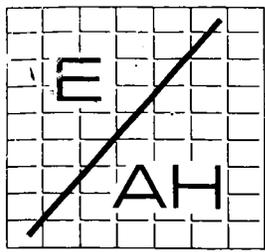


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CNC CHARLESTON  
5090.3a

LETTER REQUESTING MONITORING WELL PERMITS ZONE A CNC CHARLESTON SC  
10/29/1996  
ENSAFE/ ALLEN AND HOSHALL



# EnSafe / Allen & Hoshall

a joint venture for professional services

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Fax (214) 791-0405

October 29, 1996

Mr. Paul Bergstrand  
Bureau of Solid and Hazardous Waste  
South Carolina Department of Health and Environmental Control  
8901 Farrow Road  
Columbia, SC 29203

Re: Request for Monitoring Well Installation  
Zone A RFI, Naval Base Charleston, Charleston, South Carolina

Dear Mr. Bergstrand:

In accordance with SCDHEC *Well Standards and Regulation R. 61-71*, EnSafe/Allen & Hoshall (E/A&H) is seeking approval to install six (6) monitoring wells in Zone A at Naval Base Charleston (NAVBASE). The sampling of these wells will fill data gaps at SWMU 39 (Former POL Drum Storage Area, Building 1604) and SWMU 43 (Publications and Printing Shop, Building 1628). Five wells are proposed for SWMU 39, and one well will be installed at SWMU 43. Figure 1 indicates the proposed well locations in the vicinity of SWMU 39, and Figure 2 shows the proposed location of the shallow well at SWMU 43.

Four shallow wells designed to screen the water table will be drilled and installed to approximately 12 to 15 feet below ground surface (bgs) using hollow stem auger techniques. Two deeper wells will be advanced to their target depths using mud rotary techniques. Deep well borings will be continuously sampled for lithologic control using split spoons. Shallow wells not associated with deep wells will be sampled every five feet using split spoons. The deep wells will be installed inside 6-inch ID PVC surface casing grouted from the ground surface to the top of the bentonite seal to eliminate the potential for vertical cross contamination during drilling. Drilling and well installation will be performed in accordance with Section 5 (Revision No. 02) of the *Final Comprehensive Sampling and Analysis Plan* (CSAP) dated July 30, 1996.

As shown on Figure 1 two shallow-deep well pairs are proposed for monitoring groundwater associated with SWMU 39. One location is north of the Virginia Avenue gate but within NAVBASE property. Shallow well NBGA-039-014 will screen the water table. The deep well NBGA-039-14D will be installed to the top of the Ashley Formation at a depth of approximately 26 feet below ground surface (bgs). This depth is estimated from the cone penetrometer (CPT) data

collected at location 039GP037. The second proposed SWMU 39 well pair location is near O'Hear Avenue west of NAVBASE. Stratigraphic information from CPT location 039GP033 indicated the top of the Ashley Formation at a depth of 32 feet bgs, which will be the target depth for deep well NBCA-039-15D.

A third shallow well (NBCA-039-013) will be installed south of SWMU 39 near the location of an intermediate and deep well pair installed in September, 1996 (NBCA-039-13I and -13D).

As discussed in the Zone A pre-submittal review, SCDHEC requested a shallow monitoring well be installed at SWMU 43. This well (NBCA-043-001), shown on Figure 2, is proposed downgradient of the SWMU 43 investigation area. This well is being installed to verify the results of the previous geoprobe investigation.

If you have any question, comments or need additional information, please do not hesitate to call me at (803) 884-0029 or at our field office at NAVBASE Charleston (803) 747-0336.

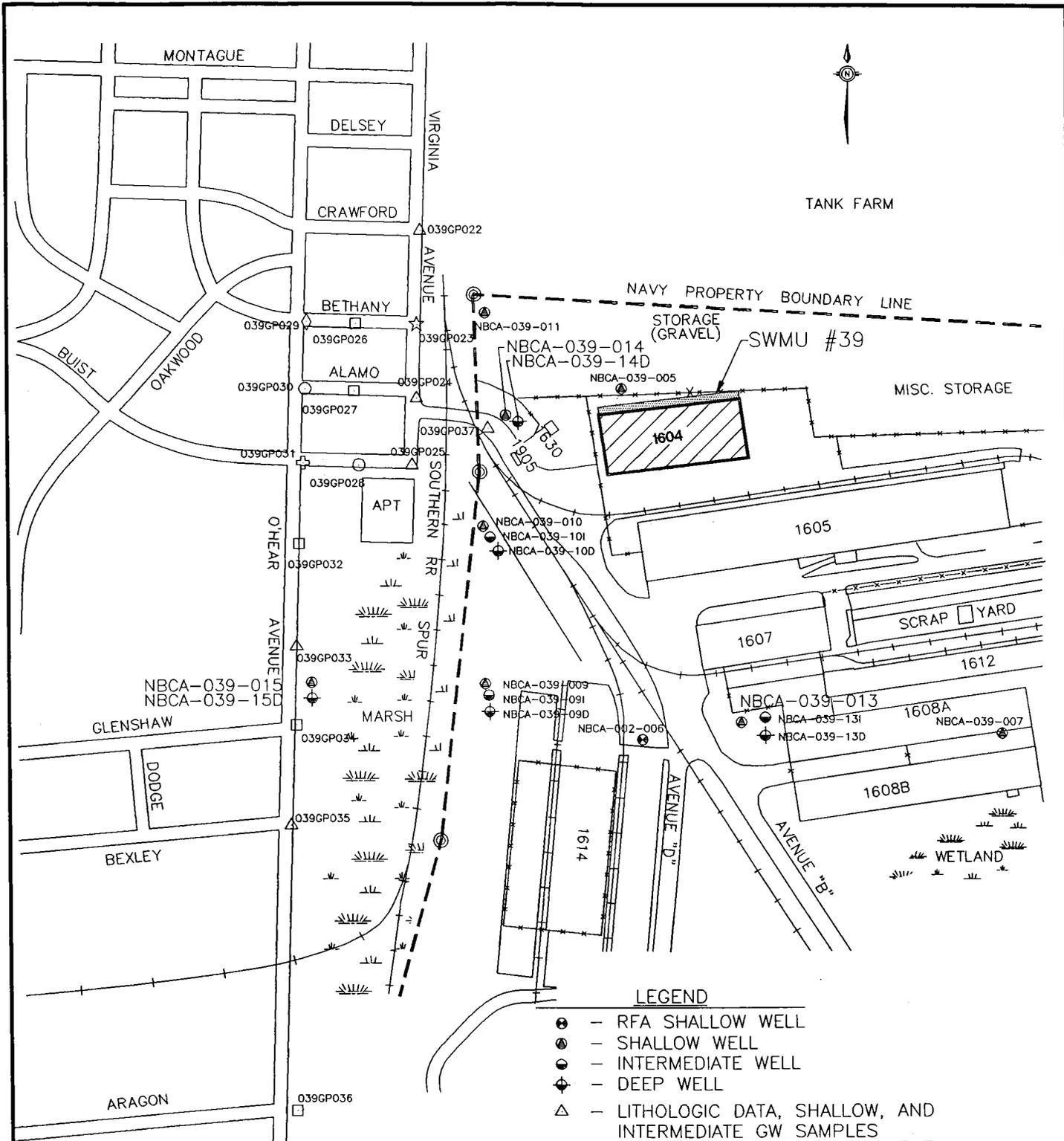
Sincerely,  
EnSafe/Allen & Hoshall



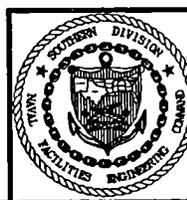
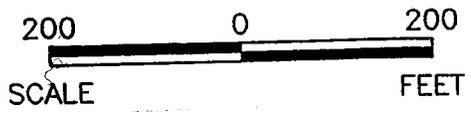
By: Todd K. Kafka  
Hydrogeologist

enclosures

CC: Lawson Anderson, E/A&H  
Tony Hunt, SOUTHDIV  
Project file, 2901-08420

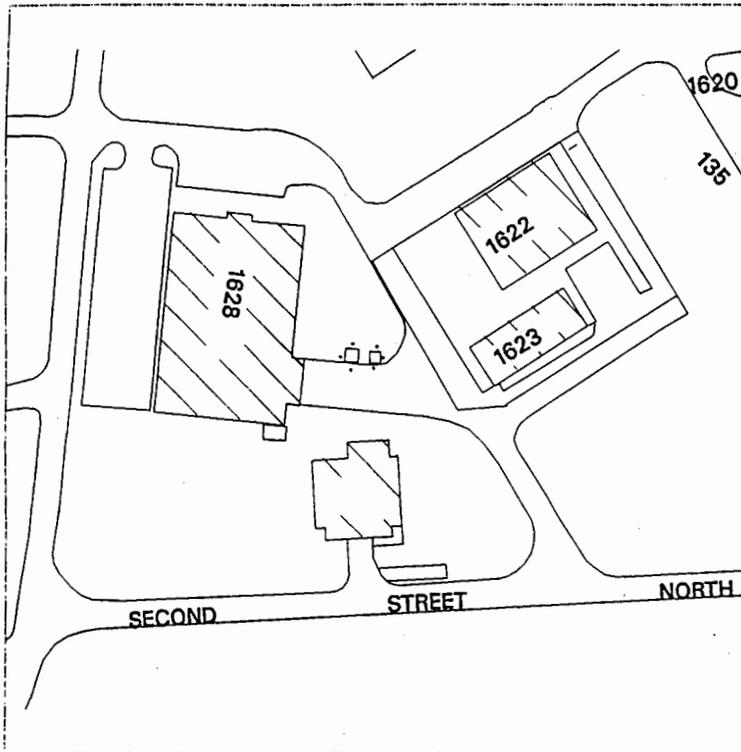


- LEGEND**
- ⊗ - RFA SHALLOW WELL
  - - SHALLOW WELL
  - ⊙ - INTERMEDIATE WELL
  - ⊕ - DEEP WELL
  - △ - LITHOLOGIC DATA, SHALLOW, AND INTERMEDIATE GW SAMPLES
  - - SHALLOW GROUNDWATER SAMPLE
  - - BORING, NO SAMPLE COLLECTED (CLAY)
  - ☆ - SHALLOW AND INTERMEDIATE GW SAMPLES
  - ◇ - LITHOLOGIC DATA, SHALLOW GW SAMPLES
  - ⊕ - LITHOLOGIC DATA, INTERMEDIATE GW SAMPLES



NAVAL BASE CHARLESTON  
CHARLESTON, S.C.

FIGURE 1  
PROPOSED WELL LOCATIONS  
AT SWMU 39



0438B001

0438B002

0438B008

0438B003

0438B004

0438B005

NBCA-043-001

**LEGEND**

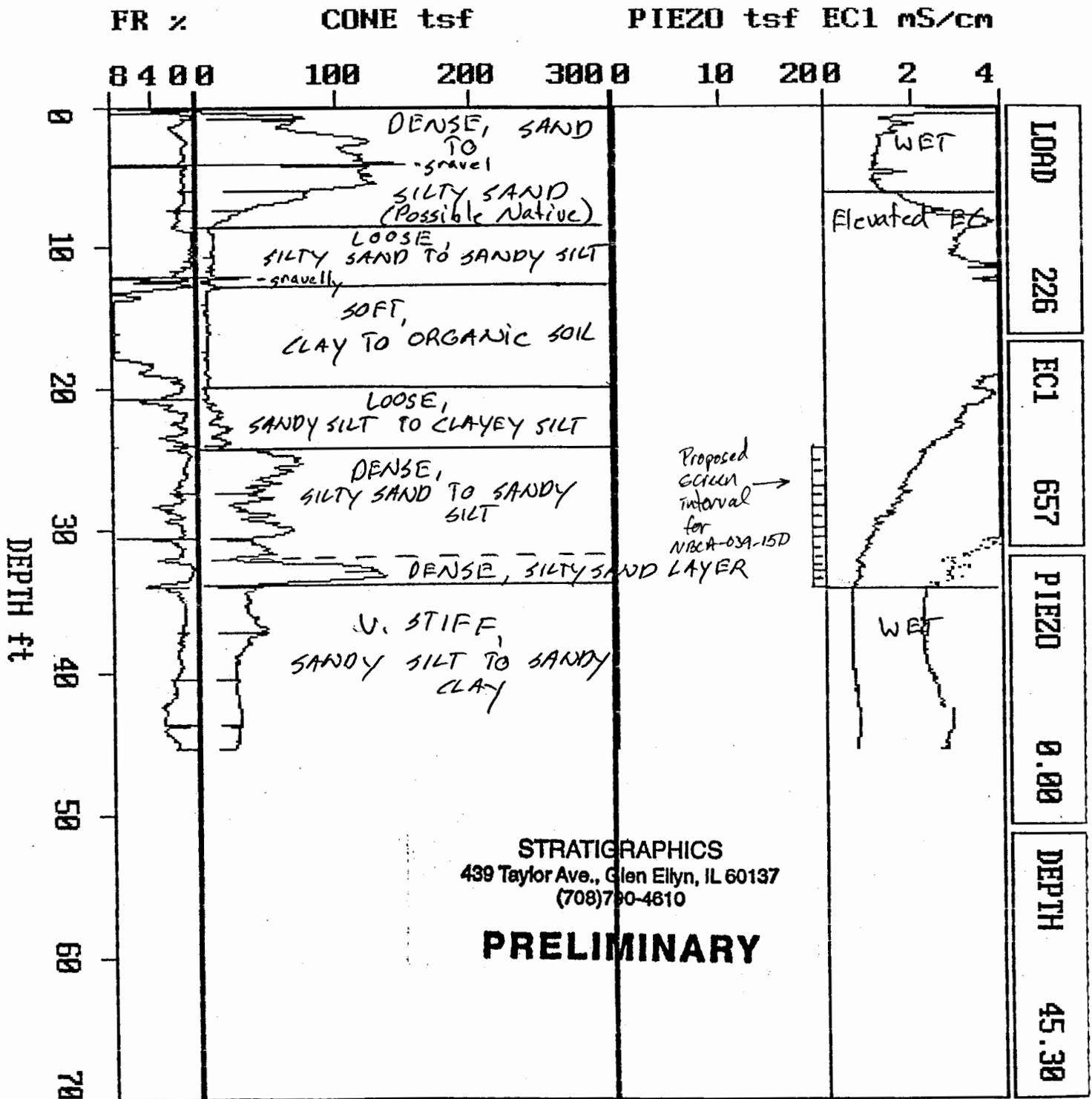
- Soil Boring
- ▲ Proposed Shallow Well



**Zone A RCRA Facility  
Investigation Report  
Naval Base Charleston  
Charleston, SC**

Note: The location and dimensions of the storage sheds is approximate

**FIGURE 2 - PROPOSED SHALLOW  
WELL LOCATION AT SWMU 43**

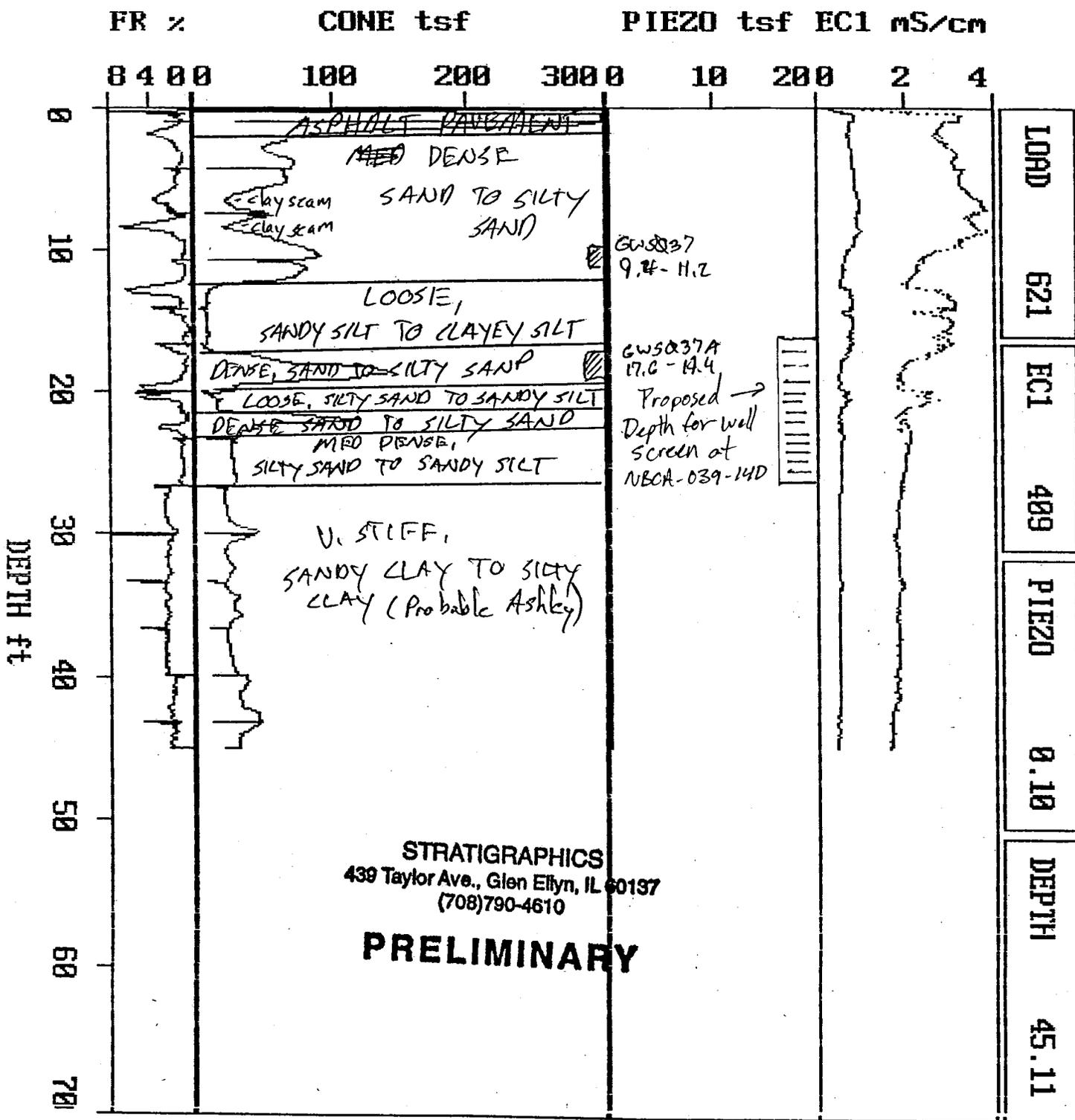


STRATIGRAPHICS

0394 P033

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Zone A. Charleston Naval Base, S.C.



STRATIGRAPHICS  
439 Taylor Ave., Glen Ellyn, IL 60137  
(708)790-4610

**PRELIMINARY**

STRATIGRAPHICS

039GP037

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Zone A Charleston Naval Base, S.C.