

EXECUTIVE SUMMARY
TR12-3 "SOUTHERN COMFORT BLVD"

5-25-93

J.L. DECKER

- I. SITE LOCATION
- II. WELLSITE HISTORY
- III. GEOLOGY--OLD AND NEW WELLSITE
- IV. HYDROGEOLOGY-OLD AND NEW WELLSITE
- V. RECOMMENDATIONS FOR FUTURE CONSTRUCTION
- VI. WELL CONSTRUCTION

I. SITE LOCATION

The ROMP TR12-3 "Southern Comfort Blvd." wellsite is located near the Tampa International Airport, Hillsborough County, Florida. The wellsite can be found by proceeding 2.3 miles west on Hillsborough Ave. (SR 580). Turn right onto Benjamin Rd. and travel .8 mile north to the first traffic light. Turn left onto Johns Rd. and travel .35 mile. Make a left turn onto Axel Rod St. and travel .35 mile. Turn right onto Idlewild St. and travel .15 mile. The wellsite is located at the corner of Idlewild St. and Southern Comfort Blvd. (Figure 1).

The new TR 12-3 "Southern Comfort Blvd." wellsite is located in the NE ¹/₄ of the SW ¹/₄ of Section 31, Township 28S, Range 18E at latitude 28° 00' 05" and longitude 82° 20' 13". The wellsite has a 20' x 80' permanent easement (Figure 2).

II. WELLSITE HISTORY

In 1988, the Northwest Hillsborough Expressway Authority notified the Southwest Florida Water Management District that the TR 12-3 "Benjamin Rd" wellsite located adjacent to Johns Rd. and near the Tampa International Airport was within the proposed Northwest Expressway right-of-way or limited access alignment.

The Northwest Hillsborough Expressway Authority agreed to replace the TR12-3 "Benjamin Rd." wellsite and drill a new monitor well at a new location. The Northwest Hillsborough Expressway Authority also agreed to plug an existing monitor well and a partially completed monitor well.

A new wellsite, adjacent to North St. and Southern Comfort Blvd., was first selected as a replacement site (Figure 1). The District requested that the Dept. of Transportation provide a title policy and title insurance commitment in the amount of \$25,000 for this

new well. This amount was eventually transferred and used for the well that was drilled on the wellsite located at the corner of Southern Comfort Blvd. and Idlewild St. (Figure 1).

The plugging of the partially completed deep monitor at the old TR 12-3 "Benjamin Rd." wellsite was started on 5-14-92 by Diversified Drilling Company (Figure 3). The well was plugged from 420' to 3' below land surface with Bentonite (Enviroplug). The shallow monitor was also plugged with Bentonite (Enviroplug) from 375' to 3' below land surface (Figure 4). The drilling of the shallow replacement monitor at the intersection of North St. and Southern Comfort Blvd. began on 5-18-92. Surficial quartz sand (LSD-15') clay and limestone (15'-80') was described during the early stages of drilling. The driller from Diversified Drilling Company encountered a quartz sand-filled cavity at 80' below LSD. After drilling to a depth of 320' below LSD and not encountering any competent carbonate rock, it was determined by John Decker, site hydrologist from Southwest Florida Water Management, and consultants from Williams and Associates and Howard, Needles, Tammes, Bergondoff that a monitor well could not be constructed on the permanent easement of this wellsite. Another wellsite location was selected at the corner of Southern Comfort Blvd. and Idlewild St. (Figure 1). The shallow chloride monitor was then constructed on a 20' x 80' permanent easement at this second new location.

Note: the TR12-3 "Benjamin Rd." and the TR 12-3 "Southern Comfort Blvd." wellsite locations are in close proximity. Geologic and hydrologic data was collected, compared from both sites and included in this report. No Executive Summary was ever completed for the TR12-3 "Benjamin Rd" wellsite file.

III. GEOLOGY--OLD AND NEW WELLSITE

The ROMP TR12-3 "Southern Comfort Blvd" wellsite is located about 2 miles from Tampa Bay in Hillsborough County. The wellsite lies within the physiographic province known as the Gulf Coastal Lowlands (Figure 5). The wellsite is located on the Pamlico terrace at an elevation of about 20'. The Pamlico terrace was formed during one of the ancient stands of Pleistocene sea level which inundated the Florida Peninsula during interglacial episodes (White, 1970).

Principal drainage in the vicinity of the new TR12-3 wellsite is Sweetwater Creek. This drainage system empties into Tampa Bay.

The wellsite locality is underlain by terrace deposits and sedimentary units comprising the surficial and upper Floridan aquifer systems. The surface deposits in the wellsite vicinity may belong to Ft. Thompson Group. The designated name for these deposits may have been changed in recent years. Also, the lithostratigraphy of Hawthorn Group (Scott, 1988) will be used in this report to define the Miocene age formational material.

Pleistocene terrace sands (10,000 yrs-1.6 million years) in Hillsborough County are very fine to medium grained quartz sands with minor amounts of heavy minerals (Campbell, 1984). The quartz sands contain organic matter and are slightly iron stained. The thickness of this terrace sand unit is about 10' at the new TR 12-3 wellsite. The Pleistocene terrace sands overlie a clayey residuum extending from 10'-21' below LSD. This upper confining bed belongs to the Undifferentiated Hawthorn Group. The composition of the clayey residuum appears to be composed of illites or mixed layers of illite and montmorillinite. These clays at the TR 12-3 "Southern Comfort Blvd." contain quartz sand, organic material and appear to be a non phosphatic facies of the Hawthorn Group. Note: Carr and Alverson, 1959 reported the occurrence of non phosphatic Hawthorn clays in a small area in the vicinity of Temple Terrace and west of the Hillsborough River.

The Tampa Member of the Arcadia Formation extends from 21' to about 192' below LSD. The Tampa Member, from the description of drill cuttings, consists predominately of limestone, varying amounts of dolostone, clay, quartz sand, chert and organics. Some calcite-filled fractures were described in the drill cuttings.

The Suwannee Limestone of Oligocene age was identified below a chert lens at 192' below LSD. On the basis of lithology, the Suwannee Limestone in Hillsborough County has been divided into three units. These units were not differentiated at the TR12-3 "Southern Comfort Blvd." wellsite. In general, the Suwannee Limestone is composed of a finely-coarsely crystalline and partially to highly recrystallized limestone in the wellsite locality. The base of the Suwannee Limestone was not identified at the new TR 12-3 "Southern Comfort Blvd." wellsite. Drill cuttings were only collected to a depth of 340' below LSD at this new wellsite. Note: the base of the Suwannee Limestone was identified at the depth of 454.5' below LSD at the old TR 12-3 "Benjamin Rd." wellsite.

The Ocala Limestone, a finely granular, microcrystalline limestone, was identified in the core samples from 454.5' to 540' below LSD at the TR 12-3 "Benjamin Rd." wellsite. The depth of the top and base of the Ocala Limestone is probably about the same at the TR 12-3 "Southern Comfort Blvd" wellsite. It is estimated that the top of the Avon Park Formation would probably be encountered between 565' and 620' below LSD in the area where both wellsites exist.

The stratigraphic sequence from land surface to 340' below LSD at the TR 12-3 "Southern Comfort Blvd" wellsite, interpreted from drill cuttings and geophysical logs, are described below. The stratigraphic sequence from 340' to 540.5' below LSD was interpreted from core samples and geophysical logs from the TR 12-3 "Benjamin Rd." wellsite.

STRATIGRAPHIC UNIT/AGE

Well Depth
(Ft. below LSD)

UNDIFFERENTIATED SURFICIAL DEPOSITS
PLEISTOCENE AGE

LSD-10' Sand(quartz); dark gray, yellowish gray, brownish gray; very fine to medium grained, subrounded to angular, medium sphericity; intergranular porosity; brown-black plant remains, organics; sparse phosphatic sand, heavy minerals; moderate porosity and permeability.

10'-21'

HAWTHORN GROUP/ MIOCENE AGE
(UNDIFFERENTIATED HAWTHORN GROUP)

Clay (10'-21'); greenish olive green, moderate yellow green, grayish green; sticky, plastic; illitic or montmorillinitic clay types; dark brown organics, sparse micritic limestone, marl, iron stain, quartz sand; low permeability.

21'-192'

HAWTHORN GROUP/MIOCENE AGE
(TAMPA MEMBER OF THE ARCADIA FORMATION)

Limestone; very light greenish gray, very pale orange, pale greenish yellow, very light gray; interbedded clay, dolostone, chert, quartz sand; calcite-filled fractures (brecciated appearance); trace of phosphatic sand and gravel; pelecypod, gastropod molds and casts, some recrystallization, occasionally dolomitized; intergranular and intragranular porosity; low to moderate porosity and permeability.

192'-454'

SUWANNEE LIMESTONE/OLIGOCENE AGE

Limestone (calcarenite); very pale orange, yellowish gray, very light gray, moderate pink; intergranular, moldic porosity, calcilutitic and calcitic cement; biomicrite, biosparrite, skeletal, pelecypod and gastropod molds, bryozoa, foraminifera-Sorites; calcite; some dolostone lenses and clay-filled fractures; usually moderate porosity and permeability.

454'-540.5'TD.

Ocala Limestone/EARLY EOCENE AGE

Limestone; light yellowish gray, creamy white; intergranular, finely granular, chalky; grain types-calcilutite, skeletal; foraminiferal-Nummulites sp., Lepidocyclina sp., pelecypod fragments-Pectin; low to high porosity and permeability.

IV. HYDROGEOLOGY--OLD AND NEW WELLSITE

The undifferentiated surficial sand and clay deposits and the upper Floridan aquifer system exist in the wellsite locality. A confining bed consisting of clay, extending from 10'-21' below LSD, apparently separates the surficial aquifer system from the upper Floridan aquifer system at the new TR 12-3 "Southern Comfort Blvd." wellsite.

A. SURFICIAL AQUIFER SYSTEM

The undifferentiated surficial sands or terraced sands at the TR 12-3 "Southern Comfort Blvd." wellsite contain water under water-table conditions. The water in aquifer system is derived from local rainfall and runoff. The water level fluctuates not only to seasonal changes, but to local tidal conditions. A surficial monitor was not constructed at the new TR 12-3 wellsite location.

B. INTERMEDIATE AQUIFER SYSTEM

A confining bed (10'-21' below LSD), overlying the upper Floridan aquifer system at the TR 12-3 "Southern Comfort Blvd." wellsite, is composed of clays belonging to the Undifferentiated Hawthorn Group. There does not appear to be an intermediate aquifer system in the wellsite locality.

C. UPPER FLORIDAN AQUIFER SYSTEM

In Hillsborough County, the upper Floridan aquifer system includes the Avon Park Formation, Ocala Limestone, Suwannee Limestone, and part or most of the Tampa Member of the Arcadia Formation. Until more data is acquired for interpretation in the wellsite locality, the top of the upper Floridan aquifer appears to coincide with the top of the Tampa Member (21' below LSD) at the TR 12-3 "Southern Comfort Blvd." wellsite. Zones of high permeability are distributed erratically through the upper Floridan aquifer system in the wellsite vicinity. Numerous quartz sand-filled sinkholes appear to breach the confining beds. The loss of circulation while drilling the chloride monitor at this wellsite was noted during drilling operations. This indicates the presence of cavities that are probably the result of solution dissolution by groundwater. One such quartz sand-filled cavity was identified at the first replacement wellsite located about 100 yards from the original TR 12-3 "Benjamin Rd." wellsite. The sand-filled cavity was identified as beginning at 80' and below the confining beds of the Undifferentiated Hawthorn Group, within the Tampa Member (Arcadia Formation) and extending into the Suwannee Formation. Drilling ceased at 320' below LSD. The base of this sand-filled cavity was not identified.

Water movement in the limestones appears to be restricted to solution zones that have developed along joints, faults and bedding

planes. Sinkholes and sand-filled cavities eventually develop under these conditions and become recharge routes. The Tampa Member of the Arcadia Formation (Hawthorn Group) and the Suwannee Limestone are the units which contain the sinkholes in the wellsite locality. These sinkholes appear to occur in a line or have coalesced to form a linear depression. Distribution of springs and the linearity of surface features in the wellsite area suggest the existence of faulting (Menke, Meredith, Wetterhall, 1961). A northwest trending fault may exist in the wellsite locality. The Tampa Member of the Arcadia Formation and the Suwannee Limestone probably belong to upper hydrologic unit of the Floridan aquifer system. The Ocala limestone behaves as a semiconfining between the Tampa Member, Suwannee Limestone and the underlying Avon Park Formation. The Avon Park Formation appears to form another hydrologic unit in the wellsite locality. The two units are probably connected hydraulically by solution openings along structural planes that may be faults (Menke, Meredith, Wetterhall, 1961).

In most parts of Hillsborough County, the Tampa Member of the Arcadia Formation, the Suwannee and Ocala Limestones, and the Avon Park Formation are essentially a single hydrologic system (Menke, Meredith, Wetterhall, 1961).

Although, some of the water in the upper Floridan aquifer system moves into Hillsborough County from Pasco and Polk Counties, the greater part of the water in the aquifer is introduced either by percolation through the confining beds or sinkholes that may or may not be sand-filled. The rate of flow is determined in part by the porosity and the hydraulic gradient (Menke, Meredith, Wetterhall, 1961).

During coring operations, potentiometric surface measurements varied between 8.5' and 9.8' below LSD while coring between the depths of 39.5' and 540.5' below LSD at the old TR 12-3 "Benjamin Rd." wellsite. While constructing the chloride monitor at the TR 12-3 "Southern Comfort Blvd." wellsite during June and July of 1992, potentiometric surface measurements ranged between 8.24' and 9.43' below LSD. The most significant change occurred between 122' and 162' below LSD. This change in potentiometric surface did not appear to occur during coring operations at the old TR 12-3 "Benjamin Rd." wellsite. This interval at the TR 12-3 "Southern Comfort Blvd." is composed of low porosity and low permeable limestone, interbedded with dolostone and clay, whereas, the same interval at the old TR 12-3 "Benjamin Rd." is adjacent to a sand-filled cavity.

A slight increase in temperature occurred on the geophysical log trace near the depth of 110' at the TR 12-3 "Benjamin Rd." wellsite. The same change in temperature appeared to occur at the TR 12-3 "Southern Comfort Blvd." wellsite, but closer to the depth of 130'.

The top of upper Floridan aquifer system, as indicated earlier in this report, appears to be the top of the Tampa Member (Arcadia Formation). The top of the Tampa Member at the TR 12-3 "Benjamin Rd." was identified at the depth of 38.5' below LSD. The top of the Tampa Member was identified at 21' below LSD at the TR 12-3 "Southern Comfort Blvd." wellsite.

The following water quality results are from both wellsites. During construction of the corehole well, water quality results between the depth of 38' and 359.5' were recorded in late 1982. Specific conductivities ranged between 390 and 725 Umhos. Chlorides ranged from 21 to 170 mg/l, while sulfates remained relatively low, ranging from 9 to 72 mg/l. These water quality results were used as a comparison with the following water samples that were collected during construction of the chloride monitor at the TR 12-3 "Southern Comfort Blvd." wellsite during June 1992. Specific conductivity ranged between 580 and 680 Umhos while drilling between 102' and 339' below LSD. Chlorides ranged between 64 and 85 mg/l, while the sulfates ranged between 7 and 28 mg/l. According to the fluid resistivity log profile, a slight decrease in water quality occurs between 245' and 252' below LSD.

Some degradation of water quality has apparently been occurring since the TR 12-3 "Benjamin Rd" wellsite was cored in 1982. Prior to plugging the chloride monitor located on the TR 12-3 "Benjamin Road" wellsite, specific conductivity was about 1400 Umhos between the depths of 310' and 345' below LSD. Chlorides ranged between 290 and 300 mg/l, while sulfates ranged from 51 to 64 mg/l.

Water quality sampling results were collected for analyses between the depth of 359.5' and 504.5' below LSD during coring operations (1981-82) at the TR 12-3 "Benjamin Rd." wellsite. The first water quality anomaly occurred at 369.5' below LSD. After a high specific conductivity value of 1725 Umhos, conductivity dropped to a value of 1000 Umhos at 469.5' below LSD. The chloride concentration was 485 mg/l, but rose to a value of 220 mg/l. The sulfate concentration was 120 mg/l, but then improved to a value of 72 mg/l. The higher value is near the base of the Suwannee Limestone. The 1725 Umhos conductivity value may be due lateral or horizontal movement of poor quality water through permeable limestone originating from Tampa Bay. This channeling effect has been observed in other areas around Tampa Bay. The movement of poor quality water within this zone may also have migrated through sinkholes or through interconnected solution fractures and cavities in the limestone in isolated localities. This poor water quality may also have been artificially induced by pumping from the now abandoned Benjamin Rd. wellfield.

Below this first anomaly zone, the water quality improved. Water quality samples collected from the interval (419.5'-509.5' below

LSD) had specific conductivity values ranging from 875 to 925 Umhos. Chloride concentrations ranged from 155 to 165 mg/l, while sulfate concentrations ranged from 50 to 57 mg/l.

The second water quality anomaly zone occurred in the interval extending from 519.5' to 540.5' below LSD. Water quality samples retrieved this last part of coring operations indicated a substantial drop in water quality. Specific conductivity values ranged from 2150 to 2650 Umhos. Chloride concentrations ranged from 760 to 910 mg/l, while sulfate concentrations ranged 145 to 215 mg/l. This may be a transition zone above the top of the freshwater/saltwater interface.

V. RECOMMENDATIONS FOR FUTURE CONSTRUCTION

It is recommended that a deep chloride well be constructed to monitor the upward movement of poor water quality through an open hole interval between 500' and 520' below LSD. A water table or surficial monitor should also be constructed on the TR 12-3 "Southern Comfort Blvd." wellsite.

VI. WELL CONSTRUCTION

The shallow chloride monitor was designed for the purpose of monitoring water quality and fluctuations in potentiometric surface in the Suwannee Limestone (Figure 6). This well will serve as a monitor of future upward movement of high chlorides.

The construction of the shallow chloride monitor (Suwannee Limestone) was initiated by drilling an eighteen inch (18") dia. borehole from land surface to 35' below LSD. Twelve inch (12") dia. steel casing was set in the borehole with four centralizers and cement grouted to land surface. A twelve inch (12") nominal borehole was drilled to a depth of 305' below LSD. Six inch (6") dia. PVC casing was set at 295' below LSD and cement-grouted to land surface. A six inch (6") dia. nominal borehole was then drilled out of the casing to a depth of 342' below LSD. A six inch (6") extension was installed, extending to 3.5' above LSD, for the purpose of accommodating a recorder.

REFERENCES

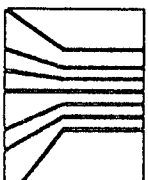
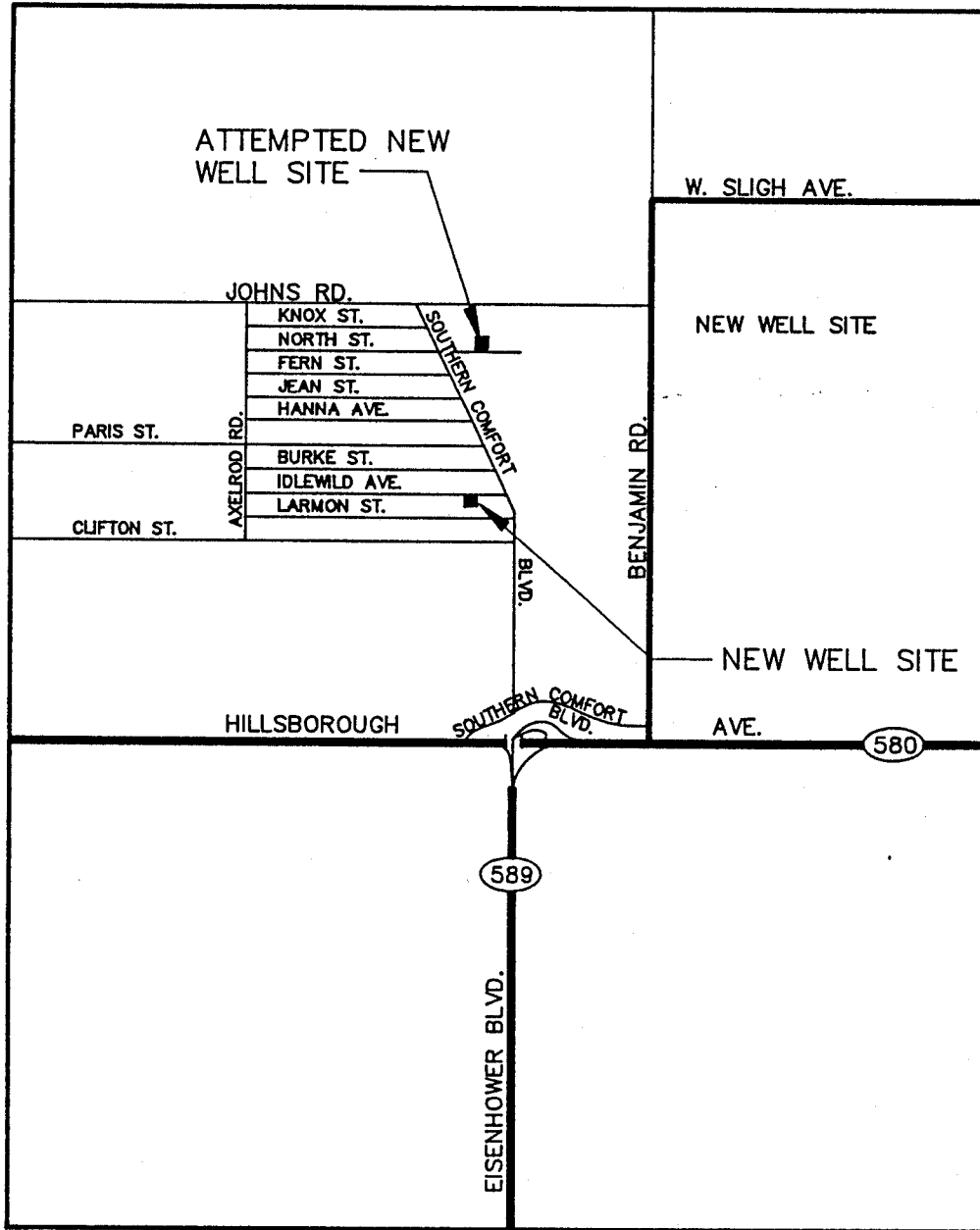
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BROMWELL & CARRIER, INC.
 NORTHWEST HILLSBOROUGH EXPRESSWAY
 HILLSBOROUGH COUNTY, FLORIDA

SITE LOCATION MAP

Drawn By: P J G	Date: 7/06/92	Scale: N.T.S.
Checked By: M K M	Report No. 9392025	Figure No. 1

FIGURE 1.

7/06/92

SITE

LEGAL DESCRIPTION:

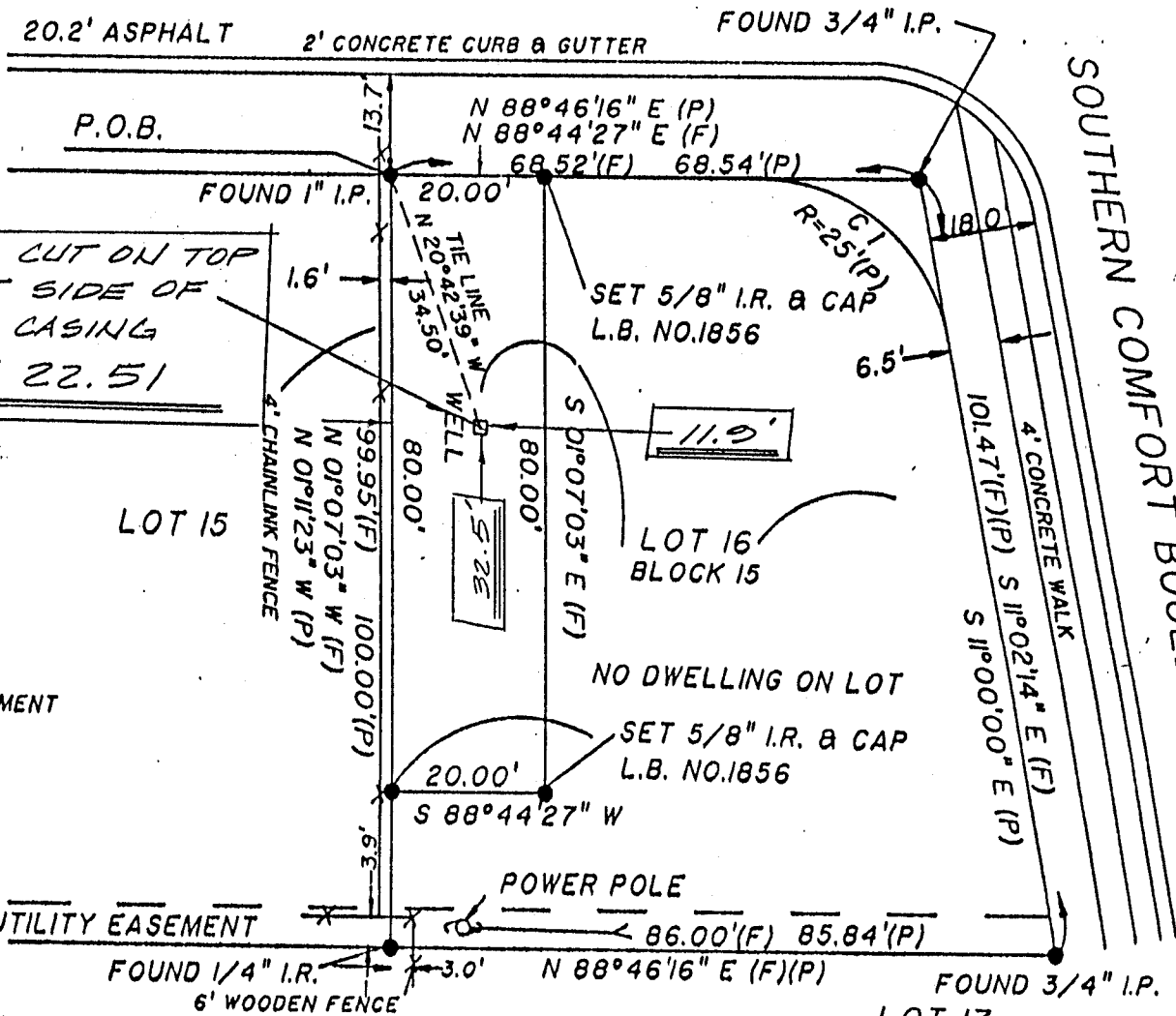
That part of Lot 16, Block 15 of Southern Comfort Homes, Unit No. 2, as per map or plat thereof, as recorded in Plat Book 35, Page 26 of the Public Records of Hillsborough County, Florida;

Being more particularly described as follows:

Beginning at the Northwest corner of said Lot 16; thence North $88^{\circ} 44' 27''$ East along the Southerly right-of-way line of Idlewild Street, a distance of 20.00 feet; thence South $01^{\circ} 07' 03''$ East and parallel to the Westerly line of Lot 16, a distance of 80.00 feet; thence South $88^{\circ} 44' 27''$ West and parallel to the Southerly right-of-way line of Idlewild Street, a distance of 20.00 feet to a point on the Westerly lot line of Lot 16; thence North $01^{\circ} 07' 03''$ West along the Westerly line of Lot 16 a distance of 80.00 feet to the POINT OF BEGINNING.

Containing 1600 square feet, more or less.

IDLEWILD STREET (50' R/W)



CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	25.00	35.00	21.00	32.21	N $85^{\circ} 50' 55''$ W	$80^{\circ} 13' 20''$

SCALE: 1" = 25'

- LEGEND**
- P = PLAT
 - F = FIELD MEASUREMENT
 - IP = IRON PIPE
 - IR = IRON ROD

NOTES:

- ALL LINEAR DIMENSIONS ARE IN FEET AND DECIMAL PARTS THEREOF.
- LOT GEOMETRY AND BEARINGS DEPICTED HEREON BASED UPON THE SOUTHERLY LOT LINE OF LOT 16 BEING N $88^{\circ} 46' 16''$ E
- NO UNDERGROUND ENCROACHMENTS AND/OR UTILITIES WERE LOCATED.

SOUTHERN COMFORT HOMES UNIT NO. 1
PLAT BOOK 35, PAGE 9

NOT VALID UNLESS EMBOSSED WITH A SURVEYOR'S SEAL

FIGURE 2

1-21-92

TR12-3 "BENJAMIN ROAD" WELL DESIGN PRIOR TO PLUGGING DEEP MONITOR

J.L. DECKER

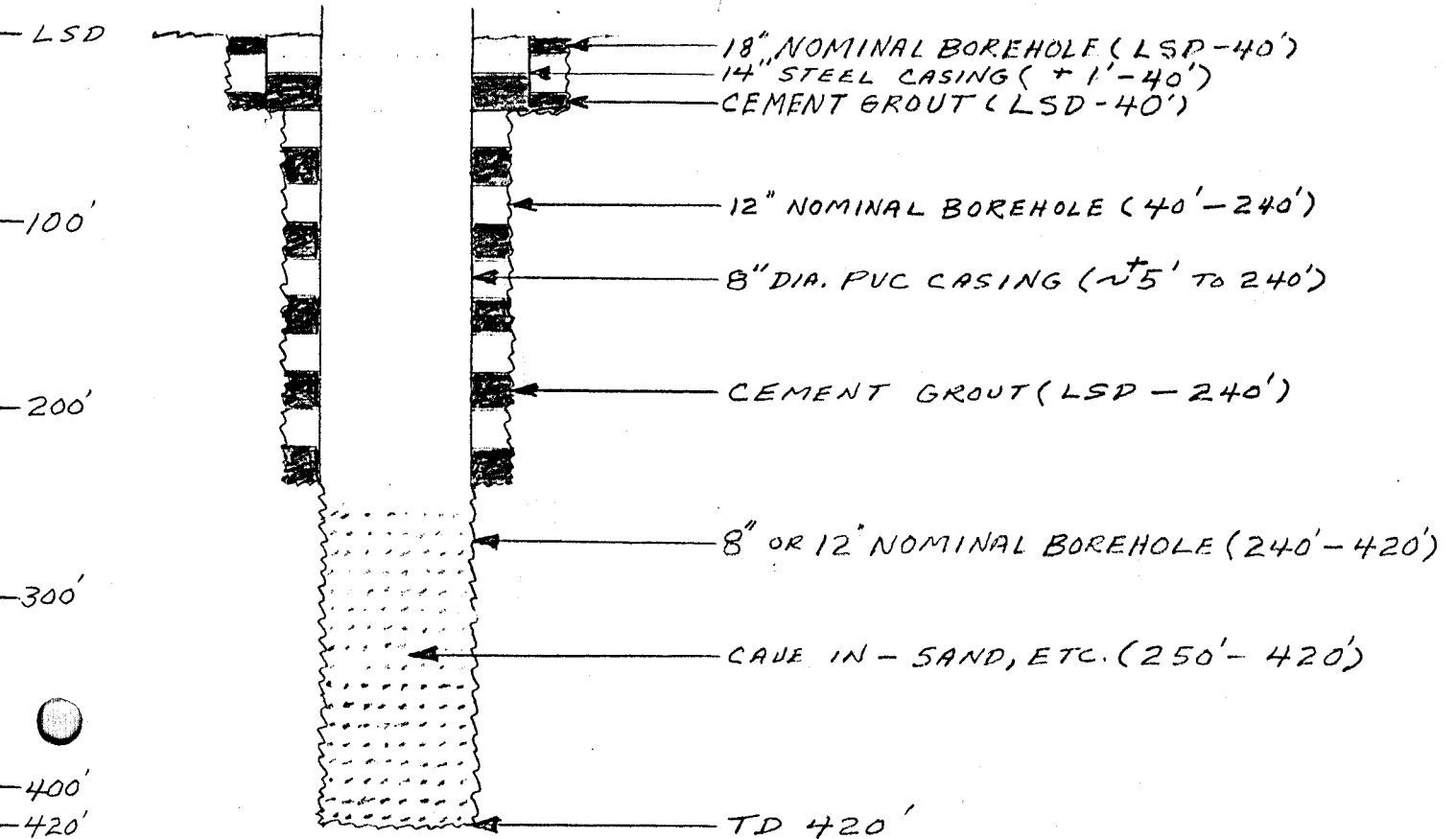
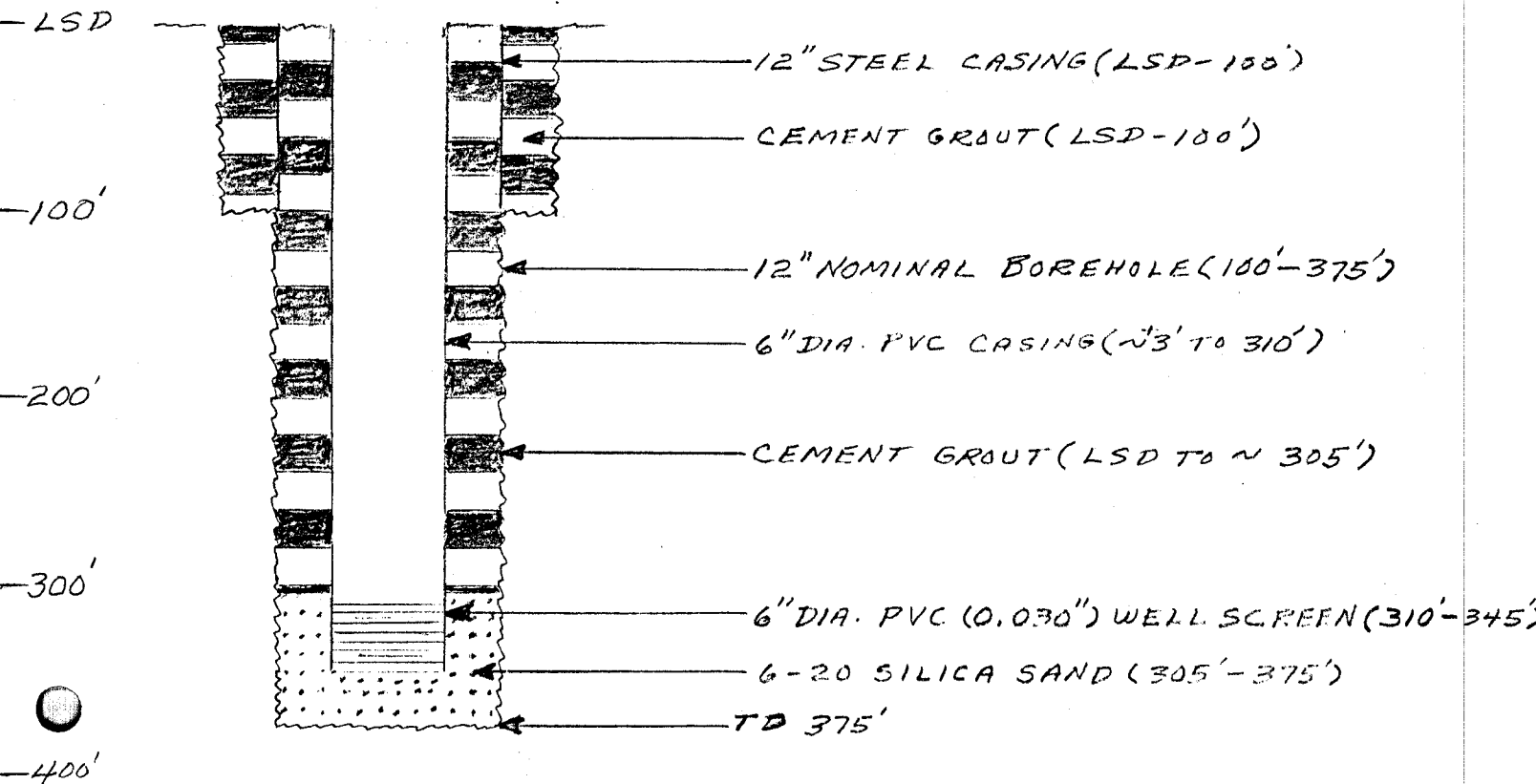


FIGURE 3

1-22-92

TR/2-3 "BENJAMIN ROAD" J.L. DECKER
WELL DESIGN PRIOR TO PLUGGING
SHALLOW MONITOR



PLUGGING PROCEDURES - SHALLOW MONITOR

1. PLUG 6" DIA. SCREENED INTERVAL (310'-345') AND 6" DIA. PVC CASING FROM 310' TO 3' BELOW LSD WITH NEAT CEMENT (TYPE 1).
2. CUT OFF 12" DIA. STEEL CASING AND 6" DIA. PVC CASING ABOUT 3' BELOW LAND SURFACE
3. FILL IN DEPRESSION WITH DIRT.

FIGURE 4

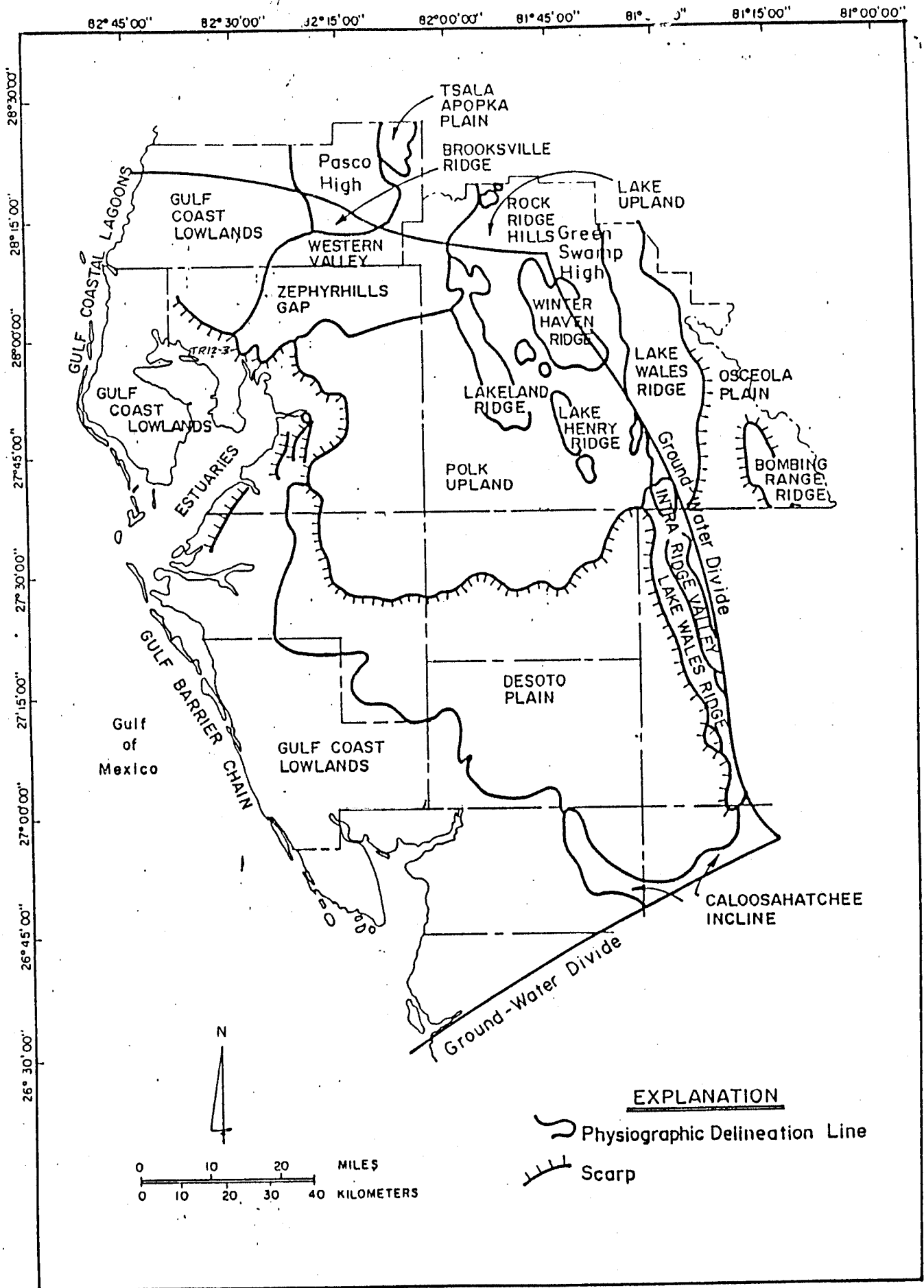


Figure 5. Physiographic map of the Southern West-Central Florida Ground-Water Basin (modified from White, 1970)

06-11-92

ROMP TR12-3 "SOUTHERN COMFORT BLVD."

J.L. DECKER

UPPER FLORIDAN AQUIFER SYSTEM
SUWANNEE FORMATION--CHLORIDE MONITOR

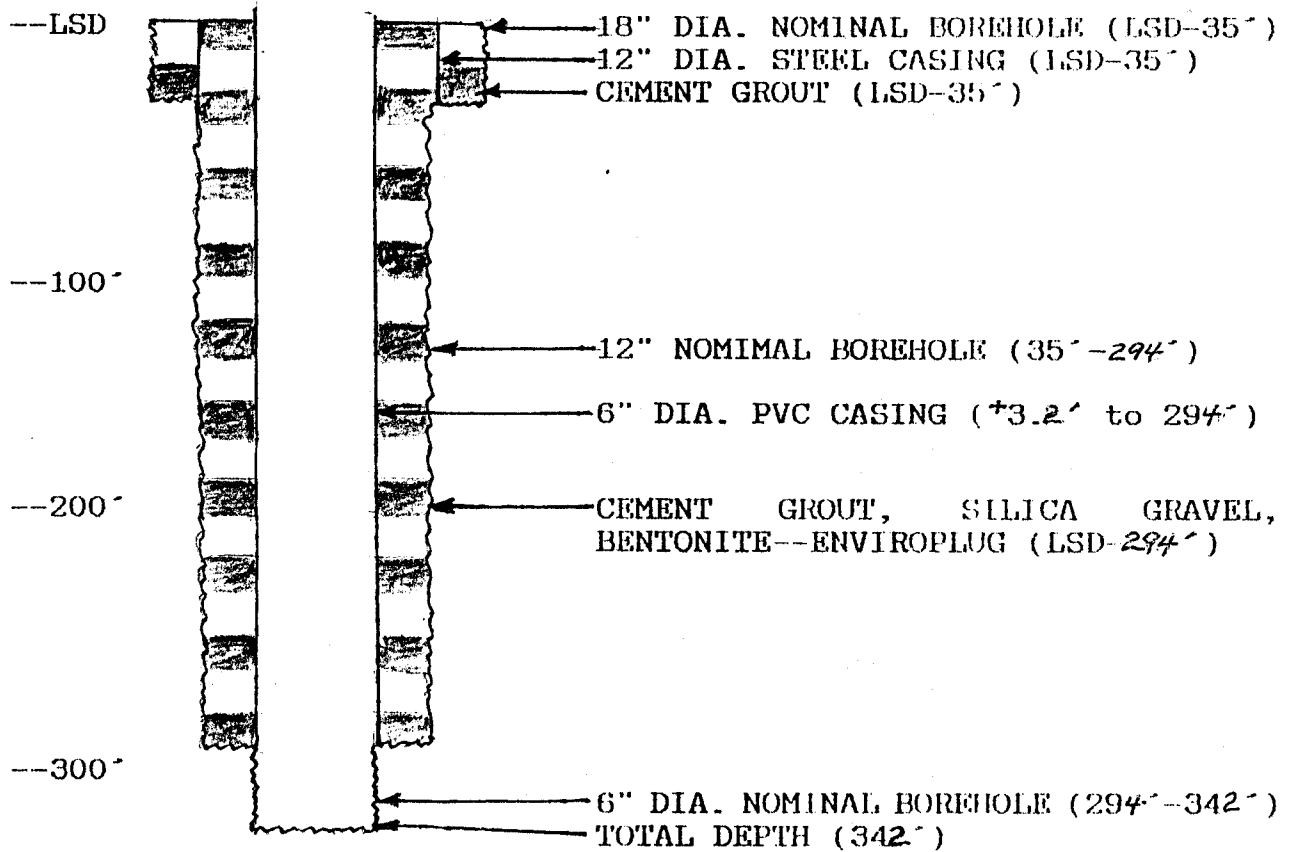


FIGURE 6

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W- 15494
TOTAL DEPTH: 540.5 FT.
SAMPLES - NONE

COUNTY - HILLSBORO
LOCATION: T.28S R.18E S.32
LAT = N 28D 00M 24
LON = W 82D 32M 44

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 022 FT

OWNER/DRILLER: SWFWMD; ROMP TR 12-3 ;

WORKED BY: HENDERSON, NEW AND DECKER; CODED AND ENTERED BY RICHARD GREEN
AND TOM SEAL FROM A GEOLOGIST'S LOG PROVIDED BY SWFWMD.
THIS SITE IS LOCATED NEAR BENJAMIN ROAD, 1/2 MILE NORTH OF
HILLSBOROUGH AVENUE AND 2 MILES WEST OF DALE MABRY HIGHWAY
ON JOHN'S ROAD IN HILLSBOROUGH COUNTY.
FORMATION PICKS ARE TENTATIVE AND BASED UPON PRELIMINARY DATA.
CUTTINGS LSD TO 39.5', CORE 39.5' TO TD.

0. - 16. UNDIFFERENTIATED SAND AND CLAY
16. - 134. HAWTHORN GROUP
38.5- 134. TAMPA MEMBER OF ARCADIA FM.
134. - 374.5 SUWANNEE LIMESTONE
374.5- 449. CRYSTAL RIVER FM.
449. - . WILLISTON FM.

- 0 - 5 SAND; LIGHT GRAY TO WHITE; INTERGRANULAR;
GRAIN SIZE: FINE;
MODERATE POROSITY, MODERATE PERMEABILITY
- 5 - 10 SAND; LIGHT TAN TO LIGHT BROWNISH GRAY; INTERGRANULAR;
GRAIN SIZE: FINE;
ACCESSORY MINERALS: ORGANICS-01%;
MODERATE POROSITY, MODERATE PERMEABILITY
- 10 - 16 SAND; LIGHT TAN; INTERGRANULAR;
GRAIN SIZE: FINE;
CEMENT TYPE(S): ORGANIC MATRIX;
ACCESSORY MINERALS: ORGANICS-%;
MODERATE POROSITY, MODERATE PERMEABILITY, SOME BLACK ORGANICS GIVING THIS SECTION A CLAYEY
CONSISTENCY.
- 16 - 25 CLAY; LIGHT GREEN TO LIGHT GREENISH GRAY; LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: ORGANICS- %, LIMESTONE-01%;
OTHER FEATURES: PLASTIC;
DENSE BUT SOFT, STICKY-VERY PLASTIC, MONTMORILLINOTIC, TRACE OF CREAM CHALKY BIOMICRITE
FRAGMENTS, DK BRN ORGANICS, LOW POROSITY

- 25 - 38.5 CLAY; LIGHT GREEN TO LIGHT GREENISH GRAY; LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: LIMESTONE- %, PHOSPHATIC SAND- %, ORGANICS- %;
OTHER FEATURES: PLASTIC;
CLAY AS ABOVE MIXED WITH LT TAN-CREAM-LT GRAY, MODERATELY HARD, PHOSPHATIC SPARSE
BIOMICRITE, SOME YELLOWISH ORANGE LIMONITIC STAINING, TRACE OF BLK ORGANICS, MODERATE
POROSITY
- 38.5- 39.5 LIMESTONE; WHITE TO LIGHT GRAY; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-%;
VERY SANDY MICRITE, MODERATE POROSITY
- 39.5- 44.5 LIMESTONE; WHITE TO LIGHT GRAY;
GRAIN TYPE: CALCILUTITE;
MODERATE INDURATION;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: CLAY- %, ORGANICS- %, CHERT- %;
OTHER FEATURES: WEATHERED, CHALKY;
WEATHERED MICRITE, LAMINATED AND SLIGHTLY VUGULAR, SOME BLACK ORGANICS W/ DK GRAY CHERT?
LAYER AT BOTTOM OF SECTION, SOME DK GRAY ORGANICS INFILLING LOWER PART OF SECTION,
LOW-MODERATE POROSITY, MOD. PERMEABILITY
- 44.5- 49.5 LIMESTONE; WHITE TO LIGHT GRAY; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
MODERATE INDURATION;
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: WEATHERED;
SLIGHTLY PASTY, CLAYEY, WEATHERED MICRITE, SLIGHTLY VUGULAR, BOTTOM 1' OF SECTION
LAMINATED, WITH A 1/2" THICK LIGHT GRAY CLAY LENSE NEAR BOTTOM OF SECTION, LOW POROSITY,
L-M PERM
- 49.5- 50 LIMESTONE; LIGHT TAN; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: CHERT- %;
OTHER FEATURES: WEATHERED;
L POROSITY
- 50 - 54.5 LIMESTONE; LIGHT TAN TO LIGHT GRAY; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
MODERATE INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: ORGANICS-01%, CHERT- %;
OTHER FEATURES: CHALKY, WEATHERED;
SLIGHTLY VUGULAR MICRITE, L POROSITY AND M PERM., BECOMES A HARDER BIOMICRITE WITH SOME
CHERT AND PELECYPOD CASTS AND MOLDS NEAR BOTTOM OF SECTION

- 54.5- 59.5 CALCILUTITE; TAN TO CREAM;
GRAIN TYPE: CALCILUTITE;
MODERATE INDURATION;
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: WEATHERED;
FOSSILIFEROUS MICRITE, PASTY, CONTAINS SOME PELECYPOD INTRACLASTS AND SPARRY CALCITE
REPLACEMENT IN MOLDS AND VUGS AS LININGS, CLAY IS SLIGHTLY SANDY, TAN, LOW POROSITY
- 59.5- 64.5 AS ABOVE
PELECYPODS AND GASTROPODS, INFILLED WITH TAN, SANDY, CALCAREOUS CLAY, MODERATE PERM,
EROSIONAL UNCONFORMITY AT 64.5'.
- 64.5- 69.5 AS ABOVE
APPARENTLY SURFICIALLY EXPOSED AND WEATHERED, SCORICEOUS-BRECCIATED TEXTURE, VOIDS ARE
PARTIALLY FILLED BY SILICA, PYRITE, AND SPARRITE, ALL REMAINING VOIDS ARE FILLED W/ TAN
CLAY AS ABOVE
- 69.5- 74.5 AS ABOVE
MICRITE AS ABOVE FILLED BY TAN, SANDY (FINE, WELL ROUNDED, QTZ SAND) CLAY, SECTION ALSO
CONTAINS SOME THIN LENSES OF GRAYISH BLACK CHERT, REPLACED LS WHICH CONTAINS COMMON FORAM
GHOSTS, LOW PERMEABILITY OVERALL.
- 74.5- 77 CALCILUTITE; TAN;
GRAIN TYPE: CALCILUTITE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %;
OTHER FEATURES: FOSSILIFEROUS;
PASTY, CONTAINS CALCAREOUS CLAY AS ABOVE AND SOME QTZ SAND LITHOCLASTS, UNCONFORMITY -
TRANSITIONAL ZONE AT 77'
- 77 - 78 CALCILUTITE; LIGHT GRAY TO TAN;
GRAIN TYPE: CALCILUTITE;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: CHERT- %;
OTHER FEATURES: DOLOMITIC, CHALKY;
FOSSILIFEROUS MICRITE
- 78 - 79.5 CALCILUTITE; TAN TO MODERATE GRAY;
OTHER FEATURES: DOLOMITIC;
CONTAINS FOSSIL GHOSTS WHICH ARE NOT IDENTIFIABLE.
- 79.5- 84.5 CALCILUTITE; ;
GRAIN TYPE: CALCILUTITE;
SEDIMENTARY STRUCTURES: BRECCIATED,
OTHER FEATURES: DOLOMITIC, FOSSILIFEROUS;
FORMERLY A BIOMICRITE OR BIOSPARITE WHICH HAS BEEN WEATHERED, ROUNDED, AND RECONSOLIDATED,
PARTIALLY DOLOMITIZED THROUGHOUT AND INFILLED WITH MORE RECENT? MICRITIC LS.

- 84.5- 89.5 CALCILUTITE; ;
GRAIN TYPE: CALCILUTITE;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: CLAY-%;

GREYISH TAN OR OFF-WHITE, WEATHERED, FORMERLY A BIOMICRITE? WHICH HAS BEEN RECONSOLIDATED AND INFILLED, CONTAINS MINOR CALC. CLAY AS INFILL, CHALKY, PASTY.

- 89.5- 95.5 CALCILUTITE; LIGHT TAN TO LIGHT GRAY; VUGULAR;
GRAIN TYPE: CALCILUTITE;
CEMENT TYPE(S): SILICIC CEMENT;
SEDIMENTARY STRUCTURES: BRECCIATED, MOTTLED,
ACCESSORY MINERALS: PYRITE- %, CHERT- %, QUARTZ SAND- %;
OTHER FEATURES: WEATHERED;
FORMERLY A BIOMICRITE, DOLOMITIZED, FOSSILIFEROUS, CONTAINS TAN, BOTRYOIDAL CHERT LENSES AS CEMENT AND INFILL THROUGHOUT, ALSO CONTAINS PYRITIC MOTTLING ALONG FRACTURES AND VUGS, MINOR QTZ SAND LITHOCLASTS, FOSSIL GHOSTS EXIST ONLY AS VUGS (OFTEN FILLED), THE BOTTOM 2' OF THE SECTION IS BETTER LITHIFIED AND LESS BRECCIATED.

- 95.5- 99.5 CALCILUTITE; LIGHT GRAY;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %;
OTHER FEATURES: CHALKY, WEATHERED, DOLOMITIC;
CONTAINS FINE, WELL ROUNDED QTZ SAND IN A MICRITE MATRIX. CONTAINS ERODED FOSSIL GHOSTS, LOW POROSITY

- 99.5- 102.5 CALCILUTITE; LIGHT GRAY;
GRAIN TYPE: CALCILUTITE;
ACCESSORY MINERALS: SPAR- %, CLAY- %;
OTHER FEATURES: CHALKY;
MINOR SPAR, MEDIUM OLIVE GREEN WAXY CLAY BLEBS AS BRECCIA.

- 102.5- 104.5 DOLOSTONE; LIGHT GRAY TO TAN; LOW PERMEABILITY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: BANDED, BRECCIATED, MOTTLED,
ACCESSORY MINERALS: PYRITE- %, SPAR- %;
OTHER FEATURES: DOLOMITIC;
LAYERED AND BANDED W/ SOME BRECCIATED ZONES, CONTAINS SOME EVIDENCE OF FORMER SPARITE MOLD REPLACEMENT SOME DOLOMITIZED AND MINOR PYRITIC MOTTLING IN BANDS, TIGHT, HARD, CONFINER

- 104.5- 108.5 DOLOSTONE; LIGHT GRAY;
GOOD INDURATION;
ACCESSORY MINERALS: SPAR- %, QUARTZ- %;
OTHER FEATURES: FOSSILIFEROUS;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA;
LOW POROSITY, REPLACED BIOMICRITE, VERY FOSSILIFEROUS, TIGHT, WELL COMPACTED, CONTAINS BOTH SPARITE AND CRYSTALLINE QTZ FOSSIL REPLACEMENT, MANY MOLDS OF COMMON FOSSILS (INCLUDING GASTROPODS)

- 108.5- 109.5 CHERT; LIGHT BROWNISH GRAY; LOW PERMEABILITY;
ACCESSORY MINERALS: CLAY- %, QUARTZ SAND- %, PYRITE-%;
TOP OF SECTION IS A CHERT LENS WHICH CONTAINS PYRITIC MOTTLING, BELOW THIS CALCAREOUS CLAY WHICH CONTAINS ABUNDANT FINE, WELL ROUNDED QTZ SAND.
- 109.5- 114.5 CALCILUTITE; LIGHT TAN TO LIGHT GRAY; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %, SHELL-%;
HIGH PERCENTAGE OF WELL ROUNDED QTZ SAND AND OSTREA FOSSILS (MINOR) SPREAD THROUGHOUT, ALL VOIDS AND FOSSILS HAVE BEEN RECRYSTALLIZED AND REPLACED BY EITHER CALCITE OR QTZ, HARD, DENSE, WELL COMPACTED, LOW PERMEABILITY.
- 114.5- 119.5 CALCILUTITE; LIGHT TAN TO LIGHT GRAY;
GRAIN TYPE: CALCILUTITE;
ACCESSORY MINERALS: QUARTZ SAND- %, PYRITE- %, CLAY- %;
FOSSILS: MOLLUSKS, CORAL, BENTHIC FORAMINIFERA;
FINE WELL ROUNDED QTZ SAND AND MINOR PYRITIC MOTTLING. THROUGHOUT, PURER MICRITE THAN ABOVE, POORLY PRESERVED FOSSILS (SOME GASTROPODS), ALSO CONTAINS SOME CLAY INFILL (TAN, SEMI-WAXY).
- 119.5- 124.5 CALCILUTITE; LIGHT GRAYISH BROWN; LOW PERMEABILITY, VUGULAR;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %, QUARTZ- %, PYRITE- %;
OTHER FEATURES: DOLOMITIC;
LOW POROSITY, DENSE, COMPACT, PARTIALLY DOLOMITIZED THROUGHOUT, VUGS OR POCKETS OF BOTRYOIDAL QTZ CRYSTALS (FOSSIL GHOSTS?) MINOR PYRITIC MOTTLING. CAVITY FROM 121-123'.
- 124.5- 129.5 CALCILUTITE; LIGHT GRAYISH BROWN;

DOLOMITIZED, SOFTER THAN ABOVE, FRIABLE, SANDY, MIXED OR INFILLED WITH TAN CLAY, SOFT, SANDY, SEMI-WAXY.
- 129.5- 130.5 AS ABOVE
HARD, DENSE, COMPACT.
- 130.5- 134 CLAY; LIGHT GRAY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-%;
MODERATE TO LOW PERMEABILITY, HIGH POROSITY. SLIGHTLY DOLOMITIC?, MAY CONTAIN CALCIC SILT OR SAND.
- 134 - 134.5 CALCILUTITE; ;
LIKE 129.5-130.5'. CONTAINS PYRITE ALONG FRACTURES AND AS INFILL IN VOIDS.
- 134.5- 135.5 CALCILUTITE; LIGHT GRAY TO MODERATE GRAY; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
ACCESSORY MINERALS: CLAY- %, QUARTZ SAND- %;
OTHER FEATURES: DOLOMITIC;

- 135.5- 137 CALCILUTITE; LIGHT GRAY; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %, PYRITE-%;
DOLOMITIC, VERY HARD, DENSE, WELL COMPACTED, MINOR QTZ SAND (FINE, WELL ROUNDED AND SORTED), THIS SECTION CONTAINS NEARLY VERTICAL FRACTURES LINED W/ PYRITE XLS.
- 137 - 139.5 CLAY; TAN TO LIGHT BROWN;
ACCESSORY MINERALS: QUARTZ SAND- %, SILT- %, PYRITE-%;
DENSE, VERY SANDY OR SILTY, SOMEWHAT WAXY, MINOR PYRITE.
- 139.5- 142 CALCILUTITE; ;
LIKE 135.5-137'.
- 142 - 144.5 CLAY; ;
GRADES FROM A BRECCIATED MIX OF THE ABOVE DOLOSTONE AND LT OLIVE GREEN CLAY BLEBS TO CLAY-LT OLIVE GREEN, SEMI WAXY SOFT, AND BACK TO A MICRITIC MARL, HARDER, STIFF, PASTY, OVERALL LOW PERMEABILITY THROUGHOUT SECTION.
- 144.5- 148 CALCILUTITE; WHITE; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CLAY-%;
VERY FINE, PASTY, OR CLAYEY, INFILLED FOSSIL GHOSTS?
- 148 - 149.5 CLAY; WHITE; LOW PERMEABILITY;
HIGH POROSITY, ABOVE LS GRADES INTO A CALCAREOUS CLAY, PASTY, STIFF, CONTAINS MICRITIC SILT. PYRITIZATION HAS STOPPED IN THE LAST 10' OF CORE APPARENTLY DUE TO A CHANGE IN THE POST-DEPOSITIONAL ENVIRONMENT.
- 149.5- 154.5 AS ABOVE
VERY POOR RECOVERY DUE TO BLOCKAGE OF CORE BIT. DRILLER REPORTS CALCAREOUS CLAY SIMILAR TO ABOVE.
- 154.5- 159.5 LIMESTONE; WHITE TO CREAM; POSSIBLY HIGH PERMEABILITY, VUGULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: SPAR- %, PYRITE- %;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;
FORAM BIOMICRITE, RELATIVELY DENSE, NOT FRIABLE, CONTAINS MANY COMMON FOSSILS MOSTLY AS MOLDS AND TYPICALLY HEAVILY ERODED, MINOR SPAR AND PYRITE, THIS SECTION ALTHOUGH DENSE CONTAINS NUMEROUS VERTICAL AND HORIZONTAL SOLUTION PIPES (ERODED WORM BORINGS?) WHICH COULD ALLOW FOR A HIGH PERMEABILITY. THESE SOLUTION PIPES ARE STAINED GREEN THROUGHOUT SECTION (ALGAE?).

- 159.5- 163 LIMESTONE; WHITE TO LIGHT GRAY; VUGULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
ACCESSORY MINERALS: SPAR- %, QUARTZ SAND- %;
FOSSILS: FOSSIL MOLDS;
BIOMICRITE, SIMILAR TO ABOVE EXCEPT MORE DENSE, FEWER FOSSILS, MINOR WELL ROUNDED AND
SORTED QTZ SAND, COMMONLY THIS SECTION CONTAINS PASTY CALC. MUD AS INFILL OF SOLUTION
FRACTURES AND MOLDS, MINOR RECRYSTALLIZATION.
- 163 - 164.5 CLAY; WHITE; LOW PERMEABILITY; POOR INDURATION;
OTHER FEATURES: CALCAREOUS;
VERY DENSE, SOFT LIME MUD AND CLAY, PASTY.
- 164.5- 169.5 LIMESTONE; LIGHT TAN TO CREAM;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
ACCESSORY MINERALS: CLAY- %, PYRITE- %;
OTHER FEATURES: FOSSILIFEROUS;
GRADES FROM A MICRITE TO A BIOMICRITE, SOME THIN ZONES ARE HIGHLY FOSSILIFEROUS AND
CONTAIN QTZ SAND, OTHERS ARE PASTY VERY PURE MICRITE. SOME DK GREEN CLAY AND PYRITE AS
INFILL IN POROUS ZONES. THIS SECTION APPARENTLY REFLECTS SHIFTING DEPOSITIONAL
ENVIRONMENTS WHOSE DIFFERENCES MAY HAVE BEEN ENHANCED BY VARYING GROUNDWATER SOLUTION OF
THE VARYING LIMESTONE TYPES.
- 169.5- 172.5 AS ABOVE
EXCEPT DENSER, HARDER, DOLOMITIC?, SLIGHTLY MORE SPARITE.
- 172.5- 174.5 DOLOSTONE; LIGHT GRAY; LOW PERMEABILITY, FRACTURE, VUGULAR;
GOOD INDURATION;
ACCESSORY MINERALS: CHERT-01%;
VERY HARD, DENSE, FORMER MICRITE OR BIOMICRITE WHICH HAS BEEN REPLACED, CONTAINS NUMEROUS
FOSSIL GHOSTS. THIS SECTION ALSO CONTAINS SOME FRACTURES AND VUGS WHICH ARE NOT LINED BY
CLAY OR PYRITE AS ABOVE.
- 174.5- 179 DOLOSTONE; LIGHT GRAY TO TAN; LOW PERMEABILITY, MOLDIC;
RANGE: MEDIUM TO FINE; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ- %, PYRITE- %, QUARTZ SAND- %, CLAY- %;
DENSE, CONTAINS COMMON PELECYPOD AND OTHER FOSSIL GHOSTS, THESE SMALL MOLDS ARE TYPICALLY
LINED W/ QTZ OR PYRITE CRYSTALS. MINOR QTZ SAND THROUGHOUT, ALL VOIDS, FRACTURES, ETC.,
ARE INFILLED WITH CLAY.
- 179 - 179.5 CLAY; MODERATE GRAY TO LIGHT OLIVE; LOW PERMEABILITY;
ACCESSORY MINERALS: SILT- %;
OTHER FEATURES: CALCAREOUS;
STIFF, SEMI-WAXY, MOD POROSITY.
- 179.5- 180 CALCILUTITE; WHITE TO CREAM;
GRAIN TYPE: CALCILUTITE;
POOR INDURATION;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: QUARTZ SAND- %;

- 180 - 184.5 CLAY; LIGHT GRAY TO WHITE; LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-01%;
OTHER FEATURES: CALCAREOUS;
STIFF, SOMEWHAT WAXY.
- 184.5- 189.5 LIMESTONE; LIGHT TAN TO WHITE; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
POORLY WASHED BIOMICRITE, COMMON MOLLUSKS AND FORAMS, SOME THIN ZONES ARE REPLACED BY SPAR
AND WELL WASHED, MOSTLY THE MARTIX IS CLAYEY, PASTY, COULD BE INFILLED? MODERATE POROSITY.
MOD-LOW PERMEABILITY OVERALL, HOWEVER, PERM. COULD BE MUCH HIGHER IN SPARRY AND WASHED
ZONES.
- 189.5- 194 AS ABOVE
EXCEPT MORE WEATHERED AND CONTAINS MORE QTZ SAND. M-L PERM.
- 194 - 195.5 CALCILUTITE; LIGHT TAN;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: SPAR- %, QUARTZ SAND- %;
OTHER FEATURES: FOSSILIFEROUS;
FOSSILS: FOSSIL MOLDS;
COMPACT, COMMON INFILLED PELECYPOD MOLDS, LESS SANDY THAN ABOVE, MINOR SPAR.
- 195.5- 196.5 CALCILUTITE; LIGHT TAN TO CREAM;
GRAIN TYPE: CALCILUTITE;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS;
INFILLED, MORE SPAR THAN ABOVE, FOSSIL MOLDS ARE COMPLETELY FILLED.
- 196.5- 199.5 LIMESTONE; LIGHT TAN TO CREAM;
GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE;
ACCESSORY MINERALS: ORGANICS-%;
BIOMICRITE-BIOSPARITE, POORLY WASHED, COMMON SPAR REPLACEMENT OF FOSSILS, BECOMES LESS
DENSE W/ DEPTH AND MORE FOSSILIFEROUS. MODERATE PERM. MINOR ORGANICS.

- 199.5- 204.5 LIMESTONE; LIGHT TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS;
MODERATE INDURATION;
ACCESSORY MINERALS: CLAY- %, SPAR- %;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
FORAM. BIOMICRITE-BIOSPARITE, UPPER AND MIDDLE PORTIONS OF SECTION ARE CLAY INFILLED AND CONTAIN QTZ SAND, GRADES TO A WASHED BIOSPARITE REPLACED LS AT BOTTOM OF SECTION, COMMON FOSSIL MOLDS AND FOSSILS (INCLUDING GASTROPODS), MODERATE PERM. OVERALL, THIS SECTION PROBABLY CONTAINED SEVERAL CAVITIES WHICH WERE PARTIALLY FILLED BY MEDIUM GREEN WAXY CLAY.
- 204.5- 209.5 AS ABOVE
FORAMINIFERAL BIOMICRITE PARTIALLY REPLACED BY SPAR. WELL WASHED AND INFILLED W/ CLAY AS ABOVE.
- 209.5- 214.5 LIMESTONE; LIGHT TAN TO CREAM; FRACTURE, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: SPAR- %, QUARTZ- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS;
POOR RECOVERY, POORLY WASHED BIOMICRITE, CONTAINS BOTH SPAR AND QTZ AS MOLD LININGS AND FOSSIL REPLACEMENTS, COMPACT, SOME ZONES ARE WELL WASHED; THIS ZONE COULD HAVE HIGH PERMEABILITY IF MOLDS ARE INTERCONNECTED ALONG FRACTURES.
- 214.5- 217 CLAY; DARK GREEN;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: LIMESTONE- %, QUARTZ SAND-%;
UPPER SECTION IS CLAY, ALTERNATELY SANDY OR SEMI-WAXY, BRECCIATED AT BOTTOM AND MIXED W/ LS AS ABOVE.
- 217 - 219.5 LIMESTONE; CREAM;

POOR-WELL WASHED BIOMICRITE, SIMILAR TO ABOVE WITH PARTIAL SPARRITE REPLACEMENT IN WASHED ZONES, CONTAINS CLAY FILLED VOIDS, FRACTURES, AND CLAY BRECCIA. EROSIONAL UNCONFORMITY AT 219.5'.
- 219.5- 220 CALCILUTITE; LIGHT GRAY;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;

- 220 - 224.5 LIMESTONE; LIGHT TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND- %, CHERT-01%, CLAY- %, SPAR- %;
OTHER FEATURES: DOLOMITIC;
POORLY WASHED BIOMICRITE, PARTIALLY DOLOMITIZED AND INFILLED BY SANDY MICRITE, DENSE. LOW POROSITY.
- 224.5- 226 LIMESTONE; CREAM;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
ACCESSORY MINERALS: CLAY- %, QUARTZ- %, SPAR- %;
OTHER FEATURES: WEATHERED;
FOSSILS: FOSSIL MOLDS;
FOSSILIFEROUS BIOMICRITE, FRIABLE, CONTAINS BOTH QTZ AND SPAR REPLACEMENTS OF FOSSIL MOLDS AND PORES, MODERATE OVERALL PERMEABILITY.
- 226 - 227 CLAY; DARK BROWN;
WAXY, COMPETENT.
- 227 - 229.5 CALCILUTITE; CREAM;
GRAIN TYPE: CALCILUTITE;
ACCESSORY MINERALS: CLAY- %, SPAR- %, QUARTZ- %;
OTHER FEATURES: DOLOMITIC, CHALKY;
FOSSILIFEROUS MICRITE, DOLOMITIZED AT CLAY CONTACTS, PARTIALLY INFILLED BY CLAY, COMPACT.
- 229.5- 234.5 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL;
PACKED BIOMICRITE, RANGES FROM POORLY WASHED TO SPARITE REPLACED AND WASHED, CRUMBLY, CONTAINS GASTROPODS.
- 234.5- 239.5 LIMESTONE; WHITE TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
MODERATE INDURATION;
OTHER FEATURES: DOLOMITIC;
VERY POOR RECOVERY, PACKED BIOMICRITE, DOLOMITIC IN PLACES, SCORIFICIOUS IN PLACES, GENERALLY DENSE AND MOD. HARD IN RECOVERED ZONES, LOST PORTIONS MOST LIKELY VERY SOFT, PASTY, LS.
- 239.5- 244.5 LIMESTONE; LIGHT GRAY TO WHITE;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
OTHER FEATURES: WEATHERED;
PACKED BIOMICRITE, POORLY WASHED, PASTY, FRIABLE.

- 244.5- 248.5 LIMESTONE; GRAYISH BROWN TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS;
POORLY WASHED, PACKED, FORAMINIFERAL BIOMICRITE, DOLOMITIC IN PLACES, HARDER THAN ABOVE,
COMMON MOLDS AND FOSSILS, MINOR SPAR. THIS SECTION COULD BE FRACTURED AND HENCE HIGHLY
HIGHLY PERMEABLE?.
- 248.5- 249.5 LIMESTONE; LIGHT GRAY TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
OTHER FEATURES: WEATHERED;
POORLY WASHED PACKED BIOMICRITE, MOST FOSSILS ARE ERODED. PASTY OVERALL.
- 249.5- 254.5 LIMESTONE; ;

PACKED FORAM. BIOMICRITE, SIMILAR TO ABOVE, MOSTLY SOFT AND FRIABLE, W/ SOME MORE
COMPETENT LENSES WHICH ARE PARTIALLY DOLOMITIC, MODERATE PERM.
- 254.5- 259.5 AS ABOVE
EXCEPT MORE WEATHERED AND DOLOMITIZED, RESULTING IN BETTER PRESERVATION OF PELECYPOD AND
GASTROPOD MOLDS. MINOR SPAR MOLD LININGS.
- 259.5- 264.5 LIMESTONE; ;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
ACCESSORY MINERALS: CLAY-%;
CUTTINGS. PACKED FORAMINIFERAL BIOMICRITE, PASTY, FRIABLE, MINOR CLAY BLEBS(INFILL?), QTZ
SAND (CAVINGS?).
- 264.5- 269.5 AS ABOVE
STRUCTURE AND TEXTURE OF ROCK UNCERTAIN. SOFT, POORLY CEMENTED. CUTTINGS.
- 269.5- 274.5 AS ABOVE
CUTTINGS. SLIGHTLY MORE WEATHERED.
- 274.5- 279.5 LIMESTONE; LIGHT TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY- %, SILT- %, SPAR-%;
PACKED FORAM. BIOMICRITE, APPEARS TO BE LENSIC AND WELL WASHED IN SOME ZONES, COMPACT,
MINOR SPAR AND CALCAREOUS CLAY OR SILT, HIGH POROSITY. ROCK IS UNCEMENTED AND HELD
TOGETHER BY COMPACTION ONLY.
- 279.5- 284.5 AS ABOVE
CUTTINGS.

- 284.5- 289.5 LIMESTONE; TAN TO CREAM;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
POOR INDURATION;
ACCESSORY MINERALS: SPAR- %, CLAY- %;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA;
POORLY WASHED BIOMICRITE, FRIABLE, PASTY, CONTAINS SOME MOLDS OF LARGER FOSSILS BUT ONLY FORAMS ARE PRESERVED. MINOR SPAR AND SOME BLEBS OF BLUE-GREEN CLAY AS INFILL OF PORES OR DISSOCIATED IN MATRIX. MOD-HIGH PERMEABILITY.
- 289.5- 294.5 AS ABOVE
POORLY WASHED. CONTAINS SOME BIOSPARITE.
- 294.5- 299.5 AS ABOVE
THROUGHOUT THIS SECTION THERE ARE VERY THIN ZONES WHICH ARE PARTIALLY DOLOMITIZED BY GROUNDWATER SOLUTION. THIS DOLOMITIZATION COULD BE INDICATIVE OF HIGHER GROUNDWATER FLOWS.
- 299.5- 304.5 LIMESTONE; LIGHT TAN TO CREAM; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
ACCESSORY MINERALS: SPAR- %, QUARTZ-%;
POORLY WASHED BIOSPARITE AND PACKED BIOMICRITE, GRADES FROM POORLY WASHED PASTY LS TO COARSE, SOMEWHAT DOLOMITIC (WELL WASHED) ROCK, NEARLY ALL FOSSILS ARE REPLACED BY SPAR, SOME MINOR CHALCEDONY REPLACEMENT OF OSTREA FOSSILS, SOME SPAR FILLING MOLDS, FRIABLE.
- 304.5- 309.5 LIMESTONE; ;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
FOSSILS: BENTHIC FORAMINIFERA;
HIGH POROSITY, MOD. PERM.
- 309.5- 314.5 LIMESTONE; LIGHT TAN TO CREAM;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
MODERATE INDURATION;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA, ECHINOID;
HIGH POROSITY, MOD. PERM., ARAGONITIZED OSTREA FRAGMENTS, PELECYPODS AND GASTROPODS, BIOSPARITE GRADING INTO A BIOMICRITE AT BOTTOM OF SECTION
- 314.5- 329.5 LIMESTONE; LIGHT TAN TO CREAM;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CHERT- %;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, MOLLUSKS, ECHINOID, BENTHIC FORAMINIFERA;
MOD TO HIGH POROSITY AND PERM, ZONES OF HIGHER AND LOWER TRANSMISSIVITY PRESENT BIOMICIRITE IN PARTS, SOME FOSSIL VUGS(?) INFILLED WITH CHERT, POSSIBLE UNCONFORMITY PICKED IN THE 324.5-329.5 INTERVAL

- 329.5- 334.5 LIMESTONE; LIGHT TAN TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
FOSSILS: BENTHIC FORAMINIFERA;
CUTTINGS, MOD TO HIGH POROSITY AND PERM
- 334.5- 339.5 AS ABOVE
SOME CALCARENITE ALSO PRESENT, MOD POROSITY, SAMPLE DESCRIPTION IS FROM CUTTINGS
- 339.5- 344.5 LIMESTONE; LIGHT TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND- %, DOLOMITE-%;
DESCRIPTION IS FROM BOTH CUTTINGS AND CORE, THIN LENSE OF HIGHLY DOLOMITIZED LIMESTONE
RECOVERED AS CORE, MOD POROSITY
- 344.5- 354.5 LIMESTONE; LIGHT TAN TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: MOLLUSKS, CORAL, BENTHIC FORAMINIFERA;
ALL DOLOMITIZED SECTIONS RECOVERED AS CORE, SOFTER SECTIONS AS CUTTINGS. GASTROPODS, TRACE
OSTREA, M-H POROSITY, M PERM.
- 354.5- 364.5 LIMESTONE; ;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
OTHER FEATURES: WEATHERED;
FOSSILS: BENTHIC FORAMINIFERA;
CUTTINGS AND CORE. M-H POROSITY, M PERM. HEAVILY WEATHERED BY GROUNDWATER SOLUTION, MOST
FOSSILS HEAVILY ERODED AND UNIDENTIFIABLE, TRACE DICTYOCONUS COOKEI(?)
- 364.5- 369.5 AS ABOVE
LENSE OF DOLOMITIZED BIOMICRITE, SOME PELECYPOD SHELL FRAGMENTS AND MOLDS (PECTEN?), TRACE
CALCITE SPAR, MODIC POROSITY - MOD TO HIGH
- 369.5- 374.5 LIMESTONE; LIGHT TAN TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
ACCESSORY MINERALS: CLAY- %, DOLOMITE-%;
- HIGH POROSITY. SOME BIOSPARITIC ZONES. TOP OF OCALA GROUP (CRYSTAL RIVER FM) PICKED AT
374.5-379.5

- 374.5- 379.5 LIMESTONE; LIGHT TAN TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
POOR INDURATION;
ACCESSORY MINERALS: SPAR- %, DOLOMITE-%;
LOW TO MODERATE POROSITY VARIATION IN THIS INTERVAL, M PERM. TRACE OF SPARRY CALCITE
REPLACEMENT OF CRAB CLAW FRAGMENTS
- 379.5- 384.5 AS ABOVE
M-H POROSITY AND PERM. ALSO A VERY SOFT PACKED FORAMINIFERAL BIOMICRITE IS PRESENT, THIS
INTERVAL IS HEAVILY ERODED AND CONTAINS UNIDENTIFIABLE FOSSILS
- 384.5- 389.5 LIMESTONE; LIGHT BROWNISH GRAY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
OTHER FEATURES: WEATHERED;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
M POROSITY AND PERM. ONE DENTALIUM SCAPHOPOD FOSSIL FOUND, HEAVILY ERODED MOLLUSKS
- 389.5- 399.5 LIMESTONE; DARK TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
MODERATE INDURATION;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: WEATHERED;
FOSSILS: MILIOLIDS;
H POROSITY, M PERM. PACKED MILLIOLIDAL LIMESTONE, HEAVILY DOLOMITIZED IN PARTS
- 399.5- 404.5 LIMESTONE; DARK TAN;
OTHER FEATURES: DOLOMITIC;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, MILIOLIDS;
UPPER THIRD OF SECTION SAME AS 389.5-399.5 (PACKED MILLIOLIDAL LIMESTONE), MIDDLE THIRD OF
SECTION IS PASTY-CLAYEY BIOMICRITE WITH SOME ORGANICS, WITH PYRITE, ESPECIALLY ALONG
FAULT(?) ZONES, SOME HEAVILY ERODED FOSSILS. L-M POROSITY AND PERM
- 404.5- 409.5 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE- %;
FOSSILS: BENTHIC FORAMINIFERA;
FORAMINIFERAL BIOMICRITE. SOME DOLOMITIZED ZONES SHOWING HIGH TRANSMISSIVITIES(?). M PERM,
H POROSITY

- 409.5- 414.5 LIMESTONE; LIGHT TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE- %;
OTHER FEATURES: DOLOMITIC, WEATHERED;
FOSSILS: BENTHIC FORAMINIFERA, CORAL, MOLLUSKS;
UPPER THIRD OF SECTION SIMILAR TO ABOVE INTERVAL, BUT MIDDLE THIRD OF SECTION IS LIGHT TAN CHALKY PACKED BIOMICRITE, LOWER THIRD OF SECTION IS HIGHLY DOLOMITIZED BIOMICRITE, ONE LARGE ECHINOID TEST FOUND, SOME BLUE-GREEN-GRAY CLAY IN BOTTOM OF SECTION. L-M PERM, M POROSITY IN LIMESTONE. L PERM AND H POROSITY IN CLAY
- 414.5- 419.5 AS ABOVE
LIMESTONE WITH GRAY CLAY, 1.6 FOOT THICK SECTION OF HIGHLY DOLOMITIZED BIOMICRITE GRADING INTO FOSSILIFEROUS MOLDIC DOLOMITE THAT CONTAINS PYRITE AND SECONDARY QUARTZ INFILLING FRACTURES. SAMPLE DESCRIPTION FROM BOTH CUTTINGS AND CORE. L-M PERM, M POROSITY, PELECYPOD AND GASTROPOD MOLDS
- 419.5- 424.5 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
ACCESSORY MINERALS: SPAR- %;
FOSSILS: BENTHIC FORAMINIFERA;
M-H POROSITY, M PERM. PACKED FORAMINIFERAL BIOMICRITE; DESCRIPTION FROM CUTTINGS
- 424.5- 429.5 LIMESTONE; LIGHT TAN TO LIGHT GRAY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
ACCESSORY MINERALS: SPAR- %;
FOSSILS: BENTHIC FORAMINIFERA, CORAL, ECHINOID, MOLLUSKS;
M POROSITY AND PERM, PELECYPOD AND GASTROPOD MOLDS
- 429.5- 434.5 LIMESTONE; TAN;
ACCESSORY MINERALS: SPAR- %, DOLOMITE- %;
FOSSILS: BENTHIC FORAMINIFERA;
M PERM, H POROSITY
- 434.5- 439.5 LIMESTONE; LIGHT TAN TO TAN;
ACCESSORY MINERALS: SPAR- %, DOLOMITE- %;
L-M PERM, M POROSITY. VARIABLE INDURATION
- 439.5- 442 LIMESTONE; LIGHT GRAY TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
ACCESSORY MINERALS: SPAR- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA, CORAL;
M POROSITY AND PERM, PELECYPOD AND GASTROPOD MOLDS

- 442 - 444.5 LIMESTONE; LIGHT TAN TO CREAM; FRACTURE;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
ACCESSORY MINERALS: SPAR- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL, ECHINOID;
M PERM, H POROSITY, PELECYPOD AND GASTROPOD MOLDS
- 444.5- 449.5 LIMESTONE; LIGHT TAN TO CREAM;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
MODERATE INDURATION;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL, ECHINOID;
PACKED FORAMINIFERAL BIOMICRITE, WITH SOME DOLOMITIC PATCHES THROUGHOUT SECTION, TRACE OF BIOSPARITE. L-M PERM, M-H POROSITY. CONTACT OF CRYSTAL RIVER FORMATION AND WILLISTON PLACED AT THIS INTERVAL
- 449.5- 451 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS;
M POROSITY AND PERM. HIGHLY DOLOMITIZED PACKED BIOMICRITE
- 451 - 454 LIMESTONE; TAN; VUGULAR;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS, CORAL, BENTHIC FORAMINIFERA, MOLLUSKS;

MICRITE AND SPAR. SMALL FRACTURES. L-M POROSITY AND PERM
- 454 - 454.5 AS ABOVE
THIN INTERVAL OF WEATHERED GRAY WHITE CHALKY BIOMICRITE AND BIOSPARITE. L-M POROSITY AND PERM
- 454.5- 459.5 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
ALSO SOME BLuish-GRAY DOLOMITIZED BIOMICRITE, DESCRIBED AS A MILLIOLOIDAL MATRIX WITH COMMON PELECYPOD MOLDS. L-M PERM, M POROSITY
- 459.5- 464.5 AS ABOVE
M-H PERM, M POROSITY. CORE AND CUTTINGS WITH TRACE OF BRANCHING BRYOZOANS/CORAL MOLDS

- 464.5- 469.5 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, MILIOLIDS;
SAME BLUISH-GRAY DOLOMITIZED BIOMICRITE AT TOP OF THIS SECTION, POROSITY IS VARIABLE BETWEEN THE DOLOMITIZED AND UNDOLOMITIZED ZONES. L-M PERM, M POROSITY.
- 469.5- 474.5 AS ABOVE
TRACE OF CALCITIZED PELECYPOD (MAINLY OSTREA) SHELL FRAGMENTS
- 474.5- 479.5 AS ABOVE
SOME LARGE (BUT COMPRESSED?) ECHINOID (OLIGOPYGUS HALDEMANI?) TEST FRAGMENTS. M-H PERM, M POROSITY
- 479.5- 489.5 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: MILIOLIDS, BRYOZOA, CORAL;
M-H PERM, M POROSITY. MILLIOLOIDAL MATRIX WITH TRACE BRANCHING BRYOZOAN & CORAL MOLDS
- 489.5- 494.5 LIMESTONE; TAN TO LIGHT BROWN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS;
M PERM, M-H POROSITY. ABUNDANT FORAMS (LEPIDOCYCLINA OCALANA, NUMMULITES VANDERSTOKI), TRACE OPERCULINOIDES MOODY BRANCHENSIS?, SOME PECTIN FRAGMENTS
- 494.5- 504.5 AS ABOVE
- 504.5- 509.5 LIMESTONE; TAN TO LIGHT BROWN;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, MOLLUSKS;
L-M PERM, M-H POROSITY. PASTY-CHALKY. INDEX FOSSILS AS ABOVE.
- 509.5- 514.5 LIMESTONE; TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
POOR INDURATION;
FOSSILS: BENTHIC FORAMINIFERA;
L PERM, L-M POROSITY. SOME NUMMULITES, TRACE OPERCULINOIDES?, NO ACTUAL CORE WAS BORED FOR THIS INTERVAL, BECAUSE DRILL ROD FELL OR SLIPPED AND SAMPLE JAMMED INTO CORE BARREL
- 514.5- 519.5 AS ABOVE

519.5- 540.5 LIMESTONE; TAN;

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;

POOR INDURATION;

CEMENT TYPE(S): CALCILUTITE MATRIX;

FOSSILS: BENTHIC FORAMINIFERA, ECHINOID;

M PERM, H POROSITY. SOFT-VERY SOFT PASTY FRIABLE FORAMINIFERAL BIOMICRITE, LARGE

LEPIDOCYCLINA, COMMON OPERCULINOIDES MODDY BRANCHENSIS, TRACE OF NUMMULITES AND LAGENA

LAEVIS?, COMMON SMALL ECHINOID (LAGANUM OALANUM, TRACE OF ORGANIC LIGNITE (CAVINGS?)

NOTE: DUE TO CONTINUAL PROBLEMS WITH DRILL ROD, NO ACTUAL CORE WAS COLLECTED FOR THIS

INTERVAL, INDICATING A PROBABLE CAVERNOUS ZONE. DECISION MADE TO FOREGO TEST HOLE DUE TO

BELIEF THAT FRESHWATER/SALTWATER INTERFACE HAD BEEN ENCOUNTERED AT APPROXIMATELY 514.5'

540.5 TOTAL DEPTH