



Otis Environmenta Consultants

Florida Onsite Sewage Nitrogen Reduction Strategies (FOSNRS)

Preliminary Evaluation of the University of Florida IFAS Gulf Coast Research and Education Center as a FOSNRS Test Facility

RRAC Presentation May 28, 2009

University of Florida, IFAS Facility

Gulf Coast Research and Education Center

Source: http://gcrec.ifas.ufl.edu/



GCREC

- 475 acres of land
- Facility contains research trials for vegetables, small fruit and ornamental plants
- 16 laboratories housed onsite (1 water quality lab)





GCREC Staff on FOSNRS Project Team



Dr. Craig Stanley Associate Center Director



Dr. Gurpal Toor Assistant Professor of Water and Soil Science



GCREC Facility and Proposed Project Area





USDA/NRCS – Soil Survey



Acres in AOI

9.4

5.1

7.1

8.5

22.6

0.9

59.9

113.4

Percent of AOI

8.2%

4.5%

6.3%

7.5%

19.9%

0.8%

52.8%

100.0%

GCREC Soils Assessment

- Typical Florida Flatwoods soils types, which make up over 60% of the area of the State of Florida, if the Everglades Land Resource Area is excluded.
- Proposed facility area consists primarily of Zolfo fine sand and Seffner fine sand
- These flatwoods soils are deep, somewhat poorly drained soils formed in sandy marine sediment
- Wet season high water table estimated at approximately 24 – 40 inches across the proposed study area
- Zolfo fine sand has a spodic horizon that may be more conducive to natural denitrification than other soils.

HAZEN AND SAWVER

GCREC OSTDS Summary

	Primary Treatment	 2 precast septic tanks (series)
		1- 2,500 gallon septic tank
		1- 1,250 gallon septic tank
	Dosing Tank	 1- 3,000 gallon precast pump/dosing tank
	Mound System Drainfield	4,351 ft ² infiltrative area
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		HAZEN AND SAMATE



Septic Tank Effluent Field & Lab Analyses

pH (measured in field)	6.51
Temperature (°C, in field)	25.4
Dissolved Oxygen (mg/L, in field)	0.13
Alkalinity (mg/L)	220
TKN (mg/L)	52
Ammonia (mg/L)	39
Nitrate (mg/L)	0.24
Nitrite (mg/L)	0.022
CBOD ₅ (mg/L)	300
COD (mg/L)	680
Fecal Coliform (Col/100 mL)	10E6
Phosphorus (Total) (mg/L)	8.5
Total Dissolved Solids (mg/L)	590
Total Suspended Solids (mg/L)	80

Piezometer Locations and Water Table Elevations on March 26, 2009



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Recommendations

- The estimated rehabilitation cost for the USF Lysimeter Station Facility exceeds the budget available and could significantly dilute the funds available for a FOSNRS test facility, especially under reduced funding scenarios
- We recommend development a FOSNRS test facility at the GCREC, as the only FOSNRS Test Facility
- Soils at the GCREC are typical Florida Flatwoods Soils, and may be more conducive to natural denitrification, however, this would be desirable for the groundwater modeling work.
- We recommend shifting funds for test facility design and construction in Task A to the design and construction of the test facility for Task C (or vice versa)

