low available water capacity are severe limitations that are difficult to overcome. If citrus crops are grown on these soils, a total water table management system including irrigation is needed. Nutrient management maximizes yields.

Water Table Management - If cropped, these hydric soils need a total water table management system to remove excess water rapidly and provide a means of applying subirrigation. Tile drains, open ditches, and/or tail-race recovery systems may be needed to maintain the preferred water table depths for the planted crop. To obtain adequate drainage, the spacing of tile drains is important. Tile drains may be used for subirrigation during periods of low rainfall.

Rangeland Management - This Slough range site has the potential for producing significant amounts of high quality forage from a variety of high quality forage plants such as maidencanes, bluestems, and panicums. Sites in excellent condition produce 3000 to 6000 pounds per acre annually. Four to 16 acres or more are usually needed per animal unit. Forage is usually 85% grasses and grass-like plants and 15% herbaceous plants.

Wildlife Management - These soils are well suited to snakes, frogs, salamanders, raccoons, and wading birds. The grass dominated vegetation is a highly valued food source for quail and deer; however, it provides poor cover for these and most other wildlife species except at its cofluence with other communities.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a medium or high potential for pesticide leaching to groundwater and a medium to high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff to surface runoff.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a list of pesticides suited to each pest. This list also contains Relative Leaching Potential Index (RLPI) and Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RLPI value, RRPI value, Health Advisory Level (HAL or HALEQ) value, and Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown or according to the producer's goals, whichever is lower.

Urban Development - Suitability is poor for most urban uses because of a seasonal high water table and bedrock within 20 inches of the soil surface, fine textured soil material near the soil surface. House or small building pads can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. Landscape considerations should include use of species that are adapted to wetness, alkalinity, and fine textured soils.

Septic Tank Absorption Fields - These soils have severe limitations for septic tank absorption fields. High water table, bedrock, and fine textured soil material interfere with the absorption of effluent from septic tanks and creates a risk of contamination to adjacent surface waters and system failure. Absorption fields can be mounded or fine textured soil layers can be excavated and replaced with suitable soil material. Absorption field laterals should be installed downslope from dwellings.

Local Roads and Streets - These soils have severe limitations for local roads and streets. They can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. An engineer or soil scientist should be consulted to determine the shrink-swell potential of near surface soil material. Additional design precautions can be planned if shrink-swell is determined to be a concern.

34 - CHOBEE SANDY LOAM, DEPRESSIONAL

Setting and General Soil Properties - This map unit consists of nearly level, very poorly drained mineral soils on depressional areas. They have thick layers of loamy materials over limestone bedrock. The limestone bedrock is at a depth of 40 to 72 inches.

Agronomic Soil Properties - The root zone is limited by water that is above the surface in wet seasons. The available water capacity averages high in the root zone. Natural fertility is high. The internal drainage rate is very slow in the natural condition and seepage water seeps from the soil in wet seasons.

Water Table - In normal years these soils have a seasonal high water table that is 4 to 15 inches above the surface for 2 to 6 months of most years. Only rarely is the water table below the surface for an extended period.

Pasture Suitability - If water control measures are established, these soil would be moderately well to well suited to improved pastures. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom used for improved pasture.

Cultivated Crops Suitability - If water control measures are established, these soils would be moderately well to well suited to cultivated crops. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom for crop production.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these soils.

Irrigation Management - Irrigation management is not a normal practice on these soils.

Water Table Management - Due to the lack of an adequate outlet, water table management is a difficult practice to install on these soils. It is also a difficult practice to maintain if installed.

Rangeland Management - This Freshwater Marsh and Ponds range site has the potential for producing significant amounts of high quality forage from a variety of high quality forage plants. Sites in excellent condition produce 5000 to 10000 pounds per acre annually. Three to 13 acres or more are usually needed per animal unit. Forage is usually 80% grasses and grass-like plants, 5% trees and shrubs, and 15% herbaceous plants.

Wildlife Management - These soils are well suited to a wide variety of wetland wildlife species including waterfowl, reptiles, amphibians, and mammals. These species must withstand ponding of long or very long duration. Inhabitants include mink, otter, raccoons, herons, bitterns, ibis, cranes, snipe, ducks, kites, killdeer, caracara, and hawks. This community also serves as a water source for species from surrounding communities.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a low potential for pesticide leaching to groundwater and a medium or high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to groundwater and a medium or high potential for phosphorous runoff to surface water.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a listing of pesticides suited to each pest. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RRPI value and a larger Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown, or according to the producer's goals, whichever is lower.

Urban Development - These soils are generally unsuited to most urban uses because of ponding and low bearing strength of the soil. Dwellings and small buildings can be constructed on pilings driven to suitable depths, however, access may be limited during periods when water tables are highest. Drainage may be impractical in many areas because of a lack of suitable outlets. Landscaping considerations should include use of species that are adapted to ponded water.

Septic Tank absorption Fields - These soils have severe limitations for septic tank absorption fields. Ponded water tables interfere with the absorption of effluent from septic tanks and pose risks of contamination to adjacent surface waters.

Local Roads and Streets - These soils have severe limitations for local roads and streets. Road and street surfaces may subside, crack or ripple if sufficient fill is not used as a base. When possible, existing soil material should be removed and filled with suitable soil material to prevent subsidence and damage to road surfaces.

44 - JUIPTER MUCKY SAND, PRAIRIE

Setting and General Soil Properties - This map unit consists of level, poorly drained soils; predominantly on prairies. These soils also occur on low flatwoods, and low hammocks. They have mucky mineral surface layers and sandy subsurface layers over limestone bedrock. The limestone bedrock is at a depth of 8 to 20 inches.

Agronomic Soil Properties - The root zone of these hydric soils is limited be a seasonal high water table at or near the surface and the limestone bedrock. The available water capacity is low to very low in the root zone. Natural fertility is low but crop response to nutrients is moderate. The internal drainage is slow under natural conditions but the response to artificial drainage is rapid.

Water Table - In normal years these soils have a seasonal high water table the surface for 2 to 6 months. In other months the water table is usually below this depth. During periods of high rainfall the water table may be as much as 4 inches above the surface for periods of brief duration.

Pasture Suitability - These soils are only fairly suited to pastures and hay crops. Low to very low available water capacity is the main limitation. Improved grasses such as the improved bahiagrasses are adapted. Several varieties of clovers are also well adapted where properly managed. Moderate yields require nutrient management, water table management, and controlled grazing to prevent overgrazing.

Cultivated Crop Suitability - These hydric soils are poorly suited to cultivated crops because of wetness and the depth to bedrock; cultivation is not recommended. If they are cultivated the variety of crops is very limited without an adequate total water table management system. Crop rotations should include close growing crops on the land at least two-thirds of the time. Nutrient management maximizes yields. Soil improving cover crops and all crop residues should be left on the ground.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these hydric soils.

Irrigation Management - If cultivated, highest yields require irrigation during periods of low rainfall either subirrigated through a water table management system or by sprinklers.

Citrus Production - These hydric soils are poorly suited to citrus crops. Soil depth and the low to very low available water capacity are severe limitations that are difficult to overcome. If citrus crops are grown on these soils, a total water table management system including irrigation is needed. Nutrient management maximizes yields.

Water Table Management - If cropped, these hydric soils need a total water table management system to remove excess water rapidly and provide a means of applying subirrigation. Tile drains, open ditches, and/or tail-race recovery systems may be needed to maintain the preferred water table depths for the planted crop. To obtain adequate drainage, the spacing of tile drains is important. Tile drains may be used for subirrigation during periods of low rainfall.

Rangeland Management - This **Sawgrass Marsh** site has little or no range value.

Wildlife Management - These soils are well suited to alligators, snakes, blackbirds, ibis, herons, bitterns, egrets, and kites. Wading birds and many types of waterfowl especially like this habitat. Frogs, snails, and crayfish are also common and serve as food for larger animals.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a low potential for pesticide leaching to groundwater and a medium to high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff to surface runoff.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a list of pesticides suited to each pest. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RRPI value and a larger Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown or according to the producer's goals, whichever is lower.

Urban Development - Suitability is poor for most urban uses because of a seasonal high water table and bedrock within 20 inches of the soil surface, fine textured soil material near the soil surface. House or small building pads can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. Landscape considerations should include use of species that are adapted to wetness, alkalinity, and fine textured soils.

Septic Tank Absorption Fields - These soils have severe limitations for septic tank absorption fields. High water table, bedrock, and fine textured soil material interfere with the absorption of effluent from septic tanks and creates a risk of contamination to adjacent surface waters and system failure. Absorption fields can be mounded or fine textured soil layers can be excavated and replaced with suitable soil material. Absorption field laterals should be installed downslope from dwellings.

Local Roads and Streets - These soils have severe limitations for local roads and streets. They can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. An engineer or soil scientist should be consulted to determine the shrink-swell potential of near surface soil material. Additional design precautions can be planned if shrink-swell is determined to be a concern.

65 - PLANTATION MUCK, DEPRESSIONAL

Setting and General Soil Properties - This map unit consists of nearly level, very poorly drained organic and mineral soils on depressional areas. They have thin layers of organic material and sandy materials over limestone bedrock. The limestone bedrock is at a depth of 30 to 50 inches.

Agronomic Soil Properties - The root zone is limited by water that is above the surface in wet seasons. The available water capacity averages high in the root zone. Natural fertility is high. The internal drainage rate is very slow in the natural condition and seepage water seeps from the soil in wet seasons.

Water Table - In normal years these soils have a seasonal high water table that is 6 to 15 inches above the surface for 2 to 6 months of most years. Only rarely is the water table below the surface for an extended period.

Pasture Suitability - If water control measures are established, these soil would be moderately well to well suited to improved pastures. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom used for improved pasture.

Cultivated Crops Suitability - If water control measures are established, these soils would be moderately well to well suited to cultivated crops. Due to the difficulty of installing these measures and the lack of outlets in most areas, they are seldom for crop production.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these soils.

Irrigation Management - Irrigation management is not a normal practice on these soils.

Water Table Management - Due to the lack of adequate outlets, water table management is a difficult practice to install on these soils. It is also a difficult practice to maintain if installed.

Rangeland Management - This Freshwater Marsh and Ponds range site has the potential for producing significant amounts of high quality forage from a variety of high quality forage plants. Sites in excellent condition produce 5000 to 10000 pounds per acre annually. Three to 13 acres or more are usually needed per animal unit. Forage is usually 80% grasses and grass-like plants, 5% trees and shrubs, and 15% herbaceous plants.

Wildlife Management - These soils are well suited to a wide variety of wetland wildlife species including waterfowl, reptiles, amphibians, and mammals. These species must withstand ponding of long or very long duration. Inhabitants include mink, otter, raccoons, herons, bitterns, ibis, cranes, snipe, ducks, kites, killdeer, caracara, and hawks. This community also serves as a water source for species from surrounding communities.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a low potential for pesticide leaching to groundwater and a medium or high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to groundwater and a medium or high potential for phosphorous runoff to surface water.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a listing of pesticides suited to each pest. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RRPI value and a larger Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown, or according to the producer's goals, whichever is lower.

Urban Development - These soils are generally unsuited to most urban uses because of ponding and low bearing strength of the soil. Dwellings and small buildings can be constructed on pilings driven to suitable depths, however, access may be limited during periods when water tables are highest. Drainage may be impractical in many areas because of a lack of suitable outlets. Landscaping considerations should include use of species that are adapted to ponded water and organic soils.

Septic Tank absorption Fields - These soils have severe limitations for septic tank absorption fields. Ponded water tables and organic soil materials interfere with the absorption of effluent from septic tanks and pose risks of contamination to adjacent surface waters.

Local Roads and Streets - These soils have severe limitations for local roads and streets. Road and street surfaces may subside, crack or ripple if sufficient fill is not used as a base. When possible, organic soil material should be removed and filled with suitable soil material to prevent subsidence and damage to road surfaces.

66 - MARGATE MUCKY SAND, PRAIRIE

Setting and General Soil Properties - This map unit consists of level, poorly drained soils; predominantly on prairies. These soils also occur on low flatwoods, and low hammocks. They have mucky mineral surface layers and sandy subsurface layers over limestone bedrock. The limestone bedrock is at a depth of 20 to 40 inches.

Agronomic Soil Properties - The root zone of these hydric soils is limited be a seasonal high water table at or near the surface and the limestone bedrock. The available water capacity is low to very low in the root zone. Natural fertility is low but crop response to nutrients is moderate. The internal drainage is slow under natural conditions but the response to artificial drainage is rapid.

Water Table - In normal years these soils have a seasonal high water table the surface for 2 to 6 months. In other months the water table is usually below this depth. During periods of high rainfall the water table may be as much as 6 inches above the surface for periods of brief duration.

Pasture Suitability - These soils are only fairly suited to pastures and hay crops. Low to very low available water capacity is the main limitation. Improved grasses such as the improved bahiagrasses are adapted. Several varieties of clovers are also well adapted where properly managed. Moderate yields require nutrient management, water table management, and controlled grazing to prevent overgrazing.

Cultivated Crop Suitability - These hydric soils are poorly suited to cultivated crops because of wetness and the depth to bedrock; cultivation is not recommended. If they are cultivated the variety of crops is very limited without an adequate total water table management system. Crop rotations should include close growing crops on the land at least two-thirds of the time. Nutrient management maximizes yields. Soil improving cover crops and all crop residues should be left on the ground.

Erosion Control - Due to the level slope of these soils, erosion control is not a management concern on these hydric soils.

Irrigation Management - If cultivated, highest yields require irrigation during periods of low rainfall either subirrigated through a water table management system or by sprinklers.

Citrus Production - These hydric soils are poorly suited to citrus crops. Soil depth and the low to very low available water capacity are severe limitations that are difficult to overcome. If citrus crops are grown on these soils, a total water table management system including irrigation is needed. Nutrient management maximizes yields.

Water Table Management - If cropped, these hydric soils need a total water table management system to remove excess water rapidly and provide a means of applying subirrigation. Tile drains, open ditches, and/or tail-race recovery systems may be needed to maintain the preferred water table depths for the planted crop. To obtain adequate drainage, the spacing of tile drains is important. Tile drains may be used for subirrigation during periods of low rainfall.

Rangeland Management - This **Sawgrass Marsh** site has little or no range value.

Wildlife Management - These soils are well suited to alligators, snakes, blackbirds, ibis, herons, bitterns, egrets, and kites. Wading birds and many types of waterfowl especially like this habitat. Frogs, snails, and crayfish are also common and serve as food for larger animals.

Woodland Management - These soils are seldom used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a low potential for pesticide leaching to groundwater and a medium to high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff to surface runoff.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a list of pesticides suited to each pest. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RRPI value and a larger Aquatic Toxicity value. Read and follow pesticide labels.

Nutrient Management - A soil test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown or according to the producer's goals, whichever is lower.

Urban Development - Suitability is poor for most urban uses because of a seasonal high water table and bedrock within 20 inches of the soil surface, fine textured soil material near the soil surface. House or small building pads can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. Landscape considerations should include use of species that are adapted to wetness, alkalinity, and fine textured soils.

Septic Tank Absorption Fields - These soils have severe limitations for septic tank absorption fields. High water table, bedrock, and fine textured soil material interfere with the absorption of effluent from septic tanks and creates a risk of contamination to adjacent surface waters and system failure. Absorption fields can be mounded or fine textured soil layers can be excavated and replaced with suitable soil material. Absorption field laterals should be installed downslope from dwellings.

Local Roads and Streets - These soils have severe limitations for local roads and streets. They can be elevated using suitable fill. The fill can be placed with a slight grade to allow water to drain away from the house or building. An engineer or soil scientist should be consulted to determine the shrink-swell potential of near surface soil material. Additional design precautions can be planned if shrink-swell is determined to be a concern.

75 - UDORTHENTS, CANAL DIKES

Setting and General Soil Properties - This map unit consists of nearly level to steep soils on areas used as dikes for water control. The soil materials are from adjacent canals and are variable; however, they are deep and predominantly stratified sandy and limestone material.

Agronomic Soil Properties - The available water capacity is low. Natural fertility is low and response to fertilization is low. Rainfall is rapidly absorbed but moves rapidly through the soil and very little is retained. There is severe hazard of gully erosion.

Water Table - In normal years these soils do not have a seasonal high water table within 72 inches of the surface.

Pasture Suitability - These soils are poorly suited to pastures due to steepness of the soil and the hazard of erosion.

Cultivated Crop Suitability - These soils are too steep and erodible to be suited to cultivated crops.

Erosion Control - If these soils are cultivated, erosion control measures that would adequately protect the soil and water resource base are difficult to install and/or maintain.

Irrigation Management - Due to the lack of cultivation, irrigation is not a normal practice on these soils.

Water Table Management - Water table management is not a normal practice on these soils because of the lack of cultivation.

Rangeland Management - These soils are not suited to range.

Wildlife Management - These soils serve as nesting areas for songbirds and migratory birds. They serve as resting areas for wading birds and by snakes, frogs, salamanders, raccoons, and alligators.

Woodland Management - These soils are not used for the commercial production of wood and timber. The soils create very severe limitations that are difficult to overcome.

Water Quality Soil Properties - These soils have a medium or high potential for pesticide leaching to groundwater and a medium to high potential for pesticide runoff to surface water. They have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff to surface runoff.

Pesticide Management - The Florida Pest Control Guide from the Cooperative Extension Service contains a list of pesticides suited to each pest. This list also contains Relative Leaching Potential Index (RLPI) and Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a larger RLPI value, RRPI value, Health Advisory Level (HAL or HALEQ) value, and Aquatic Toxicity value. Read and follow pesticide labels.

CROP INTERPRETATIONS

Use and Explanation of Cropland Interpretations

Information in this section of the soil survey can be used to plan the use and management of soils for crops or pasture. Conservation planners and citrus and vegetable producers using this information can evaluate the effects of crop management systems on productivity and on the environment in the county. This information can be used to maintain or create a land use pattern that is in harmony with the natural soil.

Contents:

Soil Erodibility (K) Factor and Soil-loss Tolerance (T) Value

General

Soil erodibility factors (K) and soil-loss tolerances (T) are used in an equation that predicts the amount of soil loss resulting from rainfall erosion of cropland. The soil-loss prediction procedure is useful to guide the selection of practices for soil and water conservation. The procedure is outlined and illustrated in SCS's Agricultural Handbook No. 537.

Soil Erodibility (K) Factor

The soil erodibility factor "K" indicates the susceptibility of a soil to sheet and rill erosion by water. Soil properties that influence erodibility by water are: (1) Those that affect infiltration rate, movement of water through the soil, and water storage capacity; and (2) those that resist dispersion, splashing, abrasion, and transporting forces from rainfall and runoff. Soil properties that effect soil erodibility the most are percent silt plus very fine sand. Percent organic matter, percent sand coarser than very fine sand, structure, and permeability also effect soil erodibility.

Soil-loss Tolerance (T) Factor

The soil-loss tolerance factor "T" is an estimate of the maximum annual rate of soil erosion that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons of soil loss per acre per year. Rates of 1 through 5 are used, depending upon soil properties and prior erosion.

Soil-loss tolerances were subjectively evaluated, based on the following general guides:

1. Maintenance of an adequate rooting depth for crop production.
2. Potential crop yield reduction.
3. Maintenance of water control structures affected by sedimentation.
4. Prevention of gullies.
5. Value of nutrients lost.

Soil Erodibility (K) Factors are listed in Table 3 that follows. The higher K Factor values indicate the soil is more erosive. All aoils in this survey area have a Soil-loss Tolerance (T) Factor of 2.and are therefore not listed in Table 3.

Wind Erodibility Groups

Soil erodibility by wind is directly related to the percentage of dry non erodible surface soil aggregates larger than 0.84 mm in diameter. From this percentage, the wind erodibility index (I-factor) is determined. The I-factor is an expression of the stability of these soil aggregates against breakdown by tillage and abrasion from wind erosion. Soils are placed in Wind Erodibility Groups (WEG) having similar percentages of dry soil aggregates larger than 0.84 mm.

A more detailed Explanation of Wind Erosion is available in the Florida SCS Erosion Control Handbook as well as the National Soil Handbook. WEG values are listed in the table that follows. The higher values indicate the soil is more erosive.

Hydrologic Soil Groups

General

The Hydrologic Soil Group, designated A, B, C, or D, is a group of soils that, when saturated, have the same runoff potential under similar storm events and cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to seasonally high water table, intake rate, permeability after prolonged wetting, and depth to very slowly permeable layer. The influences of ground cover and slope are treated independently, not in hydrologic soil groups.

In the definitions of the classes, infiltration rate is the rate at which water enters the soil at the surface and is controlled by surface conditions. Transmission rate is the rate at which water moves in the soil and is controlled by properties of the soil layers.

Hydrologic Soil Group A

Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well-drained to excessively drained sands or gravels. These soils have a high rate of water transmission (Low runoff potential). The rate of water transmission is greater than 0.30 in/hr.

Hydrologic Soil Group B

Soils having moderate infiltration rates when thoroughly wetted, consisting chiefly of moderately deep or deep, moderately well or well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15 to 0.30 in/hr.).

Hydrologic Soil Group C

Soils having slow infiltration rates when thoroughly wetted, consisting chiefly of (1) soils with a layer that impedes the downward movement of water, or (2) soils with moderately fine or fine textures and slow infiltration rate. These soils have a slow rate of water transmission (0.05 to 0.15 in/hr.).

Hydrologic Soil Group D

Soils having very slow infiltration rates when thoroughly wetted, consisting chiefly of (1) clayey soils with high swelling capacity or potential, (2) soils with a high permanent water table, (3) soils with a claypan or clay layer at or near the surface, and (4) shallow soils over nearly impervious materials. These soil have a very slow rate of water transmission. (High runoff potential). The rate of water transmission is 0 to 0.05 in/hr.

Hydrologic soil groups are also listed in the Table 3.

Important farmlands

Important Farmlands include both prime farmland and unique farmland as well as additional important farmlands as identified by state or local governments. In the following pages all of the components of Important Farmlands are discussed. The components of Important Farmlands are: Prime Farmland, Unique Farmland, Additional Farmland of Statewide Importance, and Additional Farmland of Local Importance.

Prime Farmland

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

There are no Prime Farmland soil survey map units in the area covered by this soil survey.

Unique farmland is the second component of Important Farmland. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, fruit, and vegetables.

Specific characteristics of unique farmland include:

1. Is used for a specific high-value food or fiber crop.

2. Has a moisture supply that is adequate for the specific crop. The supply is from stored moisture, precipitation, or a developed irrigation system.

3. Combines favorable factors of soil quality, growing season, temperature, humidity, air drainage, elevation, aspect, or other conditions, such as nearness to market, that favor the growth of a specific food or fiber crop.

Following is a list of high-value food crops that, when combined with other favorable factors, qualify lands as unique farmlands;

Tree Fruits: Citrus (oranges, grapefruit, lemons, limes, tangerines, tangelos), Avocados, Mangos, Papayas.

Vegetables: Lettuce (all types), Cabbage, Radishes, Celery, Carrots, Eggplants, Squash, Sweet corn, Tomatoes, Peas, Snap beans, Pole beans, Lima beans, Cucumbers, Peppers, Escarole, Potatoes

Strawberries,

Sugarcane.

There are no areas of Unique Farmland in this survey area.

Additional farmland of statewide and local importance are the remaining components of Important Farmland. This is land, in addition to prime and unique farmland, that is of statewide or local importance for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating additional farmland of statewide importance are determined by appropriate state agencies. The state of Florida has not established criteria for defining and delineating additional farmland of statewide importance; therefore, Additional Farmland of Statewide Importance does not exist in Florida.

Criteria for defining and delineating additional farmland of local importance are determined by appropriate county agencies. The area covered by this soil survey has no criteria for defining and delineating additional farmland of local importance.

Highly Erodible Land

The basis for identifying highly erodible land is the erodibility index of a soil survey map unit. The erodibility index of a soil is determined by dividing the potential erodibility for each soil survey map unit by the soil loss tolerance (T) value established for the soil. The potential erodibility for a map unit differs according to the erosion type (water or wind erosion). The T value represents the maximum annual rate of soil erosion that could take place without causing a decline in long-term productivity. A soil map unit with an erodibility index of 8 or more is a highly erodible soil map unit.

There are no soil survey map units that are Highly Erodible or Potentially Highly Erodible in the area covered by this soil survey. Additional information concerning erosion prediction and control is contained in USDA Agriculture Handbook 537 (Predicting Rainfall Erosion Losses; A Guide to Conservation Planning) and the Florida SCS Erosion Control Handbook.

Land Capability Classification

The land capability classification system is used to show, in a general way, the suitability of soils for cropland. It is a three-category interpretative system. The two highest categories, class and subclass, give broad perspective of the suitability of map units for certain crops or pasture. These categories indicate the degree and kinds of limitations for these uses. The system evaluates soils for mechanized farming systems that produce the more common cultivated field crops, such as corn, small grains, cotton, hay, and field grown vegetables.

Capability Class

The highest category of the system is the capability class. The capability classes are groups of soils that have the same general suitability for the broad kinds of use common on farms and ranches. There are eight classes designated by Roman numerals I through VIII.

Classes I, II, III, and IV are suitable for mechanized production of common field crops if properly managed, and for production of pasture and woodland. The degree of limitation for production of cultivated crops increases progressively for class I to class IV.

Classes V, VI, and VII are generally not suited to mechanized production of common field crops without special management, but are suitable for permanent cover such as grasses and trees. The severity of the soil limitations for crops increases from class V to class VII. Areas in class VIII are generally not suited to crops, pasture, or wood products without management that is impractical. Class VIII areas may have potential for other uses, such as recreation or wildlife habitat.

Capability Subclass

The subclass identifies the dominant kind of limitation in the class. The dominate kind of limitation is designated by adding a small letter, e, w, s, or c, to the class numeral.

For example, in capability subclass "IVw" the letter "w" shows that the main limitation is risk of wetness unless a Water table management system is maintained. "e" shows that there is a risk of erosion the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); "s" shows that the soil is limited mainly because it is shallow, droughty, or stony; and "c" shows that the chief limitation is climate that is very cold or very dry. "c" is not used in Florida.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use mainly to pasture, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by "w".

The land capability subclass for soil survey map units in the area covered by this soil survey is listed in the table that follows.

Table 3 - Crop Related Soil Interpretations

Map symbol and soil	K factor	Hydrologic Group	WEQ	Capability subclass
11, Boca	0.10	D	1	3W
13, Gentry	0.05	D	2	7W
19, Gator	0.02	D	2	7W
23, Hallandale	0.10	D	1	4W
34, Chobee	0.24	D	3	7W
44, Jupiter	0.05	D	2	4W
65, Plantation	0.05	D	2	7W
66, Margate	0.05	D	2	4W
75, Udorthents	0.15	A	*	7E

* Not Rated

Soil Potential Ratings

Soil potential ratings are numerical values that indicate the relative quality of a soil for a particular use compared with other soils of a given area. Yield or performance level, the relative cost of applying modern technology to minimize the effects of any soil limitation , and the adverse effects af any continuing limitation on social, economic, or environmental values are considered. The criteria for developing soil potential ratings for a particular use are established specifically for the area for which the ratings are made; the criteria may be different in nearby counties, groups of counties, or regions.

Soil Potential ratings are developed primarily for planning purposes and are not intended as recommendations for soil use. Soil Potentials help decision makers determine the relative suitability of soils for a given use. They are used with other resource data as a guide to making land use decisions.

Additional information concerning soil potentials are located in SCS's National Soils Handbook as well as SCS's National Land Evaluation and Site Assessment Manual.

To develop soil potential ratings, a systematic procedure is required to identify measures for overcoming soil limitations, the performance level of the soils, and limitations continuing after corrective measures have been applied. This procedure also provides a numerical system to derive a soil potential index.

Soil Potential Index values have been developed for the production of citrus and for the area served covered by this soil survey. Generally, the higher the index the more suitable the soil is to the production of citrus. This index is as follows:

Table 4 - Soil Potential Index Values - Citrus

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	75
13	Gentry mucky sand, depressional	55
19	Gator muck, depressional	55
23	Hallandale sand, slough	65
34	Chobee sandy loam, depressional	55
44	Jupiter mucky sand, prairie	45
65	Plantation muck, depressional	55
66	Margate mucky sand, prairie	65
75	Udorthents, canal dikes	Not Rated

Soil Potentials - Vegetables

Soil Potential Index values have also been developed for the production of vegetables for the area covered by this soil survey. Generally, the higher the index the more suitable the soil is to the production of vegetables. This index is as follows:

Table 5 - Soil Potential Index Values - Vegetables

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	75
13	Gentry mucky sand, depressional	50
19	Gator muck, depressional	45
23	Hallandale sand, slough	65
34	Chobee sandy loam, depressional	55
44	Jupiter mucky sand, prairie	75
65	Plantation muck, depressional	50
66	Margate mucky sand, prairie	80
75	Udorthents, canal dikes	Not Rated

NONAGRICULTURAL INTERPRETATIONS

Use and Explanation of Nonagricultural Interpretations

The purpose of these interpretative ratings is to help engineers, planners, and others understand how soil properties influence behavior when used for nonagricultural uses such as building site development or construction materials. Soils are rated for the uses expected to be important or potentially important to users of soil survey information. Ratings for proposed uses are given in terms of limitations and restrictive features; suitability and restrictive features; or only restrictive features. Only the most restrictive features are listed. Other features may need to be treated to overcome soil limitations for a specific purpose.

Soils are rated in their "natural" state, that is, no unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most degrees of limitations.

Contents:
Ratings
Building Site Development Interpretations
Sanitary Facilities
Construction Materials Interpretations
Soil Potential Ratings: Dwellings without Basements; Local Roads and Streets; and Septic Tank Filter Fields

Suitability or Limitation Ratings

1. Slight or Poor - is the rating given soils that have properties favorable for the use. The degree of limitation is minor and can be overcome easily. Good performance and low maintenance can be expected.

2. Moderate or Fair - is the rating given soils that have properties moderately favorable for the use. This degree of limitation can be overcome or modified by special planning, design, or maintenance. During some part of the year, the expected performance is less desirable than for soils rated slight.

3. Severe or Poor - is the rating given soils that have one or more properties, such as, bedrock near the surface, flooding, high shrink-swell potential, seasonal high water table, or low strength which must be considered in the planning and design for the intended use. Considerations may include soil reclamation, special design, or continuing maintenance.

A severe rating does not mean that a site is totally unsuited to the proposed land use. It simply "flags" unfavorable soil properties that need to be considered in the planning, design. and construction phases. After a local detailed appraisal, it may be more efficient to use a soil with a severe or poor rating than one with a slight or good rating. Factors such as location, availability of a better soil or site, and price of land should be considered. The final decision in selecting a site for a particular use generally involves all of these factors.

Building Site Development

Soil properties influence development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Soil limitation ratings of slight, moderate, and severe are given for shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns, landscaping, and golf fairways.

Shallow Excavations: Shallow excavations are trenches or holes dug in the soil to a maximum depth of 5 or 6 feet. They are used for pipelines, sewerlines, telephone and power transmission lines, basements, open ditches, and cemeteries. The excavations are most commonly made by trenching machines or backhoes. The ratings are based on the soil properties that influence ease of digging and resistance to sloughing.

Dwellings Without Basements: These are single-family houses of three stories or less. The foundation is assumed to be spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet. The ratings are based on properties affecting soil strength and settlement under a load, and those that affect excavation and construction costs.

Small Commercial Buildings: Limitation ratings are given for undisturbed soil on which small commercial buildings of less than three stories without basements are built. The foundation is assumed to be spread footings of reinforced concrete at a depth of 2 feet.

Local Roads and Streets: Limitation ratings are given for the use of soils for construction of improved local roads and streets that have all-weather surfacing, commonly of asphalt, gravel with binder in it, or concrete, and that are expected to carry automobile traffic all year. These roads and streets are graded to shed water, and conventional drainage measures are provided. With the probable exception of the hard surface, roads and streets are built mainly from the soil at hand.

Lawns, Landscaping, and Golf Fairways: The soils are rated for their use in establishing and maintaining turf for lawns and golf fairways and ornamental trees and shrubs for residential type landscaping. The ratings are based on the use of soil material at the location with some land smoothing. Irrigation may or may not be needed and is not a criterion in rating. Traps, trees, roughs, and greens are not considered as part of the golf fairway. The properties considered are those that affect plant growth and trafficability after vegetation is established.

Due to soil properties such as wetness, ponding, an depth to bedrock all soils in the survey area are rated severe for the above uses. Soil potentials at the back of this section give a better indication of the relative use potential than the rating of severe.

Construction Materials

Soils are rated as sources for roadfill, topsoil, sand, and gravel. Suitability ratings of good, fair, or poor are given for soils used as a source of roadfill and topsoil. Ratings of probable and improbable are given for sand and gravel. A rating of probable means that on the basis of the available evidence, the source material is likely to be in or below the soil. A rating of improbable means that the source material is unlikely to be in or below the soil. The ratings for sand and gravel do not consider the quality of the source material because quality depends on how the source material is to be used.

Roadfill: Roadfill consists of soil material that is excavated from its original position and used in road embankments elsewhere. The evaluations for roadfill are for low embankments that generally are less than 6 feet in height and are less exacting in design than high embankments such as those along superhighways. The rating is given for the whole soil, from the surface to a depth of about 5 feet, based on the assumption that soil horizons will be mixed in loading, dumping, and spreading. Soils are rated as to the amount of material available for excavation, the ease of excavation, and how well the material performs after it is in place.

Sand: Sand as a construction material is usually defined as particles ranging in size from 0.074 mm (sieve #200) to 4.75 mm (sieve #4) in diameter. Sand is used in great quantities in many kinds of construction. Specifications for each purpose vary widely. The intent of this rating is to show only the probability of finding material in suitable quantity. The suitability of the sand for specific purposes is not evaluated. If the lowest layer of the soil contains sand, the soil is rated as a probable source regardless of thickness. The assumption is that the sand layer below the depth of observation exceeds the minimum thickness.

Gravel: Gravel as a construction material is defined as particles ranging in size from 4.76 mm (sieve #4) to 76 mm (3 inches) in diameter. Gravel is used in great quantities in many kinds of construction. Specifications for each purpose vary widely. The intent of this rating is to show only the probability of finding material in suitable quantity. The suitability of the gravel for specific purposes is not evaluated. If the lowest layer of the soil contains gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the gravel layer below the depth of observation exceeds the minimum thickness.

Topsoil: The term "topsoil" has several meanings. As used here, the term describes soil material used to cover an area so as to improve soil conditions for establishment and maintenance of adapted vegetation. Generally, the upper part of the soil, which is richest in organic matter, is most desirable; however, material excavated from deeper layers is also used. In this rating, the upper 40 inches of soil material is evaluated for use as topsoil. In the borrow area, the material below 40 inches is evaluated for its suitability for plant growth after the upper 40 inches is removed. The soil properties that are used to rate the soil as topsoil are those that affect plant growth, the ease of excavation, loading, and spreading, and those that affect the reclamation of the borrow area.

Sanitary Facilities

The nature of the soil is important is selecting sites for sanitary facilities, and in identifying limiting soil properties and site features to be considered in planning, designing, and installing sanitary facilities. Types of sanitary facilities discussed in this section include septic tank absorption fields, sewage lagoons, and trench and area type sanitary landfills. Soil limitations ratings are severe for the survey area for these facilities. For that reason interpretations are not given in this section. Soil Potentials are given and they are the preferred method for site selection of sanitary facilities.

Sanitary Facility Types

Septic Tank Absorption Fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. The center line depth of the tile is assumed to be at a depth of 24 inches. Only the soil between depths of 24 and 60 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

Sewage Lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor surrounded by cut slopes or embankments of compacted, relatively impervious soil material. Aerobic lagoons generally are designed so that the depth of sewage is 2 to 5 feet. Relatively impervious soil for the lagoon floor and sides is desirable to minimize seepage and contamination of local ground water.

Sanitary Landfill (area) is a method of disposing solid waste by placing refuse in successive layers on the soil surface. The waste is spread, compacted, and covered daily with a thin layer of soil that is imported from a source away from the site. A final cover of soil at least 2 feet thick is placed over the completed landfill. Properties that influence revegetation, trafficability, and risk of pollution are the main considerations for area type sanitary landfills.

Soil Potential Ratings for Nonagricultural Interpretations

Soil potential ratings are numerical values that indicate the relative quality of a soil for a particular use compared with other soils of a given area. Yield or performance level, the relative cost of applying modern technology to minimize the effects of any soil limitation , and the adverse effects af any continuing limitation on social, economic, or environmental values are considered.

The criteria for developing soil potential ratings for a particular use are established specifically for the area for which the ratings are made; the criteria and the resulting index values may be different in nearby counties, groups of counties, or regions.

Soil Potential ratings are developed primarily for planning purposes and are not intended as recommendations for soil use. They help decision makers determine the relative suitability of soils for a given use. They are used with other resource data as a guide to making land use decisions.

Additional information concerning soil potentials are located in the National Soils Handbook as well as the National Land Evaluation and Site Assessment Manual.

To develop soil potential ratings, a systematic procedure is required to identify measures for overcoming soil limitations, the performance level of the soils, and limitations continuing after corrective measures have been applied. This procedure also provides a numerical system to derive a soil potential index.

Soil Potential Index values for - **Dwellings without Basements**

Soil Potential Index values have been developed for the installation of Dwellings without basements for the area covered by this soil survey. Generally, the higher the index the more suitable the soil is to this use. This index is as follows:

Table 6 - Soil Potential Index Values - Dwellings with Basements

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	82
13	Gentry mucky sand, depressional	48
19	Gator muck, depressional	44
23	Hallandale sand, slough	79
34	Chobee sandy loam, depressional	45
44	Jupiter mucky sand, prairie	62
65	Plantation muck, depressional	55
66	Margate mucky sand, prairie	60
75	Udorthents, canal dikes	Not Rated

Soil Potential Index values have also been developed for the installation of local roads and streets. The index is as follows:

Table 7 - Soil Potential Index Values - Local Roads and Streets

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	75
13	Gentry mucky sand, depressional	50
19	Gator muck, depressional	45
23	Hallandale sand, slough	65
34	Chobee sandy loam, depressional	55
44	Jupiter mucky sand, prairie	75
65	Plantation muck, depressional	50
66	Margate mucky sand, prairie	80
75	Udorthents, canal dikes	Not Rated

Soil Potential Index values have also been developed for the installation of septic tank filter fields. The index is as follows:

Table 8 - Soil Potential Index Values - Septic Tank Filter Fields

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	82
13	Gentry mucky sand, depressional	48
19	Gator muck, depressional	44
23	Hallandale sand, slough	79
34	Chobee sandy loam, depressional	45
44	Jupiter mucky sand, prairie	62
65	Plantation muck, depressional	55
66	Margate mucky sand, prairie	60
75	Udorthents, canal dikes	Not Rated

RECREATION INTERPRETATIONS

General

The purpose of these interpretative ratings is to help engineers, planners, and others understand how soil properties influence behavior when used for recreational uses such as camp areas, picnic areas, playgrounds, and paths and trails. Soils are rated for the uses expected to be important or potentially important to users of soil survey information. Ratings for proposed uses are given in terms of limitations. Only the most restrictive features are listed. Other features may need to be treated to overcome soil limitations for a specific purpose.

Soils are rated in their "natural" state, that is, no unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a recreational use to compensate for most degrees of limitations. Most of these practices, however are costly. The final decision in selecting a site for a particular use generally involves weighing the costs for site preparation and maintenance.

Contents:

Limitation Ratings

1. Slight - is the rating given soils that have properties favorable for the use. The degree of limitation is minor and can be overcome easily. Good performance and low maintenance can be expected.

2. Moderate - is the rating given soils that have properties moderately favorable for the use. This degree of limitation can be overcome or modified by special planning, design, or maintenance. During some part of the year, the expected performance is less desirable than for soils rated slight.

3. Severe - is the rating given soils that have one or more properties, such as, bedrock near the surface, flooding, high shrink-swell potential, seasonal high water table, or low strength which must be considered in the planning and design for the intended use. Considerations may include soil reclamation, special design, or continuing maintenance.

A severe rating does not mean that a site is totally unsuited to the proposed land use. It simply "flags" unfavorable soil properties that need to be considered in the planning, design, and construction phases. After a local detailed appraisal, it may be more efficient to use a soil with a severe or poor rating than one with a slight or good rating. Factors such as location, availability of a better soil or site, and price of land should be considered. The final decision in selecting a site for a particular use generally involves all of these factors.

Recreational Development

General

The soils are rated according to limitations that affect their suitability for camp areas, picnic areas, playgrounds, and paths and trails. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewer lines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited in varying degrees for recreational use by the duration of flooding and the season when it occurs. Onsite assessment of height, duration, and frequency of flooding is essential in planning recreational facilities.

Camp Areas

These are tracts of land used intensively as sites for tents, trailers, campers, and accompanying activities of outdoor living. Camp areas require such site preparation as shaping and leveling in areas for tents and parking areas, for stabilizing roads and intensively used areas, and for installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soils are rated on the basis of soil properties that influence the ease of developing camping area and the performance of the camping area after development. Soil properties that influence trafficability and promote the growth of vegetation after heavy use are also important.

Picnic Areas

Picnic areas are natural or landscaped tracts used primarily for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking lots. Soils are rated on the basis of properties that influence development costs of shaping the site, trafficability, and growth of vegetation after development. The surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Playgrounds

These are areas used intensively for games such as baseball, football, and similar activities. Playgrounds require a nearly level soil that is free of stones and that can withstand heavy foot traffic and still maintain adequate vegetation. Soils are rated on the basis of properties that influence cost of shaping, trafficability, and growth of vegetation. Slope and stoniness are the main concerns in developing playgrounds. For good trafficability, the surface of playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Paths and Trails

Paths and trails are used for walking, horseback riding, and similar uses, and should require little or no cutting and filling in site preparation. Soils are rated on properties that influence trafficability and erodibility. Paths and trails should remain firm under foot traffic and not be dusty when dry.

Due to soil properties such as wetness, ponding, and depth to bedrock all soils in the survey ares are rated severe for the above uses. For that reason no interpretations are provided for recreational developmen.

Soil Potential Ratings for Recreational Development

Soil potential ratings are numerical values that indicate the relative quality of a soil for a particular use compared with other soils of a given area. Soil Potential Index values have been developed for camp area development. This index is as follows:

Table 9 - Soil Potential Index values for - Camp Areas

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	75
13	Gentry mucky sand, depressional	50
19	Gator muck, depressional	45
23	Hallandale sand, slough	65
34	Chobee sandy loam, depressional	55
44	Jupiter mucky sand, prairie	65
65	Plantation muck, depressional	50
66	Margate mucky sand, prairie	60
75	Udorthents, canal dikes	Not Rated

WILDLIFE INTERPRETATIONS

Soils directly affect the kinds and amount of vegetation that is available to wildlife as food and cover. They also affect the development of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, water, and living space. If any one of these elements is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area. If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

Soils are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife.

Contents:

Suitability Ratings

Good - means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose.

Fair - means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results.

Poor - means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and requires intensive effort.

Wildlife Habitat Elements:

Grain and seed crops are seed-producing annuals used by wildlife. Examples are corn, wheat, rye, oats, barley, millet, buckwheat, and sunflowers.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Examples are bahiagrass, switchgrass, perennial peanut, clover, alfalfa, and vetch.

Wild herbaceous plants are native and naturally established herbaceous grasses and forbs, including weeds, that provide food and cover for wildlife. Examples are bluestem, indiangrass, goldenrod, lambsquarters, dandelions, blackberry, ragweed, foxtail grass, beggerweeds and nightshade.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Examples of native plants are oak, poplar, cherry, apple, birch, beech, maple, dogwood, hickory, hazelnut, black walnut, and viburnum.

Examples of fruit-bearing shrubs that are commercially available and suitable for planting on soils rated good are hawthorn, honeysuckle, sumac, American beautyberry, blueberry, firethorn, wax myrtle, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover that furnish habitat or supply food in the form of browse, seed, or fruitlike cones. Examples are pine, cypress, yew, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Examples of wetland plants are smartweed, wild millet, rushes, sedges, reeds, wildrice, arrowhead, waterplantain, pickerelweed, and cattail.

Shallow water are bodies of surface water that have an average depth of less that 5 feet and are useful as habitat for wildlife. They can be naturally wet areas, or they can be created by dams or levees, or by water-control devices in marshes or streams. Examples are muskrat marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

Kinds of Wildlife Habitat

Openland:

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

Woodland

Woodland habitat consists of hardwood or conifers, or a mixture of these and associated grasses, legumes and wild herbaceous plants. Examples of wildlife attracted to this habitat are wild turkey, woodcock, thrushes, woodpeckers, owls, tree squirrels, gray fox, raccoon, deer, and black bear.

Wetland

Wetland habitat consists of water-tolerant plants in open, marshy or swampy, shallow water areas. Examples of wildlife attracted to this habitat are ducks, egrets, herons, bitterns, rails, kingfishers, alligator, otter, mink, and beaver.

Ratings for the Kinds of Wildlife Habitat are provided in the following table:

Table 10 - Ratings for the Kinds of Wildlife Habitat

Map symbol and soil	Openland Habitat	Woodland Habitat	Wetland Habitat
11, Boca	fair	poor	fair
13, Gentry	poor	fair	good
19, Gator	very poor	very poor	good
23, Hallandale	poor	fair	poor
34, Chobee	poor	poor	good
44, Jupiter	fair	poor	fair
65, Plantation	poor	poor	good
66, Margate	fair	poor	fair
75, Udorthents	fair	fair	very poor

PASTURE AND HAYLAND INTERPRETATIONS

This section provides information concerning the suitability of soils for the production of pasture and hayland. This subsection may contain pasture and hayland suitability groupings, land capability and yield estimates, yield estimates for individual grasses or legumes, or other information pertaining to the production of forage.

Contents:
Pasture and Hayland Suitability Groups; Definitions and Descriptions
Yield Estimates
Soil Potential Ratings

Pasture and Hayland Suitability Groups

Soils are placed in pasture and hayland groups according to their suitability for the production of forage. The soils in each group are enough alike to be suited to the same grasses or legumes, to have similar limitations and hazards, to require similar management, and to have similar productivity and other responses to management. Thus, the pasture and hayland suitability group is a convenient way of grouping the soils for their management.

Suitability groups are determined according to values based on soil depth, surface soil texture, drainage class and potential productivity.

Descriptions for Pasture and Hayland Suitability Groups

Suitability Group	Description
12EHS	Moderately deep, poorly drained soils with sandy and mucky mineral surface layers. These soils have low natural fertility and moisture holding capacity. They are suited to improved pastures and have high potential productivity for bahiagrass, bermudagrass, and pangolagrass if a water table management system is installed and maintained. **Soils in this suitability group are: Map Unit 11, Boca; and Map Unit 66, Margate.**
15EM	Shallow, poorly drained soils with sandy and mucky mineral surface layers. These soils have low natural fertility and low moisture holding capacity. They are suited to improved pastures and have moderate potential productivity for bahiagrass, bermudagrass, and pangolagrass if a water table management system is installed and maintained. **Soils in this suitability group are: Map Unit 23, Hallandale; and Map Unit 44, Jupiter**
16FH	Moderately deep to deep, very poorly drained soils organic soils. These soils have very high natural fertility and moisture holding capacity. They are suited to improved pastures and have moderate potential productivity for bahiagrass, bermudagrass, and pangolagrass; however, due to the difficultly of installing and maintaining a total water management system, it is not normally practical to convert these soils to improved pasture. **Soils in this suitability group are: Map Unit 19, Gator**

6FL Moderately deep to deep, very poorly drained soils mineral soils. These soils have high to medium natural fertility and moisture holding capacity. They are suited to improved pastures and have moderate potential productivity for bahiagrass, bermudagrass, and pangolagrass; however, due to the difficultly of installing and maintaining a total water management system, it is not normally practical to convert these soils to improved pasture. **Soils in this suitability group are: Map Unit 13, Gentry; Map Unit 34, Chobee; and Map Unit 65, Plantation**

Yield Estimates

Because of the varying levels of management that result in varying expected yields, yield estimates are not provided in this section. Instead soil potentials are provided.

Soil Potential Ratings for Improved Pasture

Soil potential ratings are numerical values that indicate the relative quality of a soil for a particular use compared with other soils of a given area. Soil Potential Index values have been developed for improved pasture. This index is as follows:

Table 11 - Soil Potential Index values for - Improved Pasture

Map Symbol	Map Unit Name	SPI
11	Boca sand, slough	75
13	Gentry mucky sand, depressional	40
19	Gator muck, depressional	35
23	Hallandale sand, slough	65
34	Chobee sandy loam, depressional	45
44	Jupiter mucky sand, prairie	75
65	Plantation muck, depressional	40
66	Margate mucky sand, prairie	80
75	Udorthents, canal dikes	Not Rated

SOIL AND WATER INTERPRETATIONS

Contents:
Soil and Water Features
Water Management Restrictive Features

Soil and Water Features

The following table gives estimates of the following soil and Water features: seasonal high water table, depth to bedrock, and subsidence.

High Water Table (Seasonal): This is a zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the soil surface. The depth to a seasonal high water table applies to undrained soils. Soils that have a seasonal high water table are classified according to depth below the surface to the water table as well as the depth above the surface of the water table (ponding).

Depth to Bedrock: This value is given if bedrock is with a depth of 80 inches. The depth is based on many soil borings and observations made during soil mapping.

Subsidence: Subsidence potential is the maximum possible loss of surface elevation from the drainage of wet soils having organic layers and horizons. Estimates of the depth of subsidence (in inches) that takes place after drainage (initial subsidence) and after oxidation (total subsidence) are given for soils that are likely to subside.

Table 12 - Soil and Water Features

Map symbol and soil	High water table depth (inches)	Bedrock depth (inches)	Subsidence (inches)
11, Boca	+3 to 0	24 to 40	0
13, Gentry	+12 to +6	40 to 72	1 to 4
19, Gator	+18 to +6	40 to 72	6 to 20
23, Hallandale	+3 to 0	5 to 20	0
34, Chobee	+15 to +4	40 to 72	1 to 4
44, Jupiter	+4 to 0	8 to 20	1 to 4
65, Plantation	+15 to +6	30 to 50	4 to 20
66, Margate	+6 to 0	20 to 40	1 to 4
75, Udorthents	>72	>72	0

Water Management Restrictive Features

In this section, restrictive features that affect drainage, irrigation, and grassed waterways and provided.

Drainage is the process of removing excess surface and subsurface water from agricultural land. Soil features are listed that affect grading, excavation, and stability of trench sides or ditchbanks. Features are also listed which might affect productivity after drainage is installed. The availability of drainage outlets must also be considered.

Irrigation is the controlled application of water to supplement rainfall for supporting plant growth. Soil features are listed that affect design, layout, construction, management, or performance of an irrigation system.

Grassed waterways are natural or constructed channels that generally are broad and shallow and are covered with erosion-resistant grasses. They are used to conduct surface water to outlets at a nonerosive velocity. Soil features are listed that affect the construction and maintenance of the waterway, and also that affect the growth of grass after construction.

Table 13 - Water Management Restrictive Features

Map symbol and soil	Drainage	Irrigation	Grassed Waterways
11, Boca	Depth to rock Cutbanks cave	Wetness Droughty Fast intake	Wetness Droughty Depth to rock
13, Gentry	Percs slowly Ponding	Wetness Fast Intake Soil blowing	Wetness Percs Slowly
19, Gator	Percs slowly Ponding Subsides	Wetness Fast Intake Soil blowing	Wetness Percs Slowly
23, Hallandale	Depth to rock Cutbanks cave	Wetness Droughty Fast intake	Wetness Droughty Depth to rock
34, Chobee	Percs slowly Ponding	Wetness Percs slowly	Wetness Percs Slowly
44, Jupiter	Depth to rock Cutbanks cave	Wetness Droughty Fast intake	Wetness Droughty Depth to rock
65, Plantation	Depth to Rock Ponding	Wetness Fast Intake Soil blowing	Wetness Depth to rock
66, Margate	Depth to rock Cutbanks cave	Wetness Droughty Fast intake	Wetness Droughty Depth to rock
75, Udorthents	Not Rated	Nor Rated	Not Rated

WATER QUALITY INTERPRETATIONS

Soil interpretations and ratings in this section are used to evaluate hazards to ground water or surface water where the application of pesticides and/or nutrients occur.

Contents:
Soil Ratings For Pesticides; Leaching and Runoff
Additional Pesticide Ratings: Temik
Soil Ratings For Phosphorous
Soil Ratings for Nitrates and other Soluble Nutrients
Table for Water Quality Interpretations
Pesticide and Nutrient Management: Selection and Statements

Soil Ratings for Pesticides

An indicator is needed to determine which of the two pathways, leaching or runoff will be the most likely pesticide loss pathway. Selected properties of soils have been used to develop a rating system for runoff and leaching potentials of soils. They are as follows.

Leaching (Soileach)

Factors that determine the soil leaching ratings are the soil permeability in the upper 80 inches of the soil and the occurrence of mucky layers, as follows:

Rating	Criteria
HIGH	Slowest permeability is 6.0 IN/HR or more.
MEDIUM	Slowest permeability is between 0.6 and 6.0 IN/HR.
LOW	Slowest permeability is 0.6 IN/HR or less.

Exceptions: 1. Soils with a muck or peat layer are rated LOW.
2. Soils with a mucky layer are rated MEDIUM unless the soil has a slowest permeability of less than 0.6 IN/HR; then the soil is rated LOW.

Soils with a rating of high or medium soileach are considered to pose a potential leaching hazard and are considered to have a medium to high potential for pollution to groundwater when pesticides and nutrients are improperly applied.

Runoff (Soilrun)

Factors that determine the soil runoff ratings are the permeability of the upper 80 inches of the soil as well as the hydrologic group and slope of the soil, as follows:

Rating	Criteria
HIGH	Soils in hydrologic group D in their natural, undrained state.
MEDIUM	Soils in hydrologic group C; and soils in hydrologic group B (in their natural, undrained state) that have a permeability of less than 6.0 IN/HR within 20 inches of the surface.
LOW	Soils in hydrologic group A; and soils in hydrologic group B (in their natural, undrained state) that have a permeability of 6.0 IN/HR or greater in all of the upper 20 inches of the soil profile.

Exceptions: 1. Soils that are frequently flooded during the growing season are rated HIGH. 2. Soils rated LOW are changed to a rating of MEDIUM where the slope is greater than 12 percent. 3. Soils rated Medium are changed to a rating of HIGH where the slope is more than 8 percent.

Soils with a rating of high or medium soilrun are considered to pose a potential runoff hazard and are considered to have a medium to high potential for pollution to surface water when pesticides and nutrients are improperly applied.

Soils with a rating of high or medium soilrun are considered to pose a potential runoff hazard.

Soil Ratings for Temik

The following Soil Related Use Restrictions for Temik (aldicarb) exists if the pesticide is to be applied to citrus.

Temik can not be used within 1000 feet of a drinking water well unless it is known that the well is cased to 100 feet below ground level or to a minimum of 30 feet below the water table on soils that have:

1. A permeability of twenty inches per hour or more (very rapid permeability) and

2. A water holding capacity of less than 0.06 inch per inch of soil (very low water holding capacity)

in all horizons to a depth of 80 inches or to bedrock if bedrock is within 80 inches of the surface.

Soil Ratings for Phosphorous

Where the use of nutrients causes potential surface water problems, phosphorous is normally the nutrient that limits the amount of animal and fertilizer that may safely be applied. For example, applying manure to meet crop nitrogen needs may overload the soil with phosphorous. Phosphorous overloading on some soils can impair surface water or ground water quality.

Although phosphorous water quality hazards are normally surface water related, certain soils that are shallow to porous limestone bedrock present a ground water hazard. Other soils that are uncoated sands overlying limestone bedrock present a similar problem.

Phosphorous Ratings

Factors that determine the phosphorous related water quality ratings are the permeability of the upper 80 inches of the soil as well as the hydrologic group and slope of the soil, as follows:

Rating	Criteria
HIGH	Soils in hydrologic group D in their natural, undrained state.
MEDIUM	Soils in hydrologic group C; and soils in hydrologic group B (in their natural, undrained state) that have a permeability of less than 6.0 IN/HR within 20 inches of the surface.
LOW	Soils in hydrologic group A; and soils in hydrologic group B (in their natural, undrained state) that have a permeability of 6.0 IN/HR or greater in all of the upper 20 inches of the soil profile.

Exceptions: 1. Soils that are frequently flooded during the growing season are rated HIGH. 2. Soils rated LOW are changed to a rating of MEDIUM where the slope is greater than 12 percent. 3. Soils rated MEDIUM are changed to a rating of HIGH where the slope is more than 8 percent.

The soil ratings for phosphorous are the same as those for "Runoff" and are indicated in the following table. Soils with a rating of high or medium rating are considered to pose a potential hazard.

Soil Ratings for Nitrates and other Soluble Nutrients

Where the use of nutrients causes potential ground water problems, nitrates and other soluble nutrients are normally the nutrients that limits the amount of animal waste and fertilizer that may safely be applied. Nitrate overloading on some soils can impair ground water quality. The method of determining the nutrient hazard to ground water is based on a Leaching Index (LI).

Leaching Index: A Leaching Index map for each soil hydrologic group has been developed in Florida. By using the LI maps the Leaching Index can be determined. All all soils in the survey pose a nitrate leaching hazard; therefore, determining LI index values is not necessary. For informational purposes the LI guidelines are explained below:

Rating	Criteria
LOW	A leaching index below 2 indicates low potential of leaching soluble nutrients below the root zone.
MEDIUM	A leaching index between 2 and 10 inches indicates a medium potential of leaching soluble nutrients below the root zone.
High	A leaching index larger than 10 indicates a high potential of leaching soluble nutrients below the root zone.

Soils with a rating of Medium or High are considered to pose the same potential nitrate leaching hazard. Since all soils in the area served by this field office have a MEDIUM to HIGH LI value no differences in interpretations exist based on soil type.

Table 14 - Water Quality Interpretations Table

Map symbol and soil	Soileach	Soilrun	Temik2use	LI
11, Boca	Medium	High	Yes	High
13, Gentry	Medium	High	Yes	High
19, Gator	Low	High	Yes	High
23, Hallandale	High	High	Yes	High
34, Chobee	Low	High	Yes	High
44, Jupiter	Medium	High	Yes	High
65, Plantation	Low	High	Yes	High
66, Margate	Medium	High	Yes	High
75, Udorthents	High	Medium	Yes	High

PESTICIDE AND NUTRIENT MANAGEMENT

The table above provides a soil link between each of the pesticide and nutrient concerns listed and each soil survey map unit. The soil link is based on the soil and site characteristics explained above. There are 2 possible field conditions which are derived from the dominant soil in a field. They are as follows:

1. Where Soileach is Medium or High and Soilrun is Medium or High use Pesticide and Nutrient Management Statement Number 1. 2. Where Soileach is Low and Soilrun is Medium or High use Pesticide and Nutrient Management Statement number 2.

PESTICIDE AND NUTRIENT MANAGEMENT STATEMENT NUMBER 1
(Soileach = Medium or High, Soilrun = Medium or High, and Leaching Index = Medium or High)

PESTICIDE MANAGEMENT

Soils in these field(s) have a medium or high potential for pesticide leaching to groundwater and a medium to high potential for pesticide runoff from the field(s) to surface water. The Florida Pest Control Guide contains a listing of pesticides suitable for each type of pest and is available from the Cooperative Extension Service. This list also contains Relative Leaching Potential Index (RLPI) and Relative Runoff Potential Index (RRPI) values.

While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a greater RLPI value, a larger Health Advisory Level (HAL), a larger RRPI value, and a larger Aquatic Toxicity value. Read and follow pesticide labels.

NUTRIENT MANAGEMENT

Soils in these field(s) have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff from the field(s) to surface runoff.

A soil test and/or tissue test should be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients should be added at the rate needed by the crop grown or according to the producer's goals, whichever is lower.

PESTICIDE AND NUTRIENT MANAGEMENT STATEMENT NUMBER 2
(Soileach = Low, Soilrun = Medium or High, and Leaching Index = Medium or High)

PESTICIDE MANAGEMENT

Soils in these field(s) have a low potential for pesticide leaching to the groundwater and a medium or high potential for pesticide runoff from the field(s) to surface water. The Florida Pest Control Guide contains a listing of pesticides suitable for each type of pest and is available from the Cooperative Extension Service. This list also contains Relative Runoff Potential Index (RRPI) values. While any approved pesticide listed in the guide can be used, the applicator should consider for use pesticides with a largest RRPI value and larger Aquatic Toxicity value. Read and follow pesticide labels.

NUTRIENT MANAGEMENT

Soils in these field(s) have a medium or high potential for nitrogen leaching to the groundwater and a medium or high potential for phosphorous runoff from the field(s) to surface runoff. A soil test and/or tissue test will be used as a guide to determine plant nutrient needs. In addition, a listing of nitrogen and phosphorous requirements by crop type is available from the Cooperative Extension Service. Nutrients shall be added at the rate needed by the crop grown, or according to the producer's goals, whichever is lower.

HYDRIC SOILS INTERPRETATIONS

This section of the contains information on hydric soils that can be used to plan the use and management of resource areas for all types of uses. Hydric soils are used to properly identify wetlands; however, they are not the only component of wetlands.

Contents:

HYDRIC SOILS

Introduction

Wetlands possess three essential characteristics: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology (Cowardin et al., 1979; Tiner, 1985). Either the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (federal), or Chapter 17-4 of the Florida Administrative Code (state), or Chapter 40-4 of the Florida Administrative Code (water management districts) is used as the basis for identifying wetlands in the area served by this field office. In each manual criteria for each of the three characteristics must be met before an area can be identified as a wetland. Therefore the synonymity of hydric soils and wetlands is implied; undrained hydric soils with natural vegetation should support a dominant population of ecologically facultative wetland and obligate wetland plant species.

Definition of Hydric Soils

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (U.S.D.A. Soil Conservation Service, 1987). This definition identifies soils that are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Hydric Soil Criteria

The above definition identifies in generalities those soil properties that are associated with wetness. However, in order to determine whether a specific soil is a hydric soil or non hydric soil, more specific information such as depth and duration of water table is needed. For that reason criteria which identifies those soil properties unique to hydric soils have been established. These criteria are utilized to identify phases of soil series that normally are associated with wetlands.

Hydric Soil Criteria are as follows:

1. Soils in their natural (undrained) condition that have an aquic moisture regime (Soil Survey Staff, 1975) and a water table at 6 inches or less from the surface for a significant period (for more than a few weeks) during the growing season if the permeability is equal to or greater than 6.0 in/h in all layers within 12 inches. (Sandy Soils)

2. Soils in their natural (undrained) condition that have an aquic moisture regime and a water table at 12 inches or less from the surface for a significant period (for more than a few weeks) during the growing season if the permeability is less than 6.0 in/h in any layer within 12 inches. (Nonsandy Soils)

A seasonal high water table is the shallowest depth in a soil that has a zero soil moisture tension during the wettest season in a year of normal rainfall.

These criteria were used to develop the hydric soils list for the area served by this field office. Section II-i contains this list of hydric soils. Individual lists are available at local field offices of the Soil Conservation Service for other counties in Florida. A state list of hydric soils is available by combining the county lists. The lists are excellent land use planning tools; however, on-site examination is required when making a hydric soil determination for a specific site for land use decisions.

Field Identification of Hydric Soils

The procedure for field identification of hydric soils is based on the assumption that when soils are wet enough for a long enough duration to be considered hydric, they should exhibit certain visible properties that are easily observed in the field. The list of hydric soil indicators are field indicators that are to be used for on site hydric soil determinations. All Hydric soil determinations should be based on field observations.

Nomenclature for the hydric soil criteria were taken from Munsell Color (Munsell Color, 1975), Soil Taxonomy (Soil Survey Staff, 1975), and Soil Survey Manual (Soil Survey Staff, 1981).

Procedure

Hydric soils are determined by examining the upper 18 inches of soil of a freshly dug soil pit for hydric indicators. Presence of one of the indicators listed below indicates the soil is saturated at or near the surface at least seasonally and/or it is inundated at least seasonally. The soil examination can be terminated when one positive hydric soil indicator is found from the list below:

1. Soils with a permeability of 6.0 in/h or more (sandy soils).

A. A peat, muck, or mucky peat layer of any thickness if no root or leaf mat is present. The thickness is 0.5 inches or more if a root or leaf mat is present.

B. Presence of sulfidic material (rotten egg odor) within upper 12 inches.

C. Presence of at least 2 inches of mucky texture within the upper 6 inches.

D. An upper A horizon (unrubbed) at least 3 inches thick with value of 3 or less and chroma of 1 or less. More than 60 percent of soil particles are covered or coated with organic matter. (Many soils have a ratio of about 50 percent organic coated or covered soil particles and 50 percent uncoated or uncovered soil particles giving the soil a salt and pepper appearance. This 50/50 ratio is not a hydric indicator.)

E. Presence of organic matter accretions (organic bodies; peat, muck, or mucky textures) within the upper 6 inches approximately 1 to 3 cm or more in size.

F. Presence of stratified layers in the upper 2 inches of soil containing high content of organic material.

G. Presence of oxidized Rhizospheres along root channels within the upper 12 inches. Oxidized Rhizospheres are circular areas around live roots that have a hue redder than 7.5 YR, a chroma of 4 or more, and a value of 5 or more.

H. Presence of a Polychromatic matrix within the upper 6 inches of soil. A polychromatic matrix is defined as follows: "A soil matrix dominated by two or more colors arranged in a splotchy pattern. Value is 5 or more and chroma is 1, and/or 2, and 3."

I. Presence of gley colors within the upper 6 inches.

2. Soils with a permeability of less than 6.0 in/h (non sandy soils).

A. A peat, muck, or mucky peat layer of any thickness if no root or leaf mat is present. The thickness is 0.5 inches or more if a root or leaf mat is present.

B. Presence of sulfidic material (rotten egg odor).

C. Moist chroma of 2 or less and presence of at least 2 percent by volume of iron or manganese concretions.

D. An upper A horizon (unrubbed) at least 3 inches thick with value of 3 or less and chroma of 1 or less. More than 60 percent of soil particles are covered or coated with organic matter. (Many soils have a ratio of about 50 percent organic coated or covered soil particles and 50 percent coated or uncovered soil particles giving the soil a salt and pepper appearance. This 50/50 ratio is not a hydric indicator.)

E. Moist chroma of 2 or less in 60 percent or more of the matrix and presence of at least 5 percent by volume of distinct or prominent mottles.

F. Presence of at least 2 inches of mucky texture within the upper 12 inches.

G. Presence of organic material accretions (organic bodies; peat, muck, or mucky textures) approximately 1 to 3 cm or more in size.

H. Presence of gley colors.

I. Presence of oxidized Rhizospheres along root channels. Oxidized Rhizospheres are circular areas around live roots that have a hue redder than 7.5 YR, a chroma of 4 or more, and a value of 5 or more.

Soil Surveys can and should be used to locate probable areas of hydric soils. However, all hydric soil decisions as well as wetland determinations should be based on on-site investigations.

HYDRIC SOILS LIST

All soils in this survey area are Hydric Soils except for Map Unit 75, Udorthents.

SOIL DESCRIPTIONS

BOCA SERIES

Typical pedon: Boca sand, slough; Map Unit 11

Location: USGS Everglades 2 SW topographic quadrangle; Latitude 26 degrees, 17" 16"'' North and Longitude 80 degrees, 52 ', 35" East.

Taxonomic Class: loamy, siliceous, hyperthermic Arenic Ochraqualfs

Description

A1 - 0 to 2 inches black (10YR 2/1) sand; weak fine granular structure; very friable; strongly acid; abrupt smooth boundary.

A2 - 2 to 5 inches; black (10YR 2/1) and grayish brown (10YR 5/2) sand; single grain; loose; strongly acid; clear smooth boundary.

E1 - 5 to 15 inches; brown (10YR 5/3), grayish brown (10YR 5/2), and black (10 YR 2/1) sand; single grain; loose; moderately acid; gradual smooth boundary.

E2 - 15 to 27 inches; gray (10YR 6/1) sand; single grain; loose; moderately acid; clear irregular boundary.

Btg - 27 to 30 inches; very pale brown (10YR 8/4) and gray 5Y 6/1 sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; neutral; clear irregular boundary.

2R - 30 inches; limestone bedrock.

Depth Class: Moderately deep

Drainage Class: Poorly drained

Landform: Slough

Slope: < 1 percent

Elevation: 14 feet

GENTRY SERIES

Typical pedon: Gentry mucky sand, depressional; Map Unit 13

Location: USGS Everglades 2 SW topographic quadrangle; Latitude 26 degrees, 17', 44" North and Longitude 80 degrees, 52', 37" East.

Taxonomic Class: loamy, siliceous, hyperthermic Arenic Argiaquolls

Description
A1 - 0 to 6 inches black (N 2/0) mucky sand; weak medium granular structure; very friable; strongly acid; clear smooth boundary.

A2 - 6 to 12 inches; very dark gray (10YR 3/1) sand; weak medium granular structure; very friable; strongly acid; clear wavy boundary.

E1 - 12 to 24 inches; brown (10YR 5/3), grayish brown (10YR 5/2), and very dark gray (10 YR 3/1) sand; single grain; loose; strongly acid; clear smooth boundary.

E2 - 24 to 36 inches; gray (10YR 6/1) sand; single grain; loose; moderately acid; clear wavy boundary.

Btg - 27 to 62 inches; yellowish brown (10YR 5/4) and gray 10YR 6/1 sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; neutral; abrupt irregular boundary.

2R - 62 inches; limestone bedrock.

Depth Class: Deep

Drainage Class: Very poorly drained

Landform: Depression

Slope: < 1 percent

Elevation: 13 feet

GATOR SERIES

Typical pedon: Gator muck, depressional; Map Unit 19

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 19', 14" North and Longitude 80 degrees, 50', 13" East.

Taxonomic Class: loamy, siliceous, hyperthermic Terric Medisaprists

Description
Oa - 0 to 20 inches; black (N 2/0) muck; weak fine subangular blocky structure; friable; neutral; clear smooth boundary.

A1 - 20 to 31 inches; black (N 2/0) mucky loamy sand; weak fine subangular blocky structure; very friable; neutral; gradual smooth boundary.

A/C - 31 to 37 inches; black (N 2/0) mucky loamy sand (A); massive; very friable; white (10YR 8/1) sandy loam (C); massive; very friable; neutral; abrupt irregular boundary.

C - 37 to 51 inches; white (10YR 8/1) sandy loam; massive; very friable; neutral; abrupt irregular boundary.

2R - 51 inches; limestone bedrock.

Depth Class: Deep

Drainage Class: Very poorly drained

Landform: Depression

Slope: < 1 percent

Elevation: 14 feet

HALLANDALE SERIES

Typical pedon: Hallandale sand, slough; Map Unit 23

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 1%', 47" North and Longitude 80 degrees, 49', 47" East.

Taxonomic Class: loamy, siliceous, hyperthermic Lithic Psammaquents

Description
Oa - 0 to 0.2 inches; black (10YR 2/1) muck

A1 - 0.2 to 3 inches; black (10YR 2/1) and grayish brown (10YR 5/2) sand; weak fine granular structure; very friable; strongly acid; clear smooth boundary.

C - 3 to 8 inches; brown (10YR 5/3), grayish brown (10YR 5/2), and light gray (10 YR 7/2) sand; single grain; loose; slightly acid; abrupt irregular boundary.

2R - 8 inches; limestone bedrock.

Depth Class: Shallow

Drainage Class: Poorly drained

Landform: Slough

Slope: < 1 percent

Elevation: 14 feet

CHOBEE SERIES

Typical pedon: Chobee sandy loam, depressional; Map Unit 34

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 17', 48" North and Longitude 80 degrees, 51', 8" East.

Taxonomic Class: loamy, siliceous, hyperthermic Typic Argiaquolls

Description
Oa - 0 to 1 inches; black (N 2/0) muck; weak fine granular structure; very friable; strongly acid; clear irregular boundary.

A - 1 to 9 inches; black (N 2/0) sand; weak fine granular structure; very friable; strongly acid; clear wavy boundary.

Btg1 - 9 to 18 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; friable; sand grains coated and bridged with clay; slightly acid; clear irregular boundary.

Btg2 - 18 to 42 inches; gray (10YR 5/1) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; slightly acid; abrupt irregular boundary.

Btg2 - 42 to 46 inches; white (10YR 8/1) sandy loam and sand; massive; friable; 15 percent by volume of limestone fragments; slightly alkaline; abrupt irregular boundary.

2R - 46 inches; limestone bedrock.

Depth Class: Deep

Drainage Class: Very poorly drained

Landform: Depression

Slope: < 1 percent

Elevation: 14 feet

JUPITER SERIES

Typical pedon: Jupiter sand, prairie; Map Unit 44

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 179, 17'' North and Longitude 80 degrees, 50', 58" East.

Taxonomic Class: loamy, siliceous, hyperthermic Lithic Haplaquolls

Description
A1 - 0 to 7 inches black (10YR 2/1) mucky sand; weak medium granular structure; very friable; neutral; clear smooth boundary.

A2 - 7 to 12 inches; black (10YR 2/1), very dark gray (10YR 3/1), and brown (10YR 5/3) sand; weak medium granular structure; very friable; neutral; clear wavy boundary.

C - 12 to 17 inches; brown (10YR 5/3), very dark grayish brown (10YR 3/2), and light brownish gray (10 YR 6/2) sand; single grain; loose; neutral; abrupt irregular.

2R - 17 inches; limestone bedrock.

Depth Class: Shallow

Drainage Class: Poorly drained

Landform: Prairie

Slope: < 1 percent

Elevation: 13 feet

PLANTATION SERIES

Typical pedon: Plantation muck, depressional; Map Unit 65

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 17', 16" North and Longitude 80 degrees, 51', 44" East.

Taxonomic Class: sandy, siliceous, hyperthermic Histic Humaquepts

Description
Oa - 0 to 8 inches; black (N 2/0) muck; weak fine subangular blocky structure; very friable; moderately acid; clear smooth boundary.

A - 8 to 17 inches; black (N 2/0) mucky sand; weak fine subangular blocky structure; very friable; common uncoated sand grains; diffuse irregular boundary.

A/C - 17 to 30 inches; black (10YR 2/1) sand (A); single grain; loose; brown (10YR 4/2) sand (C); single grain; loose; moderately acid; clear wavy boundary.

C - 30 to 37 inches; brown (10YR 5/3) sand; single grain; loose; moderately acid; abrupt irregular boundary.

2R - 51 inches; limestone bedrock.

Depth Class: Moderately deep

Drainage Class: Very poorly drained

Landform: Depression

Slope: < 1 percent

Elevation: 12 feet

MARGATE SERIES

Typical pedon: Margate mucky sand, prairie; Map Unit 66

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 18", 44'' North and Longitude 80 degrees, 51', 16 East.

Taxonomic Class: loamy, siliceous, hyperthermic Mollic Psammaquents

Description
Oa - 0 to 1 inches; black (N 2/0) muck; weak fine granular structure; very friable; strongly acid; abrupt wavy boundary.

A1 - 1 to 6 inches; black (N 2/0) mucky sand; weak fine subangular blocky structure; very friable; strongly acid; abrupt wavy boundary.

AC - 6 to 12 inches; brown (10YR 5/3), very dark grayish brown (10YR 3/2), and brownish gray (10YR 6/2) sand; single grain; loose; slightly acid; gradual wavy boundary.

C1 - 12 to 28 inches; brown (10YR 5/3) and grayish brown (10YR 5/2) sand; single grain; loose; slightly acid; gradual irregular.

C2 - 28 to 34 inches; brown (10YR 5/3) and white (10YR 8/1) sand and loamy sand; single grain; loose; 13 percent by volume of limestone fragments: neutral; gradual irregular.

2R - 34 inches; limestone bedrock.

Depth Class: Shallow

Drainage Class: Poorly drained

Landform: Prairie

Slope: < 1 percent

Elevation: 12 feet

UDORTHENTS

Typical pedon: Udorthents, canal dikes; Map Unit 75

Location: USGS Everglades 2 SE topographic quadrangle; Latitude 26 degrees, 19", 55'' North and Longitude 80 degrees, 51', 17" East.

Taxonomic Class: loamy, siliceous, hyperthermic Udorthents

Description

A - 0 to 3 inches; dark grayish brown (10YR 4/2), black (10YR 2/1), and yellowish brown (10YR 5/4) very gravelly sand; weak fine granular structure; very friable; 65 percent by volume of dominantly gravel size limestone fragments; neutral; clear smooth boundary.

C - 3 to 72 inches; brown (10YR 5/3), light gray (10YR 7/2), and white (10YR 8/1) very cobbly sand; massive; friable; 65 percent by volume of dominantly cobble size limestone fragments; slightly alkaline.

Depth Class: Very deep

Drainage Class: Well drained

Landform: Canal dike

Slope: 35 percent

Elevation: 27 feet

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EXPLANATION OF KEY PHRASES USED:

Factors affecting	Explanation
Area reclaim	Borrow areas hard to reclaim.
Cemented pan	Cemented pan to close too surface.
Complex slope	Slopes short and irregular.
Cutbanks cave	Wall of cuts not stable.
Deep to water	Deep to permanent water table during dry season.
Dense layer	A very firm layer difficult to dig.
Depth to rock	Bedrock too close to surface.
Droughty	Soil cannot hold enough water.
Dusty	Soil particles detach easily and cause dust.
Erodes easily	Water erodes soil easily.
Excess fines	Contains too much silt and clay.
Excess gypsum	Contains too much gypsum.
Excess humus	Contains too much organic matter.
Excess lime	Carbonates restrict plant growth.
Excess salt	Water-soluble salts may restrict plant growth.
Excess sodium	Contains too much exchangeable sodium.
Excess sulphur	Excessive amount of sulphur in the soil may cause extreme acidity.
Fast intake	Water infiltrates rapidly.
Favorable	Features of soil favorable.
Flooding	Soil temporarily floods by stream overflow, runoff, or high tide.
Fragile	Soil that is easily damaged by use or disturbance.
Hard to pack	Difficult to compact.
Large stones	Rock fragments 10 inches or larger.
Low strength	Soil not strong enough to adequately support loads.
No water	Too deep to ground water.
Percs slowly	Water moves through the soil too slowly.
Piping	Water may form tunnels or pipelike cavities in the soil.
Ponding	Standing water on soils in closed depressions.
Poor filter	Because of rapid permeability, the soil may not adequately filter effluent.
Poor outlets	Difficult or expensive to install outlets for drainage.
Rooting depth	Soil is thin over layer that greatly restricts root growth.
Seepage	Water moves through soil or fractured bedrock too fast.
Shrink-swell	Soil expands significantly on wetting and shrinks on drying.
Slippage	Soil is susceptible to movement downslope, when loaded, excavated, or wet.
Slope	Slope is a limitation.

Explanation of key phrases used (cont.):

Factors affecting	Explanation
Slow intake	Water infiltration restricted.
Slow refill	Ponds fill slowly because of restricted soil permeability.
Small stones	Contains many rock fragments less than 10 inches across.
Soil blowing	Soil easily moved by wind.
Subsides	Settle of organic soils or of soil containing semifluid layers.
Thin layer	Inadequate thickness of suitable soil.
Too acid	Soil is so acid that growth of plants is restricted.
Too arid	Soil is too dry most of the time.
Too clayey	Soil is sticky when wet and slow to dry.
Too sandy	Soil soft and loose, droughty, and low in fertility.
Toxicity	Excessive amount of toxic substances, such as sodium or sulphur.
Unstable fill	Banks of fill likely to cave or slough.
Wetness	Soil wet during period of use.

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