
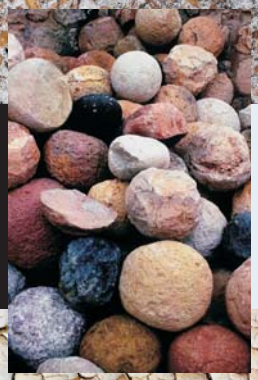

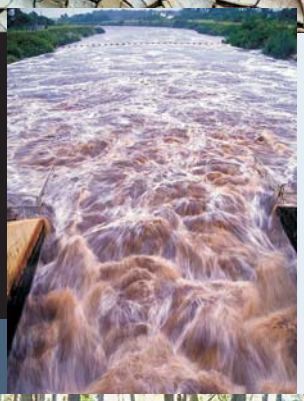


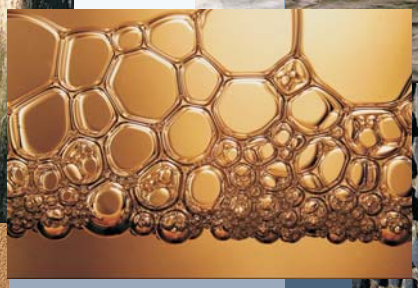

Loxahatchee River
Environmental Control District

2010 Septic System Inventory and Assessment Study

March 2010

MATHEWS CONSULTING
CIVIL ENGINEERS

Loxahatchee River Environmental Control District

2010 Septic System Inventory and Assessment Study

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Section 1 Introduction

The Loxahatchee River Environmental Control District (LRECD) is a Special District of the State of Florida located in northeast Palm Beach County and southeast Martin County with a stated mission of "…preserving the Loxahatchee River and its natural habitats by implementing innovative wastewater solutions, furthering river research efforts and fostering environmental stewardship." Since the inception of the District in 1971, the wastewater utility has converted over 85% of the homes within their service area from septic systems to the centralized sewer collection system. However, there are still 4,693 septic systems within the District that have not yet been converted to the centralized system. One of the primary tasks of the District is to promote and implement a centralized wastewater collection and treatment system for replacement of existing septic systems. Protected water bodies within the District are at risk due to the following factors which have been found to amplify the harmful effects of septic systems: high water tables, lack of formal drainage systems, and increased population density.

In 1979, Russell & Axon prepared the "*Septic Tank Study- Phase 1"* report. The report identified and prioritized several neighborhoods for sewering. From 1979 until 2002, LRECD internally updated the report as necessary to continue the sewering effort. In 2002, Mathews Consulting, Inc. prepared the "*Septic Tank 2002 Plan*" report. The report reviewed and compiled the information of the previous plans, assessed the unsewered areas and provided an updated prioritization plan.

The purpose of the 2010 Septic System Inventory and Assessment provided herein is to update the previous reports for those areas which are currently unsewered within the District's service area. Since the 2002 report, the study areas have been revised to include neighborhoods that had previously been excluded. The 2010 Septic System Inventory and Assessment reviewed and evaluated the neighborhoods based on established septic system performance criteria to provide an updated prioritization plan for sewering. This plan is one of many tools for the District to utilize when scheduling future sewering projects. Other factors that were not included in the evaluation criteria, such as, but not necessarily limited to, proximity to existing facilities, economies of scale, and neighborhood petitions, will also be considered by the District when scheduling the sequence and priority of the future sewer projects.

Section 2 Background

Septic systems, also referred to as "Onsite Sewage Treatment and Disposal Systems" (OSTDS), located within the District fall within the jurisdiction of the Florida Administrative Code (F.A.C.) and the Florida Statutes (F.S.). An onsite sewage treatment and disposal system is defined as:

> "a system that contains a standard subsurface, filled, or mounded drainfield system; an aerobic treatment unit; a graywater system tank; a laundry wastewater system tank; a septic tank; a grease interceptor; a pump tank; a solids or effluent pump; a waterless, incinerating, or organic waste-composting toilet; or a sanitary pit privy that is installed or proposed to be installed beyond the building sewer on land of the owner or on other land to which the owner has the legal right to install a system." (Section 381.0065(2)(j), F.S.)

A septic tank is defined as:

> "a watertight receptacle constructed to promote separation of solid and liquid components of wastewater, to provide limited digestion of organic matter, to store solids, and to allow clarified liquid components to discharge for further treatment and disposal into a drainfield." (Chapter 64E-6.002(49), F.A.C)

The definitions describe the action that occurs within a septic system. Waste from a residence or business exits the building and flows to a septic tank. The septic tank assists in separating solids from liquids, with the solids being retained within the tank. The liquids then enter a drainfield where they percolate into the surrounding soil. The amount of time the liquid is detained prior to reaching a water body or the water table and the permeability of the drainfield's surrounding soil are key components to the treatment process.

It is well documented in the scientific, engineering and regulatory industries that septic systems have been found to negatively impact the environment. Listed below are specific findings of several studies that assist in explaining the affects of septic systems on the surrounding environment.

- *"Florida Department of Health (DOH) Report on Range of Costs to Implement a Mandatory Statewide 5-year Septic Tank Inspection Program" (*Gerald R. Briggs, MS; Ed Barranco, MPH, CEHP, CPM; David Hammonds, CEHP, 2008)

  It is estimated that Florida has 2.3 million on-site sewer treatment and disposal systems in operation, serving approximately 31% of the population. Of the 2.3 million septic tanks, less than 1% are managed by operating permits and/or maintenance agreements, with the

remainder only being serviced when the system fails. Over half of the 2.3 million septic tanks are over 30 years old and installed under less stringent standards. Approximately 1.3 million septic systems were installed prior to 1983 (DOH statistical data) when the required distance from bottom of the drainfield to the seasonal high water table was only 6 inches. Current regulations require 24 inches from the bottom of the drainfield to the top of the seasonal high water table. This report suggests that over a 10-year period, the State will inspect all existing on-site sewer systems and evaluate if they are functioning in a sanitary manner. Once the initial 10-year implementation period is finished, an inventory of all on-site sewer systems will allow the State to inspect all 2.3 million onsite sewer treatment and disposal systems every 5 years (460,000 systems/year). This report is noteworthy because the State is concerned about septic system performance and the affects the septic systems are having to the surrounding communities.

- *"Rapid Movement of Wastewater from On-Site Disposal Systems into Surface Waters in the Lower Florida Keys"* (Department of Marine Science, University of South Florida, 2000)

This study was performed in the Saddlebunch Keys of the Lower Keys and Boot Key Harbor in Marathon, Florida. Most of the surface water in these areas is influenced by tide. Two bacteriophages were added as tracers to injection wells and septic tanks to detect if wastewater from on-site disposal systems (septic systems) was entering the adjacent water bodies. In Boot Key, both tracers were found within 3 hours and 15 minutes in the adjacent canal. The tracer from septic tanks in Saddlebunch Keys was not found in the adjacent water body. It is hypothesized that the tracers were not found due to the relatively new septic tanks (constructed within 3 years of the study). The bacteriophages used at the injection well sites were injected at a depth of 18.3m. The tracers from the injection wells were found approximately 43 hours after they were seeded. It is possible that the soil in the area (Miami Oolite) prevents vertical migration and therefore requires a horizontal opening to move and eventually rise to the surface. The data is significant in showing the real movement of wastewater from septic tanks to adjacent water bodies.

- *"Seasonal Correlation of Well Contamination and Septic Tank Distance" (*Linda Arnade, 1999)

This study was performed in Palm Bay, an east coast town in Florida. Almost 60% of the residents in Palm Bay rely on septic systems as their source of waste disposal and private wells as their source of drinking water. Groundwater and well water were tested for contaminants including fecal coliforms, nitrates, and phosphates. It was found that during

wet season, the level of fecal coliform exceeded the allowable level in approximately 70% private wells. In dry season, the level of fecal coliform exceeded the allowable levels in approximately 40% of the private wells. It was determined that the increase of contaminants in the groundwater water was directly attributable to the use of septic systems in the area. These results are significant because consumption of water with high levels of fecal coliform place the residents at risk of suffering from vomiting, diarrhea, and gastrointestinal pains. This study is significant in reviewing the septic systems within LRECD because of similar soil characteristics, age of septic systems (tanks), and use of private wells.

Other studies that document the effects of septic systems on the surrounding environment include:

- *"Estrogens from Sewage in Coastal Marine Environments"*(Shannon Atkinson, Marlin Atkinson, Ann Tarrant 2002)

- *"Wastewater-Contaminated Groundwater as a Source of Endogenous Hormones and Pharmaceuticals to Surface Water Ecosystems"* (Laurel Standley, Ruthann Rudel, Christopher Swartz, Kathleen Attfield, Jeff Christian, Mike Erickson, Julia Brody, 2008)

- *"The spatial variability of nitrogen and phosphorus concentration in a sand aquifer influenced by onsite sewage treatment and disposal systems: a case study on St. George Island, Florida"* (D. Reide Crobett, Kevin Dillon, William Burnett, Geoff Schaefer, 2001)

- *"Steroid Estrogens, Nonylphenol Ethoxylate Metabolites, and Other Wastewater Contaminants in Groundwater Affected by a Residential Septic System on Cape Cod, MA" (*Christopher Swartz, Sharanya Reddy, Mark Benotti, Haifei Yin, Larry Barber, Bruce Brownawell, Ruthann Rudel, 2006)

In 1997, a final judgment was issued for Court Case No. CL 97 4367AD in the Circuit Court of the Fifteenth Judicial Circuit in and for Palm Beach County, Florida, regarding the Village of Tequesta v. Loxahatchee River Environmental Control District.

The final judgment references the "*Final Report of the Tequesta Peninsula Septic Tank/Water Quality Investigation"* (Dr. Brian LaPointe, Harbor Branch Oceanographic Institution, Inc., 1995), which is commonly referred to as the "Harbor Branch Report." This was a local study performed within the District's service area (specifically the Tequesta Peninsula), and the

findings of the study were accepted by the Court without exception. The Executive Summary of the Report states:

> "In conclusion, this study produced clear evidence that a combination of high population density, net positive groundwater flows to tide, and the use of septic tanks/drainfield systems in the Tequesta Peninsula has lead to widespread contamination of groundwaters to levels in violation of state standards…..Hence, discharges of STE (Septic Tank Effluent) from residences in the study area represent a significant pollutant source to the Loxahatchee River. Water quality impacts would be much more severe without the tidal mixing, dilution, and flushing provided by this estuarine system. Elimination of septic tank discharges would reduce pollutant loads into groundwaters and surface waters of the study area, leading to improved water quality in the Loxahatchee River – the only federally designated wild and scenic river in Florida." (Final Judgment, 28)

The judgment found "..that the continued use of septic tanks within the urban portions of the watershed poses an additional potential threat to the area waters.."(Final Judgment, 16)

Also, the judgment states "The Committee (Citizens Advisory Committee) finds that the remaining 3,200 septic tanks in the eastern urbanized portion of the basin presents a serious concern to the environmental health of the Loxahatchee River system. The Committee investigated the potential monitoring of existing septic tanks, however concluded it would not be cost effective….The committee recommends that the District Governing Board aggressively remedy problems caused by septic tanks. The Committee believes that septic tanks present an area-wide problem requiring a centralized system approach, not an individualize case-by-case approach. The best way for the Governing Board to proceed with a comprehensive regional plan is to emphasize financial incentives and penalties." (Final Judgment, 17)

In addition to the documents listed above, there are many other studies documenting the local, national, and global impacts of septic system performance and their influence on the surrounding water bodies and communities. It is important for the District to consider this information and apply the knowledge of historical septic system performance in their quest to protect the Loxahatchee River and surrounding communities from negative environmental impacts.

Section 3 Evaluation Methods and Criteria

The list of study areas to be included with the 2010 evaluation was developed by Loxahatchee River Environmental Control District. The District boundary and study areas are listed in Table 1 and shown in Figure 1. Each neighborhood/area was kept as a separate entity, in lieu of grouping by region, to allow for a more individualized evaluation for each neighborhood/area. There are remaining "remnant" parcels throughout the District that were not evaluated in this study. The remnant parcels are typically small, isolated pockets less than 10 homes still relying on septic systems. The District will continue to review the remnant parcels and sewer them as opportunities arise.

Table 1
Study Areas

Neighborhood Name	Area Use	Number of Units
Bridgewater	Residential	39
Eagle's Nest	Residential	100
East of River Ridge	Residential	43
Fox Run	Residential	41
197th Pl, 66th Terr, 66th Way	Residential	21
Imperial Woods	Residential	49
Indian Hills	Residential	12
Island Country Estates	Residential	53
Jupiter Farms	Residential	716
Jupiter Inlet Colony	Residential	241
Limestone Creek Road West	Residential	84
Loxahatchee Landing	Residential	32
New Palm Beach Heights	Residential	35
Palm Beach Country Estates	Residential	1,547
Quail Run Drive	Residential	8
River Isle, Heron Hide-a-way, 109th Ct. N	Residential	27
River Oaks/ Little Oaks	Residential	78
River's Edge Road	Residential	36
Rockinghorse	Residential	8
Rolling Hills	Residential	53
Set - N- Sun	Residential	32
Sierra Square	Commercial	15
Taylor Rd	Residential	41
Toney Penna Industrial	Industrial	13
Turtle Creek	Residential	139
US Coast Guard Station	Institutional	14
West Center Street	Residential	10
Whispering Trails/Creekside Trail	Residential	186

ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
ISLAND COUNTRY ESTATES
EAST OF RIVER RIDGE
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

FIGURE 1
DISTRICT BOUNDARY AND STUDY AREAS

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

MATHEWS CONSULTING
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The evaluation of the neighborhoods was based on several criteria that affect the operation and performance of septic systems. The criteria are listed below:

1. ***Soil Association*** – The soil characteristics surrounding a septic system affect the performance of the drainfield and its ability to properly absorb and treat the effluent. Relatively permeable, slightly sloped, granular soils provide the most favorable soil conditions. The soil associations for the study area were obtained from the United States Department of Agriculture (USDA) National Resource Conservation Service Soil Data and Web Soil Survey (WSS). The soil survey provides information regarding depth to seasonal high water table, permeability, slope and susceptibility to flooding. Per Chapter 64E-6 of the Florida Administrative Code, soils are given a limitation rating of slight to severe. A slight rating is given to soil with favorable characteristics to safely drain septic tank effluent. A severe rating is given to soil with unfavorable properties (i.e. high water table, muck, too permeable, poorly drained, etc.) to safely drain and treat septic tank effluent. The soil characteristics of the study areas are shown in Figure 2. A detailed description of the soil characteristics is included in Appendix A.

2. ***Depth to Water Table –*** Elevation of the water table relative to the septic system drainfield also affects performance of the system. A high water table (within 2 feet of the bottom of the drainfield) restricts the space for the untreated effluent to properly disperse and receive treatment. For new septic installations, the State of Florida Department of Health requires a minimum of 2 feet clearance between the bottom surface of the drainfield and the wet season water table elevation. (Chapter 64E-6.006 F.A.C.). Groundwater levels were obtained from South Florida Water Management District (SFWMD) permits, local area monitoring well data, and historical groundwater elevations. A 3-foot depth to water table threshold was used based on an average drainfield depth of 1-foot plus the required 2-foot clearance. The water table elevations for the study areas are shown in Figure 3.

3. ***Potable Water Supply –*** Neighborhoods that use a private well system for potable water supply are subject to greater health risks associated with the septic tank effluent being released to the groundwater than those using potable water from a public distribution system. The sources of potable water supply for the study area are shown in Figure 4.

4. ***Flood Zone –***Neighborhoods located within the 100-year flood zone (1 percent chance of the neighborhood being subject to a flood elevation in any given year) were ranked higher than those not located within the flood zone, as drainfields will not drain properly under a flood condition. Federal Emergency Management

Agency (FEMA) flood maps were used to determine flood zones. Flood zone areas are shown in Figure 5.

5. ***Proximity to Major Water Body –*** The neighborhoods were evaluated based on their proximity to a major surface water body. For the purpose of this study, a "major surface water body" is defined as any water of the State and or major contributory (i.e. C-18 Canal). This Study did not differentiate between the various classes of water, but instead focused on the direct distance from the approximate center of the neighborhood to any major surface water body. Proximity distances were measured from the neighborhood center to the edge of the surface water body. Neighborhoods located within close proximity to a major surface water body were ranked higher due to the affects of the hydraulic gradient on septic systems and the increased probability that the septic tank effluent would migrate towards the surface water body. Proximity to a major surface water body is shown in Figure 6.

6. ***Lot Size –*** Neighborhoods with higher population density (e.g. more dwellings units per acre) will result in a greater amount of effluent discharge from septic systems than lower density areas. The mode lot size (e.g. the most commonly encountered lot size in an area), was used in this evaluation.

   Per FAC 64E 6.005.7(a), a minimum of ½ acre/dwelling, exclusive of all paved areas and prepared road beds, is required for consideration of a septic system installation. Some neighborhoods in this study do not meet the current requirement. Lot sizes for the study areas are shown in Figure 7.

7. ***Surface Water Management (SWM) Criteria –*** The South Florida Water Management District (SFWMD) is responsible for regulating surface water management criteria for development areas in South Florida. In the last 23 years, the SFWMD design criteria for stormwater management systems has been modified several times since the adoption of the original Basis of Review through Rule 16K-4035 on May 12, 1977. In 1987, the criteria was substantially modified to include more stringent standards (including standards for providing on-site retention and water quality enhancement), therefore permits issued prior to 1987 are ranked higher (i.e. provide less water quality treatment) than those issued since 1987.

   A neighborhood with a formalized and permitted stormwater system will collect stormwater into a centralized location, via inlets or swales, for discharge or for retention in the neighborhood. In areas without a formal system or with a sub-standard system, the rainfall will collect in the green spaces creating a potential to

flood and/or saturate the ground. Septic systems fail in a saturated soil condition because the effluent from the drainfield cannot disperse into the surrounding soil.

Each neighborhood was researched to determine if a SFWMD permit had been issued. Those neighborhoods with permits issued were reviewed for water quality standards and outfall locations. All neighborhoods were visually inspected for the presence of non-permitted, stormwater systems. Surface Water Management Criteria for the study areas are shown in Figure 8.

8. ***Type of Wastewater –*** The type of wastewater discharge was evaluated for each study area. Wastewater discharge from non-residential customers (e.g. industrial and/or commercial establishments) may contain higher concentrations of industrial/commercial chemicals, oils, greases and other harmful substances, and thus was given a higher ranking than domestic wastewater discharge from residential customers. Type of wastewater per area is shown in Figure 9.

ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
EAST OF RIVER RIDGE
ISLAND COUNTRY ESTATES
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

SLIGHT
COMBINATION
SEVERE

FIGURE 2
SOIL ASSOCIATION

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

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ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
EAST OF RIVER RIDGE
ISLAND COUNTRY ESTATES
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

GREATER THAN 3'
> 3' AND < 3'
LESS THAN 3'

FIGURE 3
DEPTH TO WATER TABLE

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

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ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
ISLAND COUNTRY ESTATES
EAST OF RIVER RIDGE
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

PUBLIC DISTRIBUTION
COMBINATION PRIVATE WELLS AND PUBLIC DISTRIBUTION
PRIVATE WELLS

FIGURE 4
POTABLE WATER SUPPLY

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

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ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
ISLAND COUNTRY ESTATES
EAST OF RIVER RIDGE
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

NOT WITHIN 100 YR FLOOD ZONE
COMBINATION
WITHIN 100 YR FLOOD ZONE

FIGURE 5
FLOOD ZONE

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

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ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
ISLAND COUNTRY ESTATES
EAST OF RIVER RIDGE
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

- > 2500'
- > 2000' TO ≤ 2500'
- > 1500' TO ≤ 2000'
- > 1000' TO ≤ 1500'
- > 500' TO ≤ 1000'
- ≤ 500'

NOTE: DISTANCE MEASURED FROM NEIGHBORHOOD CENTER TO EDGE OF SURFACE WATER BODY

FIGURE 6
PROXIMITY TO MAJOR SURFACE WATER BODY

BOUNDARY — ROADS
RIVER OUTLINE — PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

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ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
ISLAND COUNTRY ESTATES
EAST OF RIVER RIDGE
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
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RIVEROAKS/ LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

≥ 2.5 ACRES/ UNIT
≥ 2.0 ACRES/ UNIT TO < 2.5 ACRES/ UNIT
≥ 1.5 ACRES/ UNIT TO < 2.0 ACRES/ UNIT
≥ 1.0 ACRES/ UNIT TO < 1.5 ACRES/ UNIT
≥ 0.5 ACRES/ UNIT TO < 1.0 ACRES/ UNIT
< 0.5 ACRES/ UNIT

FIGURE 7
LOT SIZE

BOUNDARY
ROADS
RIVER OUTLINE
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

MATHEWS CONSULTING
CIVIL ENGINEERS
477 S. Rosemary Avenue, Suite 330, West Palm Beach, Florida 33401
Phone: 561-655-6175 • Fax: 561-655-6179
www.mathewsconsultinginc.com

Acad Version : R17.2s (LMS Tech)
User Name : stjiong
Date\Time : Tue, 13 Apr 2010 – 3:54pm Current Plotsyle : ByColor Layout Tab: FIG-7
Path\Name : S:\Projects\LRECD\1519\CAD\EXHIBIT\FIG-7.DWG

ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
ISLAND COUNTRY ESTATES
EAST OF RIVER RIDGE
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS LITTLE OAKS
SIERRA SQUARE
LOXAHATCHEE LANDING
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

PERMITTED WITH SFWMD SINCE 1987
PERMITTED WITH SFWMD PRIOR 1987
INCLUDES NEIGHBORHOOD DRAINAGE – NOT SUBJECT TO PERMITTING CRITERIA
DOES NOT INCLUDE NEIGHBORHOOD DRAINAGE – NOT SUBJECT TO PERMITTING CRITERIA

FIGURE 8
SURFACE WATER MANAGEMENT CRITERIA

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

MATHEWS CONSULTING
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477 S. Rosemary Avenue, Suite 330, West Palm Beach, Florida 33401
Phone: 561-655-6175 • Fax: 561-655-6179
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User Name : stjiong
Date\Time : Tue, 13 Apr 2010 – 3:52pm
Path\Name : S:\Projects\LRECD\1519\CAD\EXHIBIT\FIG-8.DWG
Current Plotsyle : ByColor
Layout Tab: FIG-8

ROLLING HILLS
INDIAN HILLS
TURTLE CREEK
RIVERS EDGE ROAD
EAST OF RIVER RIDGE
ISLAND COUNTRY ESTATES
IMPERIAL WOODS
FOX RUN
BRIDGEWATER
197th 66th TER & WAY
WHISPERING TRAILS
US COAST GUARD STATION
RIVER ISLE
QUAIL RUN
EAGLES NEST
TAYLOR RD.
ROCKINGHORSE
JUPITER INLET COLONY
SET-N-SUN
LIMESTONE CREEK WEST
RIVEROAKS
LITTLE OAKS
LOXAHATCHEE LANDING
SIERRA SQUARE
WEST CENTER ST
TONEY PENNA INDUSTRIAL
JUPITER FARMS
PALM BEACH COUNTRY ESTATES
NEW PALM BEACH HEIGHTS

RESIDENTIAL/ INSTITUTIONAL
COMMERCIAL
INDUSTRIAL

FIGURE 9
TYPE OF WASTEWATER

BOUNDARY
RIVER OUTLINE
ROADS
PARCELS

0 .5 1 2 MILES

NORTH

Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458

MATHEWS CONSULTING
CIVIL ENGINEERS
477 S. Rosemary Avenue, Suite 330, West Palm Beach, Florida 33401
Phone: 561-655-6175 ◆ Fax: 561-655-6179
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Acad Version : R17.2s (LMS Tech)
User Name : jienkins
Date\Time : Wed, 24 Mar 2010 – 4:11pm Current Plotsyle : ByColor Layout Tab: FIG-9
Path\Name : S:\Projects\LRECD\1519\CAD\EXHIBIT\FIG-9.DWG

Each of the criteria listed above was assigned a numerical value for evaluation and ranking purposes. Those values are as follows:

Table 2
Evaluation Criteria

Criteria	Grade	Value
Soil Association	Slight	4
	Combination	8
	Severe	12
Depth to Water Table	greater than 3 Feet	4
	<3 Feet, >3 Feet Combination	8
	less than 3 Feet	12
Potable Water	Public Distribution	4
	Public/Private Combination	8
	Private Wells	12
Flood Zone	Not within 100-Yr. Zone	4
	Combination	8
	Within 100-Yr. Zone	12
Proximity to Major	> 2,500’	2
Surface Water Body	> 2,000’ to ≤ 2,500’	4
	> 1,500’ to ≤ 2,000’	6
	> 1,000’ to ≤ 1,500	8
	>500’ to ≤ 1,000’	10
	≤ 500’	12
Lot Size	≥ 2.5 acres/unit	2
	≥2.0 to < 2.5 acres/unit	4
	≥1.5 to < 2.0 acres/unit	6
	≥1.0 to < 1.5 acres/unit	8
	≥ 0.5 to < 1.0 acres/unit	10
	< 0.5 acres/unit	12
SWM Criteria	Exist Permitted Stormwater System since 1987	3
	Exist Permitted Stormwater System prior to 1987	6
	Exist Stormwater System	9
	No Formal Stormwater System	12
Type of Wastewater	Residential/Institutional	4
	Commercial	8
	Industrial	12

Each area was evaluated based on the eight (8) criteria listed in the previous section. This Section lists the neighborhoods alphabetically and their associated ratings.

Bridgewater:

The following is a summary of the Bridgewater* neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	2
Lot Size	2
SWM Criteria	3
Type of Wastewater	4
Total:	35

- **Soil Association:** The major soil types are Pomello and Immokalee fine sand and Waveland and Lanwood fine sand, depressional. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located more than 3 feet below grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located over 2,500 feet from a major water body.

- **Lot Size:** The mode lot size is greater than 2.5 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 2005.

- **Type of Wastewater:** This area is a residential neighborhood.

*Bridgewater is a proposed development. Information based off of site plan information.

Eagle's Nest:

The following is a summary of the Eagle's Nest neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	4
Flood Zone	8
Major Water Body Proximity	8
Lot Size	10
SWM Criteria	6
Type of Wastewater	4
Total:	64

- **Soil Association:** The major soil types are Immokalee fine sand and Sanibel Muck. Minor soil types include Anclote fine sand and Pomello fine sand (0-5% slope). These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located within 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** A portion of the neighborhood is within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1980.

- **Type of Wastewater:** This area is a residential neighborhood.

East of River Ridge:

The following is a summary of the East of River Ridge area evaluation:

Criteria	Value
Soil Association	4
Depth to Water Table	8
Potable Water Supply	8
Flood Zone	4
Major Water Body Proximity	8
Lot Size	12
SWM Criteria	3
Type of Wastewater	4
Total:	51

- **Soil Association:** The major soil type is Paola/St. Lucie sand (slope 0-8%). The minor soil type is Archbold Sand. These soils are considered slight for use in septic system drainfields.

- **Depth to Water Table Elevation:** The water table fluctuates from below to above 3 feet of grade in this area.

- **Potable Water Supply:** The potable water supply for this area is provided through a combination of private wells and a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The area is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located within 1,500 feet of a major water body.

- **Lot Size:** The mode lot size is less than 0.5 acres/unit.

- **SWM Criteria:** The area was permitted through South Florida Water Management District in 2001.

- **Type of Wastewater:** This area is a residential use.

Fox Run:

The following is a summary of the Fox Run neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	8
Lot Size	8
SWM Criteria	9
Type of Wastewater	4
Total:	61

- **Soil Association:** The major soil types are Pomello fine sand (0-5% slope) and Immokalee fine sand. These soils are considered severe for use in septic system drainfields.
- **Depth to Water Table:** The water table is located more than 3 feet below grade in this neighborhood.
- **Potable Water Supply:** The potable water supply for this neighborhood is provided through private wells.
- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.
- **Major Water Body Proximity:** The center of this neighborhood is located within 1,500 feet of a major water body.
- **Lot Size:** The mode lot size greater than or equal to 1.0 acres/unit to less than 1.5 acres/unit
- **SWM Criteria:** The neighborhood was not permitted through South Florida Water Management District however it does have a neighborhood drainage system.
- **Type of Wastewater:** This area is a residential neighborhood.

197th Pl, 66th Terr, 66th Way:

The following is a summary of the 197th Pl, 66th Terr, 66th Way area (located just west of Fox Run) evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	2
Lot Size	6
SWM Criteria	9
Type of Wastewater	4
Total:	53

- **Soil Association:** The major soil types are Immokalee fine sand, Pomello fine sand (0-5% slope), and Sanibel Muck. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located more than 3 feet below grade in this area.

- **Potable Water Supply:** The potable water supply for this area is provided through private wells.

- **Flood Zone:** The area is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located over 2,500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 1.5 acres/unit to less than 2.0 acres/unit.

- **SWM Criteria:** The area was not permitted through South Florida Water Management District however it does have a neighborhood drainage system.

- **Type of Wastewater:** This area is a residential use.

Imperial Woods:

The following is a summary of the Imperial Woods neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	6
Lot Size	8
SWM Criteria	6
Type of Wastewater	4
Total:	56

- **Soil Association:** The major soil types are Pomello fine sand (0-5% slope) and Immokalee fine sand. The minor soil type is Basinger/Myakka sand, depressional. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located more than 3 feet below grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through private wells.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 2,000 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 1.0 acres/unit to 1.5 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1979.

- **Type of Wastewater:** This area is a residential neighborhood.

Indian Hills:

The following is a summary of the Indian Hills neighborhood evaluation:

Criteria	Value
Soil Association	4
Depth to Water Table	4
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	10
Lot Size	10
SWM Criteria	3
Type of Wastewater	4
Total:	43

- **Soil Association:** The major soil type is Paola/St. Lucie sand (8-20% slope). The minor soil type is Paola/St.Lucie sand (0-8% slope). These soils are considered slight for use in septic system drainfields.

- **Depth to Water Table:** The water table is located more than 3 feet below grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Village of Tequesta.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,000 feet of major water body.

- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1987.

- **Type of Wastewater:** This area is a residential neighborhood.

Island Country Estates:

The following is a summary of the Island Country Estates neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	6
Lot Size	2
SWM Criteria	3
Type of Wastewater	4
Total:	47

- **Soil Association:** The major soil types are Pomello sand (0-5% slope) and Salerno sand. The minor soil type is Waveland/Immokalee fine sand. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is within 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 2,000 feet of a major water body.

- **Lot Size:** The mode lot size is greater than 2.5 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1989.

- **Type of Wastewater:** This area is a residential neighborhood.

Jupiter Farms:

The following is a summary of the Jupiter Farms neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	8
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	2
Lot Size	8
SWM Criteria	6
Type of Wastewater	4
Total:	56

- **Soil Association:** The major soil types are Winder fine sand and Riviera fine sand. This neighborhood has a number of small pockets of minor soil types. All of the soil types for the neighborhood are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through private wells.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located over 2,500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 1.0 acres/unit to less than 1.5 acres/unit.

- **SWM Criteria:** The neighborhood was originally permitted through South Florida Water Management District in 1985.

- **Type of Wastewater:** This area is a residential neighborhood.

Jupiter Inlet Colony:

The following is a summary of the Jupiter Inlet Colony neighborhood evaluation:

Criteria	Value
Soil Association	4
Depth to Water Table	8
Potable Water Supply	4
Flood Zone	8
Major Water Body Proximity	12
Lot Size	12
SWM Criteria	9
Type of Wastewater	4
Total:	61

- **Soil Association:** The major soil type is Palm Beach- Urban land complex (0-8% slope). The minor soil type is Quartzipsamments, shaped. These soils are considered slight for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Village of Tequesta.

- **Flood Zone:** A portion of this neighborhood is located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is within 500 feet of a major water body.

- **Lot Size:** The mode lot size is less than 0.5 acres/unit.

- **SWM Criteria:** The neighborhood was not permitted through South Florida Water Management District however it does have a neighborhood drainage system.

- **Type of Wastewater:** This area is a residential neighborhood.

Limestone Creek Road West:

The following is a summary of the Limestone Creek Road West area evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	2
Lot Size	8
SWM Criteria	3
Type of Wastewater	4
Total:	49

- **Soil Association:** The major soil type is Immokalee fine sand. This soil is considered severe for use in septic system drainfields.
- **Depth to Water Table:** The water table is located more than 3 feet below grade in this area.
- **Potable Water Supply:** The potable water supply for this area is provided through private wells.
- **Flood Zone:** The area is not located within the 100-year flood zone.
- **Major Water Body Proximity:** The center of this area greater than 2,500 feet from a major water body.
- **Lot Size:** The mode lot size is greater than or equal to 1.0 acres/unit to less than 1.5 acres/unit.
- **SWM Criteria:** The area was permitted through South Florida Water Management District in 1998.
- **Type of Wastewater:** This area is a residential use.

Loxahatchee Landings:

The following is a summary of the Loxahatchee Landings neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	8
Potable Water Supply	4
Flood Zone	8
Major Water Body Proximity	12
Lot Size	10
SWM Criteria	6
Type of Wastewater	4
Total:	64

- **Soil Association:** The major soil type is Immokalee fine sand. This soil is considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** A portion of this neighborhood is located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is within 500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1989.

- **Type of Wastewater:** This area is a residential neighborhood.

New Palm Beach Heights:

The following is a summary of the New Palm Beach Heights area evaluation:

Criteria	Value
Soil Association	4
Depth to Water Table	4
Potable Water Supply	4
Flood Zone	8
Major Water Body Proximity	6
Lot Size	12
SWM Criteria	3
Type of Wastewater	4
Total:	45

- **Soil Association:** The major soil type is Quartzipsamments, shaped. This soil is considered slight for use in septic system drainfields.
- **Depth to Water Table:** The water table is located greater than 3 feet below grade for this area.
- **Potable Water Supply:** The potable water supply for this area is provided through a public distribution system operated by the Town of Jupiter.
- **Flood Zone:** A portion of this area is located within the 100-year flood zone.
- **Major Water Body Proximity:** The center of this area is located within 2,000 feet of a major water body.
- **Lot Size:** The mode lot size is less than 0.5 acres/unit.
- **SWM Criteria:** The area was permitted through South Florida Water Management District in 1994.
- **Type of Wastewater:** This area is a residential use.

Palm Beach Country Estates:

The following is a summary of the Palm Beach Country Estates neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	8
Potable Water Supply	8
Flood Zone	8
Major Water Body Proximity	2
Lot Size	8
SWM Criteria	6
Type of Wastewater	4
Total:	56

- **Soil Association:** This neighborhood is made up of a number of different soil types. All of the soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a combination of private wells and a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** A portion of this neighborhood is located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located greater than 2,500 feet from a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 1.0 acres/unit to less than 1.5 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1985.

- **Type of Wastewater:** This area is a residential neighborhood.

Quail Run Drive:

The following is a summary of the Quail Run Drive area evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	8
Lot Size	8
SWM Criteria	12
Type of Wastewater	4
Total:	64

- **Soil Association:** The major soil type is Immokalee fine sand. The minor soil type is Pomello fine sand (0-5% slope). This soil is considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located greater than 3 feet below grade for this area.

- **Potable Water Supply:** The potable water supply for this area is provided through private wells.

- **Flood Zone:** The area is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located within 1,500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 1.0 acres/unit to 1.5 acres/unit.

- **SWM Criteria:** The area was not permitted through South Florida Water Management District and does not provide any neighborhood drainage.

- **Type of Wastewater:** This area is a residential neighborhood.

River Isle/ Heron Hide-a-Way/ 109th Ct. N.:

The following is a summary of River Isle/ Heron Hide-a-Way/ 109th Ct. N area evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	4
Flood Zone	8
Major Water Body Proximity	10
Lot Size	10
SWM Criteria	9
Type of Wastewater	4
Total:	69

- **Soil Association:** The major soil type is Basinger/Myakka sand, depressional. The minor soil type is Pomello fine sand (0-5% slope). This soil is considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located less than 3 feet below grade in this area.

- **Potable Water Supply:** The potable water supply for this area is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** A portion of this area is located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,000 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.

- **SWM Criteria:** The area was not permitted through South Florida Water Management District however it does provide neighborhood drainage.

- **Type of Wastewater:** This area is a residential use.

River Oaks/Little Oaks:

The following is a summary of the River Oaks/Little Oaks neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	8
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	10
Lot Size	10
SWM Criteria	6
Type of Wastewater	4
Total:	58

- **Soil Association:** The major soil type is Immokalee fine sand. The minor soil type is Pomello fine sand (0-5% slope). These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,000 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to 1.0 acres/unit.

- **SWM Criteria:** The River Oaks neighborhood was permitted through South Florida Water Management District in 1984. The Little Oaks neighborhood was permitted through South Florida Water Management District in 1981.

- **Type of Wastewater:** This area is a residential neighborhood.

River's Edge Road:

The following is a summary of the River's Edge Road neighborhood evaluation:

Criteria	Value
Soil Association	8
Depth to Water Table	12
Potable Water Supply	8
Flood Zone	8
Major Water Body Proximity	10
Lot Size	2
SWM Criteria	12
Type of Wastewater	4
Total:	64

- **Soil Association:** The major soil types are Waveland/Immokalee fine sand. The minor soil types are Pomello fine sand (0-5% slope), Arents, and Nettles. These soils are considered a combination of slight and severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located less than 3 feet below grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a combination of private wells and a public distribution system operated by the Town of Jupiter

- **Flood Zone:** A portion of this neighborhood is located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,000 feet of a major water body.

- **Lot Size:** The mode lot size is greater than 2.5 acres/unit.

- **SWM Criteria:** The neighborhood was not permitted through South Florida Water Management District and does not provide neighborhood drainage.

- **Type of Wastewater:** This area is a residential neighborhood.

Rockinghorse:

The following is a summary of the Rockinghorse area evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	4
Potable Water Supply	8
Flood Zone	4
Major Water Body Proximity	2
Lot Size	2
SWM Criteria	12
Type of Wastewater	4
Total:	48

- **Soil Association:** The major soil type is Immokalee fine sand. The minor soil type is Pomello fine sand (0-5% slope) and Immokalee fine sand. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located greater than 3 feet below grade in this area.

- **Potable Water Supply:** The potable water supply for this area is provided through a combination of private wells and a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The area is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located greater than 2,500 feet from a major water body.

- **Lot Size:** The mode lot size is greater than 2.5 acres/unit.

- **SWM Criteria:** The area was not permitted through South Florida Water Management District and does not provide neighborhood drainage.

- **Type of Wastewater:** This area is a residential use.

Rolling Hills:

The following is a summary of the Rolling Hills neighborhood:

Criteria	Value
Soil Association	4
Depth to Water Table	4
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	10
Lot Size	12
SWM Criteria	12
Type of Wastewater	4
Total:	54

- **Soil Association:** The major soil type is Paola/St. Lucie sand (8-20% slope). The minor soil type is Paola/St. Lucie sand (0-8% slope). These soils are considered slight for use in septic system drainfields.

- **Depth to Water Table:** The water table is located greater than 3 feet below grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Village of Tequesta.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,000 feet of a major water body.

- **Lot Size:** The mode lot size is less than 0.5 acres/unit.

- **SWM Criteria:** The neighborhood was not permitted through South Florida Water Management District and does not provide neighborhood drainage.

- **Type of Wastewater:** This area is a residential neighborhood.

Set-N-Sun:

The following is a summary of the Set-N-Sun neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	8
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	8
Lot Size	10
SWM Criteria	9
Type of Wastewater	4
Total:	59

- **Soil Association:** The major soil types are Pomello fine sand (0-5% slope) and Immokalee fine sand. These soils are considered severe for use in septic system drainfields.
- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.
- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.
- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.
- **Major Water Body Proximity:** The center of this neighborhood is located within 1,500 feet of a major water body.
- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.
- **SWM Criteria:** The neighborhood was not permitted through South Florida Water Management District however it does have a neighborhood drainage system.
- **Type of Wastewater:** This area is a residential neighborhood.

Sierra Square:

The following is a summary of the Sierra Square evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	8
Lot Size	12
SWM Criteria	9
Type of Wastewater	8
Total:	77

- **Soil Association:** The major soil types are Riviera fine sand and Pits (0-5% slope). These soils are considered severe for use in septic system drainfields.
- **Depth to Water Table:** The water table is located within 3 feet of grade at Sierra Square.
- **Potable Water Supply:** The potable water supply for Sierra Square is provided through private wells.
- **Flood Zone:** Sierra Square is not located within the 100-year flood zone.
- **Major Water Body Proximity:** The center of Sierra Square is located within 1,500 feet of a major water body.
- **Lot Size:** The mode lot size is less than 0.5 acres/unit.
- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District however it does have a neighborhood drainage system.
- **Type of Wastewater:** Sierra Square is a commercial use.

Taylor Road:

The following is a summary of the Taylor Road area:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	12
Flood Zone	4
Major Water Body Proximity	8
Lot Size	2
SWM Criteria	6
Type of Wastewater	4
Total:	60

- **Soil Association:** The major soil type is Riviera fine sand. The minor soil types are Riviera fine sand (depressional), Wabasso fine sand, and Chobee fine sandy loam. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located within 3 feet of grade for this area.

- **Potable Water Supply:** The potable water supply for this area is provided through private wells.

- **Flood Zone:** The area is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located within 1,500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than 2.5 acres/unit.

- **SWM Criteria:** The area was permitted through South Florida Water Management District in 1979 and revised in 1987.

- **Type of Wastewater:** This area is a residential use.

Toney Penna Industrial:

The following is a summary of the Toney Penna Industrial evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	4
Flood Zone	12
Major Water Body Proximity	2
Lot Size	12
SWM Criteria	9
Type of Wastewater	12
Total:	75

- **Soil Association:** The major soil types are Pomello fine sand (0-5% slope), Immokalee fine sand and Sanibel Muck. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table is located within 3 feet of grade for this area.

- **Potable Water Supply:** The potable water supply for this area is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The area is located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located greater than 2,500 feet from a major water body.

- **Lot Size:** The mode lot size is less than 0.5 acres/unit.

- **SWM Criteria:** The area was not permitted through South Florida Water Management District however it does have a neighborhood drainage system.

- **Type of Wastewater:** This area is industrial use.

Turtle Creek:

The following is a summary of the Turtle Creek neighborhood:

Criteria	Value
Soil Association	8
Depth to Water Table	8
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	8
Lot Size	12
SWM Criteria	9
Type of Wastewater	4
Total:	57

- **Soil Association:** The major soil type is Paola/St. Lucie fine sand (0-8% slope). The minor soil type is Archbold sand. These soils are considered a combination of slight and severe for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Village of Tequesta.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 1,500 feet of a major water body.

- **Lot Size:** The mode lot size is less than 0.5 units/acre.

- **SWM Criteria:** The neighborhood was not permitted through South Florida Water Management District however it does have a neighborhood drainage system

- **Type of Wastewater:** This area is a residential neighborhood.

US Coast Guard Station:

The following is a summary of the US Coast Guard area evaluation:

Criteria	Value
Soil Association	4
Depth to Water Table	4
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	12
Lot Size	2
SWM Criteria	12
Type of Wastewater	4
Total:	46

- **Soil Association:** The major soil type is St. Lucie/Paola- Urban land complex (0-8% slope). The minor soil type is Quartzipsamments, shaped. These soils are considered slight for use in septic system drainfields.

- **Depth to Water Table:** The water table is located greater than 3 feet below grade in this area.

- **Potable Water Supply:** The potable water supply for this area is provided through a public distribution system operated by the Village of Tequesta.

- **Flood Zone:** The area is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this area is located within 500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than 2.5 acres/unit.

- **SWM Criteria:** The area was not permitted through South Florida Water Management District and does not provide neighborhood drainage.

- **Type of Wastewater:** The neighborhood is residential/institutional use.

West Center Street:

The following is a summary of the West Center Street area evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	12
Potable Water Supply	4
Flood Zone	8
Major Water Body Proximity	12
Lot Size	10
SWM Criteria	12
Type of Wastewater	4
Total:	74

- **Soil Association:** The major soil type is Immokalee fine sand. This soil is considered severe for use in septic system drainfields.
- **Depth to Water Table:** The water table is located within 3 feet of grade in this area.
- **Potable Water Supply:** The potable water supply for this area is provided through a public distribution system operated by the Town of Jupiter.
- **Flood Zone:** A portion of this area is located within the 100-year flood zone.
- **Major Water Body Proximity:** The center of this area is located within 500 feet of a major water body.
- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.
- **SWM Criteria:** The area was not permitted through South Florida Water Management District and does not provide neighborhood drainage.
- **Type of Wastewater:** This area is a residential use.

Whispering Trails/Creekside Trail:

The following is a summary of the Whispering Trails/Creekside Trail neighborhood evaluation:

Criteria	Value
Soil Association	12
Depth to Water Table	8
Potable Water Supply	4
Flood Zone	4
Major Water Body Proximity	4
Lot Size	10
SWM Criteria	6
Type of Wastewater	4
Total:	52

- **Soil Association:** The major soil type is Immokalee fine sand. The minor soil types are Anclote fine sand, Basinger/Myakka sand, Pomello fine sand (0-5% slope), and Sanibel Muck. These soils are considered severe for use in septic system drainfields.

- **Depth to Water Table:** The water table fluctuates from below to above 3 feet of grade in this neighborhood.

- **Potable Water Supply:** The potable water supply for this neighborhood is provided through a public distribution system operated by the Town of Jupiter.

- **Flood Zone:** The neighborhood is not located within the 100-year flood zone.

- **Major Water Body Proximity:** The center of this neighborhood is located within 2,500 feet of a major water body.

- **Lot Size:** The mode lot size is greater than or equal to 0.5 acres/unit to less than 1.0 acres/unit.

- **SWM Criteria:** The neighborhood was permitted through South Florida Water Management District in 1979.

- **Type of Wastewater:** This area is a residential neighborhood.

Section 5 Study Results

The neighborhood rankings are presented in Table 3 in priority order (i.e. Ranking 1 has a higher priority for being sewered). All neighborhoods with the same ranking are listed in alphabetical order.

Table 3
Area Rankings

Ranking	Total Score	Area
1	77	Sierra Square
2	75	Toney Penna Industrial
3	74	West Center Street
4	69	River Isle/Heron Hide-a-way
5	64	Eagle's Nest, Loxahatchee Landing, Quail Run Drive, River's Edge Road
6	61	Fox Run, Jupiter Inlet Colony
7	60	Taylor Rd
8	59	Set – N – Sun
9	58	River Oaks/ Little Oaks
10	57	Turtle Creek
11	56	Imperial Woods, Jupiter Farms, Palm Beach Country Estates
12	54	Rolling Hills
13	53	197th Pl/66th Terr/66th Way
14	52	Whispering Trails/Creekside Trail
15	51	East of River Ridge
16	49	Limestone Creek Road West
17	48	Rockinghorse
18	47	Island Country Estates
19	46	US Coast Guard Station
20	45	New Palm Beach Heights
21	43	Indian Hills
22	35	Bridgewater

The ranking listed above is a technical evaluation of the neighborhoods based on published data. Other factors that were not included in the evaluation criteria, such as, but not necessarily limited to, proximity to existing facilities, economies of scale, and neighborhood petitions, will also be considered by the District when scheduling the sequence and priority of the future sewering projects. This report also does not preclude site specific studies that may be performed to confirm specific neighborhood characteristics.

Appendix A
Soil Association Descriptions

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The following descriptions of soil associations were taken from the United States Department of Agriculture (USDA) Soil Conservation Service Soil Surveys. Reference material included; the archived Palm Beach County Soil Data published in 1978, the archived Martin County Soil Data published in 1981, and the USDA Natural Resources Conservation Service Web Soil Survey.

- **Anclote fine sands.** This is a nearly level, very poorly drained, deep sandy soil in small depressions and poorly defined drainageways. This water table is within 6 inches of the surface for 6 months or more in most years and recedes to below 20 inches in the driest seasons. The soil rating for septic tank drainfield is severe.

- **Archbold sand.** This is a nearly level, moderately well drained sandy soil. The water table is approximately 30 to 60 inches below the surface. The soil rating for septic tank drainfield is severe.

- **Arents, 0-2%.** Somewhat poorly drained to excessively drained soils consisting of variable textured fill material that has been reworked earth moving equipment and deposited over undisturbed natural soils, mostly in low lying areas. The water table ranges from a depth of approximately 20 to72 inches. The soil rating for septic tank drainfield is severe.

- **Basinger fine sand.** This is a nearly level, poorly drained, sandy soil in broad grassy sloughs. The water table is within 10 inches of the surface for 2 to 6 months in most years and within 10 to 30 inches for the rest of the year. The soil rating for septic tank drainfield is severe.

- **Basinger and Myakka sands, depressional.** These are nearly level, very poorly drained, sandy soils in shallow depressions. The depressions are small to large isolated ponds or poorly defined narrow drainageways that have many branches. The water table is above the surface for 3 to 9 months or more in most years. Permeability is rapid, and the soil rating for septic tank drainfield is severe.

- **Boca fine sand.** This is a nearly level, poorly drained soil that is underlain by fractured limestone at a depth of 24 to 40 inches. Under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months of the year and the soil rating for septic tank drainfield is severe.

- **Chobee fine sandy loam.** This is a nearly level, very poorly drained soil that has a surface layer of dark colored fine sandy loam and a subsoil of sandy clay loam. This soil is in depressions and low, nearly level areas. Under natural conditions, the water table is within 10 inches of the surface for more than 6 months in most years. Depressions are covered by water most of the year and the soil rating for septic tank drainfield is severe.

- **Hallandale fine sand.** This is a nearly level, poorly drained soil that has a sandy surface layer of a weather bedrock subsoil. The depth to the water table is approximately 6 to 18 inches. The soil rating for septic tank drainfield is severe.

- **Hobe fine sand, 0-5% slope.** This is somewhat excessively drained, moderately permeable soils that formed in thick beds of sandy and loamy marine and eolian sediment. Depth to water table is 60 to 80 inches during dry periods and 50 inches during heavy rainfall or wet seasons. The soil rating for septic tank drainfield is slight.

- **Holopaw fine sand.** This is a nearly level, poorly drained soil that has a thick sandy surface layer and a loamy subsoil. Under natural conditions, the water table is within 10 inches of the surface for 2 to 6 months during most years. Depressions are covered by water for 6 months or more in most years. The soil rating for septic tank drainfield is severe.

- **Immokalee fine sand.** This is a nearly level, poorly drained, deep, sandy soil that has a dark colored layer below a depth of 30 inches that is weakly cemented with organic matter. Under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months during wet periods, within 10 to 40 inches for 8 months or more in most years, but it is below 40 inches in dry periods. Permeability is very rapid, and the soil rating for septic tank drainfield is severe.

- **Myakka fine sand.** This is a nearly level, poorly drained, deep sandy soil that has a dark colored layer, weakly cemented with organic matter, above the depth of 30 inches. Under natural conditions, the water table in within 10 inches of the surface for 2 to 4 months in most years and within a depth of 10 to 40 inches for 6 months or more. The soil rating for septic tank drainfield is severe.

- **Myakka-Urban land complex.** This complex consists of Myakka sand and Urban land. About 25 to 50 percent of the complex is covered by streets, sidewalks, driveways, houses, and other structures. About 40 to 65 percent of the complex consists of open land, such as lawns, vacant lots, and playgrounds. These drained areas are made up mainly of nearly level, poorly drained Myakka sand which has been modified in most places by spreading about 12 inches of sandy fill material on the original surface. The water table is within 12 inches of the surface for most of the year. Permeability is rapid, and the soil rating for septic tank drainfield is severe.

- **Nettles Sand-** This poorly drained, slowly or very slowly permeable soil that formed in sandy and loamy marine sediment. Nearly level soils. The water table is at the surface for 2 to 4 months of the year and between 10 and 40 inches for the remainder. The soil rating for septic tank drainfield is severe.

- **Okeelanta Muck.** This is a nearly level, very poorly drained, organic soil that has a sandy material within a depth of 31 inches. It is in large, fresh water marshes and small,

isolated depressions. Under natural conditions, the soil is covered by water or within 10 inches of the surface, and the soil rating for septic tank drainfield is severe.

- **Oldsmar sand.** This is a nearly level, poorly drained, sandy soil that has a dark layer, weakly cemented by organic matter over loamy material. Permeability is rapid in the sandy surface layer and moderately rapid in the weakly cemented sand and sandy loam layer, and rapid below this. Under natural conditions, the water table is within 10 inches of the surface for 1 to 3 months and within 10 to 40 inches for 6 or more months in most years. The soil rating for septic tank drainfield is severe.

- **Palm Beach-Urban land complex, 0-8% slope.** This complex consists of Palm Beach sand and Urban land. About 50 to 70 percent of the complex is open land, such as lawns, vacant lots, and undeveloped areas. These areas are made up of nearly level to sloping, excessively drained, Palm Beach sand that has been graded and leveled in many places for urban development. The water table is below a depth of 6 feet. Permeability is very rapid, and the soil rating for septic tank drainfield is slight.

- **Paola and St. Lucie sand, 0 to 8 percent slopes.** This nearly level to sloping, excessively drained, deep, sandy soil has yellowish layers beneath the white subsurface layer. The water table is below a depth of 72 inches. Permeability is very rapid, and the soil rating for septic tank drainfield is slight.

- **Paola and St. Lucie sand, 8 to 20 percent slopes.** This strongly sloping to moderately steep soil is excessively drained. It is on the coastal ridge. The available water capacity is very low, and permeability is very rapid throughout the profile. The water table is below a depth of 6 feet at all times. The soil rating for septic tank drainfield is slight.

- **Pineda fine sand.** This is a nearly level, poorly drained, sandy soil over loamy material. Under natural conditions, the water table is within 10 inches of the surface for 1 to 6 months in most years and within 10 to 30 inches the remainder of the year, except in extended dry periods. The soil rating for septic tank drainfield is severe.

- **Pinellas fine sand.** This is a nearly level, poorly drained soil that has a sandy, calcareous subsurface layer and a loamy subsoil. This soil is in nearly level areas that border sloughs and depressions. Under natural conditions, the water table is within 10 inches of the surface for 1 to 3 months and within 10 to 30 inches for 2 to 6 months for most years. The soil rating for septic tank drainfield is severe.

- **Pits, 0-5% slope.** Consist of excavations from which soil and geological material have been removed for use in road construction or for foundation purposes. Most pits have been excavated below the normal water table and are ponded for 9 months or more each year. The soil rating for septic tank drainfield is severe.

- **Pomello fine sand.** This is a nearly level to gently sloping, moderately well drained, deep, sandy soil that has a dark, weakly cemented layer below a depth of 30 inches. This soil is on low ridges and knolls. Under natural conditions, the water table is within 24 to

40 inches for 1 to 4 months during wet periods. Permeability is rapid, and the soil rating for septic tank drainfield is severe.

- **Pomello fine sand (inclusive of 0-5%).** This is a nearly level to gently sloping, moderately well drained, deep, moderately rapidly permeable soil that formed in thick deposits of sandy marine sediment. This soil is on low ridges and knolls. Under natural conditions, the water table is within 24 to 40 inches for 1 to 4 months during wet periods and within 40 to 60 inches in dry seasons. The soil rating for septic tank drainfield is severe.

- **Pompano fine sand.** This is a nearly level, poorly drained, deep sandy soil in broad grassy sloughs, concave depressions and drainageways. Under natural conditions, the water table is within 10 inches of the surface for 2 to 6 months in most years and within 30 inches for the remainder. Water covers depressions for more than 3 months in most years. The soil rating for septic tank drainfield is severe.

- **Quartzipsamments, shaped, 0-5% slope.** This mapping unit consists of nearly level to gently sloping, well drained, deep, sandy soils in areas where natural soils have been altered by cutting down ridges and spreading the soil material over adjacent lower soil, by filling low areas above natural ground level, and by filling and shaping soil material to form golf courses. The water table is below a depth of 60 inches. Permeability is very rapid, and the soil rating for septic tank drainfield is slight.

- **Riviera fine sand.** This is a nearly level, poorly drained soil that has a thick sandy subsurface layer with a loamy subsoil at a depth of 20 to 40 inches. Under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months in most years and within 10 to 30 inches for most of the remaining year, except in extreme dry periods. The soil rating for septic tank drainfield is severe.

- **Riviera sand, depressional.** This is a nearly level, poorly drained soil that has a loamy subsoil. This soil is in shallow, well defined depressions. This soil is covered with up to 2 feet of water for more than 6 months each year. The soil rating for septic tank drainfield is severe.

- **Salerno sand.** This is a nearly level, poorly drained soil that is found in broad areas of flatwoods. Depth to the water table is within 10 inches during the wet season and 40 inches during the dry season. Internal drainage is slow and impeded by the water table that is above the subsoil for long periods. Permeability is rapid and the soil rating for septic tank drainfields is severe.

- **Sanibel muck.** This is a nearly level, very poorly drained, deep, sandy soil that has a thin organic layer on the surface. This soil is in depressions, drainageways, and broad flats that are transitional to the organic soils in the Everglades area. Under natural conditions, the water table is within 10 inches of the surface for 6 to 12 months in most years. Water covers the surface 2 to 6 months during wet periods. Permeability is rapid, and the soil rating for septic tank drainfield is severe.

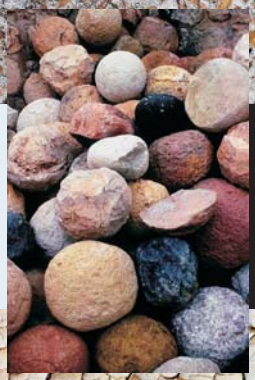
- **St. Lucie-Paola-Urban land complex.** This complex consists of St. Lucie sand and Urban land. About 50 to 70 percent of this complex is open land, such as lawns, vacant lots, and playgrounds. These areas are made up of nearly level to sloping, excessively drained St. Lucie soils. In places, these soils have been modified by cutting, grading, or shaping for urban development. About 30 to 50 percent of the complex is covered by streets, sidewalks, driveways, patios, buildings, and other structures. The depth to the water table is more than 80 inches. The soil rating for septic tank drainfield is slight.

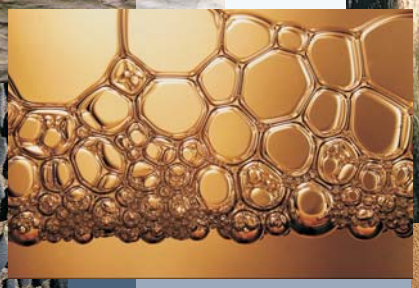
- **Wabasso fine sand.** This is a nearly level, poorly drained, sandy soil that has a black weakly cemented layer over loamy material. Under natural conditions, the water table is within 10 inches of the surface for 1 to 4 months during most years and between 10 and 40 inches for the remainder of the year, except in extended dry periods. The soil rating for septic tank drainfield is severe.

- **Waveland and Immokalee fine sands-** This is poorly drained, very slowly to moderately slowly permeable soils that formed in sandy marine deposits. Under natural conditions, the water table is within a depth of 10 inches for 1 to 4 months and within a depth of 40 inches for 6 months or more for most years. The soil rating for septic tank drainfield is severe.

- **Waveland and Lanwood fine sands, depressional.** This is very poorly drained, very slowly permeable soil. The water table elevation is at grade most of the year and within 10 inches in dry periods.

- **Winder fine sand.** This is a nearly level, poorly drained sand that has a sandy subsurface layer that tongues into a loamy subsoil at a depth of less than 20 inches. Under natural conditions, the water table is within 10 inches of the surface for 2 to 6 months during most years. The soil rating for septic tank drainfield is severe.





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