

03/09/81

G. H. New

ROMP #57 LAKE WALES
Executive Summary - Three Wells

Location & Topographic Setting

This site is located on the south side of Highway 60 approximately 1½ miles west of the intersection with U.S. 27 south in Lake Wales, Polk County Florida. This site is located in the NW 1/4, SW 1/4, NE 1/4, of Section 4, Township 30 and Range 27 at latitude 27°54'12" and longitude 81°37'22". The wells are located on the top of a grassy grade which slopes slightly downward in all direction (slope is less than 1' per 100'). The paved right-of-way of Highway 60 is less than 35' to the north from the fartherest well.

Site Easement

This site was obtained on July 24, 1979, from the Polk County Board of Commissioners for the sum of one dollar. The construction easement is 65' x 65' and contains the permanent easement which is 20' x 40'. The temporary construction easement expires twelve (12) months after the date that the District commences construction.

Geology

This site elevation is approximately 128' above sea level and it is located on the Sunderland Terrace as defined by C. W. Cooke in 1939 of the Florida Bureau of Geology.

0'- 90' - undifferentiated coastal terrace sands and clay, quartz (sand) light brown - translucent, uncemented varying degree or sorting, trace organics, high porosity. Clays are white to brown, arenaceous, low permeability.

#2 (1/7)

- 90'-140' - Hawthorn Formation - Limestone, clay, and chert, limestone white - tan, is sandy (phosphorite & quartz), some dolomitization few fossils, clay varies in degree of induration is generally arenaceous or marly, intermittent chert lenses.
- 140'-162' - Tampa Formation - Dolomite and chert, hard, dark brown - tan, some well indurated phosphorite, trace clay - low porosity.
- 162'-195' - Suwanee Formation - Limestone, biomicrite, tan-brown, friable abundant common fossils, trace clays, moderate - high porosity.
- 195'-465' - Ocala Group - Limestone, off white to cream, varies from friable and fossiliferous to chalky and well indurated, numerous common fossils, trace dolomite, chert, some weathered zones moderate - high porosity.
- 465'-635' - Avon Park Formation - Limestone & dolomite, limestone predominates to 585', tan-cream, biomicrite, hard-friable, moderate porosity. Dolomite is tan-dark brown, sugary texture, well developed secondary porosity, many infilled cavities with dolomite silt and sands.

Hydrology

There are at least 3 major aquifers present at this site. The water table, a secondary artesian aquifer and the primary or Floridan Aquifer.

The water table is unconfined at the surface and receives recharge from rainfall by percolation. It is perched approximately 60' above sea level (55'-60' below l.s.d.) by a thick series of arenaceous clays and unconsolidated sand. This sequence though saturated is relatively impermeable. Water levels in this aquifer vary considerably with seasonal fluxations in climate.

The secondary artesian aquifer is found between 95' and 140' below l.s.d. Its main producer is a dolomitic, calcarenite, limestone interbedded with brown clay or marl between 113' and 138' below l.s.d. Static water levels in this aquifer were approximately 15.7' below land surface or some 13' above those found in the primary artesian aquifer. Several drill stem specific capacity tests were performed during drilling to determine the specific capacity of this aquifer. These tests indicate that the specific capacity of this aquifer at this site is between 2.7 and 3.6 gpm/ft. During the course of one days drilling over 8000 gallons of water was pumped from this aquifer by reverse air lifting with no major effects on wells less than 150' away tapping the same aquifer.

The primary artesian aquifer (or Floridan) is hydrologically separated from the secondary by a dark, grey, clay and a dense lense of siliceous, dark brown, dolomite dark brown (approximately 10' thick) found between 145' & 165' below l.s.d. The Floridan aquifer extends to a depth greater than 635' which is the total depth penetrated by the well bore. Static water levels in this aquifer remained near 28.5' below l.s.d. throughout the course of well construction. The total specific capacity of the wellbore while drilling in this aquifer is greater than could be accurately measured by air lift pumping through the drillstem. (The maximum volume attainable by this method is approximately 60 gpm.)

Well Construction

A. Primary Floridan Artesian 57-1

The Floridan artesian monitor well was constructed first and used as an exploratory drill hole for designing both the secondary, and surficial wells. It was also used for specific capacity testing of upper artesian aquifer. A 22" diameter borehole was drilled first to a depth of 95' using

mud rotary and 95' of 18" diameter steel surface casing was grouted into place. Following this the well was drilled to 145', a depth at which a confiner was encountered, and this interval was developed for specific capacity testing. After specific capacity tests were completed an exploratory hole was drilled to the total depth of the well (635'). When the total depth had been reached the upper portion of the hole (to 200') was reamed to allow installation of 200' of 7" diameter ABS well casing (minimum 11" diameter nominal borehole). The lower portion of the borehole was then temporarily sealed while the casing was grouted into place. After the grout had been allowed to cure the lower portion of the hole was then drilled clear & developed. During this process the driller accidentally dropped the drill string causing the lower portion of the plastic casing to be sheared off. This left the well with 160' of casing grouted into place and a single 40' section pushed down to the bottom of the hole. A subsequent caliper log showed that the remaining 160' of casing was intact and that the wellbore was open throughout its depth. It is felt that this will have no effect on hydrologic monitoring of the well.

B. Secondary Artesian 57-2

This well consists of 95' of 7" diameter ABS well casing grouted into place, and open hole from 95' - 140' below land surface.

C. Water Table (surficial) Aquifer 57-3

This well consists of 2" diameter PVC set to a depth of 40' inside of a 6" diameter borehole. From 25'-40' the PVC is cut with #35 size

slots and the wells annulus has been packed with #6-#20 quartz sand from 15'-40' below land surface. The bottom end of the PVC pipe is capped and the interval from ground surface to 15' below is sealed with grout.

Geophysical Logs

Electric (resistivity & spontaneous potential), caliper, natural Gamma emission, fluid conductivity and temperature (gradient), geophysical logs were run on this well from 95'-635' by the Sarasota office of the United States Geological Survey.

Type of Monitor

Fifty Seven-one (57-1) and (57-2) are artesian monitors designed to monitor the level of the potentiometric surface in the secondary & primary artesian aquifers respectively. Fifty Seven-three (57-3) is a water table peizometer well.

Water Quality

ROMP #57
Water Quality Data (SWFWMD Laboratory Analysis)

Date Collected	Depth	Conductivity*	Chloride	Sulfate	Floride	Total Dissolved Solids
12/9/80	145'	400 umho's	60 mg/l	1.3 mg/l	0.32 mg/l	257.3 mg/l
12/10/80	200'	400	70	2.1	0.23	258.7
12/11/80	260'	420	60	1.0	0.17	268.4
12/11/80	300'	425	70	1.0	0.26	258.0
12/29/80**	620'	390	10.3	2.3	--	--
12/18/80	620'	390	80	2.3	0.15	252.3

*Conductivity measurements were taken on site with a conductivity meter.

**This sample was collected with the theft sampler in the geophysical logger.

Several water samples were collected during the course of drilling this well from the reverse-air discharge at the depths shown, on the above table. Since

there is very little change in any of the water quality parameters measured and since the nature of this sampling technique allows only composite sampling across the entire open borehole very little can be said about changes in water quality associated with depth. However, it can be noted that all of the samples are well within the limits of potable water.

U.S.G.S. - Notification

The technical support division of SWFWMD was notified that these wells are complete and ready for monitor installation in April 1981.

GHN:wp3

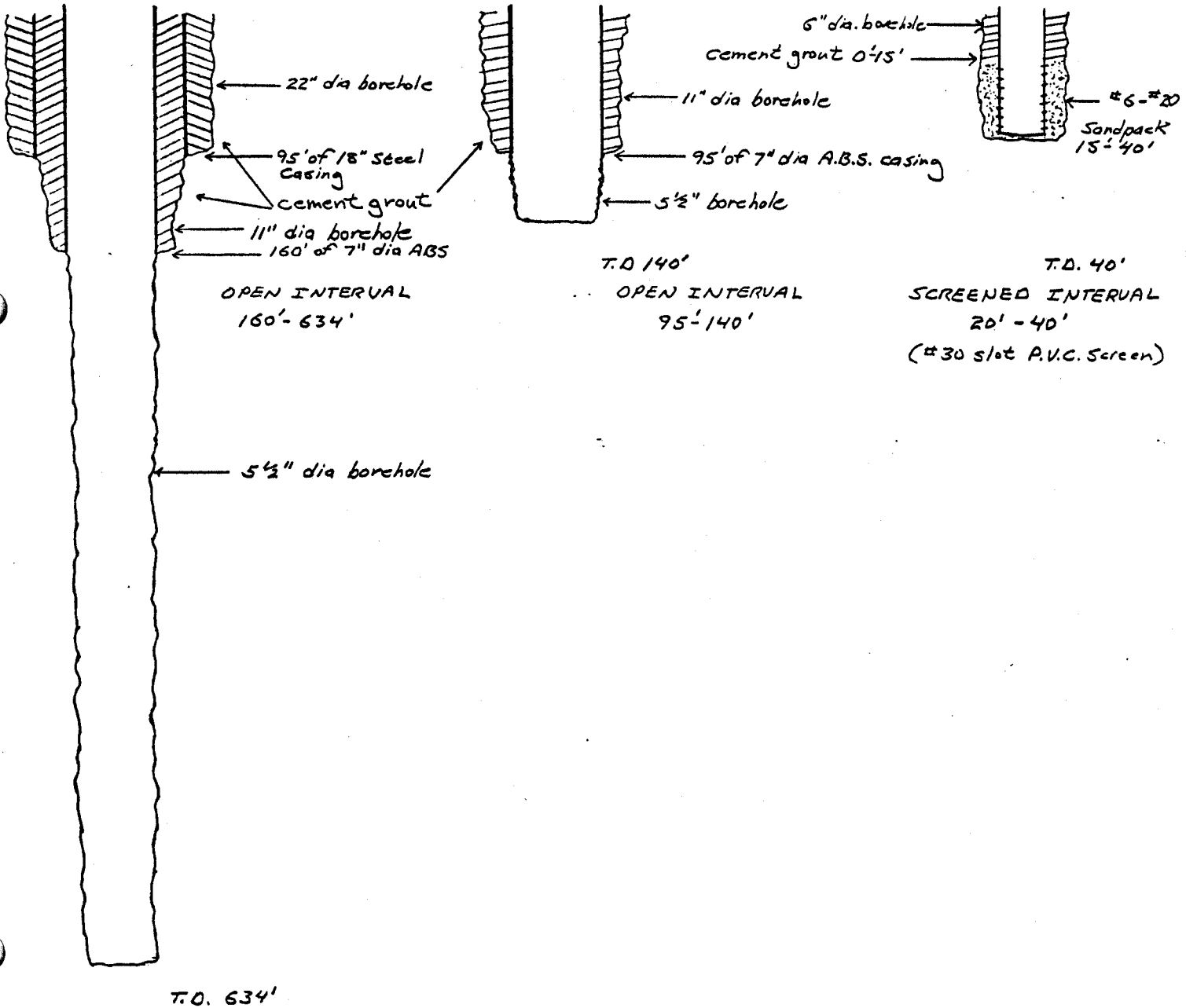
ROMP #57 LAKE WALES

As built diagram - (Not to scale)

57-1 (Floridan Aquifer Monitor)

57-2 (Secondary Artesian)

#57-3 (Water Table)



LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W- 14883
TOTAL DEPTH: 00635 FT.
SAMPLES - NONE

COUNTY - POLK
LOCATION: T.30S R.27E S.04 B
LAT = N 27D 54M 12
LON = W 81D 37M 22

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

ELEVATION - 128 FT

OWNER/DRILLER: SWFWMD; ROMP # 57 LAKE WALES.

WORKED BY: HENDERSON; CODED AND ENTERED BY RICHARD GREEN FROM A DESCRIPTION PROVIDED BY SWFWMD.

THE SITE IS LOCATED ON THE SOUTH SIDE OF HIGHWAY 60, APPROX.
1.5 MILES WEST OF THE INTERSECTION WITH U.S. 27 SOUTH IN
LAKE WALES.

0. - 90. UNDIFFERENTIATED SAND AND CLAY
90. - 137. HAWTHORN GROUP
137. - 162. TAMPA MEMBER OF ARCADIA FM.
162. - 195. SUWANNEE LIMESTONE
195. - 465. OCALA GROUP
195. - 315. CRYSTAL RIVER FM.
315. - 360. WILLISTON FM.
360. - 465. INGLIS FM.
465. - . AVON PARK FM.

0 - 5 SAND; LIGHT BROWN TO DARK BROWN; POSSIBLY HIGH PERMEABILITY, INTERGRANULAR;
RANGE: MEDIUM TO COARSE;
ROUNDNESS: WELL-ROUNDED;
ACCESSORY MINERALS: ORGANICS-%;
POORLY SORTED. ORGANIC STAINING THROUGHOUT SECTION.

5 - 10 SAND; LIGHT BROWN; POSSIBLY HIGH PERMEABILITY, INTERGRANULAR;
RANGE: MEDIUM TO COARSE;
ROUNDNESS: WELL-ROUNDED;
ACCESSORY MINERALS: CLAY-01%;
POORLY SORTED, TRACE OF PHOSPHATIZED BONE FRAGMENTS?.

10 - 15 SAND; LIGHT BROWN; POSSIBLY HIGH PERMEABILITY; RANGE: MEDIUM TO COARSE;
ROUNDNESS: WELL-ROUNDED TO SUB-ANGULAR;
ACCESSORY MINERALS: CLAY-01%;
MODERATE SORTING. TRACE OF BROWN CLAY.

- 15 - 20 SAND; LIGHT BROWNISH GRAY; POSSIBLY HIGH PERMEABILITY;
RANGE: MEDIUM TO COARSE;
ROUNDNESS:WELL-ROUNDED;
ACCESSORY MINERALS: CLAY- %, PHOSPHATIC SAND-%;
POORLY SORTED. SOME YELLOWISH-WHITE CLAY AND VERY FINE PHOS. SANDS. MODERATE-HIGH POROSITY.
- 20 - 25 SAND; LIGHT BROWNISH GRAY; POSSIBLY HIGH PERMEABILITY;
RANGE: FINE TO COARSE;
ROUNDNESS: WELL-ROUNDED TO SUB-ANGULAR;
ACCESSORY MINERALS: CLAY-01%;
POORLY SORTED, SOME DISCOIDAL QTZ PEBBLES AND VERY COARSE QTZ SAND SCATTERED THROUGHOUT SECTION.
- 25 - 30 AS ABOVE
EXCEPT COMMON QTZ PEBBLES.
- 30 - 35 AS ABOVE
EXCEPT TRACE OF TAN, CALCITIC CLAY. MOD-HIGH POROSITY.
- 35 - 40 AS ABOVE
TRACE OF OFFWHITE-TAN LS FRAGMENTS. MOD-HIGH POROSITY.
- 40 - 45 SAND; LIGHT BROWNISH GRAY; POSSIBLY HIGH PERMEABILITY, INTERGRANULAR;
RANGE: COARSE TO FINE;
ROUNDNESS: WELL-ROUNDED TO SUB-ANGULAR;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%, LIMESTONE-%;
POORLY SORTED. ABUNDANT QTZ PEBBLES AND COARSE SAND. SOME LS AS ABOVE.
- 45 - 50 SAND; LIGHT BROWNISH GRAY; POSSIBLY HIGH PERMEABILITY, INTERGRANULAR;
RANGE: FINE TO MEDIUM;
ROUNDNESS:WELL-ROUNDED;
ACCESSORY MINERALS: CLAY-%;
POORLY SORTED. SOME QTZ PEBBLES AND COARSE SAND. SOME BROWN CLAY INTERMIXED WITH SECTION.
MOD-HIGH POROSITY.
- 50 - 55 NO SAMPLES
- 55 - 60 SAND; LIGHT TAN; LOW PERMEABILITY; RANGE: VERY FINE TO COARSE;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%;
MIXED WITH STICKY, OFFWHITE CLAY. PHOS. IS DK GRAY-BLACK.
- 60 - 65 SAND; LIGHT BROWN; LOW PERMEABILITY; RANGE: FINE TO MEDIUM;
ACCESSORY MINERALS: CLAY- %, ORGANICS-%;
WELL SORTED. SOME STICKY OFFWHITE CLAY FRAGMENTS, SOME ORGANIC STAINED BROWN CLAY SCATTERED THROUGHOUT SECTION.
- 65 - 70 AS ABOVE

- 70 - 75 CLAY; TAN TO LIGHT BROWN; LOW PERMEABILITY;
ACCESSORY MINERALS: MICA-01%, QUARTZ SAND- %, ORGANICS-%;
VERY SANDY. TRACE OF OFFWHITE GRAVEL. ORGANICS STAIN SECTION.
- 75 - 80 AS ABOVE
- 80 - 85 SAND; LIGHT GRAY TO DARK GRAY; POSSIBLY HIGH PERMEABILITY, INTERGRANULAR;
RANGE: VERY FINE TO FINE;
ACCESSORY MINERALS: CLAY- %, MICA-01%, QUARTZ SAND-%;
POORLY SORTED. ORGANIC STAINED QTZ SANDS. SOME CLAY (DESCRIBED ABOVE) INTERMIXED
THROUGHOUT SECTION. TRACE OF GRAVEL AS ABOVE.
- 85 - 90 NO SAMPLES
- 90 - 95 LIMESTONE; TAN TO DARK BROWN; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
ACCESSORY MINERALS: CLAY- %, QUARTZ SAND- %, PHOSPHATIC SAND- %;
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS;
BIOMICRITE, HARD, SLIGHTLY DOLOMITIC LS WITH ABUNDANT PHOSPHATIZED FOSSIL CASTS OR MOLDS,
INTERMIXED WITH CREAM-TAN, SANDY-PHOSPHATIC CLAY, ABUNDANT DARK BRN- BLACK PHOS. PEBBLES.
LOW-MODERATE POROSITY.
- 95 - 100 CLAY; CREAM TO TAN; LOW PERMEABILITY;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL- %, QUARTZ SAND- %, PHOSPHATIC SAND- %, LIME-
STONE-%;
VERY ABUNDANT PHOS. PEBBLES.
- 100 - 105 AS ABOVE
- 105 - 110 AS ABOVE
EXCEPT FOR TRACE OF TAN SILICEOUS DOLOMITE OR CHERT FRAGS.
- 110 - 113 AS ABOVE
- 113 - 119.5 LIMESTONE; CREAM TO TAN; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
ACCESSORY MINERALS: CHERT-%;
BIOMICRITE, TAN CHERT FOUND OCCASIONALLY.
- 119.5- 124 LIMESTONE; CREAM; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
ACCESSORY MINERALS: QUARTZ SAND- %, PHOSPHATIC SAND- %, CHERT-%;
SPARSE BIOMICRITE. SOME TAN CHERT FRAGMENTS FOUND.

- 124 - 129 LIMESTONE; CREAM TO TAN; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CRUSTACEA;
BIOMICRITE, ABUNDANT MOLLUSK MOLDS AND CASTS. CRAB CLAW FRAGMENTS COMMON.
- 129 - 137 LIMESTONE; CREAM TO WHITE; LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
ACCESSORY MINERALS: QUARTZ SAND-%;
SANDY-SLIGHTLY MARLY, SOFT-HARD.
- 137 - 145 CLAY; WHITE TO LIGHT GRAY; LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND- %, PHOSPHATIC SAND- %, DOLOMITE- %, CHERT-%;
SLIGHTLY WAXY, SANDY-PHOSPHATIC CLAY, HIGH SOLUBILITY, SOME LT GRAY -GRAY SILICEOUS
DOLOMITE AND DARK BROWN CHERT FRAGMENTS.
- 145 - 152 CHERT; DARK BROWN; LOW PERMEABILITY; GOOD INDURATION;
HARD MICROCRYSTALLINE CHERT GRADING TO SILICEOUS DOLOMITE. TRACE OF LT GRAY CLAY
(DESCRIBED ABOVE).
- 152 - 154 CLAY; LIGHT GRAY; LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND- %, PHOSPHATIC SAND-%;
- 154 - 156 LIMESTONE; LIGHT GRAY TO DARK GRAY; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
OTHER FEATURES: DOLOMITIC;
SPARSE BIOMICRITE, SLIGHTLY DOLOMITIZED.
- 156 - 160 CLAY; DARK GRAY; LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND- %, PHOSPHATIC SAND-%;
- 160 - 162 DOLOSTONE; DARK GRAY; LOW PERMEABILITY; 10-50% ALTERED;
GOOD INDURATION;
- 162 - 164 CLAY; LIGHT GRAY; LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND- %, PHOSPHATIC SAND-%;
- 164 - 165 LIMESTONE; CREAM TO WHITE; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
OTHER FEATURES: CHALKY;
BIOMICRITE. LOW-MODERATE POROSITY.

- 165 - 175 LIMESTONE; TAN TO MODERATE YELLOWISH BROWN; POSSIBLY HIGH PERMEABILITY, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
OTHER FEATURES: DOLOMITIC;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;
SOFT-HARD, BIOMICRITE, ABUNDANT FORAM MOLDS AND MOLLUSK SHELL FRAGMENTS. SLIGHTLY
DOLOMITIZED FROM 174-175'.
- 175 - 176 AS ABOVE
EXCEPT SLIGHTLY CLAYEY MATRIX.
- 176 - 178 LIMESTONE; TAN TO MODERATE YELLOWISH BROWN; LOW PERMEABILITY, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
HIGHLY INDURATED BIOMICRITE INTERMIXED WITH LENSES OF TANNISH BROWN-DK BROWN, HARD
DOLOMITE. MOD-HIGH POROSITY IN LIMESTONE. VERY LOW POROSITY IN DOLOMITE.
- 178 - 179 NO SAMPLES
- 179 - 180 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS;
FRIABLE, SPARSE BIOMICRITE, SOME PELECYPOD FRAGMENTS AND CASTS LINED BY ARAGONITE CRYSTALS.
MOD-HIGH POROSITY.
- 180 - 185 AS ABOVE
BUT ABUNDANT MOLLUSK SHELL FRAGMENTS AND CASTS LINED AS ABOVE. TRACE OF BRYOZOAN PAVEMENT.
TRACE OF DOLOMITE LENSES THROUGHOUT SECTION.
- 185 - 190 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS;
FRIABLE, SPARSE BIOMICRITE, COMMON PELECYPOD SHELL FRAGMENTS, COMMON BUT HEAVILY ERODED
MILIOLIDS.
- 190 - 191 DOLOSTONE; BROWNISH GRAY; LOW PERMEABILITY;
HARD, RECRYSTALLIZED. VERY LOW POROSITY.
- 191 - 195 LIMESTONE; BUFF TO LIGHT BROWN; LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
POOR INDURATION;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
CHALKY-FRIABLE, SLIGHTLY INDURATED SPARSE BIOMICRITE. COMMON PELECYPOD SHELL FRAGMENTS.
LOW-MODERATE POROSITY.

- 195 - 200 LIMESTONE; BUFF TO LIGHT BROWN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
ACCESSORY MINERALS: CLAY- %, DOLOMITE- %;
FOSSILS: ECHINOID, MOLLUSKS, FOSSIL FRAGMENTS;
FRIABLE-SLIGHTLY CLAYEY IN PARTS, BIOMICRITE, SOME LT GRAY-DK BROWN SILICEOUS DOLOMITE
LENSES SCATTERED THROUGHOUT SECTION. ABUNDANT ECHINOID SPINES. MODERATE-HIGH POROSITY.
- 200 - 205 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: BRYOZOA, ECHINOID, BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS;
FRIABLE, BIOMICRITE. TRACE OF DOLOMITE AS ABOVE. SOME LT GRAY FORAMS (LEPS.), HIGH
POROSITY.
- 205 - 215 AS ABOVE
- 215 - 220 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CRUSTACEA, BENTHIC FORAMINIFERA, ECHINOID;
FRIABLE BIOMICRITE, TRACE OF DK BROWN DOLOMITE LENSES, ABUNDANT LT GRAY-TAN FORAMS (LEPS),
COMMON MOLLUSK CASTS OR MOLDS, COMMON ECHINOID SPINES AND BRYOZOAN PAVEMENT, TRACE OF CRAB
CLAWS?. HIGH POROSITY.
- 220 - 225 AS ABOVE
EXCEPT SOME TAN FORAMS (LEPS) ONLY, NO CRUSTACEANS OR MOLLUSK CASTS.
- 225 - 235 AS ABOVE
- 235 - 240 AS ABOVE
- 240 - 245 AS ABOVE
- 245 - 250 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS, ECHINOID, BRYOZOA;
CHALKY-COQUINAL IN PARTS, BIOMICRITE, VERY ABUNDANT TAN- LT GRAY FORAMS (LEPS), COMMON
MOLLUSK SHALL FRAGS AND ECHINOID SPINES, HIGH POROSITY.
- 250 - 255 AS ABOVE
EXCEPT COMMON, HEAVILY ERODED FORAMS (NUMMULITES, TRACE HEMICYTHERE).
- 255 - 260 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
OTHER FEATURES: COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS, BRYOZOA;
FRIABLE, COQUINAL BIOMICRITE, ABUNDANT BUT HEAVILY ERODED NUMMULITES, COMMON HEMICYTHERE
AND LEPIDOCYCLINA SP., COMMON MOLLUSK SHELL FRAGS. HIGH POROSITY.

- 260 - 265 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
OTHER FEATURES: COQUINA;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA;
FRIABLE, COQUINAL BIOMICRITE, VERY ABUNDANT PELECYPOD SHELL FRAGMENTS, COMMON NUMMULITES
AND LEPS. HIGH POROSITY.
- 265 - 270 AS ABOVE
OXIDES STAINING SECTION SLIGHTLY, TRACES OF DK BROWN DOLOMITE FRAGMENTS AND DK GRAY-BLACK
SILICEOUS DOLOMITE OR CHERT FRAGMENTS, HIGH POROSITY.
- 270 - 275 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
OTHER FEATURES: COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS;
FRIABLE, COQUINAL BIOMICRITE, COMMON PELECYPOD SHELL FRAGMENTS, ABUNDANT LEPS, SOME
NUMMULITES. HIGH POROSITY.
- 275 - 280 AS ABOVE
- 280 - 285 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, ECHINOID, MOLLUSKS, FOSSIL FRAGMENTS;
BIOMICRITE, VERY ABUNDANT TAN-LIGHT GRAY FORAMS (LEPS), COMMON PELECYPOD SHELL FRAGMENTS
AND BRANCHING BRYOZOANS, TRACE OF ECHINOID SPINES. HIGH POROSITY.
- 285 - 295 AS ABOVE
EXCEPT ONLY TAN LEPIDOCYCLINA SP.
- 295 - 300 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS, ECHINOID, BRYOZOA;
BIOMICRITE, ABUNDANT TAN FORAMS (LEPS), COMMON PELECYPOD SHELL FRAGMENTS AND ECHINOID
SPINES, TRACE OF BRANCHING BRYOZOANS, HIGH POROSITY.
- 300 - 315 AS ABOVE
- 315 - 325 LIMESTONE; CREAM TO WHITE; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS;
BIOMICRITE, COMMON FORAMS (LEPS. , OPERCS) SOME NUMMULITES, HIGH POROSITY.

- 325 - 330 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS;
BIOMICRITE, ABUNDANT TAN-GRAY LEPS, SOME OPERCS., TRACE OF NUMMULITES, COMMON MOLLUSK
SHELL FRAGMENTS, TRACE OF DK BRN DOLOMITE FRAGMENTS. HIGH POROSITY.
- 330 - 335 AS ABOVE
EXCEPT FOR SOME FOSSIL MOLDS INFILLED BY TAN-LT GRAY , PHOSPHATIC-SLIGHTLY DOLOMITIC
BIOMICRITE.
- 335 - 360 AS ABOVE
- 360 - 365 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, BRYOZOA, FOSSIL FRAGMENTS, MOLLUSKS;
SOFT-HARD, MILLIOLOIDAL BIOMICRITE, COMMON TAN-GRAY LEPS, SOME QUINQUELOCULINA OCALANA AND
OPERCS., TRACE OF BRANCHING BRYOZOANS AND ECHINOID SPINES.
- 365 - 370 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS, BRYOZOA, ECHINOID;
SOFT-HARD, MILLIOLOIDAL BIOMICRITE, COMMON TAN-GRAY LEPS, TRACE OF OPERCS, AND
DISCORINOPSIS GUNTERI, COMMON PECTEN SHELL FRAGMENTS, SOME BRANCHING BRYOZOANS AND
ECHINOID TEST FRAGMENTS (PERIARCHUS LYELLI FLORIDANUS?)
- 370 - 375 AS ABOVE
- 375 - 385 AS ABOVE
COMMON QUINQUELOCULINA, TRACE OF LT GRAY-TAN DOLOMITE.
- 385 - 390 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, BRYOZOA, ECHINOID, MOLLUSKS;
SOFT, MILLIOLOIDAL BIOMICRITE, SOME TAN-GRAY LEPS, TRACE OF OPERCS, COMMON PELECYPOD SHELL
FRAGMENTS, SOME COMPLETE ECHINOID TESTS(CASSIDULUS ERICSONI) COMMON PERIARCHUS? TEST
FRAGMENTS.
- 390 - 400 AS ABOVE
- 400 - 405 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, ECHINOID, MOLLUSKS;
SOFT-HARD, MILLIOLOIDAL BIOMICRITE, TRACE OF LT TAN- LT GRAY DOLOMITE FRAGMENTS, SOME LEPS
AND MOLLUSK SHELL FRAGMENTS, MOLDS AND CASTS. TRACE OF COSKINOLINA FLORIDANA, ABUNDANT
ECHINOID TEST FRAGMENTS (CASSIDULUS ERICSONI, PERIARCHUS LYELLI FLORIDANUS) WITH SOME
COMPLETE TESTS. HIGH POROSITY.

- 405 - 410 AS ABOVE
- 410 - 415 AS ABOVE
EXCEPT COMMON ECHINOID TEST FRAGMENTS.
- 415 - 420 AS ABOVE
EXCEPT COMMON PELECYPOD CASTS.
- 420 - 425 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, BRYOZOA;
SOFT-HARD, MILLIOLOIDAL BIOMICRITE, TRACE OF DOLOMITE FRAGMENTS, SOME LEPS AND TRACE OF
COSKINOLINA, COMMON MOLLUSK CASTS AND SHELL FRAGMENTS.
- 425 - 430 AS ABOVE
EXCEPT ONE DICTYOCONUS COOKEI FOUND.
- 430 - 435 AS ABOVE
SOME LT GRAY CHERT FRAGMENTS, TRACE OF DK BRN-BLACK PHOSPHATIC DOLOMITE FRAGMENTS. HIGH
POROSITY.
- 435 - 440 AS ABOVE
EXCEPT TRACE OF LT GRAY CHERT FRAGMENTS, HIGH POROSITY.
- 440 - 445 AS ABOVE
COMMON CHALKY, TAN MICRITE FRAGMENTS.
- 445 - 450 AS ABOVE
- 450 - 455 LIMESTONE; CREAM TO TAN;
CHALKY MICRITE MIXED WITH CREAM-TAN BIOMICRITE, SOME TAN-GRAY LEPS, COSKINOLINA AND TRACE
OF DICTYOCONUS COOKEI, SOME PERIARCHUS SP. FRAGMENTS, SOME DK GRAY-BLACK PHOSPHATE GRAVEL.
HIGH POROSITY.
- 455 - 460 LIMESTONE; ;
SAME AS 445-450'. HIGH POROSITY.
- 460 - 465 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%;
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID;
CHALKY MICRITE GRADING TO COQUINAL BIOMICRITE, ABUNDANT LT GRAY-TAN DOLOMITIZED MICRITE,
TRACE OF DK GRAY-BLACK PHOS. PEBBLES, SOME LEPS AND COSKINOLINA FLORIDANUS, TRACE OF
DICTYOCONUS COOKEI. MODERATE-HIGH POROSITY.

- 465 - 470 LIMESTONE; CREAM TO TAN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID;
CHALKY MICRITE GRADING TO A COQUINAL BIOMICRITE. ABUNDANT LT GRAY-TAN DOLOMITIZED MICRITE,
TRACE OF COSKINOLINA FLORIDANUS, SOME LEPS. ENTIRE SECTION APPEARS TO HAVE BEEN INDURATED
DUE TO EXTENSIVE ERODING OR WASHING OUT OF MICROFOSSILS, ONE COMPLETE PERONELLA DALLI?
TEST FOUND. MODERATE-HIGH POROSITY.
- 470 - 480 AS ABOVE
OXIDES STAINING SECTION, SOME LT GRAY GASTROPOD CASTS.
- 480 - 485 LIMESTONE; CREAM TO BROWN; POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
CHALKY MICRITE GRADING TO COQUINAL BIOMICRITE, SOME LT GRAY TO TAN-DK BROWN DOLOMITE
FRAGS. SOME TAN LEPS, TRACE OF DICTYOCONUS COOKEI AND OPERCS., ABUNDANT PELECYPOD SHELL
FRAGMENTS (SOME ARAGONITIZED) AND DOLOMITIZED GASTROPOD CASTS. MOD-HIGH POROSITY.
- 485 - 490 AS ABOVE
EXCEPT NO CHALKY MICRITE.
- 490 - 495 LIMESTONE; CREAM TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
CHALKY-COQUINAL BIOMICRITE, TRACE OF LT GRAY DOLOMITE FRAGMENTS AND BLACK PHOS. PEBBLES,
SOME TAN LEPS, COMMON COSKINOLINA FLORIDANUS, TRACE OF DICTYOCONUS AND OPERCS., SOME
ECHINOID TEST FRAGMENTS (PERONELLA DALLI?). MODERATE-HIGH POROSITY.
- 495 - 500 AS ABOVE
EXCEPT COMMON TAN LEPIDOCYCLINA.
- 500 - 505 AS ABOVE
- 505 - 510 AS ABOVE
ONE COMPLETE PERONELLA DALLI TEST FOUND.
- 510 - 515 AS ABOVE
NO COMPLETE ECHINOID TESTS FOUND.
- 515 - 520 AS ABOVE
TRACE OF LT GRAY DOLOMITIZED LS FRAGMENTS, SOME CORALLINE FRAGMENTS.

- 520 - 525 LIMESTONE; CREAM TO TAN;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
OTHER FEATURES: CHALKY, COQUINA;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, ECHINOID;
CHALKY-COQUINAL BIOMICRITE. TRACE OF LT GRAY DOLOMITIZED LS FRAGMENTS, SOME TAN LEPS,
COMMON COSKINOLINA AND SOME DICTYOCONUS, ABUNDANT SMALLER FORAMS (NONION, MANY TEXTULARIA
SP., ETC), ABUNDANT MOLLUSK SHELL FRAGMENTS AND MOLDS, SOME PERONELLA TEST FRAGMENTS.
MOD-HIGH POROSITY.
- 525 - 580 AS ABOVE
- 580 - 585 DOLOSTONE; TAN TO BROWN; LOW PERMEABILITY, MOLDIC; 10-50% ALTERED;
GOOD INDURATION;
ACCESSORY MINERALS: CHERT- %;
OTHER FEATURES: FOSSILIFEROUS;
ABUNDANT CAVINGS OF LS FROM ABOVE IN THIS SAMPLE.
- 585 - 590 AS ABOVE
EXCEPT LESS CAVINGS.
- 590 - 595 LIMESTONE; ;
SAME AS 520-525'. EXCEPT TRACE OF BLACK CHERT FRAGMENTS. MODERATE-HIGH POROSITY.
- 595 - 600 DOLOSTONE; TAN TO BROWN; LOW PERMEABILITY, MOLDIC; 10-50% ALTERED;
GOOD INDURATION;
ACCESSORY MINERALS: CHERT- %;
OTHER FEATURES: FOSSILIFEROUS;
SLIGHTLY FOSSILIFEROUS. SOME DK BROWN-BLACK CHERT FRAGMENTS. 10% OF SAMPLE IS LS CAVINGS.
- 600 - 605 LIMESTONE; ;
SAME AS 590-595'.
- 605 - 615 DOLOSTONE; TAN TO BROWN; LOW PERMEABILITY, MOLDIC; 10-50% ALTERED;
DOLOMITE INTERMIXED WITH CREAM-TAN MICRITE, ENTIRE SECTION PROBABLY HONEYCOMBED WITH
CAVITIES (SOME INFILLED WITH TAN DOLOMITE SANDS), VERY LOW MOLDIC POROSITY IN DOLOMITE,
LOW POROSITY IN LS.
- 615 - 620 AS ABOVE
- 620 - 630 AS ABOVE
- 630 - 635 DOLOSTONE; CREAM TO TAN; LOW PERMEABILITY; 10-50% ALTERED;
DOLOMITE INTERMIXED WITH CREAM-TAN FOSSILIFEROUS MICRITE, SOME PHOSPHATIZED LEPIDOCYCLINA,
VERY LOW POROSITY IN DOLOMITE, LOW POROSITY IN LS.
- 635 TOTAL DEPTH