U.S. ARMY CORPS OF ENGINEERS
JACKSONVILLE DISTRICT



370939 CENTRAL EVERGLADES PLANNING PROJECT
FEASIBILITY PHASE

VALUE ENGINEERING STUDY REPORT

February 2013
(Updated January 2014)

DOD SERVICE: USACE **VALUE ENGINEERING OFFICER:** Jimmy Matthews, PE, CVS
CONTROL NO: CESAJ-VE-2013-001C

VALUE ENGINEERING STUDY INFORMATION

VALUE ENGINEERING FIRM: U. S. Army Corps of Engineers
Jacksonville District
701 San Marco Blvd
Jacksonville, FL 32232-0019
(904) 232-1903

VALUE ENGINEERING WORKSHOP CONDUCTED: 4-8 February 2013

VALUE ENGINEERING STUDY TEAM LEADERS: Frank Vicidomina, PE, CVS and Jimmy Matthews, PE, CVS

VALUE ENGINEERING STUDY TEAM MEMBERS: Team member names and contact information are listed in Appendix B.

POINTS OF CONTACT

Kim Vitek, Project Manager, CESAJ-PM-EO, (904) 232-2583

Murika Davis, Engineering Technical Lead, CESAJ-PD-C, (904) 232-1604

Jimmy Matthews, PE, CVS, Value Engineering Officer, CESAJ-EN-Q, (904) 232-2087

STUDY RESULTS:

Evidence of Unfettered Creativity: 68 Ideas were generated during the workshop.

Study Recommendations: 24 Recommendations were developed for consideration.

Note: The February 2013 Report was update in January 2014 to reflect subsequent coordination for Recommendation Y-5.

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INTRODUCTION

This report contains the results of the Value Engineering (VE) portion of a combined Cost and Schedule Risk Analysis (CSRA) and VE Workshop that was performed February 4 – 8, 2013 at the USACE Jacksonville District Office (see **Appendix A** – Value Engineering Job Plan and Workshop Agenda). The objective of this workshop was to incorporate VE analysis into the development of project measures and solution alternatives with focus on project functions and selected issues identified as part of the CSRA. This effort resulted in recommendations that can improve project performance, implementation and/or avoid initial or future costs.

At the time of this VE study the project was in Feasibility Phase evaluation with current identification of a Tentatively Selected Plan (TSP). VE recommendations address further planning project features and aspects as well as items that should be considered in future project design.

The CSRA/VE Team was comprised of cost engineers from the Walla Walla District and members of the Project Delivery Team (PDT) that included staff of local sponsors, state and local agencies. 'Net-Meeting' and teleconference means were employed to execute the workshop. A roster of workshop participants can be found in **Appendix B**.

As part of the CSRA cost and schedule risks were identified and classified as low, moderate or high risk/consequence potential. A summary list of moderate and high risk items are shown in **Appendix C**. VE workshop activity included particular focus on developing possible measures that may reduce probability and/or consequence of these items.

The VE process also identified and addressed project and project feature functions and developed a number of recommendations that may accomplish such functions with either improved performance and/or cost-effectiveness. Project functions are shown for each feature area (reference project description below) as **Appendix D**.

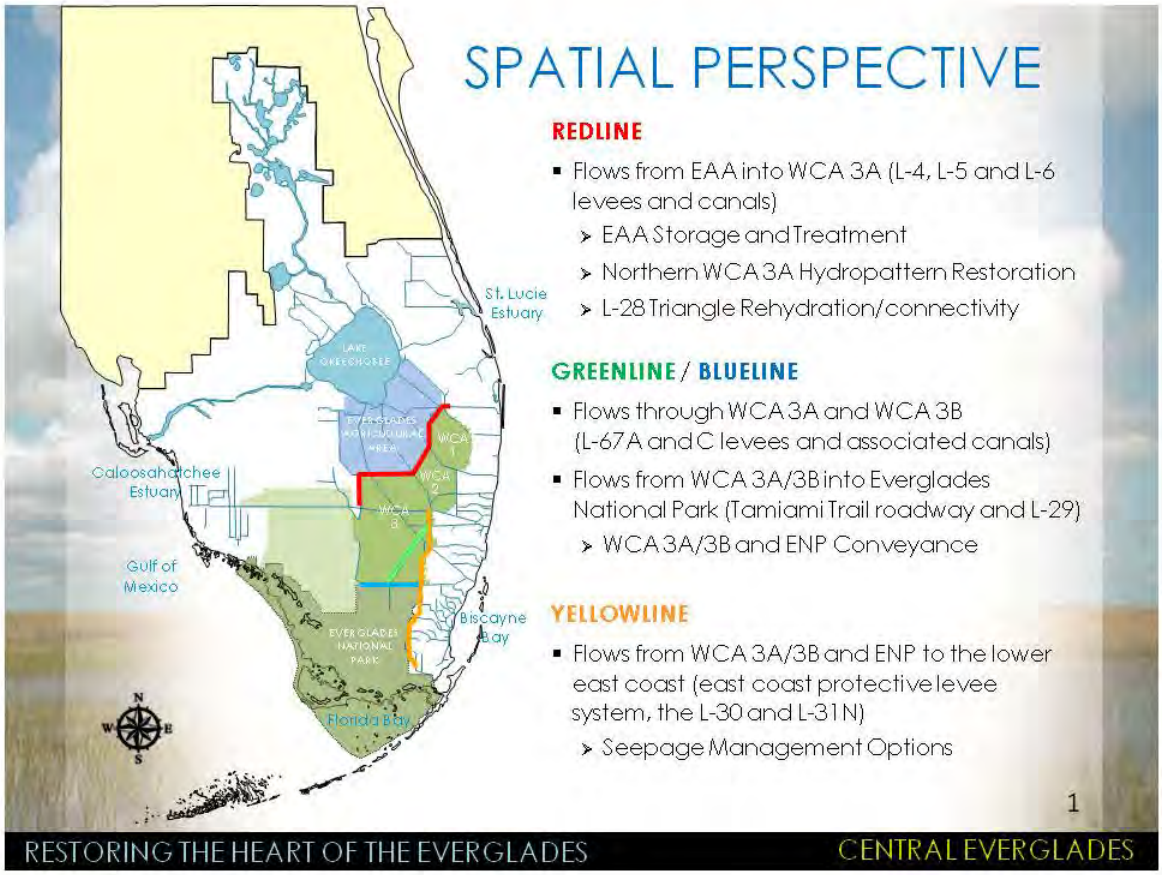
The VE process included 'brainstorming' sessions to produce ideas to mitigate risk, improve the project and reduce cost. These 'raw' ideas were screened and selected for further development or designated as either already being considered in the project or not feasible. **Appendix E** lists all ideas per project area (Speculation Lists) categorized by their disposition (developed or not developed).

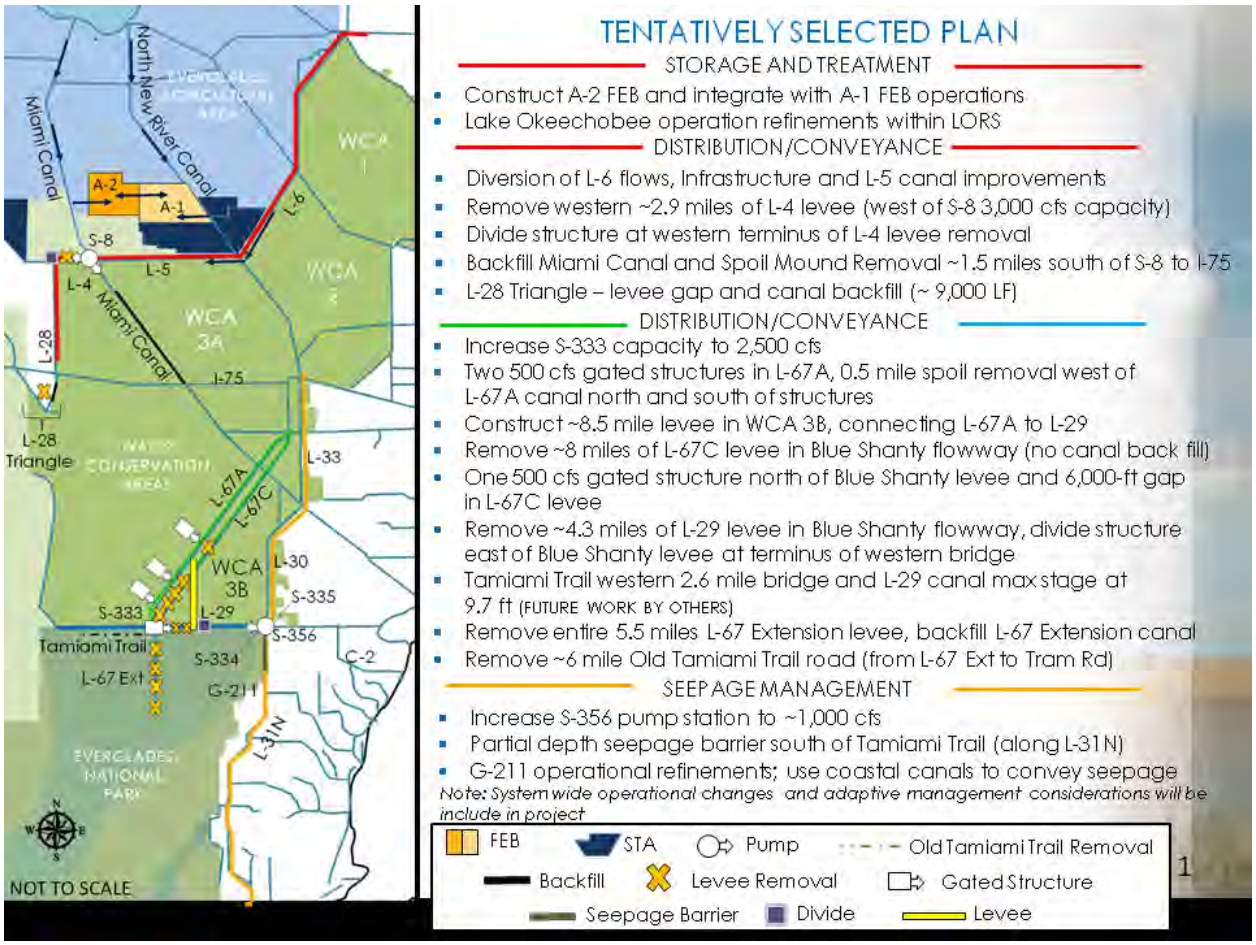
PROJECT DESCRIPTION

The Central Everglades Planning Project (CEPP) encompasses the Northern Estuaries (St. Lucie River and Indian River Lagoon and the Caloosahatchee River and Estuary), Lake Okeechobee, a portion of the Everglades Agricultural Area, the Water Conservation Areas; Everglades National Park, the Southern Estuaries (Florida Bay and Biscayne Bay), and the Lower East Coast (see below Spatial Perspective map). The purpose of the CEPP is to improve the quantity, quality, timing and distribution of water flows to the central Everglades.

The project study area has been divided into reaches as follows: North of Redline, South of Redline, Greenline / Blueline and Yellowline. As indicated above, the planning process has recently completed identification of a TSP (see Tentatively Selected Plan map below) . Project features include, but are not

limited to, storage and treatment retention basins, canal modifications (plugging and re-routing), removal of existing levees, new levees, flow control structure, pump stations and seepage barriers. Preliminary project cost is estimated at $1.3 billion. Additional TSP feature information is included as **Appendix F**.




TENTATIVELY SELECTED PLAN
STORAGE AND TREATMENT
Construct A-2 FEB and integrate with A-1 FEB operations
Lake Okeechobee operation refinements within LORS
DISTRIBUTION/CONVEYANCE
Diversion of L-6 flows, Infrastructure and L-5 canal improvements
Remove western ~2.9 miles of L-4 levee (west of S-8 3,000 cfs capacity)
Divide structure at western terminus of L-4 levee removal
Backfill Miami Canal and Spoil Mound Removal ~1.5 miles south of S-8 to I-75
L-28 Triangle – levee gap and canal backfill (~ 9,000 LF)
DISTRIBUTION/CONVEYANCE
Increase S-333 capacity to 2,500 cfs
Two 500 cfs gated structures in L-67A, 0.5 mile spoil removal west of L-67A canal north and south of structures
Construct ~8.5 mile levee in WCA 3B, connecting L-67A to L-29
Remove ~8 miles of L-67C levee in Blue Shanty flowway (no canal back fill)
One 500 cfs gated structure north of Blue Shanty levee and 6,000-ft gap in L-67C levee
Remove ~4.3 miles of L-29 levee in Blue Shanty flowway, divide structure east of Blue Shanty levee at terminus of western bridge
Tamiami Trail western 2.6 mile bridge and L-29 canal max stage at 9.7 ft (FUTURE WORK BY OTHERS)
Remove entire 5.5 miles L-67 Extension levee, backfill L-67 Extension canal
Remove ~6 mile Old Tamiami Trail road (from L-67 Ext to Tram Rd)
SEEPAGE MANAGEMENT
Increase S-356 pump station to ~1,000 cfs
Partial depth seepage barrier south of Tamiami Trail (along L-31N)
G-211 operational refinements; use coastal canals to convey seepage
Note: System wide operational changes and adaptive management considerations will be include in project
FEB
STA
Pump
Old Tamiami Trail Removal
Backfill
Levee Removal
Gated Structure
Seepage Barrier
Divide
Levee
NOT TO SCALE
North New River Canal
Miami Canal
A-2
A-1
S-8
L-4
L-5
L-6
WCA 1
WCA 2
WCA 3A
L-28
L-28 Triangle
I-75
L-33
L-67A
L-67C
WCA 3B
L-30
S-335
S-333
L-29
S-356
Tamiami Trail
L-67 Ext
S-334
G-211
C-2
L-31N
EVERGLADES NATIONAL PARK

SUMMARY OF RECOMMENDATIONS

Results of the workshop include recommendations that can reduce cost or schedule risk, improve performance and/or reduce project life-cycle cost. Recommendations address current report development, future project design or adaptive management activities. Items are grouped per the above four reach designations plus an additional category that pertains to the overall project.

The below list of VE Recommendations are further developed in the following section of this report and are summarized per project area as described in the above project information sections. The following also contains the disposition as decided in the VE Workshop Out Brief.

North of Redline

NR-1. Add outflow gravity structure on SE corner of A-2 - *Address recommendation in project design phase.*

NR-2. Add in-line structure for North New River Canal - *Address recommendation in both current plan development and project design phase.*

NR-3. Increase DS-8 gate capacity from 1,500 to 3,750 cfs to maintain existing drainage flowrate and water elevation - *Address recommendation in current plan development.*

South of Redline

SR-1. Add AM strategy for G-336G (L6 Diversion) - *Address recommendation in both current plan development and development of the adaptive management activities.*

SR-2. Increase S-8 existing pump station horsepower and/or add supplemental exterior type pump unit(s) in lieu of constructing a new pump station - *Address recommendation in project design phase.*

SR-3. Add new pump station (S-8) - *Address recommendation in project design phase.*

SR-4. Integrate and optimize S-8 and G-404 system - *Address recommendation in both current plan development and project design phase.*

SR-5. Re-visit USFWS/FWC Draft Ecological Guidelines for Water Management in WCA-2A – *Address recommendation in development of adaptive management activities.*

Greenline and Blueline

GB-1. Consider partial removal of the remaining length of the L-67 Extension Levee and/or system; also consider only partial removal of Old Tamiami Trail - *Address recommendation in development of adaptive management activities.*

GB-2. Consider extending S-355B collector canal - *Address recommendation in both current plan development and development of the adaptive management activities*

GB-3. Modify the ag canals in flowway - *Address recommendation in both current plan development and development of the adaptive management activities*

GB-4. Use vegetation management to reduce vegetative resistance to water flow downstream of L-67A new structures S-345D & G - *Address recommendation in development of the adaptive management activities*

GB-5. Retrofit DPM structure (S-152 800 cfs 10 - 60" HDPE barrels); Use DPM structure for interim period - *Address recommendation in both project design phase and development of the adaptive management activities*

GB-6. Re-visit L-29 gated divide structure to determine actual flow need and gate flow size - *Address recommendation in both current plan development and development of the adaptive management activities*

GB-7. Optimize operations at most northern structure into WCA 3B (consider for other control structures) - *Address recommendation in development of the adaptive management activities*

Yellowline

Y-1. Determine new S-356 pump station capacity based on functional risk; do not design for both full contingency and unit redundancy - *Address recommendation in both current plan development and project design phase.*

Y-2. For S-356, eliminate redundant pump but incorporate possible future expansion - *Address recommendation in project design phase.*

Y-3. Defer construction of new S-356 pump station until adjacent seepage wall is constructed and system tested; further utilize existing S-356 temporary pump station - *Address recommendation in current plan development, project design phase and in development of the adaptive management activities.*

Y-4. Phase implementation of seepage control features; use AM to determine path - *Address recommendation in development of the adaptive management activities.*

Y-5. Change the location L31N Seepage Management Pilot Project (SMPP) to the location which was the original location contained in the authorized decision document; use CEPP to increase the 902 Limit for

L31N SMPP and install the L31N SMPP to remove project uncertainties – *Not adopted. The PDT response changed from Address recommendation in current plan development in February 2013 Report to Not adopted in January 2014 to reflect subsequent report coordination. The L31 N SMPP was the pilot component of the original CERP L31N Improvements for Seepage Management. The CEPP PDT has decided to use the monitoring and results of a nearby constructed non-federal seepage project that was installed as described in main PIR sections 2.5.12 and 6.10.2.1 to address project uncertainties for CEPP.*

Y-6. Investigate alternative seepage barrier cutoff wall means (such as vinyl sheet pile) - *Address recommendation in project design phase.*

General Topic Considerations

GC-1. Create environmental friendly conveyance channels where opportunity exits - *Address recommendation in both current plan development and project design phase.*

GC-2. Coordinate vegetation management to achieve multiple objectives - *Address recommendation in development of adaptive management activities.*

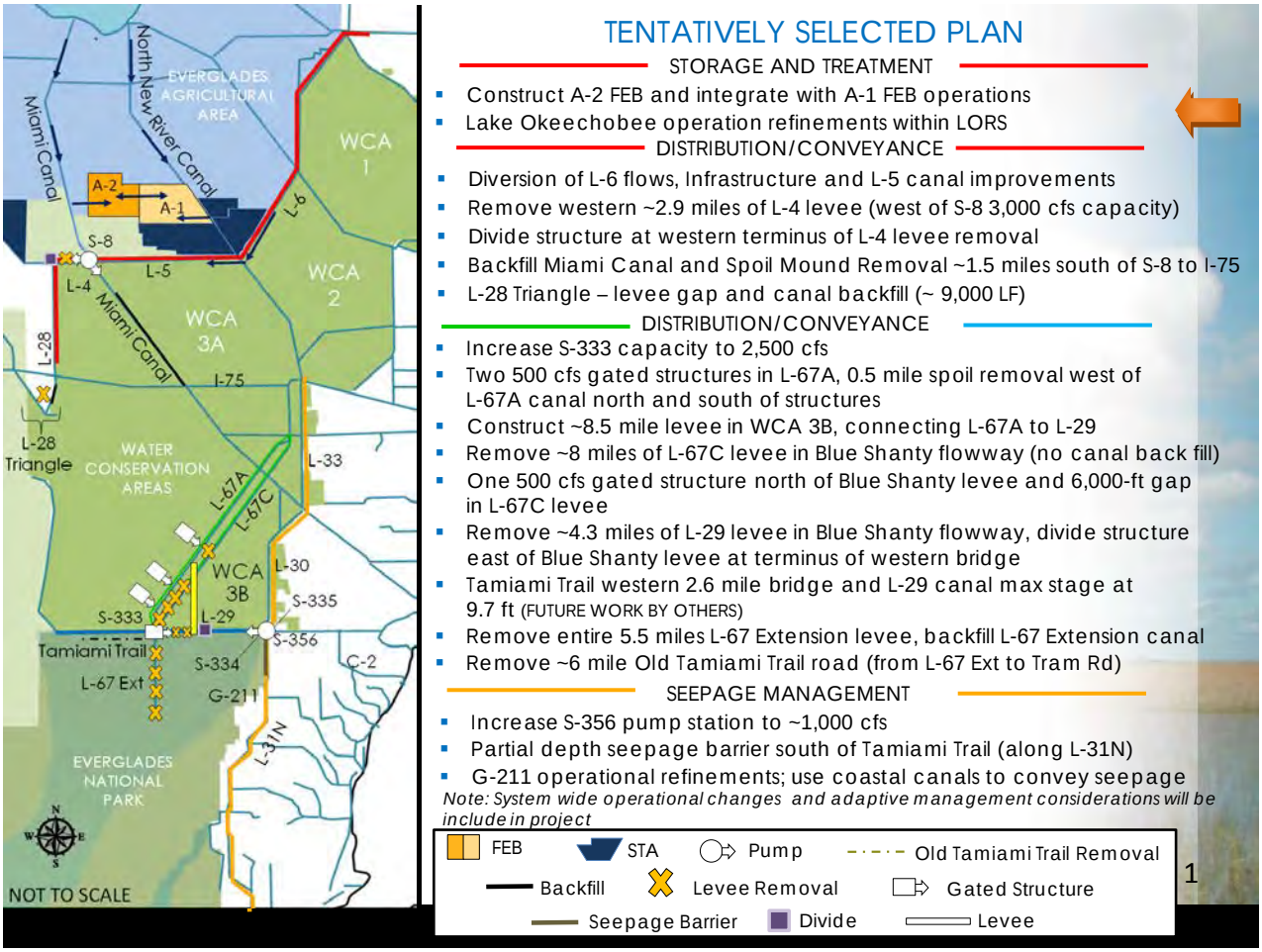
GC-3. Optimize pump station design - *Address recommendation in project design phase.*

VALUE ENGINEERING RECOMMENDATIONS

(The following recommendations were developed in a very short period of time and are intended to present conceptual measures for consideration. Further evaluation and design is required to substantiate each recommendation and provide rationale for its implementation or rejection. Also, a number of recommendations may 'conflict' with others. That is to say that one idea cannot be implemented with the other.

No decision as to preference was made by the VE Team and all options are presented for further consideration by the PDT. However, as part of the out-briefing meeting the PDT established a preliminary disposition for each recommendation. Items are noted as to what phase of project development that it will be further evaluated – Current Report Development, Project Preconstruction Engineering and Design Phase or Adaptive Management Activities for the Report or RECOVER.)

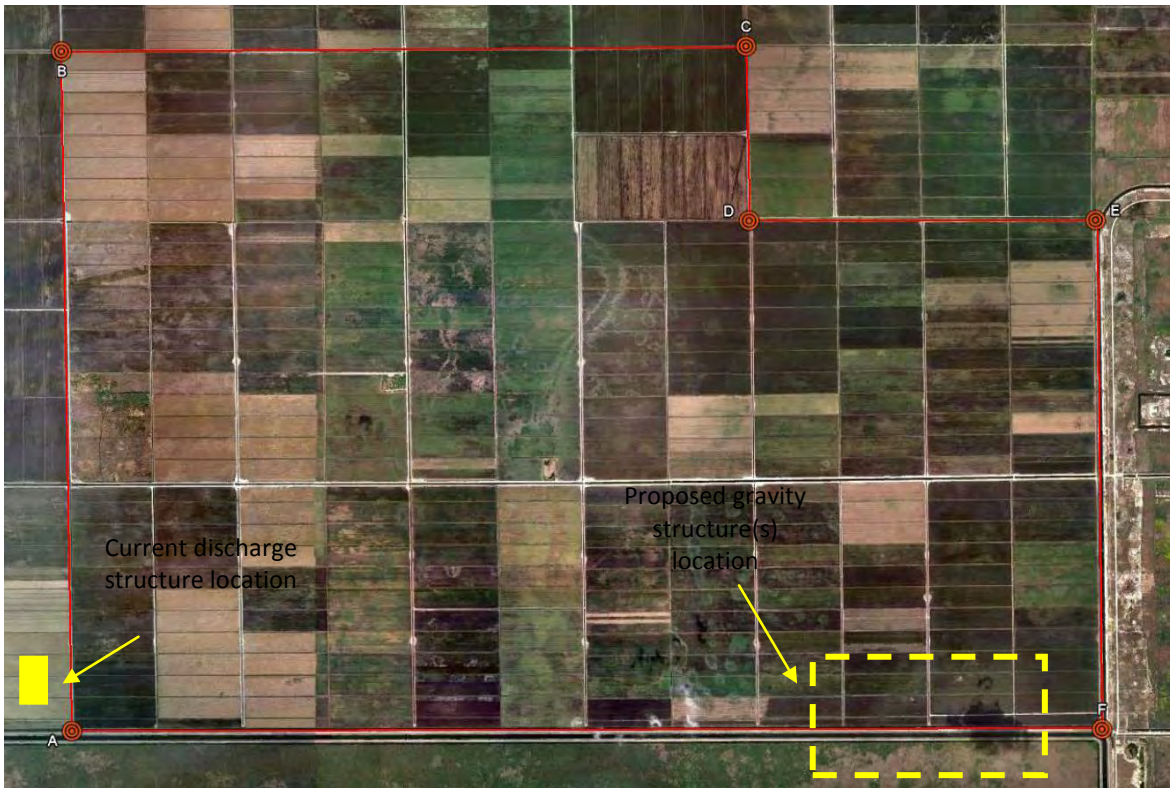
NORTH OF REDLINE



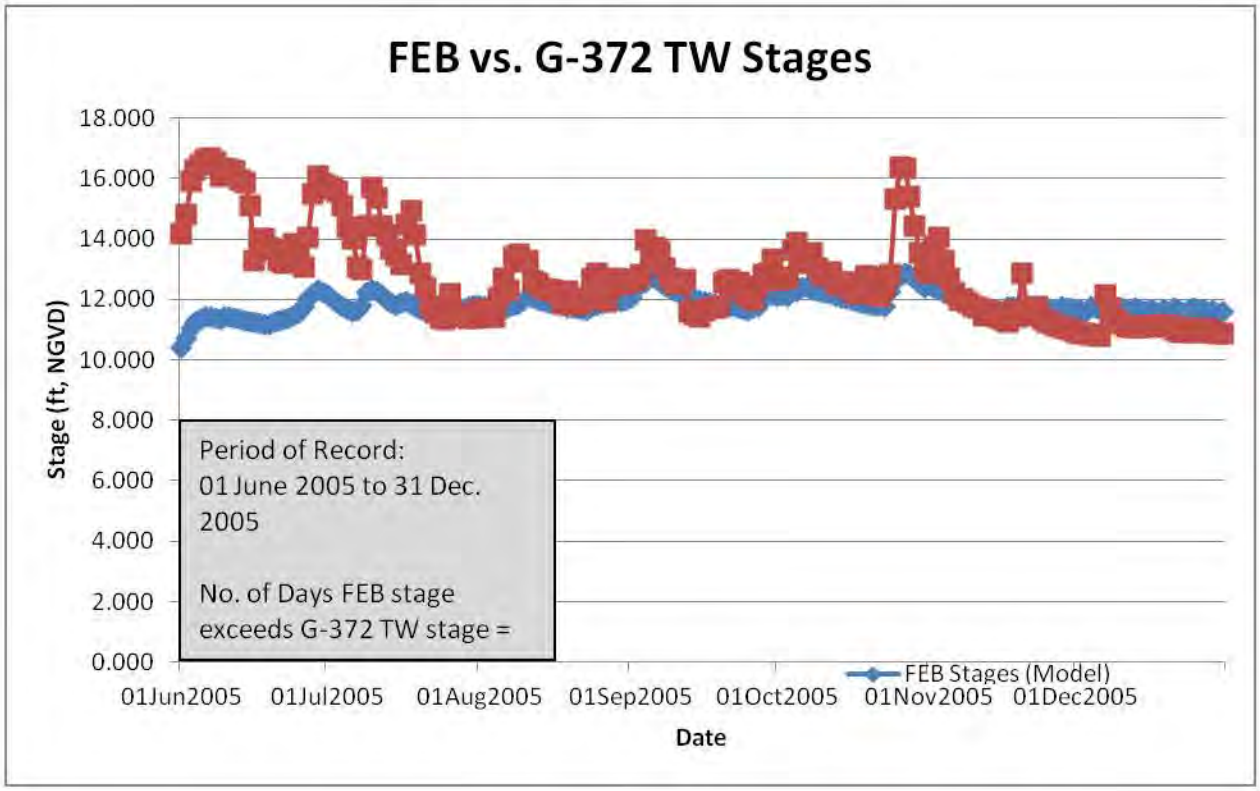
NR-1 Add outflow gravity structure on SE corner of A-2 - The currently proposed design of the A-2 FEB has one outflow structure, DS-7, located on the western perimeter discharging via an outflow canal to the headwaters of G-372. G-372 will be responsible for providing the lift to convey the discharges through the STA 3/4 Supply Canal toward the STA 3/4 inflow structures. A recommendation was made to place gravity outflow structures along the southeast corner of A-2 (see map below). This would be possible as long as the stages in STA 3/4 Supply Canal were low enough for water to pass from the FEB (max stage of 13.0 NGVD – natural grade at 9.0 NGVD with 4 ft depth). The STA 3/4 Supply Canal design stages for HW (G-372 TW) and TW (STA 3/4 Inflow structures HW) are 17.0 NGVD and 15.0 NGVD, respectively.

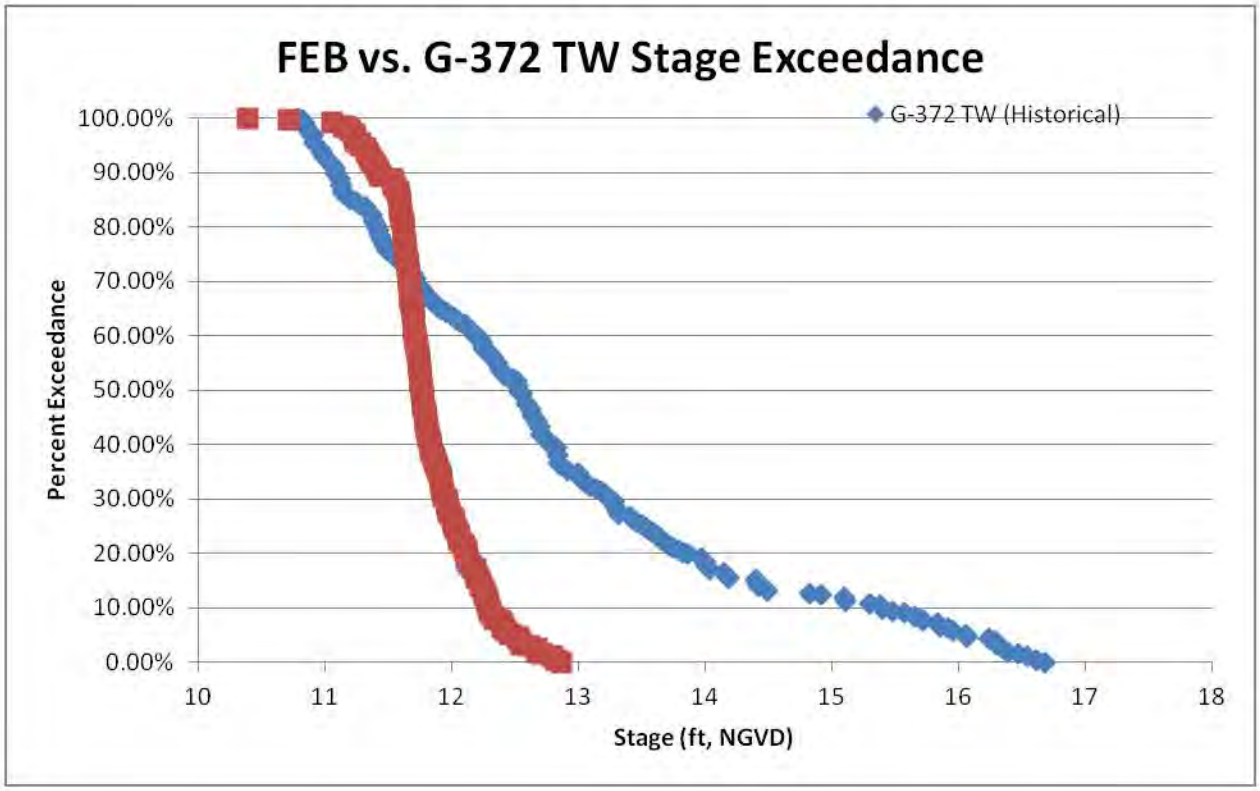
Using the same period of record (01-June-05 to 31-Dec-05) to compare historical G-372 TW stages and modeled FEB stages, data shows that FEB stages exceed G-372 TW stages on average 0.42 ft for a total of 68 days out of 214 days (31.78%). If the proposal is adopted, structures would most likely be culverts with flap gates (reference below graphs).

Preliminary disposition: *Address recommendation in project design phase.*



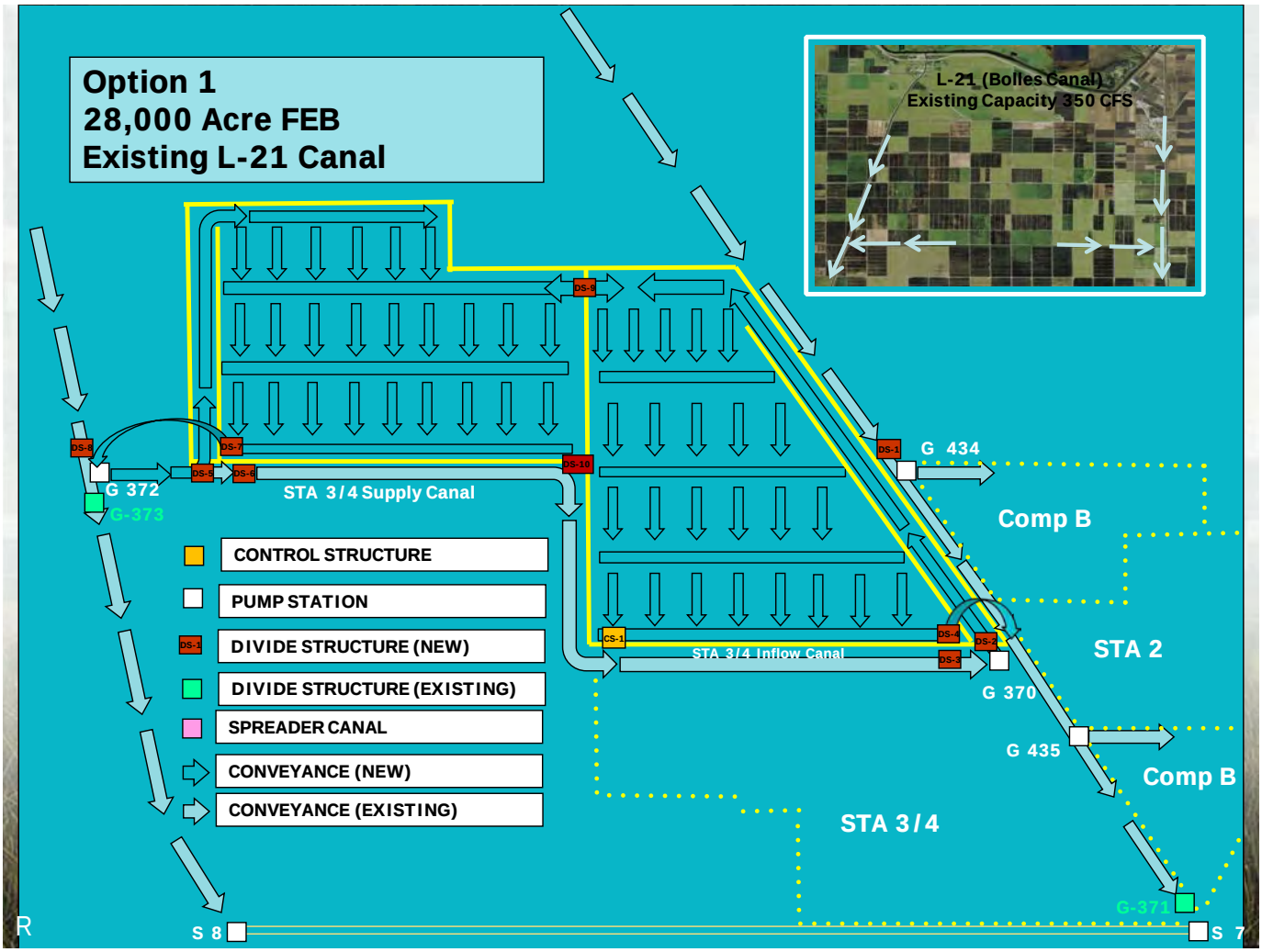
A-2 FEB Location Map


FEB vs. G-372 TW Stages
18.000
16.000
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
Stage (ft, NGVD)
Period of Record:
01 June 2005 to 31 Dec. 2005
No. of Days FEB stage exceeds G-372 TW stage =
FEB Stages (Model)
01Jun2005
01Jul2005
01Aug2005
01Sep2005
01Oct2005
01Nov2005
01Dec2005
Date


FEB vs. G-372 TW Stage Exceedance
G-372 TW (Historical)
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Percent Exceedance
10
11
12
13
14
15
16
17
18
Stage (ft, NGVD)

NR-2 Add in-line structure for North New River Canal - The structure in the North New River Canal is an in-line structure that would be located just north of Compartment B, upstream of Pump Station G-434. (See DS-1 in Figure below.) It would allow water from the A1 and A2 FEB's to be discharged into the North New River Canal without mixing with untreated water. At that point, treated water could either be pumped into Compartment B or STA 3/4 for further treatment. Initial modeling results indicate that DS-1 may not be needed for A1 to function, but further modeling and design of the A-1/A-2 FEB combination may indicate that DS-1 is needed.

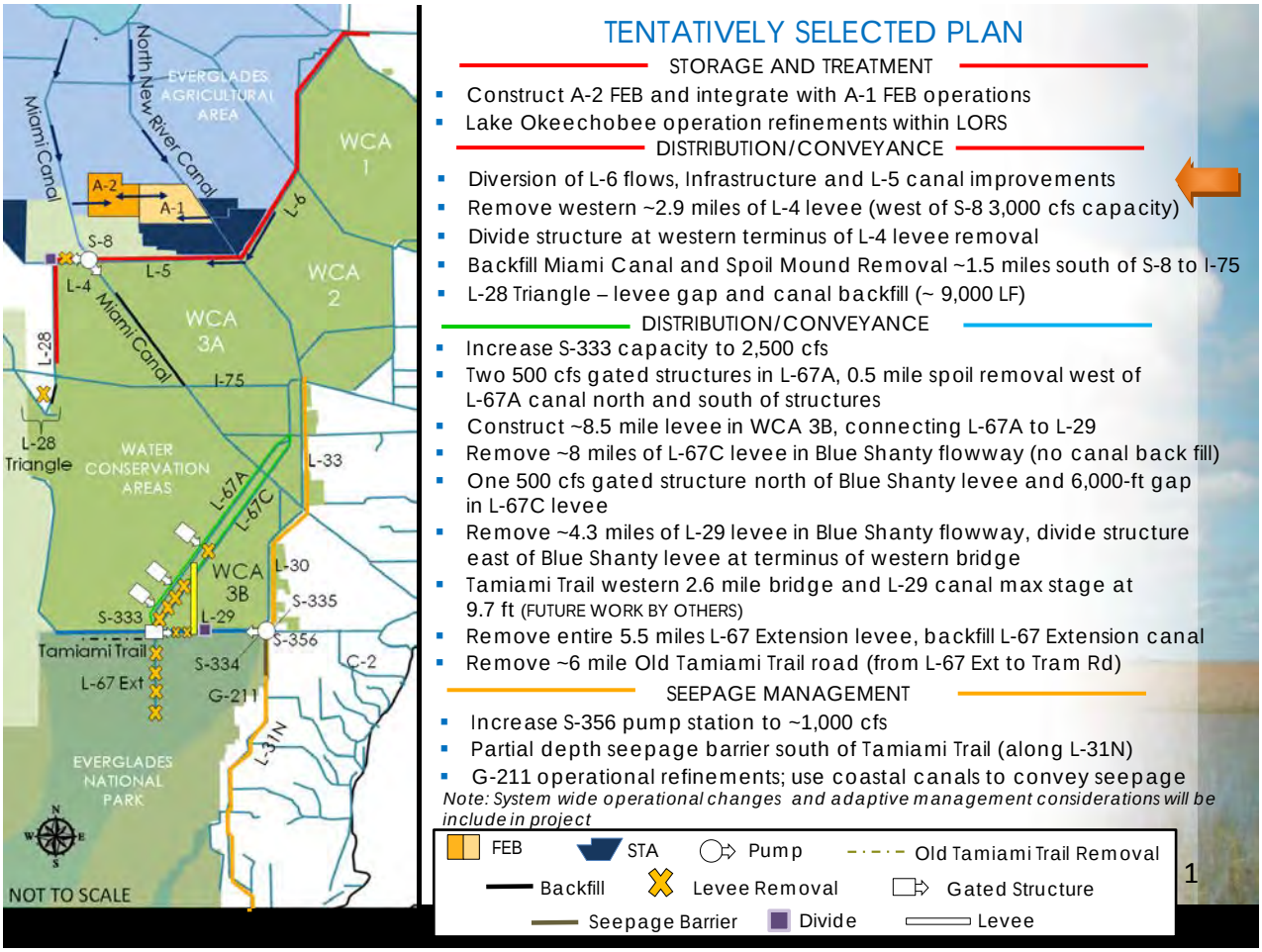
Preliminary disposition: *Address recommendation in both current plan development and project design phase.*



NR-3 Increase* DS-8 *gate capacity from 1,500 to 3,750 cfs to maintain existing drainage flowrate and water elevation – The current design of proposed flow control gated structure DS-8 should be increased to accommodate stormwater flow and designed such that no water level increase is experienced in the drainage area.

Preliminary disposition: *Address recommendation in current plan development.*

SOUTH OF REDLINE

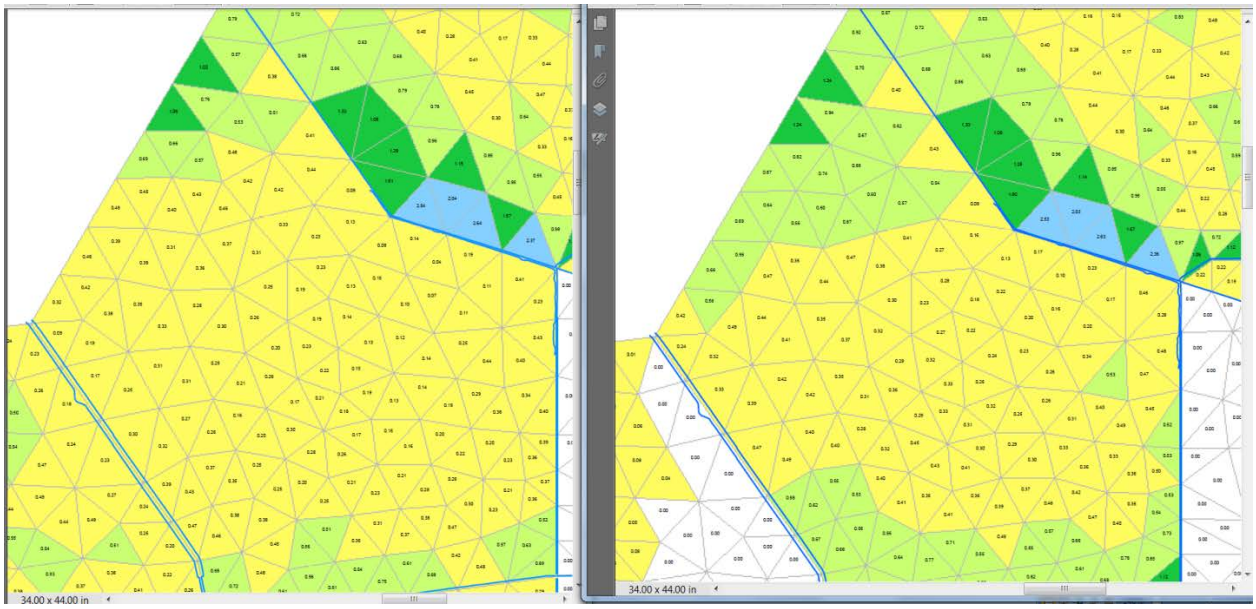


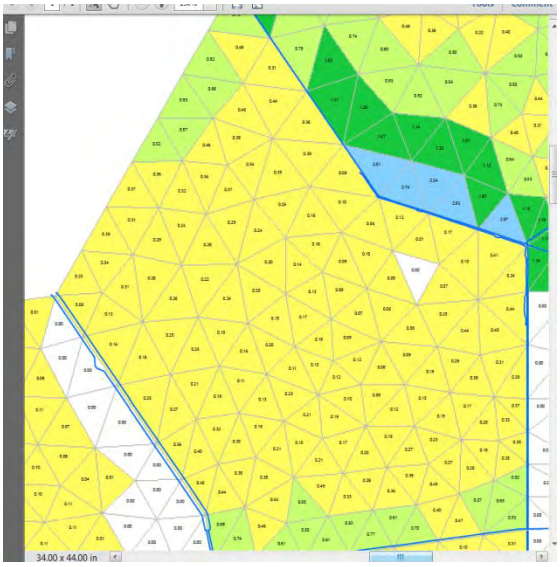
SR-1 Add AM strategy for G-336G (L6 Diversion) - As part of the CEPP TSP, L-6 diversions of STA treated water that normally would go to WCA 2A would be routed to the L-5/L-4 canals for distribution in WCA 3A. This results in unintended consequences to lowering WCA 2A (see ponding figure in dry season below) and can result in risk of dryouts and fires beyond what it currently experiences. G-336G (see pictures below) is a structure along the L-6 levee in between the EAA and WCA 2A that could potentially be used or retrofitted to help add water during dry periods to avoid drying out of WCA 2A beyond the existing conditions. The structure needs to be examined to determine whether it is controllable to move water northeast or and southwest over a variety of conditions in the canal.

Preliminary disposition: *Address recommendation in both current plan development and development of the Adaptive Management Plan.*






34.00 x 44.00 in
34.00 x 44.00 in


34.00 x 44.00 in

SR-2 Increase S-8 existing pump station horsepower and/or add supplemental exterior type pump unit(s) in lieu of constructing a new pump station – Discharge water elevations will be increased by the project. Such added head may significantly diminish (or even completely negate) existing pumping capacity from S-8. Full capacity must be maintained therefore some form of upgrade is necessary. In lieu of installing a completely new pump station, increasing pump drive horsepower with or without a supplemental exterior type pump should be considered. Added power may be all that is needed to maintain flowrate at increased head conditions. If added power still falls short, but keeps the existing pumps operating but at a lesser capacity, a supplemental pump 'pod' unit can be added to make up the difference. Added overhead structure should be minimized and an 'exterior' type of pod unit could be installed (reference **Recommendation GC-3** and see below photo of such type of pod units from East Ascension Parish, Louisiana.

Preliminary disposition: *Address recommendation in project design phase.*



SR-3 Add new pump station (S-8) - This idea is to either demolish and replace S-8 or add a new pump station in the area. The Engineering team discussed the S-8 Structure. The pump station is 4080 cfs with four 1020 cfs pumps. The structure is not deteriorating and should not be replaced. The pumps would be replaced per the maintenance schedule. Since a definite 3,000 cfs is not needed to go to the west, the water can be routed through a small canal that would connect Miami Canal to L-5 canal. Two gated structures can be placed one in the Miami Canal and one in the new connector canal to either route flow to the south or west.

Preliminary disposition: *Address recommendation in project design phase.*

SR-4 Integrate and optimize S-8 and G-404 system - S-8 can only pump a minimum of 1020 cfs, if lower flows are desired G-404 can be utilized for flows up to 600 CFS. This would allow for the most flexible system. No preliminary design compromises the G-404 structure or operations.

Preliminary disposition: *Address recommendation in both current plan development and project design phase.*

SR-5 Re-visit USFWS/FWC Draft Ecological Guidelines for Water Management in WCA-2A -

Purpose: To provide ecological targets and draft stage hydrograph (Figure 1) that more closely resembles an environmentally preferred *water management strategy for WCA-2A* (not intended to change the 2A regulation schedule).

1. Dry Season Low Recommended Depth Range (~June 1st): **0.0 – 0.5-ft**
2. Wet Season High Depth (~Oct 1st): Approximately **2.0 – 2.25-ft**
3. January 1 target depth range: ~**1.8-ft**
4. Recession Rate Guidelines (January 1- June 1): **0.05 ft/wk** (snail kite preferred) **– 0.07 ft/wk** (wood stork and state listed wading birds).
5. Ascension Rate Guidelines (June 1 – Oct 1) Maximum of **0.25 ft/week** and approximately **0.05 ft/wk** minimum. Preferred **0.05-0.15-ft**.

Assumption: Ground surface elevation of 10.75-ft NGVD (EDEN Wet Prairie Site 17). Ultimately, WCA-2A will need to join the periodic scientist calls for real-time water management with ecological recommendations for recession rates, ascension rates, and core foraging depths.

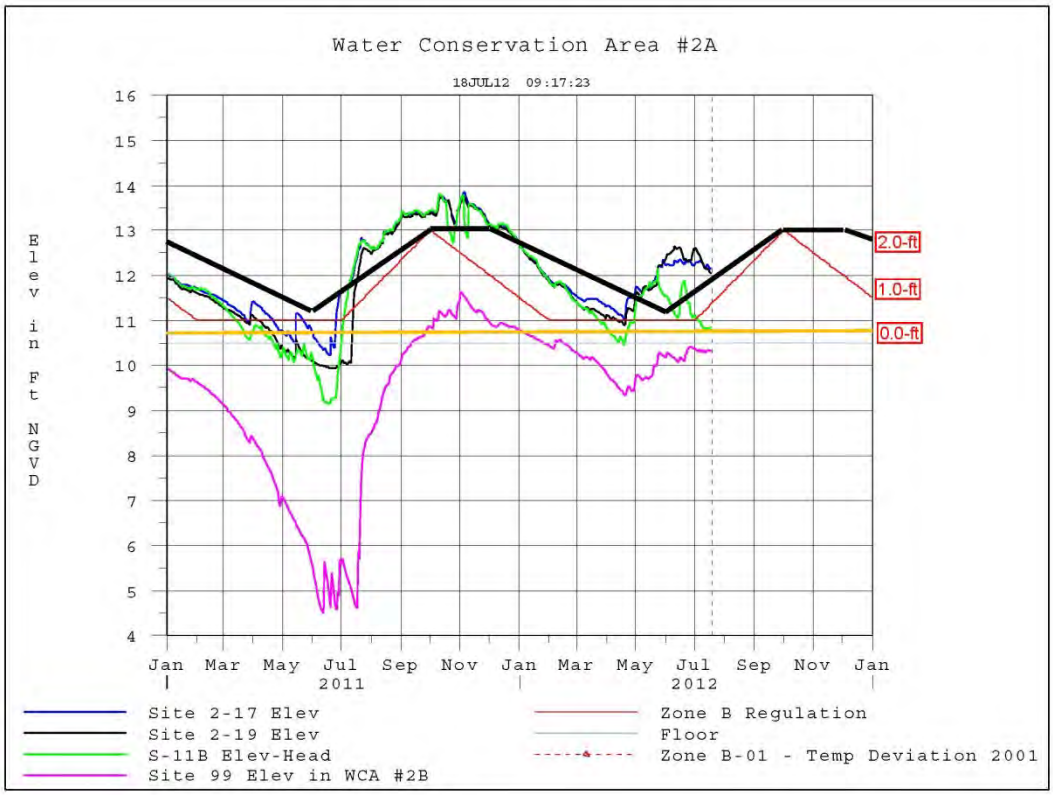
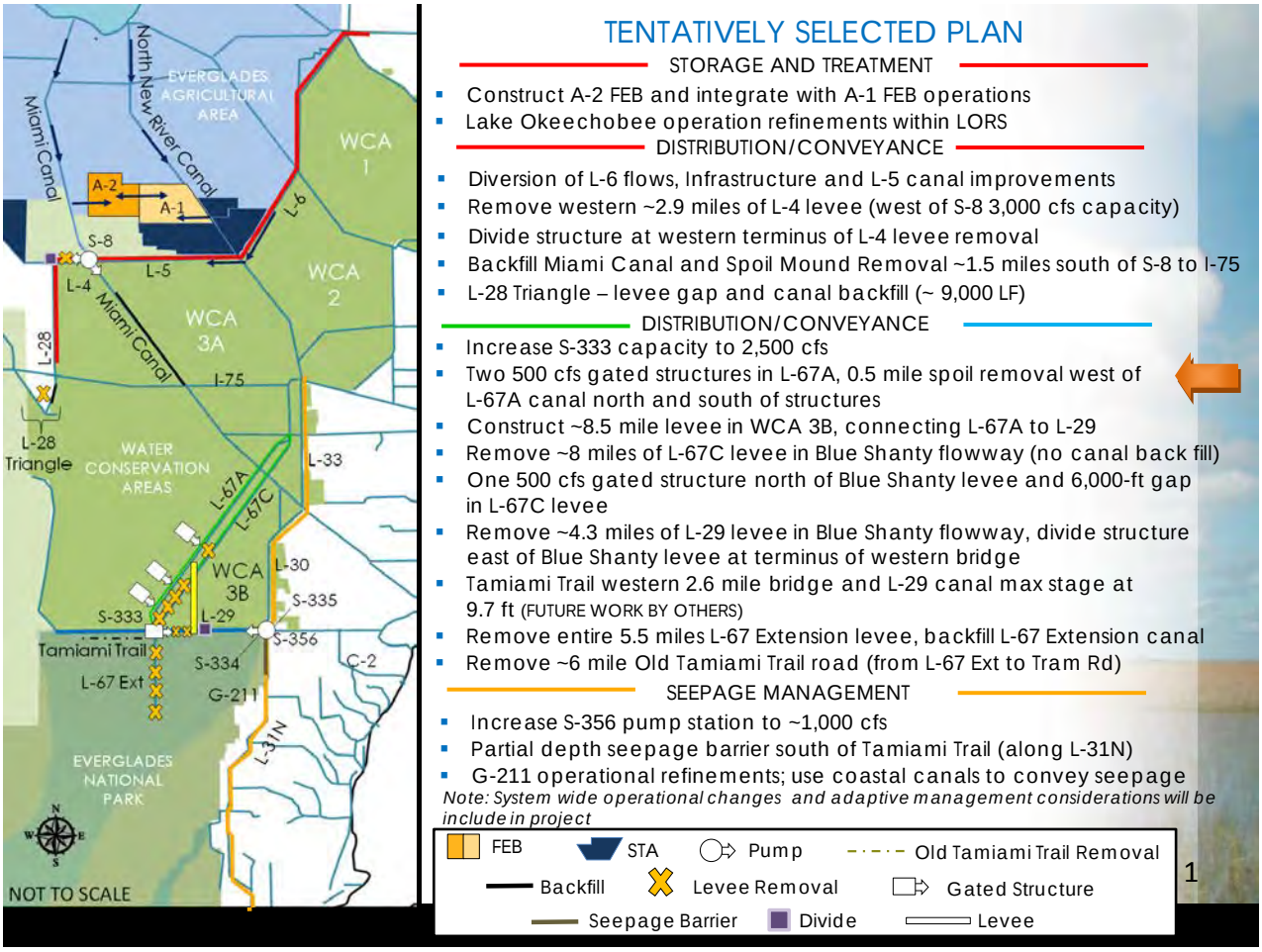


Figure1. Draft targets above represented as black line on existing 2A stage hydrograph (stage in NGVD on y-axis, water depth on x-axis).

Preliminary disposition: *Address recommendation in development of Adaptive Management Plan.*

GREENLINE AND BLUELINE

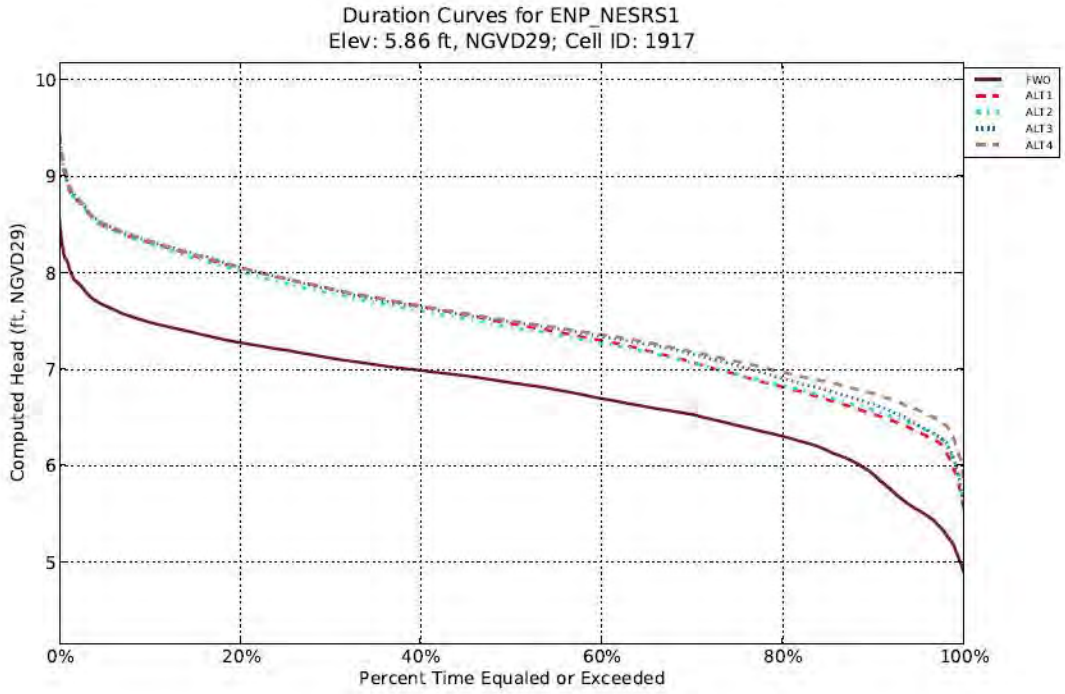


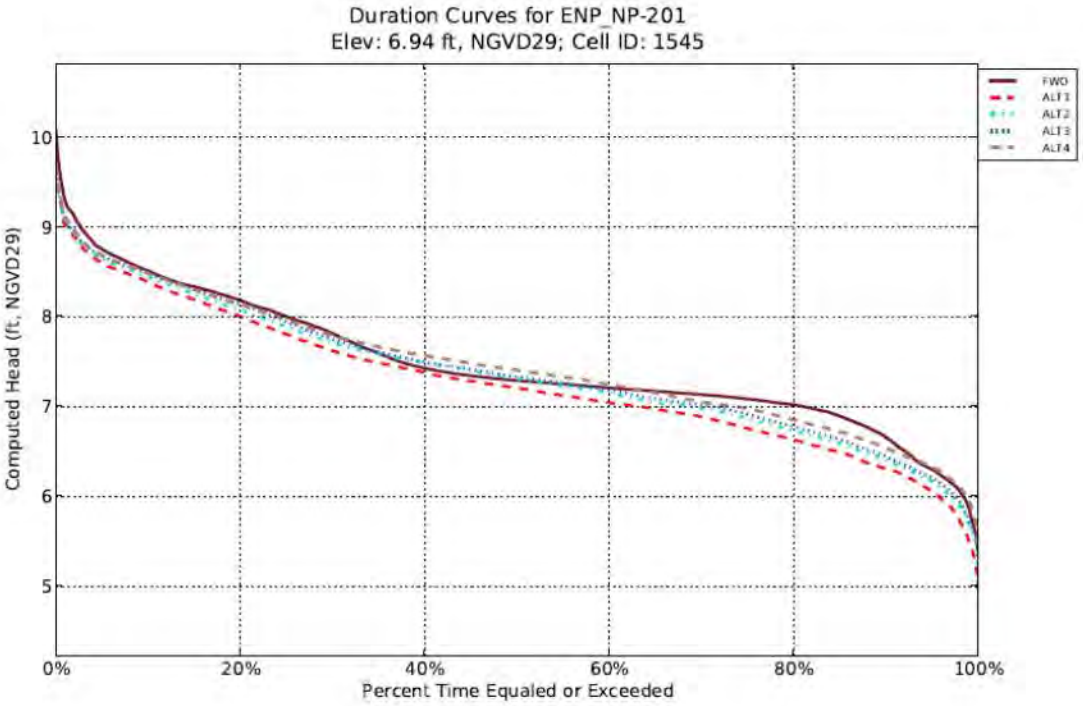
GB-1. Consider partial removal of the remaining length of the L-67 Extension Levee and/or canal system; also consider only partial removal of Old Tamiami Trail - The frequency and duration of high water conditions within WCA-3A must not be increased with implementation of CEPP (compared to ERTP), and the S-12s are the primary regulatory outlets for WCA-3A. Removal of all or portions of the Old Tamiami Trail, between ENP Tram Road and L-67 Extension (~6 miles), provides increased conveyance capacity for the S-12C and S-12D structures from WCA-3A and would enhance the spatial extent of sheetflow within western Shark River Slough (SRS). The CERP plan recommends complete removal of the L-29 Levee, which would require removal of the Old Tamiami Trail roadway to realize benefits. SAJ-EN anticipates that removal of more than ~1.5 miles of the L-67 Extension Canal (with or without adjacent levee removal) is anticipated to significantly reduce the outlet conveyance capacity of the S-12C and S-12D, and would require mitigation of these effects through removal of all or portions of this ~6-mile section of the Old Tamiami Trail. Note that removal of Old Tamiami Trail west of the ENP Tram Road is not included with CEPP due to the location of the Miccosukee Reservation along Tram Road and T&E concerns with releases from S-12A and S-12B.

Option 1: Remove of 1.5 miles of the L-67 Extension Levee and Canal (modeled CEPP Alternative 1). Removal of ~1.5 miles of the L-67 Extension Canal is anticipated to negligibly affect the outlet conveyance capacity of the S-12C and S-12D (previously considered with the MWD Project), and would not likely require mitigation through removal of all or portions of this section of the Old Tamiami Trail. This option would provide reduced hydrologic connectivity between Western SRS and Northeast SRS, as compared to the TSP (although greater than the No Action condition). Depending on the CEPP flow distributions within other parts of the system, which is still being adjusted with ongoing modeling, the stage differential between CEPP Alternative 1 (1.5 mile L-67 Extension removal) and CEPP Alternatives 2-4 (complete L-67 Extension removal) are negligible at NESRS-1 (see Alternative 2) and minor at approximately 0.1-0.2 feet at NP-201 (see accompanying figures). The performance-based TSP selection of Alternative 4 was not critically dependant on the L-67 Extension configuration. Option 1 is also a potential adaptive management increment.

Option 2: Remove most or all of L-67 Extension Levee and do not fill canal (not modeled in CEPP alternatives). This option would provide hydrologic connectivity between Western SRS and Northeast SRS, comparable to the CEPP TSP performance. A modest reduction in the outlet conveyance capacity of the S-12C and S-12D would be expected due to the increased hydrologic interaction between S-333 and the S-12s, although this may be offset with the significant reduced regulatory reliance on the S-12s with CEPP implementation (as modeled). Complete removal of the segment of Old Tamiami Trail would not be required and the L-67 Extension Levee material could be utilized for other CEPP components (i.e. Blue Shanty Levee), potentially with material processing requirements.

Preliminary disposition: *Address recommendation in development of Adaptive Management Plan.*


Duration Curves for ENP_NESRS1
Elev: 5.86 ft, NGVD29; Cell ID: 1917
Computed Head (ft, NGVD29)
Percent Time Equaled or Exceeded
FWO
ALT1
ALT2
ALT3
ALT4
10
9
8
7
6
5
0%
20%
40%
60%
80%
100%

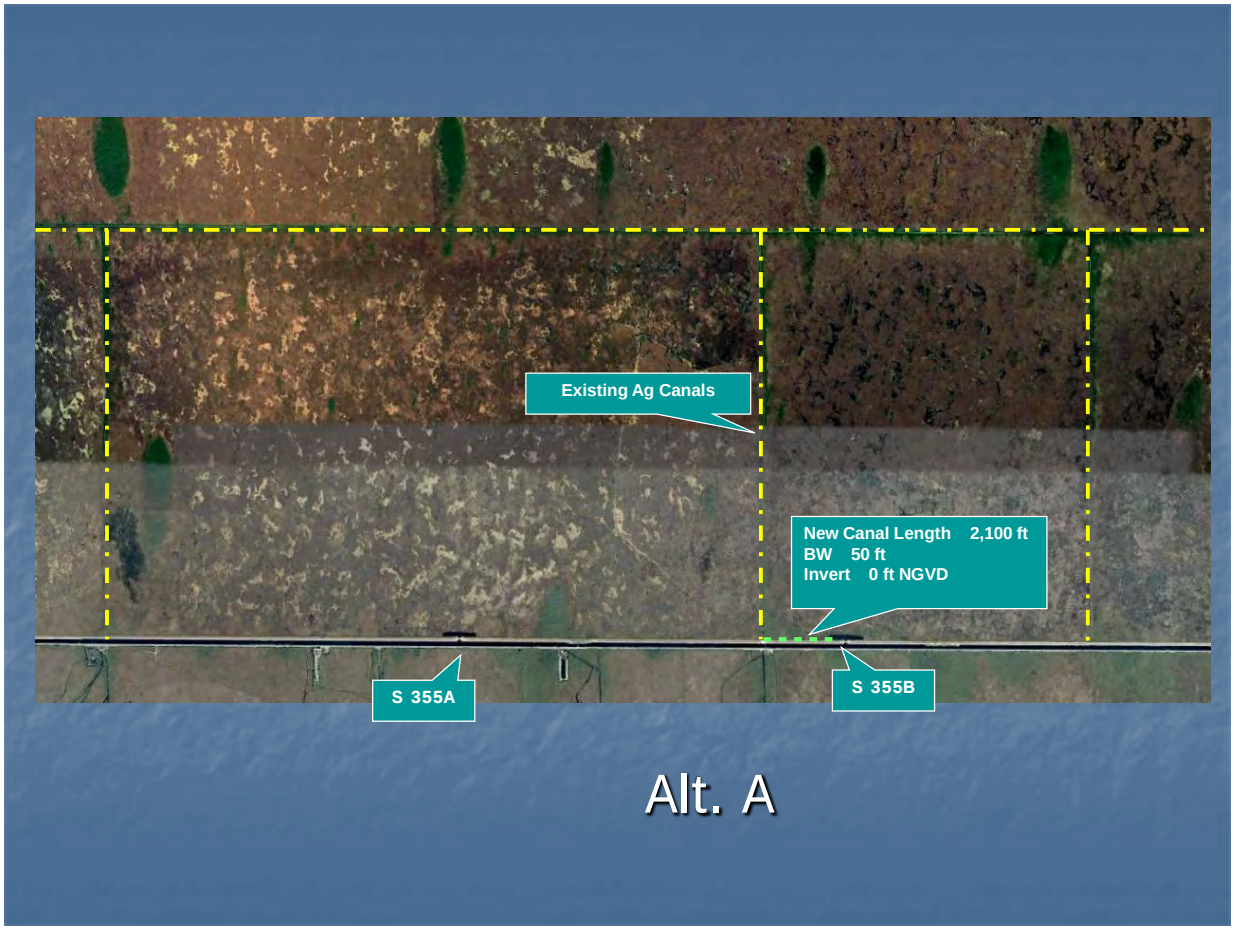

Duration Curves for ENP_NP-201
Elev: 6.94 ft, NGVD29; Cell ID: 1545
Computed Head (ft, NGVD29)
Percent Time Equaled or Exceeded
FWO
ALT1
ALT2
ALT3
ALT4
10
9
8
7
6
5
0%
20%
40%
60%
80%
100%

GB-2. Consider extending S-355B collector canal - Ongoing CEPP TSP adjustments and associated hydrologic modeling have included recommendations to increase stages within eastern WCA-3B, east of the Blue Shanty levee, compared with Alternative 4 stages. The TSP cost estimate included placeholders for potential conveyance improvements within the WCA-3B remnant agricultural ditches, east of the Blue Shanty levee. The conveyance improvements were intended to improve the ability to achieve north-to-south flows from eastern WCA-3B to the L-29 Canal, via the existing S-355A and S-355B gravity spillway structures.

Since the CEPP TSP does not include additional WCA-3B outlet structures for eastern WCA-3B, this proposal would extend the existing 1000 foot upstream collector canal for S-355B by 0.4 miles (~2100 feet) to tie-in with the Central remnant north-south agricultural ditch (with associated conveyance improvements to the Central remnant north-south agricultural ditch and the remnant east-west agricultural ditch), as shown in the below map. By providing a hydrologic connection between the S-355B collector canal and the remnant agricultural ditches, the efficiency and quantity of conveyance from southern WCA-3B to the S-355B will be improved (degree is dependent on operating stages within WCA-3B and design details). Gravity outflow from WCA-3B will remain dependant on managing water levels within WCA-3B higher than stages in the L-29 Canal, east of the proposed CEPP L-29 Divide structure. CEPP stakeholders have expressed concerns with significant increased water management stages within WCA-3B, without providing sufficient WCA-3B outlet capability. Collector canal construction would impact at minimum 7-10 acres of WCA-3B wetlands located along the interior toe of the L-29 Levee, assuming current dimensions of the S-355B collector canal.

The S-355A and associated collector canal is located east of the proposed Blue Shanty levee and 1.7 miles west of the Central remnant north-south agricultural ditch. The Western remnant north-south agricultural ditch is located within the footprint of the proposed Blue Shanty flow-way. The proposed S-355B collector canal extension represents the minimum amount of additional collector canal construction that would improve the capability to utilize the existing S-355s to convey water out of WCA-3B. Construction of a new gravity culvert structure at the southern terminus of the Central remnant north-south agricultural ditch could be considered as an alternative to the extension of the S-355B collector canal. These options have been previously proposed for consideration during the MWD Project.

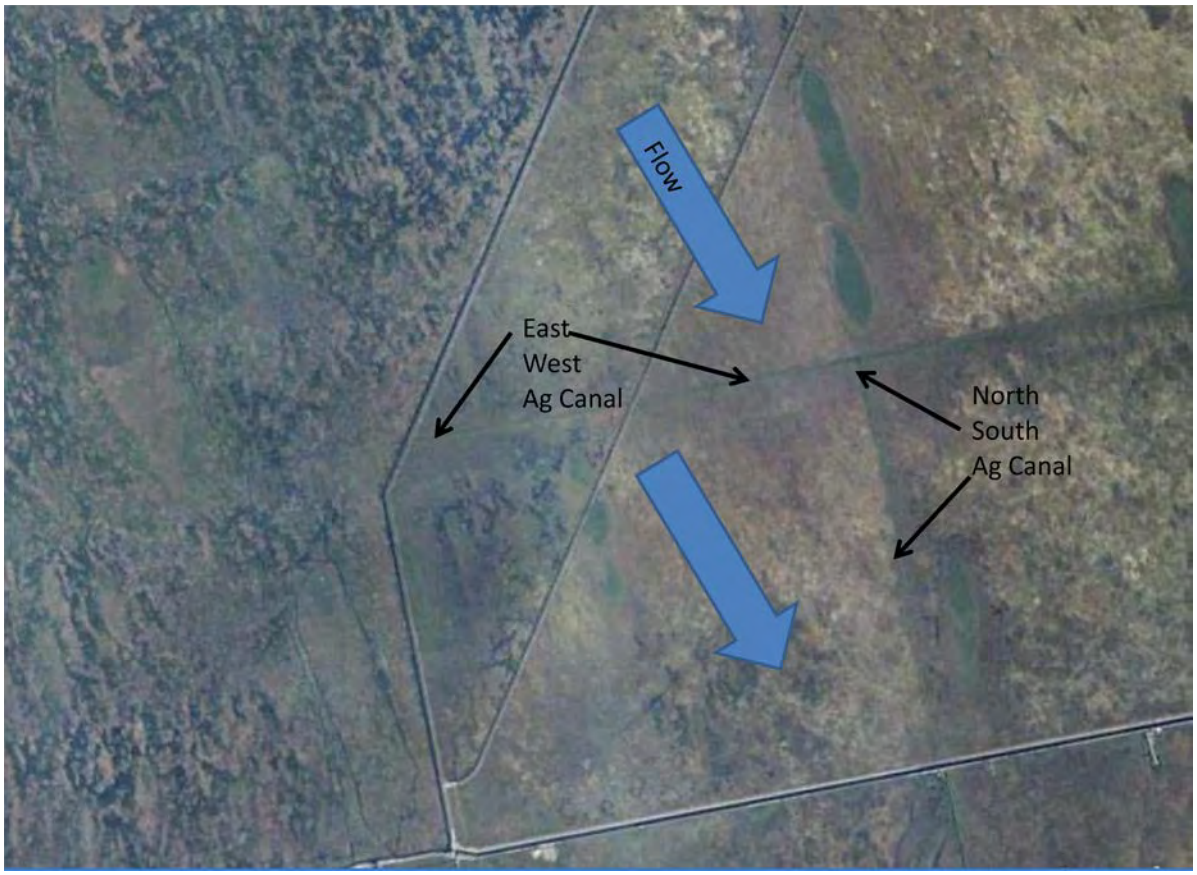
Preliminary disposition: *Address recommendation in both current plan development and development of the Adaptive Management Plan*


Existing Ag Canals
New Canal Length 2,100 ft
BW 50 ft
Invert 0 ft NGVD
S 355A
S 355B
Alt. A

GB-3. Modify the ag canals in flowway - In southern WCA 3B there are remnant agricultural canals. Within the proposed Blue Shanty Flow way there is one east-west running canal that connects to one north south canal (Blue Shanty Canal). These canals impose a scar on the landscape that can easily be seen from an aerial view (see map below).

The agricultural canals are shallow and heavily vegetated with water lilies and cattails (indicating depths of 3-6 feet). There are mounds along both side of the canals, approximately one-foot higher than adjacent marsh grade. The mounds are heavily vegetated with willows and pond apple. If left in place, the spoil mounds along the canal impose barriers so sheetflow (see flow arrows in figure) when water levels are low. In addition, the north south canal will act as a drainage canal once the Blue Shanty Flowway is constructed. Removing the spoil mounds and backfilling the Blue shanty (north south) canal would improve the project benefit by removing barriers to sheetflow, and would provide water quality benefits by allowing water to flow through the marsh eliminating any short circuiting/drainage trough the north south canal. Additionally, removing the ag canals could help offset some of the environmental impacts from the proposed new levee in WCA 3B.

Preliminary disposition: *Address recommendation in both current plan development and development of the Adaptive Management Plan*



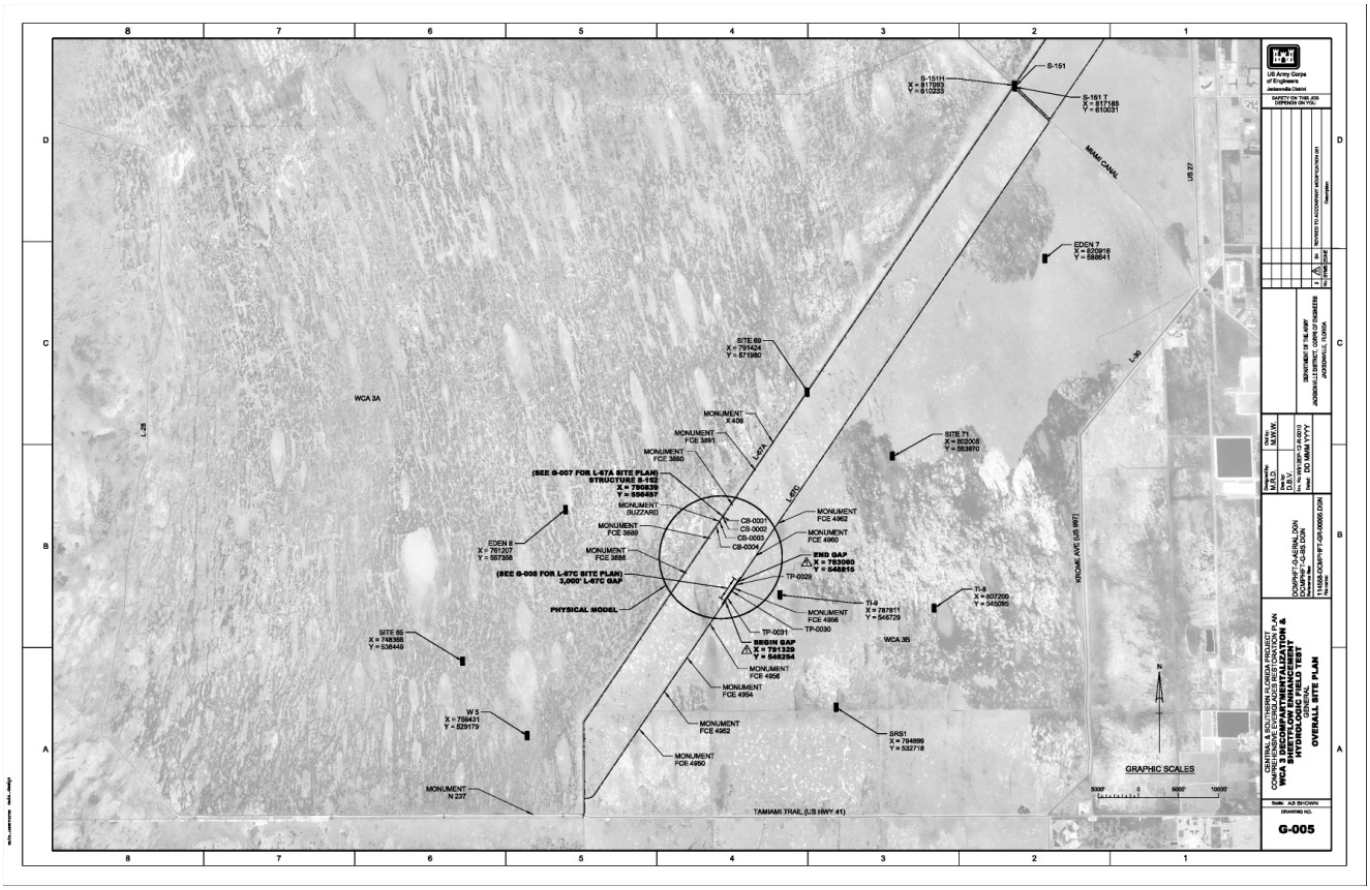
GB-4. Use vegetation management to reduce vegetative resistance to water flow downstream of L-67A new structures S-345D & G - Much of the vegetation and landscape structure south of L-67 levees in WCA 3B is dense sawgrass without any sloughs. The desired landscape structure is for longer hydroperiods that promote development of a ridge and slough landscape. There is a potential that sheetflow velocities may not be high enough from the L-67 structures to move sheetflow at rates fast enough across the sawgrass plain to get the desired restoration benefits. Sawgrass has a high friction coefficient that slows down velocity, and based on actual implementation, may require specific vegetation management activities to facilitate transition of the landscape to more ridge and sloughs (e.g., herbicide, focused fire during wet season, or other least destructive method).

Preliminary disposition: *Address recommendation in development of the Adaptive Management Plan*

GB-5 Retrofit DPM structure (S-152 800 cfs 10 - 60" HDPE barrels); Use DPM structure for interim period - USACE and SFWMD entered in a design agreement May 12, 2000 for purposes of conducting activities related to planning, engineering and design of CERP projects. The Decomp Physical Model known as DPM project was permitted as a large-scale field test designed to answer uncertainties with depth, hydroperiod, sheetflow and canal backfilling associated with the full-scale CERP DECOMP project. It was designed for a 5 year life cycle to go in place and be removed between 5-10 years as described in the DECOMP DPM Design Test Documentation Report. The DPM contract is scheduled for completion 2013. L-67C 3,000 ft gap was completed in Nov 2012. Plan is to conduct test for 2 years after construction complete for (2 months) of each year. Part of the permitting also conceptually approved de-installation (removal) of S-152, excavation of backfill material from L-67C canal, L-67A and L-67C levee reconstruction and finally removal of temporary access roads and spoil areas (see below drawing).

This VE recommendation proposes to retrofit the existing temporary (S-152 test structure) that was designed within the constraints noted above (design test, temporary nature, easily removable materials after test complete). A second part of this proposal is allow DPM components to remain in place and use it to continue to collect information through CEPP Adaptive Management. PROS – The existing temporary structure can be operated to see how 3B responds and what benefits you will achieve moving existing water through 3B and potentially the proposed flowway. CONS- maintenance responsibilities of the structure and functionality if left in place longer than the 10 year design life concept. It affects material selection as well as potential problems for seepage of the culverts. This idea is something that could merit consideration for the VE Report and further investigation during PED detail design phase.

Preliminary disposition: *Address recommendation in both project design phase and development of the Adaptive Management Plan*



GB-6. Re-visit L-29 gated divider structure to determine actual flow need and gate flow size - The current design flow capacity of the proposed L-29 gated divider structure is reported to be 1,350 cfs. It appears that no stormwater flow accommodation is needed in this location and a reduction in capacity may be possible. In addition to conveyance structure size reduction, lowering the flow rate may allow use of a pipe culvert in lieu of a more expensive concrete box.

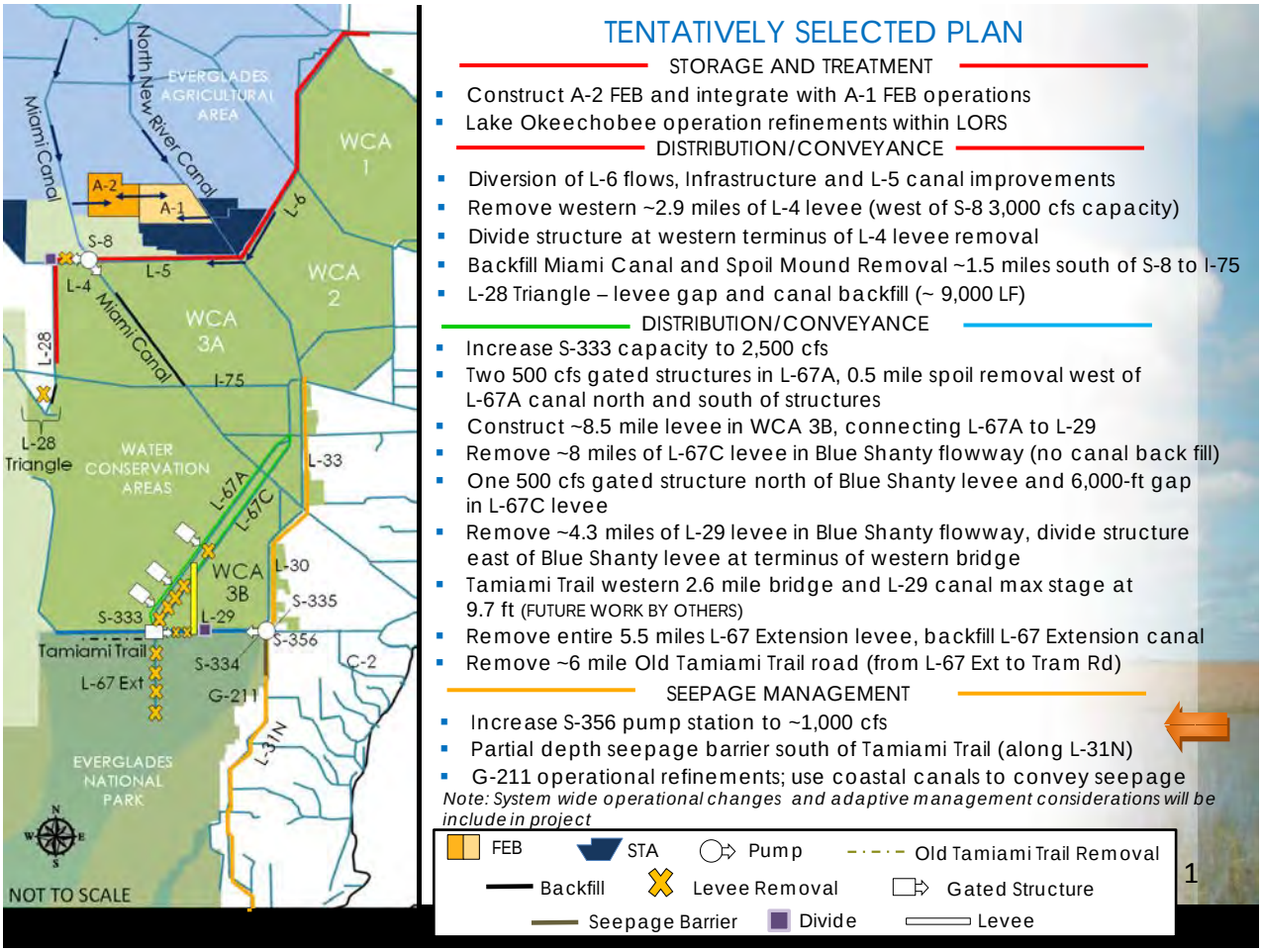
Preliminary disposition: *Address recommendation in both current plan development and development of the Adaptive Management Plan*

GB-7. Optimize operations at most northern structure into WCA 3B (consider for other control structures) - Discussions on the optimization of any structure would be dependent on a system-wide analysis of the operations , taking into account the water level regulations, existing and future structures, levees, and gaps, among other things. An individual refinement of operations that haven't been developed would be unable to yield useful information. At this stage, modeling would be required to determine what additional benefits could be obtained. When the operations are developed, each structure and feature's respective operations will be optimized to work together as part of the larger system. Such a structure where this appears to be pertinent is S-345C, the most northern control point of WCA 3B.

Preliminary disposition: *Address recommendation in development of the Adaptive Management Plan*



YELLOWLINE


TENTATIVELY SELECTED PLAN
STORAGE AND TREATMENT
Construct A-2 FEB and integrate with A-1 FEB operations
Lake Okeechobee operation refinements within LORS
DISTRIBUTION/CONVEYANCE
Diversion of L-6 flows, Infrastructure and L-5 canal improvements
Remove western ~2.9 miles of L-4 levee (west of S-8 3,000 cfs capacity)
Divide structure at western terminus of L-4 levee removal
Backfill Miami Canal and Spoil Mound Removal ~1.5 miles south of S-8 to I-75
L-28 Triangle – levee gap and canal backfill (~ 9,000 LF)
DISTRIBUTION/CONVEYANCE
Increase S-333 capacity to 2,500 cfs
Two 500 cfs gated structures in L-67A, 0.5 mile spoil removal west of L-67A canal north and south of structures
Construct ~8.5 mile levee in WCA 3B, connecting L-67A to L-29
Remove ~8 miles of L-67C levee in Blue Shanty flowway (no canal back fill)
One 500 cfs gated structure north of Blue Shanty levee and 6,000-ft gap in L-67C levee
Remove ~4.3 miles of L-29 levee in Blue Shanty flowway, divide structure east of Blue Shanty levee at terminus of western bridge
Tamiami Trail western 2.6 mile bridge and L-29 canal max stage at 9.7 ft (FUTURE WORK BY OTHERS)
Remove entire 5.5 miles L-67 Extension levee, backfill L-67 Extension canal
Remove ~6 mile Old Tamiami Trail road (from L-67 Ext to Tram Rd)
SEEPAGE MANAGEMENT
Increase S-356 pump station to ~1,000 cfs
Partial depth seepage barrier south of Tamiami Trail (along L-31N)
G-211 operational refinements; use coastal canals to convey seepage
Note: System wide operational changes and adaptive management considerations will be include in project
FEB
STA
Pump
Old Tamiami Trail Removal
Backfill
Levee Removal
Gated Structure
Seepage Barrier
Divide
Levee
1
EVERGLADES AGRICULTURAL AREA
North New River Canal
Miami Canal
WCA 1
WCA 2
WCA 3A
WCA 3B
A-2
A-1
S-8
L-4
L-5
L-6
L-28
L-28 Triangle
I-75
WATER CONSERVATION AREAS
L-33
L-67A
L-67C
L-30
S-335
S-333
L-29
S-356
Tamiami Trail
L-67 Ext
S-334
G-211
C-2
L-31N
EVERGLADES NATIONAL PARK
N
W
E
S
NOT TO SCALE

Y-1 Determine new S-356 pump station capacity based on functional risk; do not design for both full contingency and unit redundancy – The proposed S-56 pump station is currently slated for 1,000 cfs capacity. This is based on current modeling of anticipated increased seepage flowrate of 750 cfs after completion of the adjacent canal seepage cut-off wall with project induced increased water levels in the Everglades Park (note that further modeling will likely change this value). The added 250 cfs is, for lack of a better term, contingency since seepage flow prediction has a relative degree of uncertainty.

Standard pump station design calls a unit redundancy such that design capacity is met with the largest unit out of operation. While not the same thing, but with some overlapping implicit risk, the above mentioned 'contingency' to some extent duplicates unit redundancy. While this station is indirectly a flood control feature as it will prevent downstream drainage canals from having elevated water levels, some reduction in total station size appears to be warranted given the above mention overlapping components of added reserve capacity.

The opportunity may exist to realize actual seepage flowrate via further use of the existing 500 cfs temporary pump station at this location. This would allow completion of the seepage wall and water delivery features such that seepage conveyance requirements can be measured (see **Recommendation Y-3** below).

Preliminary disposition: *Address recommendation in both current plan development and project design phase.*

Y-2 For S-356, eliminate redundant pump but incorporate possible future expansion –
If some risk is taken in the firm capacity design of S-356 as indicated above, then consideration should be given to the possible need to increase the pump station capacity. Such design features may include but not be limited to:

- Accommodating larger/faster motors such that individual pump unit capacities could be mechanically increased.

- Accommodating station expansion to one side (minimizing impact to ancillary features)

- Acquiring extra land to for possible expansion

Such design considerations would minimize the cost consequences if the new station is initially built with limited capacity.

Preliminary disposition: *Address recommendation in project design phase.*

Y-3 Defer construction of new S-356 pump station until adjacent seepage wall is constructed and system tested; further utilize existing S-356 temporary pump station – The S-356 site has an existing 500 cfs pump station that was installed for temporary service. It appears to be functional and potentially capable of limited continued service with some needed re-habilitation. Should further service form this station be applied, it will be possible to defer installation of the **$45 million** new S-356

station currently planned at 1,000 cfs capacity. This option would call for the construction of the proposed adjacent canal seepage barrier cut-off wall and project purpose water level increase in the Everglades Park. The existing 500 cfs pump station will likely be capable of accommodating most if not all seepage flow and actual pumping needs can be measured (see above recommendation regarding station design flowrate determination – 750 cfs / 1,000 cfs). Note that initial hydration of the Park can be initially controlled until such that pump station capacity is not exceeded.

In addition to the ability to refine design capacity for the new, permanent pump station (possibility of reduced station size and significant cost), two other benefits can be realized:

- First, given no delay in project benefits, the deferral of this $45 million expenditure negates interest lost during construction for the time period of temporary pump utilization (5 – 10-years @ 3.75% or about $8.5 to $17 million).

- ***Second, and more important, is the fact that deferring this expenditure allows placement of other features that will likely produce additional net project benefits in earlier years.***

Implementation of extending service of the temporary station appears to be difficult. Difficulties include, but may not be limited to:

- Expiration of current federal authorization and funding for operation and maintenance

- Ownership and responsibility

- Current litigation regarding discharge water quality (issue for permanent station as well but this option would require faster resolution)

- Physical rehabilitation of the station to facilitate continued use

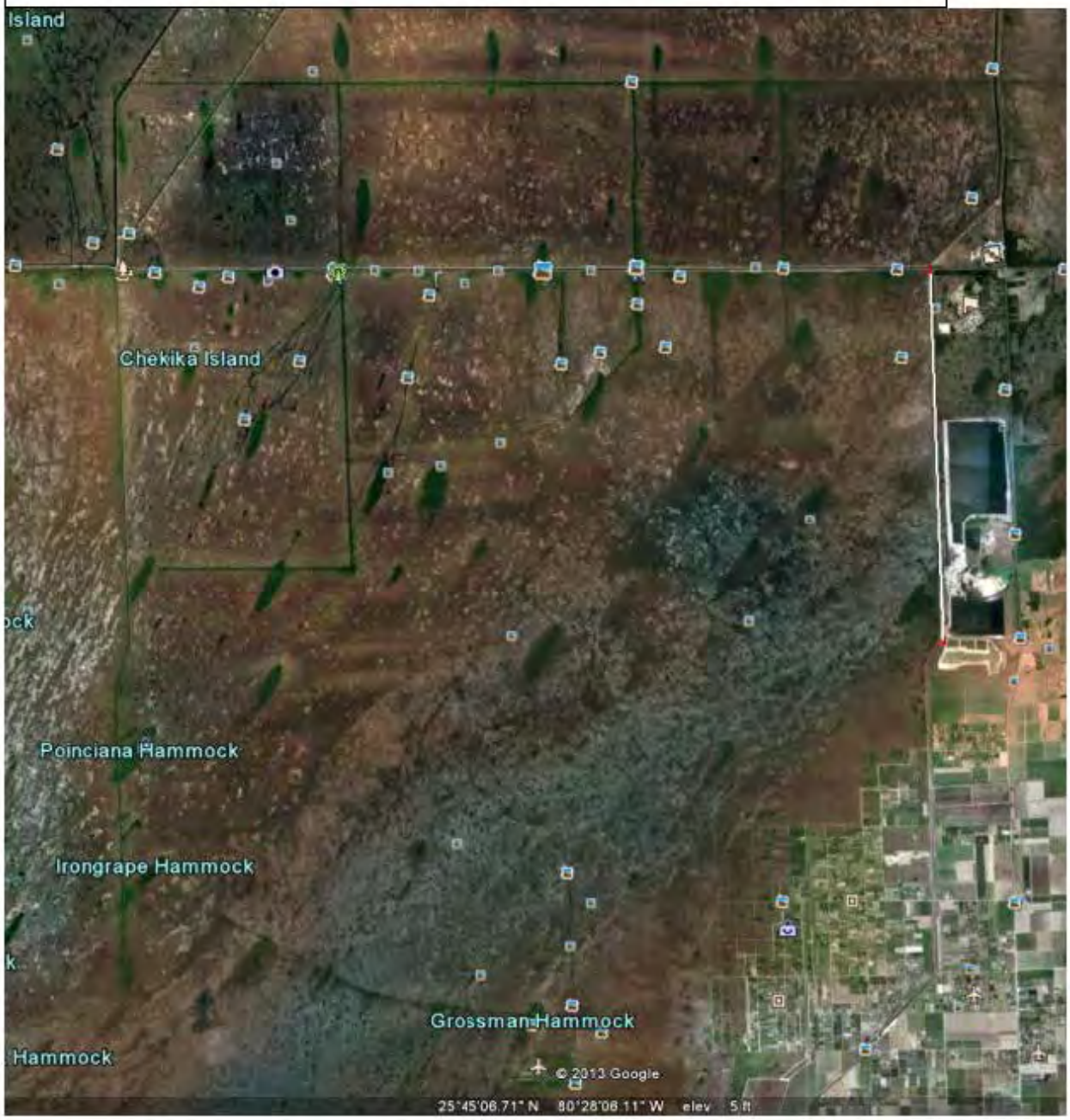
Given the potential cost savings and advancement of some project benefits that this option would produce, addressing the above issues appears to warrant consideration.

Preliminary disposition: *Address recommendation in current plan development, project design phase and in development of the Adaptive Management Plan.*

Y-4 Phase implementation of seepage control features; use AM to determine path - Adaptive management is a structured management approach to use when outcomes (positive and/or negative) from management actions are uncertain. Management actions are tested by linking science to performance questions and informing decision-makers and stakeholders on the best action to achieve objectives and avoid constraints. **Seepage management is both high risk to achieving both restoration goals and water supply constraints, and the need for high certainty (low uncertainty) is key to moving Everglades restoration goals forward.** Agencies are uncertain about the best design to control seepage, as well as amount of seepage management cutoff walls to implement and how to best operate the system to avoid water supply issues during the dry season. Using information gained from the L-31 pilot study, the rock miner's seepage management project, and regional simulation modeling, the seepage management project will be phased to implement a minimum level of construction to test seepage management performance as flows are increased into Water Conservation Area 3B and Northeast Shark River Slough, and monitor any potential reductions to water supply on the eastern side of the levee (see map below). Performance based monitoring of surface/groundwater stages and flows on either side of the seepage management feature will be used to reduce uncertainty about the level of seepage implementation, recommendations will be made for the next phase of seepage management construction or operations of the S-356 and South Dade detention areas. Same approach can be used during implementation of L-67 structures and Blue shanty levee with L-29 levee removal. Value is increased certainty about the right design and amount/approach for seepage management to meet multiple objectives and stakeholder interests with a potential for construction cost savings, if monitoring reveals less is needed to meet those goals.

Preliminary disposition: *Address recommendation in development of the Adaptive Management Plan*

Colored arrows represent different lengths of seepage management features being constructed, up to the TSP's 5 mile. Circle represents S-356 seepage return pump.



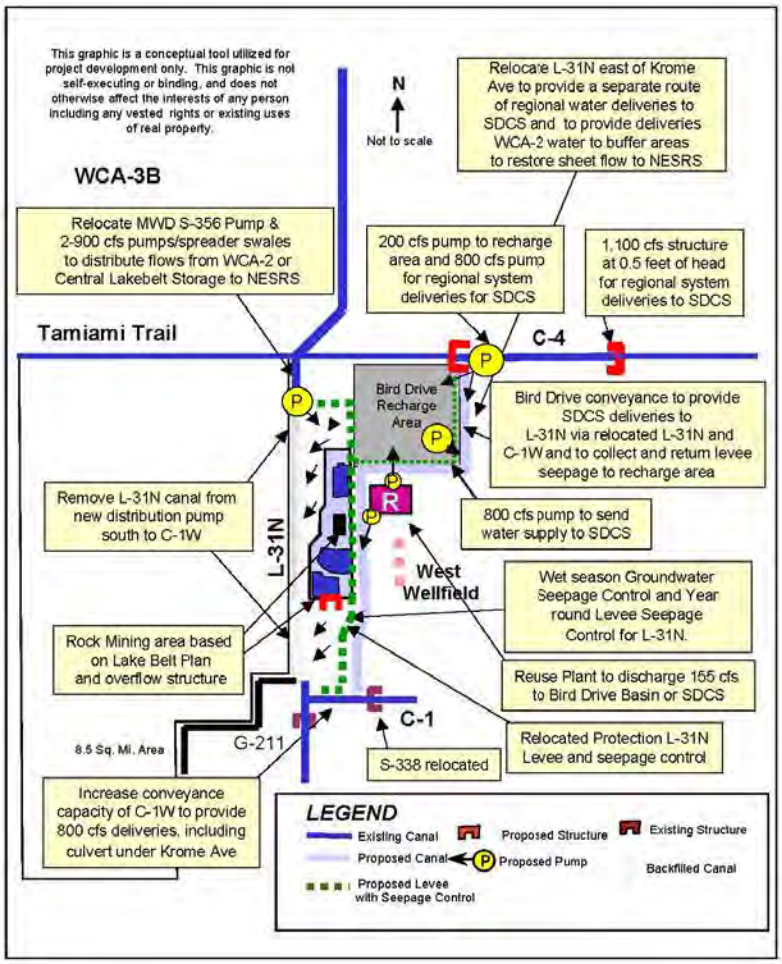
Y-5 Change the location L31N Seepage Management Pilot Project (SMPP) to the location which was the original location contained in the authorized decision document; use CEPP to increase the 902 Limit for L31N SMPP and install the L31N SMPP to remove project uncertainties - L-31N Seepage Management – Pilot Project is an authorized component in the Central and Southern Florida Project, Comprehensive Review Study, Final Integrated Feasibility Report and Programmatic Environmental Impact Statement.

This recommendation proposes that:

- The location of the pilot be returned to the original location as depicted on the below page excerpt from the study;
- CEPP be used to update the 902 limit for the pilot test and
- Implement the pilot test early in the project implementation phase to remove and define uncertainties.

As described in the restudy, the purpose of this feature is to reduce seepage flow across L-31N adjacent to Everglades National Park via a levee cutoff wall. Additionally, the feature was designed to reduce groundwater flows during the wet season by capturing groundwater flows with a series of groundwater wells adjacent to L-31N, then back-pumping those flows to Everglades National Park. The pilot project is necessary to determine the appropriate technology to control seepage from Everglades National Park. The pilot project will also provide necessary information to determine the appropriate amount of wet season groundwater flow to return that will minimize potential impacts to Miami-Dade County's West Wellfield and freshwater flows to Biscayne Bay.

Preliminary disposition: *– Not adopted. The PDT response changed from Address recommendation in current plan development in February 2013 Report to Not adopted in January 2014 to reflect subsequent report coordination. The L31 N SMPP was the pilot component of the original CERP L31N Improvements for Seepage Management. The CEPP PDT has decided to use the monitoring and results of a nearby constructed non-federal seepage project that was installed as described in main PIR sections 2.5.12 and 6.10.2.1 to address project uncertainties for CEPP.*



Alternative D13R
Bird Drive Basin and L-31N Seepage Management
Component Map 7

Y-6 Investigate alternative seepage barrier cutoff wall means (such as vinyl sheet pile) -
Completed work on L-31N (L30) Seepage Barrier Pilot Project should be evaluated for possible cost-effective alternatives to the currently planned seepage cut-off wall in this reach.

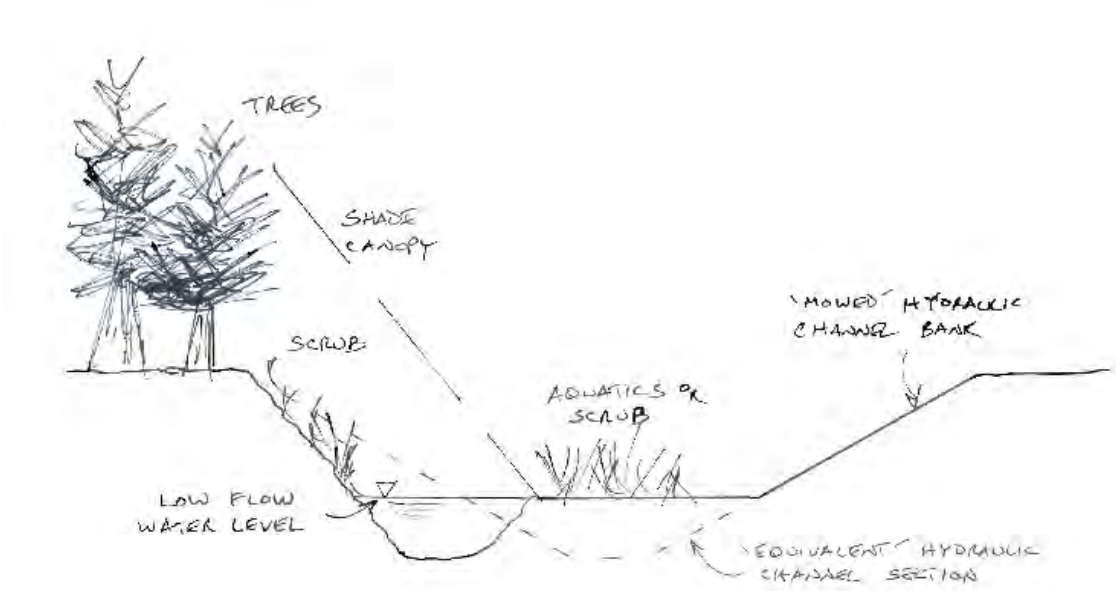
Preliminary disposition: *Address recommendation in project design phase.*

GENERAL CONSIDERATIONS

GC-1 Create 'environmental friendly' conveyance channels where opportunity exits –

Current plan alternative strategies identify trapezoidal channels for proposed conveyance modifications. It is suggested that where opportunity presents itself channels be designed and constructed in an 'environmentally friendly' manner as illustrated below. In such a design, the channel is oversized relative to a hydraulically equivalent mowed/maintained trapezoidal channel and is 'rough-cut' and allowed to vegetate. It may be practical for access and to ensure some form of snag removal maintenance, to mow only one side of the channel. As seen below, the 'sun bank' (summer sun – generally west or northwest side) is forested (planted if need be) to shade the permanent water bottom. This will lower summertime water temperature and improve oxygen content. The low flow immediate banks are allowed to overgrow with vegetation to create a complete stream habitat.

Preliminary disposition: *Address recommendation in both current plan development and project design phase.*

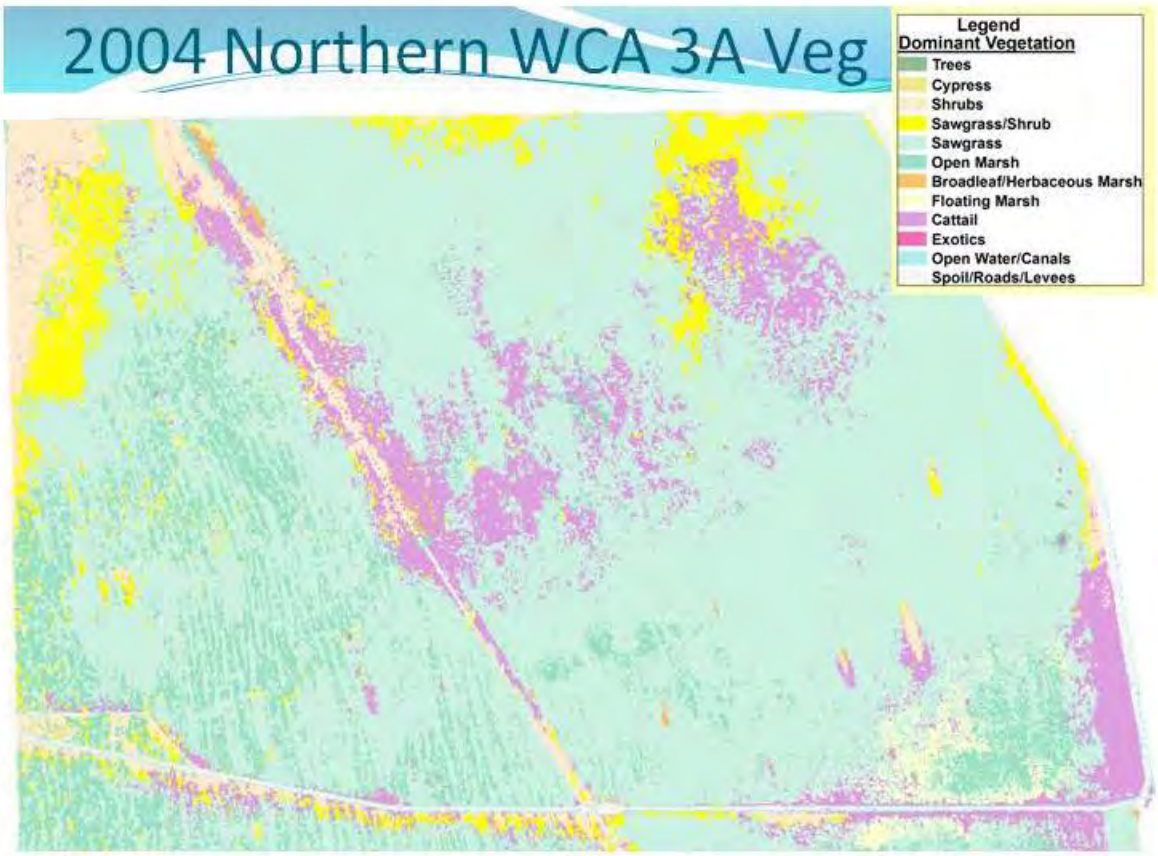


PROPOSED 'ENVIROMENTAL FRIENDLY' FLOW CONVEYANCE CHANNEL
TYPICAL SECTION – NO SCALE

GC-2 Coordinate vegetation management to achieve multiple objectives - Much of the vegetation south of L-4 levee are upland species due to the drying out of Northern Water Conservation Area 3A (WCA 3A). These woody species are likely to persist and may require specific vegetation management activities to facilitate transition of the landscape to more wetland type vegetation (e.g., sawgrass). Cattail and Willow expansion may be an issue and needs to be properly managed to avoided further degradation and complication in achieving a ridge and slough landscape south of the L4 spreader canal, as well as getting water out of the canal for flood control needs due to flow resistant vegetation. In addition, vegetation management will likely be needed during construction of the L4 spreader canal to remove nuisance and exotic species, as well as potentially create vegetation pockets to help facilitate flow of water to aid recreation of sloughs upon entry into marsh. There are likely opportunities to strategically coordinate multiple vegetation management objectives (e.g., construction, nuisance, and restoration enhancement) to most cost effectively implement vegetation management activities.

Timing and nature of each vegetation management activity would need to be discussed and coordinated amongst engineering design, construction, exotics removal, and ecological/adaptive management subteam to determine what vegetation management efforts are needed when and how they can be best be implemented. The Invasive and Native Nuisance Species Management Plan (INNSMP) would address responsibilities and timing. The INNSMP is a living document. It would be updated/revised as surveys are done and treatment/removals conducted, and include proposed schedules of surveys. During O&M, the structures would be monitored by the responsible operations entity. Areas of claimed benefits outside of the structures would be monitored by the project (PLMP, RECOVER, or other). Close coordination among agencies would be required for such a program to succeed. Areas needed to be treated most times can be covered by existing services contracts that the USACE/SFWMD already has in place.

Preliminary disposition: *Address recommendation in development of Adaptive Management Plan.*


2004 Northern WCA 3A Veg
Legend
Dominant Vegetation
Trees
Cypress
Shrubs
Sawgrass/Shrub
Sawgrass
Open Marsh
Broadleaf/Herbaceous Marsh
Floating Marsh
Cattail
Exotics
Open Water/Canals
Spoil/Roads/Levees

GC-3 Optimize pump station design – A number of new pump stations are proposed for this project. Design precedent has been to adhere to jointly developed DCM-5, Major Pumping Station Engineering Guidelines. The performance history of this t ype of pump station has been excellent, but high construction cost is a project concern.

'Lessons learned' from among recent other Corps district projects could offer possibilities to improve current design cost-effectiveness.

Features that directly or indirectly affect pump station performance and cost include, but are not limited to the following:

- Mechanical unit redundancy
- Screen cleaning systems
- Discharge configuration (siphons or free discharge)
- Power supply
- Service crane(s) and structure size and configuration

Previous VE reviews of CERP/SFWMD pump stations have validated excellent design performance and cost-effectiveness of these items with primary change recommendations regarding the last item. The below discussion of possible design changes for the service crane and structure size and configurations should be considered.

For most large pump stations, common practice is to include a lifting crane of capacity and geometry to remove the largest piece of equipment from the station. The crane is usually housed in the pump station structure and usually results in significant station height and associated structural cost. It is arguable as to whether or not such a crane is required on-site as it is always a relatively rare and major scheduled event to pull a large unit. If a large crane can be transported to the site, then one could argue that an on-site crane of that large capacity is not needed (note that smaller units are still needed for routine maintenance).

If a large crane cannot be practically transported to the pump station for a major maintenance event and an on-site unit is necessary it does not have to be housed within the pump station building. A rail/gantry system can be used and pump housing roof and/or cover pod can be removed for access. Protection and/or aesthetics of the crane may warrant cover housing in the non-used position. This housing does not have to support the lifting load of the crane, however. The East Ascension Parish, Louisiana Pump Station (5 by 1,000 cfs units) station does not have an on-site large crane (see photo below). It has steel cover pods over each pump/engine unit and a weather protection roof across the station (roof added later and not included in photo). Roof panels and pods can be lifted by a portable crane when necessary. This design saved significant cost and has performed well since its 1993 installation. Aesthetics of roof and pod covers can be improved if required.
Building plan area appears to be excessive in these stations. Overall centerline width between pump unit bays is far more than necessary. Validation to reduce this dimension is based on the following rationale. First, it appears that both a maintenance lay-out space is provided as an

extra end-bay service area in the station as well as alongside each pump/engine unit. Normal practice of others is for the end-bay area only. As second factor is the slanting of engines at 45 degrees to reportedly allow visual inspection of the flanks of the engines from the central control room. Also not a common practice and this function could be accomplished via camera system.

While industrial building square footage is normally not excessively expensive, this is ***not*** the case for a pump station structure. ***Increased pump bay width is translated all the way down to the base of the station to the roof. In combination with the extra height of the internal crane this can easily be over 50-feet of multi-level structure elevation.***

Preliminary disposition: *Address recommendation in project design phase.*



1,000 CFS PUMP UNITS – EAST ACENSION PARISH, LOUISIANA

APPENDIX A: VALUE ENGINEERING JOB PLAN AND WORKSHOP AGENDA

This workshop included the six-phase Value Engineering Job Plan as sanctioned by USACE and SAVE International. This process, as listed below, was executed as part of daily activities as described in the following Workshop Agenda:

USACE VALUE ENGINEERING JOB PLAN

Information Phase. At the beginning of the study, the project team presents current planning and design status of the project. This includes a general overview and various project requirements. Project details are presented as appropriate. Discussion with the VE Team enhances the Team's knowledge and understanding of the project. A field trip to the project site may also be included as part of information gathering.

Function Analysis Phase. Key to the VE process is the Function Analysis Process. Analyzing the functional requirements of a project is essential to assuring an owner that the project has been designed to meet the stated criteria and its need and purpose. The analysis of these functions is a primary element in a value study, and is used to develop alternatives. This procedure is beneficial to the team, as it forces the participants to think in terms of functions and their relative value in meeting the project's need and purpose. This facilitates a deeper understanding of the project.

Creativity Phase. The Creativity Phase involves identifying and listing creative ideas. During this phase, the team participates in a brainstorming session to identify as many means as possible to provide the necessary project functions. Judgment of the ideas is not permitted in order to generate a broad range of ideas.

Evaluation Phase. The purpose of the Evaluation Phase was to systematically assess the potential impacts of ideas generated during the Creativity Phase relative to their potential for value improvement. Each idea is evaluated in terms of its potential impact to cost and overall project performance. Once each idea is fully evaluated, it is given a rating to identify whether it would be carried forward and developed as an alternative, presented as a design suggestion, dismissed from further consideration or is already being done.

Development Phase. During the Development Phase, ideas passing evaluation are expanded and developed into value alternatives. The development process considers such things as the impact to performance, cost, constructability, and schedule of the alternative concepts relative to the baseline concept. This analysis is prepared as appropriate for each alternative, and the information may include an initial cost and life-cycle cost comparisons. Each alternative describes the baseline concept and proposed changes and includes a technical discussion. Sketches and calculations may also included for each alternative as appropriate.

Presentation Phase. The VE Workshop concludes with a preliminary presentation of the value team's assessment of the project and value alternatives. The presentation provides an opportunity for the owner, project team, and stakeholders to preview the alternatives and develop an understanding of the rationale behind them.

Central Everglades Planning Project
Cost Schedule Risk Analysis/
Value Engineering Workshop
Agenda

Monday February 4, 2013 9:30 AM – 4:30 PM

Meeting Location:
SAJ Participants will meet in VTC Conference Room 4108, 4E

Call-in number:
USA Toll-Free: (888)273-3658
Access Code: 2717496
Security Code: 4321

Web Meeting Address:
https://www.webmeeting.att.com
Meeting Number: 8882733658
Access Code: 2717496

* The first time you use the Web Meeting Service, you will need to download the client software. Web Meeting HELP & Software Downloads can be found at: https://www.webmeeting.att.com*

09:30 – 09:40 am	**Introductions and Opening Remarks**	Kim Vitek, USACE
09:40 – 11:00 am	**Overview**	USACE
	• Value Engineering	Jimmy Matthews, USACE
	• Cost Schedule Risk Analysis	Amro Habib, USACE
	• CEPP Tentatively Selected Plan	Murika Davis, USACE
	• Expectations of Workshop	Kim Vitek, USACE
11:00 – 11:10 am	*Break*	
11:10 – 12:30 pm	**North of the Redline - *Storage and Treatment***	
	• Policy Issues	
	• Cost Risk & Other considerations	
	• Evaluate/Identify Value Engineering Ideas	
	• Construction Sequencing/Implementation	
12:30 – 01:30 pm	*Lunch*	
01:30 – 02:45 pm	**North of the Redline Cont'd**	
02:30 – 02:45 pm	*Break*	
02:45 – 04:25 pm	**South of the Redline – *Distribution/Conveyance* (*L-6 Diversions, L-5 Improvements and Spreader Canal*)**	
	• Policy Issues	
	• Cost Risk & Other considerations	
	• Evaluate/Identify Value Engineering Ideas	
	• Construction Sequencing/Implementation	
04:25 – 04:30 pm	**Next Steps - Closing Comments and Recap Assignments**	

Central Everglades Planning Project
Cost Schedule Risk Analysis/
Value Engineering Workshop
Day 2 Agenda

Tuesday February 5, 2013 9:00 AM – 4:30 PM

09:00 – 09:05 am **Opening Remarks** Kim Vitek, USACE

09:05 – 10:00 am **South of the Redline Cont'd – *Distribution/Conveyance***
(*Miami Canal Backfilling and L-28*)

- Policy Issues
- Cost Risk & Other considerations
- Evaluate/Identify Value Engineering Ideas
- Construction Sequencing/Implementation

10:00 – 10:15 am *Break*

10:15 – 12:00 pm **Greenline – *Distribution/Conveyance***
(*Structures in L-67A, Gaps in L-67C, S-333 increase*)

- Policy Issues
- Cost Risk & Other considerations
- Evaluate/Identify Value Engineering Ideas
- Construction Sequencing/Implementation

12:00 – 01:00 pm *Lunch*

01:00 – 03:00 pm **Greenline Cont'd**

03:00 – 03:15 pm *Break*

03:15 – 04:25 pm **Blueline – *Distribution/Conveyance***
(*Structures in L-29 levee, Degrade of L-67C ext, Improvements in 3B*)

- Policy Issues
- Cost Risk & Other considerations
- Evaluate/Identify Value Engineering Ideas

04:25 – 04:30 pm **Next Steps**
Closing Comments and Recap Assignments

Central Everglades Planning Project
Cost Schedule Risk Analysis/
Value Engineering Workshop
Day 3 Agenda

Wednesday February 6, 2013 9:00 AM – 4:30 PM

09:00 – 09:05 am	**Opening Remarks**	Kim Vitek, USACE
09:05 – 10:00 am	**Blueline Cont'd – *Distribution/Conveyance*** • Policy Issues • Cost Risk & Other considerations • Evaluate/Identify Value Engineering Ideas • Construction Sequencing/Implementation	
10:00 – 10:15 am	*Break*	
10:15 – 12:00 pm	**Yellow line – *Seepage Management*** **(*S-356 increase, partial depth seepage barrier, G-211 mods)*** • Policy Issues • Cost Risk & Other considerations • Evaluate/Identify Value Engineering Ideas • Construction Sequencing/Implementation	
12:00 – 01:00 pm	*Lunch*	
01:00 – 03:00 pm	**Yellowline Cont'd**	
03:00 – 03:15 pm	*Break*	
03:15 – 04:25 pm	**Value Engineering/Cost Assignments**	
04:25 – 04:30 pm	**Next Steps** **Closing Comments and Recap Assignments**	

Central Everglades Planning Project
Cost Schedule Risk Analysis/
Value Engineering Workshop
Day 4 Agenda

Thursday February 7, 2013 9:00 AM – 4:30 PM

09:00 – 09:05 am	**Opening Remarks**	Kim Vitek, USACE
09:05 – 10:30 pm	**System Wide Implementation** • CERP Overview • CEPP Schedule	Kim Vitek, Matt Morrison
10:30 – 10:40 pm	*Break*	
10:40 – 11:55 pm	**Cont'd** • Implementation, Sequencing, Operations	
12:00 – 01:00 pm	*Lunch*	
01:00 – 03:00 pm	**Cont'd** • Cost Risks	
03:00 – 03:15 pm	*Break*	
03:15 – 04:25 pm	**Continued Discussions**	
04:25 – 04:30 pm	**Next Steps Closing Comments and Recap Assignments**	

Central Everglades Planning Project
Cost Schedule Risk Analysis/
Value Engineering Workshop
Day 5 Agenda

Friday February 8, 2013 9:00 AM – 12:00 PM

09:00 – 09:05 am	**Opening Remarks**	Kim Vitek, USACE
09:05 – 10:30 pm	**Review of Cost Risk Contingencies**	
10:30 – 10:40 pm	*Break*	
10:40 – 11:55 pm	**Review of Value Engineering Proposals**	
11:55 – 12:00 pm	**Next Steps and Closing Comments**	

APPENDIX B: WORKSHOP PARTICIPANT ROSTER

Kim Vitek (Project Manager) Kimberly.A.Vitek@usace.army.mil	USACE-SAJ-PM-EO (904) 232-2583
Murika Davis (Engineer Technical Lead) Murika.Davis@usace.army.mil	USACE-SAJ-PD-C (904) 232-1604
Jimmy Matthews (VE Co-Facilitator) Jimmy.D.Matthews@usace.army.mil	USACE-SAJ-EN-Q (904) 232-2087
Frank Vicidomina (VE Co-Facilitator) Frank.Vicidomina@us.army.mil	USACE-MVN-PM (504) 862-1251
Andrew Loschiavo Andrew.J.LoEchiavo@usace.army.mil	USACE-PD-E (904) 232-2077
Bill Hamel William.T.Hamel@usace.army.mil	USACE-CESAJ-DC-C (904) 232-1269
Kelly Keefe Kelly.J.Keefe@usace.army.mil	USACE-CESAJ-PD-C (904) 232-1654
Dan Crawford Daniel.E.Crawford@usace.army.mil	USACE-CESAJ-EN-WM (904) 232-1079
Kevin Wittmann Kevin.M.Wittmann@usace.army.mil	USACE-CESAJ-PD-C (904) 233-3658
Amanda Lavingne Amanda.B.Lavigne@usace.army.mil	USACE-EN-WH (904) 232-2708
Jack Fross Jack.T.Fross@usace.army.mil	USACE-EN-DS (904) 232-2260
Manuel DeJesus Manuel.Dejesus@usace.army.mil	USACE-EN-DM (904) 232-2446
Donna George Donna.S.George@usace.army.mil	USACE-PM-EE (904) 232-1766
Brad Foster Bradley.A.Foster@usace.army.mil	USACE-PD-C (904) 232-2110
Kim Brooks-Hall Kimberly.Brooks-Hall@usace.army.mil	USACE-EN-T (904) 232-1902

Tracy Leeser Tracy.T.Leeser@usace.army.mil		USACE-EN-TC (904) 232-1043
Gwen Nelson Gwendolyn.J.Nelson@usace.army.mil		USACE-EN-DL (904) 232-1629
Cindy Thomas Cynthia.G.Thomas@usace.army.mil		USACE-PD-C (904) 232-1140
Jonathan Jenkins Jonathan.L.Jenkins@usace.army.mil		USACE-OD-MN (904) 232-3913
Nick Emigh Nick.A.Emigh@usace.army.mil		USACE-NWW-EC-X (509) 527-7587
Mike Jacobs Michael.P.Jacobs@usace.army.mil		USACE-NWW-EC-X (509) 527-7516
Joseph Tavares Joseph.Tavares@usace.army.mil		USACE-CD-Q (904) 232-3446
Amro Habib Amro.K.Habib@usace.army.mil		USACE-EN-TC (904) 232-1746
Robert Rene Robert.B.Rene@usace.army.mil		USACE-EN-TC (904) 232-1605
Gretchen Ehlinger Gretchen.S.Ehlinger@usace.army.mil		USACE-PD-EC (904) 232-1682
Don Nelson		USACE-RE
Robert Tucker Robert.C.Tucker@usace.army.mil		USACE-EN-W (904) 232- 1197
Scott Leech Scott.Leech@usace.army.mil		USACE-EN-G (904) 232-1183
Kim Taplin Kimberly.A.Taplin@usace.army.mil		USACE-PD-C (561) 801-0285
Lisa Gued Lisa.S.Gued@usace.army.mil		USACE-EN-G (904) 232-1793
Katrina Denson		USACE-CT
Scott Thorot	(called in)	SFWMD
Al Shirkey	(called in)	SFWMD
Paul Linton	(called in)	SFWMD

Armando Ramirez	(called in)	SFWMD
Matt Morrison	(called in)	SFWMD
Agnes McClean	(called in)	ENP
Kevin Koton	(called in)	ENP
Bob Johnson	(called in)	ENP
Dennis Duke	(called in)	DOI
Inger Hansen	(called in)	FDEP
Miles Myers	(called in)	FWS
Liberta Scotto	(called in)	FWS
Lori Miller	(called in)	FWS
Bob Progulske	(called in)	FWS

APPENDIX C: COST AND SCHEDULE RISK ANALYSIS MODERATE AND HIGH RISK ITEMS

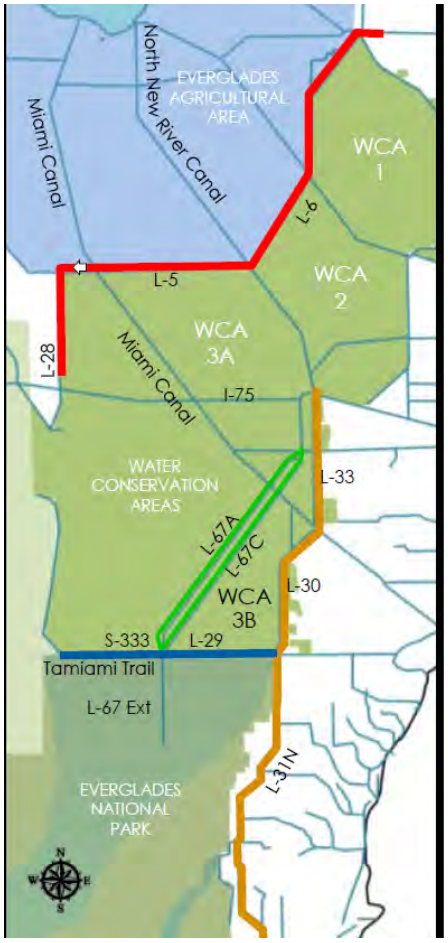
NORTH OF REDLINE - COST AND SCHEDULE MODERATE AND HIGH RISK ITEMS			
	PROJECT & PROGRAM MGMT		
PPM-1	New Planning Process	Schedule risk project reaches mile stones and HQ revises or asks for changes to the process.	The conern is during the 3x3x3 planning phase HQ revises the anticipated out come of the planning study and delays in the schedule will be encounterd. This assumpition is due in part to the fact that this is a piolt study.
PPM-2	Cordination with DEP/Water Management	It is assumed that A1 will be completed prio to construction of A2.	The concern is that during construction there will be a need for on going comunication of the work and how it may affect the operation of existing structures.
	TECHNICAL RISKS		
TL-1	Maintain Flood Control	There is a pump station DS of the proposed location of the new spillway that can move 3700 CFS and the design of the new project feature is for 1500 CFS.	The spillway will need to match the size of the pump stattion and ensure that the flood control will still be maintained.
TL-2	Internal Water Convayance of the FEB	Existing ag canals in the proposed location of the FEB there are roads bordering each side of the canal	There is the posibility of piping through the proposed location of the premimiter levee. there is also the concern for not allowing sheet flow across the FEB with out Backfilling the AG canals.
TL-3	Spreader Canal	Assumed that the spreader canal is only on the norther end of the FEB.	There is conern that the canal my need to extend along the entire northern end to hydrate the east end of the FEB. this will in effect lengthen the canal
TL-4	Porisity of Lime Rock	Thre is the concert that the Lime rock is not capable of containing the Water	It is unknown what the geotechnical data is. There is concern that there could be a need to a liner or some way to ensure that there is minimial to no seepage. A1 will be constructed prior to A2 Management will need to watch this item.

SOUTH OF REDLINE - COST AND SCHEDULE MODERATE AND HIGH RISK ITEMS			
	PROJECT & PROGRAM MGMT		
PPM-1	New Planning Process	As the project reaches mile stones and HQ revises or asks for changes to the process.	The concern is during the 3x3x3 planning phase HQ revises the anticipated out come of the planning study and delays in the schedule will be encountered. This assumption is due in part to the fact that this is a pilot study.
	TECHNICAL RISKS		
TL-1	Maintain S-8 Flood Control	S-8 needs to provide flood control the entire time until downstream work is complete.	The work that effects the operation of S-8 must be complete prior to any modifications are completed at S-8. This could require material to be stock piled and additional cost for multiple handling of the material. There might also be a need for a temp canal to convey the water during construction.
TL-2	S-8 New Pump Station	The current plan is for a new pump station at the location of S-8.	There is a possibility of an opportunity that there could be an upgrade of the existing structure to achieve the same conveyance as a new pump station. The new pump station appears to be 1000 CFS short costs should be checked.
	CONSTRUCTION RISKS		
CON-2	L-28 Material	Concern of usage of material	There is a concern that the Tribes feel that the material is their property. There is a risk that new fill may be needed in the backfill of the canal in those locations and stock piling of the levee may be needed.
CON-3	Backfill of Miami Canal	There is concern for sequence of construction when backfilling the Miami Canal.	The concern is that the project will extend over multiple years and there will be a need for culverts, plugs, extra work that is not currently in the estimate. This will need to be looked at and studied further.
	ESTIMATE AND SCHEDULE RISKS		
EST-1	200 CFS Structure	New 200 CFS Structure located at the Intersection of the L-28, L-3, L-4 intersection.	The cost for the new structure is needed to ensure that the cost is not missed. Impact will be changed after the cost for the new structure has been added.
	PROGRAMATIC RISKS		
PR-1	Funding Restraints	There is concern that the project will be limited at $50 M per year for construction.	The concern is that funding will be lacking and multiple contracts will adversely affect the goal of the project. There is concern that the project will not meet the desired goals in the time frame anticipated.

GREENLINE AND BLUELINE - COST AND SCHEDULE MODERATE AND HIGH RISK ITEMS			
	PROJECT & PROGRAM MGMT		
PPM-1	New Planning Process	As the project reaches mile stones and HQ revises or asks for changes to the process.	The concern is during the 3x3x3 planning phase HQ revises the anticipated out come of the planning study and delays in the schedule will be encountered. This assumption is due in part to the fact that this is a pilot study.
	TECHNICAL RISKS		
TL-2	Tamiami Trail Bridges	This work needs to be completed prior to CEPP acting as designed.	There is always a risk that all work will not be complete and this could add addational cost to the estimate and impacts to the structure.
TL-3	Browerd County Water Preserve Area	This is work that will improve the water quality of the water provided to the Everglades National Park	This will need to be adressed in design and no effect cultural resources should be allowed.
TL-4	Old Tamiami Trail Removal	The old Trail is eligible or potentially eligible for national registry as a historical site.	The entire area is considered as eligible for the national historic registry any changes will need to be documented prior to construction. This will likely need to happen.
	LANDS AND DAMAGES RISKS		
LD-2	Policy Issues	If the current projoct is unable to obtain land to the 9.7 ft elevation it will need to be aquired under this project	Currently other projects have aquired land to the 8.5 elevation and it if they are not aquired to the 9.7 ft elevation. This is mainly at the location of fish camps and Airboat trails along the Tamiami Trail.
	REGULATORY AND ENVIRONMENTAL RISKS		
RE-1	Enviromental Impact	NEPA Impacats of changing the affected area unsure if the areas and volumes will ensure a net postive effect.	Foot print of impact and what is removed from the system will be equal. That initally inculded removing the L67C and backfilling the canal. It is unclear if the material will be available to be used in construction of the new blue shanty levee.
	CONSTRUCTION RISKS		
CON-1	Sequencing of Construction	On site material may not be available to construct new levee	With out understanding the sequancing of the construction there may not be access to all on site materal and new fill may be needed. the concern is also increased with the new design standards of levees.
	ESTIMATE AND SCHEDULE RISKS		
EST-1	Old Tamiami Trail	There is no cost in the estimate for removal of the old tamiami trail	This will need to be added to the estimate and schedule.
	PROGRAMATIC RISKS		
PR-1	Funding Restraints	There is concern that the project will be limited at $50 M per year for construction.	The concern is that funding will be lacking and multiple contracts will adversely affect the goal of the project. There is concern that the project will not meet the desired goals in the time frame anticipated.

YELLOWLINE - COST AND SCHEDULE MODERATE AND HIGH RISK ITEMS			
	PROJECT & PROGRAM MGMT		
PPM-1	New Planning Process	As the project reaches mile stones and HQ revises or asks for changes to the process.	The concern is during the 3x3x3 planning phase HQ revises the anticipated out come of the planning study and delays in the schedule will be encountered. This assumption is due in part to the fact that this is a pilot study.
	TECHNICAL RISKS		
TL-2	Seepage Cutoff Walls Design and performance	There is limited to minimal long term data in the area that will show the success	There have been temp structures built but the long term performance is unknown at this time.
TL-3	Model Validation and Review- Accuracy and predictibility	There is always uncerntity of models at early stage designs	It is unknown if the depth of the seepage wall is the correct depth at 15 to 20% unsure of the accuracy of the depth.
TL-5	Design of Cutoff wall	Design thoght to be conservative overall however concequences are high if it does not work.	There is concern that there might be a need for windows in the cutoff wall along with injectionpumps and extensive monitoring.
	REGULATORY AND ENVIRONMENTAL RISKS		
RE-3	Water Quality	There is concern that there will be water quality issues that may need to be justified and validated to get necessary approval.	this concern is in part due to NEPA concerns about the quality of water that will be pumped out of the area. If the water quality is insufficent there could be major issues. Groundwater to Biscayne Bay may be an issue. Does water in canal equal water in goundwater table. Concerns with completion of other projects ensuring that system operates.
	ESTIMATE AND SCHEDULE RISKS		
EST-1	Unit Price of Cutoff Wall	The current assumption is assumed that the unit price includes all sepage monitoring	It is unknown at this time if the monitoring wells are correct.
EST-2	May Need Pilot Project Cutoff Wall	There is reason to belive that a piolt project needs to be installed	This price needs to be added to the estimate.
	PROGRAMMATIC RISKS		
PR-1	Funding Restraints	There is concern that the project will be limited at $50 M per year for construction.	The concern is that funding will be lacking and multiple contracts will adversely affect the goal of the project. There is concern that the project will not meet the desired goals in the time frame anticipated.
PR-2	Flooding of West Miami	There is uncerntity that if the seepage barrior is not installed there would be posibility of flooding miami	There is the belife that some operational configuaations can alaviate the seepage.
PR-3	Biscane Bay	Fresh water supplied from WCA3 to the Bay flowing through miami.	There is the risk that water may need to be supplied to the Bay this is in the dry season to supply water to the well fields and also the southern bays. There should be water suppled to the area during the dry season.

APPENDIX D: PROJECT FUNCTIONS BY AREA



SCREENING COMPLETED

within considerations and constraints

North of the Redline

- Combination of features to increase water deliveries downstream and improve estuarine benefits

South of the Redline

- Features and their locations to best restore sheetflow in northern Water Conservation Area 3A

Greenline/Blueline

- Features to best restore sheetflow through southern WCA-3A and 3B
- Configuration of conveyance features to best restore flows to Everglades National Park

Yellowline

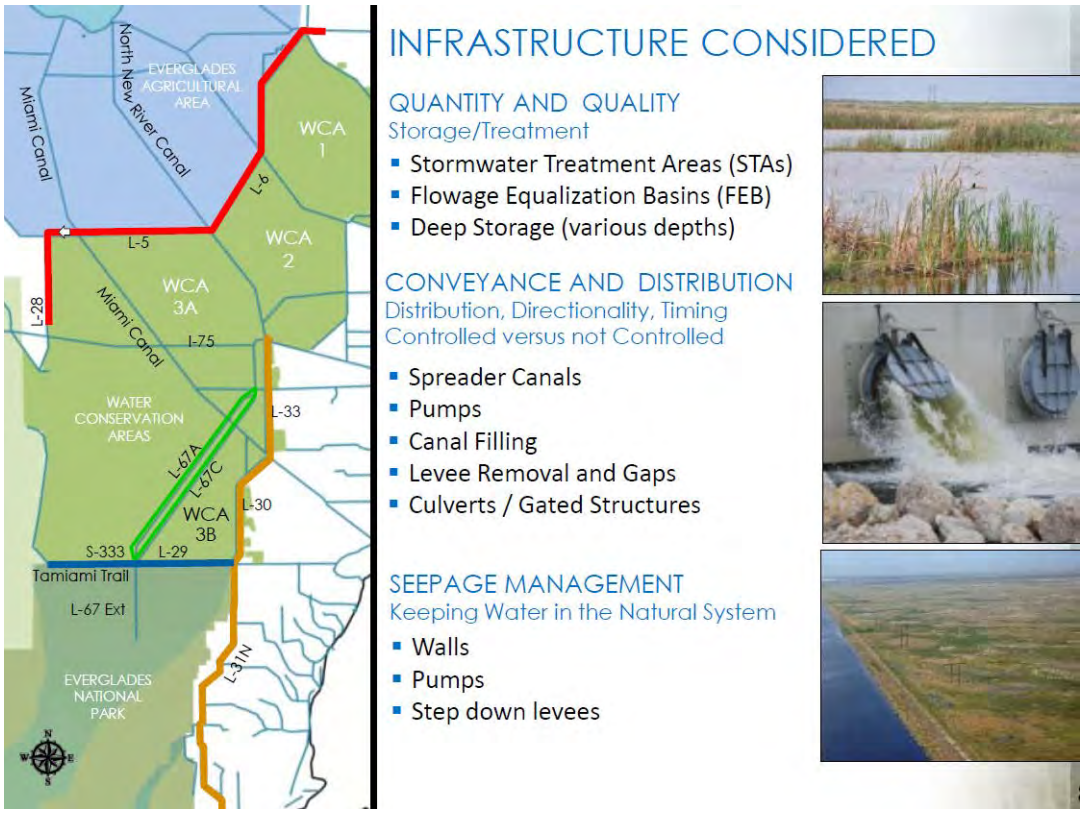
- Features to best compliment rest of project and manage seepage to the eastern urban area without impacting the water supply

Define and Implement PED
Develop project life cycle costs and schedule
Develop project construction sequencing

Adaptively Manage Implementation Sequence

Good AM candidates are those features that can be adjusted (e.g., operations “adjust features”, sequentially implemented “construct features, contracts, and installation in sequence with goal of learning”, or easily modified “increase dimensions”) in order to address questions about improving project performance, schedule and/or minimizing total project costs.

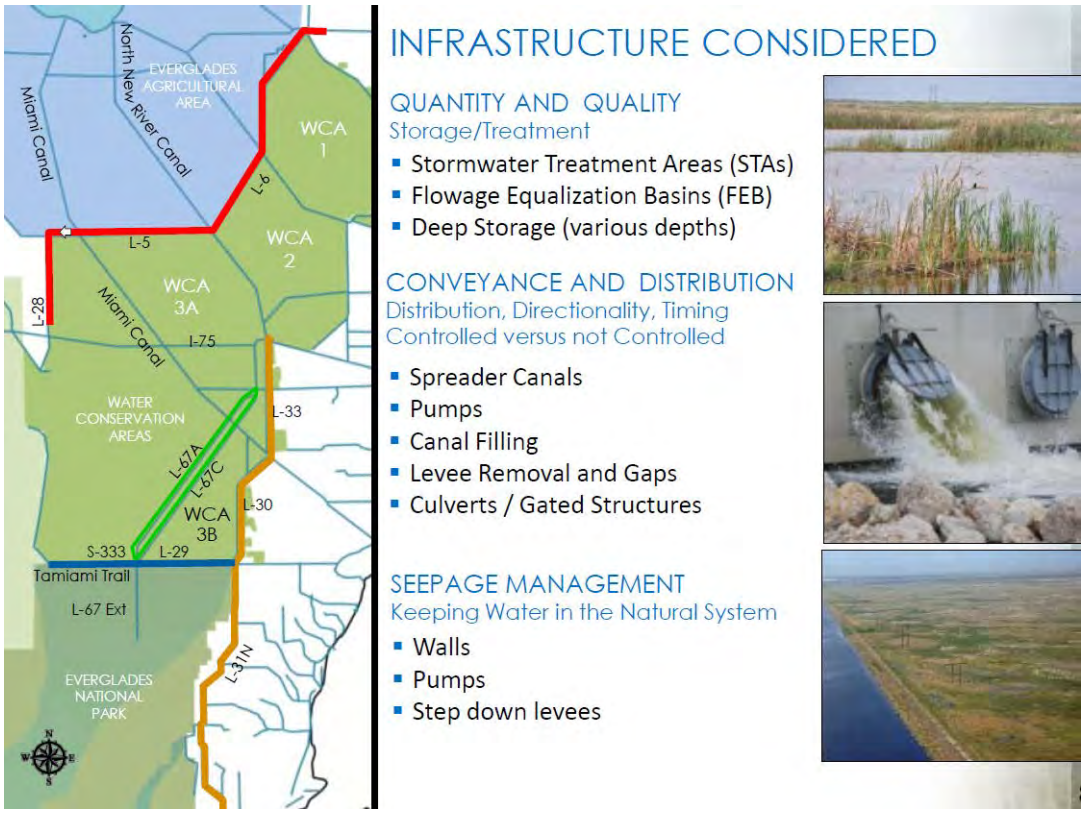
Identify AM Candidates
Increment Features
Increment Dimensions
Increment Contracts
Incrementally Install
Monitor Features
Assess Features



North of Redline

STORAGE AND TREATMENT

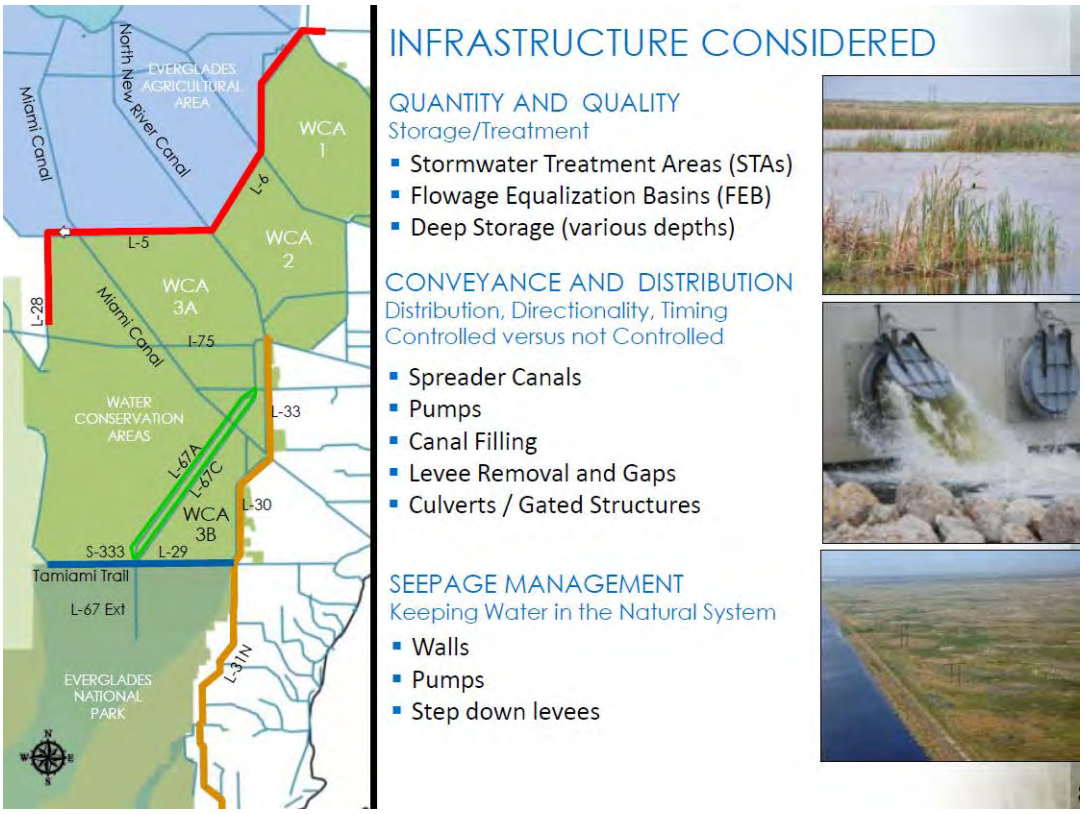
Store Water
Treat Water
Adjust Quantity
Correct Timing
Maintain Flood Protection
Control Cost Growth



South of Redline

DISTRIBUTION/CONVEYANCE

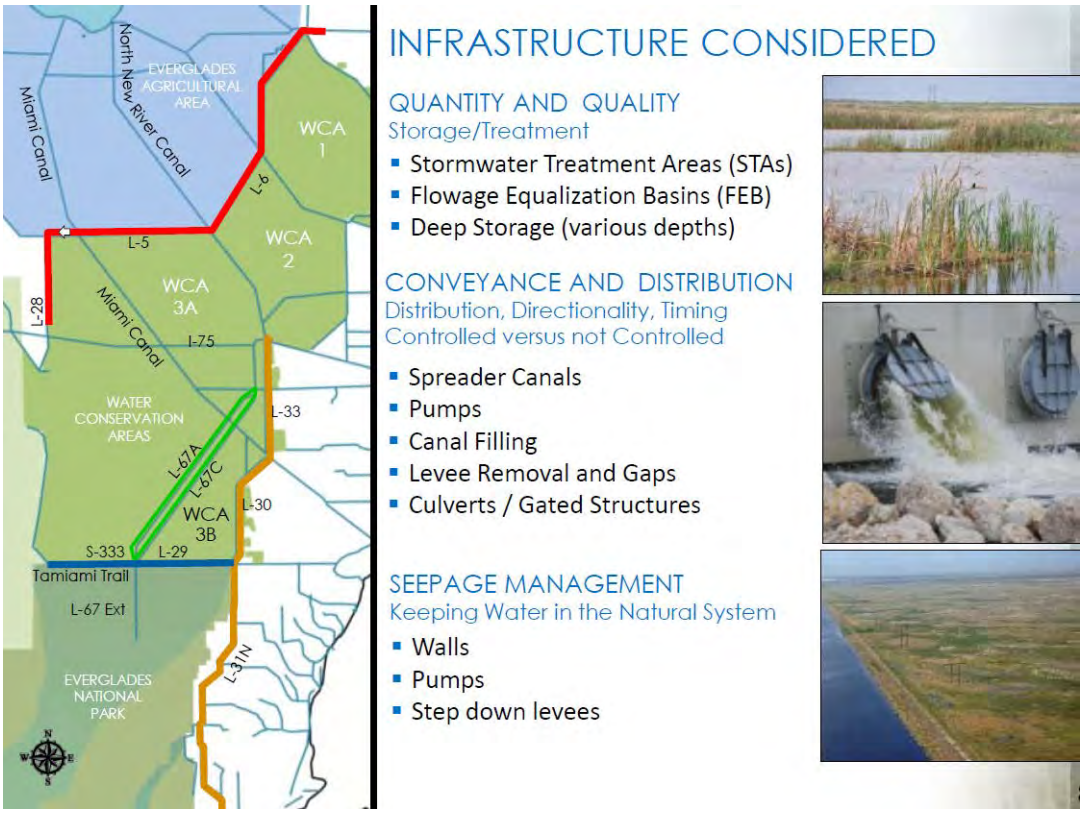
Distribute Water
Convey Water
Adjust Quantity
Correct Timing
Improve Quality
Remove Flow Impediments
Restore Hydro pattern
Rehydrate Habitat
Reconnect/Connect Flow ways
Maintain Flood Protection



Green / Blueline

DISTRIBUTION/CONVEYANCE

Distribute Water
Convey Water
Adjust Quantity
Correct Timing
Improve Quality
Remove Flow Impediments
Restore Hydro pattern
Rehydrate Habitat
Reconnect/Connect Flow ways
Maintain Flood Protection



Yellowline

SEEPAGE MANAGEMENT

Manage Seepage
Maintain Flood Protection
Capture and/or Return Seepage
Block Seepage Pathways
Reduce or Eliminate Losses
Protect Water Supply

APPENDIX E: SPECULATION AND EVALUATION LISTS

Y/N	SPEC NO.	Recommendations
		Above RED LINE 1-20
y	1	2 cell FEB
y	w/1	Internal baffling, breaking fetch length
n	2	integrate A-1 west levee
y	4	overflow weir and DS-9, include in A-1 construction
n	5	cut off wall
n	6	import clay
n	7	hydrologic ridge with seepage return water
bd	8	redirect to one pump sta and return
n	9	install perimeter relief wells and back pump
n	10	ASRs with FEB to maintain head
n	11	deepen seepage canal
bd	12	move water out faster
bd	13	investigate A-1 & previous STA designs and use in project scoping
bd	14	Develop strategic installation plan
bd	15	use cast in place for box culverts
y	16	add gravity structure on SE side of A-2
y	17	increasing the gate structure to maintain flood protection
		Below RED LINE 21-29
y	21	Add HP and/or supplemental open structure pump @ S-8
y	22	Add new pump station
n	23	consider gravity diversion
y	24	power diversion or pressurized diversion
y	25	optimze new pump sta design
y	26	coordinate veg management to meet mulitple objectives
y	27	integrate and optimze s-8 and g-404 system
y	28	build eco friendly canals, benches, etc..
y	29	2a look at operation schedule, raise the operation schedule 0.5 feet at end of wet season, slow return in dry season
y	30 w/29	present USFWS/FWC operation schedule to pdt for inclusion into project
n	31	make s-8 a dam, gap l4 & l5 on s ends, push mounds into gaps and then plug at I-75
y	32	add AM strategy for G-336G (L6 Diversion)
		GREEN and BLUE LINE 30-50
n	31	for levees being used for recreation access use min levee crown of 16' w/ surface stone
bd	33	construction sequencing for AM
n	36	plug in L-67A to block water quality… partial or full plug…
n	37	L-67A environmentally friendly canals, re-design to improve marsh to canal connectivity,
Y	38	plug the Miami Canal S of C-11 extension, use C-11 spoil material for the plug
bd	39	consider shifting blue shanty levee to make shorter and min impacts while achieving proj object
n	40	not extend blue shanty n of l-67c into pocket
y	41	remove only 1.5 miles of L-67 extension & optionally leave old TT intact as well; apply A.M.; evaluate borrow needs
n	42	consider reducing levee cross section
y	43 w 41	remove most or all of L-67 extension and not fill canal, add to 41
y	44 w 41	use spoil material to build blue shanty levee, add to 43; consider material quantity and processing
bd	45	backfill the L-67C canal, within BS flow way
y	46	construct 0.4 mile collector canal expansion from 355B to the W
y	34	plugs/culverts revisit L-29 divide structure to determine functon and flow rate
y	47	construct spreader canals S of TT at culverts
y	35	modify the ag ditches in flow way… fill, plug, gap, etc…
bd	48	optimize location of S333 structure
n	49	consider relocating S355B eastward in line w/ 1 mile eastern bridge
n	50	increase most northern structure into WCA 3B from 500 to 750cfs
y	51	optimize operations at most northern structure into WCA 3B from 500
y	52	retrofit DPM structure; use DPM structure for interim period
n	53	add ~ 75 cfs pump sta to add water into the N of 3B
y	54	use veg management to reduce n values S of eastern flow way structure (S345D & G)

Y/N	SPEC NO.	Recommendations
		YELLOW LINE 51-70
y	51	Phasing implemention - Use AM to determine path
y	52	consider defer pump sta construction until after seepage wall placement and monitoring; utilitze existing pump sta S-356
y	53	investigate alternative cut off wall materials (vinyl sheet pile)
y	54	change location L31N SMPP to this location; use yellow book authority; use original yellow book location
n	55	use electric motors for pump sta w/ d backup
y	56	Determine pump station firm capacity based on functional risk (e.g., 1,000 to 750 cfs)
n	57	assess the backup power for pump sta based on risk
y	58w/54	compare technologies in phased approach to determine final wall section, combine w/54
y	59	use S-356 to reduce project water quality uncertainty & risk
y	60w/59	add to TSP for future purpose
n	61	increase depth of seepage wall and eliminate pump sta; address source change
bd	62w/67	use varible depths for cut off wall; consider in pilot testing
n	63	add STA to treat pump water out flow
y	64	use reclaimed water for project, reference yellow book
y	65 w/59	consider a two location pump sta scheme for S-356
bd	67	add additional seepage wall demonstration testing

y = accept
n = do not accept
bd = already being done

WRITE UP NO	Recommendations	OUT BRIEF DISPOSITION:
1	Use two or more basin cells and/or wave-break structures to reduce wind fetch length	D
2	Integrate A-1 west levee with A-2 east levee	R & P
3	Add overflow weir and DS-9, include in A-1 construction	D
4	Recommendation Deleted, bd	
5	Add gravity structure on SE side of A-2	R & P
7	In-Line Structure for North New River Canal	R & P
6	Increase the gate structure to maintain flood protection flow rate and water elevation	R & P
21	Add HP and/or supplemental open structure pump @ S-8	P
22	Add new pump station	P
23	power diversion or pressurized diversion	D
24	optimize new pump sta design	P
25	coordinate veg management to meet multiple objectives	AM
26	integrate and optimize s-8 and g-404 system	R & P
27	build eco friendly canals, benches, etc..	R & P
28	2a look at operation schedule, raise the operation schedule 0.5 feet at end of wet season, slow return in dry season	
29 w/28	present USFWS/FWC operation schedule to pdt for inclusion into project	
30	add AM strategy for G-336G (L6 Diversion)	R & AM
31	remove only 1.5 miles of L-67 extension & optionally leave old TT intact as well; apply A.M.; evaluate borrow needs	AM
32 w 31	remove most or all of L-67 extension and not fill canal, add to 41	
33 w 31	use spoil material to build blue shanty levee, add to 43; consider material quantity and processing	
34	construct 0.4 mile collector canal expansion from 355B to the W	R & AM
34A	plugs/culverts, revisit L-29 divide structure to determine function and flow rate (1,350 cfs)	R & AM
35	construct spreader canals S of TT at culverts	D
35A	modify the ag ditches in flow way… fill, plug, gap, etc…	R & AM
36	optimize operations at most northern structure into WCA 3B from 500 cfs	P & AM
37	retrofit DPM structure; use DPM structure for interim period	R & AM
38	use veg management to reduce n values S of eastern flow way structure (S345D & G)	AM
39	Recommendation deleted, bd	
51	Phasing implementation - Use AM to determine path	AM
52	consider defer pump sta construction until after seepage wall placement and monitoring; utilize existing pump sta S-356	R & P
53	investigate alternative cut off wall materials (vinyl sheet pile)	R & P

54	change location L31N SMPP to this location; use yellow book authority; use original yellow book location	
55	not used	
56	Determine pump station firm capacity based on functional risk (e.g., 1,000 to 750 cfs)	R & AM
57	not used	
58w/54	compare technologies in phased approach to determine final wall section, combine w/54	
59	use S-356 to reduce project water quality uncertainty & risk	
60w/59	add to TSP for future purpose	
61	not used	
62w/67	not used, bd	
63		
64	use reclaimed water for project, reference yellow book	D
65 w/59	consider a two location pump sta scheme for S-356	
67	not used, bd	

Table Key: R = Report
P = PED
AM = Adapt Mgt
D = Drop

APPENDIX F: TENTATIVELY SELECTED PLAN PROJECT FEATURES ON DATE OF WORKSHOP

North and South of Redline Features:



Figure 1 –Total Redline Work



Figure 2 –A-2

Flow Equalization Basin (FEB) A-2 consists of:

Perimeter levee 11 miles around 11.3 feet high, 14ft crest width with 3:1 side slopes
Inflow Canal & Internal levee 4 miles long, 10ft deep canal, 60 ft bottom width, 126ft top width, LSS 4:1, RSS 2:1 11 feet high with 3:1 side slopes
External outflow canal 1.5 miles long with a 50 foot bottom width 17.5 foot depth 2:1 side slopes (1,500 -2,000 cfs)
DS-5 3 Sag Culvert 10X10 culverts inflow (1,500 - 2,000 cfs)
DS-7 outflow 2 9x9 box culverts (2,000 cfs)
DS-8 gated spillway with 3 26X15 gates (1,550 cfs), DS-9 2 9x9 box culverts (930 cfs), Emergency overflow weir 1,500 feet long (3,000 cfs)
Recreational Features:



Figure 3 - L-6 Deliveries (near L-5/S-7) Features

L-6 Deliveries (near L-5/S-7) Features:
CS-1 500 cfs gated box culvert
CS-2 4200 cfs Spillway (STA ¾ discharges)
G-336G Improvements (changing open weir risers to gated culverts)? This may not be needed at all.

Figure 4 – L-5 Conveyance and Improvements

L-5 Conveyance & Improvements (east and west of plug) features: to accommodate full L-6 and STA 3/4 conveyances, 500 cfs and 2500 cfs (3000 cfs total)
L-5 500 cfs gravity structure (plug is removed) 9 9ftx11ft wide 100ft long concrete barrel culverts
West L-5 canal improvements - west portion required an expansion to a bottom width of 100 ft and a deepening to bottom elevation -5.6 ft NGVD (-7.0 ft NAVD).
East L-5 canal improvements - east portion of L-5 required an expansion to a bottom width of 50 ft and a deepening to bottom elevation of -5.1 ft NGVD (-6.5 ft NAVD) . Total excavation for both ~1.97 MCY.



Figure 5 – S-8 Improvements

S-8 Improvements

Construct a set of pipes to convey 3000 cfs into L-5 canal while maintaining 1000 cfs conveyance down Miami Canal.
Degrade 2.9 miles of L-4 interior levee starting 1 mile west of S-8.
200 cfs pump station at end of L-4/L-28 connection (this is still being discussed).



Figure 6 – L-28 Gaps

L-28 Gaps

Provide 3 gaps in the L-28 levee for a total of 1.7 miles.
Backfill canal.



Figure 7 – Miami Canal Improvements

Miami Canal Improvements

Backfill approximately 14 miles of Miami Canal to a point south of S-8 that allows flows of 1000 cfs to I-75.
Degrade spoil mounds North of S-339 and hybrid (leaving some created mounds in place) approach South of S-339.
Create Tree Island Mounds every 1 mile north S-339 and hybrid configuration south of S-339.

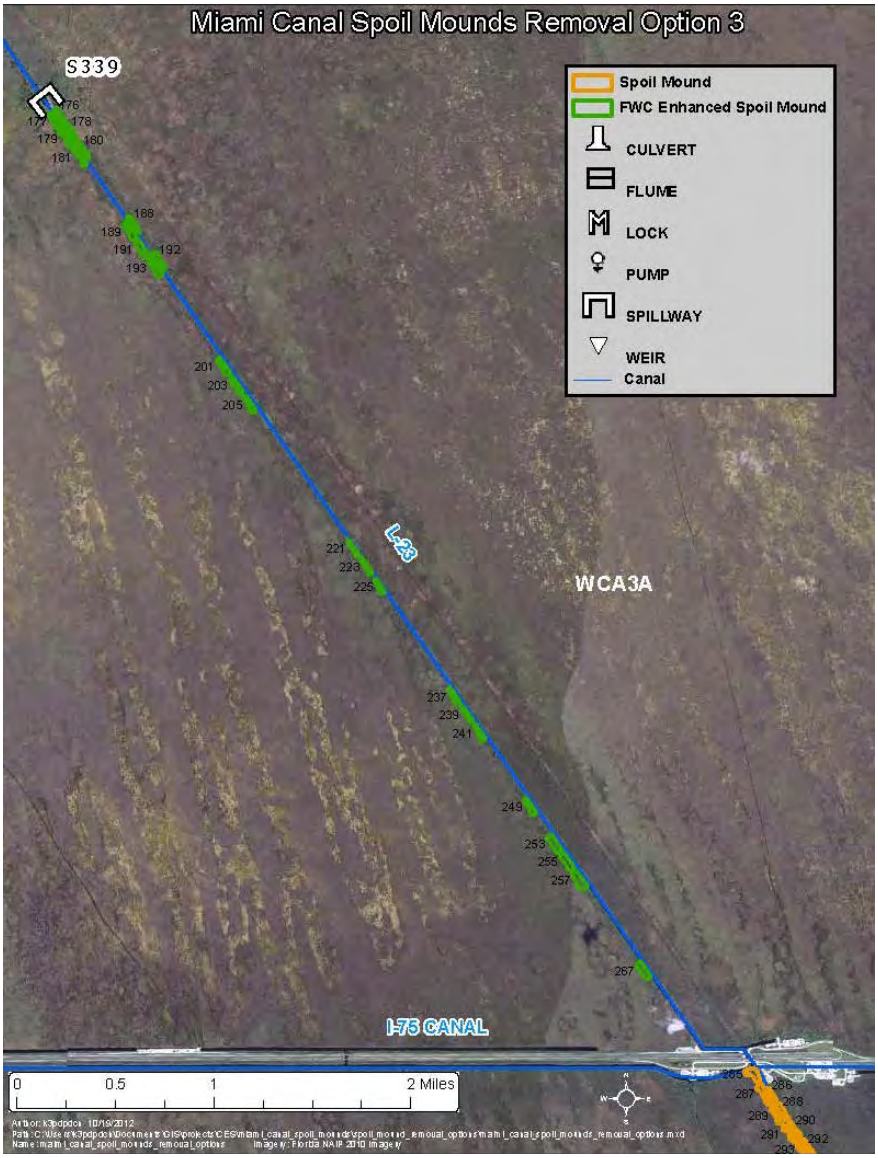


Figure 8 – Miami Canal Proposed Spoil Mounds

Greenline and Blueline Features:

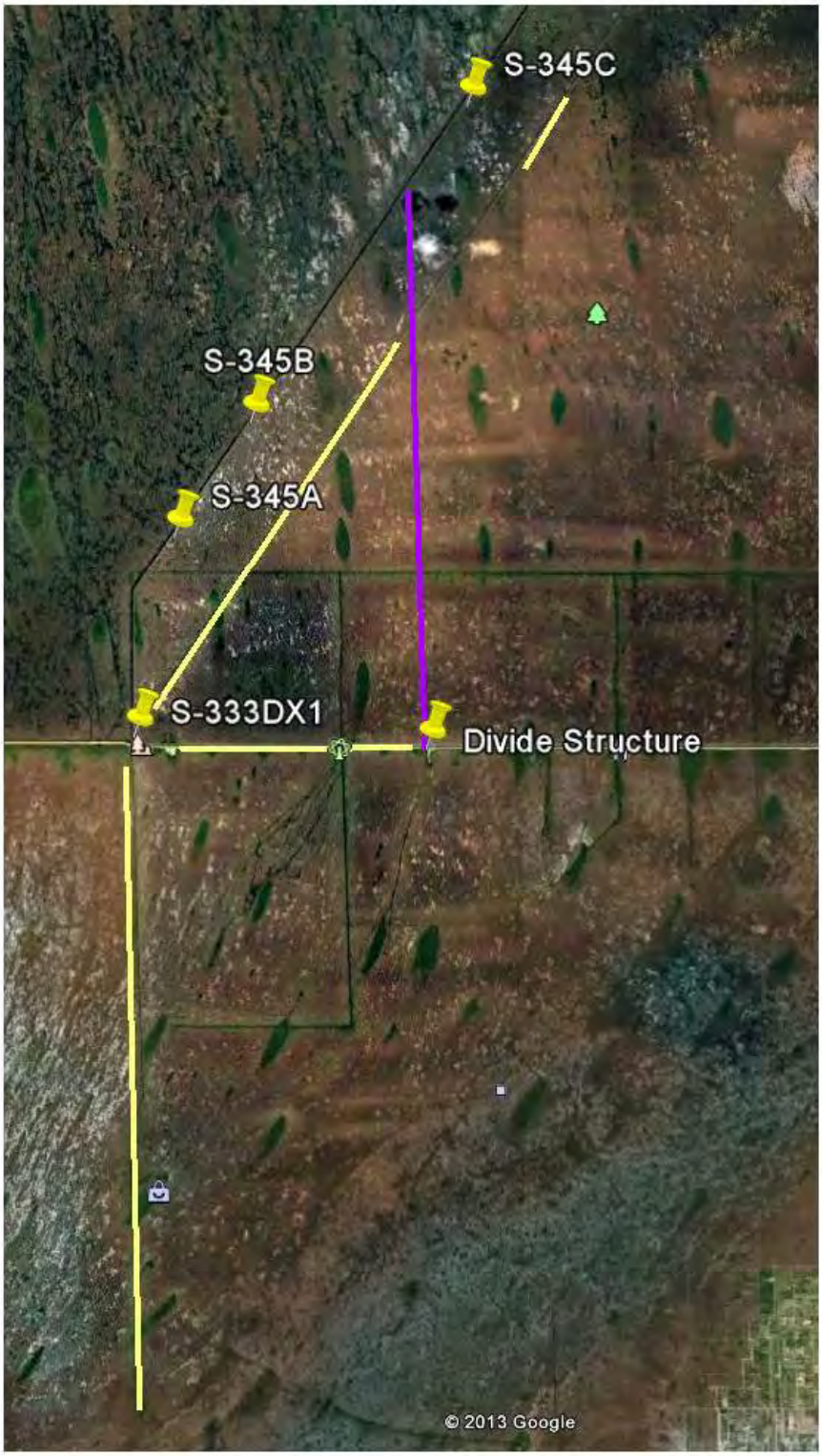


Figure 9 –Greenline and Blueline Features

Greenline and Blueline

Modify S-333 by adding additional structure (temporarily named S-333DX1) to the north with canal. The capacity of the structure is 2 bay 1350 cfs structure similar to S-65EX1. (New S-333 capacity ~2500 cfs).
Install 3 (500) cfs structures on L-67A. S-345 A, B south of new levee in WCA-3B and S-345 C north of new levee. These structures will be designed similar to S-152 (Decomp Physical Model) 10 HDPE pipes 60 inches in diameter with gated structures.
Gap 6000 feet of L-67C near S-345 C.
Degrade L-67C levee (8 miles) from south to the new levee.
Construct 8.5 mile New levee in WCA-3B 6 feet above grade 14' top width with 1 on 3 from L-29 to L-67A.
Remove spoil mounds west of L-67A canal near S-345's.
Divide Structure in L-29 Gated Stucture 1,300 cfs with bridge providing access back to Tamiami Trail
Degrade L-29 levee (4.3 miles) east of the monument to the New levee in WCA-3B
Degrade remaining 5.5 miles L-67 Extension and backfill L-67C canal.
Removal of Old Tamiami Trail west of L-67 ext, ~ 6 miles to Tram Rd.

Yellowline Features:



Figure 10 - Yellowline Features

Yellowline

Demolish S-356
Install new pump station north of the current S-334/S-356 location of 1000 cfs. The station shall have a redundant pump.
Install a seepage cut off wall south of Tamiami Trail down L-31N to connect to the existing wall for a length of 3 miles and 30 feet deep.

Structure/Feature Number	Structure/Feature Type	Design Capacity (cfs)	Location	Tech Specs & Notes
NORTH OF THE REDLINE – FLOW EQUALIZATION BASIN (FEB) – A 2				
S-623 (DS-8)	Gated Spillway	3700	In Miami Canal	Delivers water from Miami Canal to G-372
S-624 (DS-5)	Gated Sag Culvert FEB inflow structure	1550	On STA 3 / 4 Supply Canal	Receives water from G-372 via STA 3 / 4 Supply Canal and delivers to C-624 canal.
S-625 (DS-7)	Gated Culverts FEB discharge structure	1550	Discharge structure in FEB perimeter levee L-624	Delivers water to FEB outflow canal
S-626 (PS-1)	Seepage Pump Station	400	West side of seepage canal, C-626	Delivers seepage back into the canal/FEB
S-627 (CS-4)	Emergency Overflow weir	3000	Between A-2 and A-1 FEB, just north of S-627	
S-628 (DS-9)	Gated Culvert FEB intake/ discharge structure	930	Between A-2 and A-1 FEB	Delivers water between A-2 & A-1
L-624	Levee		FEB Perimeter Levee	~ 20 miles, el 20.3
L-625	Levee		FEB interior inflow canal levee	~ 4 miles,
C-624	Inflow Canal	1550	West side of FEB	~ 4 miles
C-624E	Spreader Canal		Northern boundary of FEB	~ 4+ miles
C-625E	Collection Canal	400	FEB interior collection canal; southern perimeter	Only provides conveyance when no sustained pool depth (i.e., only sheet flow)
C-625W	Outflow Canal	1550	FEB exterior outflow; between S-625 and G-372 HW	FEB Outflow is the existing seepage canal for the STA 3 / 4 Supply Canal
C-626	Seepage Canal	400	West and Northern exterior perimeter of FEB	~ 4 miles
SOUTH OF THE REDLINE – DIVERSION & CONVEYANCE				
S-620 (CS-1)	Gated Culvert	500	In L-6 Canal	Delivers water from L-6 canal to L-5 canal
S-621 (CS-2)	Gated Spillway	2500	On STA 3 / 4 Outflow Canal	
S-622 (CS-3)	Gated Spillway	500	In L-5 Canal	Delivers water from west to east in L-5 canal
New (S-8A) PS	Gated Culverts w/canal	3080 & 1020	In Miami and L-4 Canal	Delivers water from L-5 west to L-4
S-630	Pump Station	200	In L-4 Canal	Delivers water from L-4 canal west
	Levee Removal		L-4 Interior Levee	Removal of ~2.9 miles

	Levee Removal Gapping		L-28 Levee	Removal of ~ 1.7 miles = 3 gaps w/canal backfill
	Canal Backfilling		Miami Canal	Remove ~ 13.5 miles
	Tree Islands Mounds		Miami Canal	Create habitat and promote sheetflow in WCA-3A
Structure/Feature Number	**Structure/Feature Type**	**Design Capacity (cfs)**	**Location**	**Tech Specs & Notes**
SOUTH OF THE REDLINE CONT'D – DIVERSION & CONVEYANCE				
	Canal	500	L-5 east	Enlarging canal
	Canal	3000	L-5 west	Enlarging canal
BLUE GREEN YELLOW LINE – DISTRIBUTION, CONVEYANCE & SEEPAGE MANAGEMENT				
S-333 (N)	Gated Spillway w/new canal	1150	Just north of existing S-333	Delivers water from L-67A to L-29 canal
New S-356	Pump Station	1000	In vicinity of existing S-356	
S-631	Gated Culvert	500	In L-67A levee	Delivers water from WCA 3A to 3B
S-632	Gated Culvert	500	In L-67A levee	Delivers water from WCA 3A to 3B
S-633	Gated Culvert	500	In L-67A levee	Delivers water from WCA 3A to 3B
	Levee Removal Gap		In L-67C levee	~ 6000 ft gap corresponding to S-631
L-67D	New Levee		In WCA 3B	~ 8.5 miles connects from L-67A to L-29 14 crest width, 3:1 side slopes, 6 ft high
	Levee Removal		L-67C levee	~ 8 miles removal from New 3B Levee south to intersection of L-67A
S-355W	Gated Spillway	1230	In L29, east of New 3B levee terminus and TT 2.6 miles bridge	Delivers water from L-29 to S-356 & provides access for Tigertail Camp to Tamiami Trail.
	Levee Removal		In L-29 levee	~ 4.3 miles removal east of Valuejet monument to L-67D start.
	Road Removal		Old Tamiami Trail (from L-67 Ext west to tram Rd)	~ 6 miles of Old roadway removal
	Levee Removal		In L-67 Ext levee	~ 5.5 miles of L-67 Ext removal
	Seepage Barrier Cutoff Wall		In L-31N levee just south of Tamiami Trail	~3.5 miles of 3ft wide, 35 ft deep, Soil Cement Bentonite (SCB) Wall
	cfs = cubic feet per second			

ANNEX C-1. CIVIL PROJECT POINTS

Structures and Levees North of the Redline XY and Elevations

Levees

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Height	Side Slopes	Crown
Perimeter Levee (L-624)									
FEB PT A	26 26 09.57	80 47 07.24	726408	764218		N/A	11.3	3	14
FEB PT B	26 29 35.06	80 47 10.89	726042	784965		N/A	11.3	3	14
FEB PT C	26 29 36.67	80 43 19.22	747089	785167		N/A	11.3	3	14
FEB PT D	26 28 43.91	80 43 18.16	747197	779841		N/A	11.3	3	14
FEB PT E	26 28 44.08	80 41 20.92	757850	779882		N/A	11.3	3	14
FEB PT F	26 26 10.15	80 41 18.82	758078	764341		N/A	11.3	3	14
Interior Levee (L-625)									
INT PT A	26 26 39.59	80 47 7.17	726409	767249		N/A	11	3	14
INT PT B	26 26 39.60	80 47 39.17	728919	767244		N/A	11	3	14
INT PT C	26 29 27.63	80 46 42.36	728635	784219		N/A	11	3	14

Canals

Description	Lat	Long	X	Y	Ground EL, NGVD	Canal Invert EL, NGVD	Depth ft	Bottom Width ft	Side slope Left	Side slope Right	Flow Rate CFS	
Inflow Canal (C-624)												
INF C PT A	26 26 8.82	80 46 53.99	727613	764144	9.0	-5.0	25.3*	20	2	2	1550	*Depth is from top of levee at 20.3 NGVD to invert elev at -5.0 NGVD. Canal inv at -5.0 to match
INF C PT B	26 29 27.27	80 46 57.31	727276	784180	9.0	-5.0	25.3	20	2	2	1550	inlet/outlet elevation of DS-5 sag culvert
Outflow Canal (C-625W)												
OC PT A	26 26 15.27	80 47 6.68	726458	764793	Existing	-5.0	21*	20	2.5	2.5	1550	*Top of bank at el. 16.0 NGVD
OC PT B	26 26 14.43	80 48 32.37	718669	764696	Existing	-5.0	21	20	2.5	2.5	1550	
OC PT C	26 26 8.42	80 48 32.22	718684	764089	Existing	-5.0	21	20	2.5	2.5	1550	
Spreader Canal (C-624E)												
SC PT A	26 29 45	80 47 10.55	727266	784751	9.0			275	2	2		*Top width of 350 ft.
SC PT B	26 29 30.12	80 43 19.22	746868	784939	9.0			275	2	2		
SC PT B1			746976	779615								
SC PT B2			757625	779656								
Seepage Canal (C-626)												
SEC PT A	26 26 15.53	80 47 9.05	726243	764819	Existing	-5.5	14.5	15	2	2	-	
SEC PT B	26 29 37.70	80 47 12.57	725889	785231	Existing	-5.5	14.5	15	2	2	141.09	
SEC PT C	26 29 37.72	80 43 18.77	747239	785276	Existing	-5.5	14.5	15	2	2	282.19	
SEC PT C.5			747302	779948	Existing							
SEC PT D	26 28 44.85	80 41 20.13	757922	779960	Existing	-5.5	14.5	15	2	2	389.69	
Collection Canal (C-625E)												
CC PT A	26 26 8.15	80 41 20.40	757935	764139	Existing	0.0	9	10	2	2	400*	* FEB outflow will rely primarily on above ground flow; the collection canal only provides conveyance when the FEB
CC PT B	26 26 6.89	80 48 22.91	719530	763936	Existing	0.0	9	10	2	2	400	does not have a standing pool of water (i.e. only sheet flow)

Structures

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL, NGVD	Depth FT	Width FT	Structure Footer EL	Flow Rate CFS
DS-5 (S-624)	26 26 8.82	80 46 53.99	727613	764144	9.0	-5.0	11	11	-7.8	1550
DS-7 (S-625)*	26 26 15.27	80 47 6.68	726458	764793	9.0	0.0	9	9	-2.8	1550
DS-8**	26 26 14.66	80 48 43.37	717669	764718	9.0	-3.5*	16.5	35	-6	3700
PS-1 (S-626)	26 29 37.70	80 47 12.57	725889	785231	9.0	-5.5	N/A	N/A	-16.5	400
DS-9 (S-628)*	26 28 35.11	80 41 20.90	757854	778977	9.0	0.0	9	9	-2.8	930

DS-5: (2) 11'x11' box culverts (sag culverts with four 45 deg bends); deepest elev at -14.0 ft NGVD
DS-7: (3) 9'x9' box culverts
DS-8: (4) 35'x16.5' gated spillway
DS-9: (2) 9'x9' box culverts

*Crest invert elev = -3.5 ft NGVD; approach apron at elev. -13.5 ft NGVD

Description	Lat	Long	X	Y	Ground EL	Crest EL, NGVD	Crest FT	Flow Rate CFS
Overflow Weir (S-627)	26 28 39.61	80 41 21.0	757844	779431	9	13.5	14	3000

Structures and Degrade South of the Redline XY and Elevations

Levee Degrade

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Height	Side Slopes	Crown
L-4 Degrade									
PT A	26 19 54.30	80 47 0.09	727122	726329					
PT B	26 19 53.42	80 49 38.39	712720	726219					
L-28 Degrade									
PT A	26 9 2.50	80 49 33.08	713291	660500			Unknown	Unknown	Unknown
PT B	26 8 6.77	80 49 39.36	712727	654873			Unknown	Unknown	Unknown
PT C	26 6 55.30	80 49 59.12	710935	647655			Unknown	Unknown	Unknown

Canal Backfill

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Height	Side Slopes	Crown
Miami Canal									
North	26 19 20.72	80 46 3.33	732292	722948					
South	26 08 49.09	80 38 00.87	776369	659277					
L-28 Canal Backfill									
PT A	26 9 2.50	80 49 33.08	713291	660500					
PT B	26 8 6.77	80 49 39.36	712727	654873					
PT C	26 6 55.30	80 49 59.12	710935	647655					

Canals

Description	Lat	Long	X	Y	Ground EL	Canal Invert EL	Depth	Width	Side slope Left	Side slope Right	Flow Rate CFS
L-5 Improvements											
L-5 PT A	26 20 12.36	80 32 11.83	807929	728365		-5.6		100			
L-5 PT B	26 19 53.79	80 38 3.53	775938	726388		-5.6		100			
L-5 PT C	26 19 55.02	80 46 28.86	729963	726407		-5.1		50			
Canal from Miami Canal to L-4											
C-8A	26 19 51.29	80 46 27.70	730069	726030							
C-8N	26 19 55.07	80 46 36.71	729249	726411							

Structures

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Depth FT	Width FT	Structure Footer EL	Flow Rate CFS
CS-1 (S-620)	26 20 12.36	80 32 11.83	807929	728365						
CS-2 (S-621)	26 20 25	80 32 50.10	804442	729629						
CS-2 (S-622)	26 19 53.79	80 38 3.53	775938	726388						
S-8A S	26 19 49.55	80 46 25.25	730292	725855						1020
S-8AW	26 19 51.29	80 46 27.70	730069	726030						3020
S-630	26 19 53.42	80 49 38.39	712720	726219						

Weirs

Description	Lat	Long	X	Y	Ground EL	Structure EL	Length FT	Flow Rate CFS
L-6 Overflow Weir								
Overflow Weir PT A*	26 20 53.62	80 31 42.08	810620	732541	12	12.5	5280	
Overflow Weir PT B	26 20 11.73	80 32 10.08	808088	728302	12	12.5		

*Total length approximately 1 mile

Structures and Levees Green Blue Yellow XY and Elevations

Levees

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Height	Side Slopes	Crown
L-67D									
PT A	25 52 43.96	80 36 36.74	784398	561995					
PT B	25 50 59.58	80 36 32.31	784834	551458					
PT C	25 45 41.38	80 36 21.53	785915	519337					

Canals

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Height	Side Slopes	Crown
S-333 N Discharge Canal									
PT A	25 45 47.45	80 40 25.67	763593	519889					
PT B	25 45 44.81	80 40 18.58	764242	519624					
PT C	25 45 40.99	80 40 14.79	764590	519240					

Levee/Road Degrade

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Height	Side Slopes	Crown
L-29 Degrade									
PT A	25 45 41.38	80 36 21.53	785915	519337					
PT B	25 45 40.99	80 40 14.79	764590	519240					
L-67 EXT. Degrade									
PT A	25 45 40.22	80 40 25.09	763648	519159					
PT B	25 45 39.21	80 40 25.68	763594	519057					
PT C	25 41 17.92	80 40 16.05	764541	492681					
PT D	25 40 57.82	80 40 23.18	763893	490651					
Old Tamiami Trail									
PT A	25 45 39.38	80 40 26.76	763496	519074					

PT B	25 45 39.11	80 45 58.94	733127	518983					
L-67 C North Degrade									
PT A	25 53 50.08	80 34 23.98	796502	568708					
PT B	25 52 57.17	80 35 3.77	792885	563354					
L-67C South Degrade									
PT A	25 50 58.69	80 36 32.94	784777	551368					
PT B	25 46 5.84	80 40 13.49	764702	521748					
PT C	25 46 3.17	80 40 24.76	763673	521476					

Structures

Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Depth FT	Width FT	Structure Footer EL	Flow Rate CFS
S-345C (S-633)	25 53 46.47	80 35 50.48	788604	568318						
S-345B (S-632)	25 49 40.91	80 38 56.18	771712	543479						
S-345A (S-631)	25 48 17.85	80 39 57.54	766105	543464						
L-29 Spillway (S-355W)	25 45 41.38	80 36 21.53	785915	519337						
S-333 Add (S-333 N)	25 45 47.45	80 40 25.67	763593	519889						
S-356	25 45 42.81	80 30 8.54	820014	519597						
L-31N Seepage Wall										
PT A	25 45 38.63	80 29 51.50	821574	519181						
PT B	25 43 0.84	80 29 45.32	822200	503253						

Structure Removal

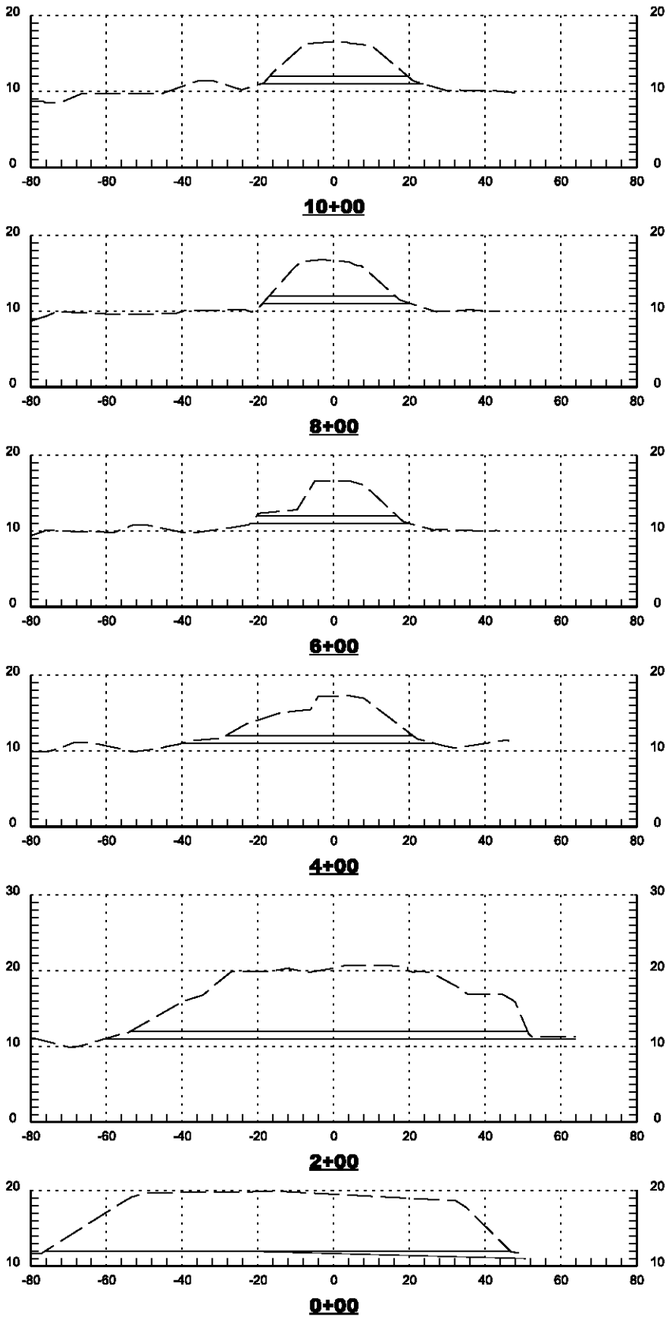
Description	Lat	Long	X	Y	Ground EL	Structure Invert EL	Depth FT	Diameter FT	Pipes Number
S-346	25 45 39.42	80 40 26.31	763537	519078					

ANNEX C-2. CIVIL PLATES

L-4 Levee Cross Section

Typical Levee Cross Sections
(L-67A, L-67C, L-29, L-67D-Blue Shanty)

Miami Canal Backfill and Constructed Tree Islands (Mounds)
Initial Technical Recommendation
Ecological Recommendation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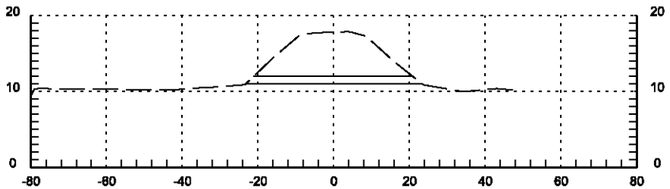
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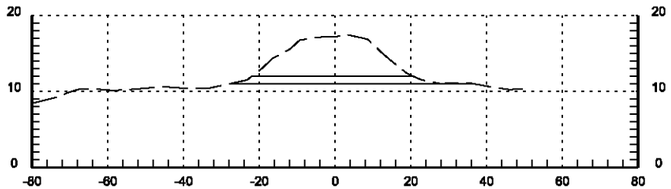
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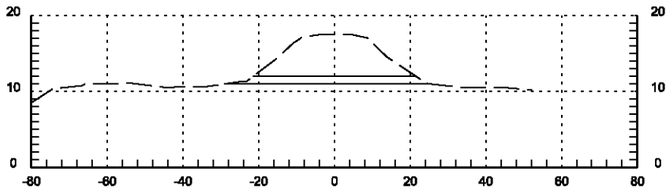
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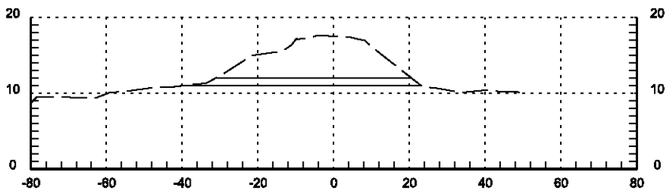
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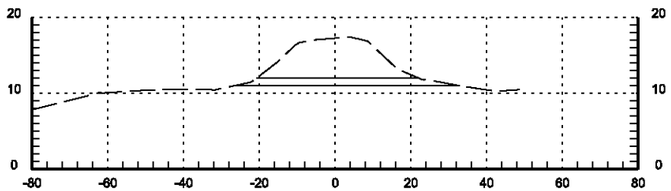
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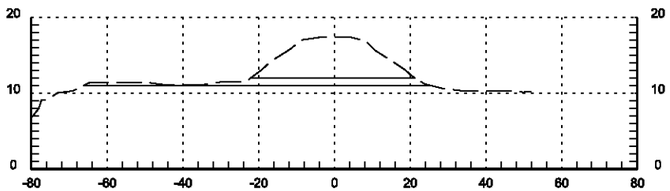
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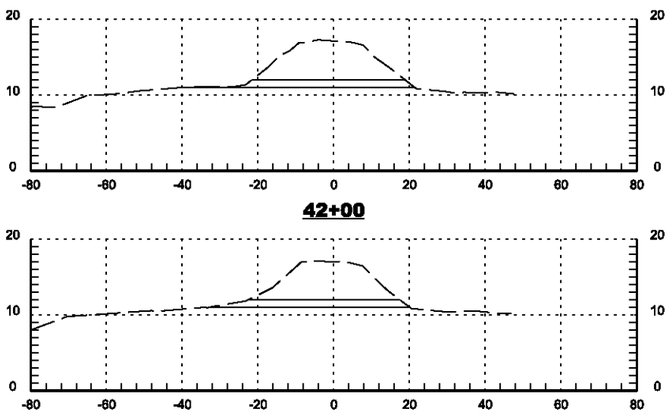
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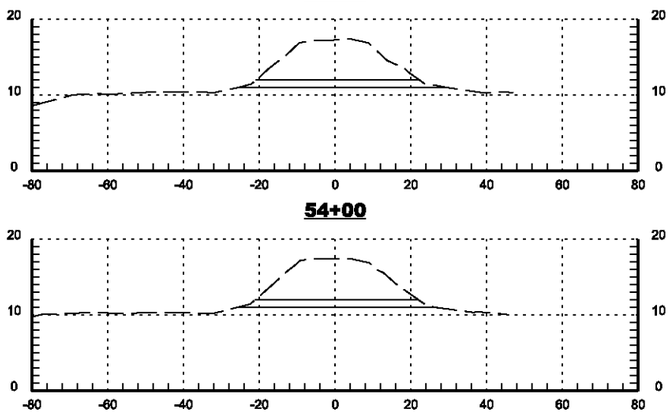
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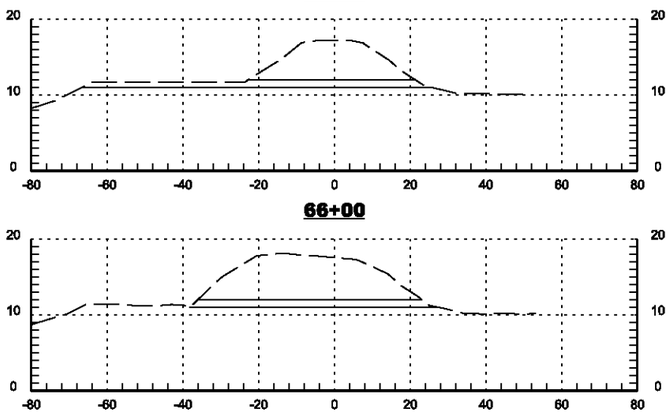
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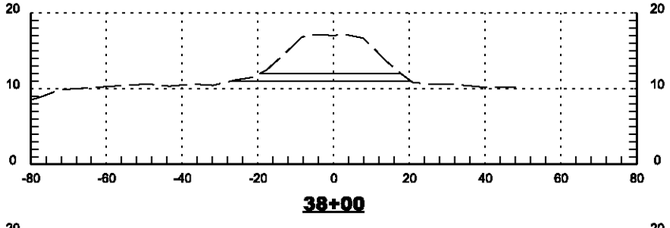
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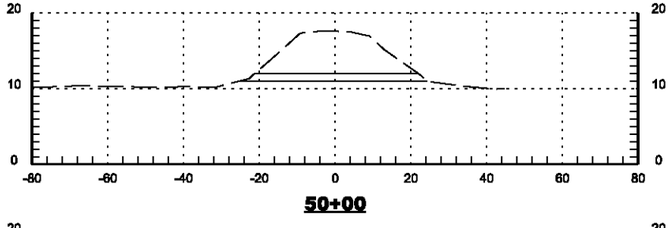
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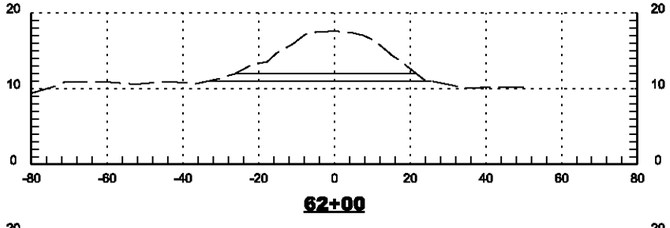
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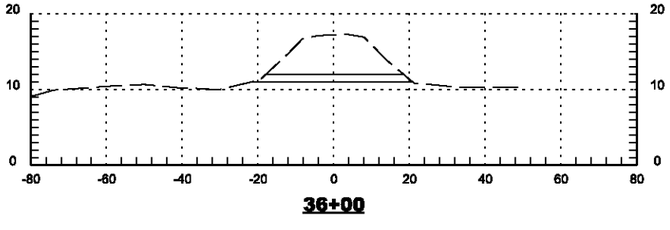
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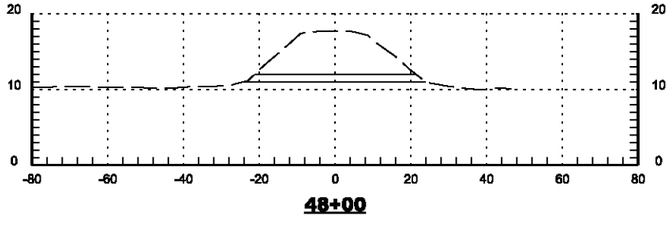
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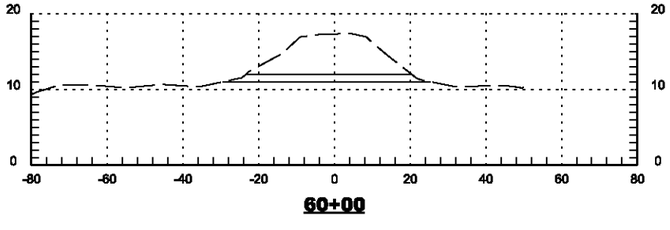
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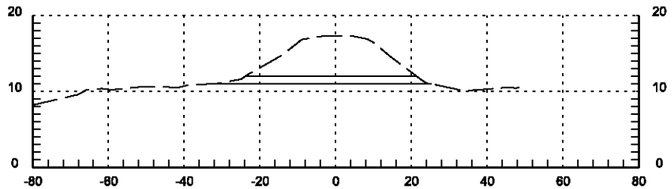
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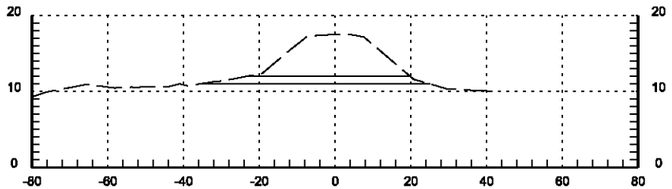
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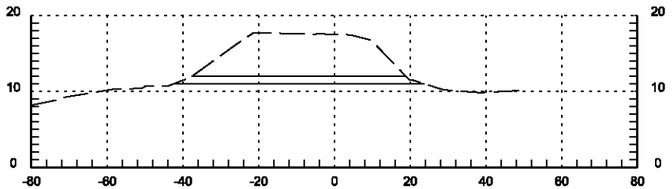
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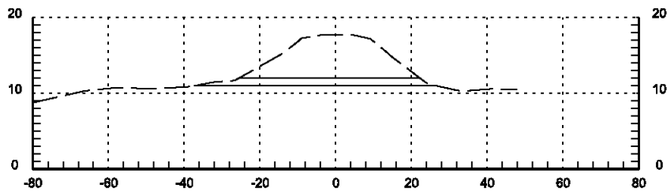
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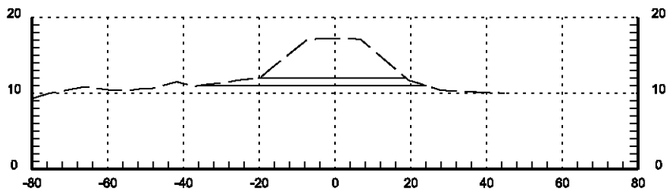
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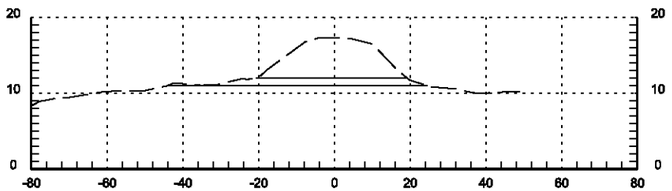
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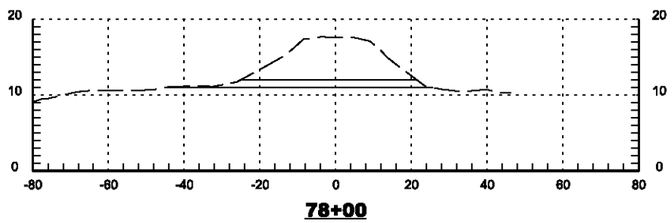
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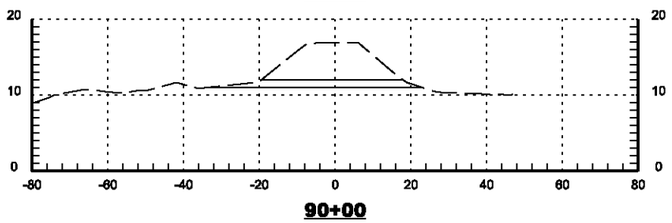
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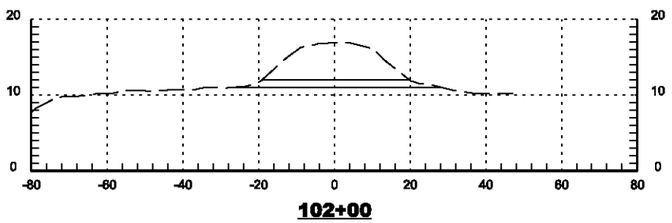
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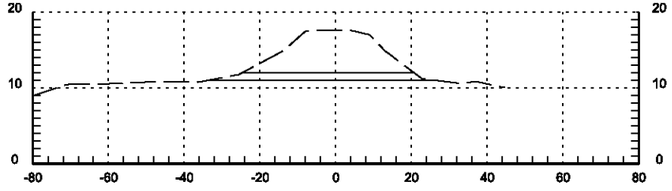
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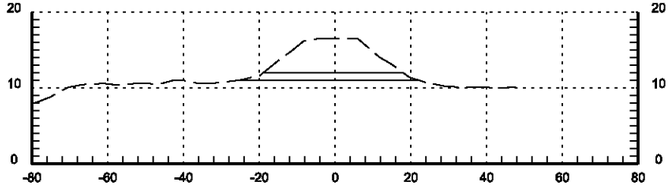
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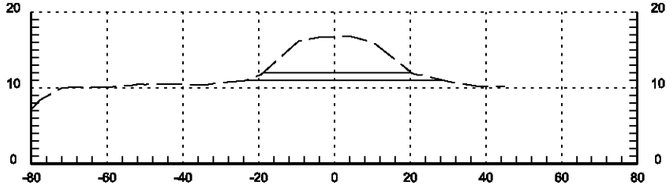
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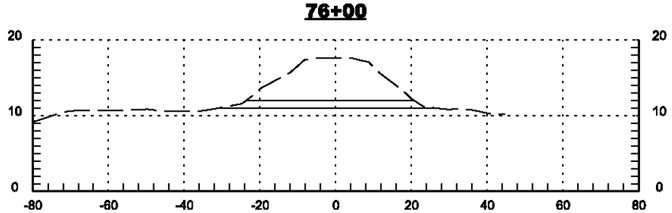
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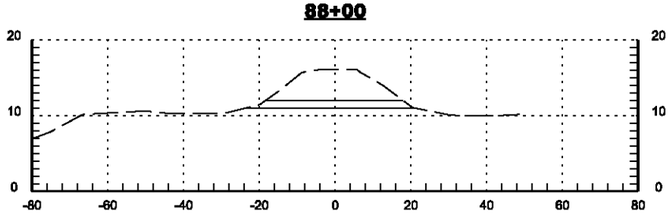
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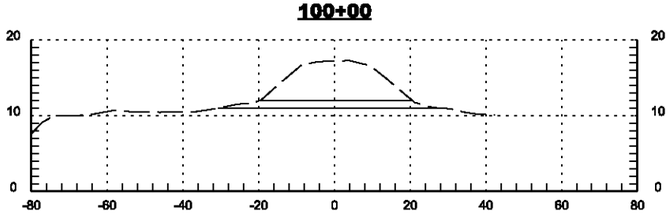
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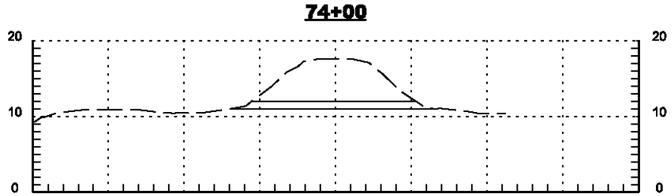
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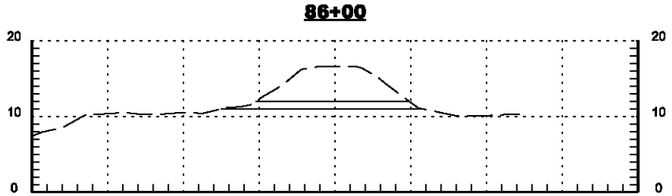
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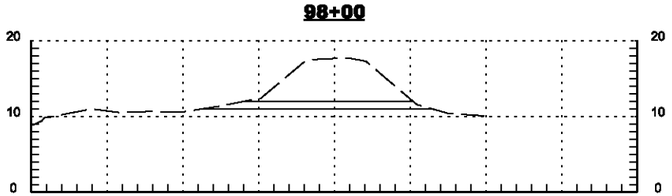
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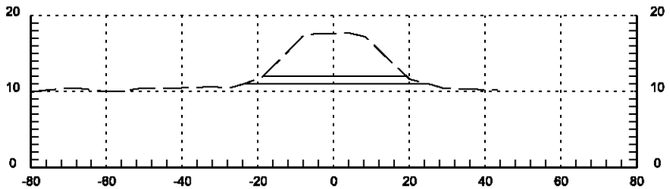
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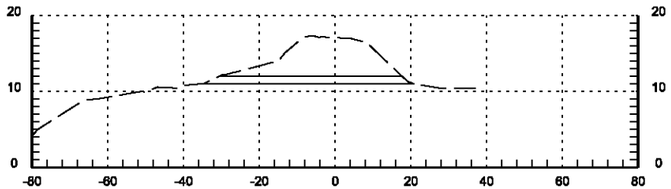
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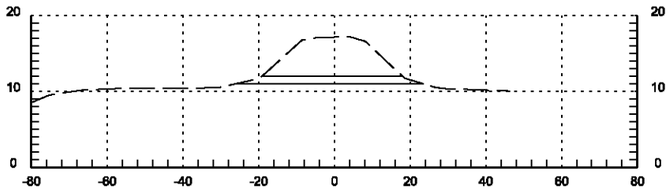
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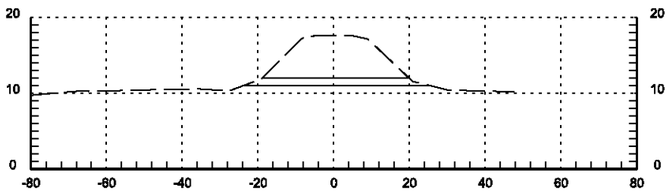
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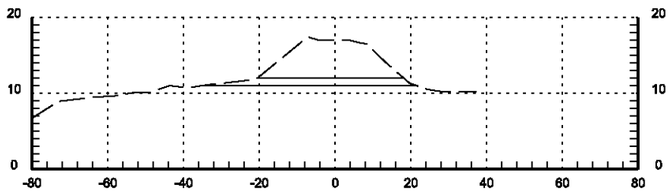
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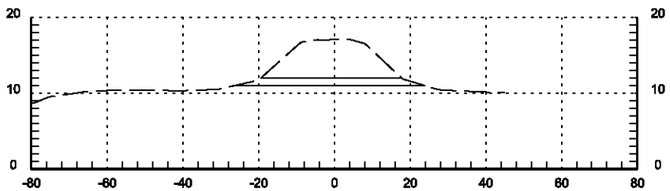
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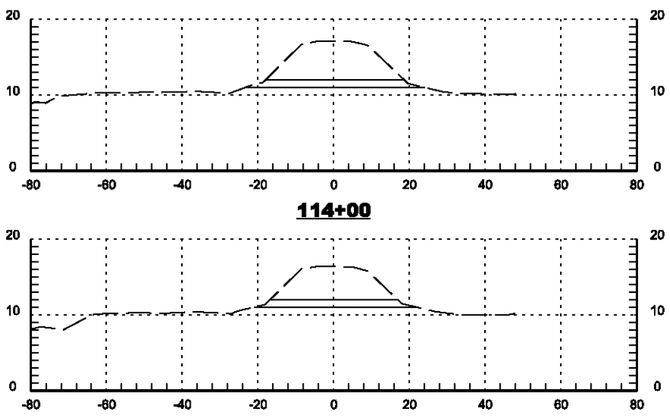
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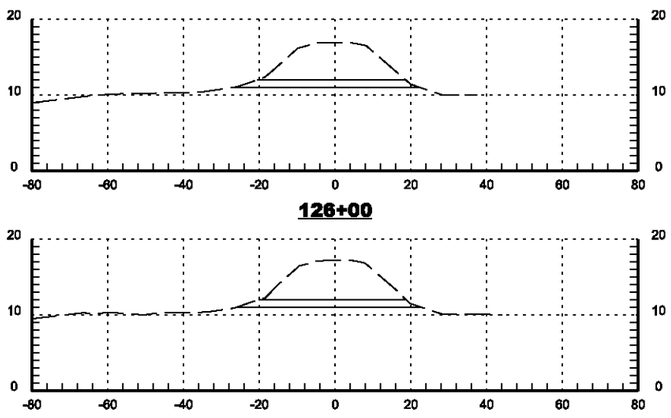
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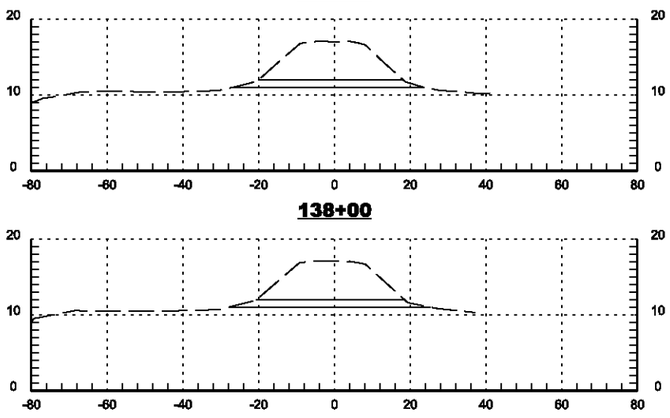
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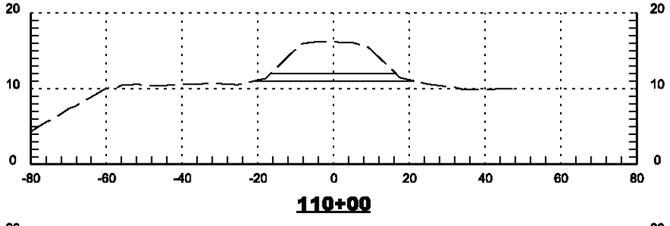
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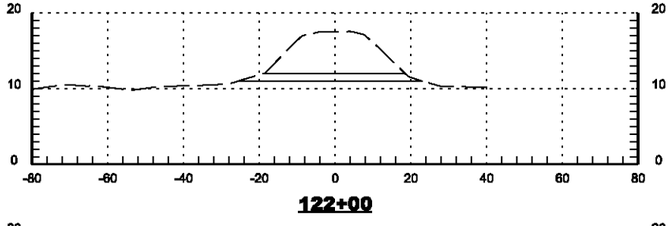
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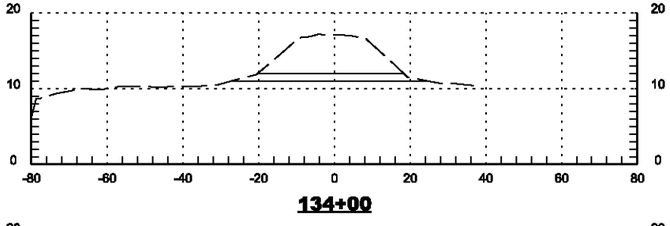
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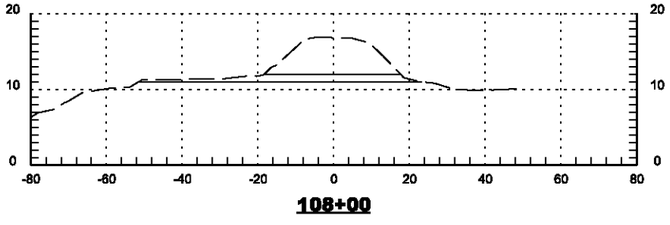
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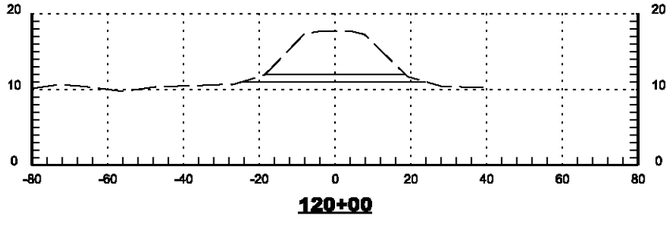
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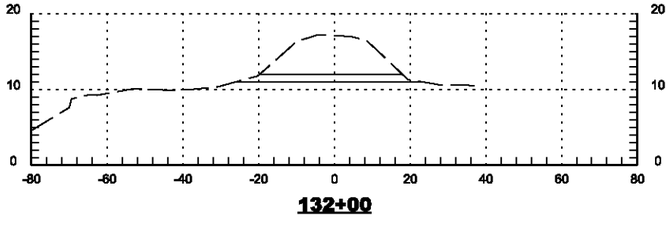
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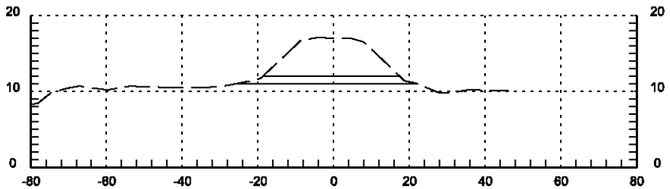
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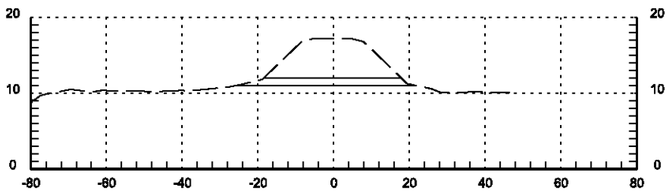
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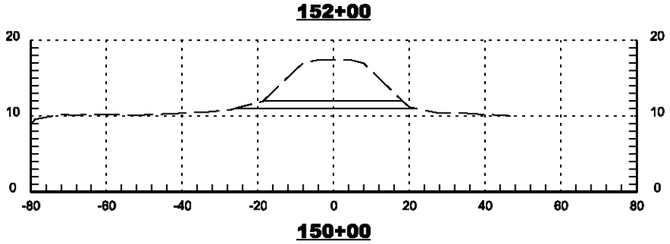
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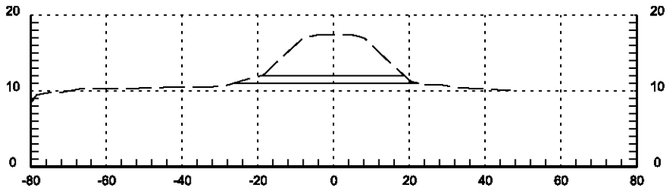
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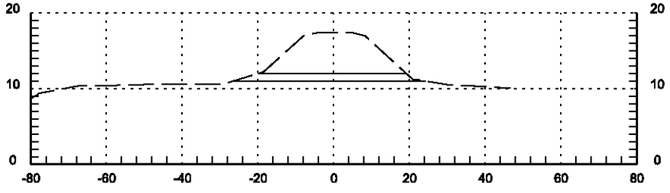
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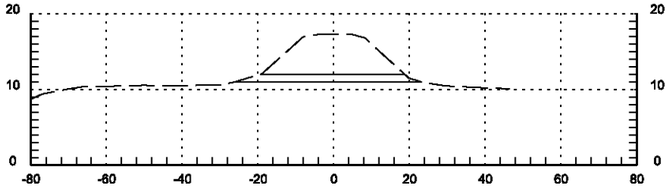
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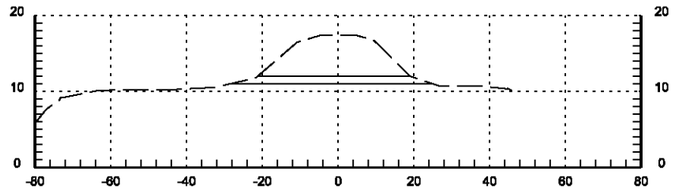
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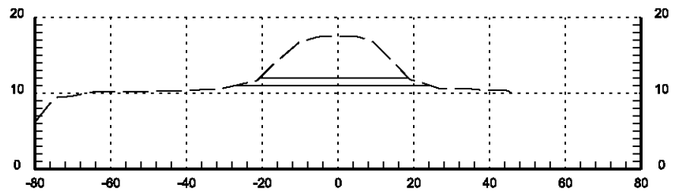
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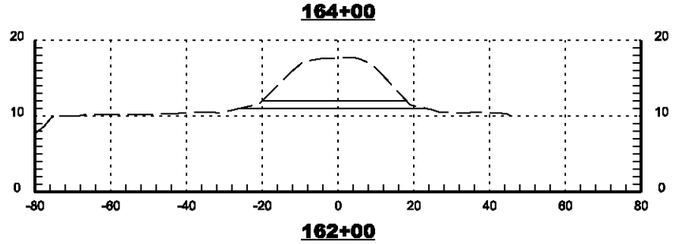
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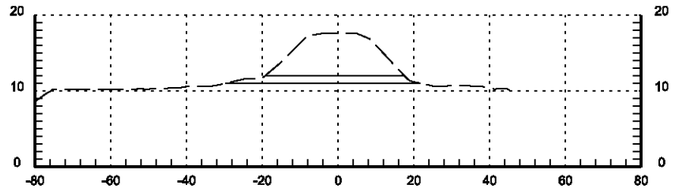
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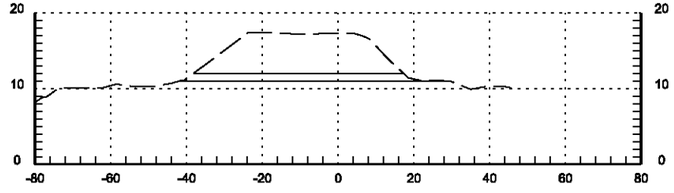
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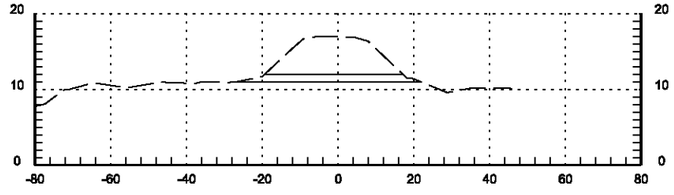
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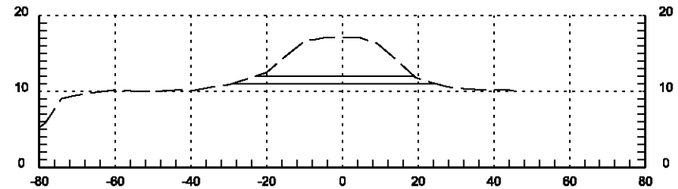
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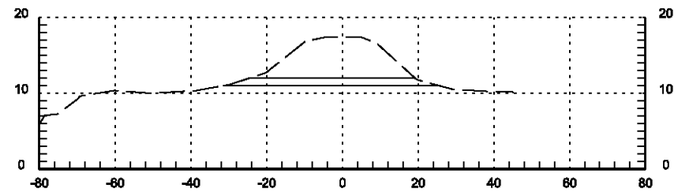
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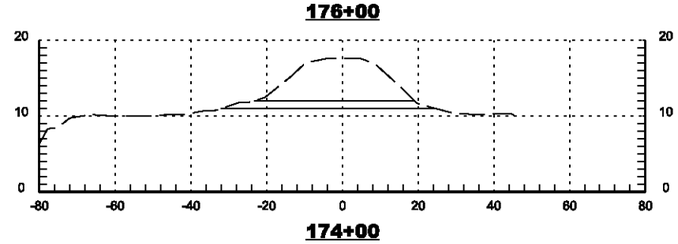
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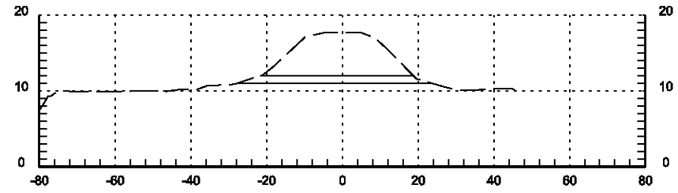
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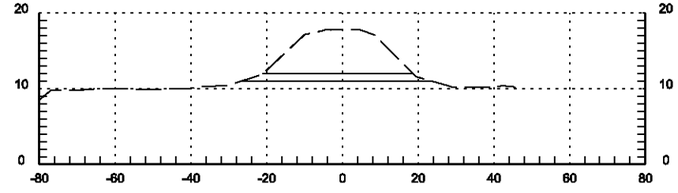
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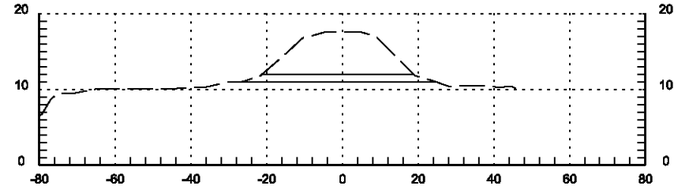
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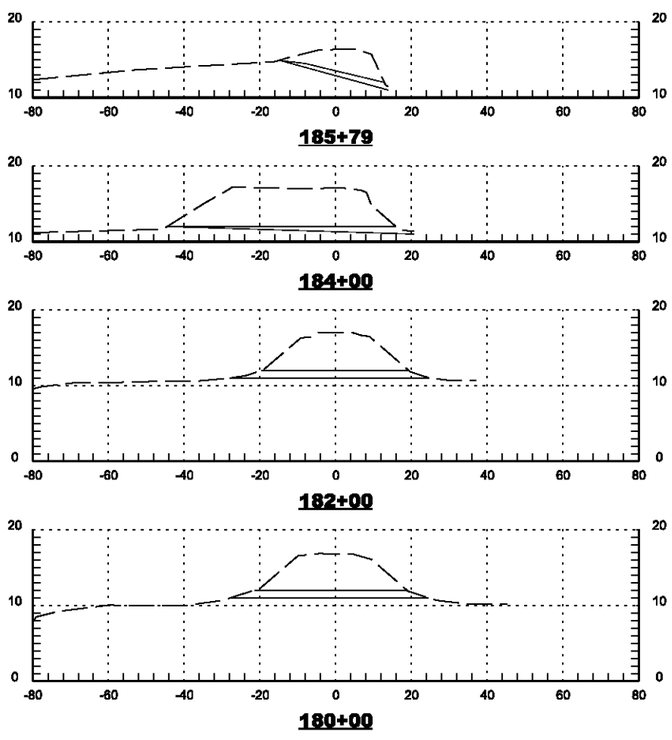
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184+00
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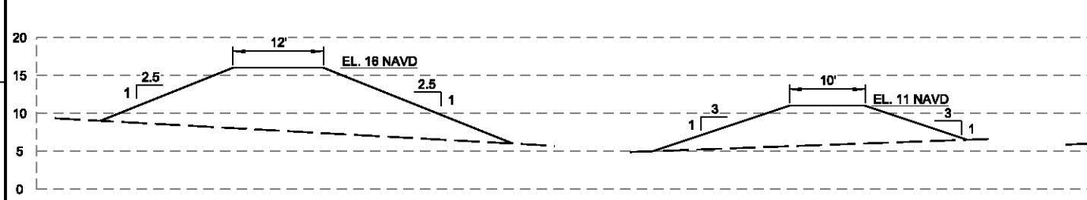
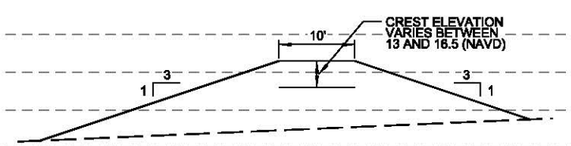
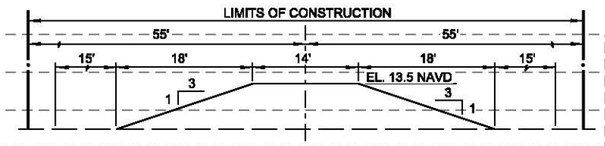


L-67 A LEVEE
SCALE: "A"

L-67 C LEVEE
SCALE: "A"



L-29 LEVEE
SCALE: "A"



CONCEPTUAL LEVEE IN 3B
(BLUE SHANTY LEVEE)
SCALE: "A"

NOTE:

LEVEE IS 6 FT. HIGH WITH 3:1 SIDE SLOPES MADE OF LIMEROCK/CLAYEY/SANDY MATERIAL. ASSUME 15 FT. SLOPED WOODY VEGETATION FREE ZONE ON BOTH SIDE OF LEVEE TOE.

GRAPHIC SCALES

"A" 10' 0 10' 20'

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

US Army Corps of Engineers
Jacksonville District

SAFETY ON THIS JOB DEPENDS ON YOU

No.	SYMB	ZONE	Description

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Chkd by:
Designed by:
Drawn by:
Inv. No.
Dated: DD MMM YYYY

CEPP-G-BS.DGN
Reference files:

File name:

CENTRAL & SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES RESTORATION PLAN
CENTRAL EVERGLADES
PLANNING PROJECT

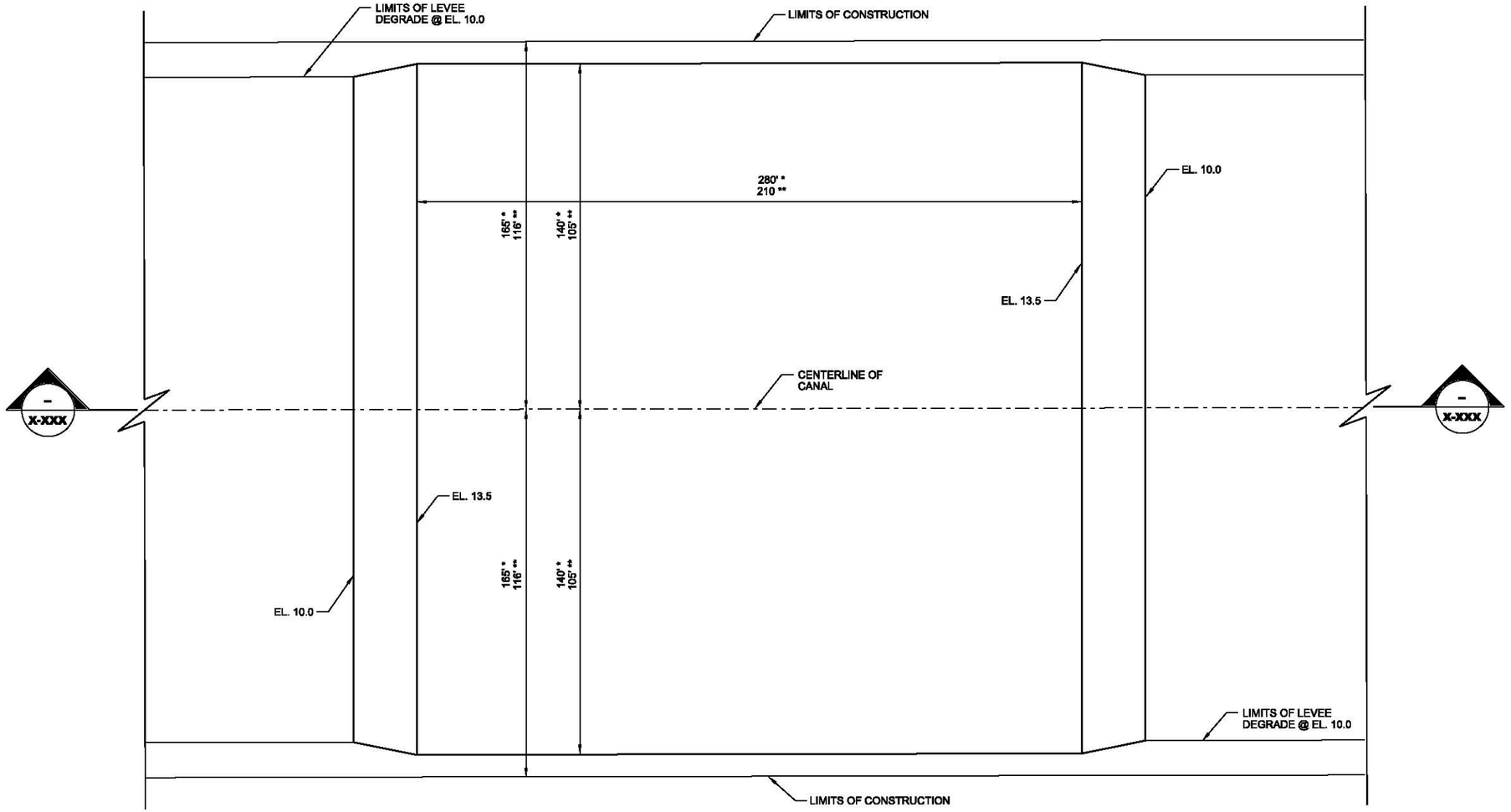
Scale: AS SHOWN
DRAWING NO.

auto_username auto_design

ANNEX C-2.1

MIAMI CANAL BACKFILL AND CONSTRUCTED TREE ISLANDS

Miami Canal Backfill and Constructed Tree Islands (Mounds)
Initial Technical Recommendation
Ecological Recommendation



TYPICAL SECTION - EARTHEN MOUND

SCALE: N.T.S.
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STA. XX+XX.XX
STA. XX+XX.XX
STA. XX+XX.XX
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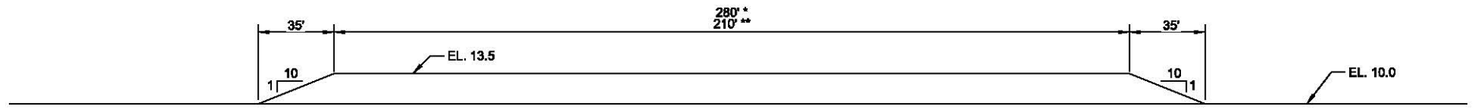


EARTHEN MOUNDSECTION

SCALE: N.T.S.

US Army Corps of Engineers
Jacksonville District

SAFETY ON THIS JOB DEPENDS ON YOU

Description
No. SYMB ZONE

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by:
Drawn by:
Ckd by:
Insv. No.
Dated: DD MMM YYYY

CEPP-G-BS.DGN
Reference files:
File name:

CENTRAL & SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES RESTORATION PLAN
CENTRAL EVERGLADES PLANNING PROJECT

Scale: AS SHOWN
DRAWING NO.

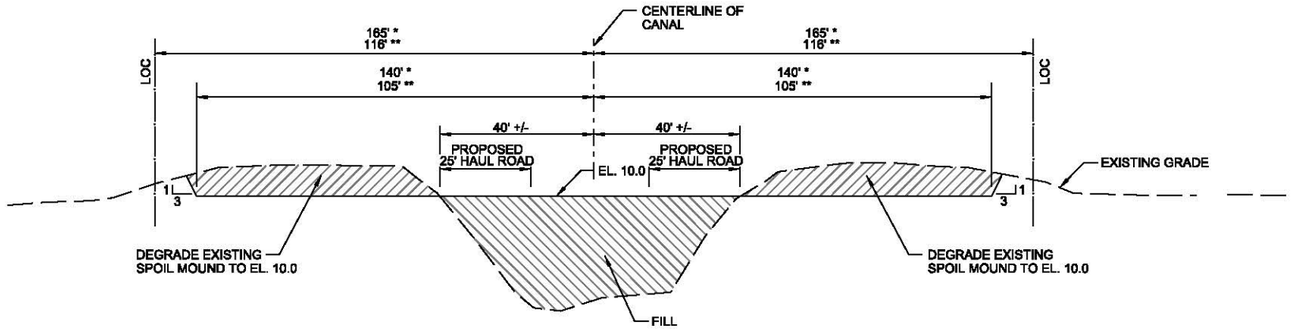
auto_username auto_design

LOC - LIMITS OF CONSTRUCTION
STA - STATION FOR MIAMI CANAL

INTENT IS TO MAINTAIN A BUFFER FROM EDGES OF SPOIL MOUND ~ 25 FEET SET AS LOC.

PROPOSED 1 MILE SPACING BETWEEN EARTHEN MOUND ABOVE 10' NAVD, ALONG THE MIAMI CANAL.

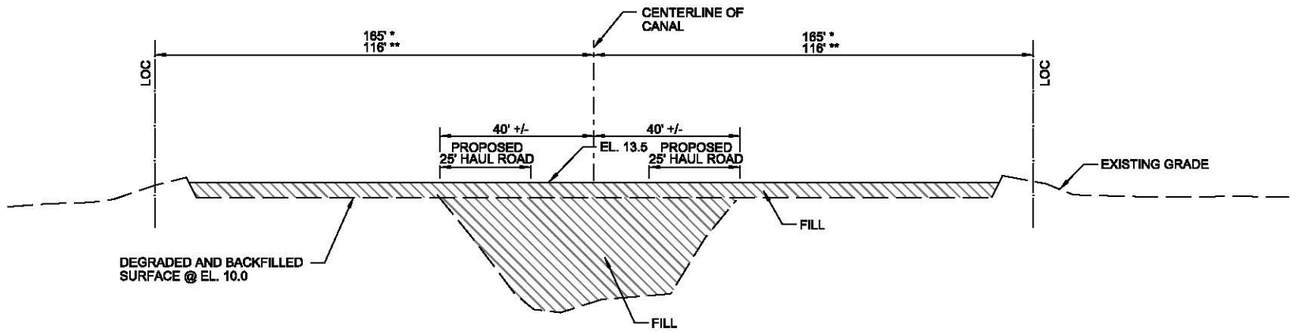
PROPOSED EARTHEN MOUND DIMENSION ARE 280x280 * & 210x210 ** FEET ALONG CANAL.



TYPICAL SECTION
CANAL BACKFILL AND SPOIL MOUND DEGRADE

SCALE: N.T.S.

* - STATION a10+00 TO STATION a176+00
** - STATION a176+00 TO STATION b605+00



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US Army Corps of Engineers
Jacksonville District

SAFETY ON THIS JOB DEPENDS ON YOU

No.	SYMB	ZONE	Description

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by: Ckd by:
Dwn by:
Inv. No.
Dated: DD MMM YYYY

CEPP-G-BS.DGN
Reference files:
File name:

CENTRAL & SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES RESTORATION PLAN
CENTRAL EVERGLADES PLANNING PROJECT

Scale: AS SHOWN
DRAWING NO.

Miami Canal Backfill and Constructed Tree Islands (Ecological Recommendation)

The goal of the Miami Canal Backfill is to render the canal hydrologically and ecologically invisible at the landscape scale and eliminate the harmful drainage effects that the Miami Canal has on the interior Everglades marsh that results in adverse effects on flora and fauna. The Miami Canal will be backfilled to bedrock from about a mile south of S-8 to S-339 and to about one foot above bedrock from S-339 to I-75 so that the backfill will be ~1.5 below the peat surface for the entire length of the backfill. This project element proposes to remove all spoil mounds on the east and west side of the Miami Canal from S-8 to S-339. From S-339 to I-75 all spoil mounds will be removed except for 22 FWC enhanced spoil mounds identified by FWC as the highest priority. In addition, this project element proposes to construct and create mounds approximately every one mile along the entire reach of the Miami canal (S-8 to I-75) where historic tree islands once existed. The remaining FWC spoil mounds will be incorporated into the constructed mounds that will be constructed along the ridges of the historic ridge and slough landscape to use as potential tree island generators. Refuge for fur-bearing animals and other upland species will continue to be provided by the retention of 22 of the highest priority FWC enhanced spoil mounds and the creation of additional upland landscape in the constructed tree islands approximately every mile along the entire reach of the Miami canal (S-8 to I-75).

Miami Canal constructed tree island design details will be determined during CEPP PED phase; because of the low level of detail available during the planning discussions, CEPP PED discussions regarding Miami Canal backfilling and tree island construction/planting must include appropriate science team members with expertise in these topics to accomplish the restoration vision and intent of CEPP's backfilling and tree island construction. Scientists included in the PED effort will bring information from Florida Fish and Wildlife Commission and Loxahatchee Impoundment Landscape Assessment (LILA) tree island design and planting projects, and other relevant efforts.

The constructed tree islands are intended to block flow down the backfilled canal with a series of constructed tree islands having a profile across the landscape that varies, or undulates, in elevation. The longitudinal cross section of this series of mound varies from marsh grade to ~1.5' above marsh grade. This undulated elevation will provide somewhat natural slopes for vegetation and wildlife, provide higher habitat for diverse plant and animal species that require such habitat, and provide low elevation slough areas between each island to promote natural water flow paths through the Everglades. It is also suggested that sloughs could be enhanced surrounding the tree islands to create fire breaks that mimic historic conditions to buffer the tree islands from fires. Part of the changes associated with drainage in the Everglades has been the loss of sloughs and their conversion to sawgrass. The historic slough condition resembled moats near the islands (Lodge, 2005) and may have been important for buffering against fires and delivering water and nutrients to the tree island species' roots. This concept was not thoroughly vetted during the CEPP team discussions but has been suggested for further consideration during CEPP design.

Construction of Tree Islands

Contractors should use local materials as much as possible, when doing so reduces costs. The Miami Canal will be filled to bedrock level with compacted fill material. This base layer does not include branches, trunks, or organic material. The layer of fill from the top of the bedrock to the elevation of the mound will include a wide range of grain and rock sizes as well as non-uniform, randomly placed, non-mulched branches and trunks from Miami Canal spoil material after consultation with FDEP during the PED phase. This layer would include a range of rock sizes to provide the needed porosity throughout the mound to the bedrock level. The goal is to have enough porosity for plant roots to be able to reach water through the mound material; this is an essential need for tree island creation. The end result

should be rough terrain that is "difficult to walk on" (Figure C.2-1). The size of rock and volume will need to be specified, and there may be options to help alleviate compaction from machinery driving over the material; perhaps creating bigger planting holes to help plants have room to establish (see planting holes description below). The top layer of organic material is critical in the planting holes, where the plantings will be expected to root and grow. Organic muck should be spread 12" to 18" thick over the entire "high density" planting areas (defined below). Organic material spread 12'to 18"over the medium and low density planting areas of the island to promote native plant species recruitment on the islands is needed, but not as critical as in the high density planting areas. It remains to be determined whether the available muck will be clean and useable and, if not, whether it will be necessary to import material.

Creating planting holes and filling them with organic material will provide a rooting medium for the native plants and promote survival in harsh conditions without irrigation. The holes should be at least 1-ft diameter per tree; larger holes filled with organic material may boost survival. It is suggested that the hole depths can be a randomly distributed mixture of 1/3 each at 1', 2', 3' depths. Details can be determined during PED based on contracting capabilities. Depending on sequencing of construction, holes could be excavated and filled with muck for later planting; however, current knowledge suggests that creating and filling the holes without immediate planting may waste resources. Contractor capabilities should be considered and planting experts should be consulted again during detailed design phase to determine the best timing for digging, filling, and planting. As part of the final detailed design and contract development, the addition of a soil hydration polymer often used in agriculture and forestry, which is typically an adsorbant macromolecule granular powder that can be mixed into planting matter to limit soil water loss during dry periods should be considered. Such polymers can function for several years while plants' roots become established.

Tree Island Planting

The constructed tree islands will be planted using local plant sources to maintain Everglades genetic consistency among planted seedlings. All proposed plantings are assuming 3-gallon size plants. Immediately after planting, individual plants will be protected by ~3-ft metal exclosure, secured by metal stakes, to deter herbivores while the plants are becoming established. In high density planting areas, plants will be planted at ~6-ft on center spacing, along the northernmost and central area of each planted island. The high density area of the island should have 12-18" of organic material ("muck") spread on it before planting is conducted to provide decent growing condition for the plants; this organic material is a critical need for the high density planting area on the tree islands. In the medium density areas, plants will be planted at ~10-ft on center, starting from the high density planting southward about 75' and transitioning to "low density" planted island tail. If available the same depth of organic material should be spread in this area as in the high density area. In low density areas, plants will be planted at ~15-ft on center. If available the same depth of organic material should be spread in this area as in the high density area. Along the island perimeters, high density planting should be considered for the entire perimeter and tail of the tree islands to provide fire buffer between marsh and fire-sensitive tree island head. Species that can act as buffers include willow (*Salix caroliniana*) and pond apple (*Annona glabra*).

A diverse array of species will be planted, including trees, shrubs, and herbaceous species that are appropriate for these tree islands. The array will include a mix of faster-growing, desirable native species that will help to quickly create an environment on the constructed tree islands that is conducive for restoration, i.e., that will shade out weedy species and protect the organic layer on the island, will quickly develop root systems, and that will attract wildlife to the islands. Other desirable species that

may grow more slowly will also be planted to result in the appropriate species composition for restored tree islands in this area. In addition, species will be chosen that are fire tolerant for the outer edges of the constructed tree islands to buffer the inner island area from wildfires. It is expected that the islands will accrue additional native species over time by natural recruitment. Currently FWC plants species such as hackberry (*Celtis laevigata*), strangler fig (*Ficus aurea*), sweet bay (*Magnolia virginiana*), red maple (*Acer rubrum*), dahoon holly (*Ilex cassine*), pop ash (*Fraxinus caroliniana*), Carolina willow (*Salix caroliniana*), elderberry (*Sambucus simpsonii*), bald cypress (*Taxodium distichum*), wild coffee (*Psychotria nervosa*), pond apple (*Annona glabra*), firebush (*Hamelia patens*), cocoplum (*Chrysobalanus icaco*), and myrsine (*Rapanea guinensis*), and these will be considered for the Miami Canal tree island mounds. Other beneficial species may be considered if needed.

Construction of the tree islands does not need to take place in the wet season, but planting needs to be done at beginning of the wet season to attempt to avoid irrigation. Irrigation options will be determined during detailed design when more is known about the construction sequencing for the mounds; for example, some existing FWC tree island planting contracts specify that all plants shall be watered at least once every two days for the first 2 weeks with a minimum of 1 gallon of water per plant and the vendor is responsible for transporting water or locating alternative water sources. However, it is uncertain at the current level of design and construction sequencing detail for the CEPP Miami Canal mounds whether such a requirement is feasible. If irrigation requirements are included in the planting contracts for the Miami Canal tree island mounds, the contracts should also specify that the need for watering will be determined by rainfall shortly after the planting. A survival percentage of planted seedlings should be included in the contractor specifications; currently FWC usually specifies a 90% survival rate at 4-6 weeks after planting. Considerations from work done by Miami Dade County include contracting a nursery to grow the plants to make them available for planting on the tree island mounds, because growing to 3-gal size is an investment for the nursery and they may need assurance that someone will buy the plants. Doing so will ensure that plants will be available at the time and in the size needed. This may require funding to be guaranteed over consecutive years (~3 years) until the plants are obtained.

Dimensions and Slope of Islands from S-8 to S-339

The constructed tree islands from S-8 to S-339 will have a total width of 210’ and overall length of 310’. The flat area should be 1.5’ above marsh grade, 150’ wide by 210’ long, with no steeper than a 18:1 transition to marsh grade on the east and west sides and 1.5% to marsh grade along the tail (south side). The north side of the island can be as steep as feasible from a construction perspective (Figure C.2-2). Suggested slopes result in more natural grade and longer islands, which is not anticipated to require additional fill material because the material needed to create the length will come from the slopes less steep than originally suggested. The intent is to maintain the number of proposed tree islands using available fill but to make the tail end sloped to provide a more natural shape and lengthen the islands.

Dimensions and Slope of Islands from S-339 to I-75

The dimensions of the constructed tree islands from S-339 to I-75 are adjusted slightly from that described above to partner the constructed islands with the remaining portions of the FWC planted tree islands. These constructed mounds can be approximately 500’ or 1500’ long, depending on the linear extent of adjacent FWC Island maintained (Figure C.2-3 and Figure C.2-4). For areas with a FWC Island on one side of the mound each mound will have at its northern end a flat portion, raised 1.5’ above marsh grade, that abuts and transition into the adjacent, existing FWC Island. The flat portion will transition at 20:1 down to marsh grade, on the marsh side (opposite FWC Island) and 1% to 1’ below marsh grade on the “tail” side. For areas with FWC Islands on both sides of the mound (500’ length), the

head of the mound will be 1.5’ above marsh grade in the center, and be graded up at 18:1 on both sides to transition into the sides of the FWC Islands on both sides. The tail of the island will have a center at marsh grade, with similar upward 18:1 slopes (both sides) to transition into adjacent FWC islands. For areas with FWC Islands on both sides of the mound (1500’ length), the mound configuration will be 3 of the above described 500’ lengths in series. The two northern mound tails will transition to mash grade, and the southern mound tail will transition to bedrock grade.



Figure C.2-1. LILA construction photos as an example of the surface desired.

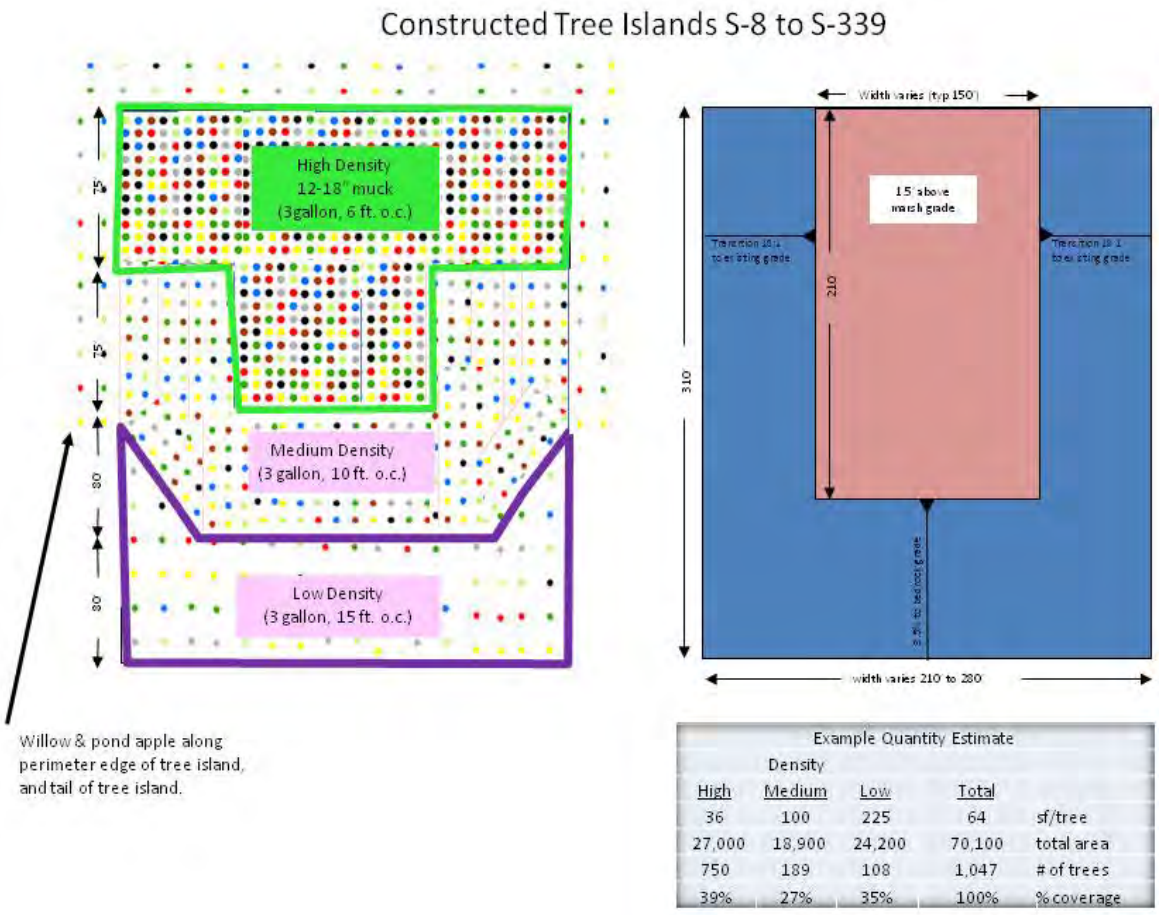


Figure C.2-2. Representation of recommended constructed tree islands from S-8 to S-339

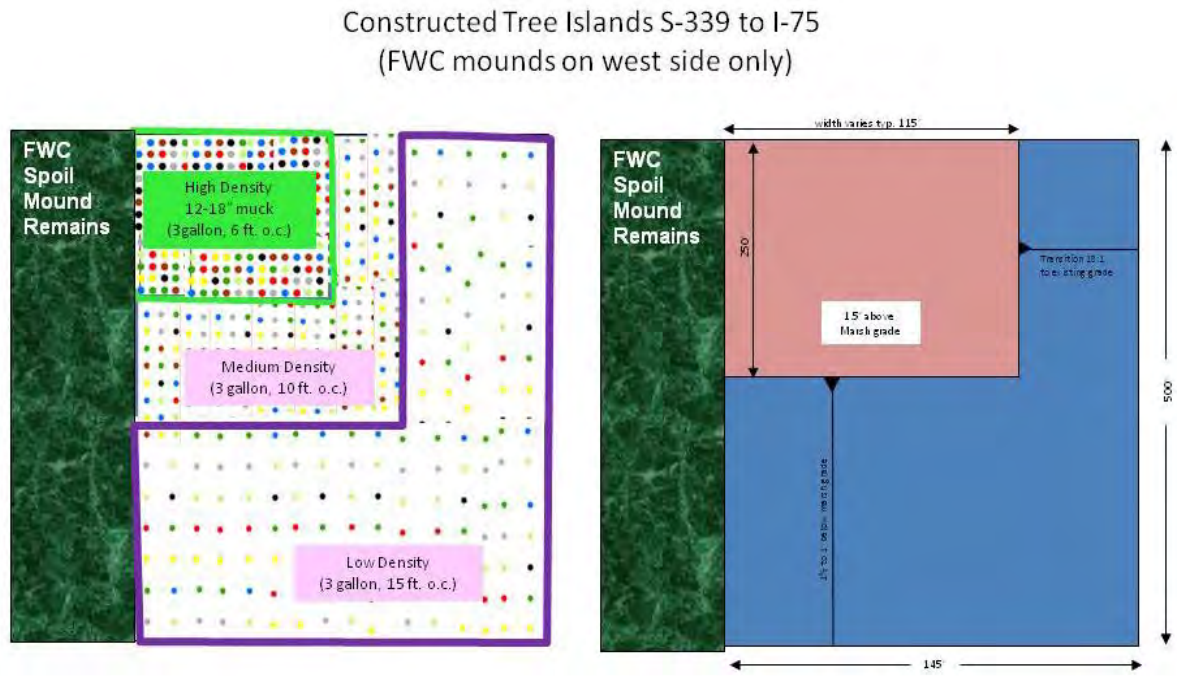


Figure C.2-3. Constructed tree island from S-339 to I-75 with a FWC spoil mound remaining on the west side.

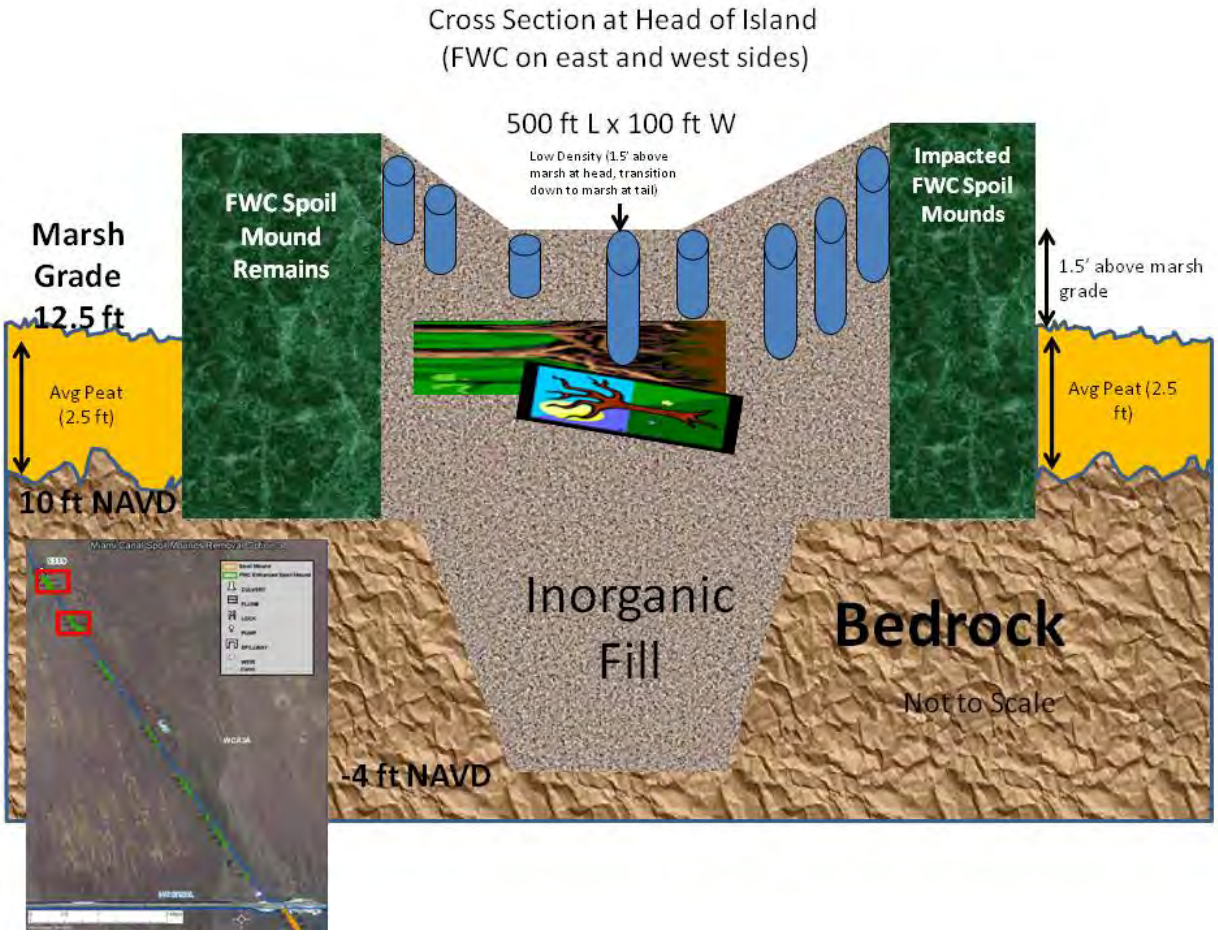
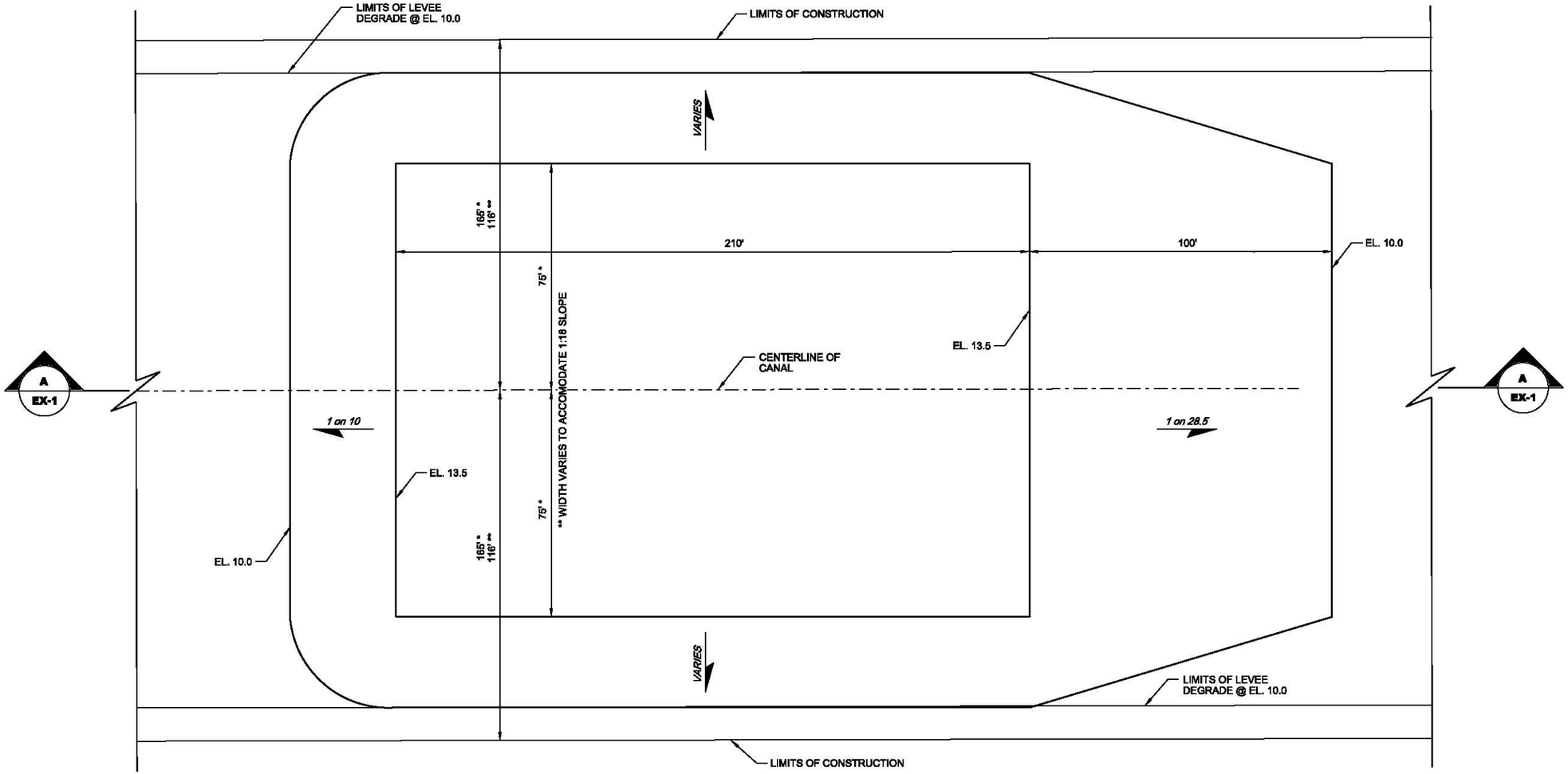


Figure C.2-4. Constructed tree island cross section from S-339 to I-75 with FWC spoil mounds remaining on the east and west sides.

See Engineering Plates EX-1 and EX-2.

References

Lodge, T. E. 2005. The Everglades Handbook: Understanding the Ecosystem, Third Edition. CRC Press, Boca Raton, FL.



TYPICAL SECTION - CONSTRUCTED TREE ISLAND
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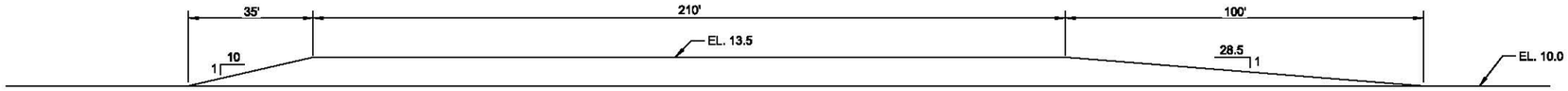

A / EX-1 **CONSTRUCTED TREE ISLAND**
SCALE: N.T.S.

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No. Symbol Zone Description

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by:
Drawn by:
Checked by:
Trac. No.
Date: DD MMM YYYY

CEPP-G-BS.DGN
Reference files:
File name:

CENTRAL & SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES RESTORATION PLAN
CENTRAL EVERGLADES PLANNING PROJECT

ECOLOGICAL RECOMMENDATION

Scale: AS SHOWN
DRAWING NO.
EX-1

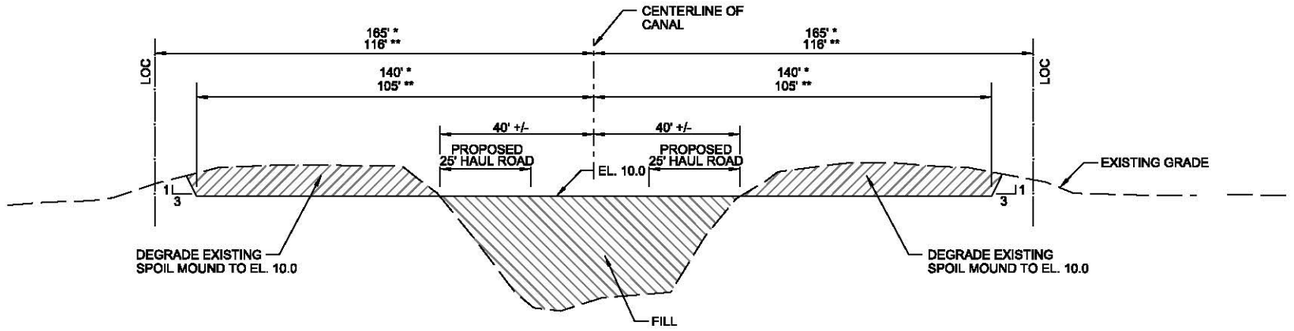
auto_username auto_design

LOC - LIMITS OF CONSTRUCTION
STA - STATION FOR MIAMI CANAL

INTENT IS TO MAINTAIN A BUFFER FROM EDGES OF SPOIL MOUND ~ 25 FEET SET AS LOC.

PROPOSED 1 MILE SPACING BETWEEN CONSTRUCTED TREE ISLANDS ABOVE 10' NAVD, ALONG THE MIAMI CANAL.

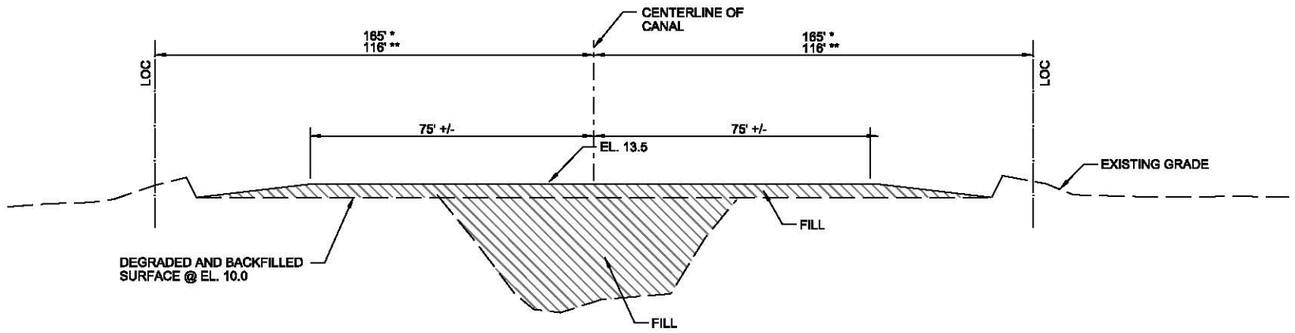
PROPOSED CONSTRUCTED TREE ISLAND DIMENSIONS ARE *(150x310). 1:18 SLOPES AND **(<100'-VARYING WIDTH x LENGTH RANGING FROM 310' TO 1000' 1:18 SLOPES ALONG CANAL.



TYPICAL SECTION
CANAL BACKFILL AND SPOIL MOUND DEGRADE

SCALE: N.T.S.

* - STATION a10+00 TO STATION a176+00
** - STATION a176+00 TO STATION b605+00



TYPICAL SECTION
CANAL BACKFILL AND CONSTRUCTED TREE ISLAND

SCALE: N.T.S.

US Army Corps of Engineers
Jacksonville District

SAFETY ON THIS JOB DEPENDS ON YOU

No.	SYMB	ZONE	Description

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by:
Drawn by:
Chd by:
Insv. No.
Dated: DD MMM YYYY

CEPP-G-BS.DGN
Reference files:
File name:

CENTRAL & SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES RESTORATION PLAN
CENTRAL EVERGLADES PLANNING PROJECT

ECOLOGICAL RECOMMENDATION

Scale: AS SHOWN

DRAWING NO.

EX-2

auto_username auto_design

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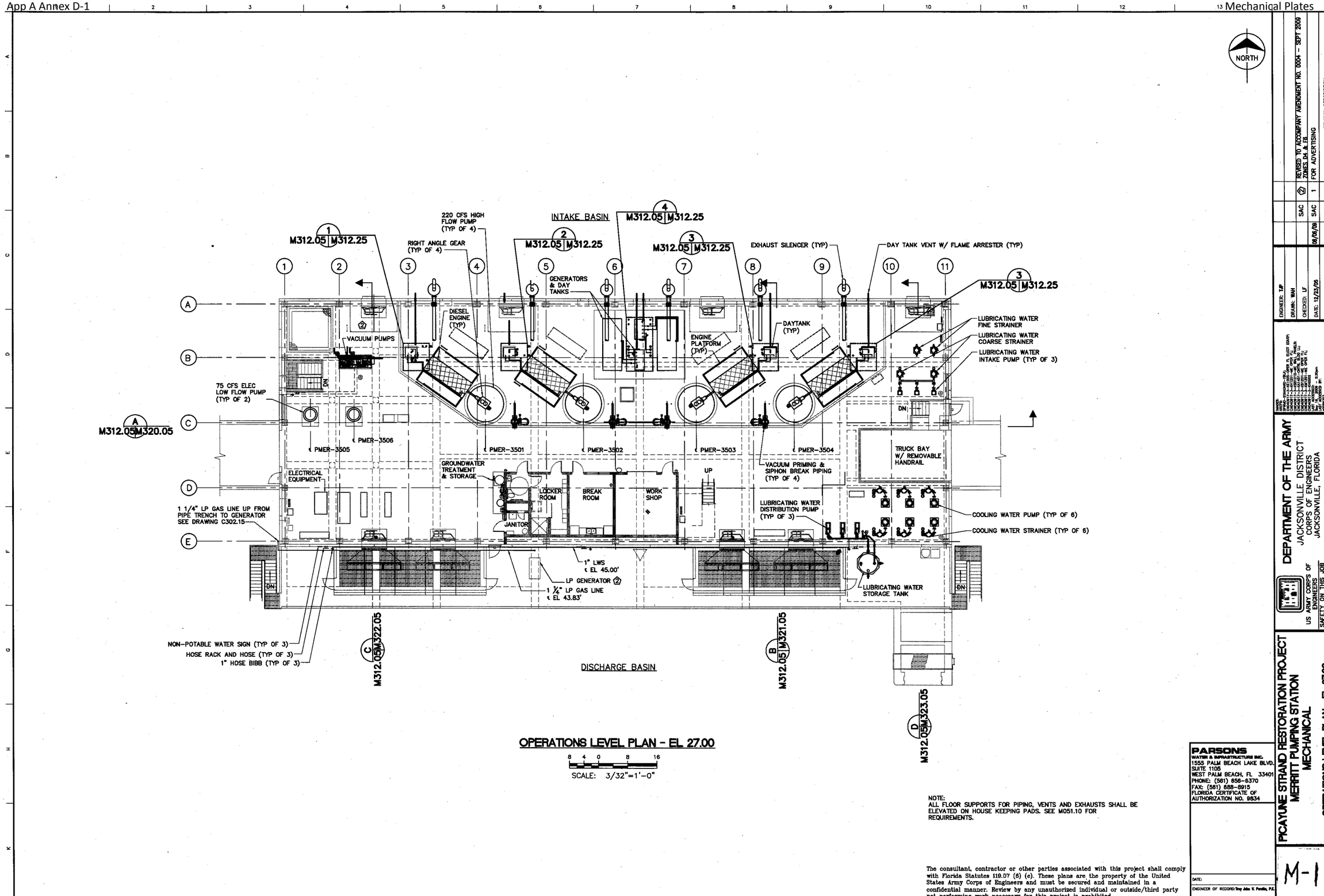
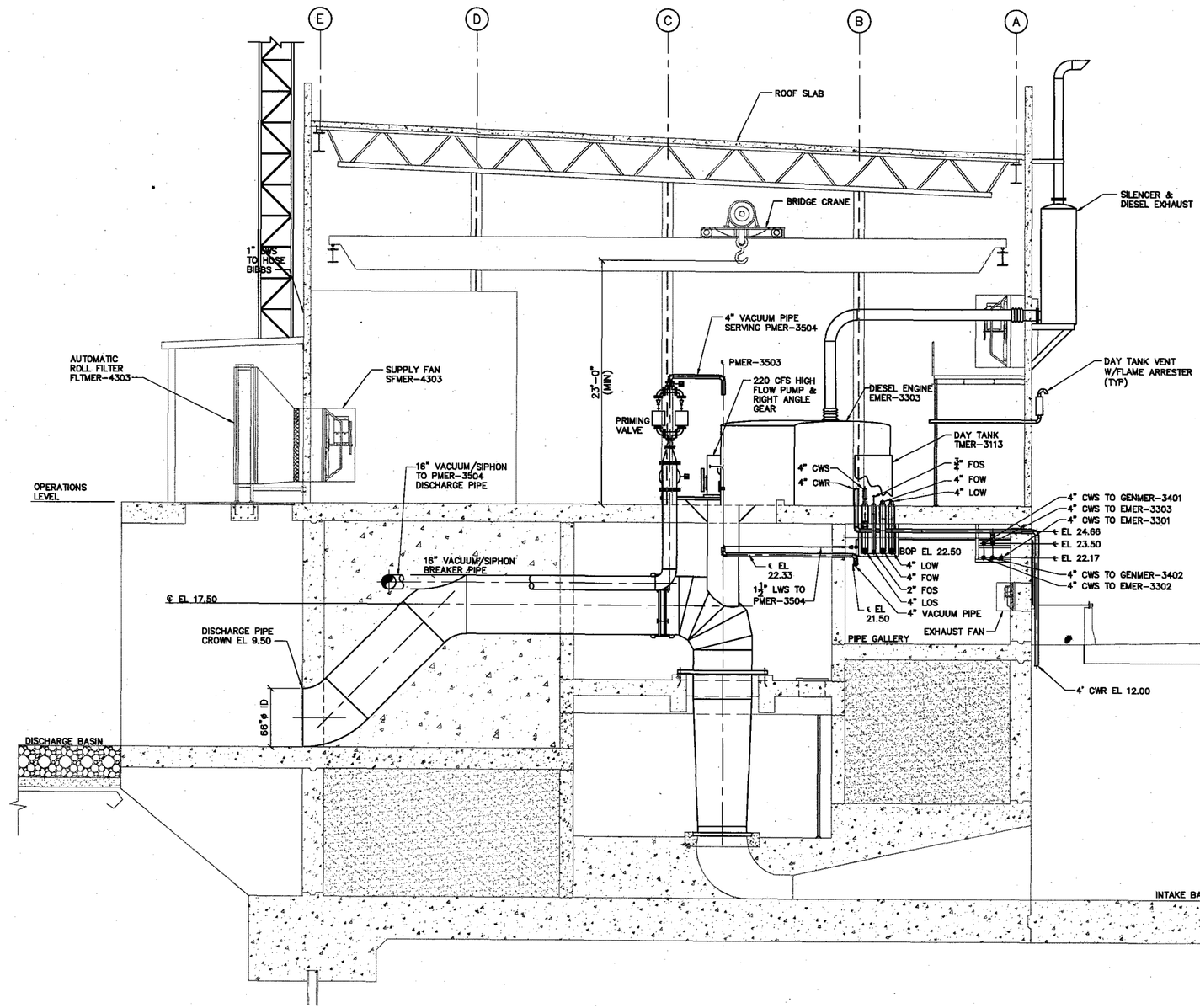
ANNEX D-1. MECHANICAL PLATES


NORTH
INTAKE BASIN
DISCHARGE BASIN
220 CFS HIGH FLOW PUMP (TYP OF 4)
RIGHT ANGLE GEAR (TYP OF 4)
GENERATORS & DAY TANKS
EXHAUST SILENCER (TYP)
DAY TANK VENT W/ FLAME ARRESTER (TYP)
DIESEL ENGINE (TYP)
VACUUM PUMPS
ENGINE PLATFORM (TYP)
DAYTANK (TYP)
LUBRICATING WATER FINE STRAINER
LUBRICATING WATER COARSE STRAINER
LUBRICATING WATER INTAKE PUMP (TYP OF 3)
75 CFS ELEC LOW FLOW PUMP (TYP OF 2)
M312.05 M312.25
M312.05 M320.05
M312.05 M322.05
M312.05 M321.05
M312.05 M323.05
PMER-3505
PMER-3506
PMER-3501
PMER-3502
PMER-3503
PMER-3504
TRUCK BAY W/ REMOVABLE HANDRAIL
ELECTRICAL EQUIPMENT
GROUNDWATER TREATMENT & STORAGE
LOCKER ROOM
BREAK ROOM
WORK SHOP
JANITOR
UP
VACUUM PRIMING & SIPHON BREAK PIPING (TYP OF 4)
LUBRICATING WATER DISTRIBUTION PUMP (TYP OF 3)
COOLING WATER PUMP (TYP OF 6)
COOLING WATER STRAINER (TYP OF 6)
1 1/4" LP GAS LINE UP FROM PIPE TRENCH TO GENERATOR SEE DRAWING C302.15
1" LWS ℄ EL 45.00'
LP GENERATOR 2
1 1/4" LP GAS LINE ℄ EL 43.83'
LUBRICATING WATER STORAGE TANK
NON-POTABLE WATER SIGN (TYP OF 3)
HOSE RACK AND HOSE (TYP OF 3)
1" HOSE BIBB (TYP OF 3)
DN
OPERATIONS LEVEL PLAN - EL 27.00
SCALE: 3/32"=1'-0"
NOTE:
ALL FLOOR SUPPORTS FOR PIPING, VENTS AND EXHAUSTS SHALL BE ELEVATED ON HOUSE KEEPING PADS. SEE M051.10 FOR REQUIREMENTS.
The consultant, contractor or other parties associated with this project shall comply with Florida Statutes 119.07 (6) (e). These plans are the property of the United States Army Corps of Engineers and must be secured and maintained in a confidential manner. Review by any unauthorized individual or outside/third party not performing work necessary for this project is prohibited.
PARSONS
WATER & INFRASTRUCTURE INC.
1555 PALM BEACH LAKE BLVD.
SUITE 1105
WEST PALM BEACH, FL 33401
PHONE: (561) 656-6370
FAX: (561) 688-8915
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 9834
DATE:
ENGINEER OF RECORD: Troy John V. Perrillo, P.E.
FL. ENGINEERING LICENSE NO.: 58138
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT
CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA
US ARMY CORPS OF ENGINEERS
SAFETY ON THIS JOB DEPENDS ON YOU
PICAYUNE STRAND RESTORATION PROJECT
MERRITT PUMPING STATION
MECHANICAL
OPERATIONS LEVEL PLAN - EL 27.00
M-1
REVISED TO ACCOMPANY AMENDMENT NO. 0004 - SEPT 2009
ZONES D4 & E8
FOR ADVERTISING
REVISION DESCRIPTION
ENGINEER: TJP
DRAWN: WAH
CHECKED: LF
DATE: 12/23/05
SCALE: AS SHOWN
P:_Amendment 0004\746255 - Merritt_USACE\USACE Merritt Amendments\DWG AMENDMENT 04 (ACAD09)\CN040917-0-SS5120.dwg - Tuesday, April 26, 2005 1:13:58 PM



SECTION B

4 2 0 4 8

SCALE: 3/16"=1'-0"

M311.05 M321.05
M312.05

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1555 PALM BEACH LAKE BLVD.
SUITE 1105
WEST PALM BEACH, FL 33401
PHONE: (561) 656-6370
FAX: (561) 688-8915
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 9834

DATE:

ENGINEER OF RECORD: Roy John V. Peralta, P.E.

FL. ENGINEERING LICENSE NO.: 58139

ENGINEER: TJP
DRAWN: MHJ
CHECKED: LF
DATE: 09/27/09
SCALE: AS SHOWN

REVISION DESCRIPTION	DATE	E.O.R.	REV.#
FOR ADVERTISING	06/08/09	SAC	0

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT
CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

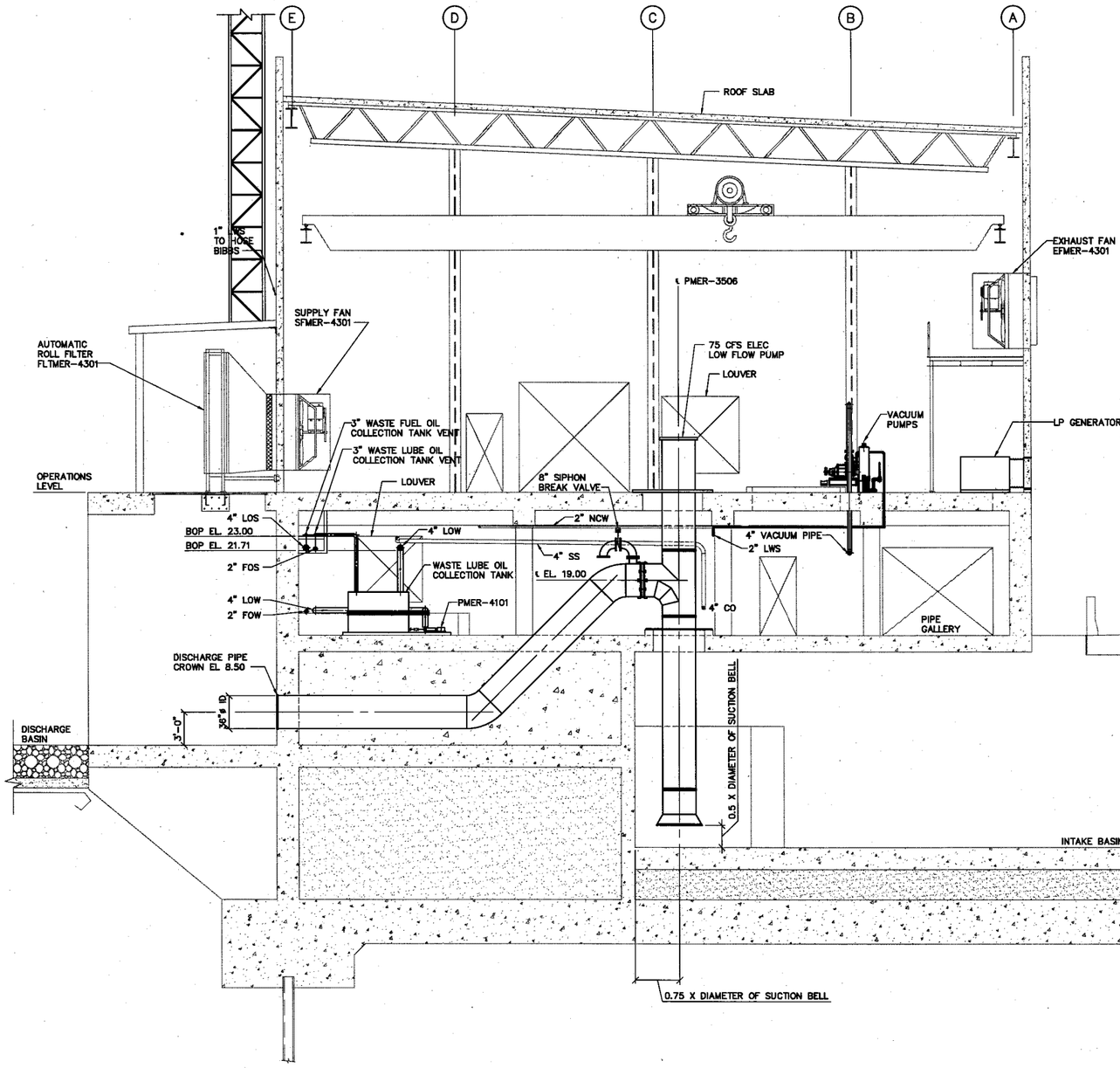
US ARMY CORPS OF ENGINEERS
SAFETY ONLY IS #98
DEPENDS ON YOU

PICAYUNE STRAND RESTORATION PROJECT
MERRITT PUMPING STATION
MECHANICAL

HIGH FLOW DRAINAGE PUMP SECTION

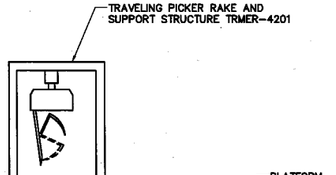
M-2

J:\CAD\746255 - Merritt_USACE\USACE Merritt Comments\DWG REV-2 (ACAD09)\CM040917-J-M2105.dwg - Thursday, July 30, 2009 8:10:44 AM



SECTION C
M311.05 | M322.05
M312.05

4 2 0 4 8
SCALE: 3/16"=1'-0"



The consultant, contractor or other parties associated with this project shall comply with Florida Statutes 119.07 (8) (e). These plans are the property of the United States Army Corps of Engineers and must be secured and maintained in a confidential manner. Review by any unauthorized individual or outside/third party not performing work necessary for this project is prohibited.

REVISION DESCRIPTION	REV.#	E.O.R.	DATE
FOR ADVERTISING	0	SAC	06/06/09

ENGINEER: TJP
DRAWN: WAH
CHECKED: LF
DATE: 12/27/05
SCALE: AS SHOWN

MASTER: ...
CHANGED TO STANDARD TRUE SIZE 75 PMP...
CHANGED 1-2-4 SEE TO 4 PMP...
CHANGED 1-2-4 SEE TO 4 PMP...
LAST ACCESSED: ...
LAST PLOTTED: ...
LAST PLOTTED: ...

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT
CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

US ARMY CORPS OF ENGINEERS
SAFETY ON THIS JOB
STARTS WITH YOU!

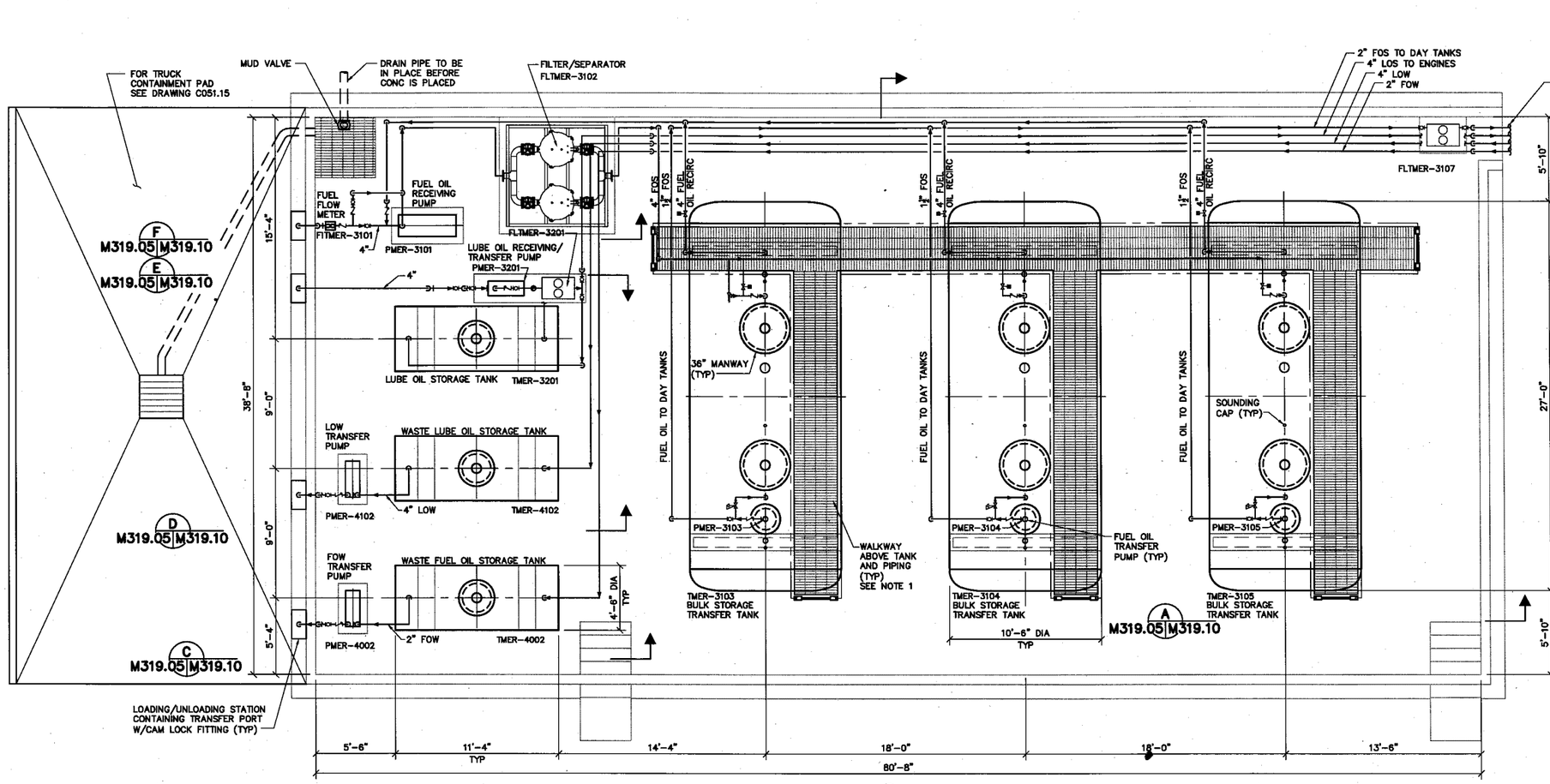
PICAYUNE STRAND RESTORATION PROJECT
MERRITT PUMPING STATION
MECHANICAL
LOW FLOW DRAINAGE PUMP SECTION

PARSONS
WATER & INFRASTRUCTURE INC.
1555 PALM BEACH LAKE BLVD.
SUITE 1105
WEST PALM BEACH, FL 33401
PHONE: (561) 656-6370
FAX: (561) 688-8915
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 9834

DATE:
ENGINEER OF RECORD: Troy John V. Perrello, P.E.
FL. ENGINEERING LICENSE NO.: 59139

M-3

J:\CADD\746255 - Merrill_USACE\SAGE Merritt Comments\DWG REV-2 (ACAD09)\CADD\0917-3-M2205.dwg - Thursday, July 30, 2009 8:10:50 AM



TANK FARM PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. WALKWAY AND TANK SUPPORTS TO BE PROVIDED BY TANK MANUFACTURER.
2. FOR SAFE PASSAGE BETWEEN TANK FARM EQUIPMENT, BOTTOM OF ELEVATED PIPING SHALL BE AT A MINIMUM 7'-6" ABOVE TANK FARM FLOOR.
3. PIPING ADJACENT TO VALVES, INSTRUMENTATION, AND PUMPS SHALL BE INSTALLED AT A LOCATION THAT WILL NOT HINDER MAINTENANCE OR REPLACEMENT OF SUCH EQUIPMENT.

The consultant, contractor or other parties associated with this project shall comply with Florida Statutes 119.07 (6) (e). These plans are the property of the United States Army Corps of Engineers and must be secured and maintained in a confidential manner. Review by any unauthorized individual or outside/third party not performing work necessary for this project is prohibited.

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SUITE 1105
WEST PALM BEACH, FL 33401
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FAX: (561) 688-8915
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 9834

DATE:
ENGINEER OF RECORD: Troy John V. Peralta, P.E.
FL. ENGINEERING LICENSE NO.: 59136

REV.#	REVISION DESCRIPTION	DATE	E.O.R.
0	FOR ADVERTISING	05/06/08	SAC

ENGINEER: TJP
DRAWN: WH
CHECKED: LF
DATE: 05/22/08
SCALE: AS SHOWN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT
CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

US ARMY CORPS OF ENGINEERS
SAFETY ON THIS JOB DEPENDS ON YOU

PICAYUNE STRAND RESTORATION PROJECT
MERRITT PUMPING STATION
MECHANICAL
TANK FARM PLAN

M-4

J:\CADD\746255 - Merritt_LISACE\USACE Merritt Comments\DWG REV-2 (ACAD09)\CN045917-3-M1905.dwg - Thursday, July 30, 2009 8:10:24 AM

ANNEX G-1. GEOLOGICAL INVESTIGATIONS NORTH OF THE REDLINE

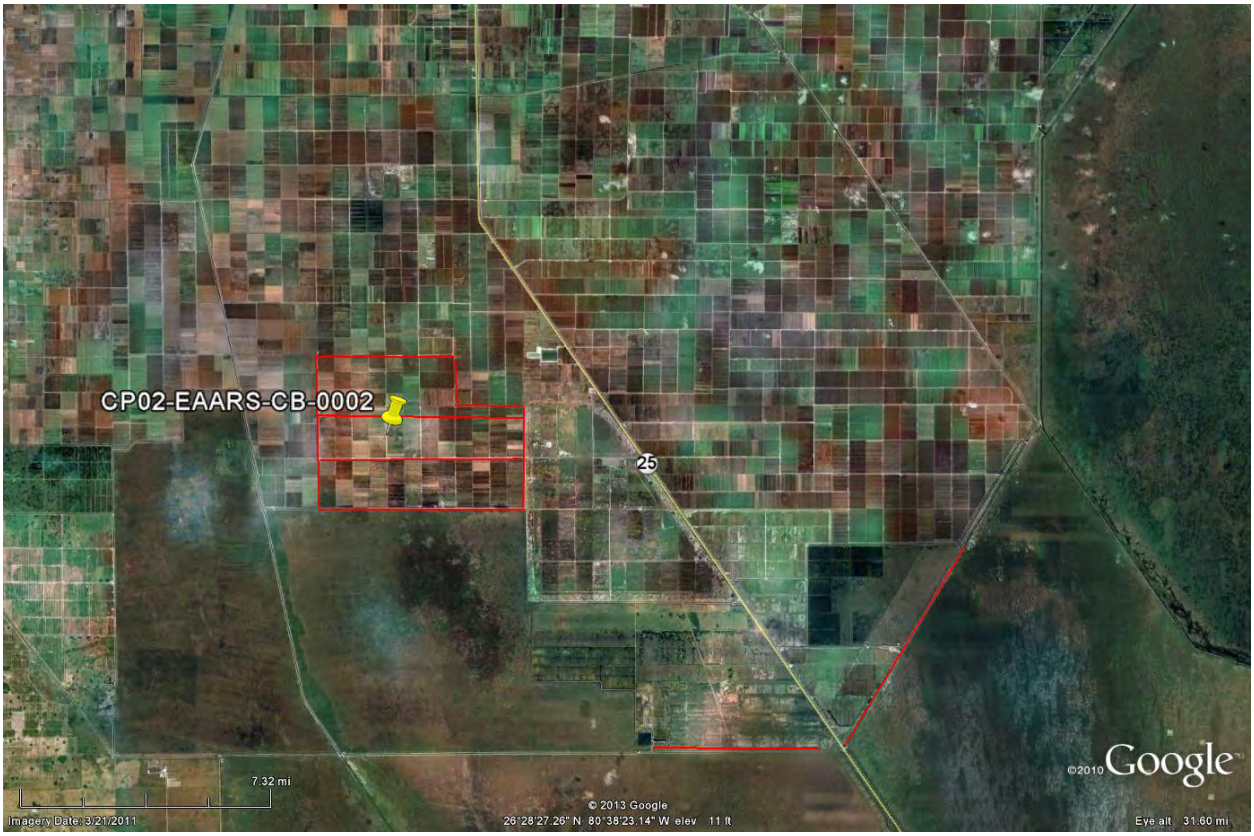

Figure G-1-1. Boring Map of CP02-EAARS-CB-0002

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG

DIVISION: South Atlantic		INSTALLATION: Jacksonville District	SHEET 1 OF 10 SHEETS
1. PROJECT: CERP Everglades Agricultural Area Reservoirs Phase 1, Effort 1, Compartment A		9. SIZE AND TYPE OF BIT: See Remarks	
		10. COORDINATE SYSTEM/DATUM: State Plane, FLE	HORIZONTAL: NAD83 / VERTICAL: NAVD88
2. BORING DESIGNATION: CP02-EAARS-CB-0002	LOCATION COORDINATES: X = 736,775 Y = 775,528	11. MANUFACTURER'S DESIGNATION OF DRILL: CME-55	☐ AUTO HAMMER ☒ MANUAL HAMMER
3. DRILLING AGENCY: Ardaman & Associates, Inc.	CONTRACTOR FILE NO.: 02-042	12. TOTAL SAMPLES	DISTURBED: 118 / UNDISTURBED (UD): 0
4. NAME OF DRILLER: M. Gulick		13. TOTAL NUMBER CORE BOXES: 5	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER: Not Determined	
		15. DATE BORING	STARTED: 08-13-02 / COMPLETED: 09-03-02
6. THICKNESS OF OVERBURDEN: 5.4 Ft.		16. ELEVATION TOP OF BORING: 12.0 Ft.	
7. DEPTH DRILLED INTO ROCK: 13.5 Ft.		17. TOTAL RECOVERY FOR BORING: 80 %	
8. TOTAL DEPTH OF BORING: 180.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: H. Snyder, Civil Engineer	

ELEV.	DEPTH	CLASSIFICATION OF MATERIALS	REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
12.0	0.0					12.0		
		FILL, gravelly, mixture of fine gravel size limestone, fine to coarse grained limestone sand, and silt, dry, light gray	13	1		SPT Sampler	32 / 32 / 8	40
						10.4		
			40	2		SPT Sampler	4 / 6 / 6	12
9.0	3.0					9.0		
8.8	3.2	SAND, silty, mostly fine-grained , some silt, dry, dark brown (SM)						
		Limestone, hard, slightly weathered, medium-grained, porous to pitted, light gray-green	47	3		SPT Sampler	1 / 2 / 4	6
						7.4		
			100	4		SPT Sampler	16 / 50/0.4'	
						6.6		
5.0	7.0	Limestone, moderately hard	50	6 BOX 1	RQD 28	4 x 5-1/2" Diamond Impregnated Bit DT = 80 mins HP = 100 psi		
						2.0		
			100	7	RQD 0	4 x 5-1/2" Diamond Impregnated Bit 9 mins, 100 psi		
						0.9		
			80	8		SPT Sampler	4 / 4 / 29	33
						-0.6		
			50	9		-1.0 SPT Sampler	50/0.4'	
			45	BOX 10 1	RQD 39	4 x 5-1/2" Diamond Impregnated Bit DT = 23 mins HP = 100 psi		

Slightly Weathered

SAJ FORM 1836
JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)

INSTALLATION: Jacksonville District | SHEET 2 OF 10 SHEETS

PROJECT: CERP Everglades Agricultural Area Reservoirs | COORDINATE SYSTEM/DATUM: State Plane, FLE | HORIZONTAL: NAD83 | VERTICAL: NAVD88

LOCATION COORDINATES: X = 736,775 Y = 775,528 | ELEVATION TOP OF BORING: 12.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR CORE	REMARKS	BLOWS/0.5 FT.	N-VALUE
			At El. -3.0 Ft., vuggy	45	BOX 1	RQD 39	4 x 5-1/2" Diamond Impregnated Bit		
-4.0	16.0						DT = 23 mins		
			Limestone, hard, unweathered, fine-grained, vuggy, trace of shell, gray	NR	11		-4.2 HP = 100 psi SPT Sampler	50/0.2"	
				84	BOX 2	RQD 50	4 x 5-1/2" Diamond Impregnated Bit DT = 15 mins HP = 100 psi		
							-8.0		
				70	BOX 2	RQD 40	4 x 5-1/2" Diamond Impregnated Bit 8 mins, 100 psi		
							-9.0		
			At El. -9.0 Ft., little shell	33	14		SPT Sampler	6 7 8	15
							-10.6		
			At El. -10.6 Ft., trace silt	47	15		SPT Sampler	7 9 10	19
-12.0	24.0						-12.0		
			SAND, poorly-graded with silt, some angular fine-grained quartz, some fine-grained limestone, little angular shell, trace phosphate, light brown (SP-SM)	47	16		SPT Sampler	7 10 11	21
							-13.6		
				47	17		SPT Sampler	11 10 11	21
-15.0	27.0						-15.0		
			SAND, silty, mostly fine-grained quartz, trace angular fine-grained shell, trace clay, trace phosphate, light gray (SM)	73	18		SPT Sampler	8 9 9	18
							-16.6		
			At El. -17.0 Ft., little clay	87	19		SPT Sampler	7 6 6	12
							-18.0		
				87	20		SPT Sampler	8 5 5	10
-19.6	31.5						-19.6		
			SAND, poorly-graded with silt, mostly fine-grained quartz, little shell, few silt, light brown (SP-SM)	73	21		SPT Sampler	8 8 12	20
							-21.0		
				73	22		SPT Sampler	10 11 13	24
-22.6	34.5						-22.6		
			SAND, poorly-graded, mostly fine to	75	23		SPT Sampler	11	

SAJ FORM 1836-A
JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 3 OF 10 SHEETS
PROJECT: CERP Everglades Agricultural Area Reservoirs	COORDINATE SYSTEM/DATUM: State Plane, FLE	HORIZONTAL: NAD83 / VERTICAL: NAVD88
LOCATION COORDINATES: X = 736,775 Y = 775,528	ELEVATION TOP OF BORING: 12.0 Ft.	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD USED	REMARKS	BLOWS/0.5 FT.	N-VALUE
			medium-grained quartz, some angular fine to medium-grained shell, few phosphate, trace silt, light brown to light gray (SP)	75	23		SPT Sampler	11 11	22
			At El. -24.0 Ft., trace shell, trace of shell				-24.0		
				93	24		SPT Sampler	6 7 8	15
							-25.6		
				87	25		SPT Sampler	3 5 5	10
							-27.0		
				67	26		SPT Sampler	4 6 7	13
							-28.6		
				73	27		SPT Sampler	5 5 7	12
			At El. -30.0 Ft., trace fine gravel-sized shell				-30.0		
				60	28		SPT Sampler	5 6 7	13
							-31.6		
				93	29		SPT Sampler	7 4 7	11
							-33.0		
				80	30		SPT Sampler	10 8 8	16
							-34.6		
			At El. -34.6 Ft., trace fine gravel-sized limestone	93	31		SPT Sampler	10 8 11	19
							-36.0		
-36.6	48.5		Limestone, hard, fine-grained, trace of silt, few fine grained sand, trace of clay, gray	93	32		SPT Sampler	9 29 34	63
							-37.6		
				53	33		SPT Sampler	14 6 9	15
-39.0	51.0						-39.0		
			SAND, poorly-graded, mostly fine-grained shell, trace coarse gravel-sized phosphate, trace clay, gray (SP)	80	34		SPT Sampler	4 5 6	11
							-40.6		
			From El. -40.6 to -45.0 Ft., mostly medium to coarse-grained shell, trace fine gravel-sized shell, trace clay, light brown	73	35		SPT Sampler	11 19 26	45
							-42.0		
				87	36		SPT Sampler	17 20	

SAJ FORM 1836-A
JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)

INSTALLATION: Jacksonville District | SHEET 4 OF 10 SHEETS

PROJECT: CERP Everglades Agricultural Area Reservoirs

COORDINATE SYSTEM/DATUM: State Plane, FLE | HORIZONTAL: NAD83 | VERTICAL: NAVD88

LOCATION COORDINATES: X = 736,775 Y = 775,528

ELEVATION TOP OF BORING: 12.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE NO.	ROD OR CORE	REMARKS	BLOWS/0.5 FT.	N-VALUE
				87	36		-43.6 SPT Sampler	19	39
				87	37		SPT Sampler	15 19 22	41
-45.0	57.0						-45.0		
			SAND, poorly-graded with clay, mostly medium-grained sand, little clay, little angular shell, trace fine gravel-sized shell, gray (SP-SC)	100	38		SPT Sampler	12 16 13	29
							-46.6		
			At El. -47.0 Ft., few shell, trace clay	60	39		SPT Sampler	14 17 19	36
							-48.0		
				93	40		SPT Sampler	10 14 14	28
-49.6	61.5						-49.6		
			SAND, clayey, mostly fine to medium-grained sand, some clay, little fine gravel-sized shell, gray (SC)	87	41		SPT Sampler	10 19 31	50
							-51.0		
				93	42		SPT Sampler	10 13 12	25
							-52.6		
			At El. -52.6 Ft., some shell, trace clay, lens of clay	73	43		SPT Sampler	13 13 20	33
							-54.0		
				100	44		SPT Sampler	10 11 11	22
-55.6	67.5						-55.6		
			SAND, poorly-graded with clay, mostly shell (SP-SC)	67	45		SPT Sampler	10 12 16	28
							-57.0		
				93	46		SPT Sampler	15 14 12	26
							-58.6		
				53	47		SPT Sampler	11 12 16	28
							-60.0		
				67	48		SPT Sampler	18 14 19	33
			At El. -61.6 Ft., mostly shell				-61.6		
				87	49		SPT Sampler	6 12 15	27
							-63.0		

(Continued)

SAJ FORM 1836-A
JUN 02

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)

INSTALLATION: Jacksonville District | SHEET 5 OF 10 SHEETS

PROJECT: CERP Everglades Agricultural Area Reservoirs

COORDINATE SYSTEM/DATUM: State Plane, FLE | HORIZONTAL: NAD83 | VERTICAL: NAVD88

LOCATION COORDINATES: X = 736,775 Y = 775,528

ELEVATION TOP OF BORING: 12.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD CORE	REMARKS	BLOWS/0.5 FT.	N-VALUE
-63.8	75.7			93	50		SPT Sampler -64.6	20 18 18	36
			Limestone, fine-grained, trace of clay, trace of phosphate, gray	53	51		SPT Sampler -66.0	14 16 17	33
-66.0	76.0		SAND, poorly-graded, mostly fine to medium-grained quartz, trace sandstone, trace shell, light gray (SP)	67	52		SPT Sampler -67.6	10 40 45	85
				67	53		SPT Sampler -69.0	26 32 49	81
				100	54		SPT Sampler -70.6	36 65 57	122
				87	55		SPT Sampler -72.0	10 14 20	34
				93	56		SPT Sampler -73.6	14 28 29	57
				53	57		SPT Sampler -75.0	14 17	
				87	59		SPT Sampler -76.6	8 18 29	47
				87	60		SPT Sampler -78.0	24 34 42	76
				73	61		SPT Sampler -79.6	9 18 20	38
-80.6	92.5		From El. -79.6 to -80.6 Ft., mostly coarse-grained quartz, trace phosphate, trace shell, trace sandstone, light gray	93	62		SPT Sampler -81.0	4 10 6	16
			SAND, clayey, mostly medium to coarse-grained sand, some clay, trace phosphate, trace shell, gray (SC)	100	63		SPT Sampler -82.6	5 7 12	19
			At El. -82.0 Ft., trace sand At El. -82.6 Ft., little shell, little limestone	100	64		SPT Sampler	3	

SAJ FORM 1836-A
JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 6 OF 10 SHEETS
PROJECT CERP Everglades Agricultural Area Reservoirs	COORDINATE SYSTEM/DATUM State Plane, FLE	HORIZONTAL NAD83 / VERTICAL NAVD88
LOCATION COORDINATES X = 736,775 Y = 775,528	ELEVATION TOP OF BORING 12.0 FL	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	REC.	BOX OR SAMPLE	ROD OR CORE	REMARKS	BLOWS/0.5 FT.	N-VALUE
				100	64		-84.0 SPT Sampler	9 / 7	16
			At El. -84.0 Ft., trace sand	100	65		-85.6 SPT Sampler	10 / 8 / 9	17
			At El. -86.0 Ft., trace limestone	87	66		-87.0 SPT Sampler	18 / 21 / 26	47
			At El. -87.0 Ft., some shell	67	67		-88.6 SPT Sampler	12 / 22 / 29	51
-88.6	100.5		SAND, clayey, mostly fine to coarse-grained sand, some clay, few shell, trace phosphate, gray (SC)	100	68		-90.0 SPT Sampler	14 / 9 / 14	23
-90.0	102.0		Sandstone, fine-grained, few shell, trace of clay, trace of phosphate, gray	67	69		-91.6 SPT Sampler	5 / 16 / 20	36
				100	70		-93.0 SPT Sampler	17 / 16 / 17	33
				87	71		-94.6 SPT Sampler	9 / 17 / 19	36
				67	72		-96.0 SPT Sampler	3 / 19 / 30	49
				73	73		-97.6 SPT Sampler	19 / 19 / 23	42
			At El. -98.0 Ft., few clay	93	74		-99.0 SPT Sampler	24 / 21 / 22	43
				93	75		-100.6 SPT Sampler	22 / 24 / 19	43
				93	76		-102.0 SPT Sampler	18 / 15 / 20	35
				87	77		SPT Sampler	14 / 16	

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(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 7 OF 10 SHEETS
PROJECT CERP Everglades Agricultural Area Reservoirs	COORDINATE SYSTEM/DATUM State Plane, FLE	HORIZONTAL NAD83 / VERTICAL NAVD88
LOCATION COORDINATES X = 736,775 Y = 775,528	ELEVATION TOP OF BORING 12.0 Ft	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE NO.	ROD CORE	REMARKS	BLOWS/0.5 FT.	N-VALUE
				87	77		-103.6 SPT Sampler	17	33
				87	78		SPT Sampler -105.0	15 / 17 / 14	31
				93	79		SPT Sampler -106.6	12 / 10 / 11	21
				100	80		SPT Sampler -108.0	13 / 17 / 16	33
				93	81		SPT Sampler -109.6	12 / 14 / 18	32
				87	82		SPT Sampler -111.0	17 / 22 / 17	39
				93	83		SPT Sampler -112.6	12 / 16 / 16	32
				73	84		SPT Sampler -114.0	14 / 22 / 19	41
				87	85		SPT Sampler -115.6	15 / 14 / 13	27
				93	86		SPT Sampler -117.0	14 / 13 / 13	26
				73	87		SPT Sampler -118.6	13 / 14 / 10	24
				87	88		SPT Sampler -120.0	9 / 10 / 15	25
				80	89		SPT Sampler -121.6	26 / 15 / 16	31
				87	90		SPT Sampler -123.0	23 / 24 / 18	42

115 120 125 130 135

SAJ FORM 1836-A
JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)

INSTALLATION: Jacksonville District | SHEET 5 OF 10 SHEETS

PROJECT: CERP Everglades Agricultural Area Reservoirs | COORDINATE SYSTEM DATUM: State Plane, FLE | HORIZONTAL: NAD83 | VERTICAL: NAVD88

LOCATION COORDINATES: X = 736,775 Y = 775,528 | ELEVATION TOP OF BORING: 12.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE NO.	ROD OR CORE	REMARKS	BLOWS/0.5 FT.	N-VALUE
				60	91		SPT Sampler	9 10 11	21
							-124.6		
				93	92		SPT Sampler	17 24 19	43
							-126.0		
				80	93		SPT Sampler	25 28 20	48
							-127.6		
				73	94		SPT Sampler	14 18 19	37
							-129.0		
				87	95		SPT Sampler	12 16 39	55
							-130.6		
-131.0	143.0								
			SAND, poorly-graded, mostly fine to medium-grained quartz, trace phosphate, light gray (SP)	100	96		SPT Sampler	31 37 24	61
							-132.0		
				100	97		SPT Sampler	17 21 17	38
							-133.6		
				100	98		SPT Sampler	14 16 20	36
							-135.0		
				100	99		SPT Sampler	12 25 27	52
							-136.6		
				100	100		SPT Sampler	12 18 18	36
							-138.0		
				93	101		SPT Sampler	11 16 18	34
							-139.6		
				100	102		SPT Sampler	10 16 22	38
							-141.0		
				67	103		SPT Sampler	15 20 25	51
							-142.6		
-142.6	154.5		Sandstone, fine-grained, some quartz sand.	80	104		SPT Sampler	18	

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JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 9 OF 10 SHEETS
PROJECT: CERP Everglades Agricultural Area Reservoirs	COORDINATE SYSTEM/DATUM: State Plane, FLE	HORIZONTAL: NAD83 / VERTICAL: NAVD88
LOCATION COORDINATES: X = 736,775 Y = 775,528	ELEVATION TOP OF BORING: 12.0 Ft.	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR CORE ID	REMARKS	BLOWS/0.5 FT.	N-VALUE
			few clay, trace shell, trace phosphate, gray						
			At El. -143.0 Ft., few shell	80	104		SPT Sampler	20 / 19	39
							-144.0		
				93	105		SPT Sampler	25 / 22 / 24	46
							-145.6		
			At El. -145.6 Ft., trace clay	100	106		SPT Sampler	9 / 17 / 41	58
							-147.0		
				73	107		SPT Sampler	16 / 20 / 20	40
							-148.6		
				80	108		SPT Sampler	15 / 17 / 19	36
							-150.0		
				80	109		SPT Sampler	30 / 20 / 18	38
							-151.6		
				73	110		SPT Sampler	18 / 16 / 21	37
							-153.0		
				80	111		SPT Sampler	14 / 16 / 18	34
							-154.6		
				80	112		SPT Sampler	10 / 18 / 19	37
							-156.0		
				73	113		SPT Sampler	6 / 17 / 14	31
							-157.6		
				100	114		SPT Sampler	14 / 14 / 16	30
-159.0	171.0						-159.0		
			SAND, poorly-graded, mostly fine to medium-grained quartz, trace fine gravel-sized sandstone, trace phosphate, light gray (SP)	100	115		SPT Sampler	15 / 24 / 19	43
							-160.6		
-161.0	173.0								
			Sandstone, medium-grained, some quartz sand, few clay, few shell, trace of phosphate gray	100	116		SPT Sampler	14 / 17 / 11	28
							-162.0		
				87	117		SPT Sampler	24 / 24	

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JUN 02

(Continued)

Boring Designation CP02-EAARS-CB-0002

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 10 OF 10 SHEETS
PROJECT: CERP Everglades Agricultural Area Reservoirs	COORDINATE SYSTEM/DATUM: State Plane, FLE / HORIZONTAL: NAD83 / VERTICAL: NAVD88	
LOCATION COORDINATES: X = 736,775 Y = 775,528	ELEVATION TOP OF BORING: 12.0 Ft	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR CORE ID	REMARKS	BLOWS/0.5 FT.	N-VALUE
				87	117		-163.6 SPT Sampler	18	42
				67	118		SPT Sampler	16 16 18	34
							-165.0		
				100	119		SPT Sampler	17 18 19	37
							-166.6		
				100	120		SPT Sampler	25 26 29	55
-168.0	180.0						-168.0		

NOTES:

1. Soils are field visually classified in accordance with the Unified Soils Classification System.

2. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
119	177.0/178.5	*

*Lab visual classification based on gradation curve. No Atterberg limits.

3. Additional Laboratory Testing

119 Moisture Content

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
NR = Not Recorded.
DT = Drill Time.
HP = Hydraulic Pressure.

175
180
185
190
195

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EVERGLADES AGRICULTURAL AREA RESERVOIR A-1
GEOTECHNICAL DATA REPORT

MARCH 17, 2006

Richard M. Veatch
March 17, 2006

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Appendix 1 Test Cell Borings and Piezometer Installation Logs
Appendix 2 Supplemental Borings and Piezometer Installation Logs
Appendix 3 Rock Cores and Other Photographs
Appendix 4 Hydraulic Interval Tests
Appendix 5 Laboratory Test Results

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 AUTHORIZATION FOR GEOTECHNICAL DATA REPORT (GDR)

This geotechnical data report (GDR) and the geotechnical investigations it documents were authorized by the South Florida Water Management District (SFWMD) under Work Order No. 9 (CN040932-WO09) approved on May 12, 2005.

1.2 PURPOSE AND SCOPE OF GDR

The purpose of the GDR is to present the results of geotechnical field investigations and laboratory testing performed for the Everglades Agricultural Area (EAA) Reservoir A-1 under Work Order No. 2, Test (Embankment) Cells, and Work Order No. 9, Supplemental Geotechnical Investigation.

The Test Cell geotechnical investigation was performed to provide information for design of the Test Cell construction and seepage monitoring program.

The supplemental geotechnical field investigation program was developed to provide a more complete characterization of the subsurface conditions for embankment design, embankment stability, settlement, seepage analyses, and to provide information for identifying potential borrow materials. The program was developed considering the results of the previous preliminary geotechnical investigations performed to evaluate the suitability of the EAA Reservoir A-1 Project site, the Test Cell embankment construction results, and requirements for on-site borrow materials.

The locations of borings previously performed were considered when locating the borings for this supplemental program. The previous geotechnical investigations were performed by Williams Earth Sciences, Inc. (separate reports dated June 11 and July 30, 2004) and by Nodarse & Associates (March-May 2004). This information is available upon request to the SFWMD.

Borings CPO5-EAARS-CB-0418 and CPO5-EAARS-CB-0419 were not accessible to the drill rigs. Blank boring logs were prepared for these borings and are included in Appendix 2.

The borings for both the Test Cell investigation and the supplemental investigation were assigned identification numbers using the numbering system developed jointly by the US Army Corps of Engineers (USACE) and the SFWMD. The boring numbers assigned were based on the block of numbers provided by Karen Pitchford of the USACE Jacksonville District office.

1.3 PROJECT DESCRIPTION

The EAA Reservoir A-1 Project (Project) is a feature of the Comprehensive Everglades Restoration Plan (CERP). The plan selected for the expedited EAA Reservoir A-1 design includes the following components:

- Approximately 190,000 acre-feet EAA Reservoir A-1 with a perimeter embankment and seepage canals.

- Northeast pump station that pumps from North New River Canal (3,600 cfs) – this work item is included in Work Order No. 15
- A connector canal from the North New River Canal (NNRC) to the new northeast pump station
- Gated inlet and discharge structures – this work item is included in Work Order No. 15
- Seepage pump station – this work item is included in Work Order No. 15
- New four lane bridge on U.S. Highway 27 across the new connector canal – this work item is included in Work Order No. 15

The Project is located in Palm Beach County, Florida.

The purpose of the Project as defined in the CERP is to capture EAA basin runoff and releases from Lake Okeechobee. The facilities will be designed to improve the timing of environmental water supply deliveries to Stormwater Treatment Area 3/4 (STA-3/4) and the Water Conservation Areas (WCA), reduce Lake Okeechobee regulatory releases to the estuaries, meet supplemental agricultural irrigation deliveries, and increase flood protection within the EAA.

1.4 ORGANIZATION OF GDR

The remainder of this report is divided into three sections: Regional Geologic Setting, Field Exploration Program Summary, and Exploration Results. Regional Geologic Setting is a summary of information available on the Project geology and geologic conditions available in literature. Field Exploration Summary describes the field investigations and procedures and the laboratory testing completed on samples obtained during the investigations. The results of the investigation are described and a summary of the laboratory testing are contained in the Exploration Results Section. Boring logs and piezometer installation logs for the Test Cells and boring logs and piezometer installation logs for the supplemental borings are included in Appendix 1 and Appendix 2, respectively. Photographs of rock core and site photographs are found in Appendix 3. The hydraulic interval test results are included in Appendix 4. The detailed laboratory testing results are contained in Appendix 5.

1.5 LIMITATIONS

The data in this report were based on site conditions existing at the time of the investigations. Unanticipated conditions may be encountered during construction because of variations which were not detected during the investigation program. The construction process may also alter ground conditions. Therefore, experienced geotechnical engineering personnel were required to observe and document the conditions encountered and determine applicability of data.

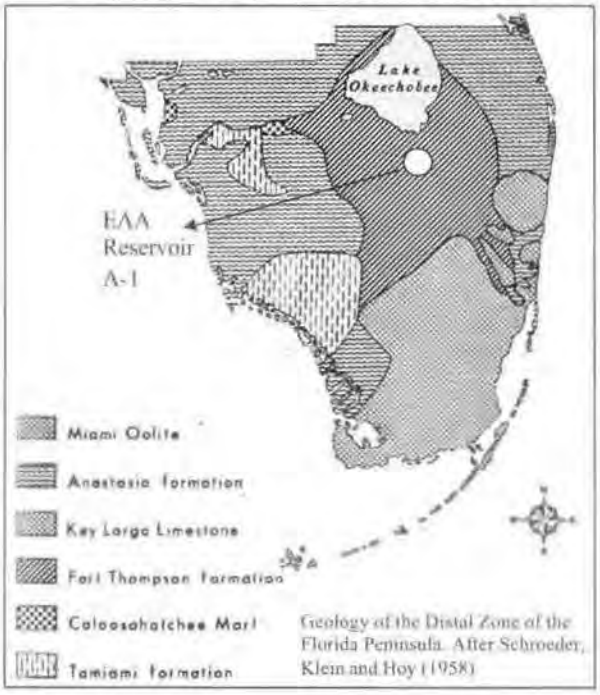
This report was prepared solely for the benefit of SFWMD by Black & Veatch Corporation (B&V) under the terms and conditions of the written agreement dated July 9, 2004 between SFWMD and B&V ("the Agreement"). Neither SFWMD nor B&V have made analysis, verified, or rendered an independent judgment of the validity of the information provided by others. WHILE IT IS BELIEVED THAT THE INFORMATION AND DATA CONTAINED HEREIN

WILL BE RELIABLE UNDER THE CONDITIONS AND SUBJECT TO THE LIMITATIONS SET FORTH HEREIN, SFWMD AND B&V DO NOT GUARANTEE THE ACCURACY THEREOF. EXCEPT AS OTHERWISE ALLOWED BY THE AGREEMENT, THIS REPORT MAY NOT BE USED BY ANYONE WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF B&V, AND SUCH USE SHALL CONSTITUTE AGREEMENT BY THE USER THAT IT'S RIGHTS, IF ANY, ARISING FROM THIS REPORT SHALL BE SUBJECT TO THE TERMS OF THE B&V AUTHORIZATION, AND IN NO EVENT SHALL USER'S RIGHTS, IF ANY, EXCEED THOSE OF SFWMD UNDER THE AGREEMENT.

2.0 REGIONAL GEOLOGIC SETTING

2.0 REGIONAL GEOLOGIC SETTING

Figure 2-1 Regional Surficial Geology of the Southern Florida Peninsula



Geology of the Distal Zone of the Florida Peninsula. After Schroeder, Klein and Hoy (1958)

The following description of the regional geologic setting was developed from a review of selective geologic literature. The EAA Reservoir A-1 Project is located south of Lake Okeechobee within the Everglades physiographic subdivision of the Southern Zone (White, 1970). The Everglades is generally a flat, geologic depression between the Immokalee Rise and Big Cypress Spur physiographic subdivisions on the west, and the Atlantic Coastal Ridge physiographic subdivision on the east. The Everglades extends southward from Lake Okeechobee to Florida Bay with elevations near sea level. With the exception of the EAA, the Everglades landscape consists primarily of sawgrass marsh with hammocks of willow, myrtle, and bay trees.

The United States Department of Agriculture, Natural Resources Conservation Service (NRCS and formerly known as the Soil Conservation Service) published a soil survey for the Palm Beach County area in the mid 1970s (McCollum et. al., 1978). Seven primary soil types were identified in the EAA region as Torry muck, Terra Ceia muck, Pahokee muck, Lauderhill muck, Dania muck, Okeelanta muck, and Okeechobee muck. The soils at EAA Reservoir A-1 include the Pahokee muck (primarily in the southern portion of the site) and Lauderhill muck (primarily in the northern portion of the site). Based on geotechnical borings performed at the EAA Reservoir A-1 Project site, the muck ranges in thickness from less than one foot to approximately five feet.

According to the NRCS, the soils located beneath the former Talisman Sugar Corporation processing facility are classified as Urban land. Urban land soils are those which have been disturbed due to development.

The generalized regional geologic/hydrogeologic conditions for the surficial aquifer system in Palm Beach County are provided in Figure 2-1. It should be recognized that this representation is not all inclusive since the geology in southeast Florida is very complex, particularly the geology of the Plio-Peistocene to Holocene Epochs. However, the primary geologic and hydrogeologic units that are formally recognized in Palm Beach County are represented.

In general, the surface and near surface geology of the region is complex and ranges from unconsolidated, variably calcareous and fossiliferous quartz sands to well indurated, sandy, fossiliferous fresh and marine limestones (Scott, 2001 and Schroeder et al., 1954). These sediments are Pleistocene to recent in age, and blanket most of Palm Beach County except for the Atlantic Coastal Ridge sediments on the east coast. The regional near surface geologic units are generally referred to, in descending order, as the Lake Flirt Marl, Fort Thompson Formation, and Caloosahatchee Formation. The total thickness of these units can range to nearly 50 feet.

The Pliocene-age Tamiami Formation underlies the Caloosahatchee Formation. The Tamiami Formation contains a wide range of mixed carbonate-siliciclastic lithologies and associated faunas (Missimer, 1992). The Tamiami Formation in the area is over 100 feet thick. The Tamiami Formation and overlying geologic units comprise the surficial aquifer system in Palm Beach County. Miller (Wesley, 1987) contoured the bottom of the surficial aquifer system (the top of the Hawthorn Group) in Palm Beach County using existing well logs. According to this work the bottom of the surficial aquifer system in the area of the Test Cell Program and the EAA Reservoir A-1 lies between about -200 to -220 feet.

Other geologic information may indicate that the Caloosahatchee Formation is thin, patchy, or not present at the EAA Reservoir A-1 Project site (Harvey et al., 2002). Also, as illustrated in Figure 2-2, recent geological work (Reese and Cunningham, 2000) has redefined the stratigraphy of the area. Presently, the Tamiami Formation has several recognized named and unnamed geologic members including the Ochopee Limestone Member and the Pinecrest Sand Member. Both Tamiami Formation members contain sandy strata, but the Pinecrest Sand Member is principally shelly, fine grained, quartz sand. The sands in the Caloosahatchee and Tamiami Formations are generally differentiated based on the fossil assemblages observed in outcrops, but key indicator fossils are typically not recovered in borings (Scott, 2005). Therefore, interpretation of the contact between the Caloosahatchee Formation and Tamiami Formation at the EAA Reservoir A-1 Project site is not possible. They will not be differentiated on the boring logs but will be designated the Caloosahatchee and Pinecrest sands.

An unnamed sand formation and the Hawthorn Group, both of Miocene-age, underlie the Tamiami Formation (Reese and Cunningham, 2002). The unnamed sand is thin in the project area, 25 to 30 feet thick and consist of very fine sand and silty sand. The Hawthorn Group consists of an interbedded sequence of widely varying lithologies and components that includes limestone, dolomite, dolosilt, shell, quartz sand, clay, phosphate grains and mixtures of these materials (Reese and Memberg, 2000). The characteristics that distinguish the Hawthorn Group from underlying units are its high and variable siliciclastic and phosphatic content; its color, which can be green, olive-gray, or light gray; and its gamma-ray log response. According to Scott (1988), the Hawthorn Group is approximately 700 feet thick in the region. The Hawthorn Group sediments retard the exchange of groundwater between the overlying surficial aquifer system and the underlying Eocene-age carbonates of the Floridan aquifer system, and are hydrogeologically referred to as the intermediate confining unit.

Eocene-age carbonates underlying the Hawthorn Group include, in descending order, the Ocala Limestone, Avon Park Formation, and Oldsmar Formation. The overlying Oligocene-age Suwannee Limestone is thin to discontinuous in the EAA region, and likely not present in the east half of Palm Beach County (Miller, James, 1986). The cumulative thickness of the Eocene-age carbonates in the region is approximately 2,500 feet (Miller, James, 1986).

Figure 2-2 Generalized Regional Geology and Hydrogeology

(from Reese and Cunningham, 2000)

Series	Lithostratigraphic units		Approximate thickness (feet)	Lithology	Hydrogeologic unit	Approximate thickness (feet)
HOLOCENE	LAKE FLIRT MARL, UNDIFFERENTIATED SOIL AND SAND	UNDIFFERENTIATED	0 - 5	Marl, peat, organic soil, quartz sand	SURFICIAL AQUIFER SYSTEM: WATER TABLE AQUIFER / BISCAYNE AQUIFER	0 - 120
PLEISTOCENE	PAMLICO SAND		0 - 50	Quartz sand		
	MIAMI LIMESTONE		0 - 30	Oolitic limestone		
	FORT THOMPSON FORMATION		0 - 100	Marine limestone and minor gastropod-rich freshwater limestone		
	ANASTASIA FORMATION		0 - 140	Coquina, quartz sand and sandy limestone		
	KEY LARGO LIMESTONE		0 - 20	Coralline reef rock		
PLIOCENE	TAMIAMI FORMATION	PINECREST SAND MEMBER	0 - 90	Quartz sand, pelecypod-rich quartz sandstone, terrigenous mudstone	UPPER SEMICONFINING TO CONFINING UNIT	0 - 130
		OCHOPEE LIMESTONE MEMBER	0 - 130	Pelecypod lime mudstone and floatstone, pelecypod-rich quartz sand, moldic quartz sandstone	GRAY LIMESTONE AQUIFER / LOWER SEMICONFINING UNIT	0 - 130 / 0 - 20
		UNNAMED FORMATION	0 - 300	Molluscan-rich quartz sand or sandstone; Quartz sand, sandstone, and pelecypod-rich quartz sand, local abundant phosphate grains	SAND AQUIFER(S)	0 - 100
MIOCENE	UPPER HAWTHORN GROUP	PEACE RIVER FORMATION	0 - 300	Clay-rich quartz sand, terrigenous mudstone, diatomaceous mudstone, local abundant phosphate grains	INTERMEDIATE CONFINING UNIT OR INTERMEDIATE AQUIFER SYSTEM	300+

Figure 4. Lithostratigraphic units recognized in the study area, their generalized geology, and relationship with hydrogeologic units. Modified from Olsson (1964), Hunter (1968), Miller (1990), Missimer (1992), and Weedman and others (1999).

3.0 FIELD EXPLORATION PROGRAM SUMMARY

3.0 FIELD EXPLORATION PROGRAM SUMMARY

Plate 1 shows the exploratory borings that have been completed and logged as part of this and previous phases of exploration within the perimeter of the EAA Reservoir A-1, with the exception of the Test Cell borings. Plate 2 shows borings completed and piezometers installed for the Test Cell program. Plate 3 contains the location of hydraulic interval tests. Appendix 1 and Appendix 2 contain the boring logs of borings completed during the Test Cell Program and the Supplemental Geotechnical Investigation, respectively.

3.1 PREVIOUS EXPLORATION PROGRAMS

Soil borings from 50 to 100 feet deep were completed at the planned EAA Reservoir A-1 Project Test Cell site in December 2004 and during the test cell construction in early 2005. The boring location plan is shown in Plate 1. The boring logs for the Test Cell are included in Appendix 1.

One hundred thirty-eight geotechnical borings were completed for the SFWMD around the planned EAA Reservoir A-1 in 2003 and early 2004. Four of those borings are located in the vicinity of the Test Cell site: CB-0068, CB-0069, CB-0140, and CB-0142. Boring CB-0068 is about 800 feet northwest of the Test Cell site borrow area. Boring CB-0069 is located over 1,000 feet west of Test Cell 1. Boring CB-0140 is located about 800 feet east of Test Cell 2. Boring CB-0142 is located about 200 feet east of the borrow area and 1,500 feet north of the Test Cells. The borings were completed between 50.5 and 52 feet deep with rotary wash drilling and split-barrel sampling.

3.2 EXPLORATION PROGRAM FOR DESIGN

Additional borings were completed between December 7, 2004 and September 14, 2005 for design of the temporary embankments for the Test Cell construction and monitoring program and preliminary design of the EAA Reservoir A-1. The boring locations and depths are shown in Table 3-1. Borings TW-0196 through TW-0254 were completed for piezometer installation during the Test Cell construction and monitoring only; they were not sampled or logged.

The Test Cell borings and the supplemental borings were assigned temporary identification numbers prior to drilling. These temporary boring numbers will be referred to as old numbers in this Report. After completion of the Test Cell and supplemental borings, a block of new boring numbers was received from the USACE Jacksonville District office. The borings logs and piezometer installation logs for the Test Cell borings and the supplemental borings contain the boring identification numbers that were assigned by the USACE. Table 3-1 lists the new boring number and the corresponding old boring number.

Table 3-1 Boring Locations and Depths

Old Boring Number	New Boring Number	Depth (feet)	Northing	Easting	Location
Test Cell Borings					
BA-01	CP05-EAARS-CB-0168	50	776662.9	758833.1	Test Cell Borrow
BA-02	CP05-EAARS-CB-0169	50	776662.9	759333.1	Test Cell Borrow
BA-03	CP05-EAARS-CB-0170	50	776662.9	759833.1	Test Cell Borrow
BA-04	CP05-EAARS-CB-0171	50	776162.9	758833.1	Test Cell Borrow
BA-05	CP05-EAARS-CB-0172	50	776162.9	759333.1	Test Cell Borrow
BA-06	CP05-EAARS-CB-0173	50	776162.9	759833.1	Test Cell Borrow
BA-07	CP05-EAARS-CB-0174	50	775662.9	758833.1	Test Cell Borrow
BA-08	CP05-EAARS-CB-0175	50	775662.9	759333.1	Test Cell Borrow
BA-09	CP05-EAARS-CB-0176	50	775662.9	759833.1	Test Cell Borrow
BA-10	CP05-EAARS-CB-0177	50	775662.9	760333.1	Test Cell Borrow
TC-01	CP05-EAARS-CB-0178	50	774612.9	759154.5	Test Cell 1
TC-02	CP05-EAARS-CB-0179	50	774612.9	760243.1	Test Cell 1
TC-03	CP05-EAARS-CB-0180	50	773531.5	759154.5	Test Cell 1
TC-04	CP05-EAARS-CB-0181	50	773531.5	760243.1	Test Cell 1
TC-05	CP05-EAARS-CB-0182	50	774072.2	759698.8	Test Cell 1
TC-06	CP05-EAARS-CB-0183	50	774619.8	761239.5	Test Cell 2
TC-07	CP05-EAARS-CB-0184	50	774619.8	762328.1	Test Cell 2
TC-08	CP05-EAARS-CB-0185	50	773538.4	761239.5	Test Cell 2
TC-09	CP05-EAARS-CB-0186	50	773538.4	762328.1	Test Cell 2
TC-10	CP05-EAARS-CB-0187	50	774079.1	761783.8	Test Cell 2
TC1-E	CP05-EAARS-CB-0188	100	774072.0	760086.3	Test Cell 1
TC1-N	CP05-EAARS-CB-0189	100	774459.7	759698.8	Test Cell 1
TC1-W	CP05-EAARS-CB-0190	100	774072.2	759311.3	Test Cell 1
TC1-S	CP05-EAARS-CB-0191	100	773684.7	759698.8	Test Cell 1
TC2-E	CP05-EAARS-CB-0192	100	774079.1	762171.3	Test Cell 2
TC2-N	CP05-EAARS-CB-0193	100	774466.6	761783.8	Test Cell 2
TC2-W	CP05-EAARS-CB-0194	100	774079.1	761396.3	Test Cell 2
TC2-S	CP05-EAARS-CB-0195	100	773691.6	761783.8	Test Cell 2
PZ1BGSA	CP05-EAARS-TW-0196	25	773021.5	759162.0	TC SW Background
PZ1BGSB	CP05-EAARS-TW-0197	60	773031.5	759162.0	TC SW Background
PZ1BGSC	CP05-EAARS-TW-0198	100	773041.5	759162.0	TC SW Background
PZ1/2BGSA	CP05-EAARS-TW-0199	25	774065.7	760739.5	TC Middle Background
PZ1/2BGSB	CP05-EAARS-TW-0200	60	774075.7	760739.5	TC Middle Background
PZ1/2BGSC	CP05-EAARS-TW-0201	100	774085.7	760739.5	TC Middle Background
PZ2BGSA	CP05-EAARS-TW-0202	25	775109.8	762335.6	TC NE Background
PZ2BGSB	CP05-EAARS-TW-0203	60	775119.8	762335.6	TC NE Background
PZ2BGSC	CP05-EAARS-TW-0204	100	775129.8	762335.6	TC NE Background
PZ2BGSE	CP05-EAARS-TW-0205	25	761239.5	773038.4	TC NE Background
PZ2BGSW	CP05-EAARS-TW-0206	25	762328.1	773038.4	TC NE Background
PZ1N2A	CP05-EAARS-TW-0207	25	774397.9	759697.0	TC1 Inner Bench
PZ1N2B	CP05-EAARS-TW-0208	60	774407.9	759697.0	TC1 Inner Bench
PZ1N2C	CP05-EAARS-TW-0209	100	774417.9	759697.0	TC1 Inner Bench
PZ1N3A	CP05-EAARS-TW-0210	25	774487.9	759697.0	TC1 Outer Bench
PZ1N3B	CP05-EAARS-TW-0211	60	774497.9	759697.0	TC1 Outer Bench
PZ1N3C	CP05-EAARS-TW-0212	100	774507.9	759697.0	TC1 Outer Bench
PZ1E2A	CP05-EAARS-TW-0213	25	774074.0	760028.1	TC1 Inner Bench
PZ1E2B	CP05-EAARS-TW-0214	60	774074.0	760038.1	TC1 Inner Bench

Old Boring Number	New Boring Number	Depth (feet)	Northing	Easting	Location
PZ1E2C	CP05-EAARS-TW-0215	100	774074.0	760048.1	TC1 Inner Bench
PZ1E3A	CP05-EAARS-TW-0216	25	774074.0	760118.1	TC1 Outer Bench
PZ1E3B	CP05-EAARS-TW-0217	60	774074.0	760128.1	TC1 Outer Bench
PZ1E3C	CP05-EAARS-TW-0218	100	774074.0	760138.1	TC1 Outer Bench
PZ1S2A	CP05-EAARS-TW-0219	25	773746.5	759700.6	TC1 Inner Bench
PZ1S2B	CP05-EAARS-TW-0220	60	773736.5	759700.6	TC1 Inner Bench
PZ1S2C	CP05-EAARS-TW-0221	100	773726.5	759700.6	TC1 Inner Bench
PZ1S3A	CP05-EAARS-TW-0222	25	773656.5	759700.6	TC1 Outer Bench
PZ1S3B	CP05-EAARS-TW-0223	60	773646.5	759700.6	TC1 Outer Bench
PZ1S3C	CP05-EAARS-TW-0224	100	773636.5	759700.6	TC1 Outer Bench
PZ1W2A	CP05-EAARS-TW-0225	25	774070.4	759369.5	TC1 Inner Bench
PZ1W2B	CP05-EAARS-TW-0226	60	774070.4	759359.5	TC1 Inner Bench
PZ1W2C	CP05-EAARS-TW-0227	100	774070.4	759349.5	TC1 Inner Bench
PZ1W3A	CP05-EAARS-TW-0228	25	774070.4	759279.5	TC1 Outer Bench
PZ1W3B	CP05-EAARS-TW-0229	60	774070.4	759269.5	TC1 Outer Bench
PZ1W3C	CP05-EAARS-TW-0230	100	774070.4	759259.5	TC1 Outer Bench
PZ2N2A	CP05-EAARS-TW-0231	25	774414.8	761772.0	TC2 Inner Bench
PZ2N2B	CP05-EAARS-TW-0232	60	774414.8	761782.0	TC2 Inner Bench
PZ2N2C	CP05-EAARS-TW-0233	100	774414.8	761792.0	TC2 Inner Bench
PZ2N3A	CP05-EAARS-TW-0234	25	774514.8	761772.0	TC2 Outer Bench
PZ2N3B	CP05-EAARS-TW-0235	60	774514.8	761782.0	TC2 Outer Bench
PZ2N3C	CP05-EAARS-TW-0236	100	774514.8	761792.0	TC2 Outer Bench
PZ2E2A	CP05-EAARS-TW-0237	25	774070.9	762123.1	TC2 Inner Bench
PZ2E2B	CP05-EAARS-TW-0238	60	774080.9	762123.1	TC2 Inner Bench
PZ2E2C	CP05-EAARS-TW-0239	100	774090.9	762123.1	TC2 Inner Bench
PZ2E3A	CP05-EAARS-TW-0240	25	774070.9	762223.1	TC2 Outer Bench
PZ2E3B	CP05-EAARS-TW-0241	60	774080.9	762223.1	TC2 Outer Bench
PZ2E3C	CP05-EAARS-TW-0242	100	774090.9	762223.1	TC2 Outer Bench
PZ2S2A	CP05-EAARS-TW-0243	25	773743.4	761775.6	TC2 Inner Bench
PZ2S2B	CP05-EAARS-TW-0244	60	773743.4	761785.6	TC2 Inner Bench
PZ2S2C	CP05-EAARS-TW-0245	100	773743.4	761795.6	TC2 Inner Bench
PZ2S3A	CP05-EAARS-TW-0246	25	773643.4	761775.6	TC2 Outer Bench
PZ2S3B	CP05-EAARS-TW-0247	60	773643.4	761785.6	TC2 Outer Bench
PZ2S3C	CP05-EAARS-TW-0248	100	773643.4	761785.6	TC2 Outer Bench
PZ2W2A	CP05-EAARS-TW-0249	25	774067.3	774824.8	TC2 Inner Bench
PZ2W2B	CP05-EAARS-TW-0250	60	774077.3	774824.8	TC2 Inner Bench
PZ2W2C	CP05-EAARS-TW-0251	100	774087.3	774824.8	TC2 Inner Bench
PZ2W3A	CP05-EAARS-TW-0252	25	774067.3	774724.8	TC2 Outer Bench
PZ2W3B	CP05-EAARS-TW-0253	60	774077.3	774724.8	TC2 Outer Bench
PZ2W3C	CP05-EAARS-TW-0254	100	774087.3	774724.8	TC2 Outer Bench
Supplemental Borings					
CB-0157	CP05-EAARS-CB-0255	100	781910.0	758371.0	A-1 Northwest Corner
CB-0158	CP05-EAARS-CB-0256	100	781984.0	761965.0	A-1 North Side
CB-0159	CP05-EAARS-CB-0257	100	783716.0	767707.0	A-1 Northeast Corner
CB-0160	CP05-EAARS-CB-0258	100	780135.0	770586.0	A-1 East Side
CB-0161	CP05-EAARS-CB-0259	100	776945.0	772723.0	A-1 East Side
CB-0162	CP05-EAARS-CB-0260	100	773586.0	775208.0	A-1 East Side
CB-0163	CP05-EAARS-CB-0261	100	770322.0	777070.0	A-1 East Side
CB-0165	CP05-EAARS-CB-0262	100	763552.0	781691.0	A-1 East Side
CB-0166	CP05-EAARS-CB-0263	100	759790.0	784911.0	A-1 East Side
CB-0167	CP05-EAARS-CB-0264	100	756500.0	786952.0	A-1 East Side

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CB-0168	CP05-EAARS-CB-0265	100	753214.0	789530.0	A-1 East Side
CB-0169	CP05-EAARS-CB-0266	100	750585.0	791221.0	A-1 Southeast Corner
CB-0170	CP05-EAARS-CB-0267	100	750246.0	787701.0	A-1 South Side
CB-0171	CP05-EAARS-CB-0268	100	750548.0	784355.0	A-1 South Side
CB-0172	CP05-EAARS-CB-0269	100	750220.0	780367.0	A-1 South Side
CB-0173	CP05-EAARS-CB-0270	100	750200.0	776528.0	A-1 South Side
CB-0175	CP05-EAARS-CB-0271	100	750130.0	769310.0	A-1 South Side
CB-0176	CP05-EAARS-CB-0272	100	750233.0	765878.0	A-1 South Side
CB-0177	CP05-EAARS-CB-0273	100	750080.0	762040.0	A-1 South Side
CB-0178	CP05-EAARS-CB-0274	100	750065.0	758699.0	A-1 Southwest Corner
CB-0179	CP05-EAARS-CB-0275	100	756315.0	758665.0	A-1 West Side
CB-0180	CP05-EAARS-CB-0276	100	764107.0	758486.0	A-1 West Side
CB-0181	CP05-EAARS-CB-0277	100	761543.0	760487.0	A-1 West Side
CB-0183	CP05-EAARS-CB-0278	100	768827.0	758019.0	A-1 West Side
CB-0184	CP05-EAARS-CB-0279	100	772221.0	757980.0	A-1 West Side
CB-0185	CP05-EAARS-CB-0280	100	776165.0	758181.0	A-1 West Side
CB-0186	CP05-EAARS-CB-0281	100	779806.0	757877.0	A-1 West Side
CB-0164	CP05-EAARS-RB-0282	240	766996.0	778268.0	A-1 East Side
CB-0174	CP05-EAARS-RB-0283	220	750072.0	773031.0	A-1 South Side
CB-0182	CP05-EAARS-RB-0284	240	764456.0	758050.0	A-1 West Side
CB-0190	CP05-EAARS-RB-0285	250	781923.0	766198.0	A-1 North Side
CB-0205	CP05-EAARS-RB-0286	220	764359.0	768550.0	A-1 Central
CB-0187	CP05-EAARS-CB-0287	31.5	783422.0	760195.0	A-1 North Side
CB-0188	CP05-EAARS-CB-0288	30	782018.0	762205.0	A-1 North Side
CB-0189	CP05-EAARS-CB-0289	30	783462.0	764332.0	A-1 North Side
CB-0191	CP05-EAARS-CB-0290	40.5	782440.0	768965.0	A-1 East Side
CB-0192	CP05-EAARS-CB-0291	42.5	780905.0	770048.0	A-1 East Side
CB-0193	CP05-EAARS-CB-0292	42.5	779231.0	771249.0	A-1 East Side
CB-0194	CP05-EAARS-CB-0293	42	777645.0	772355.0	A-1 East Side
CB-0195	CP05-EAARS-CB-0294	40	776025.0	773483.0	A-1 East Side
CB-0196	CP05-EAARS-CB-0295	30.5	774369.0	774657.0	A-1 East Side
CB-0197	CP05-EAARS-CB-0296	30	773030.0	775594.0	A-1 East Side
CB-0198	CP05-EAARS-CB-0297	30.5	771865.0	776117.0	A-1 East Side
CB-0199	CP05-EAARS-CB-0298	30.5	769649.0	777979.0	A-1 East Side
CB-0200	CP05-EAARS-CB-0299	30.5	768142.0	779025.0	A-1 East Side
CB-0201	CP05-EAARS-CB-0300	100	766330.0	780308.0	A-1 East Side
CB-0202	CP05-EAARS-CB-0301	30.5	764988.0	781256.0	A-1 East Side
CB-0203	CP05-EAARS-CB-0302	30.5	763912.0	781642.0	A-1 East Side
CB-0204	CP05-EAARS-CB-0303	30.5	761612.0	783518.0	A-1 East Side
CB-0206	CP05-EAARS-CB-0304	34.1	758279.0	785951.0	A-1 East Side
CB-0207	CP05-EAARS-CB-0305	10	778649.0	757994.0	A-1 West Side
CB-0208	CP05-EAARS-CB-0306	30.5	755048.0	788246.0	A-1 East Side
CB-0209	CP05-EAARS-CB-0307	30.5	753802.0	789084.0	A-1 East Side
CB-0210	CP05-EAARS-CB-0308	30.5	751534.0	790688.0	A-1 East Side
CB-0211	CP05-EAARS-CB-0309	30	750759.0	790521.0	A-1 South Side
CB-0212	CP05-EAARS-CB-0310	35	750227.0	788770.0	A-1 South Side
CB-0213	CP05-EAARS-CB-0311	30	750238.0	786937.0	A-1 South Side
CB-0214	CP05-EAARS-CB-0312	36.5	750245.0	785150.0	A-1 South Side
CB-0215	CP05-EAARS-CB-0313	30	750216.0	782576.0	A-1 South Side
CB-0216	CP05-EAARS-CB-0314	35	750217.0	781148.0	A-1 South Side
CB-0217	CP05-EAARS-CB-0315	35.5	750528.0	779484.0	A-1 South Side

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CB-0218	CP05-EAARS-CB-0316	35.5	750184.0	777664.0	A-1 South Side
CB-0219	CP05-EAARS-CB-0317	35.5	750159.0	775119.0	A-1 South Side
CB-0220	CP05-EAARS-CB-0318	30	750133.0	771127.0	A-1 South Side
CB-0221	CP05-EAARS-CB-0319	30.5	750096.0	767133.0	A-1 South Side
CB-0222	CP05-EAARS-CB-0320	30.5	750098.0	764793.0	A-1 South Side
CB-0223	CP05-EAARS-CB-0321	30.5	750082.0	763010.0	A-1 South Side
CB-0224	CP05-EAARS-CB-0322	35.5	750063.0	761074.0	A-1 South Side
CB-0225	CP05-EAARS-CB-0323	35	749972.0	759269.0	A-1 South Side
CB-0226	CP05-EAARS-CB-0324	35	751817.0	758603.0	A-1 West Side
CB-0227	CP05-EAARS-CB-0325	100	753491.0	758559.0	A-1 West Side
CB-0228	CP05-EAARS-CB-0326	35	755754.0	758535.0	A-1 West Side
CB-0229	CP05-EAARS-CB-0327	35	759750.0	758452.0	A-1 West Side
CB-0230	CP05-EAARS-CB-0328	35	765187.0	758085.0	A-1 West Side
CB-0231	CP05-EAARS-CB-0329	35	766160.0	758074.0	A-1 West Side
CB-0232	CP05-EAARS-CB-0330	30	767982.0	758285.0	A-1 West Side
CB-0233	CP05-EAARS-CB-0331	30	770143.0	758448.0	A-1 West Side
CB-0234	CP05-EAARS-CB-0332	30	775274.0	757910.0	A-1 West Side
CB-0235	CP05-EAARS-CB-0333	30	777640.0	757885.0	A-1 West Side
CB-0237	CP05-EAARS-CB-0334	30	754301.0	763206.0	A-1 Interior
CB-0238	CP05-EAARS-CB-0335	5.9	752382.0	769861.0	A-1 Interior
CB-0239	CP05-EAARS-CB-0336	30	752409.0	777773.0	A-1 Interior
CB-0240	CP05-EAARS-CB-0337	35	752266.0	784343.0	A-1 Interior
CB-0241	CP05-EAARS-CB-0338	7.5	754254.0	760704.0	A-1 Interior
CB-0242	CP05-EAARS-CB-0339	6.3	754350.0	769805.0	A-1 Interior
CB-0243	CP05-EAARS-CB-0340	30	754387.0	777734.0	A-1 Interior
CB-0244A	CP05-EAARS-CB-0341	36.5	754265.0	784323.0	A-1 Interior
CB-0244B	CP05-EAARS-CB-0342	35	754260.0	784326.0	A-1 Interior
CB-0245	CP05-EAARS-CB-0343	35	753277.0	786955.0	A-1 Interior
CB-0246	CP05-EAARS-CB-0344	6	758902.0	761980.0	A-1 Interior
CB-0247	CP05-EAARS-CB-0345	35.5	759005.0	768493.0	A-1 Interior
CB-0248	CP05-EAARS-CB-0346	10.6	758928.0	773757.0	A-1 Interior
CB-0249	CP05-EAARS-CB-0347	12.5	759074.0	780380.0	A-1 Interior
CB-0250	CP05-EAARS-CB-0348	8.5	761558.0	761980.0	A-1 Interior
CB-0251	CP05-EAARS-CB-0349	35.5	761600.0	768479.0	A-1 Interior
CB-0252	CP05-EAARS-CB-0350	12.5	761622.0	773855.0	A-1 Interior
CB-0253	CP05-EAARS-CB-0351	12	761656.0	779502.0	A-1 Interior
CB-0254	CP05-EAARS-CB-0352	34.3	759736.0	781668.0	A-1 Interior
CB-0255	CP05-EAARS-CB-0353	30	766808.0	760677.0	A-1 Interior
CB-0256	CP05-EAARS-CB-0354	9	766942.0	765980.0	A-1 Interior
CB-0257	CP05-EAARS-CB-0355	30	766738.0	771193.0	A-1 Interior
CB-0258	CP05-EAARS-CB-0356	13.5	766672.0	776448.0	A-1 Interior
CB-0259	CP05-EAARS-CB-0357	8	769496.0	760663.0	A-1 Interior
CB-0260	CP05-EAARS-CB-0358	14.5	769587.0	765916.0	A-1 Interior
CB-0261	CP05-EAARS-CB-0359	35	769421.0	770701.0	A-1 Interior
CB-0263	CP05-EAARS-CB-0360	35	774655.0	768482.0	A-1 Interior
CB-0264	CP05-EAARS-CB-0361	35	778254.0	768440.0	A-1 Interior
CB-0265	CP05-EAARS-CB-0362	30	781745.0	760432.0	A-1 Interior
CB-0266	CP05-EAARS-CB-0363	13	777293.0	771082.0	A-1 Interior
CB-0267	CP05-EAARS-CB-0364	14	774291.0	771181.0	A-1 Interior
CB-0268	CP05-EAARS-CB-0365	35	776579.0	765894.0	A-1 Interior
CB-0270	CP05-EAARS-CB-0366	14	752268.0	760704.0	A-1 Interior

Old Boring Number	New Boring Number	Depth (feet)	Northing	Easting	Location
CB-0271	CP05-EAARS-CB-0367	30	752295.0	763219.0	A-1 Interior
CB-0272	CP05-EAARS-CB-0368	30	753762.0	767506.0	A-1 Interior
CB-0273	CP05-EAARS-CB-0369	30	753688.0	772154.0	A-1 Interior
CB-0274	CP05-EAARS-CB-0370	10.6	753744.0	775377.0	A-1 Interior
CB-0275	CP05-EAARS-CB-0371	35	753720.0	780369.0	A-1 Interior
CB-0276	CP05-EAARS-CB-0372	35.5	757929.0	776397.0	A-1 Interior
CB-0277	CP05-EAARS-CB-0373	35.5	758102.0	771124.0	A-1 Interior
CB-0278	CP05-EAARS-CB-0374	35.5	758247.0	765845.0	A-1 Interior
CB-0279	CP05-EAARS-CB-0375	35.5	762100.0	763174.0	A-1 Interior
CB-0280	CP05-EAARS-CB-0376	35.5	758795.0	760203.0	A-1 Interior
CB-0281	CP05-EAARS-CB-0377	35.5	756384.0	773911.0	A-1 Interior
CB-0282	CP05-EAARS-CB-0378	12.5	758500.0	760561.0	A-1 Interior
CB-0283	CP05-EAARS-CB-0379	13.5	769333.0	775402.0	A-1 Interior
CB-0284	CP05-EAARS-CB-0380	12	750090.0	763879.0	A-1 South Side
CB-0285	CP05-EAARS-CB-0381	10	773957.0	760070.0	A-1 Interior
CB-0286	CP05-EAARS-CB-0382	15	750598.0	784000.0	A-1 South Side
CB-0287	CP05-EAARS-CB-0383	11.5	773646.0	757946.0	A-1 West Side
CB-0288	CP05-EAARS-CB-0384	12	757725.0	783598.0	A-1 Interior
CB-0289	CP05-EAARS-CB-0385	12	764206.0	772656.0	A-1 Interior
CB-0290	CP05-EAARS-CB-0386	6.1	764152.0	761783.0	A-1 Interior
CB-0291	CP05-EAARS-CB-0387	12	772195.0	775012.0	A-1 Interior
CB-0292	CP05-EAARS-CB-0388	10	773931.0	759315.0	A-1 Interior
CB-0293	CP05-EAARS-CB-0389	13	783437.0	761044.0	A-1 Interior
CB-0294	CP05-EAARS-CB-0390	10.5	782063.0	757971.0	A-1 Interior
CB-0295	CP05-EAARS-CB-0391	12	750115.0	768244.0	A-1 Interior
CB-0296	CP05-EAARS-CB-0392	10	774441.0	759699.0	A-1 Interior
CB-0297	CP05-EAARS-CB-0393	10	773699.0	761785.0	A-1 Interior
CB-0298	CP05-EAARS-CB-0394	12	776830.0	772805.0	A-1 East Side
CB-0299	CP05-EAARS-CB-0395	40	763485.0	781629.0	A-1 East Side
CB-0300	CP05-EAARS-CB-0396	35	770101.0	777065.0	A-1 East Side
CB-0301	CP05-EAARS-CB-0397	12	757683.0	774766.0	A-1 Interior
CB-0302	CP05-EAARS-CB-0398	17	750753.0	791158.0	A-1 Southeast Corner
CB-0303	CP05-EAARS-CB-0399	13	758686.0	750096.0	A-1 Southwest Corner
CB-0304	CP05-EAARS-CB-0400	35.5	764135.0	758486.0	A-1 West Side
CB-0305	CP05-EAARS-CB-0401	10	779802.0	757725.0	A-1 West Side
CB-0306	CP05-EAARS-CB-0402	15	750729.0	791135.0	South Side
CB-0307	CP05-EAARS-CB-0403	11.5	761502.0	760599.0	A-1 West Side
CB-0308	CP05-EAARS-CB-0404	11.5	776148.0	757913.0	A-1 West Side
CB-0309	CP05-EAARS-CB-0405	35	775014.0	773698.0	A-1 East Side
CB-0310	CP05-EAARS-CB-0406	35	778285.0	765848.0	A-1 Interior
CB-0311	CP05-EAARS-CB-0407	38.5	756377.0	786638.0	A-1 East Side
CB-0312	CP05-EAARS-CB-0408	16	753570.0		A-1 West Side on Main Canal Levee
CB-0313	CP05-EAARS-CB-0409	16	757151.0		A-1 West Side On Main Canal Levee
CB-0314	CP05-EAARS-CB-0410	15.3	760732.0		A-1 South Side on Main Canal Levee
CB-0315	CP05-EAARS-CB-0411	12		762679.0	A-1 South Side on Main Canal Levee
CB-0316	CP05-EAARS-CB-0412	12		766635.0	A-1 South Side on Main Canal Levee

Old Boring Number	New Boring Number	Depth (feet)	Northing	Easting	Location
CB-0317	CP05-EAARS-CB-0413	12		770593.0	A-1 South Side on Main Canal Levee
CB-0318	CP05-EAARS-CB-0414	13	750042.0	774548.0	A-1 South Side on Main Canal Levee
CB-0319	CP05-EAARS-CB-0415	14	750050.0	778522.0	A-1 South Side on Main Canal Levee
CB-0320	CP05-EAARS-CB-0416	17		782462.0	A-1 South Side on Main Canal Levee
CB-0321	CP05-EAARS-CB-0417	11.5	750108.0	786154.0	A-1 South Side on Main Canal Levee

A-1= EAA Reservoir A-1

3.2.1 Test Cell Borings

The Test Cell program involved the design, construction, installation of instrumentation, and monitoring of seepage from two Test Cells. Each Test Cell measured 500 feet square (at the embankment centerline) and consisted of an impoundment enclosed by a zoned earthen embankment surrounded by a seepage collection canal. The Test Cell site is located within the footprint of the planned EAA Reservoir A-1. Construction of the Test Cells was completed between January 10 and April 9, 2005.

Twenty geotechnical borings, CP05-EAARS-CB-0168 to CP05-EAARS-CB-0187, were completed at the Test Cell site in December of 2004, ten at the site borrow area and five at each Test Cell for design of the cells. The borings were drilled to a depth of 50 feet, primarily by rotary wash drilling using a heavy drilling mud to support the holes. The near surface limestone (caprock) was cored in each one of the holes, and a deeper, thinner limestone was cored at about 26 feet depth in two of the borings. Soils were sampled with Standard Penetration Test (SPT) methods. Drilling began on December 7, 2004 with the mobilization of two Diedrich D-50 Turbo drilling rigs to the site and was completed on December 11, 2004.

During the Test Cell program a series of eight borings CP05-EAARS-CB-0188 to CP05-EAARS-CB-0195, were drilled to a depth of 100 feet, one on each side of each Test Cell, to aid in the placement of Test Cell piezometer sensing zones. Test Cell piezometer installation logs are shown in Appendix 1. The borings were collared in the caprock in the stripped foundation of the Test Cells. The caprock was cored in three of the borings but drilled with a tricone bit in the others. The remainder of each boring was completed by rotary wash methods with soil sampling by SPT methods. The drilling was done with a Diedrich D-50 Turbo drilling rig. The two Test Cells were drilled over different time periods and the boring sequence was selected to not interfere with the Test Cell construction. The Test Cell 2 borings were completed between February 8 and 11, 2005. Test Cell 1 borings were completed between February 23 and 28, 2005.

3.2.2 Supplemental Borings

Borings CP05-EAARS-CB-0255 to CP05-EAARS-CB-0281, CP05-EAARS-CB-0282 to CP05-EAARS-CB-0286, and CP05-EAARS-CB-0287 to CP05-EAARS-CB-0417 were drilled for the supplemental geotechnical investigation. The supplemental geotechnical investigation included 100-foot deep perimeter borings, 30-foot deep perimeter borings intermediate between the 100-foot borings, and 50-foot deep interior borings. The exploration program also included 250 feet deep borings drilled to obtain continuous samples and to perform hydraulic interval testing. The

100-foot deep borings were generally drilled between the existing borings performed in 2003 and 2004, to achieve an equidistant spacing around the perimeter of the proposed EAA Reservoir A-1. The main purpose of the 100-foot deep borings was to investigate the stratigraphy beneath the proposed embankment and to provide data for developing seepage models. The 30-foot deep perimeter borings were placed between the 100 feet deep borings. This resulted in a spacing a perimeter boring spacing of about 900 to 1,000 feet. The interior borings were placed to fill gaps between the borings completed in 2003 and 2004. The resultant spacing of interior borings is between 2,000 and 3,000 feet. The primary purpose of the interior borings was to provide information for assessing the availability of borrow materials, especially the limestone caprock.

The five 250-feet deep rotosonic drill borings were drilled to characterize the stratigraphy and perform hydraulic testing at selected intervals. One boring was located at the approximate center of the planned EAA Reservoir A-1 and one near the middle of each side of the EAA Reservoir A-1. Piezometer installations for rotosonic drill borings are shown in Appendix 2. The exploration program began with the 100-foot perimeter borings to establish the general, overall site conditions. These were followed by the 30-foot perimeter borings, and then the interior borings. The 250-foot borings were scheduled and completed between July 25 and August 14, 2005.

The planned program was modified during drilling on the basis of the subsurface conditions discovered. Some of the planned 30-foot perimeter borings were deepened to core a limestone layer often encountered at 25 to 35 feet depth. The strength and continuity of this layer was investigated because any proposed cut-off wall would be excavated through it. Many of the interior borings were shortened when it became evident that shallow material for potential borrow below the caprock was consistent and continuous. These borings were terminated below the caprock.

Two series of borings were added to the program. Twenty-five short borings were added to check the caprock thickness at locations where previous borings had indicated thin, absent, or unusually thick caprock, or produced inconsistent data on the thickness. Ten shallow (approximately 12 to 16 feet deep) borings were also added to investigate the fill placed to construct the STA-3/4 main Supply Canal levee that is adjacent to the proposed EAA Reservoir A-1. The borings performed for the Test Cells, the piezometer borings and the borings performed during the summer of 2005 are listed in Table 3-1 with their depths and location coordinates.

The majority of the drilling was completed with standard rotary wash drilling in soil and rock coring, except the five deeper holes that were completed by rotosonic drilling. Five different drill rigs were used during the course of the investigations:

- Two Diedrich D-50 Turbo rotary drill rigs mounted on all-terrain-vehicles (ATV) with large pneumatic tires
- CME-55 rotary, truck mounted drill rig
- CME-45B rotary, tracked vehicle (Go Track) mounted drill rig
- SRO-190 truck mounted rotosonic drill rig

Drilling began the week of June 20, 2005 with one Diedrich D-50 Turbo on an ATV. The following week the second Diedrich D-50 Turbo rig was mobilized, and the week of July 11,

2005 the CME-55 was brought to the site. One of the Diedrich D-50 Turbo rigs was replaced by the CME-45B track mounted rig on August 30, 2005 because it was better suited to reach some of the interior holes with difficult access. The track mounted rig left the site on September 13, 2005 followed by the other rotary rigs on the following day when drilling was completed. The SRO-190 truck mounted rotosonic drill rig was on site from July 26 though August 12, 2005.

3.3 BORING LAYOUT AND SURVEYS

Boring locations and elevations for the supplemental borings were determined by Weidener Surveying and Mapping. The December Test Cell program borings were located by taping from existing surveyed points established by Weidener Surveying and Mapping. During the Test Cell construction the borings were located by taping from previously installed surveyed points established by the Test Cell contractor. The supplemental borings were originally located in the field at the planned coordinates using hand-held GPS units. The finished holes were staked for later survey. During the time period between the completion of the supplemental borings and the survey, many of the stakes were destroyed by hurricane Katrina and farming activities. The locations given on the boring logs are the surveyed location when available, or the GPS location when no survey data was available.

3.4 DRILLING PROCEDURES

Except for the five rotosonic drilled holes, the borings were advanced by a combination of rotary wash boring and coring. Coring with HQ sized core barrels was used to sample the caprock and deeper limestones in some of the rotary wash borings. Double tube, swivel type, "M" design core barrels were used to recover rock cores according to the American Society for Testing and Materials (ASTM) D2113 test procedure. Core runs were restricted to a length of five feet. When coring below the caprock, 4-inch casing was advanced down to the cored interval to prevent the hole from caving onto the core barrel. The core was placed into temporary, waxed, corrugated paper boxes and core pieces of suitable length for unconfined compressive strength were wrapped in plastic film and aluminum foil to prevent dehydration. Total core recovery and Rock Quality Designation (RQD) were measured and calculated for each coring run according to ASTM D6032.

Rock bits with heavy bentonite mud flush were used to advance the borings through soil-like materials and through intervals of limestone that were not cored. The mud was recirculated through a trough that was periodically cleaned of the retained cuttings. Occasionally, caving conditions were encountered in the borehole and casing had to be advanced through the caving interval to keep the borehole open.

The soils were sampled with split-barrel samplers using the Standard Penetration Test (SPT) method in accordance with ASTM D1586 at 2.5-foot intervals or continuously above 10 feet depth and 5-foot intervals below 10 feet depth. In two of the 100-foot borings, CB-0256 and CB-0266, continuous split barrel samples were completed for the full length of the boreholes below the caprock. The soil samples were logged according to ASTM D2488 test procedures and placed in jars for transport to the testing laboratory.

Five holes, RB-0282 through RB-0286, were completed using a rotosonic drilling rig which drives a casing and core barrel into the ground by means of high frequency resonant energy. The core barrel was advanced and then overridden by the larger diameter casing that maintains an

open hole and prevents material from collapsing into the borehole. The nominal outside diameter of the casing was six inches and the outside diameter of the core barrel was five inches. The hole was cased continuously for the full depth and a continuous sample was recovered from the core barrel and placed into thin plastic tubes for inspection and subsequent sampling. These tubes were placed in corrugated plastic boxes. Samples were taken at 5-foot intervals from the plastic boxes and placed in 1-gallon plastic bags for shipment to the laboratory. The plastic core boxes are currently stored in a container at the SFWMD G-370 Pump Station construction trailer site.

All borings that were not used for piezometer installation were backfilled with cement/bentonite grout immediately upon completion.

3.5 PIEZOMETER INSTALLATION PROCEDURES

Standpipe piezometers were installed in three of the borings performed by the rotasonic drilling method. The piezometers were installed for long term monitoring of water levels, groundwater sampling and possibly extended aquifer performance tests in the future.

The installations comprise 3-inch diameter schedule S/40 PVC well casing and slotted screen. The slotted screen is 10 feet long and set in a sand filter. The screen has four rows of 0.010-inch slots at 3/16-inch spacing. The sand pack sensing zone is isolated with bentonite seals above and below the screen.

The installation details are shown in Table 3-2.

Table 3-2 Piezometer Installation Details

	Boring		
Installation Detail Depths (Feet)	RB-0283	RB-0284	RB-0286
Upper Grout And Bentonite Seal (Feet)	Ground surface to 108	Ground surface to 68	Ground surface to 148
Sensing Zone (Feet)	108 to 121.5	68 to 81	148 to 161
Lower Bentonite Seal (Feet)	121.5 to 220	81 to 240	161 to 220
Aquifer Monitored	Ochopee limestone of the Tamiami Formation	Ochopee limestone of the Tamiami Formation	Ochopee limestone of the Tamiami Formation

3.6 HYDRAULIC INTERVAL TESTING PROCEDURE

A program of hydraulic interval tests was performed during the investigation over the period of July to August, 2005. These tests were carried out in the rotosonic drilled borings at intervals as the borings were drilled to final depth. A 10-foot interval was drilled for each test. However, the open hole depth was measured again after the testing, and it was often less than the drilled 10 feet, indicating that the hole had partially collapsed during the testing. The depth intervals that were tested are listed in Table 3-3 along with the corresponding static water level.

Table 3-3 Hydraulic Interval Test Locations

Intervals	RB-0282	RB-0283	RB-0284	RB-0285	RB-0286
Drilled Depth (feet)	Depth to static water level (feet), measured post-test zone	Depth to static water level (feet), measured post-test zone	Depth to static water level (feet), measured post-test zone	Depth to static water level (feet), measured post-test zone	Depth to static water level (feet), measured post-test zone
40-50		6.39 (40-49)	7.62 (40-46)	11.7 (40-50)	8.2 (40-52)
60-70	8.2 (60-64)				
70-80		7.44 (70-80)	7.45 (70-77)	11.68 (70-80)	8.3 (70-78.5)
80-90	8.21 (80-87)				
110-120		7.58 (150-160)	7.655 (110-118.5)	11.4 (110-120)	8.45 (110-120)
120-130	8.21 (120-130)				
150-160	7.95 (150-156)	7.67 (150-160)	7.79 (150-160)	11.44 (150-160	8.53 (150-160)

Note: Water levels are measured from the deck of the drill rig.

Wherever possible a length of open hole was formed beneath the bottom of the casing and an electric submersible pump (2-inch diameter, 1.5HP Grundfos Model 15 SQ/SQE 290) was lowered into the casing and water was pumped out. There was a period of development pumping lasting up to two hours to clean up the discharge (removal of suspended material) that was followed by the hydraulic interval test. Initially the pumping was carried out at increasing discharge rates; this regime was then changed to pumping at one continuous discharge rate for the duration of the pumping phase. Water levels and discharge measurements were made throughout the pumping period. On cessation of pumping, recovery water level measurements were made.

Where the borehole would not stay open below the casing, a 10-foot length of well screen (Johnson continuous slot wire wrapped stainless steel) was lowered into the zone, and the top of the screen was sealed at the bottom of the cased length by means of a pneumatic packer. The 2- inch diameter electric submersible pump assembly was then used to pump out the water.

In two boreholes (RB-0283 and RB-0284) the pH, temperature and electric conductivity of the water discharged was monitored during the pumping phase. Readings were taken early in the pumping stage, usually within the first 20 minutes of the test. The later readings were taken prior to stopping the pump.

3.7 LABORATORY TESTING PROCEDURES

Laboratory testing was assigned for selected samples of soil and rock core from the borings. Laboratory testing was performed by Nodarse & Associates, Inc. The testing procedures assigned are identified in Table 3-4 and Table 3-5

Table 3-4 Laboratory Rock Testing Procedures

Rock Laboratory Test	Testing Procedure
Unconfined Compressive Strength (UCS)	ASTM D2938
Resistance to Degradation by Abrasion	ASTM C535
Sulfate Soundness	ASTM C88
Specific Gravity and Absorption	ASTM D6473

Table 3-5 Laboratory Soil Testing Procedures

Soil Laboratory Test	Testing Procedure
Grain Size Analysis	ASTM D422
Carbonate Content (CO_3)	Florida DOT
Corrosivity	Florida DOT
Moisture Content	ASTM D2216
Hydrometer Analysis	ASTM D422

4.0 EXPLORATION RESULTS

4.0 EXPLORATION RESULTS

4.1 GEOLOGY

The site is generally covered by approximately one half to two feet of surficial peat/muck and marl. The marl beneath the peat and muck is known by some authors as the Lake Flirt Marl (Reese and Cunningham, 2000; Harvey et. al., 2002), but is undifferentiated from the peat and muck layer for this report. The borings completed at the Test Cell site in December 2004, during the Test Cell Program and during the supplemental investigation penetrated through the surficial peat, marl, (in some locations) road fill, and caprock, then through about 15 to 40 feet of primarily carbonate sand and limestone, and then into primarily shelly quartz sand with sparse limestone for about 25 to 60 feet.

The upper carbonate sand and limestone constitutes the Fort Thompson Formation at the site. At the top of the Fort Thompson is a hard limestone layer generally about 3.5 to 6-foot thick, locally called caprock. The caprock is underlain primarily by silty carbonate sand varying from about 18 to 42 feet depth where another hard limestone layer, generally 1.5 to 3-foot thick, is often encountered. Visual inspection of the sand samples from the borings reveals that the sand consists at least partly of shell fragments, and tends to be angular and platy. Thinner, hard limestone layers are sometimes encountered in the interval.

All the limestone layers exposed in cores from the site are very fossiliferous. The silty sand of the Fort Thompson Formation is also abundantly fossiliferous with gastropods, pelecypods, corals, and echinoderms. The caprock is white, light gray, tan and yellowish brown. The sand and lower limestone layers are white to very pale brown.

Below the Fort Thompson Formation, the shelly sand with sparse limestone constitutes the Caloosahatchee Formation and the upper member (the Pinecrest Sand) of the Tamiami Formation, which are not differentiated in this report. The deeper borings penetrated into mixed carbonate and quartz sand with carbonate predominant. The mixed sand with carbonate sand predominate is the Ochopee Limestone member of the Tamiami Formation.

The deepest borings, the rotosonic borings, passed through the mixed carbonated and quartz sand and then between 140 to 177-foot depth into very fine sand and silty sand grading to clayey sand at 191 to 200-foot depth. The very fine quartz sand and silty to clayey sand belongs to the unnamed sand formation and the top of the underlying Peace River Formation.

4.2 GROUND CONDITIONS AND LABORATORY TESTING RESULTS

The identification of the stratigraphic units below the Fort Thompson Formation in the borings is based on descriptions in Reese and Cunningham (2000). The laboratory testing results are summarized in Table 4-1 through Table 4-6. Figures 4-1 and 4-2 plot soil sample percent passing the 200 sieve and carbonate content versus depth, respectively.

Figure 4-1 Percent Finer Than the 200 Sieve Versus Sample Depth

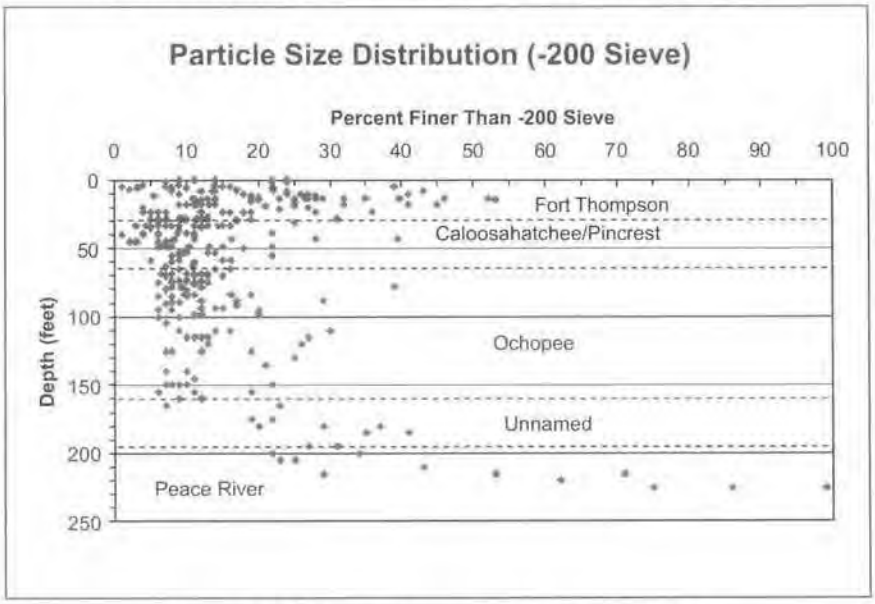
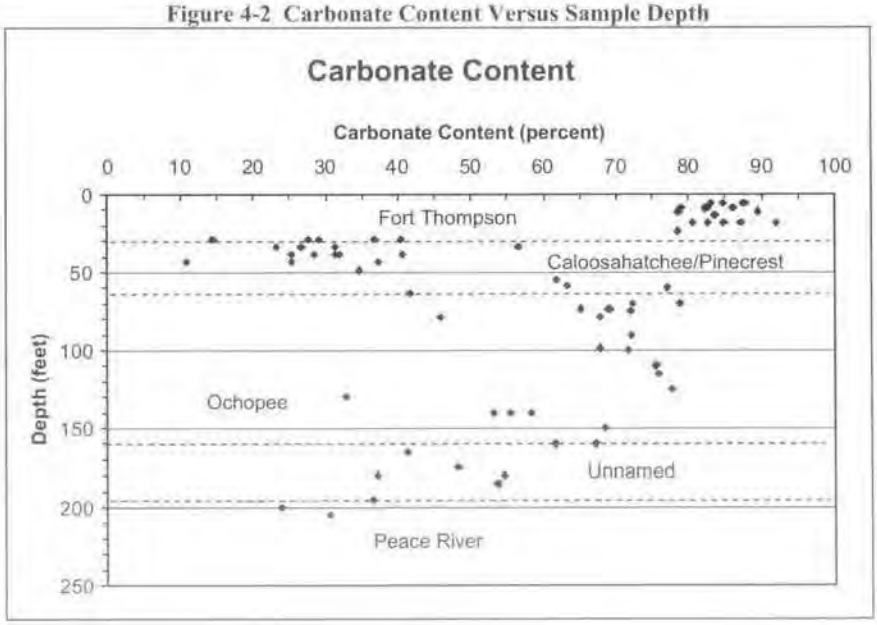


Figure 4-2 Carbonate Content Versus Sample Depth



4.2.1 Caprock

Immediately below the site soil layer is the top of the Fort Thompson Formation, a limestone layer locally called caprock. The thickness of the caprock in the borings ranged from 0 to 9.2-foot thick, but it is most often about 3.5 to 6-foot thick. The caprock is not a uniform hard limestone. It is thinly to medium bedded with bedding thickness generally less than one foot. The beds range from dense, hard, and strong to soft and friable. The hardness, strength, and density are related to the amount of fine, carbonate cement in the limestone. The softest beds consist of poorly cemented, calcite sand grains with possible shell fragments. In other beds, the grains are cemented at the contacts, and the rock is porous but generally moderately hard and moderately strong. In the hard and strong beds the grains are completely contained in a matrix of fine grained cement.

The caprock is jointed and contains solution cavities including local areas of anastomosing channels especially near the top, and single channels up to several inches in diameter that penetrate the full thickness. The solution channels in the caprock locally contain soil including the peat and marl.

Because of the variable material quality, core recovery from the borings was generally under 50 percent. The core recovery from the caprock ranged from 0 to 100 percent with an average of 42.4 percent. The RQD ranged from 0 to 92 percent with an average of 19 percent. The combination of variable rock hardness, thin bedding, and solution cavities combined to produce the low core recovery and RQD.

Pieces of core with sufficient length were selected from the borings, wrapped to preserve them, and sent to a laboratory for unconfined compressive strength (ASTM D2938), specific gravity and absorption testing (ASTM D6473). Crushed stone produced from the caprock during the Test Cell Program was also tested for specific gravity, absorption, and abrasion resistance (ASTM C535). Larger pieces of the caprock stockpiled as riprap were sent for sulfite soundness testing (ASTM C88).

The unconfined compressive strengths ranged from 433 to 9,768 pounds per square inch (psi) with an average of 2,928 psi. The bulk specific gravity ranged from 2.62 to 1.44 with an average of 2.25. The absorption ranged from 1.5 percent to 29.5 percent with an average of 6.1 percent. The losses on abrasion testing of three samples with "A" gradation were 31.3, 31.3, and 30.6 percent. The losses on soundness testing for three samples were 0 percent.

Three larger samples of caprock excavated for riprap during the Test Cell Program were selected from a stockpile and sent to the laboratory for specific gravity and absorption testing. The bulk specific gravities determined were 2.35, 2.4, and 2.35. The corresponding absorptions were 3.02, 3.12, and 2.93 percent, respectively.

It must be stressed that boring core recoveries in the caprock averaged less than 50 percent. These test results represent the high end of the caprock quality. The softer, less dense, and weaker rock was lost during the coring process or was retrieved in pieces too small for testing. Data from the testing is presented in Table 4-1.

Table 4-1 Caprock Laboratory Testing and Core Data

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0255	1-6	22	16			
CP05-EAARS-CB-0256	1-5.5	61	35	2.41	3.3	2600
CP05-EAARS-CB-0257	4.75-9.75	76	48	2.03	7.71	1250
CP05-EAARS-CB-0257	9.75-11.75	100	92			
CP05-EAARS-CB-0258	4.5-9.5	54	22			
CP05-EAARS-CB-0259	3-8	56	24	1.44	29.5	1430
CP05-EAARS-CB-0259	8-10	55	0			
CP05-EAARS-CB-0260	7-12	48	22			9768
CP05-EAARS-CB-0261	5.5-10.5	44	32	2.32	5.39	4340
CP05-EAARS-CB-0261	5.5-10.5	44	32			9768
CP05-EAARS-CB-0262	6.5-11.5	48	30	2.43	2.39	3690
CP05-EAARS-CB-0263	8.5-13.5	20	0			
CP05-EAARS-CB-0264	6.5-11.5	62	40	2.27	4.93	1530
CP05-EAARS-CB-0265	4.5-9.6	44	0			
CP05-EAARS-CB-0266	1-4	17	0			
CP05-EAARS-CB-0267	6-9.5	54	53	2.32	5.35	
CP05-EAARS-CB-0268	2-7	50	24			
CP05-EAARS-CB-0269	2.5-7.5	36	28	2.52	3.1	1570
CP05-EAARS-CB-0270	3.5-8.3	26	22	2.35	3.32	1860
CP05-EAARS-CB-0271	3.5-6.5	48	45	2.62	2.1	4620
CP05-EAARS-CB-0271	6.5-10.5	25	9			
CP05-EAARS-CB-0272	0.1-5.1	46	14	2.4	4.65	2650
CP05-EAARS-CB-0273	4.5-9.5	54	30	2.14	4.73	3090
CP05-EAARS-CB-0274	9.3-12	33	15	2.26	4.1	433
CP05-EAARS-CB-0274	18-22	63	0			
CP05-EAARS-CB-0275	0.5-5.5	67	24	2.4	4.44	1676
CP05-EAARS-CB-0276	1-4.5	21	13	2.24	4.7	
CP05-EAARS-CB-0277	1.5-6.5	13	0			
CP05-EAARS-CB-0278	3.5-8.5	41	7			
CP05-EAARS-CB-0279	4-9	35	18	2.22	6.7	1870
CP05-EAARS-CB-0280	2-7	18	18			
CP05-EAARS-CB-0281	8-13	0	0			
CP05-EAARS-CB-0287	1-6	36	18	2	10.97	1105
CP05-EAARS-CB-0288	1-6	73	52	2.33	5.4	650
CP05-EAARS-CB-0289	1-6	42	14			
CP05-EAARS-CB-0289	5.5-10.5	68	38			
CP05-EAARS-CB-0290	4-9	60	24			
CP05-EAARS-CB-0290	9-14	54	24			874
CP05-EAARS-CB-0290	6-11	60	45			
CP05-EAARS-CB-0291	11-16	5	0			
CP05-EAARS-CB-0292	7-12	56	19			
CP05-EAARS-CB-0293	6-8.5	80	35			
CP05-EAARS-CB-0293	8.5-13.5	92	55			
CP05-EAARS-CB-0293	13.5-17.5	30	10			
CP05-EAARS-CB-0294	6-11	54	8			
CP05-EAARS-CB-0295	6-11	80	40			
CP05-EAARS-CB-0295	11-16	60	23			
CP05-EAARS-CB-0296	7-12	42	8			

Table 4-1 Continued - Caprock Laboratory Testing and Core Data

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0297	4.5-9.5	80	50			
CP05-EAARS-CB-0297	9.5-14.5	66	31			
CP05-EAARS-CB-0298	5.5-7.5	100	38			
CP05-EAARS-CB-0298	8-13	74	46			
CP05-EAARS-CB-0298	13-17	44	16			
CP05-EAARS-CB-0299	8-13	62	13			
CP05-EAARS-CB-0300	6-11	62	24	2.31	7.96	
CP05-EAARS-CB-0301	7-12	95	85			
CP05-EAARS-CB-0301	12-17	34	10			
CP05-EAARS-CB-0302	6-11	46	28			
CP05-EAARS-CB-0302	11-16	48	25			
CP05-EAARS-CB-0303	6-10	85	78			
CP05-EAARS-CB-0303	10-15	65	52	2.05	10.43	
CP05-EAARS-CB-0303	15-18	37	28			
CP05-EAARS-CB-0304	8-9.5	67	29			
CP05-EAARS-CB-0304	9.5-14.5	60	43			
CP05-EAARS-CB-0305	0-5	22	0			
CP05-EAARS-CB-0305	5-10	8	0			
CP05-EAARS-CB-0306	6-8.3	100	82			
CP05-EAARS-CB-0306	8.3-11	93	63	2.47	2.69	8080
CP05-EAARS-CB-0306	11-14	60	27			
CP05-EAARS-CB-0306	14-17	42	28			
CP05-EAARS-CB-0307	5.5-10.5	90	68			
CP05-EAARS-CB-0307	10.5-15.5	78	42			
CP05-EAARS-CB-0308	5.5-10	45	30			
CP05-EAARS-CB-0308	10-15	46	8			
CP05-EAARS-CB-0309	5-10	58	32	2.46	1.83	5200
CP05-EAARS-CB-0309	11-16	22	0			
CP05-EAARS-CB-0310	4.5-8.5	50	0			
CP05-EAARS-CB-0310	8.5-9.5	100	0			
CP05-EAARS-CB-0310	10-15	20	14	1.74	8.41	2710
CP05-EAARS-CB-0311	3.5-8.5	28	0			
CP05-EAARS-CB-0311	8.5-13.5	14	10			
CP05-EAARS-CB-0312	4.5-8.5	38	0			
CP05-EAARS-CB-0312	8.5-13.5	8	0			
CP05-EAARS-CB-0313	1-6	26	0			
CP05-EAARS-CB-0313	6-11	24	0			
CP05-EAARS-CB-0314	4-8.5	22	0			
CP05-EAARS-CB-0314	8.8-13.5	12	0			
CP05-EAARS-CB-0316	5-10	38	30			
CP05-EAARS-CB-0317	5.5-7	83	70			
CP05-EAARS-CB-0318	5-10	50	32			
CP05-EAARS-CB-0319	3.5-8.5	45	22			
CP05-EAARS-CB-0319	8.5-13.5	97	0			
CP05-EAARS-CB-0320	5-10	45	17			
CP05-EAARS-CB-0320	10-14	32	21			
CP05-EAARS-CB-0321	5.5-11.5	8	8			
CP05-EAARS-CB-0322	8-13	48	22			

Table 4-1 Continued - Caprock Laboratory Testing and Core Data

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0323	4-9	60	38			
CP05-EAARS-CB-0323	9-14	28	20			
CP05-EAARS-CB-0324	4.75-9.75	70	44	2.34	4.35	
CP05-EAARS-CB-0324	9.75-14.75	10	0			
CP05-EAARS-CB-0325	5.75-10.75	96	36	2.4	3.27	
CP05-EAARS-CB-0326	6.5-11.5	48	34	2.204	7.11	
CP05-EAARS-CB-0326	11.5-14	36	0			
CP05-EAARS-CB-0327	4-9	78	56	2.16	6.53	
CP05-EAARS-CB-0327	9-12	26	0			
CP05-EAARS-CB-0329	2-7	46	12			1867
CP05-EAARS-CB-0330	1-6	54	7			
CP05-EAARS-CB-0331	2.5-7.5	70	15	2.31	4	
CP05-EAARS-CB-0331	8-13	6	0			
CP05-EAARS-CB-0332	3-8	36	0			
CP05-EAARS-CB-0333	3.5-8.5	20	0			
CP05-EAARS-CB-0334	2.25-7.25	20	0			
CP05-EAARS-CB-0335	0.9-4.9	40	0			
CP05-EAARS-CB-0336	0.9-5.9	30	0			
CP05-EAARS-CB-0337	1.5-6.5	56	0			
CP05-EAARS-CB-0337	6.5-11.5	26	0			
CP05-EAARS-CB-0338	2.5-7.5	46	8			
CP05-EAARS-CB-0339	1.5-6.5	18	7			
CP05-EAARS-CB-0340	1.1-6.1	24	0			
CP05-EAARS-CB-0341	1.5-6.5	46	14			
CP05-EAARS-CB-0341	6.5-11.5	24	18			
CP05-EAARS-CB-0342	2-7	46	22			
CP05-EAARS-CB-0343	4-9	32	0			
CP05-EAARS-CB-0344	0.8-5.8	34	0			
CP05-EAARS-CB-0345	4-9	20	0			
CP05-EAARS-CB-0345	9-14	10	0			
CP05-EAARS-CB-0346	0.1-5.1	12	0			
CP05-EAARS-CB-0346	5.1-10.1	40	24			
CP05-EAARS-CB-0347	2-6	85	43			
CP05-EAARS-CB-0347	6-11	42	10			
CP05-EAARS-CB-0348	1.1-6.1	40	0			
CP05-EAARS-CB-0349	4-9	40	0			
CP05-EAARS-CB-0350	3.5-8.5	34	12			
CP05-EAARS-CB-0350	7.5-12.5	8	8			
CP05-EAARS-CB-0351	2-7	20	0			
CP05-EAARS-CB-0351	7-12	22	8			
CP05-EAARS-CB-0352	5.5-10.5	56	35			
CP05-EAARS-CB-0353	3-7.5	56	34			
CP05-EAARS-CB-0354	2.5-7.5	30	10			
CP05-EAARS-CB-0355	4.5-8.5	32	12			
CP05-EAARS-CB-0356	1-6	94	42			
CP05-EAARS-CB-0356	7-12	30	15			
CP05-EAARS-CB-0357	1.2-6.5	35	8			
CP05-EAARS-CB-0358	2-7	64	45			
CP05-EAARS-CB-0358	8.5-13	30	22			

Table 4-1 Continued - Caprock Laboratory Testing and Core Data

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0359	3.5-8.5	36	10			
CP05-EAARS-CB-0360	3.5-8.5	35	9			
CP05-EAARS-CB-0361	1.5-6.5	50	16			
CP05-EAARS-CB-0362	3.5-7.5	12	0			
CP05-EAARS-CB-0363	3-8	68	34			
CP05-EAARS-CB-0363	8-13	14	9			
CP05-EAARS-CB-0364	1.5-6.5	42	8			
CP05-EAARS-CB-0364	7.5-12.5	42	21			
CP05-EAARS-CB-0365	6.5-11.5	68	50			
CP05-EAARS-CB-0366	4-9	52	26			
CP05-EAARS-CB-0366	9-14	10	9			
CP05-EAARS-CB-0367	2-7	22	7			
CP05-EAARS-CB-0367	7-12	22	0			
CP05-EAARS-CB-0368	0.25-5.25	36	10			
CP05-EAARS-CB-0369	2-7	28	0			
CP05-EAARS-CB-0370	0.9-5.6	7	0			
CP05-EAARS-CB-0370	5.6-10.6	24	10			
CP05-EAARS-CB-0371	1.3-6.3	42	12			
CP05-EAARS-CB-0372	4-9	65	45			
CP05-EAARS-CB-0372	10-14	20	0			
CP05-EAARS-CB-0373	4.5-9.5	80	54			
CP05-EAARS-CB-0373	9.5-14.5	26	17			
CP05-EAARS-CB-0374	5.5-10.5	53	26			
CP05-EAARS-CB-0374	10.5-15.5	10	0			
CP05-EAARS-CB-0375	4.5-9.5	58	28			
CP05-EAARS-CB-0376	4.5-9.5	73	73			
CP05-EAARS-CB-0377	5.5-10.5	60	47			
CP05-EAARS-CB-0377	10.5-15.5	40	20			
CP05-EAARS-CB-0378	6-11	64	35			
CP05-EAARS-CB-0379	1.5-6.5	16	0			
CP05-EAARS-CB-0379	7-12	54	8			
CP05-EAARS-CB-0380	5.5-10	88	20			
CP05-EAARS-CB-0380	10-12	88	50			
CP05-EAARS-CB-0381	1-5	38	0			
CP05-EAARS-CB-0381	5-10	1	0			
CP05-EAARS-CB-0382	5.5-10	5	0			
CP05-EAARS-CB-0382	10-15	30	26			
CP05-EAARS-CB-0383	1.5-6.5	38	20			
CP05-EAARS-CB-0383	6.5-11.5	0	0			
CP05-EAARS-CB-0384	2-7	24	10			
CP05-EAARS-CB-0384	7-12	24	0			
CP05-EAARS-CB-0385	2-7	16	0			
CP05-EAARS-CB-0385	7-12	2	0			
CP05-EAARS-CB-0386	1.1-6.1	36	7			
CP05-EAARS-CB-0387	2-7	28	8			
CP05-EAARS-CB-0387	7-12	12	0			
CP05-EAARS-CB-0388	0-5	38	13			2119
CP05-EAARS-CB-0388	5-10	24	14			
CP05-EAARS-CB-0389	3-8	42	28			

Table 4-1 Continued - Caprock Laboratory Testing and Core Data

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0389	8-13	0	0			
CP05-EAARS-CB-0390	0.5-5.5	68	20			
CP05-EAARS-CB-0390	5.5-10.5	12	0			
CP05-EAARS-CB-0391	5.5-10.5	40	20			
CP05-EAARS-CB-0392	0-5	48	30			1805
CP05-EAARS-CB-0392	5-10	0	0			
CP05-EAARS-CB-0393	0-5	40	22			
CP05-EAARS-CB-0393	5-10	6	0			
CP05-EAARS-CB-0394	2-7	50	15			
CP05-EAARS-CB-0394	7-12	38	15			
CP05-EAARS-CB-0395	8-13	36	10			
CP05-EAARS-CB-0395	13-18	18	13			
CP05-EAARS-CB-0396	3-8	80	28			
CP05-EAARS-CB-0397	2-7	24	8			
CP05-EAARS-CB-0397	7-12	6	0			
CP05-EAARS-CB-0398	5-7	25	0			
CP05-EAARS-CB-0398	7-12	60	45			
CP05-EAARS-CB-0398	12-17	29	19			
CP05-EAARS-CB-0399	6-9	67	19			
CP05-EAARS-CB-0399	9-13	31	13			
CP05-EAARS-CB-0400	3-9	40	0			
CP05-EAARS-CB-0401	5-10	10	0			
CP05-EAARS-CB-0402	5.3-10	44	32			
CP05-EAARS-CB-0402	10-15	10	0			
CP05-EAARS-CB-0403	5-10	55	25			
CP05-EAARS-CB-0404	1.5-6.5	42	28			
CP05-EAARS-CB-0404	6.5-11.5	6	0			
CP05-EAARS-CB-0405	4-9	45	13			
CP05-EAARS-CB-0405	9-14	34	9			
CP05-EAARS-CB-0406	0-5	46	30			
CP05-EAARS-CB-0406	5-10	52	35			
CP05-EAARS-CB-0407	5.5-10.5	50	18			
CP05-EAARS-CB-0416	12-17	62	49			

RQD = Rock Quality Designation as a percentage
UCS = Unconfined Compressive Strength in pounds per square inch (psi)

4.2.2 Fort Thompson Sand

The silty sand below the caprock is composed primarily of calcite grains. The carbonate content test was determined in accordance with the Florida Department of Transportation (FDOT) test procedure. Results ranged from 76.6 percent to 91.9 percent with an average of 83.6 percent carbonate content. The grains are platy and angular and many, when viewed with a magnifier, have a fluted surface on one of the plate sides. Most if not all the sand grains appear to be shell fragments. One corrosivity test series (FDOT) was performed on sand from the Fort Thompson Formation (RB-0282, 5 to 10-foot depth):

- Electrical resistivity – 6,100 Ohm-cm

- pH – 8.9
- Chlorides – 90 parts per million (ppm)
- Sulfates – 60 ppm.

SPT samples were assigned group symbols in accordance with ASTM D2487. Samples tested (90 tests) were mostly SM (53) with some SW-SM (12), SP-SM (6), and GP-GM (4) and with occasional GM (3), SP (3), GW (1), GW-GM (2), CL-ML (2), ML (2), and SW (1). Percent passing the 200 sieve ranged from 2 to 53 percent with an average of 19.9 percent. Moisture content (ASTM D2216) ranged from 6 percent to 63 percent with an average of 22.7 percent. Hydrometer analyses (ASTM D422) on the fines content of the two samples tested indicate them to be mostly silt with clay content of 5.8 to 8.8 percent. (Table 4-3)

The gravel content of the samples included shell fragments and limestone chips. Densities ranged from loose to very dense. Samples with high gravel content, especially limestone chips, generally correlate with high SPT blow counts. Intervals of hard drilling as judged from drilling rate, drill vibration and drill bit chatter also correlate with high SPT blow counts and limestone gravel content.

Table 4-2 Fort Thompson Formation Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0168	5.5					87.4
CP05-EAARS-CB-0169	18.5		SP-SM	11.4		
CP05-EAARS-CB-0170	13.5		SM	28.1		
CP05-EAARS-CB-0170	8.5					82.6
CP05-EAARS-CB-0171	13.5		GM	20.1	5.8	
CP05-EAARS-CB-0171	6					87.7
CP05-EAARS-CB-0171	18.5					82.7
CP05-EAARS-CB-0172	8.5					86.2
CP05-EAARS-CB-0173	13.5		SM	39.8		
CP05-EAARS-CB-0173	6					84.7
CP05-EAARS-CB-0174	6					83
CP05-EAARS-CB-0174	18.5					84.8
CP05-EAARS-CB-0175	28.5		SM	12.2		
CP05-EAARS-CB-0175	8.5					85.9
CP05-EAARS-CB-0175	13.5					83.7
CP05-EAARS-CB-0176	13.5		SM	29		
CP05-EAARS-CB-0176	23.5					78.5
CP05-EAARS-CB-0177	13.5					83.5
CP05-EAARS-CB-0179	8.3		SM	22.1		
CP05-EAARS-CB-0180	13.5		SM	26.6		
CP05-EAARS-CB-0181	6.5		SM	22.1	8.8	
CP05-EAARS-CB-0183	18.5		SM	13.1		
CP05-EAARS-CB-0183	8	17.2				
CP05-EAARS-CB-0186	23.5	26.2				
CP05-EAARS-CB-0187	18.5		SM	44.9		
CP05-EAARS-CB-0188	9					82.3
CP05-EAARS-CB-0189	5.5	15	SM	22		

Table 4-2 Continued - Fort Thompson Formation Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0189	13.5	21	SM	25		
CP05-EAARS-CB-0189	8.5					79
CP05-EAARS-CB-0190	13.5	26	SM	23		
CP05-EAARS-CB-0190	18.5					91.9
CP05-EAARS-CB-0191	13.5	21	SM	25		
CP05-EAARS-CB-0191	18.5					87.1
CP05-EAARS-CB-0192	18.5					80.6
CP05-EAARS-CB-0193	8.5		GM	13.6		
CP05-EAARS-CB-0193	28.5		GP-GM	7.3		
CP05-EAARS-CB-0193	11		GW-GM	5.5		
CP05-EAARS-CB-0193	13.5		GW-GM	10.8		
CP05-EAARS-CB-0193	5.5		SP	3.2		
CP05-EAARS-CB-0194	11					78.6
CP05-EAARS-CB-0195	8.5		SM	43		
CP05-EAARS-CB-0195	11					89.5
CP05-EAARS-CB-0255	9	33	SM	24		
CP05-EAARS-CB-0255	13.5	27	SM	32		
CP05-EAARS-CB-0255	18.5	19	SW-SM	11		
CP05-EAARS-CB-0256	14.5	63	GP-GM	12		
CP05-EAARS-CB-0256	21.5	21	SM	23		
CP05-EAARS-CB-0256	23.5	29	SM	19		
CP05-EAARS-CB-0266	11.5	24	SM	28		
CP05-EAARS-CB-0266	14.5	34	SM	14		
CP05-EAARS-CB-0266	16	36	SM	25		
CP05-EAARS-CB-0266	20.5	28	SM	27		
CP05-EAARS-CB-0266	5.5	13	SW-SM	8		76.6
CP05-EAARS-CB-0266	26.5	22	SW-SM	13		
CP05-EAARS-CB-0268	18.5	22	GP-GM	9		
CP05-EAARS-CB-0268	13.5	30	SM	27		
CP05-EAARS-CB-0268	7					81.6
CP05-EAARS-CB-0269	13.5	32	SM	25		
CP05-EAARS-CB-0269	8.5	24	SW-SM	12		
CP05-EAARS-CB-0269	18.5	23	SW-SM	10		
CP05-EAARS-CB-0270	13.5	36	SW	35		
CP05-EAARS-CB-0270	18.5	26	SW-SM	11		
CP05-EAARS-CB-0271	10.5	24	SM	18		
CP05-EAARS-CB-0271	18.5	25	SM	25		
CP05-EAARS-CB-0271	23.5	22	SW-SM	12		
CP05-EAARS-CB-0271	13.5					81.8
CP05-EAARS-CB-0272	5.1	19	SM	15		
CP05-EAARS-CB-0272	10	29	SM	24		
CP05-EAARS-CB-0272	18.5	11	SW-SM	9		
CP05-EAARS-CB-0272	23.5	15	SW-SM	7		
CP05-EAARS-CB-0275	7.5	25	SM	17		
CP05-EAARS-CB-0275	13.5	18	SM	19		
CP05-EAARS-CB-0275	5.5	24	SW-SM	10		
CP05-EAARS-CB-0275	23.5	14	SW-SM	5		
CP05-EAARS-CB-0276	13.5	25	SM	13		
CP05-EAARS-CB-0276	23.5	25	SP	4		

Table 4-2 Continued - Fort Thompson Formation Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0276	18.5	26	SP-SM	9		
CP05-EAARS-CB-0276	8	17	SW-SM	12		
CP05-EAARS-CB-0277	23.5	25	SM	16		
CP05-EAARS-CB-0278	18.5	21	SM	14		
CP05-EAARS-CB-0278	23.5	24	SM	19		
CP05-EAARS-CB-0280	7	18	GW	2		
CP05-EAARS-CB-0317	14	23	ML	52		
CP05-EAARS-CB-0326	14	23	SP-SM	11		
CP05-EAARS-CB-0329	8.5	17	SM	14		
CP05-EAARS-CB-0329	13.5	22	SM	14		
CP05-EAARS-CB-0329	18.5	13	SP-SM	12		
CP05-EAARS-CB-0333	8.5	24	SM	24		
CP05-EAARS-CB-0346	10	10	SP-SM	9		
CP05-EAARS-CB-0358	13	21	SM	20		
CP05-EAARS-CB-0360	8.5	26	GP-GM	8		
CP05-EAARS-CB-0360	13.5	31	SM	46		
CP05-EAARS-CB-0360	18.5	24	SM	32		
CP05-EAARS-CB-0365	11.5	29	SM	19		
CP05-EAARS-CB-0365	18.5	23	SM	41		
CP05-EAARS-CB-0365	23.5	23	SM	36		
CP05-EAARS-CB-0372	14.5	19	ML	53		
CP05-EAARS-CB-0373	19	25	SM	21		
CP05-EAARS-CB-0373	29	22	SM	19		
CP05-EAARS-CB-0377	15.5	18	SM	19		
CP05-EAARS-CB-0377	19	26	SM	25		
CP05-EAARS-CB-0377	24	19	SM	18		
CP05-EAARS-CB-0377	29	15	SM	17		
CP05-EAARS-CB-0406	23.5	26	SM	28		
CP05-EAARS-RB-0282	5	6	GM	14		
CP05-EAARS-RB-0282	10	21	SM	27		
CP05-EAARS-RB-0282	15	20	SM			
CP05-EAARS-RB-0283	5	10	CL-ML	39		
CP05-EAARS-RB-0283	10	23	CL-ML	41		
CP05-EAARS-RB-0284	10	18	SM	26		
CP05-EAARS-RB-0284	20	26	SP	4		
CP05-EAARS-RB-0286	15	18	SM	20		

4.2.3 Lower Fort Thompson Limestone

A cemented zone often occurs along the base of the Fort Thompson Formation or along the contact between the Fort Thompson Formation and the underlying Caloosahatchee or Pinecrest Sand. The cemented zone forms a limestone layer varying from 1 to 6-feet thick, and the top was penetrated between 19 and 39-foot depth in the borings around the perimeter of the EAA Reservoir A-1, primarily on the northern, eastern, and southern sides. It was only found north of boring CB-0280 on the western side of the EAA Reservoir A-1. It was deepest along the southern half of the eastern side and shallower to the north or along the south side. No attempt was made to trace it into the proposed EAA Reservoir A-1 interior.

For the most part, the limestone ranges from soft and weak to moderately hard, moderately strong and porous, consisting of sand sized grains cemented only at the contacts. Thin, strong, hard, dense beds are found within the interval, all less than one foot thick. Some of the intervals near the bottom contain fine, subrounded, quartz sand similar to that in the underlying Caloosahatchee or Pinecrest Sand Member.

Attempts to core this lower limestone were made in 28 borings. Core recoveries ranged from 0 to 100 percent with an average of 45 percent. RQD ranged from 0 to 64 percent with an average of 18.5 percent. Selected samples were pulled from the core runs, wrapped for protection and sent to a laboratory for specific gravity and absorption (ASTM D6473), and unconfined compressive strength testing (ASTM D2938). Specific gravity ranged from 1.5 to 2.96 with an average of 2.17. Absorption ranged from 2.05 to 15.1 percent and averaged 8.05 percent. Unconfined compressive strength ranged from 960 to 5,920 psi and averaged 2,780 psi. Again as with the caprock, it must be emphasized that because of the large core sample losses these results probably represent the upper limits of the true range. (Table 4-3)

Table 4-3 Limestone Laboratory Testing and Core Data in the Fort Thompson Below Caprock

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0168	23.5-28.5	26	16			
CP05-EAARS-CB-0170	25-29	22	13			
CP05-EAARS-CB-0287	25-30	84	62	2.47	2.05	2400
CP05-EAARS-CB-0289	15-20	0	0			
CP05-EAARS-CB-0289	20.5-25.5	57	14	2.46	3.56	
CP05-EAARS-CB-0290	23.5-28.5	0	0			
CP05-EAARS-CB-0290	34-39	28	14	2.31	5.26	2215
CP05-EAARS-CB-0291	23.5-28.5	15	0			
CP05-EAARS-CB-0291	36-40	65	17			
CP05-EAARS-CB-0293	37-42	92	47	2.14	9.02	1053
CP05-EAARS-CB-0304	14.5-19.5	36	12			
CP05-EAARS-CB-0304	19.5-23.5	15	0			
CP05-EAARS-CB-0310	30-35	56	24	2.96	6.1	5920
CP05-EAARS-CB-0311	13.5-18.5	10	0			
CP05-EAARS-CB-0311	23.5-28.5	72	18	1.91	13.28	
CP05-EAARS-CB-0312	23.5-28.5	40	0			
CP05-EAARS-CB-0312	28.5-33.5	66	14	1.501	7.38	
CP05-EAARS-CB-0312	33.5-36.5	33	0			
CP05-EAARS-CB-0313	25-30	68	52			
CP05-EAARS-CB-0314	25-30	60	48			2979
CP05-EAARS-CB-0314	30-35	96	64			4916
CP05-EAARS-CB-0316	21.5-25	56	28			
CP05-EAARS-CB-0316	25-30	76	49			
CP05-EAARS-CB-0318	19-25	100	46	1.93	15.1	960
CP05-EAARS-CB-0318	25-30	100	53.5	2.19	7.85	3095
CP05-EAARS-CB-0320	15-20	90	46			1481
CP05-EAARS-CB-0323	16-21	74	40			
CP05-EAARS-CB-0323	21-23.75	40	0			
CP05-EAARS-CB-0323	23.75-28.5	8	0			
CP05-EAARS-CB-0324	16-21	82	56	2.39	2.9	
CP05-EAARS-CB-0324	21-26	32	8			

Table 4-3 Continued - Limestone Laboratory Testing and Core Data in the Fort Thompson Below the Caprock

Boring Number	Run Depth (feet)	Core Recovery (percent)	RQD (percent)	Bulk Specific Gravity	Absorption (percent)	UCS (psi)
CP05-EAARS-CB-0326	17.5-22.5	80	52	2.01	11	
CP05-EAARS-CB-0326	22.5-27.5	36	0			
CP05-EAARS-CB-0327	18-23	78	28	1.901	9.63	
CP05-EAARS-CB-0327	23-28	44	16	1.97	11.57	
CP05-EAARS-CB-0330	10-15	12	0			
CP05-EAARS-CB-0330	19-24	34	0			
CP05-EAARS-CB-0332	15-20	24	0			
CP05-EAARS-CB-0332	23.5-28.5	48	12			
CP05-EAARS-CB-0333	22-27	10	6			
CP05-EAARS-CB-0341	21.5-26.5	26	0			
CP05-EAARS-CB-0341	26.5-31.5	42	8			
CP05-EAARS-CB-0341	31.5-36.5	40	0			
CP05-EAARS-CB-0395	30-35	29	13			
CP05-EAARS-CB-0395	35-40	40	24			
CP05-EAARS-CB-0396	25-30	11	0			
CP05-EAARS-CB-0396	30-35	26	10			
CP05-EAARS-CB-0400	9-15	45	0			
CP05-EAARS-CB-0400	15-20	80	25			
CP05-EAARS-CB-0400	20-25	20	0			
CP05-EAARS-CB-0405	25-30	10	0			
CP05-EAARS-CB-0405	30-35	0	0			
CP05-EAARS-CB-0407	28.5-33.5	28	14			
CP05-EAARS-CB-0407	33.5-38.5	74	48			

4.2.4 Caloosahatchee Formation and Pinecrest Sand

Below the Fort Thompson Formation the borings penetrated shelly, fine, uniform, subrounded, quartz sand with local cemented zones. In the rotosonic drilled borings, the cemented zones were recovered as gravel sized aggregates of the sand and shell fragments. The sand belongs to the Caloosahatchee Formation and/or the Pinecrest Sand Member of the Tamiami Formation that cannot be differentiated as noted above. The top of the sand in the recovered samples ranged from 18.5 to 43.5 feet and averaged 29 feet. Borings generally between about 30 and 50-foot deep ended in the sand. Only the borings of 100-foot depth or deeper penetrated into the underlying Ochopee Limestone Member of the Tamiami Formation. Along the eastern end of the south side of the EAA Reservoir A-1, borings CB-0267 through CB-0270 and CB-0283 penetrated a layer of silty sand near the base of the Tamiami Formation.

Densities ranged from loose to very dense. Samples sent for laboratory testing were classified as per USCS as mostly SP-SM (43), SM (23), and SW-SM (15) and occasionally SP (8), GP-GM (5), GP (1), and GM (1). Percent passing the 200 sieve ranged from 1 to 39.5 percent with an average of 10.7 percent. Moisture content and carbonate content ranged from 2 to 30 percent and 10.9 to 77.1 percent, averaging 21.3 percent and 36.1 percent, respectively. The clay content from hydrometer testing ranged from 1.4 to 6.6 percent with an average of 3.4 percent. (Table 4-4)

Table 4-4 Caloosahatchee and Pinecrest Sand Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0168	48.5		SP-SM	7.5		
CP05-EAARS-CB-0168	28.5					29.1
CP05-EAARS-CB-0168	43.5					10.9
CP05-EAARS-CB-0170	48.5		SM	21.9	3.6	
CP05-EAARS-CB-0170	29					40.5
CP05-EAARS-CB-0170	43.5					37.3
CP05-EAARS-CB-0171	48.5		SP-SM	6.4		
CP05-EAARS-CB-0171	33.5					31.4
CP05-EAARS-CB-0172	28.5		SP-SM	11.4		36.8
CP05-EAARS-CB-0172	38.5					31.4
CP05-EAARS-CB-0173	28.5					27.6
CP05-EAARS-CB-0173	48.5					34.6
CP05-EAARS-CB-0174	43.5		SP-SM	8.4		
CP05-EAARS-CB-0174	38.5					28.5
CP05-EAARS-CB-0175	38.5					32
CP05-EAARS-CB-0176	43.5		SM	39.5	6.6	
CP05-EAARS-CB-0176	38.5					25.3
CP05-EAARS-CB-0177	33.5					26.7
CP05-EAARS-CB-0178	48.5		SP-SM	10.4	1.9	
CP05-EAARS-CB-0178	38.5	24.5				
CP05-EAARS-CB-0181	48.5	26.8				
CP05-EAARS-CB-0182	48.5		SM	13.2		
CP05-EAARS-CB-0183	28.5		SP-SM	9.2	1.4	
CP05-EAARS-CB-0184	28.5		SP-SM	9.5		
CP05-EAARS-CB-0185	43.5		SM	28		
CP05-EAARS-CB-0185	53.5	17	SM	14		
CP05-EAARS-CB-0185	58.5	25	SM	15		
CP05-EAARS-CB-0189	53.5	15	GM	13		
CP05-EAARS-CB-0189	33.5	26	SP-SM	6		
CP05-EAARS-CB-0189	58.5					63.2
CP05-EAARS-CB-0189	28.5					14.5
CP05-EAARS-CB-0189	63.5					41.6
CP05-EAARS-CB-0190	48.5	26	SM	15		
CP05-EAARS-CB-0190	33.5					56.5
CP05-EAARS-CB-0191	48.5		SM			
CP05-EAARS-CB-0191	33.5	20	SP-SM	6		
CP05-EAARS-CB-0191	38.5					40.7
CP05-EAARS-CB-0191	43.5					25.3
CP05-EAARS-CB-0192	48.5		GP-GM	7.9		
CP05-EAARS-CB-0192	28.5		SP-SM	10		
CP05-EAARS-CB-0193	68.5		GP-GM	6.4		
CP05-EAARS-CB-0193	58.5		SM	16.2		
CP05-EAARS-CB-0193	33.5		SP	4.3		
CP05-EAARS-CB-0193	38.5		SP-SM	8.8		
CP05-EAARS-CB-0193	63.5		SW-SM	10.8		
CP05-EAARS-CB-0194	33.5		SM	14.4		23.3
CP05-EAARS-CB-0195	43.5		SM	16.3		
CP05-EAARS-CB-0195	53.5		SW-SM	9.6		

Table 4-4 Continued - Caloosahatchee and Pinecrest Sand Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0256	38.5	28	SM	22		
CP05-EAARS-CB-0256	44.5	29	SP-SM	8		
CP05-EAARS-CB-0256	55	23	SP-SM	8		
CP05-EAARS-CB-0256	50.5	19	SW-SM	10		
CP05-EAARS-CB-0266	31	22	SM	25		
CP05-EAARS-CB-0266	55	30	SM	22		
CP05-EAARS-CB-0266	44.5	25	SP	3		
CP05-EAARS-CB-0266	37	27	SW-SM	9		
CP05-EAARS-CB-0266	49	21	SW-SM	7		
CP05-EAARS-CB-0266	61	30	SW-SM	11		
CP05-EAARS-CB-0266	65.5	22	SW-SM	9		
CP05-EAARS-CB-0266	68.5	22	SW-SM	8		
CP05-EAARS-CB-0268	78.5	26	SM	39		
CP05-EAARS-CB-0268	33.5	18	SW-SM	9		
CP05-EAARS-CB-0269	33.5	16	SP	3		
CP05-EAARS-CB-0269	38.5	21	SW-SM	6		
CP05-EAARS-CB-0271	38.5	24	SP-SM	10		
CP05-EAARS-CB-0272	28.5	29	SP	5		
CP05-EAARS-CB-0272	58.5	21	SP-SM	5		
CP05-EAARS-CB-0272	33.5	16	SW-SM	5		
CP05-EAARS-CB-0275	28.5	15	SP-SM	7		
CP05-EAARS-CB-0275	33.5	25	SP-SM	7		
CP05-EAARS-CB-0275	38.5	21	SP-SM	4		
CP05-EAARS-CB-0275	48.5	21	SP-SM	6		
CP05-EAARS-CB-0275	73.5	22	SP-SM	10		
CP05-EAARS-CB-0275	58.5	23	SW-SM	9		
CP05-EAARS-CB-0275	63.5	28	SW-SM	7		
CP05-EAARS-CB-0276	28.5	27	SP-SM	6		
CP05-EAARS-CB-0276	33.5	27	SP-SM	9		
CP05-EAARS-CB-0277	28.5	24	SM	13		
CP05-EAARS-CB-0277	33.5	30	SM	16		
CP05-EAARS-CB-0278	33.5	24	SP-SM	6		
CP05-EAARS-CB-0278	28.5	12	SW-SM	9		
CP05-EAARS-CB-0280	28.5	13	GP-GM	9		
CP05-EAARS-CB-0280	33.5	28	SM	15		
CP05-EAARS-CB-0280	38.5	24	SP-SM	11		
CP05-EAARS-CB-0280	43.5	25	SP-SM	11		
CP05-EAARS-CB-0280	53.5	23	SP-SM	10		
CP05-EAARS-CB-0280	68.5	23	SP-SM	10		
CP05-EAARS-CB-0280	48.5	29	SW-SM	8		
CP05-EAARS-CB-0281	33.5					34.7
CP05-EAARS-CB-0317	34	25	SP-SM	12		
CP05-EAARS-CB-0329	23.5	26	SP-SM	6		
CP05-EAARS-CB-0329	33.5	16	SP-SM	8		
CP05-EAARS-CB-0360	23.5	22	SM	15		
CP05-EAARS-CB-0365	28.5	21	SM	31		
CP05-EAARS-CB-0365	33.5	13	SP-SM	11		
CP05-EAARS-CB-0373	34	26	SP	5		

Table 4-4 Continued - Caloosahatchee and Pinecrest Sand Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0406	33.5	13	SP-SM	13		
CP05-EAARS-RB-0282	30	8	SM	17		
CP05-EAARS-RB-0282	45	14	SP	2		
CP05-EAARS-RB-0282	60		SP-SM	8		
CP05-EAARS-RB-0283	40	17	SP-SM	6		
CP05-EAARS-RB-0283	45		GP-GM	6		
CP05-EAARS-RB-0283	60	8	SP-SM	8		
CP05-EAARS-RB-0283	70		SP-SM	15		
CP05-EAARS-RB-0284	40	2	GP	4		
CP05-EAARS-RB-0284	45		GP-GM	6		
CP05-EAARS-RB-0284	55	16	SP-SM	9		
CP05-EAARS-RB-0285	40		SP-SM	11		
CP05-EAARS-RB-0285	45		SP-SM	7		
CP05-EAARS-RB-0286	30	16	SP-SM	6		
CP05-EAARS-RB-0286	65	21	SM	16		
CP05-EAARS-RB-0286	35	24	SP-SM	5		
CP05-EAARS-RB-0286	40		SP	1		
CP05-EAARS-RB-0286	45		SP	3		
CP05-EAARS-RB-0286	50		SM	18		
CP05-EAARS-RB-0286	60	14	SP-SM	11		77.1

4.2.5 Ochopee Limestone

The top of the Ochopee Limestone Member of the Tamiami Formation was penetrated by the 100-foot long borings, and the total thickness was penetrated by the rotosonic drilled borings. The top of the Ochopee Limestone, as judged from the topmost SPT samples recovered and from the top in the rotosonic drilled borings, ranged from 63.5 to 89.3-foot depth, with an average of 74 feet. It averaged about 90 feet in the rotosonic drilled borings. In the borings, the Ochopee Limestone consisted of variable proportions of fine, subrounded quartz sand and fine to medium, angular to subrounded calcitic sand. Gravel sized aggregate clasts of the sand are common especially in the rotosonic drilled borings.

Density in the Ochopee Limestone as judged by SPT blow counts to 100-foot depth was mostly medium dense to dense with lesser instances of very dense zones, or refusal on apparently hard, cemented zones. Samples sent for laboratory testing were were classified as per USCS as mostly SP-SM (38), SM (24), and SW-SM (17) with a few GP-GM (4) and GW-GM (2). Percent passing the 200 sieve ranged from 7 to 30 percent with an average of 11.7 percent. Moisture content and carbonate content ranged from 7 to 28 percent and 32.8 to 78.8 percent, averaging 18.5 percent and 65.8 percent, respectively, (Table 4-5).

Table 4-5 Ochopee Limestone Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-CB-0189	68.5	18	GW-GM	11		
CP05-EAARS-CB-0189	88.5	25	SM	17		
CP05-EAARS-CB-0189	73.5	24	SP-SM	8		
CP05-EAARS-CB-0189	83.5	22	SP-SM	10		
CP05-EAARS-CB-0189	78.5					45.9
CP05-EAARS-CB-0189	73.5					69.1
CP05-EAARS-CB-0190	93.5	22	SM	14		
CP05-EAARS-CB-0190	68.5	19	SP-SM	12		
CP05-EAARS-CB-0190	78.5	22	SP-SM	12		
CP05-EAARS-CB-0190	73.5					65
CP05-EAARS-CB-0190	98.5					67.7
CP05-EAARS-CB-0191	68.5	20	SM	13		
CP05-EAARS-CB-0191	93.5	23	SM	12		
CP05-EAARS-CB-0191	73.5					68.9
CP05-EAARS-CB-0191	78.5					67.8
CP05-EAARS-CB-0192	78.5		SW-SM	9.2		
CP05-EAARS-CB-0194	83.5		SM	16.2		
CP05-EAARS-CB-0194	73.5		SP-SM	8.9		
CP05-EAARS-CB-0194	53.5		SW-SM	8.9		
CP05-EAARS-CB-0195	78.5		SP-SM	9.3		
CP05-EAARS-CB-0195	83.5		SW-SM	9.7		
CP05-EAARS-CB-0256	91	21	SM	17		
CP05-EAARS-CB-0256	95.5	19	SM	20		
CP05-EAARS-CB-0256	98.5	22	SM	20		
CP05-EAARS-CB-0256	70	28	SP-SM	13		
CP05-EAARS-CB-0256	76	28	SP-SM	11		
CP05-EAARS-CB-0256	80.5	26	SP-SM	10		
CP05-EAARS-CB-0256	65.5	21	SW-SM	14		
CP05-EAARS-CB-0256	85	26	SW-SM	10		
CP05-EAARS-CB-0256	89.5	22	SW-SM	9		
CP05-EAARS-CB-0266	85	14	GW-GM	6		
CP05-EAARS-CB-0266	73	21	SW-SM	10		
CP05-EAARS-CB-0266	76	18	SW-SM	11		
CP05-EAARS-CB-0266	89.5	14	SW-SM	8		
CP05-EAARS-CB-0267	88.5	21	SM	29		
CP05-EAARS-CB-0275	83.5	20	SW-SM	11		
CP05-EAARS-CB-0275	93.5	18	SW-SM	12		
CP05-EAARS-CB-0280	73.5	26	SM	12		
CP05-EAARS-CB-0280	83.5	22	SM	19		
CP05-EAARS-CB-0280	88.5	23	SM	12		
CP05-EAARS-CB-0280	93.5	24	SM	15		
CP05-EAARS-CB-0280	78.5	19	SP-SM	8		
CP05-EAARS-CB-0280	98.5	24	SP-SM	11		
CP05-EAARS-RB-0282	70	7	GP-GM	7		72.3
CP05-EAARS-RB-0282	65	14	GP-GM	7		
CP05-EAARS-RB-0282	80		SP-SM	7		

Table 4-5 Continued - Ochopee Limestone Laboratory Soil Testing

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
CP05-EAARS-RB-0282	85		SP-SM	8		
CP05-EAARS-RB-0282	115	20	SM	27		
CP05-EAARS-RB-0282	120	22	SM	26		
CP05-EAARS-RB-0282	125		SM	19		
CP05-EAARS-RB-0282	130	21	SM	25		32.8
CP05-EAARS-RB-0282	135	21	SM	21		
CP05-EAARS-RB-0282	150		SP-SM	7		
CP05-EAARS-RB-0282	155		GP-GM	6		
CP05-EAARS-RB-0282	95	22	SP-SM	6		
CP05-EAARS-RB-0282	145	13	SP-SM	11		
CP05-EAARS-RB-0283	75		SP-SM	8		
CP05-EAARS-RB-0283	110	18	SM	14		75.5
CP05-EAARS-RB-0283	155		SP-SM	11		
CP05-EAARS-RB-0283	100	11	SP-SM	9		71.7
CP05-EAARS-RB-0283	140	19	SP-SM	10		53
CP05-EAARS-RB-0283	115	16	SW-SM	12		75.9
CP05-EAARS-RB-0283	125	13	SW-SM	7		77.7
CP05-EAARS-RB-0283	150	13	SW-SM	8		68.3
CP05-EAARS-RB-0283	160	14	SW-SM	9		67.2
CP05-EAARS-RB-0284	100	11	GP-GM	6		
CP05-EAARS-RB-0284	120	13	SM	13		
CP05-EAARS-RB-0284	70	9	SP-SM	7		78.8
CP05-EAARS-RB-0284	75		SP-SM	6		
CP05-EAARS-RB-0284	90	15	SP-SM	7		72.1
CP05-EAARS-RB-0284	110		SP-SM	9		
CP05-EAARS-RB-0284	115		SM	13		
CP05-EAARS-RB-0284	125	10	SP-SM	8		
CP05-EAARS-RB-0284	140	9	SP-SM	7		55.4
CP05-EAARS-RB-0284	150		SP-SM	9		
CP05-EAARS-RB-0285	70		SM	13		
CP05-EAARS-RB-0285	75		SP-SM	11		
CP05-EAARS-RB-0285	110		SM	16		
CP05-EAARS-RB-0285	115		SP-SM	11		
CP05-EAARS-RB-0286	75	13	SM	13		72
CP05-EAARS-RB-0286	110	20	SM	30		
CP05-EAARS-RB-0286	70		SP-SM	11		
CP05-EAARS-RB-0286	80	12	SP-SM	7		
CP05-EAARS-RB-0286	95	17	SP-SM	8		
CP05-EAARS-RB-0286	105	14	SP-SM	7		
CP05-EAARS-RB-0286	115		SP-SM	10		
CP05-EAARS-RB-0286	125	17	SP-SM	12		
CP05-EAARS-RB-0286	140	15	SP-SM	7		58.2
CP05-EAARS-RB-0286	150		SP-SM	10		
CP05-EAARS-RB-0286	155		SP-SM	11		
CP05-EAARS-RB-0286	88.5	21	SW-SM	12		
CP05-EAARS-RB-0286	98.5	15	SW-SM	12		

4.2.6 Unnamed Sand Formation

The unnamed sand formation was encountered in the rotosonic drilled borings between the Ochopee Limestone and the Fort Pearce Formation. It consists mostly of shelly, uniform, fine grained, subrounded quartz sand similar to that of the Pinecrest Sand Member, but it is silty. It is identified primarily by the yellow-gray color.

Samples sent for laboratory testing were assigned USCS classifications of SM (8), SP-SM (4), and CL-ML (1). Percent passing the 200 sieve ranged from 11 to 41 percent with an average of 24.4 percent. The moisture content on samples tested ranged between 12 percent and 21 percent and averaged 18.1 percent. Carbonate content ranged from 36.6 to 61.6 percent with an average of 47.6 percent. (Table 4-6)

Table 4-6 Laboratory Soil Testing for the Unnamed and Peace River Formations

Boring Number	Depth (feet)	Moisture (percent)	ASDM D2487 Class	-200 Sieve (percent)	Clay (percent)	CO_3 (percent)
Unnamed Formation						
CP05-EAARS-RB-0282	180	20	SM	20		54.5
CP05-EAARS-RB-0283	185	20	CL-ML	41		53.6
CP05-EAARS-RB-0283	165	20	SM	23		41.2
CP05-EAARS-RB-0283	180	20	SM	29		37.2
CP05-EAARS-RB-0283	195	17	SM	27		36.6
CP05-EAARS-RB-0284	175	17	SM	22		48.2
CP05-EAARS-RB-0284	185	15	SM	35		
CP05-EAARS-RB-0284	155	12	SP-SM	11	0	
CP05-EAARS-RB-0285	150	19	SM	22	0	
CP05-EAARS-RB-0285	155	18	SM	19	5	
CP05-EAARS-RB-0285	175	18	SM	41	7	
CP05-EAARS-RB-0285	190	28	SM	47		
CP05-EAARS-RB-0286	175	18	SM	19		
CP05-EAARS-RB-0286	180	21	SM	37		
CP05-EAARS-RB-0286	160	20	SP-SM	12		61.6
Peace River Formation						
CP05-EAARS-RB-0282	225	36	ML	75		
CP05-EAARS-RB-0282	200	20	SM	34		
CP05-EAARS-RB-0282	215	28	SM	29		
CP05-EAARS-RB-0283	200	25	SM	22		23.9
CP05-EAARS-RB-0283	205	26	SM	25		30.5
CP05-EAARS-RB-0284	225	75	ML	99		
CP05-EAARS-RB-0284	205	23	SM	23		
CP05-EAARS-RB-0284	210	26	SM	43		
CP05-EAARS-RB-0285	205	32	SM	39	13	
CP05-EAARS-RB-0285	210	34	SM	41	4	
CP05-EAARS-RB-0285	215	43	CL	71		
CP05-EAARS-RB-0285	215	43	MH	89	55	
CP05-EAARS-RB-0285	220	101	MH	98	88	
CP05-EAARS-RB-0285	220	88	CL	62		
CP05-EAARS-RB-0285	225	148	CH	86		
CP05-EAARS-RB-0285	245	151	MH	98	51	
CP05-EAARS-RB-0286	215	25	ML	53		
CP05-EAARS-RB-0286	195	19	SM	31		

4.2.7 Peace River Formation

The top of the Peace River Formation was penetrated in the rotosonic drilled borings and all ended in the formation. The top of the formation ranged from 191 to 200-foot depth, and averaged 197 feet. In the borings, it mostly consisted of very fine, silty sand, grading to more finely grained with depth. Samples sent to the laboratory were USCS classified as SM (7), ML (3), CL (2), and CH (1). Percent passing the 200 sieve ranged from 22 to 99 percent with an average of 50.2 percent. Two carbonate content tests returned 23.9 to 30.5 percent. Moisture content ranged between 19 and 148 percent with an average of 44.8 percent. (Table 4-6)

4.3 HYDRAULIC INTERVAL TESTING RESULTS

At two of the locations (RB-0238 and RB-0286) the static water level below ground level was progressively lower as the hole was drilled deeper. At RB-0285 this trend was reversed. In RB-0284 the trend was for the water levels to lower with depth apart from the uppermost (40 to 50 feet) which was lower than the static water level at the 70 to 80-foot interval. At RB-0282 the levels were generally the same with depth until 155-160 feet where the static level was higher than the strata above.

The pH, temperature, and conductivity of effluent stream were generally checked twice during the pumping of each interval in borings RB-0284 and RB-0284, once about one-half way through pump testing and once near the end. The results of the chemistry monitoring are listed in Table 4-7.

Table 4-7 Groundwater Chemistry Monitoring Results

Interval Depth (feet)	Parameters	RB-0283		RB-0284	
		Early data	Late data	Early data	Late data
40-50	pH	7.63	7.43	6.6	7.3
	Temp °C	25.1	25.0	25.4	24.9
	Conductivity (microSiemens)	927	892	653	644
70-80	pH	7.43	7.39	7.28	7.41
	Temp °C	25.0	24.9	25.7	25.7
	Conductivity (microSiemens)	2410	2440	993	1017
110-120	pH	7.65	7.44	7.31	7.46
	Temp °C	24.8	24.9	25.3	25.2
	Conductivity (microSiemens)	2690	2680	4660	4700
150-160	pH	7.5	7.43	7.32	7.55
	Temp °C	25.1	24.9	25.3	25.1
	Conductivity (microSiemens)	4680	4700	7240	7290

The conductivity results indicate that the water quality decreases with depth in both boreholes from non brackish at the top to brackish at depth. This suggests that there is not much vertical movement and mixing of the groundwater.

Comparison of the same depth intervals between the two boreholes indicates that there are significant horizontal variations in quality.

4.3.1 Aquifer Responses

The pumping time/drawdown data have been analyzed using the Cooper-Jacob straight line method (semilog plot) and the Hantush curve matching method (log-log plot). Where the recovery data were suitable, they have been analyzed using the Cooper-Jacob straight line method. The units of transmissivity are feet squared per day (feet^2/day). Results are presented in Table 4-8 through Table 4-12.

There are large differences between the transmissivities determined for the pumping data by the semilog and log-log plot methods. The transmissivities determined with the semilog method are generally characteristic of the types of earth materials encountered. The transmissivities determined by the log-log method are too low for the types of earth materials encountered, and the data curves did not generally fit the type curve well. The transmissivities determined by the semilog method are more representative of the in situ materials.

Where available, the transmissivities determined from the recovery data generally are comparable to the transmissivities determined for the pumping data by the semilog method, just slightly higher. The drawdown in pumped wells is generally higher than the drawdown in the aquifer, so analyses of the data generally underestimates the transmissivity. The analysis of recovery data tends to mitigate the problem and thus gives results that are more representative of the aquifer characteristics. Where available, the transmissivities determined by the recovery analyses should be used, and the transmissivities determined from the pumping data by the semilog method should be used otherwise.

The results tabulated below include the pumping rates and the measured drawdowns at 30 minutes of pumping. Since the pumping rates for each interval were similar, the drawdowns are inversely related to the calculated transmissivities, and the greatest part of the total drawdown was achieved in the first 30 minutes of pumping in each interval. The total drawdown in RB-0285, 40 to 50 feet was less than 0.1 foot, too small to provide data suitable for analysis. No transmissivity is given for that interval. However, considering the small drawdown, the transmissivity is probably higher than that in RB-0283, 40 to 50 feet. The data for RB-0283, 40 to 50 feet, is also questionable because of the small drawdown, but the data at least shows an apparent linear trend. Both of these tests indicate high transmissivity intervals, but quantitative determinations cannot be made.

The complete pumping test data and analyses are contained in Appendix 4. It should be noted that a partial collapse often occurred in the open hole intervals during the pumping tests and was detected by measuring the hole depth again after the testing (see Table 4-8).

Table 4-8 Aquifer Characteristics for RB-0282

RB-0282 Interval Depth (feet)	Pumping rate (gpm) and duration (minutes)	Draw-down at 30 minutes of pumping (feet)	Recovery monitoring period (minutes)	Semilog plot (time vs. drawdown) (feet²/day)	Log – log plot (time vs. draw-down) (feet²/day)	(feet²/day)	Recovery Semilog plot (time vs. drawdown) (feet²/day)
60-70	18	2.44		C	L		
	90		14	5300	540		5765
80-90	18	0.29		C	L	U (early)	
	50		30	25500	1750	9900	Too fast
120-130	2.44	18.52		C	L		
	120		60	6.3	0.002		4.1
150-160	18	1		C	L		
	60		45	18500	930		9900

C = Confined or unconfined aquifer without delayed yield
L = Leaky confined
U = Unconfined aquifer with delayed yield
gpm = Gallons per minute
feet²/day = Transmissivity units in feet squared per day

Table 4-9 Aquifer Characteristics for RB-0283

RB-0283 Interval Depth (feet)	Pumping rate (gpm) and duration (minutes)	Draw-down at 30 minutes of pumping (feet)	Recovery monitoring period (minutes)	Semilog plot (time vs. drawdown) (feet²/day)	Log – log plot (time vs. draw-down) (feet²/day)	(feet²/day)	Recovery Semilog plot (time vs. drawdown) (feet²/day)
40-50	18.75	0.05		C	L		
	30		10	63200	5700		Too fast
70-80	18.5	2.28		C	L		
	75		30	7300	105		7200
110-120	19.5	3.8		C	L		
	70		30	5900	70		8600
150-160	18.5	2.61		C	L		
	65		30	6700	100		7250

C = Confined or unconfined aquifer without delayed yield
L = Leaky confined
U = Unconfined aquifer with delayed yield
gpm = Gallons per minute
feet²/day = Transmissivity units in feet squared per day

Table 4-10 Aquifer Characteristics for RB-0284

RB-0284 Interval Depth (feet)	Pumping rate (gpm) and duration (minutes)	Draw-down at 30 minutes of pumping (feet)	Recovery monitoring period (minutes)	Semilog plot (time vs. drawdown) (feet²/day)	Log – log plot (time vs. draw-down) (feet²/day)	(feet²/day)	Recovery Semilog plot (time vs. drawdown) (feet²/day)
40-50	18.5	0.105		C	L		
	30		10	Bad Data	8900		Too fast
70-80	18.5	0.65		C	L		
	60		30	27000	800		32500
110-120	18.5	1.74		C	L		
	30		10	14200	580		Too fast
150-160	18.5	2.67		C	L		
	60		30	10400	370		Too fast

C = Confined or unconfined aquifer without delayed yield
L = Leaky confined
U = Unconfined aquifer with delayed yield
gpm = Gallons per minute
feet²/day = Transmissivity units in feet squared per day

Table 4-11 Aquifer Characteristics for RB-0285

RB-0285 Interval Depth (feet)	Pumping rate (gpm) and duration (minutes)	Draw-down at 30 minutes of pumping (feet)	Recovery monitoring period (minutes)	Semilog plot (time vs. drawdown) (feet²/day)	Log – log plot (time vs. draw-down) (feet²/day)	(feet²/day)	Recovery Semilog plot (time vs. drawdown) (feet²/day)
40-50	Stepped	5.34					
	16 max		14				166
70-80	Stepped	12.07					
	15.6 (max)		14				56
110-120	20.5	1.08		C	L		
	60		14	20800	1800		Too fast
150-160	22.5	2.92		C	L		
	120		14	10800	400		10600

C = Confined or unconfined aquifer without delayed yield
L = Leaky confined
U = Unconfined aquifer with delayed yield
gpm = Gallons per minute
feet²/day = Transmissivity units in feet squared per day

Table 4-12 Aquifer Characteristics for RB-0286

RB-0286 Interval Depth (feet)	Pumping rate (gpm) and duration (minutes)	Draw-down at 30 minutes of pumping (feet)	Recovery monitoring period (minutes)	Semilog plot (time vs. drawdown) (feet²/day)	Log – log plot (time vs. draw-down) (feet²/day)	(feet²/day)	Recovery Semilog plot (time vs. drawdown) (feet²/day)
40-50	18	14.06		C	L		
	120		30	60	20		60
70-80	18	1.37		C	L	U (early)	
	75		30	2400	300	400	7050
110-120	18.75	4.31		C	L		
	75		30	4200	60		6606
150-160	18	0.91		C	L	U (early)	
	75		30	10400	280	50	12400

C = Confined or unconfined aquifer without delayed yield
L = Leaky confined
U = Unconfined aquifer with delayed yield
gpm = Gallons per minute
ft²/day = Transmissivity units in feet squared per day

4.4 GROUNDWATER MONITORING RESULTS

The groundwater levels in the three piezometers installed during the summer 2005 drilling program were determined on November 22, 2005. The data are tabulated in Table 4-13. The depths are measured from the top of the flush mounted protective casing.

Table 4-13 Groundwater Depths

Boring	Interval Depth (feet)	Depth to Water (feet)
RB-0283	108 to 121.5	2.3
RB-0284	68 to 81	1.2
RB-0286	148 to 161	1.4

5.0 REFERENCES

5.0 REFERENCES

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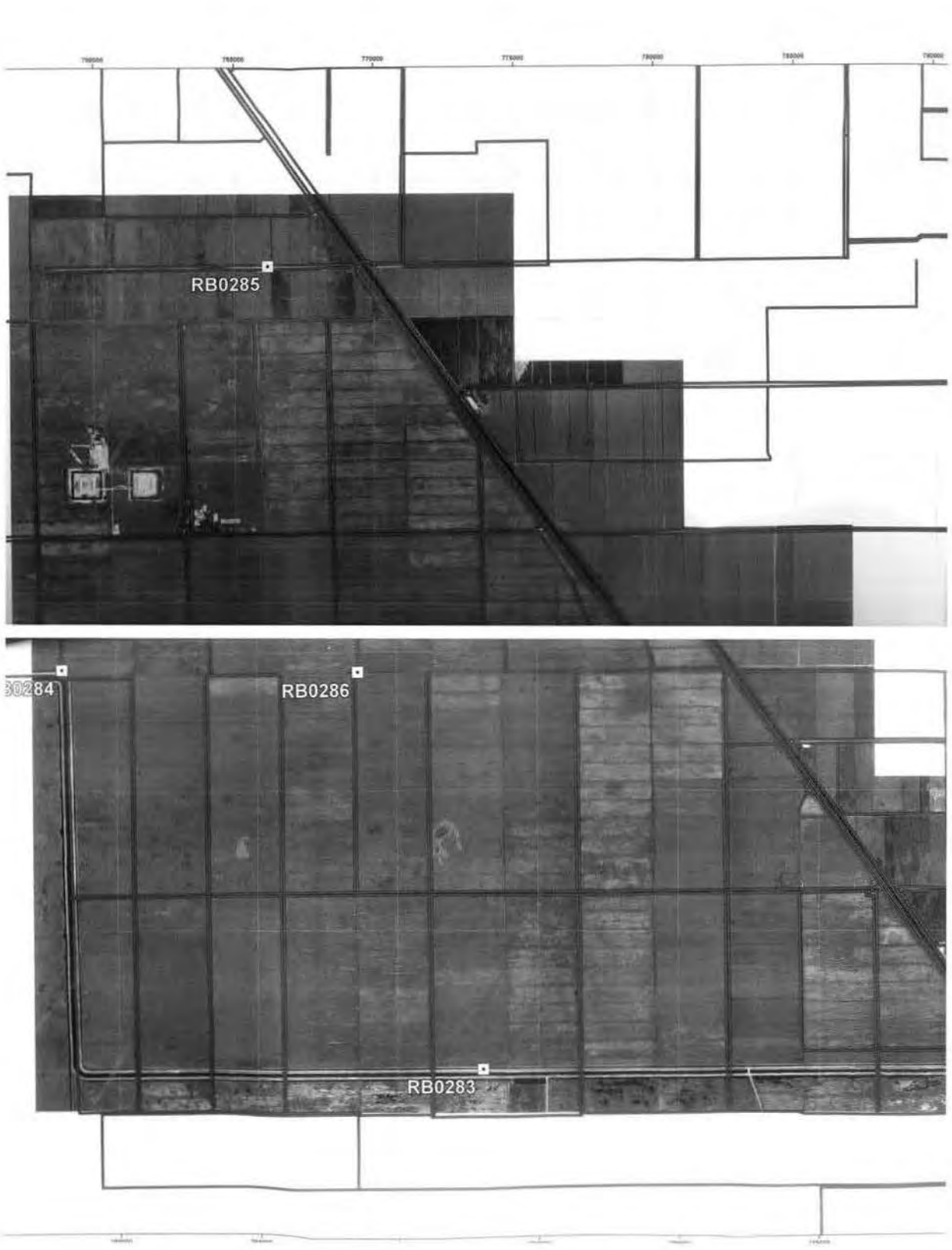
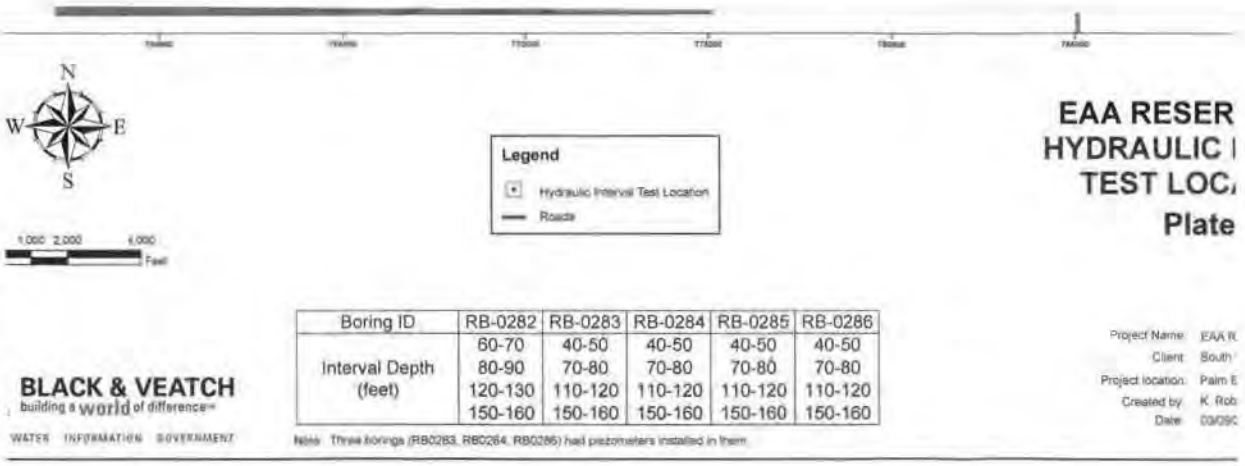
PLATE 1
EAA RESERVOIR A-1
BORING LOCATION PLAN

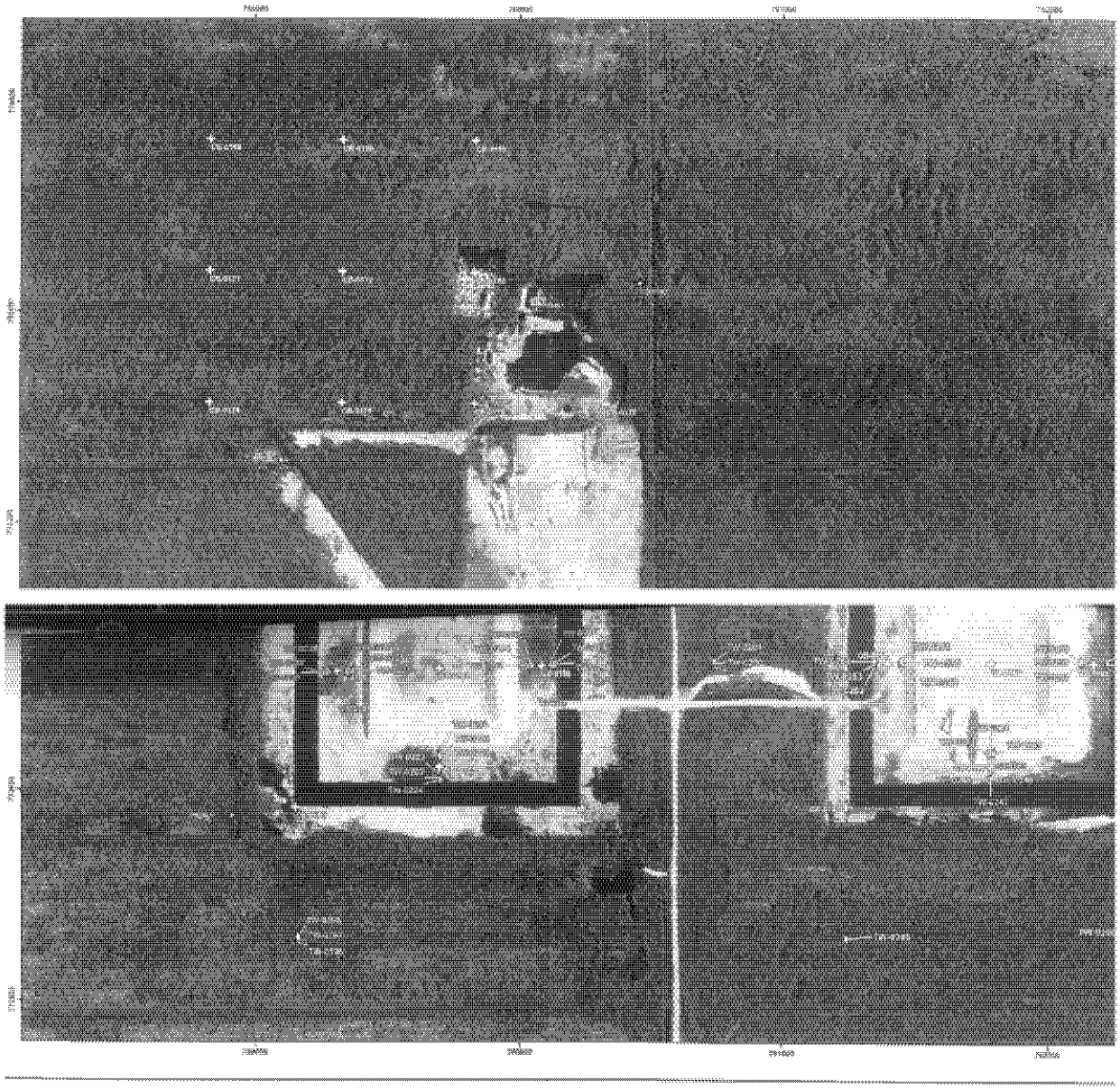

RB0285
RB0284
RB0286
RB0283



Boring ID	RB-0282	RB-0283	RB-0284	RB-0285	RB-0286
Interval Depth (feet)	60-70	40-50	40-50	40-50	40-50
	80-90	70-80	70-80	70-80	70-80
	120-130	110-120	110-120	110-120	110-120
	150-160	150-160	150-160	150-160	150-160

Note: Three borings (RB0283, RB0284, RB0286) had piezometers installed in them.

PLATE 2
EAA RESERVOIR A-1 TEST CELLS BORING AND PIEZOMETER LOCATION PLAN



69

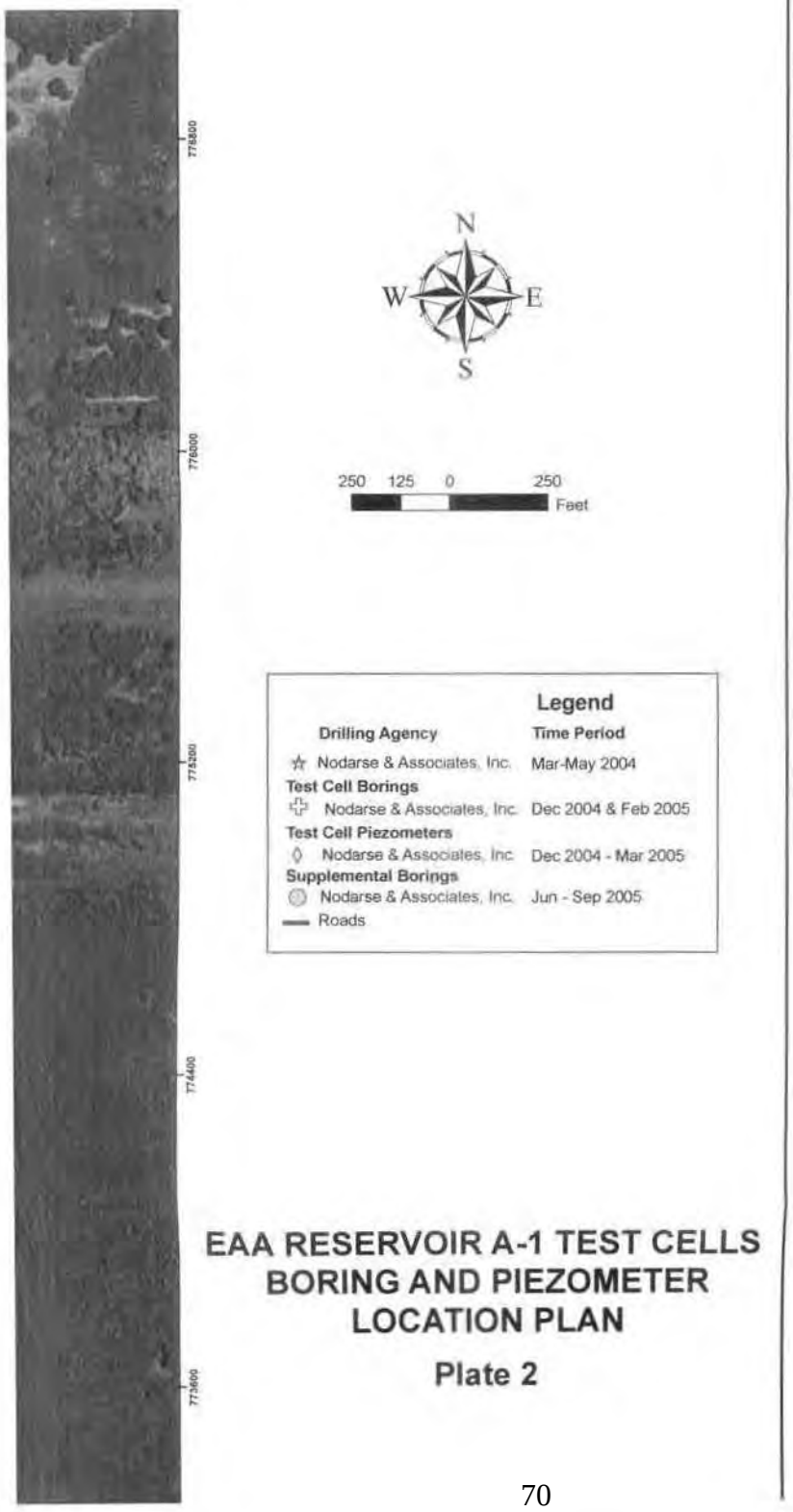

776800
776000
775200
774400
773600
N
W
E
S
250 125 0 250
Feet
Legend
Drilling Agency
Time Period
Nodarse & Associates, Inc.
Mar-May 2004
Test Cell Borings
Nodarse & Associates, Inc.
Dec 2004 & Feb 2005
Test Cell Piezometers
Nodarse & Associates, Inc.
Dec 2004 - Mar 2005
Supplemental Borings
Nodarse & Associates, Inc.
Jun - Sep 2005
Roads
EAA RESERVOIR A-1 TEST CELLS
BORING AND PIEZOMETER
LOCATION PLAN
Plate 2

PLATE 3
EAA RESERVOIR A-1 HYDRAULIC INTERVAL TEST LOCATIONS

APPENDIX 1

APPENDIX 1
TEST CELL BORINGS AND PIEZOMETER INSTALLATION LOGS: 168-180

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

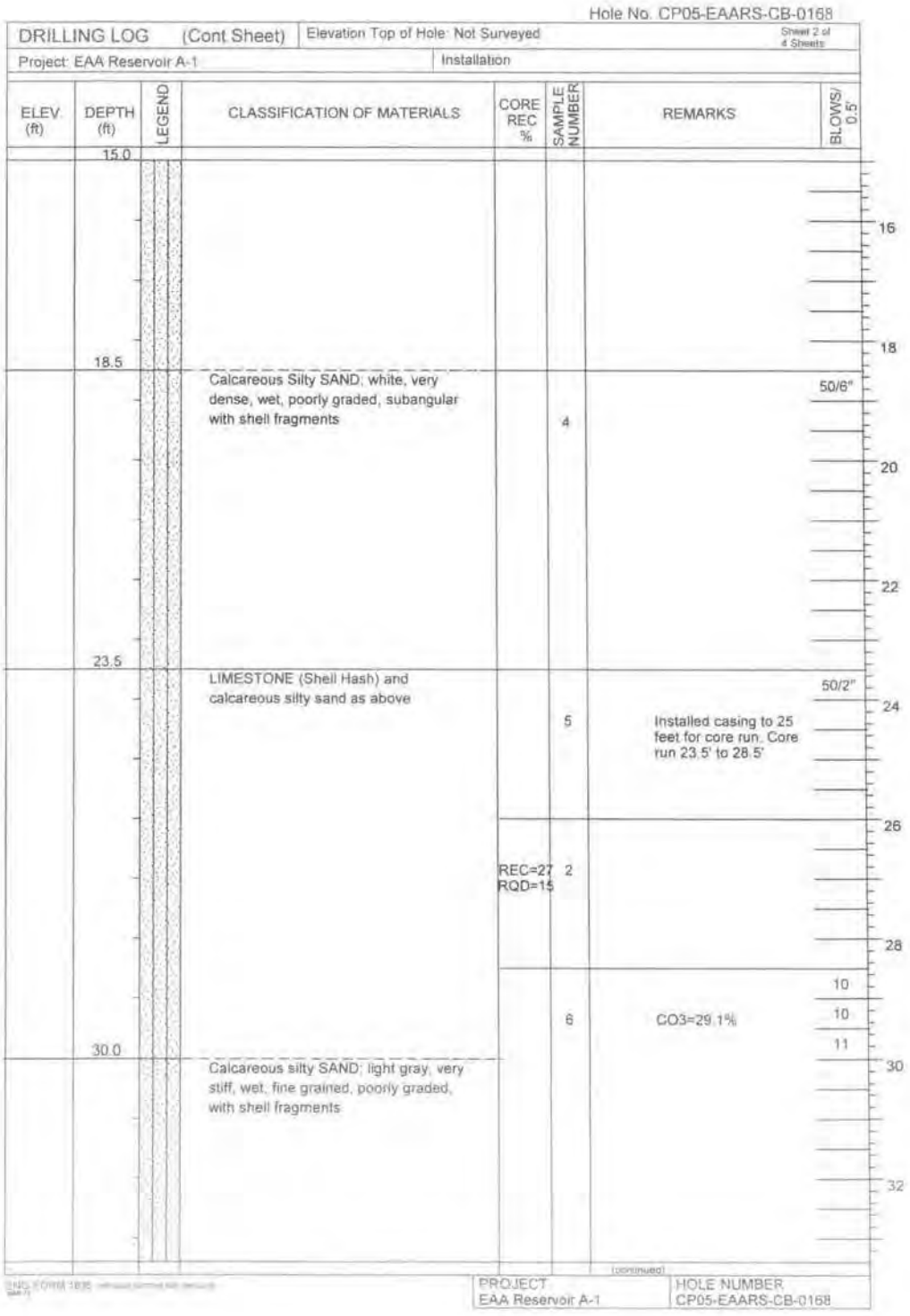
Hole No. CP05-EAARS-CB-0168

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N778662.9, E758833.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0168		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/7/2004 Completed 12/7/2004	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
	0.5		PEAT, Dark Brown				
			LIMESTONE, White, Moderatley Weathered, extremely strong, hard	REC=50 RQD=22	1	Drilled with a hand sampler to 6". Start core run time: 8:300am. End time: 9:10am (0.5'-5.5')	
	5.5		Calcareous Sandy GRAVEL; white, medium to very dense, wet, poorly graded, subangular with silt		1	CO3=87.4%	9 18 7
					2		50/5"
					3		5 4 3

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0168



Hole No. CP05-EAARS-CB-0168

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Calcareous Silty SAND; white, very dense, wet, poorly graded, subangular with shell fragments		4		50/6"
	23.5		LIMESTONE (Shell Hash) and calcareous silty sand as above		5	Installed casing to 25 feet for core run. Core run 23.5' to 28.5'	50/2"
				REC=27 RQD=15	2		
	30.0		Calcareous silty SAND; light gray, very stiff, wet, fine grained, poorly graded, with shell fragments		6	CO3=29.1%	10 10 11

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0168

16 18 20 22 24 26 28 30 32

Hole No: CP05-EAARS-CB-0168

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

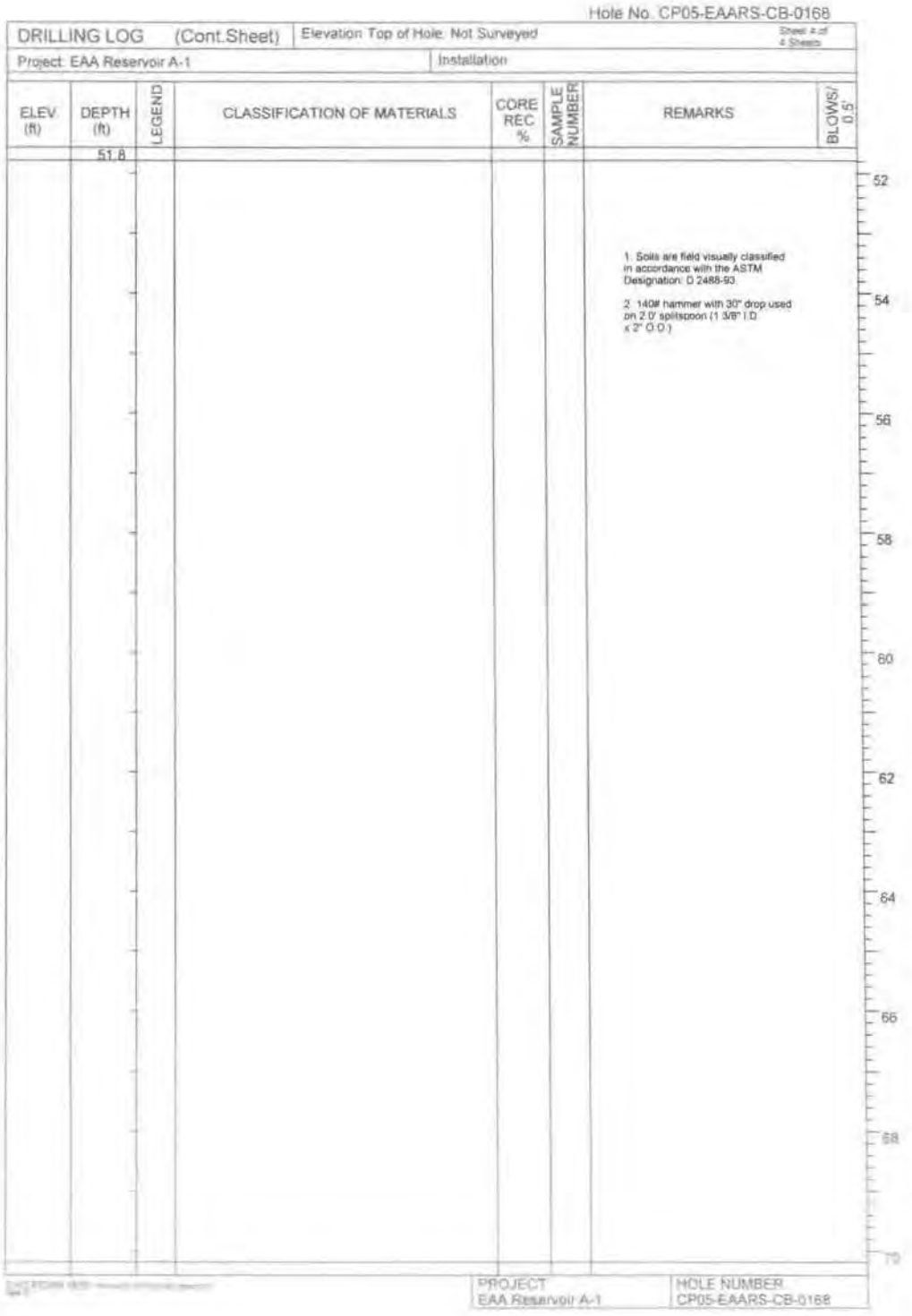
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5
	33.4						
	33.5		Sandy GRAVEL; dark gray, medium dense, wet, poorly graded subangular		7		8 8 7
	38.5		Silty SAND; greenish gray, loose to medium dense, wet, fine-grained, uniform, subrounded, calcareous, with shell fragments		8		3 4 4
	43.0		same as above		9	CO3=10.9%	5 12 16
	48.5		same as above		10	SAND with trace Silt and Grsvel	7 8 9
	50.0		End of Boring at 50				

34 36 38 40 42 44 46 48 50

NOTES (continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0168



Hole No. CP05-EAARS-CB-0168

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet # of # Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' split spoon (1 3/8" I.D. x 2" O.D.)

52
54
56
58
60
62
64
66
68
70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0168

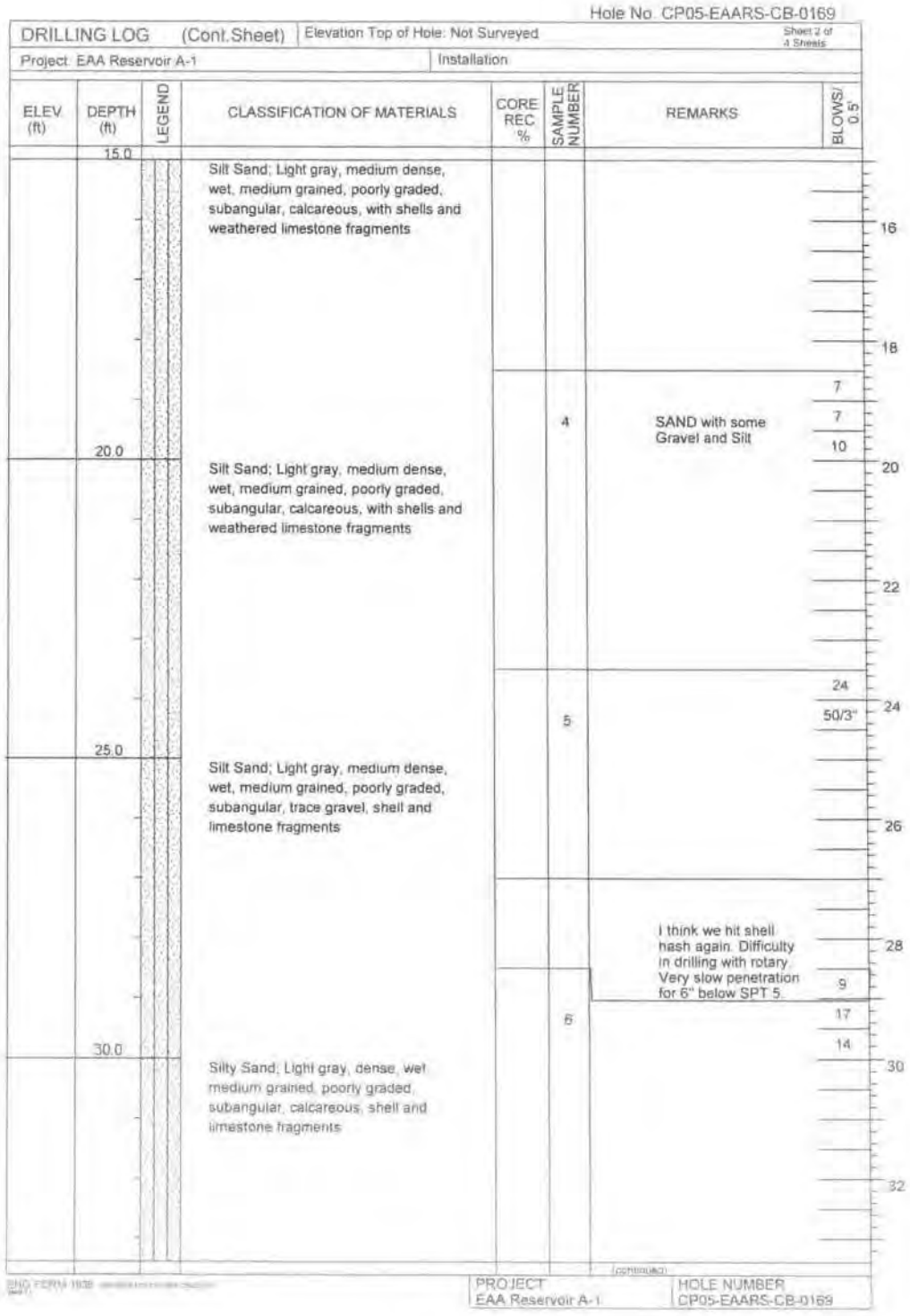
Hole No. CP05-EAARS-CB-0169

DRILLING LOG	Division:	Installation	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776662.9, E759333.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0169		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/7/2004 Completed 12/8/2004	
7. Thickness of Burden: 1.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
			PEAT, Dark Brown				
	1.5					Drilled with a hand sampler to 1.5 ft bgs. Core run start = 4:55pm. Core run end = 5:15pm (1.5 ft. - 6.5 ft.)	
			LIMESTONE: White, slightly weathered, extremely strong, hard				
				REC=48 RQD=42	1		
	6.5						
			Silty SAND: light gray, medium dense, wet, medium grained, poorly graded, subangular, calcareous, with shells and weathered limestone fragments		1		5 17 6
	8.5						
			same as above		2		2 3 3
	13.5						
			same as above		3		3 5 7
	15.0						

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0169



Hole No. CP05-EAARS-CB-0169

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0		Silt Sand; Light gray, medium dense, wet, medium grained, poorly graded, subangular, calcareous, with shells and weathered limestone fragments				16, 18
	20.0		Silt Sand; Light gray, medium dense, wet, medium grained, poorly graded, subangular, calcareous, with shells and weathered limestone fragments		4	SAND with some Gravel and Silt	7, 7, 10, 20, 22
	25.0		Silt Sand; Light gray, medium dense, wet, medium grained, poorly graded, subangular, trace gravel, shell and limestone fragments		5		24, 50/3", 24, 26
	30.0		Silty Sand; Light gray, dense, wet medium grained, poorly graded, subangular, calcareous, shell and limestone fragments		6	I think we hit shell hash again. Difficulty in drilling with rotary. Very slow penetration for 6" below SPT 5.	28, 9, 17, 14, 30, 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0169

Hole No. CP05-EAARS-CB-0169

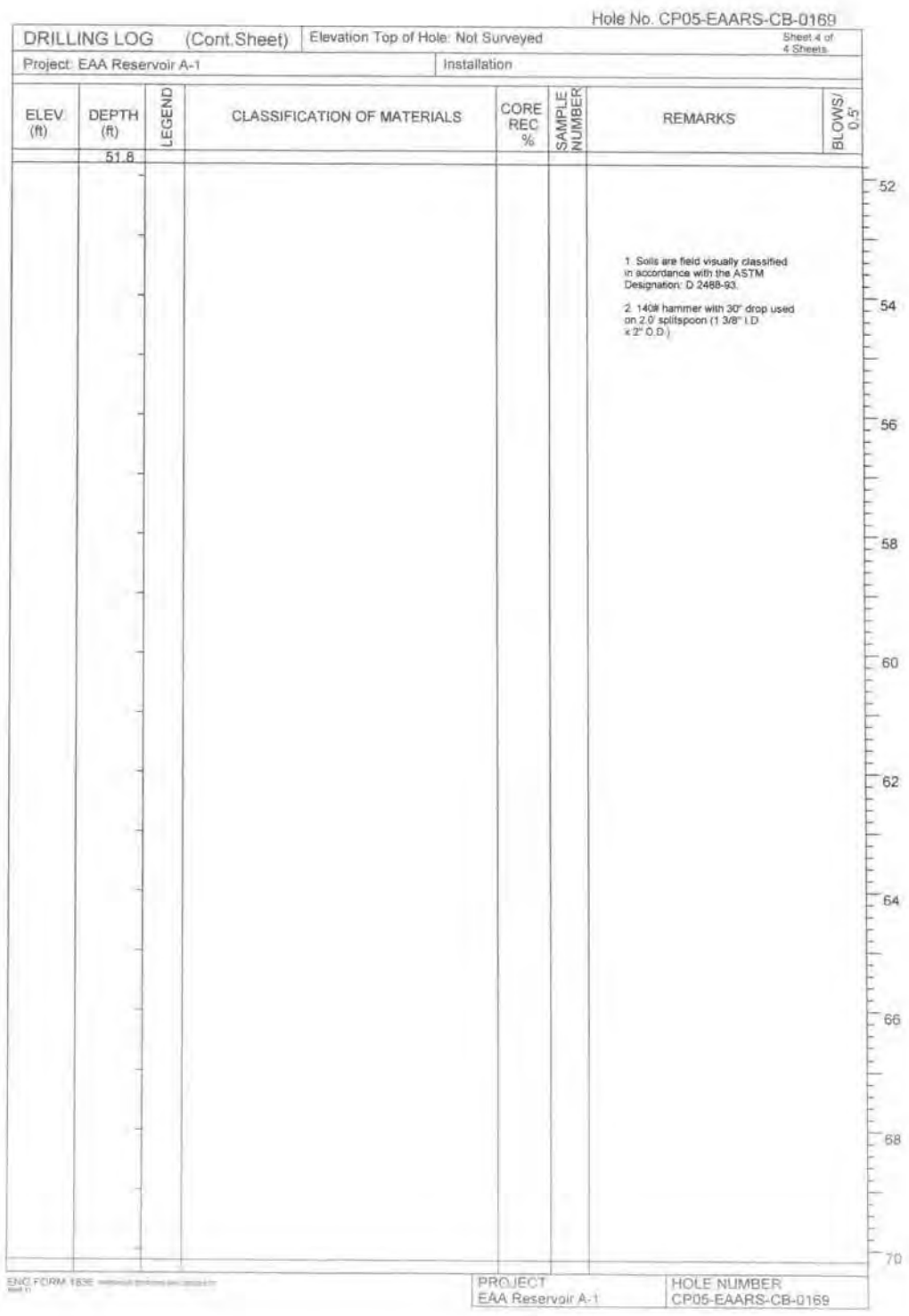
DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	35.0		Silt Sand; Light gray, medium dense, moist, medium grained, poorly graded, subangular, calcareous, shell and limestone fragments		7		9 16 12 34 36 38
	40.0		Silt Sand; Light gray, medium dense, moist, medium grained, poorly graded, subangular, calcareous, shell and limestone fragments		8		7 10 11 40 42
	45.0		Silt Sand; Light gray, medium dense, moist, medium grained, poorly graded, subangular, calcareous, shell and limestone fragments		9		5 6 9 44 46 48
	48.5		same as above		10		5 11 10
	50.0		End of Boring at 50'			NOTES: (continued)	50

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0169



Hole No. CP05-EAARS-CB-0169

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0169

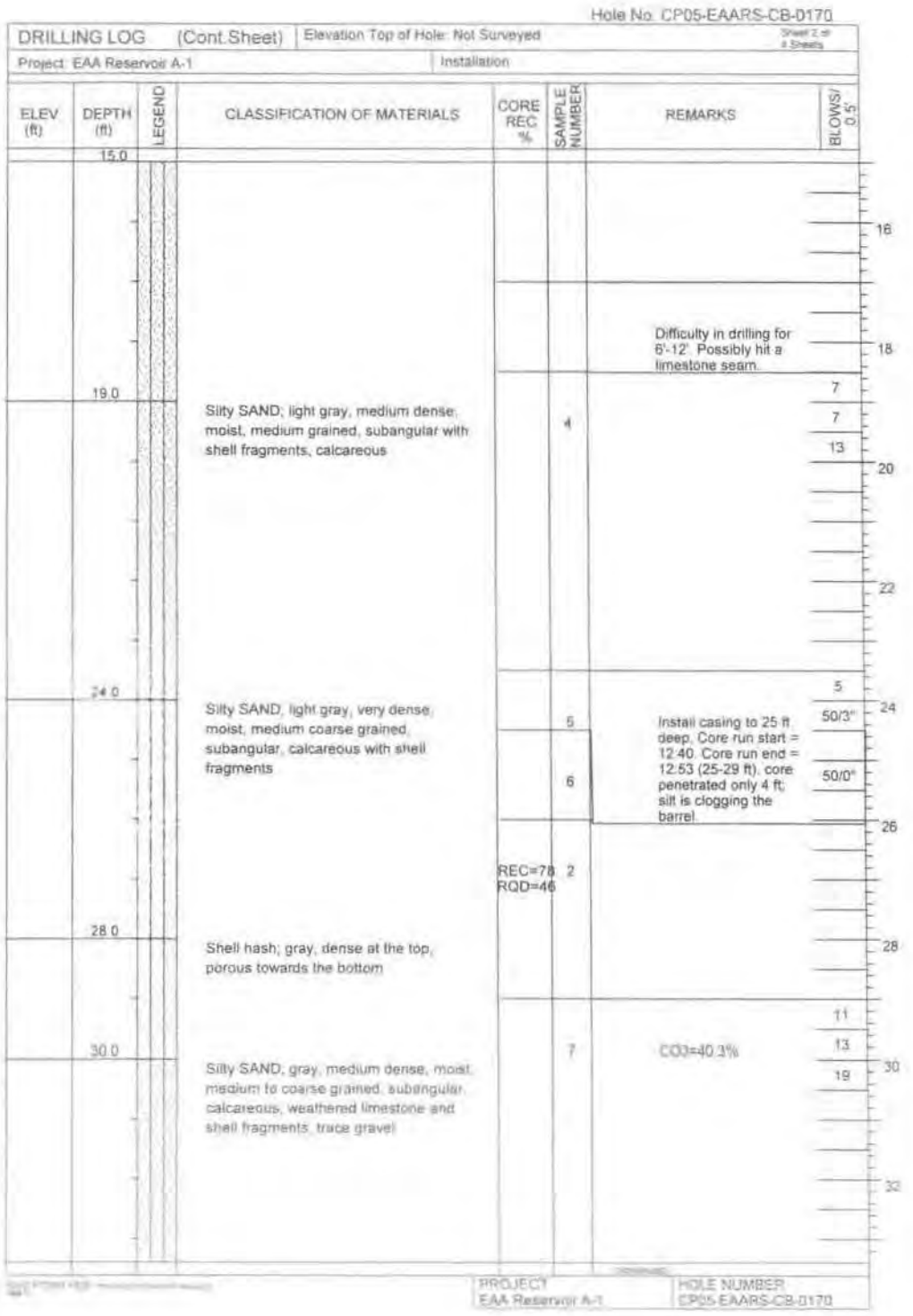
Hole No. CP05-EAARS-CB-0170

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776162.9, E759833.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0170		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/8/2004 Completed 12/8/2004	
7. Thickness of Burden: 1.0 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						0
			PEAT; Dark brown				
	1.0		LIMESTONE, light gray, slightly to moderately weathered, extremely strong, hard, vuggy			Drilled with hand sampler. Core run start = 10:00am. Core run finish = 10:14am	
				REC=50 RQD=28	1		2
							4
	6.0		Gravelly SAND; light, medium dense, wet, coarse grained, subangular, weathered limestone fragments		1		4
							8
	8.5		Silty Sand Consolidated LIMESTONE; light gray, very dense, moist, medium grained, subangular, with shell fragments, calcareous		2	CO3=82.6%	2
							25
							50/2"
							10
							12
	14.0		Silty SAND; lighter gray, loose, moist, medium grained, subangular with shell fragments, calcareous		3	SAND with some Silt and trace Gravel	7
							8
							9
							14

(continued)

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0170



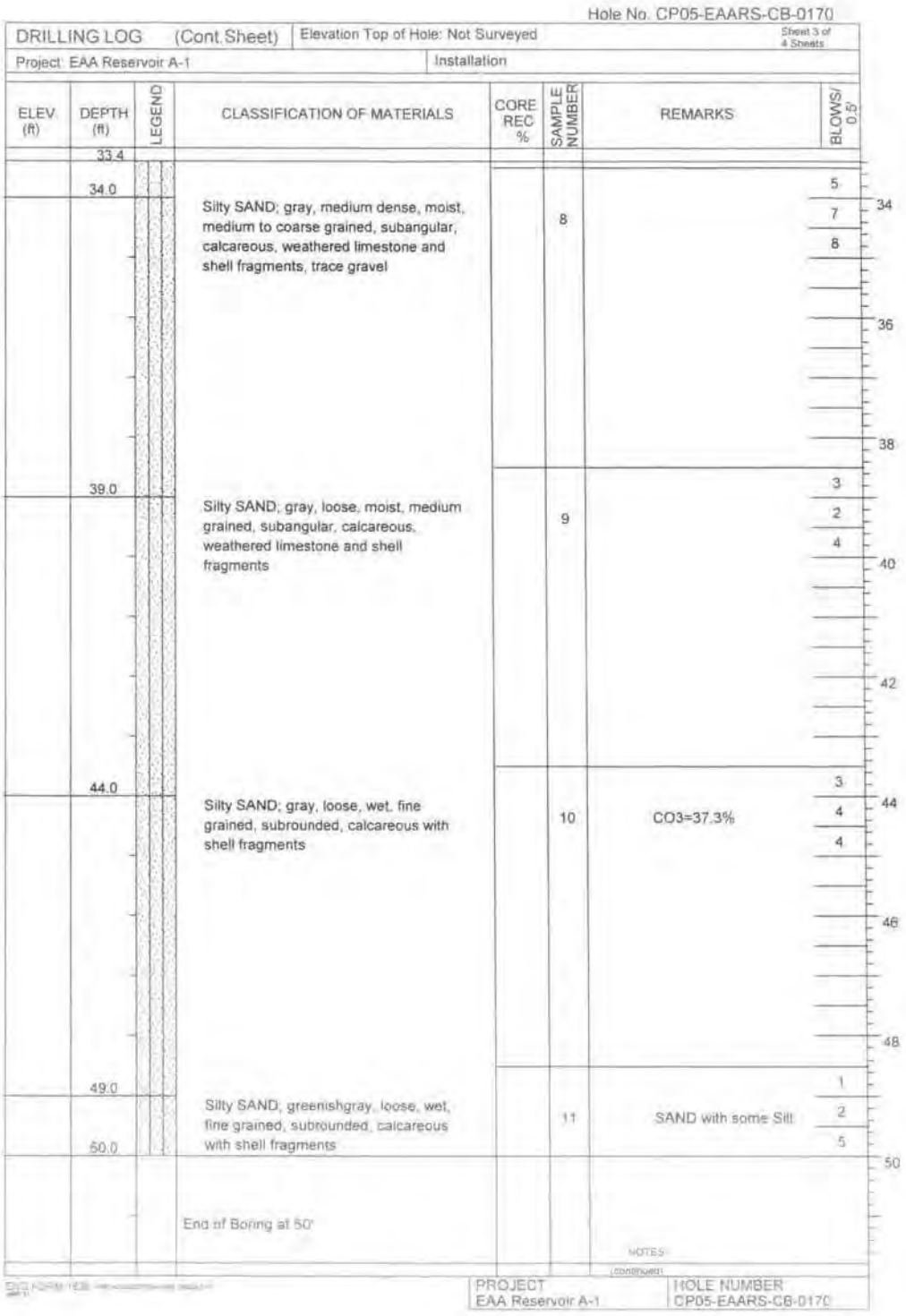
Hole No. CP05-EAARS-CB-0170

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						16
						Difficulty in drilling for 6'-12'. Possibly hit a limestone seam.	18
	19.0		Silty SAND; light gray, medium dense; moist, medium grained, subangular with shell fragments, calcareous		4		7 7 13 20
							22
	24.0		Silty SAND, light gray, very dense; moist, medium coarse grained, subangular, calcareous with shell fragments		5		5 50/3"
					6	Install casing to 25 ft deep. Core run start = 12:40. Core run end = 12:53 (25-29 ft), core penetrated only 4 ft; silt is clogging the barrel.	24 50/0"
							26
	28.0		Shell hash; gray, dense at the top, porous towards the bottom	REC=76 RQD=46	2		28
	30.0		Silty SAND, gray, medium dense, moist, medium to coarse grained, subangular, calcareous, weathered limestone and shell fragments, trace gravel		7	CO3=40.3%	11 13 19 30
							32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0170



Hole No. CP05-EAARS-CB-0170

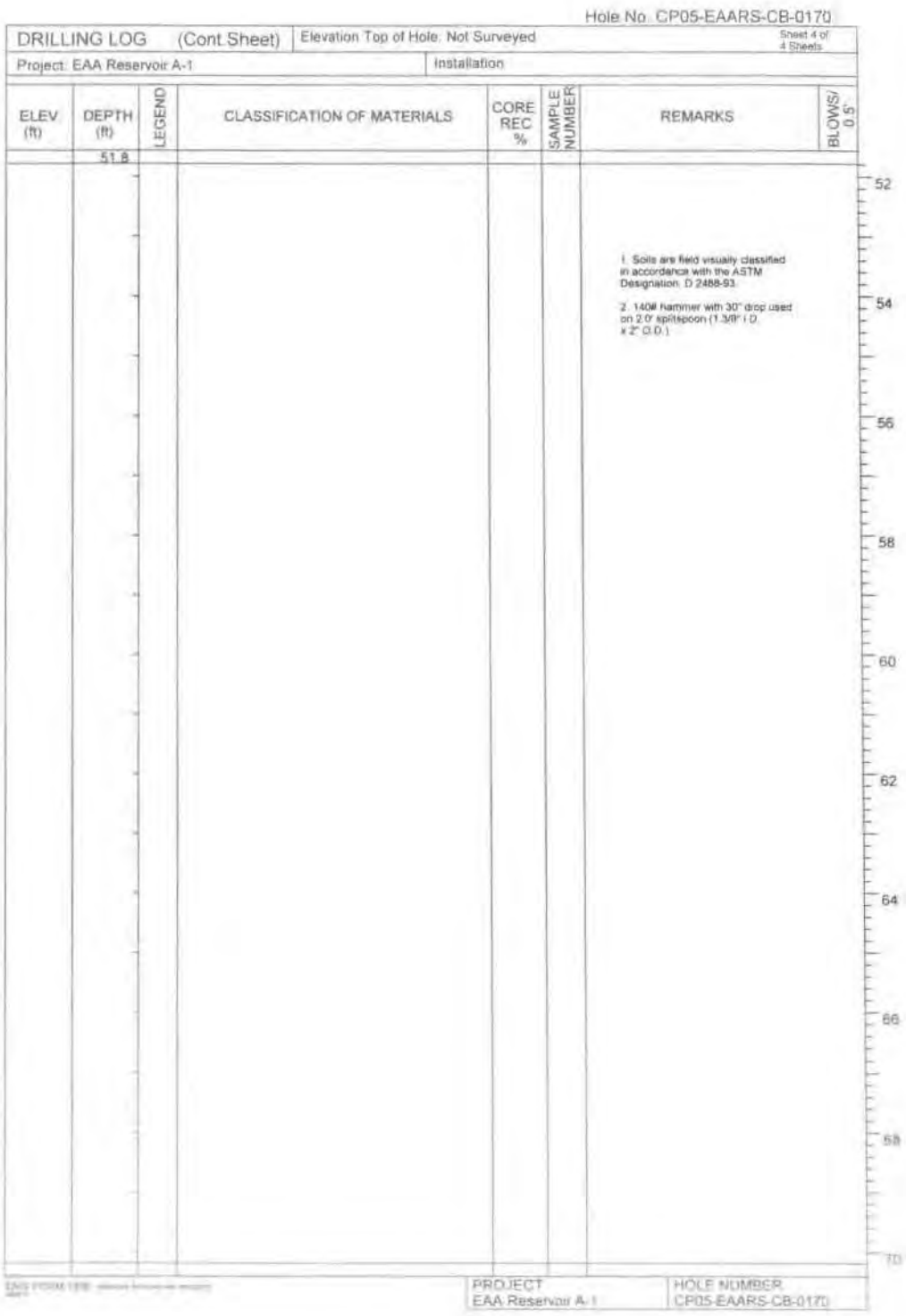
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	34.0		Silty SAND; gray, medium dense, moist, medium to coarse grained, subangular, calcareous, weathered limestone and shell fragments, trace gravel		8		5 7 8 — 34 36 38
	39.0		Silty SAND; gray, loose, moist, medium grained, subangular, calcareous, weathered limestone and shell fragments		9		3 2 4 — 40 42
	44.0		Silty SAND; gray, loose, wet, fine grained, subrounded, calcareous with shell fragments		10	CO3=37.3%	3 4 — 44 4 46 48
	49.0		Silty SAND, greenishgray, loose, wet, fine grained, subrounded, calcareous with shell fragments		11	SAND with some Silt	1 2 5 — 50
	50.0		End of Boring at 50'				

NOTES: (continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0170



Hole No. CP05-EAARS-CB-0170

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.).

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0170

Hole No. CP05-EAARS-CB-0171

DRILLING LOG	Division	Installation	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776162.9, E758833.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0171		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/7/2004 Completed 12/7/2004	
7. Thickness of Burden: 1.0 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.2 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
			PEAT. No sample				0
	1.0		LIMESTONE: tan to light yellowish brown, hard, strong, moderately weathered, vuggy			Gel-X drilling mud. Double tube core barrel	
				REC=53 RQD=31	1		2
							4
	6.2					Soft at 5.2 feet	
			Calcareous Silty SAND: light gray, loose to very dense, wet, fine to medium grained, poorly graded, subangular, with shell fragments and limestone seams		1	CO3=87.7% Manual Hammer	6 4 6 12
					2		8 5 3 3
					3		10 42 50/2"
	13.8						12
			Silty SAND: light gray, medium dense to very dense, wet, fine to medium grained, poorly graded, subangular, shell fragments		4	Gravelly SAND with some Silt	6 8 24

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0171

Hole No. CP05-EAARS-CB-0171

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

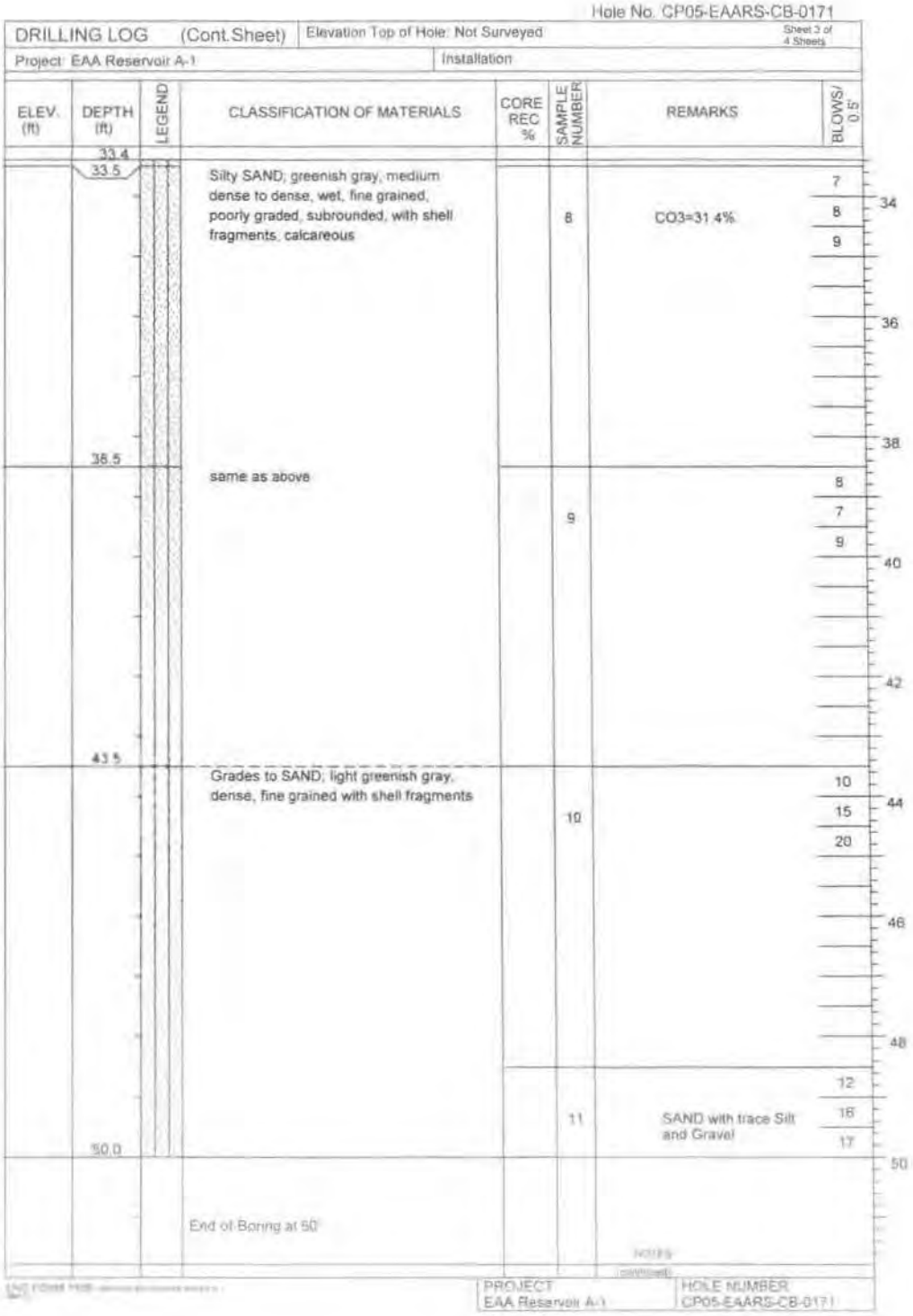
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	19.0		Grades to shelly sand, medium dense		5	CO_3=82.7%	4 8 20
	23.5		Grades to gravelly SAND; brown, very dense		6		18 50/2"
	28.5		SAND; tan medium dense, wet, fine grained, poorly graded, some silt, shell fragments		7		12 14 14

(continued)

ENG FORM 1835

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0171



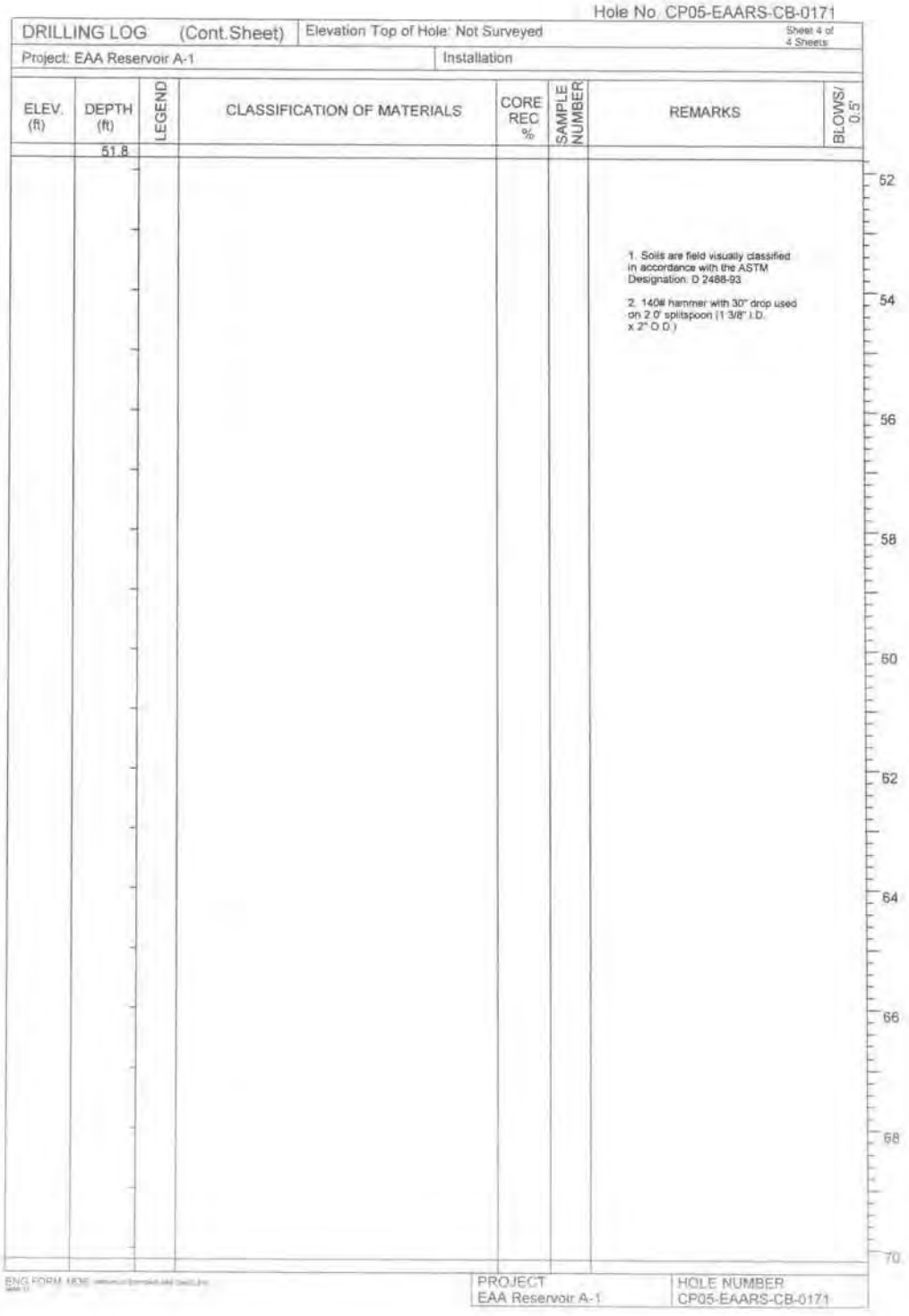
Hole No. CP05-EAARS-CB-0171

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Silty SAND; greenish gray, medium dense to dense, wet, fine grained, poorly graded, subrounded, with shell fragments, calcareous		8	CO3=31.4%	7 8 9 34 36 38
	38.5		same as above		9		6 7 9 40 42
	43.5		Grades to SAND; light greenish gray, dense, fine grained with shell fragments		10		10 15 20 44 46 48
	50.0				11	SAND with trace Silt and Gravel	12 16 17 50
			End of Boring at 50'				

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0171



Hole No. CP05-EAARS-CB-0171

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

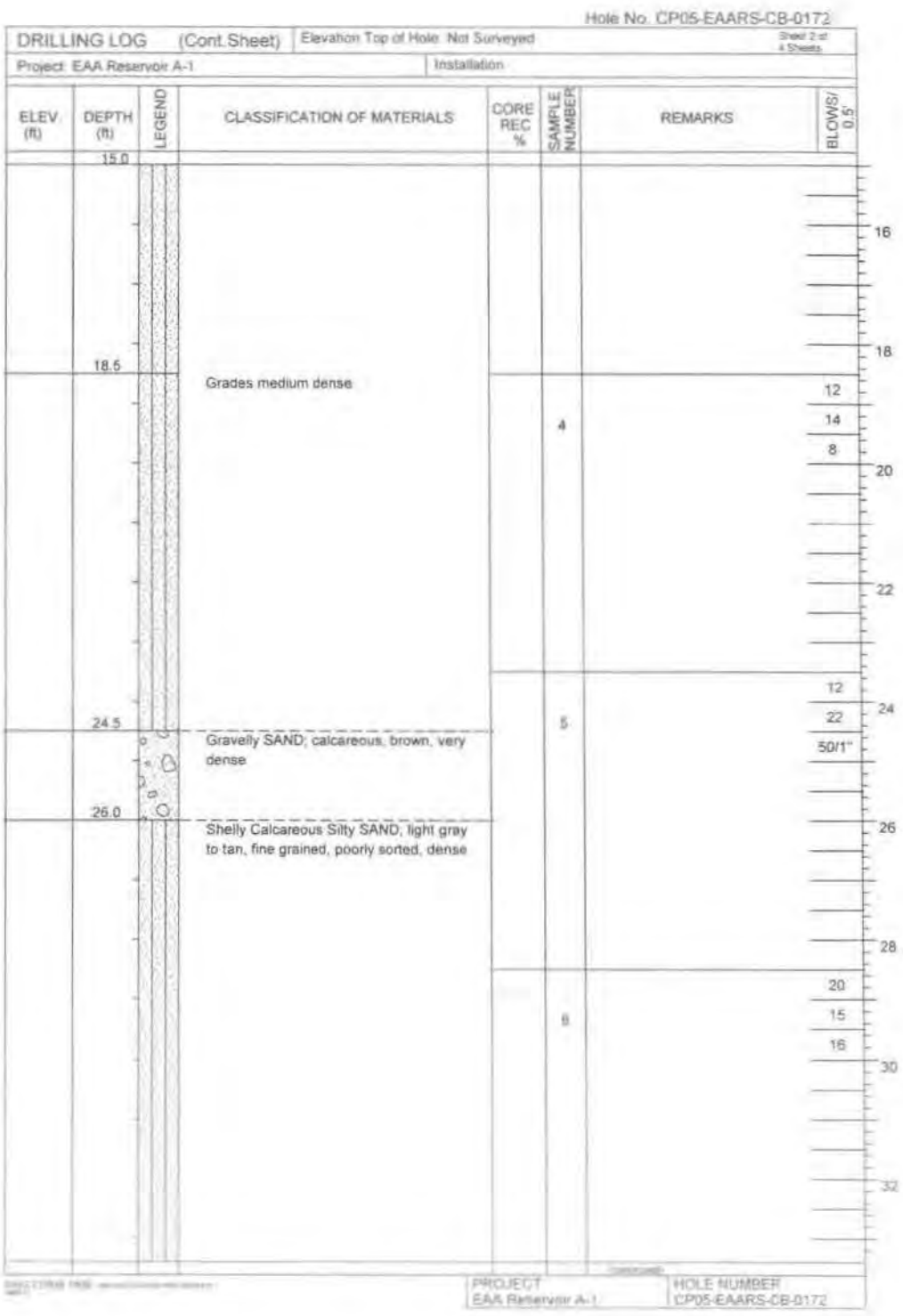
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0171

Hole No. CP05-EAARS-CB-0172

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776162.9, E759333.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0172		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/7/2004 Completed 12/7/2004	
7. Thickness of Burden: 1.2 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 4.8 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
			Peat, Dark Brown, fibrous, organic material				
	1.2					Started drilling at 2:20pm 13 minutes to core Gel-X mud	
			LIMESTONE, moderately to slightly weathered, hard, strong, light yellowish brown to white				
				REC=56 ROD=42	1		
	6.0						
			Calcareous SAND and cemented sandstone, tan, with shells, very dense		1		6 50/5"
	8.5						
			Calcareous Silty SAND and limestone, light gray, loose		2		5 3 3
	13.5						
			Calcareous Silty SAND, with shells, light gray, poorly sorted, fine-grained, loose		3		4 4 3

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0172



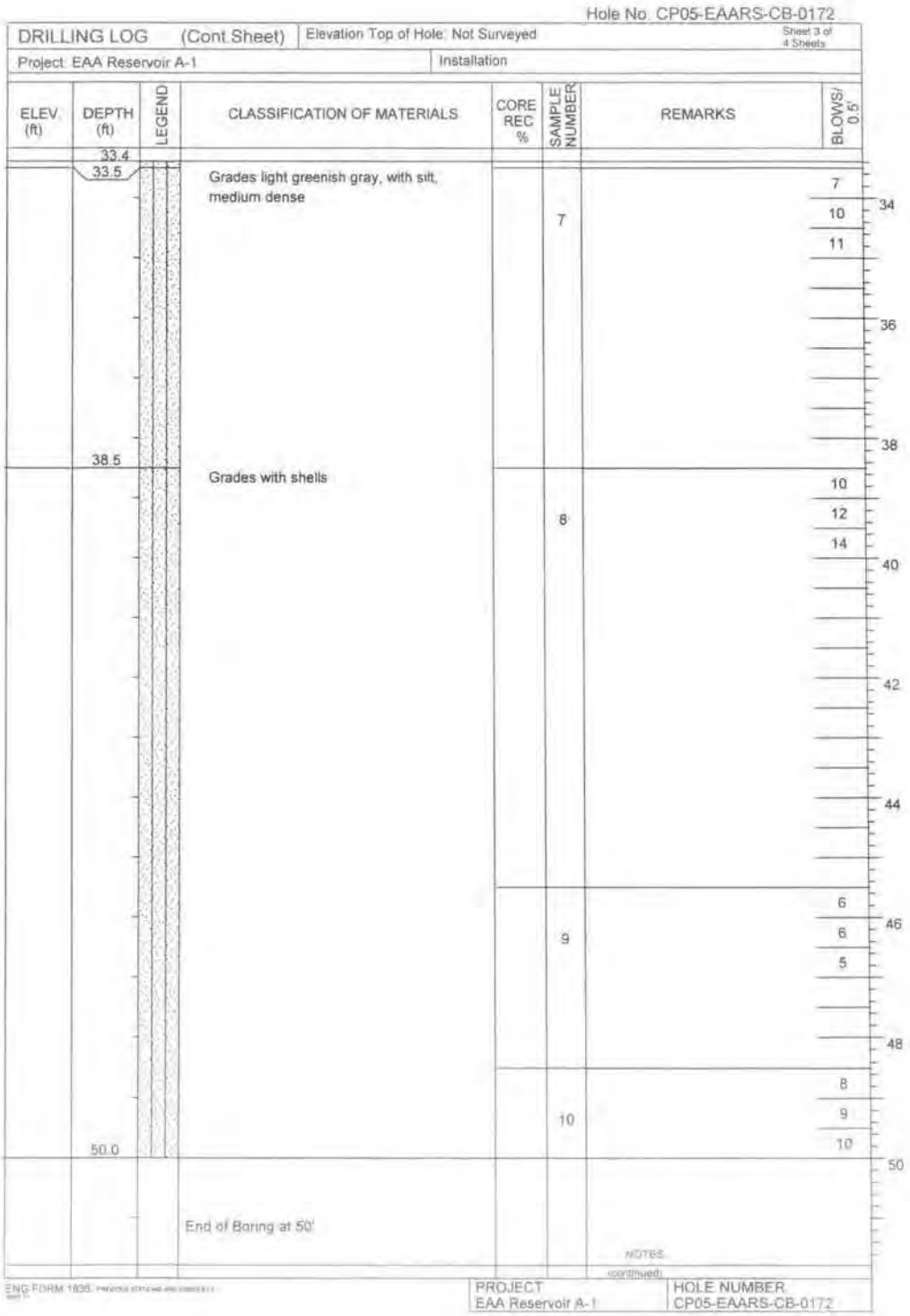
Hole No. CP05-EAARS-CB-0172

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Grades medium dense		4		12 14 8
	24.5		Gravelly SAND; calcareous, brown, very dense		5		12 22 50/1"
	26.0		Shelly Calcareous Silty SAND, light gray to tan, fine grained, poorly sorted, dense		6		20 15 16

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0172



Hole No. CP05-EAARS-CB-0172

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

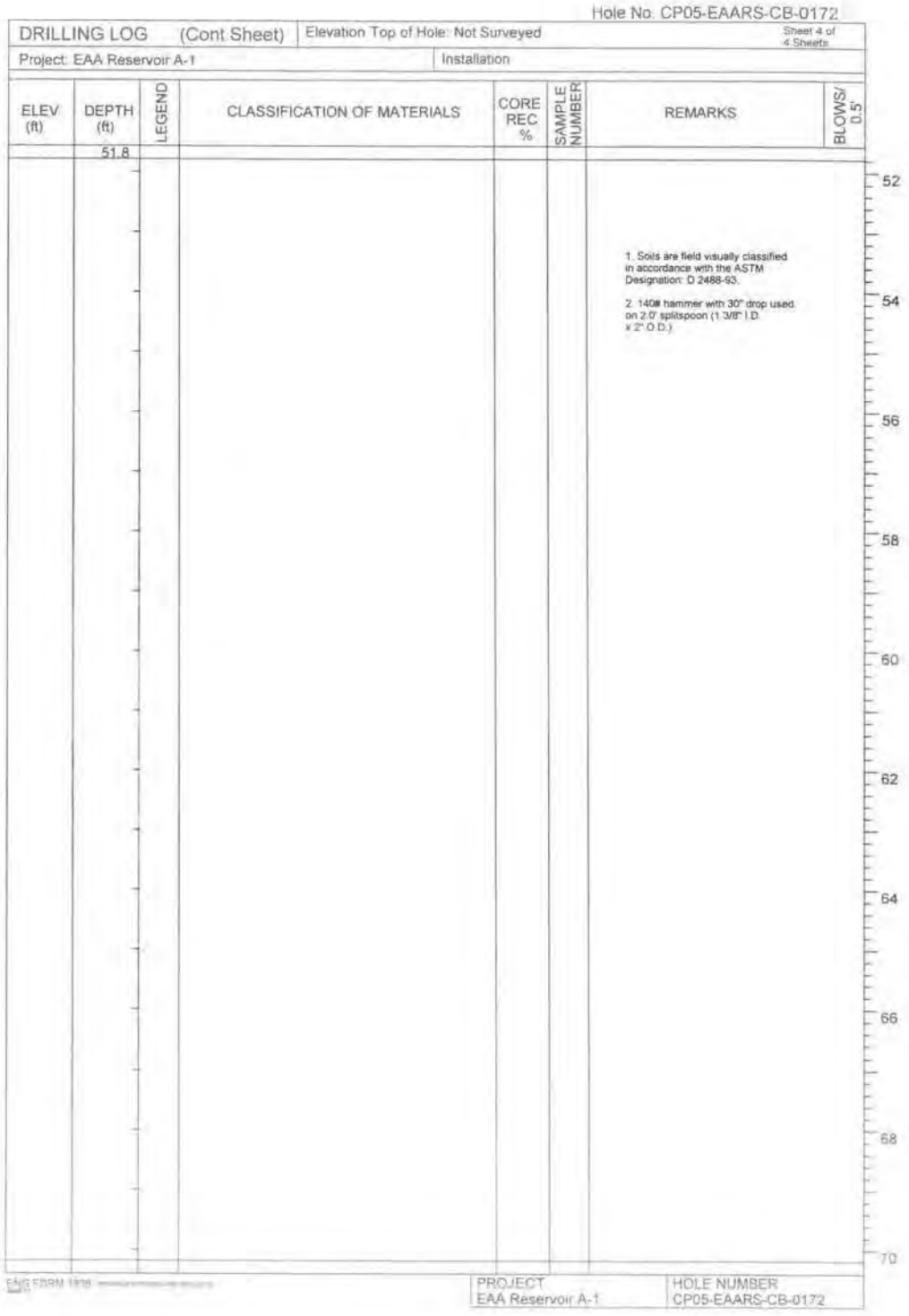
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Grades light greenish gray, with silt, medium dense		7		7 10 11
	38.5		Grades with shells		8		10 12 14
					9		6 6 5
					10		8 9 10
	50.0		End of Boring at 50'			NOTES:	

34 36 38 40 42 44 46 48 50

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0172



Hole No. CP05-EAARS-CB-0172

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0172

Hole No. CP05-EAARS-CB-0173

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776162.9, E759833.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0173		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/8/2004 Completed 12/8/2004	
7. Thickness of Burden: 1.0 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
	1.0		PEAT; Dark brown				
			LIMESTONE; gray at the top, white towards bottom, moderately weathered at the top, slightly weathered at the bottom, hard	REC=35 RQD=22	1	Core run starts=3:18pm. Core run end=3:25pm (1-6ft.)	
	6.0						
			Silty SAND; white, loose, wet, medium grained, poorly graded, subangular, trace gravel with shell and weathered limestone fragments, calcareous		1	CO3=84.7%	8 5 4
	8.5						
			Silty SAND (Consolidated Limestone); white, very dense, wet, medium grained, poorly graded, subangular with shell fragments, calcareous		2		2 3 50
	10.0		Silty SAND; white, loose, wet, fine grained, poorly graded, subangular with shell fragments, calcareous				
					3	Silty SAND with trace Gravel	3 6 4
	15.0						

continued

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0173

Hole No. CP05-EAARS-CB-0173

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
			Silty SAND, gray, medium dense, wet, medium grained, poorly graded, subangular, calcareous with shell fragments				16 18
	18.5		Silty SAND, gray, medium dense, wet, medium grained, poorly graded, subangular, calcareous with shell fragments		4		5 11 9 20 22
	23.5		Silty SAND, very dense, wet, fine grained, poorly graded, subangular, calcareous with shell fragments		5	35 Blows counts for last 1" of penetration. Probably hit shell hash. Very slow penetration with rotary drill	6 17 41 24 26 28
	28.5		Silty SAND, medium dense, moist, fine grained, poorly graded, subangular, calcareous with shellfragments		6	CO3=27.6%	17 18 12 30 32

(continued)

ENG FORM (630)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0173

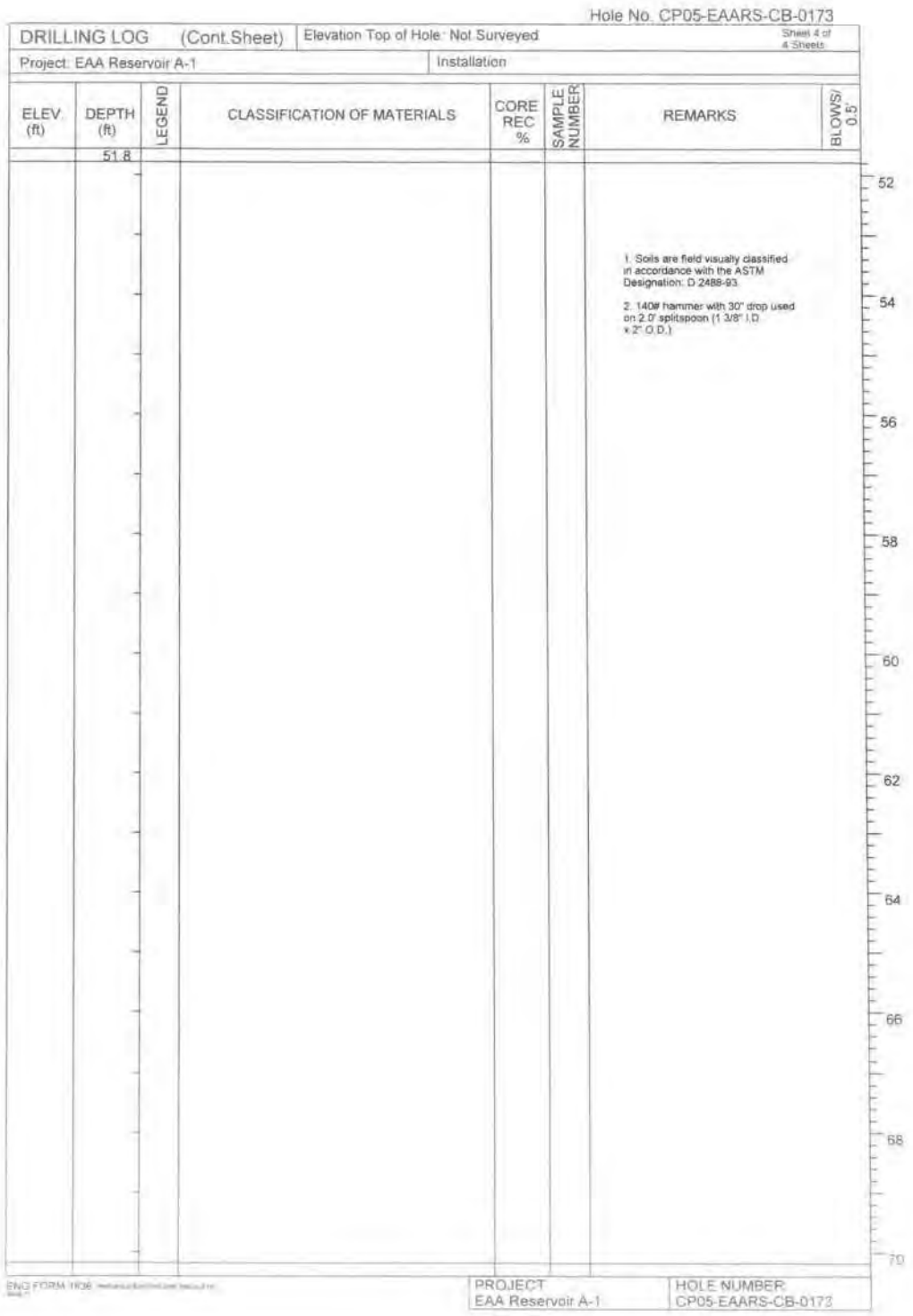
Hole No. CP05-EAARS-CB-0173

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Silty SAND; gray, medium dense, wet, fine grained, poorly graded, subangular, calcareous with shell fragments		7		6 10 10
	38.5		Silty SAND; gray, loose, wet, fine grained, poorly graded, subangular, calcareous with shell fragments, some gravel		8		6 5 5
	43.5		Silty SAND; greenish gray, medium dense, fine grained, poorly graded, subrounded, calcareous with trace shell fragments		8		4 6 5
	48.5		Silty SAND; greenish gray, loose, fine grained, poorly graded, subrounded, calcareous, trace shell fragments		10	CO_3=34.6%	2 2 5
	50.0		End of Boring at 50'				

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0173



Hole No. CP05-EAARS-CB-0173

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT: EAA Reservoir A-1

HOLE NUMBER: CP05-EAARS-CB-0173

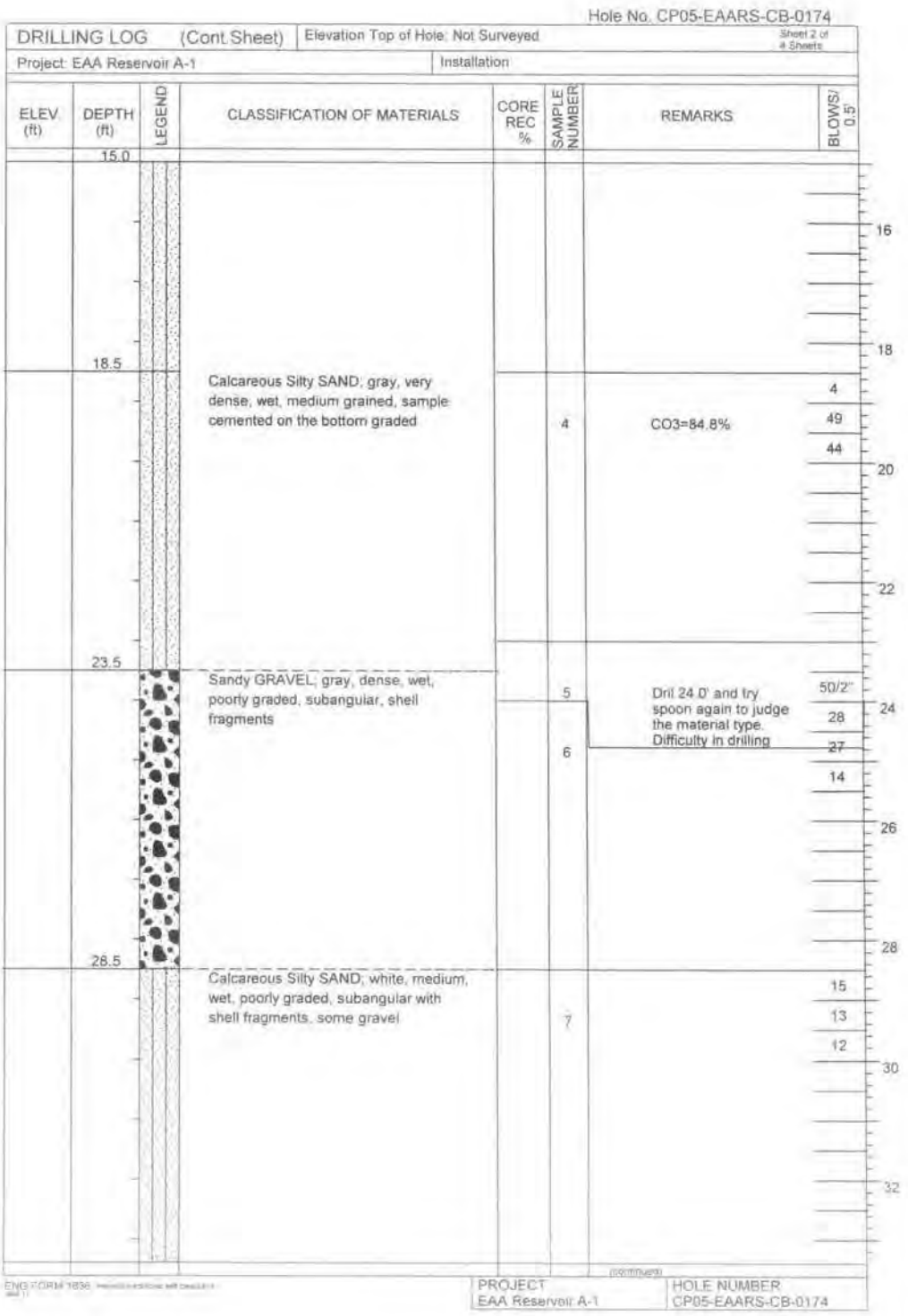
Hole No. CP05-EAARS-CB-0174

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N775862.9, E758833.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0174		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/9/2004 Completed 12/9/2004	
7. Thickness of Burden: 1.0 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
			PEAT; Dark brown				
	1.0		LIMESTONE; gray, moderately weathered, vuggy and with shells, seams in yellow color, hard			Drilled with hand sampler. Core run start =8:36am. Core run end=8:49am (1-6ft.)	
				REC=32 RQD=7	1		
	6.0		Calcareous Silty SAND; white dense, wet, fine to medium grained, poorly graded, subangular, trace gravel with shell fragments		1	CO3=83%	3 3 29
	8.5		Calcareous Silty SAND; white to light gray, wet, fine to medium grained, poorly graded, subangular, trace gravel with shell fragments		2		23 40 17
			Calcareous Silty SAND; white to gray, dense, wet, medium grained, poorly graded, subangular, trace gravel with shell fragments		3	Difficulty in drilling, slow penetration	4 5 33
	15.0						

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0174



Hole No. CP05-EAARS-CB-0174

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

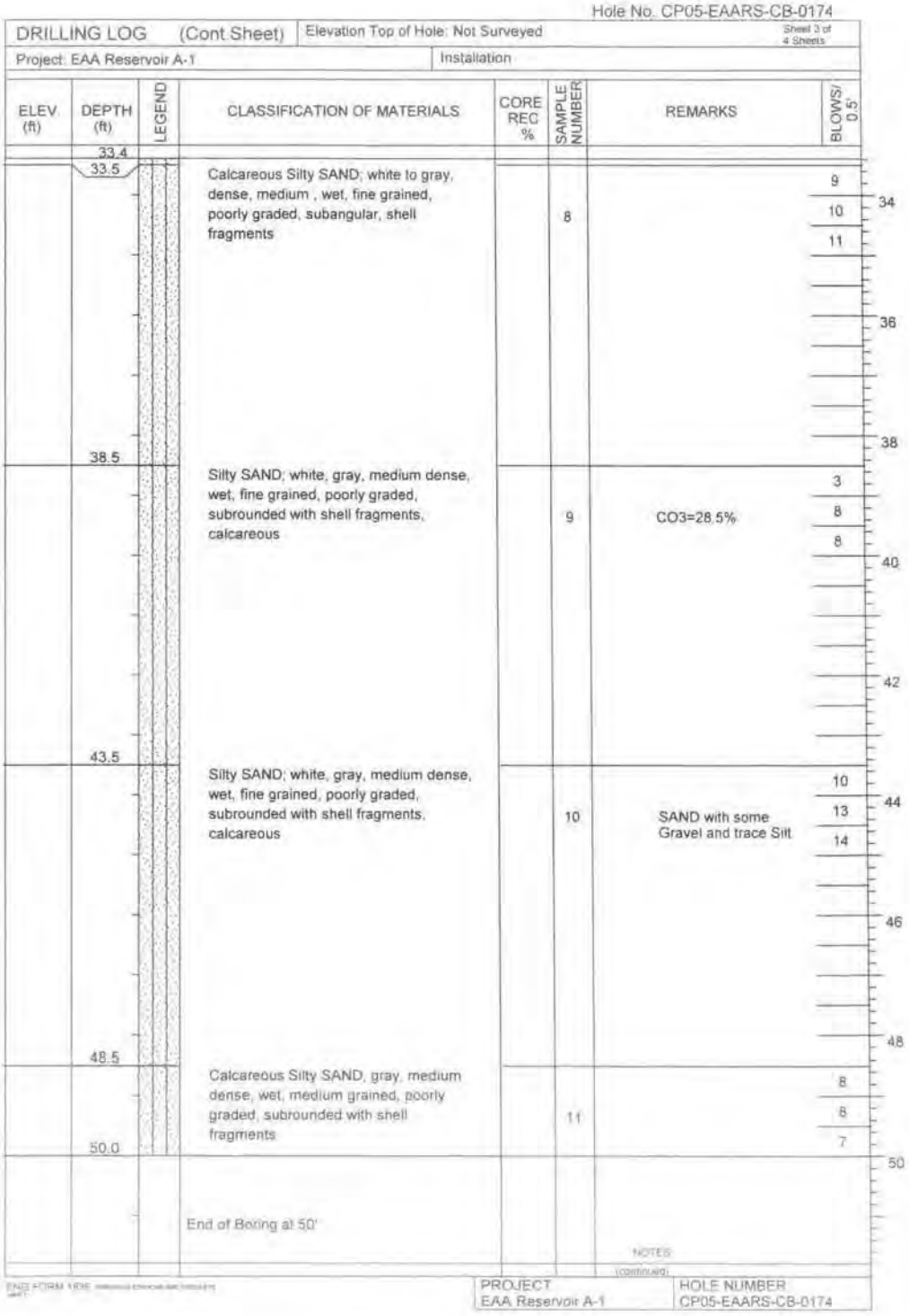
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Calcareous Silty SAND; gray, very dense, wet, medium grained, sample cemented on the bottom graded		4	CO_3=84.8%	4 49 44
	23.5		Sandy GRAVEL; gray, dense, wet, poorly graded, subangular, shell fragments		5 6	Dril 24.0' and try spoon again to judge the material type. Difficulty in drilling	50/2" 28 27 14
	28.5		Calcareous Silty SAND; white, medium, wet, poorly graded, subangular with shell fragments, some gravel		7		15 13 12

16 18 20 22 24 26 28 30 32

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0174



Hole No. CP05-EAARS-CB-0174

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

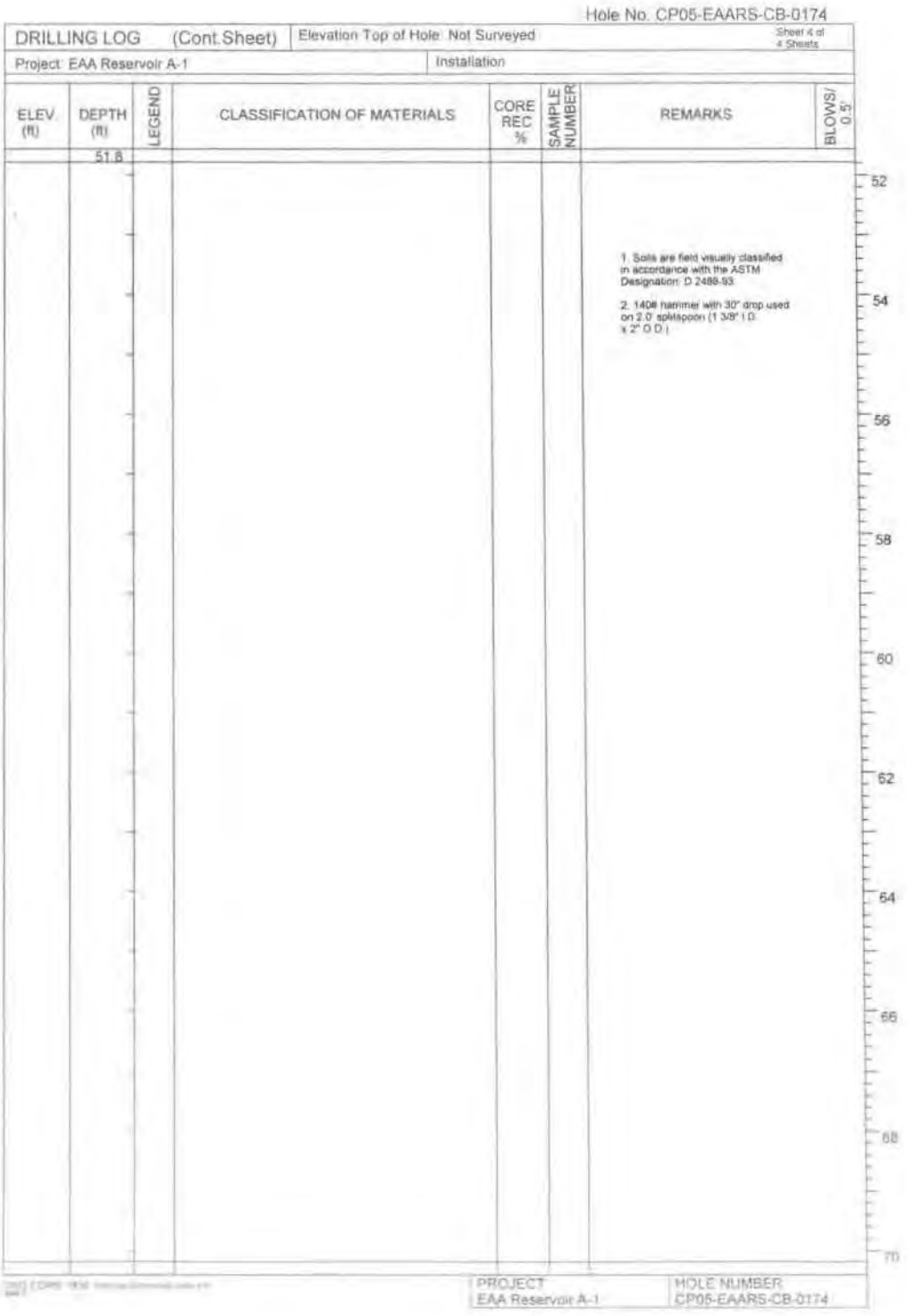
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Calcareous Silty SAND; white to gray, dense, medium , wet, fine grained, poorly graded, subangular, shell fragments		8		9 10 11
	38.5		Silty SAND; white, gray, medium dense, wet, fine grained, poorly graded, subrounded with shell fragments, calcareous		9	CO3=28.5%	3 8 8
	43.5		Silty SAND; white, gray, medium dense, wet, fine grained, poorly graded, subrounded with shell fragments, calcareous		10	SAND with some Gravel and trace Silt	10 13 14
	48.5		Calcareous Silty SAND, gray, medium dense, wet, medium grained, poorly graded, subrounded with shell fragments		11		8 8 7
	50.0		End of Boring at 50'				

34 36 38 40 42 44 46 48 50

NOTES

(CONTINUED)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0174



Hole No. CP05-EAARS-CB-0174

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0174

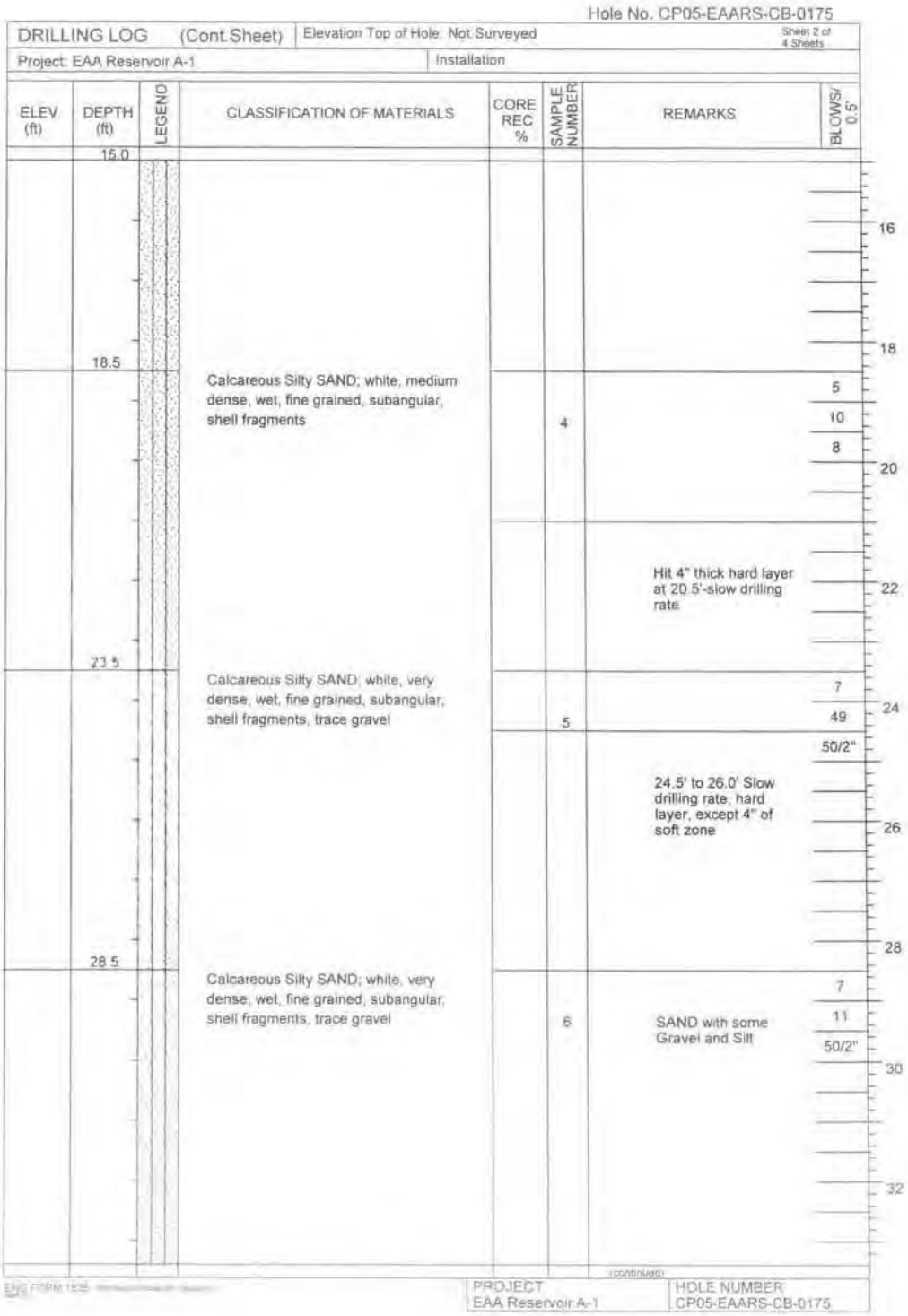
Hole No. CP05-EAARS-CB-0175

DRILLING LOG	Division	Installation	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N775662.9, E759333.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0175		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/9/2004 Completed 12/9/2004	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						0
	0.5		PEAT; Dark brown				
			LIMESTONE; yellowish gray at top, gray at the middle and white at the bottom, vuggy, hard, moderately weathered at the top to slightly weathered at the bottom			Drilled with hand sampler. Core run start=1:17pm. Core run end=1:32pm (0.5-5.5ft.)	2
				REC=67 RQD=52	1		4
	5.5						
			Calcareous Silty SAND; white, medium dense, wet, fine grained, poorly graded, subangualer, shell fragments, some gravel		1		4 5 7
	8.5						8
			Calcareous Silty SAND; white, loose, wet, fine grained, poorly graded, subangular, shell fragments, trace gravel, bottom 5" is plastic silty SAND, gray, fine grained		2	CO3=85.9%	2 6 3
							10
							12
	13.5						
			Calcareous Silty SAND; white, dense, wet, fine grained, poorly graded, subangular, shell fragments, some gravel		3	CO3=81.7%	3 3 30
							14

(continued)

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0175



Hole No. CP05-EAARS-CB-0175

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

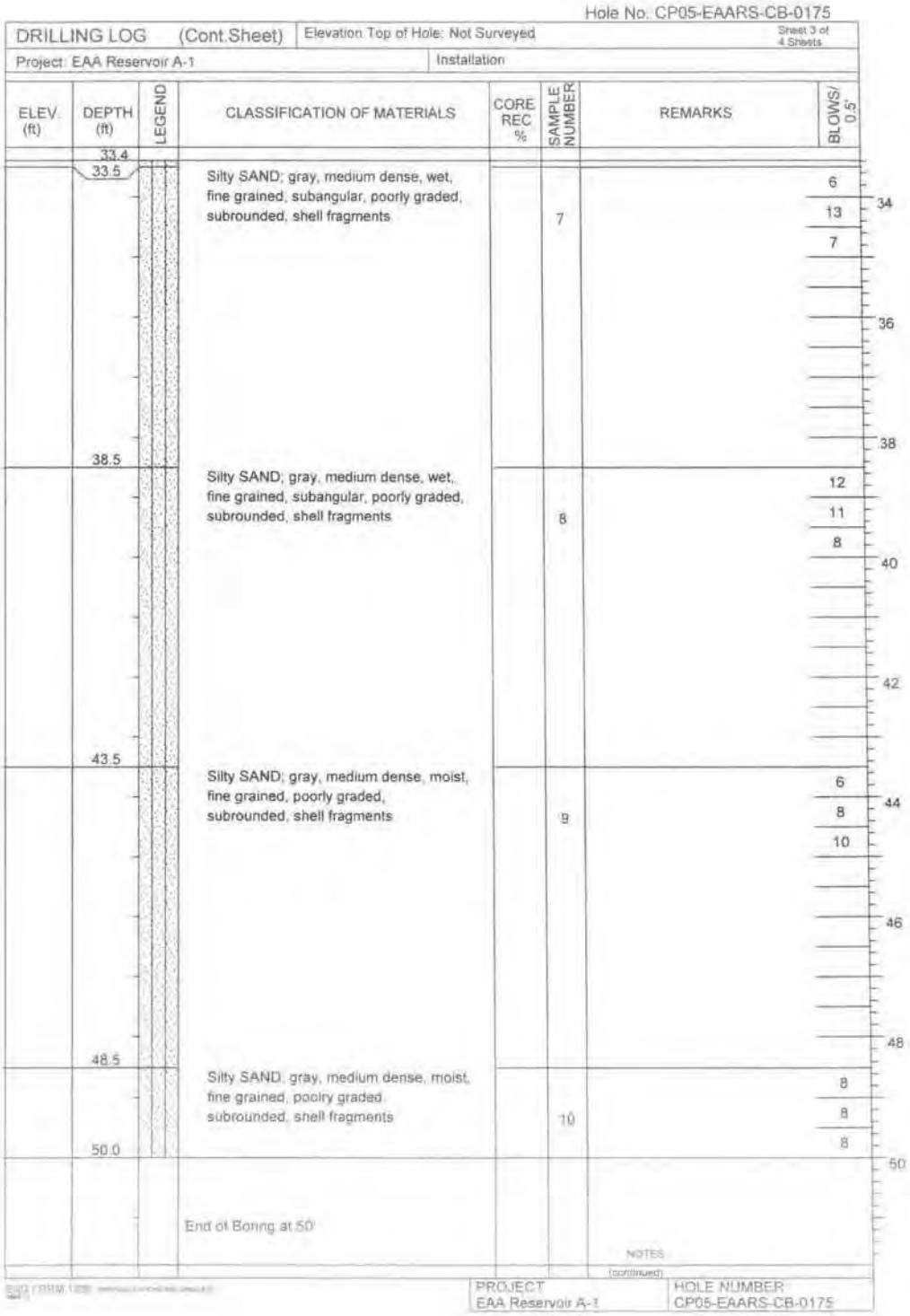
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Calcareous Silty SAND; white, medium dense, wet, fine grained, subangular, shell fragments		4		5 10 8
	23.5		Calcareous Silty SAND; white, very dense, wet, fine grained, subangular, shell fragments, trace gravel		5	Hit 4" thick hard layer at 20.5'-slow drilling rate	7 49 50/2"
	28.5		Calcareous Silty SAND; white, very dense, wet, fine grained, subangular, shell fragments, trace gravel		6	24.5' to 26.0' Slow drilling rate, hard layer, except 4" of soft zone SAND with some Gravel and Silt	7 11 50/2"

16 18 20 22 24 26 28 30 32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0175



Hole No. CP05-EAARS-CB-0175

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

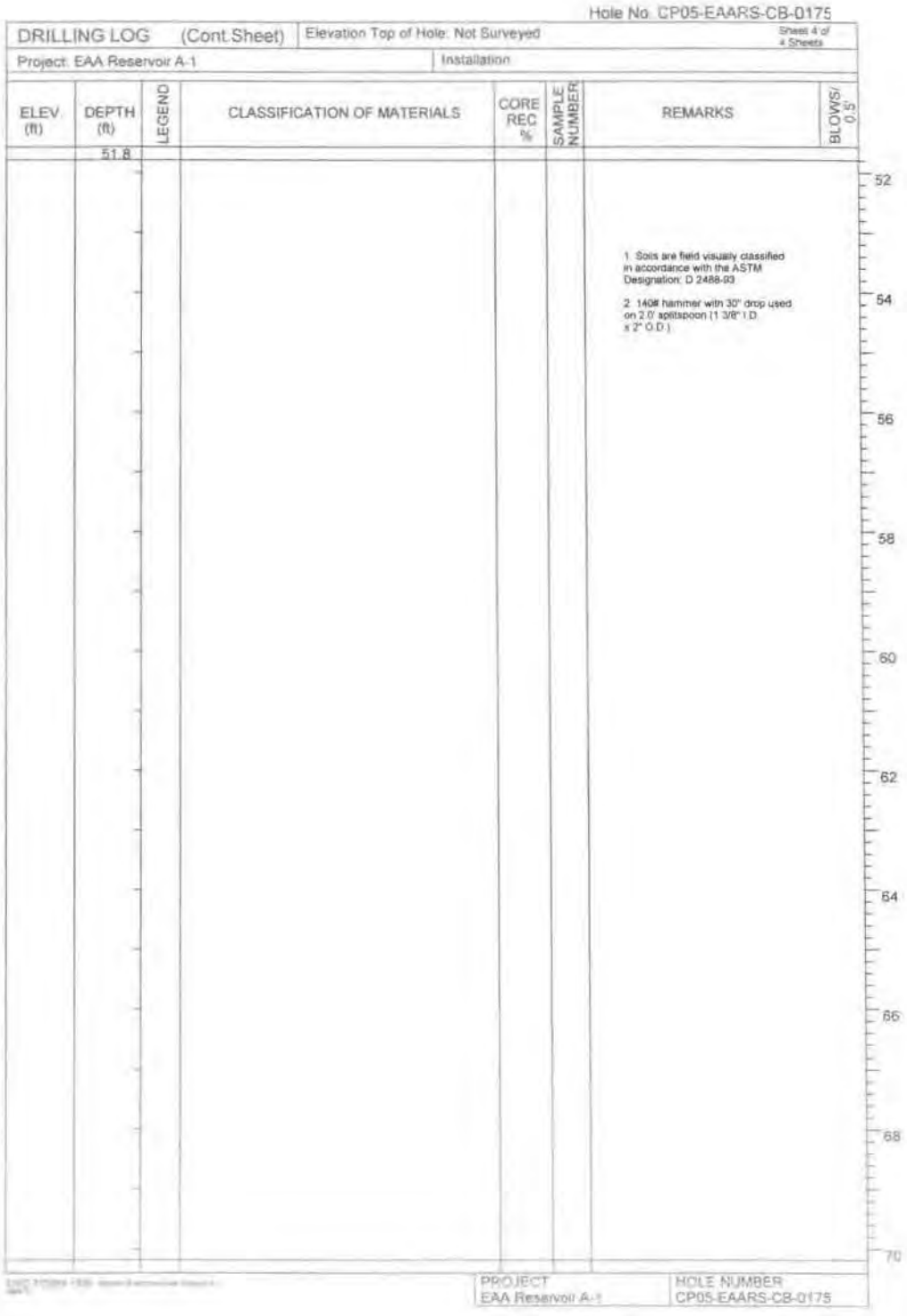
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Silty SAND; gray, medium dense, wet, fine grained, subangular, poorly graded, subrounded, shell fragments		7		6 13 7 — 34
	38.5		Silty SAND; gray, medium dense, wet, fine grained, subangular, poorly graded, subrounded, shell fragments		8		12 11 8 — 40
	43.5		Silty SAND; gray, medium dense, moist, fine grained, poorly graded, subrounded, shell fragments		9		6 8 10 — 46
	48.5		Silty SAND; gray, medium dense, moist, fine grained, poorly graded, subrounded, shell fragments		10		8 8 8 — 50
	50.0		End of Boring at 50'				

NOTES

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0175



Hole No. CP05-EAARS-CB-0175

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

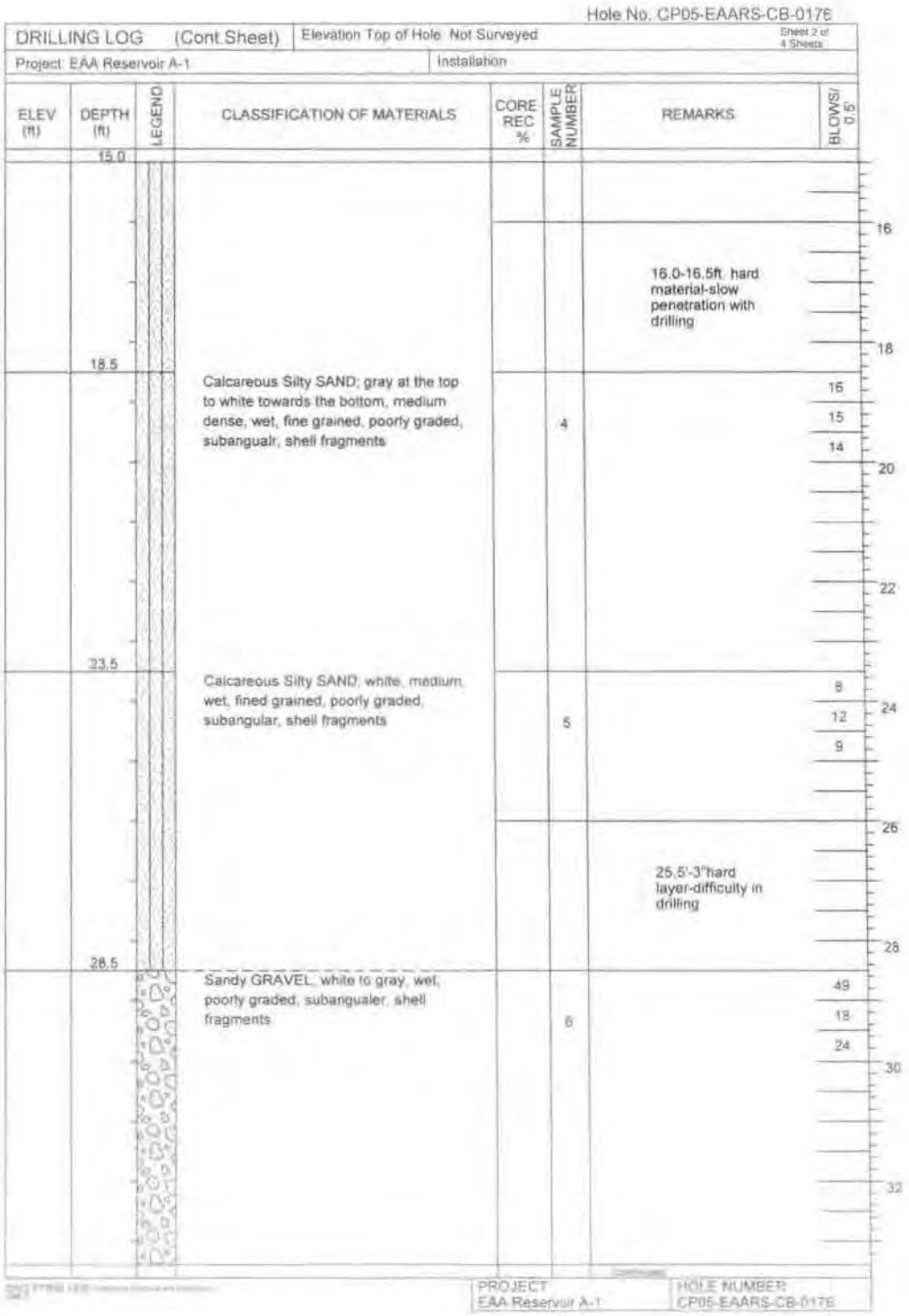
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0175

Hole No. CP05-EAARS-CB-0176

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N775662.9, E759833.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0176		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/10/2004 Completed 12/10/2004	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						0
	0.5		PEAT; Dark brown				
			LIMESTONE; yellowish gray at the top, gray in the middle and white at the bottom, moderately weathered at the top to slightly weathered at the bottom, hard vuggy			Drilled with hand sampler. Core run start=8:27am. core run end=8:43am(0.5'-5.5')	2
				REC=70 RQD=52	1		4
	5.5		Calcareous Silty SAND; white, medium dense, wet, fine grained, poorly graded, subangular, trace gravel, shell fragments		1		4 6 9 8
	8.5		Calcareous Silty SAND; white, very loose, wet, fine grained, poorly graded, subangular, trace gravel, shell fragments		2		1 2 2 10
	13.5		Calcareous Silty SAND; gray at the top to white towards the bottom, medium dense, wet, fine grained, poorly graded, subangular, shell fragments		3		5 6 4 14

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0176



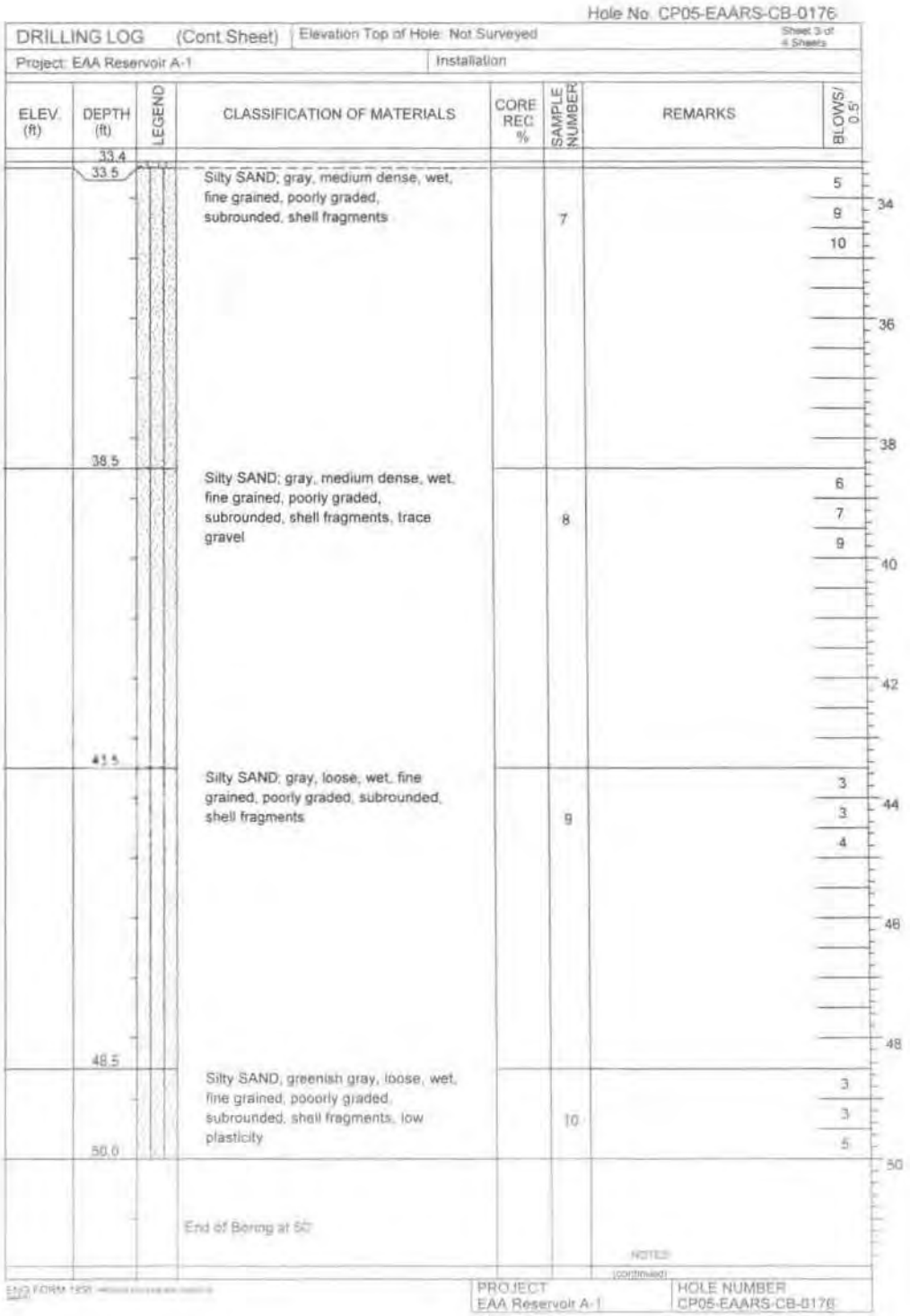
Hole No. CP05-EAARS-CB-0176

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
						16.0-16.5ft. hard material-slow penetration with drilling	16 18
	18.5		Calcareous Silty SAND; gray at the top to white towards the bottom, medium dense, wet, fine grained, poorly graded, subangualr, shell fragments		4		16 15 14 20 22
	23.5		Calcareous Silty SAND; white, medium wet, fined grained, poorly graded, subangular, shell fragments		5		8 12 9 24
						25.5'-3"hard layer-difficulty in drilling	26 28
	28.5		Sandy GRAVEL; white to gray, wet, poorly graded, subangualer, shell fragments		6		49 18 24 30 32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0176



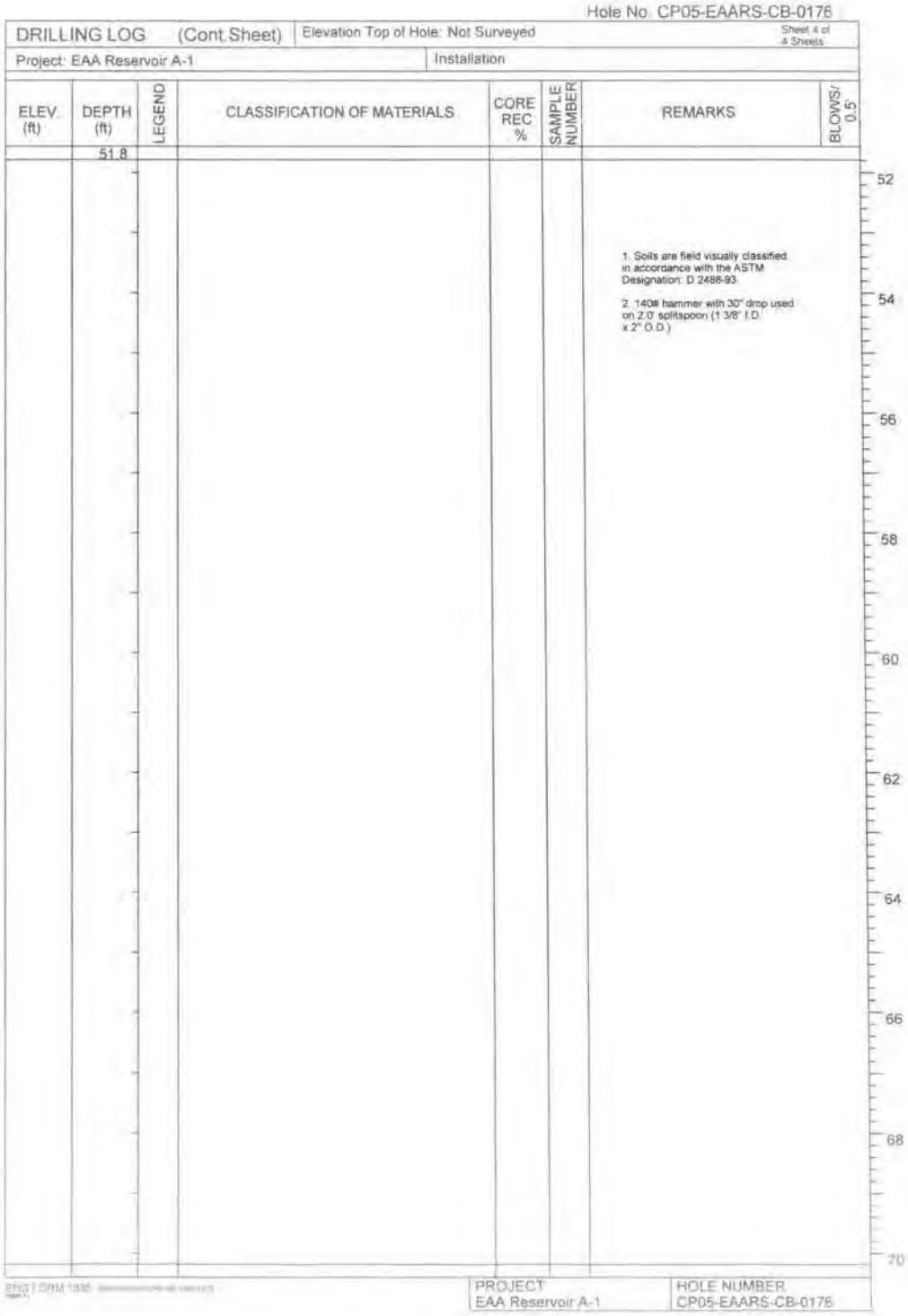
Hole No. CP05-EAARS-CB-0176

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Silty SAND; gray, medium dense, wet, fine grained, poorly graded, subrounded, shell fragments		7		5 9 10
	38.5		Silty SAND; gray, medium dense, wet, fine grained, poorly graded, subrounded, shell fragments, trace gravel		8		6 7 9
	43.5		Silty SAND; gray, loose, wet, fine grained, poorly graded, subrounded, shell fragments		9		3 3 4
	48.5		Silty SAND, greenish gray, loose, wet, fine grained, poorly graded, subrounded, shell fragments, low plasticity		10		3 3 5
	50.0		End of Boring at 50'			NOTES: (continued)	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0176



Hole No. CP05-EAARS-CB-0176

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1835

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0176

Hole No. CP05-EAARS-CB-0177

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N775662.9, E760333.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0177		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/10/2004 Completed 12/10/2004	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						0
	0.5		PEAT; Dark Brown				
			LIMESTONE, yellowish gray to gray at the top and the middle white at the bottom, moderately weathered at the top to slightly weathered to slightly weathered at the bottom, vuggy			Drilled with hand sampler. Core run start=11:55am. Core run end=12:00pm	2
				REC=48 RQD=30	1		4
	5.5		Sandy GRAVEL; white, loose, wet, poorly graded, subangualr, shell fragments		1		4 4 5 6
	8.5		Silty SAND; white, medium dense, wet, poorly graded, subangular, shell fragments, medium grained		2		2 14 15 10
	13.5		Silty SAND; white, dense, wet, poorly graded, fine grained, subangular, shell fragments		3		4 8 35 14

(continued)

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0177

Hole No. CP05-EAARS-CB-0177

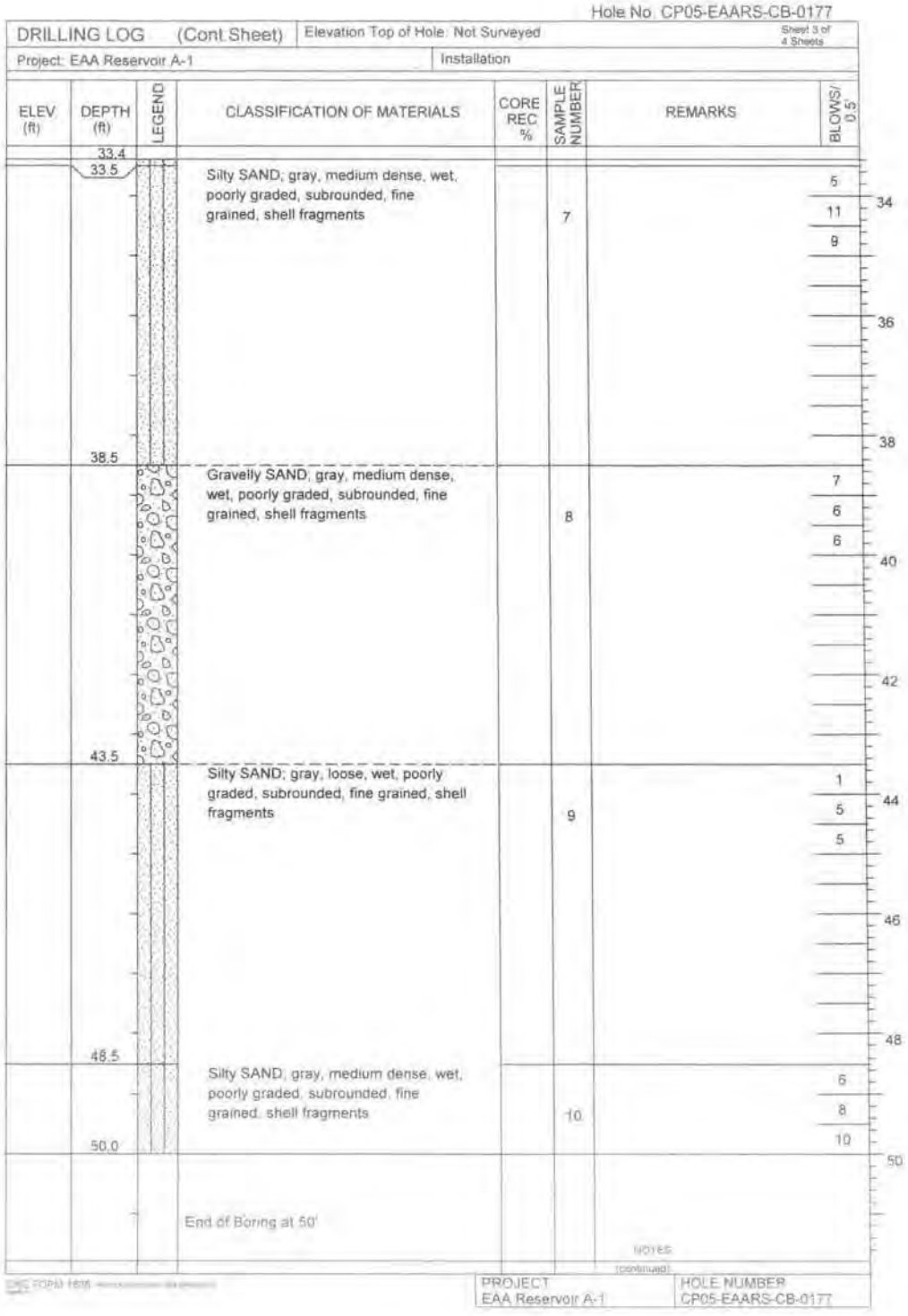
DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Silty SAND; white, medium dense, wet, poorly graded, fine grained, subangular, shell fragments		4	Limestone seam 0.75" thick	10 10 11
	23.5		Silty SAND; white to gray, very dense, wet, poorly graded, medium grained, subangular, shell fragments, trace gravel		5	1.5" thick limestone seam	4 21 50/2"
						25.5-3"thick hard layer, difficulty in drilling	
	28.5		Silty SAND; white, very dense, wet, poorly graded, medium grained, subangular, shell fragments, some gravel		6	27.5'-6" thick hard layer, difficulty in drilling	19 27 16

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0177



Hole No. CP05-EAARS-CB-0177

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

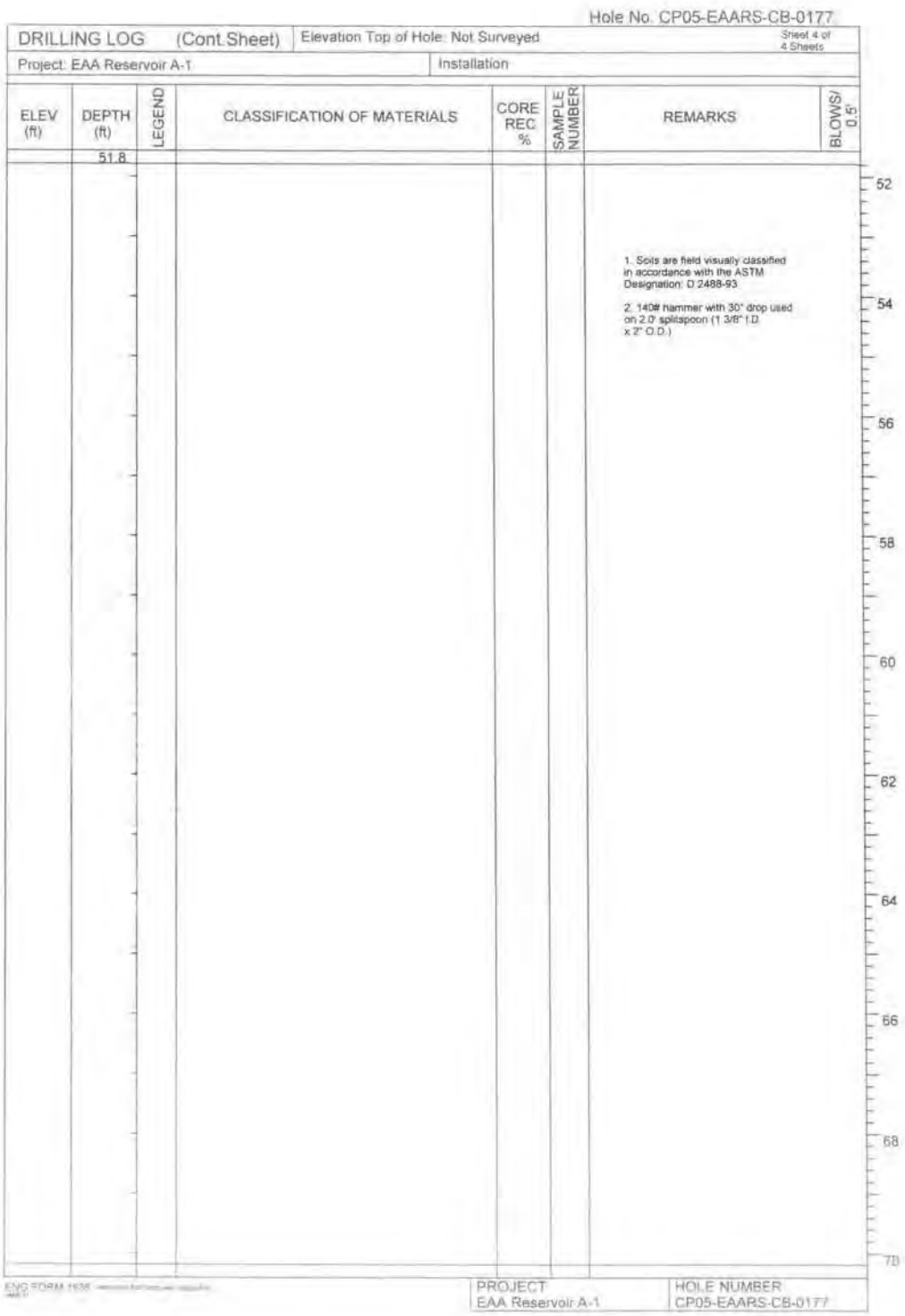
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5
	33.4						
	33.5		Silty SAND, gray, medium dense, wet, poorly graded, subrounded, fine grained, shell fragments		7		5 11 9
	38.5		Gravelly SAND, gray, medium dense, wet, poorly graded, subrounded, fine grained, shell fragments		8		7 6 6
	43.5		Silty SAND, gray, loose, wet, poorly graded, subrounded, fine grained, shell fragments		9		1 5 5
	48.5		Silty SAND, gray, medium dense, wet, poorly graded, subrounded, fine grained, shell fragments		10		6 8 10
	50.0		End of Boring at 50'				

NOTES

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0177



Hole No. CP05-EAARS-CB-0177

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

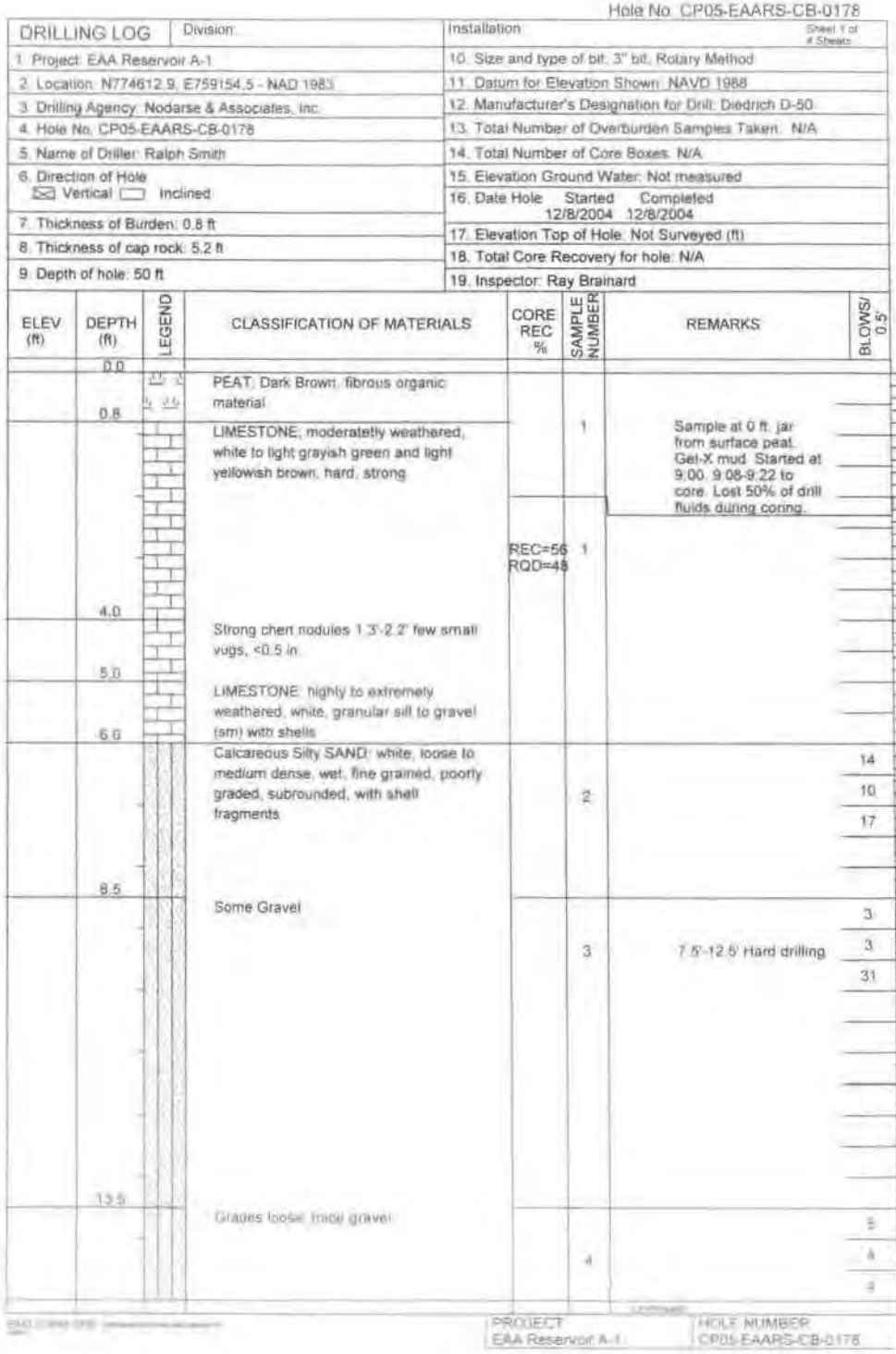
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0177



Hole No. CP05-EAARS-CB-0178

DRILLING LOG	Division:	Installation	Sheet 1 of # Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774612.9, E759154.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0178		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/8/2004 Completed 12/8/2004	
7. Thickness of Burden: 0.8 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.2 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Ray Brainard	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						0
			PEAT: Dark Brown, fibrous organic material				
	0.8				1	Sample at 0 ft. jar from surface peat. Gel-X mud. Started at 9:00. 9:08-9:22 to core. Lost 50% of drill fluids during coring.	
			LIMESTONE: moderatetly weathered, white to light grayish green and light yellowish brown, hard, strong				2
				REC=56 RQD=48	1		
	4.0						4
			Strong chert nodules 1.3'-2.2' few small vugs, <0.5 in				
	5.0						
			LIMESTONE: highly to extremely weathered, white, granular silt to gravel (sm) with shells				
	6.0						6
			Calcareous Silty SAND: white, loose to medium dense, wet, fine grained, poorly graded, subrounded, with shell fragments		2		14
							10
							17
	8.5						8
			Some Gravel				3
					3	7.5'-12.5' Hard drilling	3
							31
							10
	13.5						12
			Grades loose, trace gravel				5
					4		4
							4
							14

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0178

Hole No. CP05-EAARS-CB-0178

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						16
	18.5		Shelly SAND; gray, medium dense to very dense, fine grained, poorly graded, some silt, calcareous		5		14 12 9
	23.5		Grades to Gravelly SAND; light greenish gray, very dense, chert gravel up to 1-inch diameter, some silt, calcareous		6		50/4"
	28.5		Grades to SAND; tan, dense, with shells, well graded, fine grained, calcareous		7	1.25" diameter gravel at top of sample likely the reason for high blow counts	26 25 16

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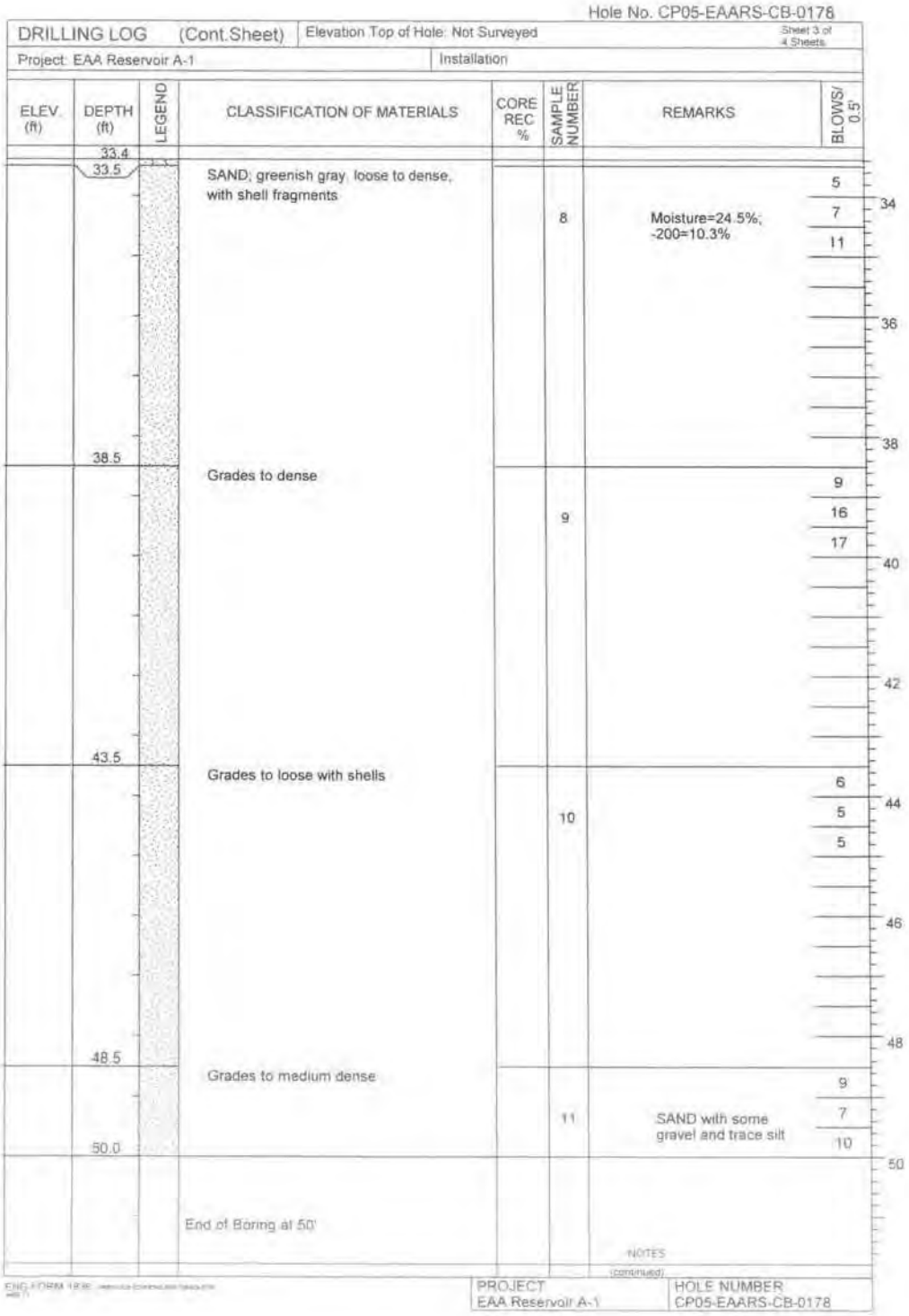
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0178



Hole No. CP05-EAARS-CB-0178

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

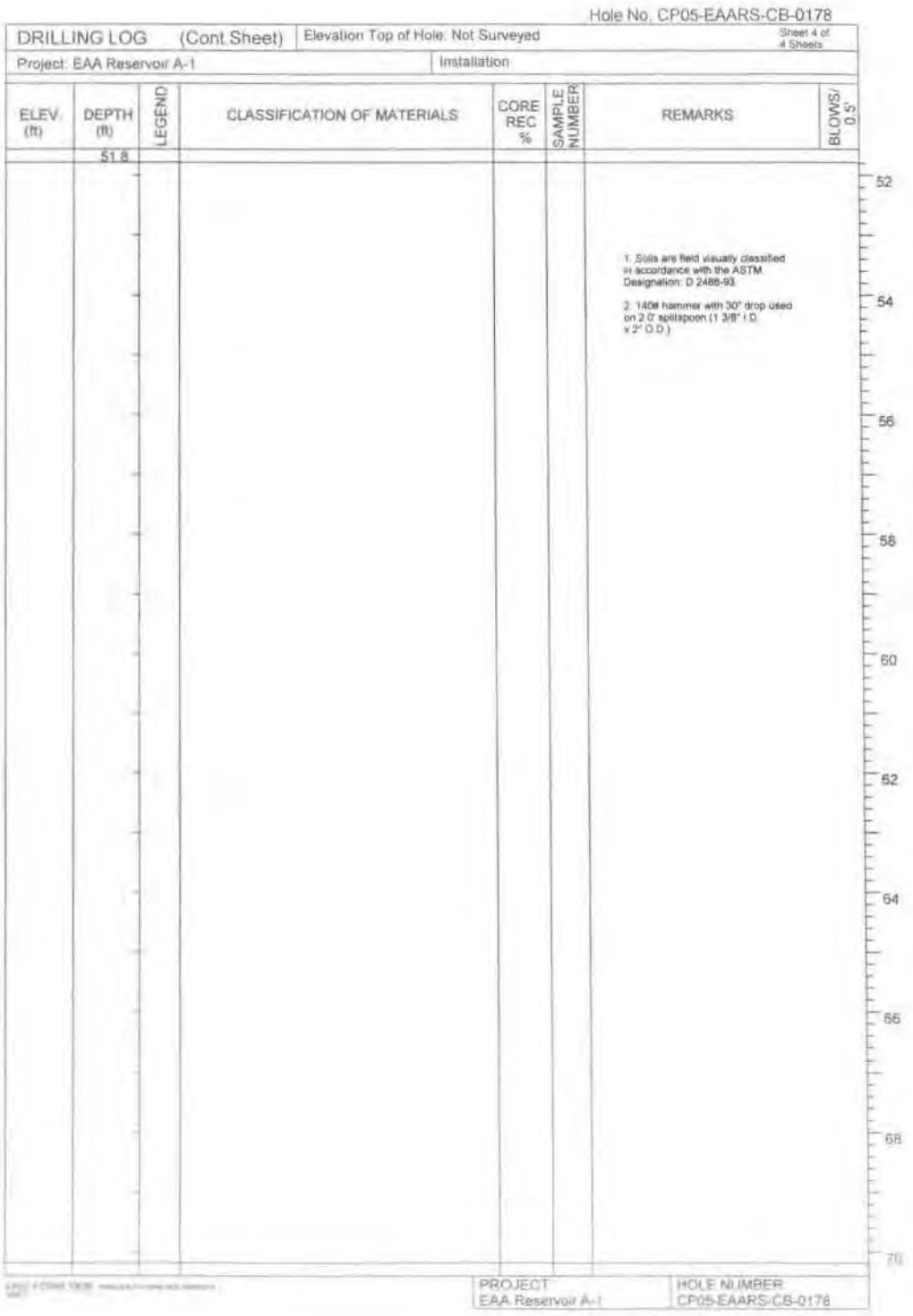
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		SAND; greenish gray, loose to dense, with shell fragments		8	Moisture=24.5%; -200=10.3%	5 7 11 34 36 38
	38.5		Grades to dense		9		9 16 17 40 42
	43.5		Grades to loose with shells		10		6 5 5 44 46 48
	48.5		Grades to medium dense		11	SAND with some gravel and trace silt	9 7 10
	50.0		End of Boring at 50'				50

NOTES

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0178



Hole No. CP05-EAARS-CB-0178

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0178

Hole No. CP05-EAARS-CB-0179

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774612.9, E760243.1 – NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0179		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/8/2004 Completed 12/8/2004	
7. Thickness of Burden: 1.8 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Ray Brainard	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0		PEAT; Dark brown, fibrous, organic material			Started drilling at 1:55	0
	1.8		LIMESTONE; moderately weathered, hard, strong, white to medium brownish gray and light yrllowish brown, some vugs, lots of shells	REC=42 RQD=21	1	2:05-2:34 for core run. Gel-X Mud	2 4 6
	6.8		Calcareous Silty SAND; white, loose, shell fragments		1	Sample 6.8'-8.3' SPT- Limestone slough, probably blocked tube. SAND with some Silt to Gravel	12 2 2 8
					2		4 3 3 10 12
					3		5 4 4 14

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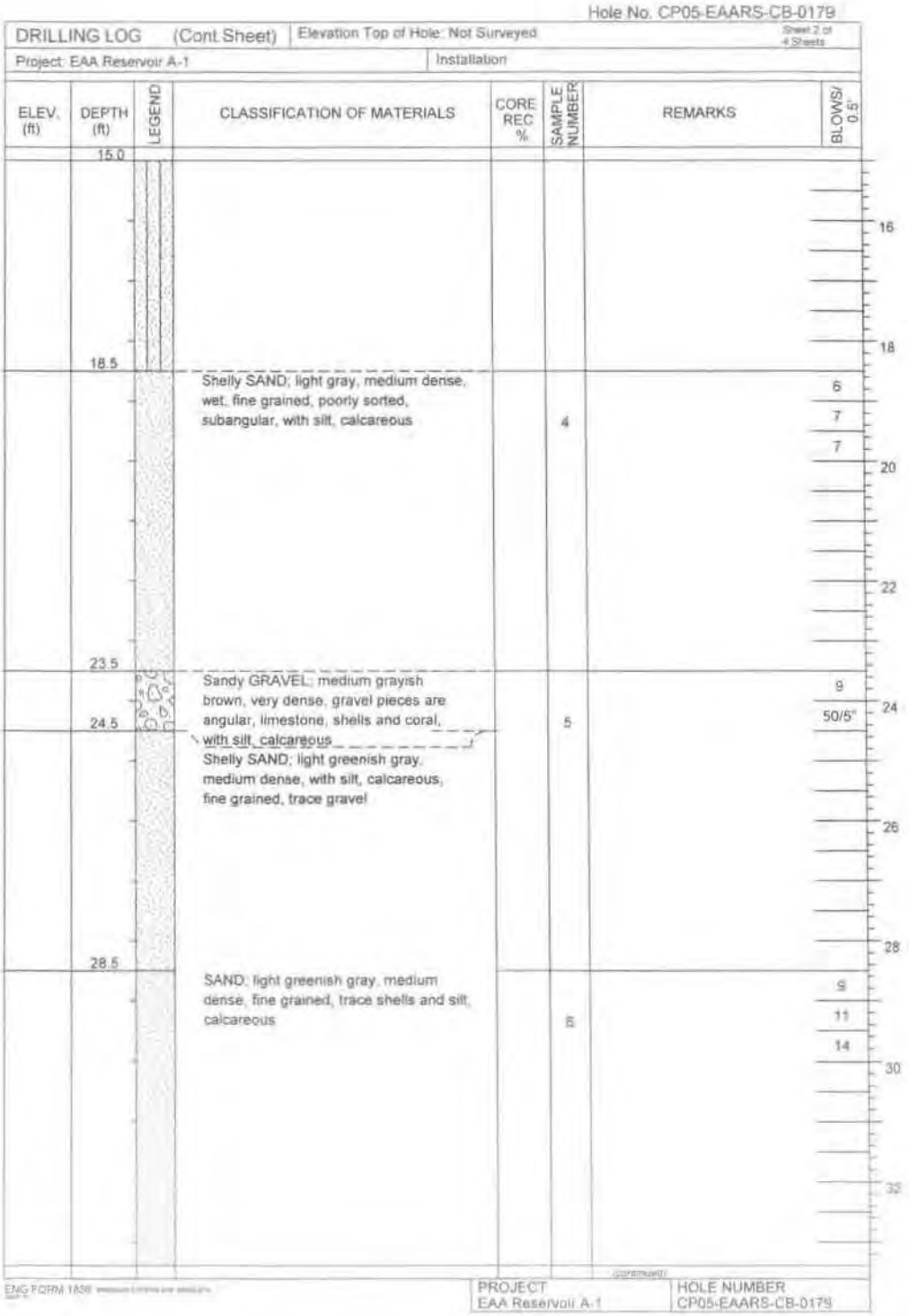
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0179



Hole No. CP05-EAARS-CB-0179

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Shelly SAND; light gray, medium dense, wet, fine grained, poorly sorted, subangular, with silt, calcareous		4		6 7 7
	23.5		Sandy GRAVEL; medium grayish brown, very dense, gravel pieces are angular, limestone, shells and coral, with silt, calcareous		5		9 50/5"
	24.5		Shelly SAND; light greenish gray, medium dense, with silt, calcareous, fine grained, trace gravel				
	28.5		SAND; light greenish gray, medium dense, fine grained, trace shells and silt, calcareous		6		9 11 14

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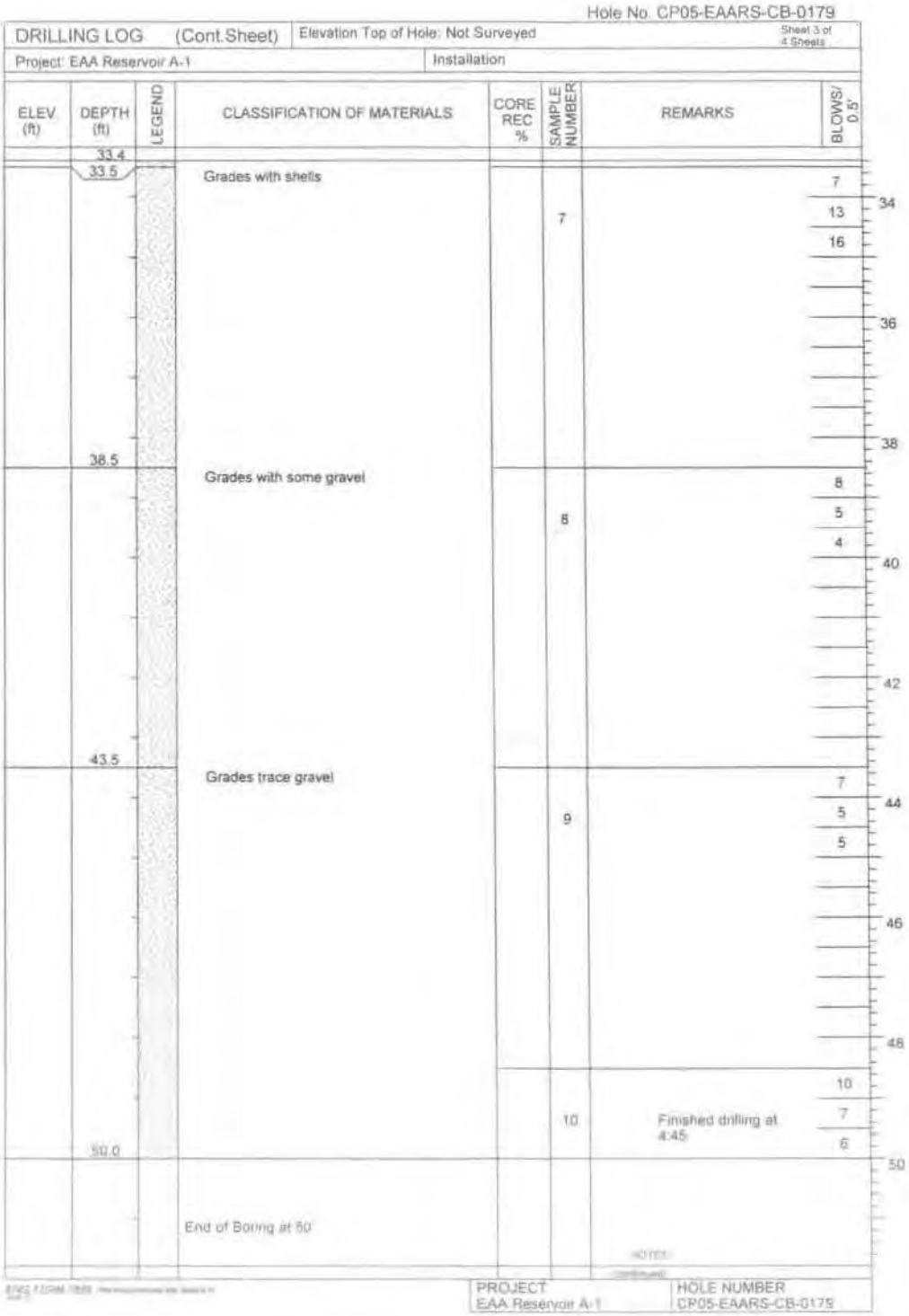
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0179



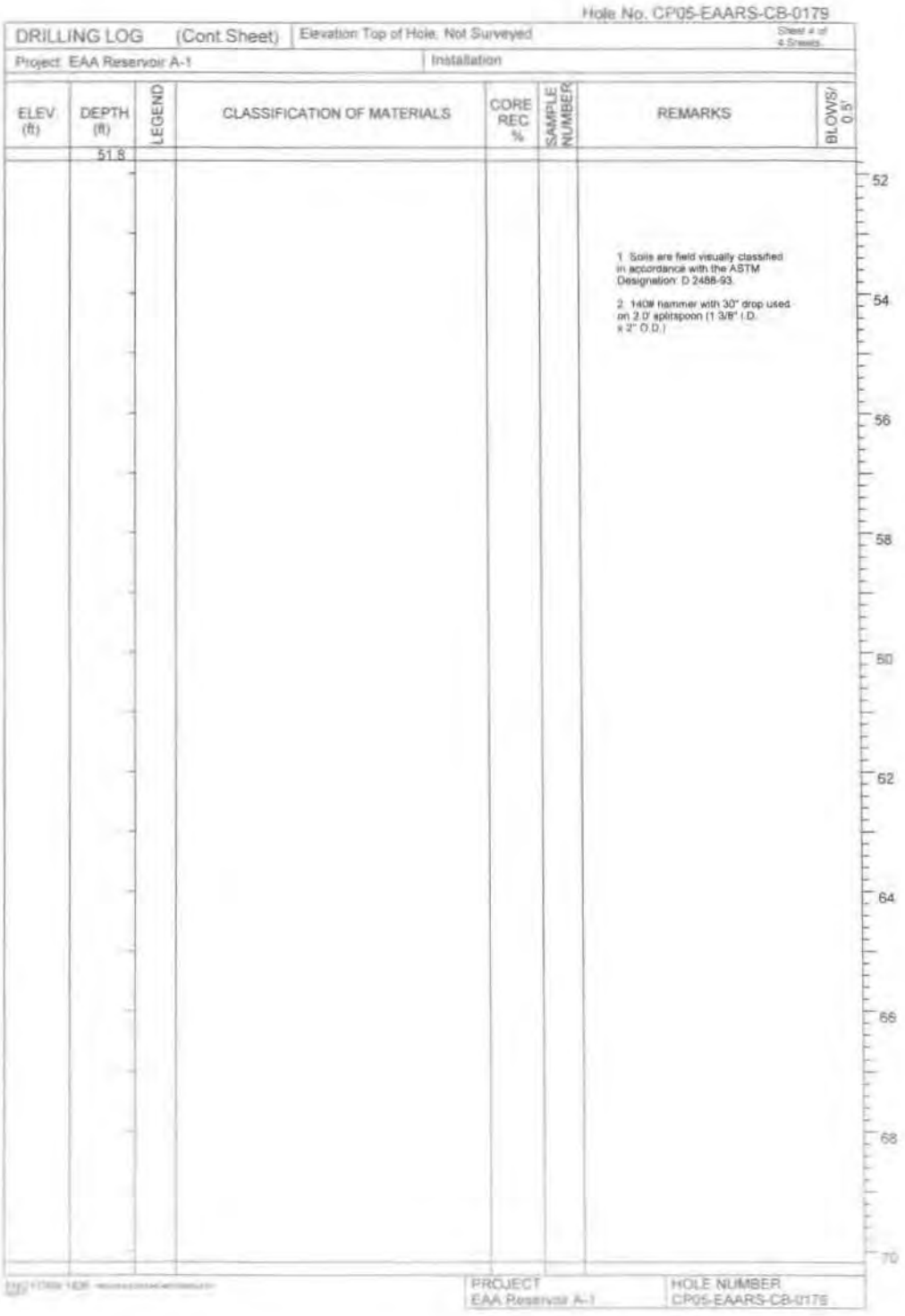
Hole No. CP05-EAARS-CB-0179

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Grades with shells		7		7 13 16
	38.5		Grades with some gravel		8		8 5 4
	43.5		Grades trace gravel		9		7 5 5
					10	Finished drilling at 4:45	10 7 6
	50.0		End of Boring at 50'				

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0179



Hole No. CP05-EAARS-CB-0179

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet # of 4 Sheets

Project: EAA Reservoir A-1 | Installation

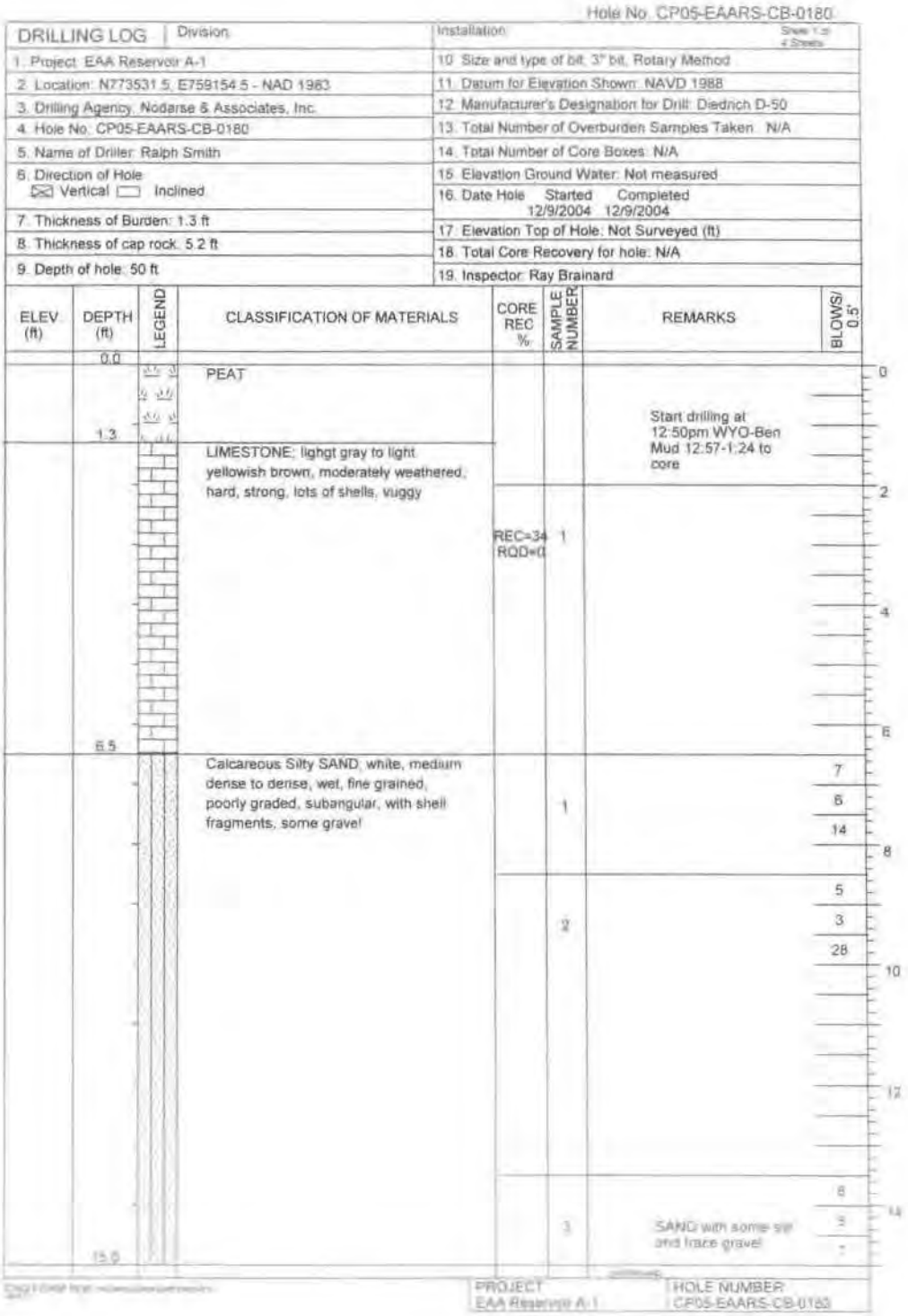
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0179



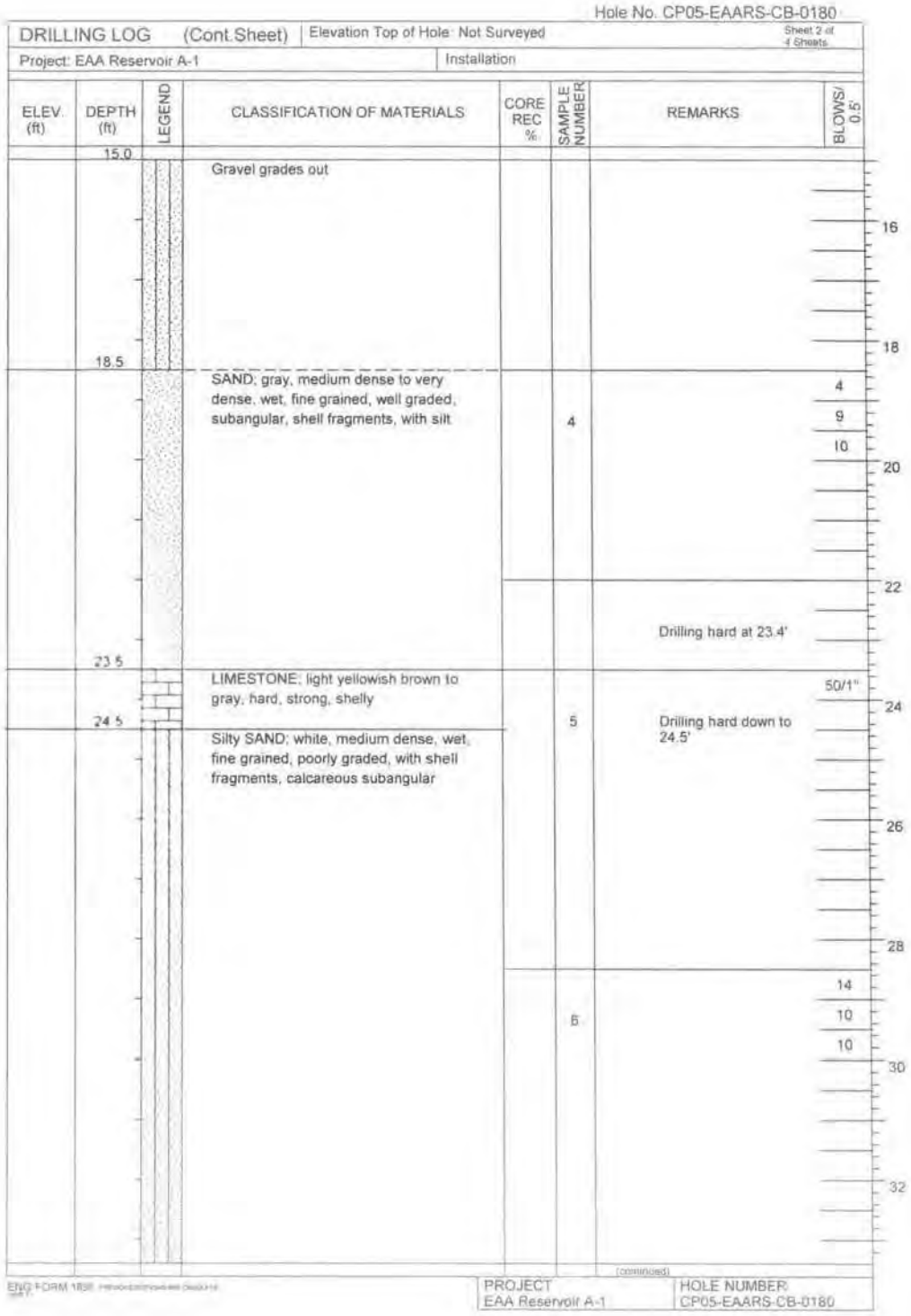
Hole No. CP05-EAARS-CB-0180

DRILLING LOG | Division: | Installation:

1. Project: EAA Reservoir A-1
2. Location: N773531.5, E759154.5 - NAD 1983
3. Drilling Agency: Nodarse & Associates, Inc.
4. Hole No.: CP05-EAARS-CB-0180
5. Name of Driller: Ralph Smith
6. Direction of Hole: ☒ Vertical ☐ Inclined
7. Thickness of Burden: 1.3 ft
8. Thickness of cap rock: 5.2 ft
9. Depth of hole: 50 ft
10. Size and type of bit: 3" bit, Rotary Method
11. Datum for Elevation Shown: NAVD 1988
12. Manufacturer's Designation for Drill: Diedrich D-50
13. Total Number of Overburden Samples Taken: N/A
14. Total Number of Core Boxes: N/A
15. Elevation Ground Water: Not measured
16. Date Hole: Started 12/9/2004 Completed 12/9/2004
17. Elevation Top of Hole: Not Surveyed (ft)
18. Total Core Recovery for hole: N/A
19. Inspector: Ray Brainard

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
			PEAT				
	1.3					Start drilling at 12:50pm WYO-Ben Mud 12:57-1:24 to core	
			LIMESTONE: lighgt gray to light yellowish brown, moderately weathered, hard, strong, lots of shells, vuggy	REC=34 RQD=0	1		
	6.5						
			Calcareous Silty SAND, white, medium dense to dense, wet, fine grained, poorly graded, subangular, with shell fragments, some gravel		1		7 8 14
					2		5 3 28
					3	SAND with some silt and trace gravel	8 9 7
	15.0						

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0180



Hole No. CP05-EAARS-CB-0180

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0		Gravel grades out				16
	18.5		SAND; gray, medium dense to very dense, wet, fine grained, well graded, subangular, shell fragments, with silt		4		4 9 10 20
						Drilling hard at 23.4'	22
	23.5		LIMESTONE; light yellowish brown to gray, hard, strong, shelly		5	Drilling hard down to 24.5'	50/1" 24
	24.5		Silty SAND; white, medium dense, wet, fine grained, poorly graded, with shell fragments, calcareous subangular				26 28
					6		14 10 10 30 32

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ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0180

Hole No. CP05-EAARS-CB-0180

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

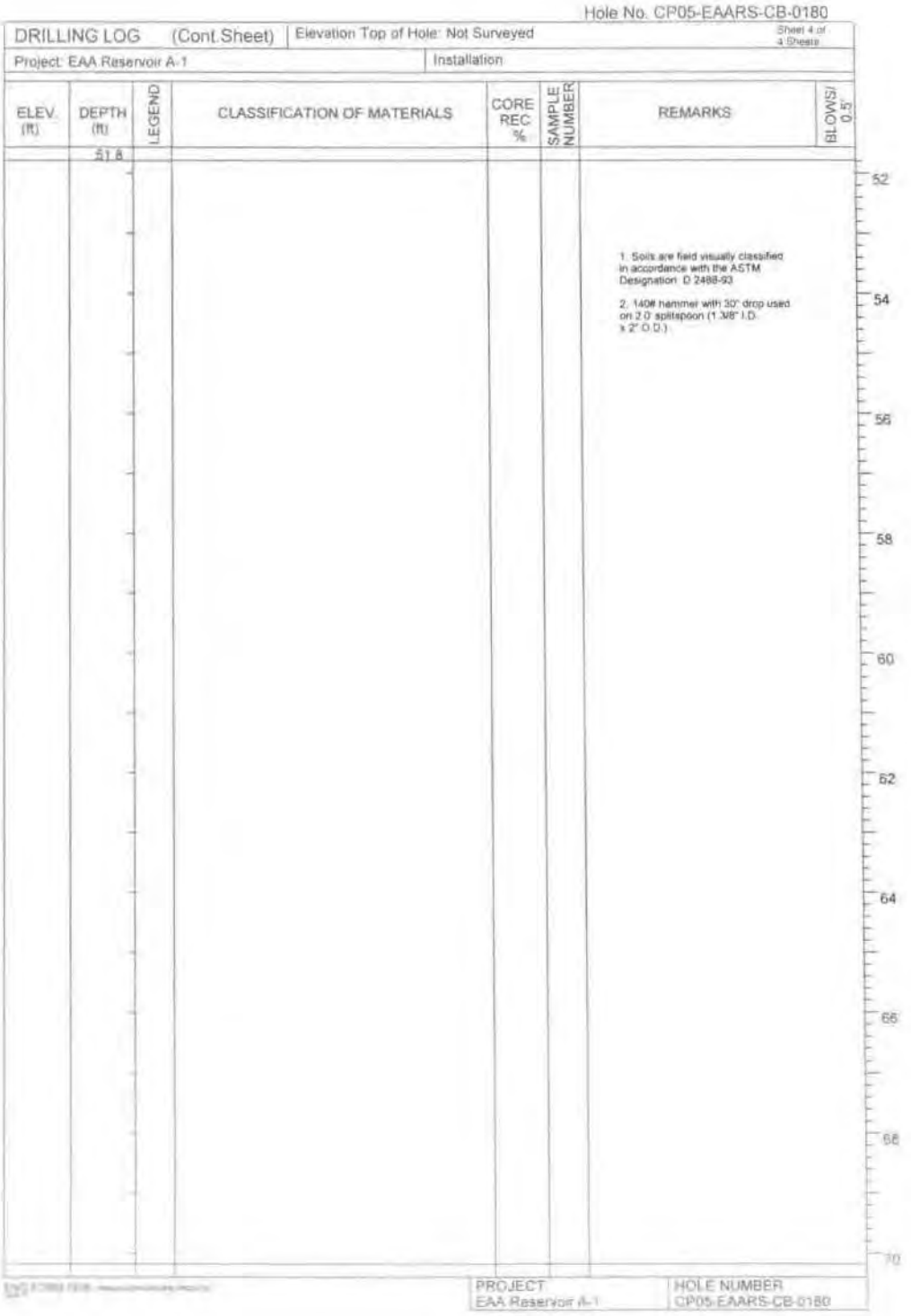
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Grades white to gray		7		5 8 7
	38.5		Silty SAND; gray, loose to dense, wet, fine grained, poorly graded, with shell fragments		8		14 18 14
	43.5		Trace gravel grades in		9		10 13 13
	48.5		Gravel grades out		10		4 4 3
	50.0		End of Boring at 50'				

NOTES:

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0180



Hole No. CP05-EAARS-CB-0180

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.).

52 54 56 58 60 62 64 66 68 70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0180

APPENDIX 1
TEST CELL BORINGS AND PIEZOMETER INSTALLATION LOGS: 181-200

Hole No. CP05-EAARS-CB-0181

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N773531.5, E760243.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0181		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/10/2004 Completed 12/10/2004	
7. Thickness of Burden: 0.9 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Ray Brainard	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
	0.2		PEAT				
			LIMESTONE, light gray, tan to light yellowish brown, hard, strong, shells, vertical, burrows top 4" some vugs			Start drilling at 8:45 WYO-Ben Mud drilled 0.6' into Limestone to create space for core barrel. Run 9:08-9:25. Manual hammer.	
				REC=48 RQD=28	1		
	5.5		Calcareous Silty SAND, white, medium dense to very dense, fine grained, poorly graded, subangualer, with shell fragments, some gravel		1		5 26 39
					2		7 6 5
	13.5		Trans gravel		3		8 8 10

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0181

Hole No. CP05-EAARS-CB-0181

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Shelly SAND, light gray, medium dense to very dense, fine grained , poorly graded, subangular, some silt, calcareous		4		7 7 10
					5	Drilling hard 23.2'-23.5'. Shelly limestone? Hash? Out of limestone at 25.1'	50/1"
	28.5		Same as above		6		14 13 10

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0181

Hole No. CP05-EAARS-CB-0181

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		SAND, Light greenish gray, dense, fine grained, poorly sorted, with trace shells and silt		7		7 17 31
	38.5		Grades shelly		8		5 7 13
	43.5		Grades loose		9		3 3 3
					10	Drilling ended at 12:00 Moisture=26.8%; -200=6.7%	4 3 5
	50.0		End of Boring at 50'				

34 36 38 40 42 44 46 48 50

NOTES:

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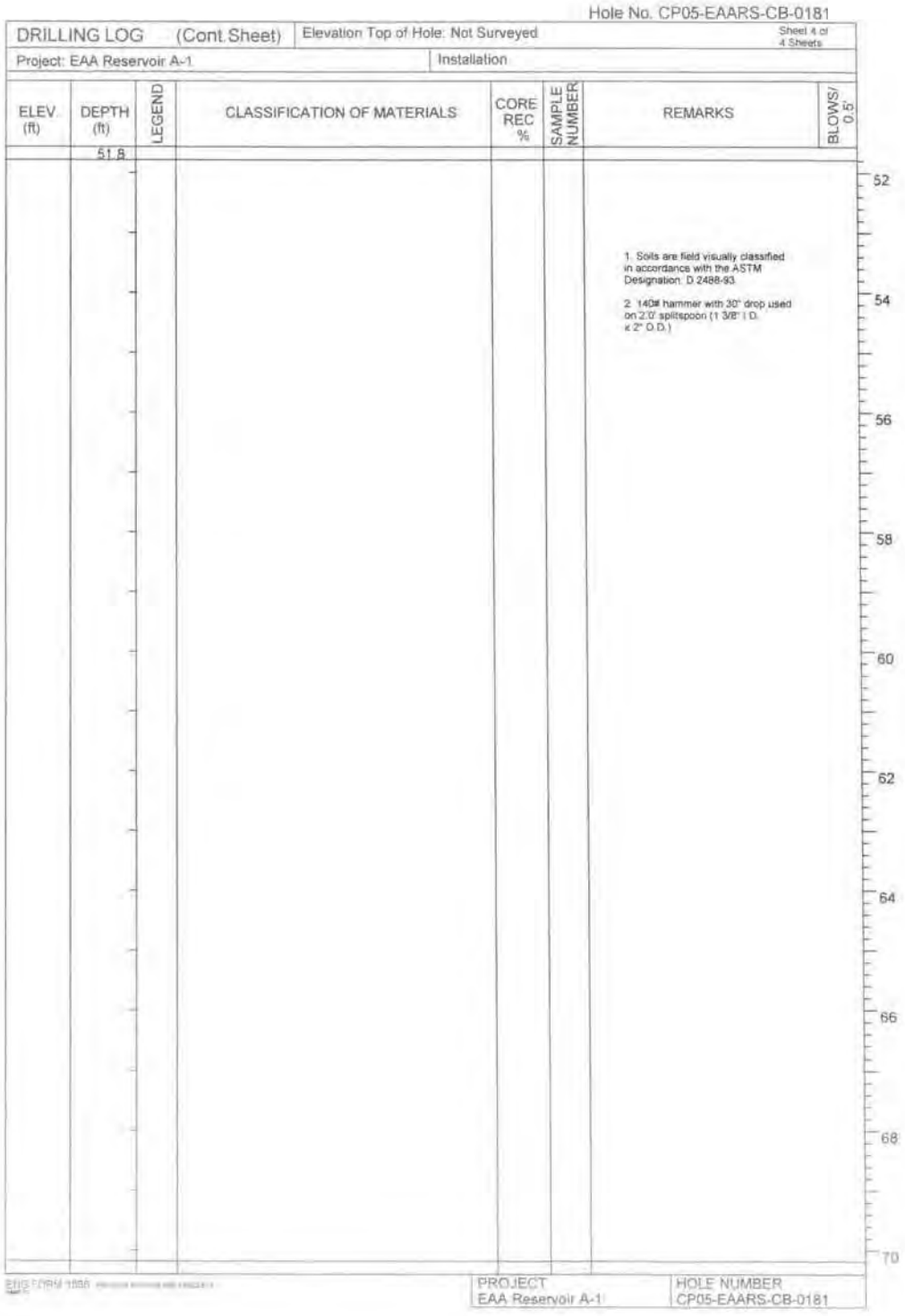
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0181



Hole No. CP05-EAARS-CB-0181

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: Not Surveyed	Sheet 4 of 4 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0181

Hole No. CP05-EAARS-CB-0182

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774072.2, E759698.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0182		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/9/2004 Completed 12/9/2004	
7. Thickness of Burden: 0.6 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 6.4 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Ray Brainard	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
	0.6		PEAT: Dark brown, fibrous, organic				
			LIMESTONE; moderately weathered, tan to light yellowish brown, shells, vugs and burrows (vertical), hard, strong			Started drilling at 8:30. WYO-Ben Mud. 8:43-9:01 Run 1 9:15=9:22 Run 2 Dropped 3 impregnated sections off bit.	
				REC=72 RQD=40	1		
	4.0						
			Grades to moderately-highly weathered, white, chalky, more porous	REC=33 RQD=28	2		
	7.0						10 10 5
			Calcareous Silty SAND, white, loose to medium dense, fine to medium grained, angular, some gravel, with shell fragments		1		
						Manual Hammer	5 7 3
					2		
	13.5						
			Grades fine grained with trace gravel		3	Couple of hard spots drilling <0.1-0.2' thick	11 6 8

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0182

Hole No. CP05-EAARS-CB-0182

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

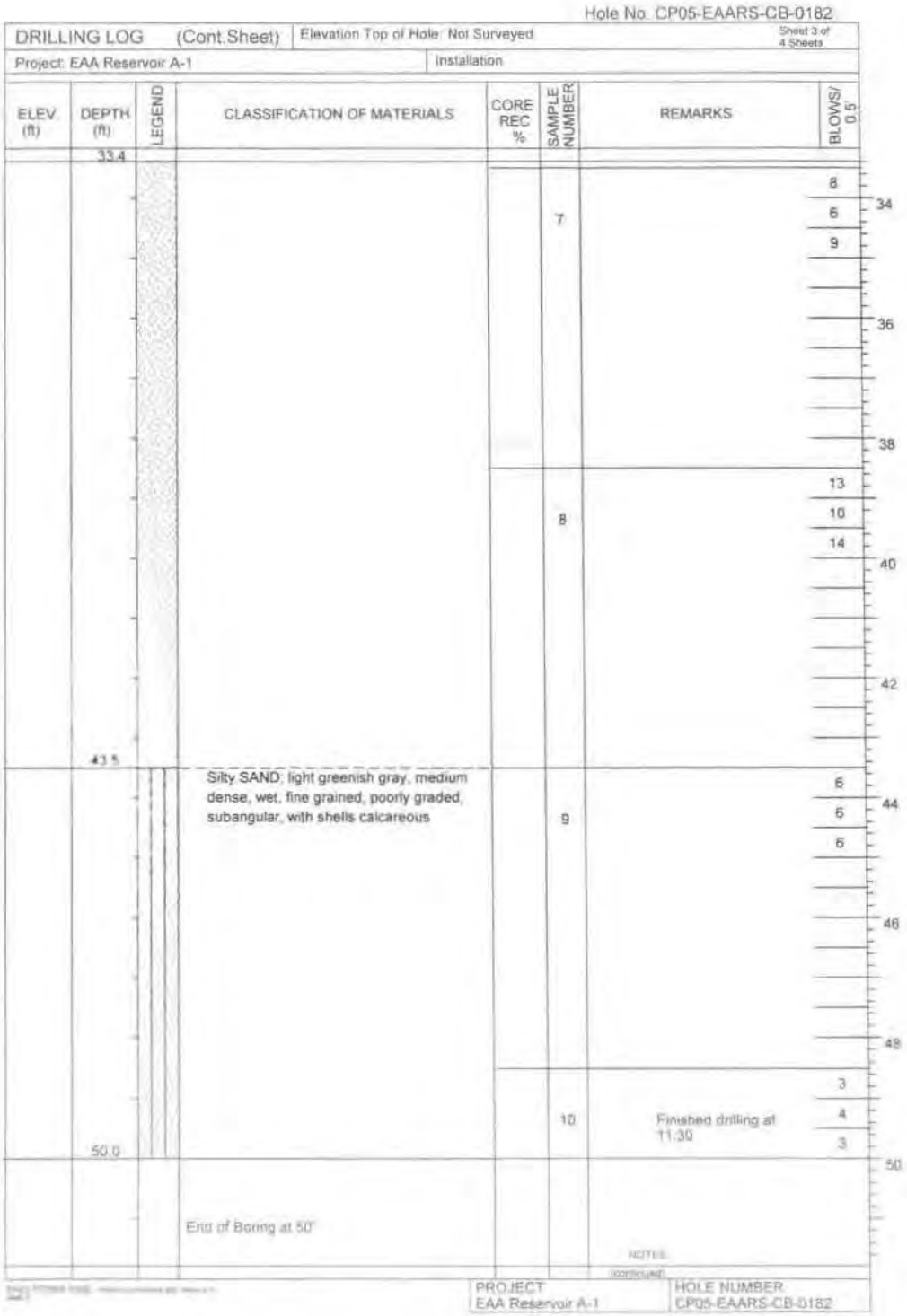
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
	18.5		Calcareous Shelly SAND; light greenish gray, medium dense, shells 50%, fine grained, with silt, Limestone at 19.8, light yellowish brown, hard, strong		4		9 12 26
	23.5		Shelly LIMESTONE (shell hash) at 23.5' to 25'		5	Most blows were to get through this. Drilling through only 0.2' was hard. Got hard again at 23-23.4'	50/5"
	25.0		Calcareous Shelly Sand; as above		6	Hard drilling 23.5-25'	24 16 10

16 18 20 22 24 26 28 30 32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0182



Hole No. CP05-EAARS-CB-0182

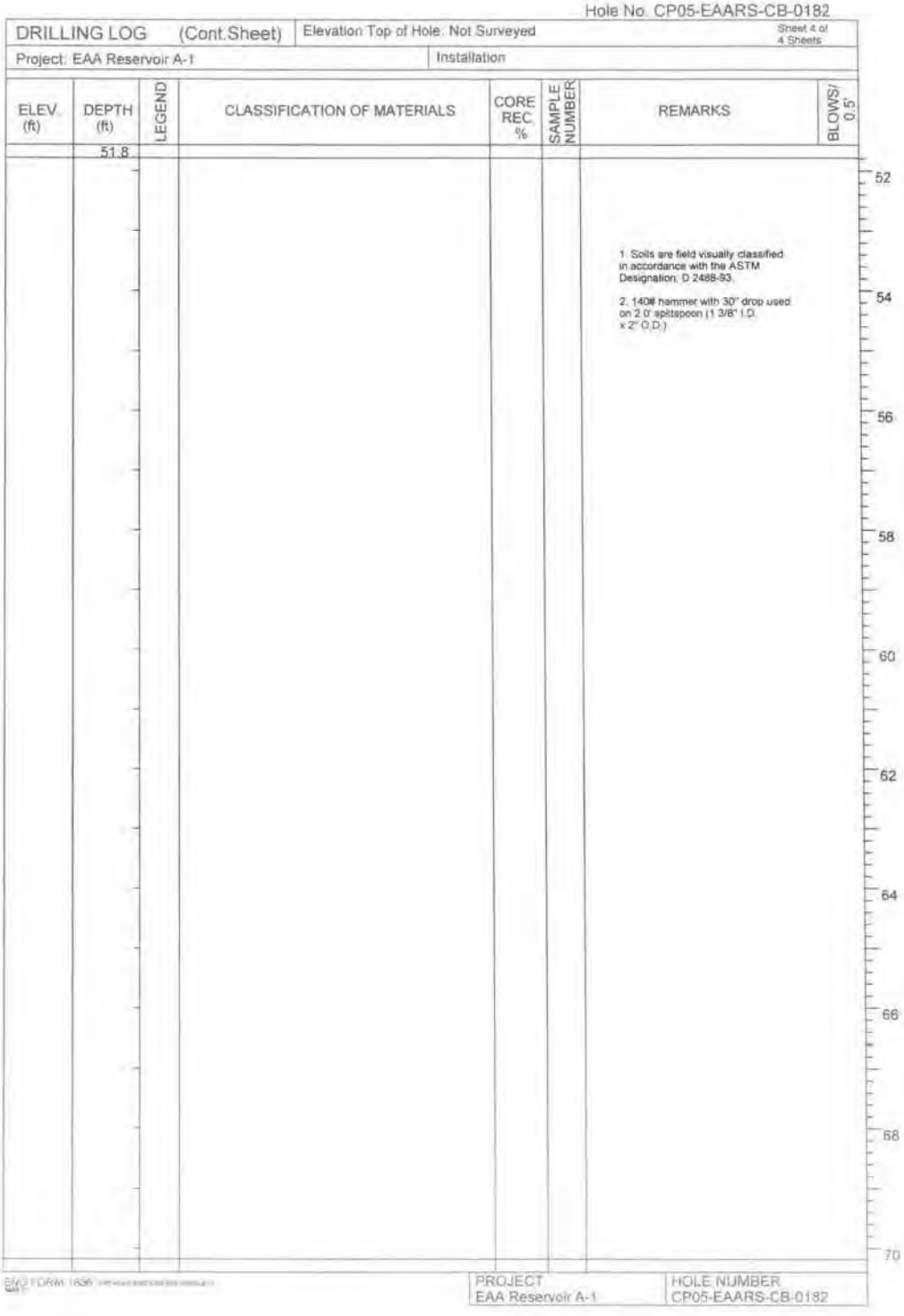
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						8 6 9
					7		34 36 38
					8		13 10 14
	43.5						40 42
			Silty SAND: light greenish gray, medium dense, wet, fine grained, poorly graded, subangular, with shells calcareous		9		6 5 6
							44 46 48
	50.0				10	Finished drilling at 11:30	3 4 3
			End of Boring at 50'				50

NOTES:

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0182



Hole No. CP05-EAARS-CB-0182

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0182

Hole No. CP05-EAARS-CB-0183

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774619.8, E761239.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0183		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/10/2004 Completed 12/10/2004	
7. Thickness of Burden: 1.7 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 4.8 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Ray Brainard	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
			PEAT			Started drilling 1:20 WYO-Ben Mud	0
	1.7		LIMESTONE, tan to light yellowish brown, hard, strong, moderately weathered, most burrous filled, few vugs	REC=10 ROD=10	1	Run 1: 1:31 - 1:44	2 4 6
	6.5		Calcareous Silty SAND, white, medium dense to very dense, wet, fine grained, poorly graded, angular, with shell fragments		1	Manual hammer	13 47 37 8
	8.0		Gravelly Silty SAND, white, dense, well graded, angular, calcareous with shells		2	Moisture=17.2%; -200=11.5%	21 15 15 10
						Hard drilling from 11' - 12.5'	12
	13.5		Silty SAND, white, medium dense, some gravel		3		6 8 7 14

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0183

Hole No. CP05-EAARS-CB-0183

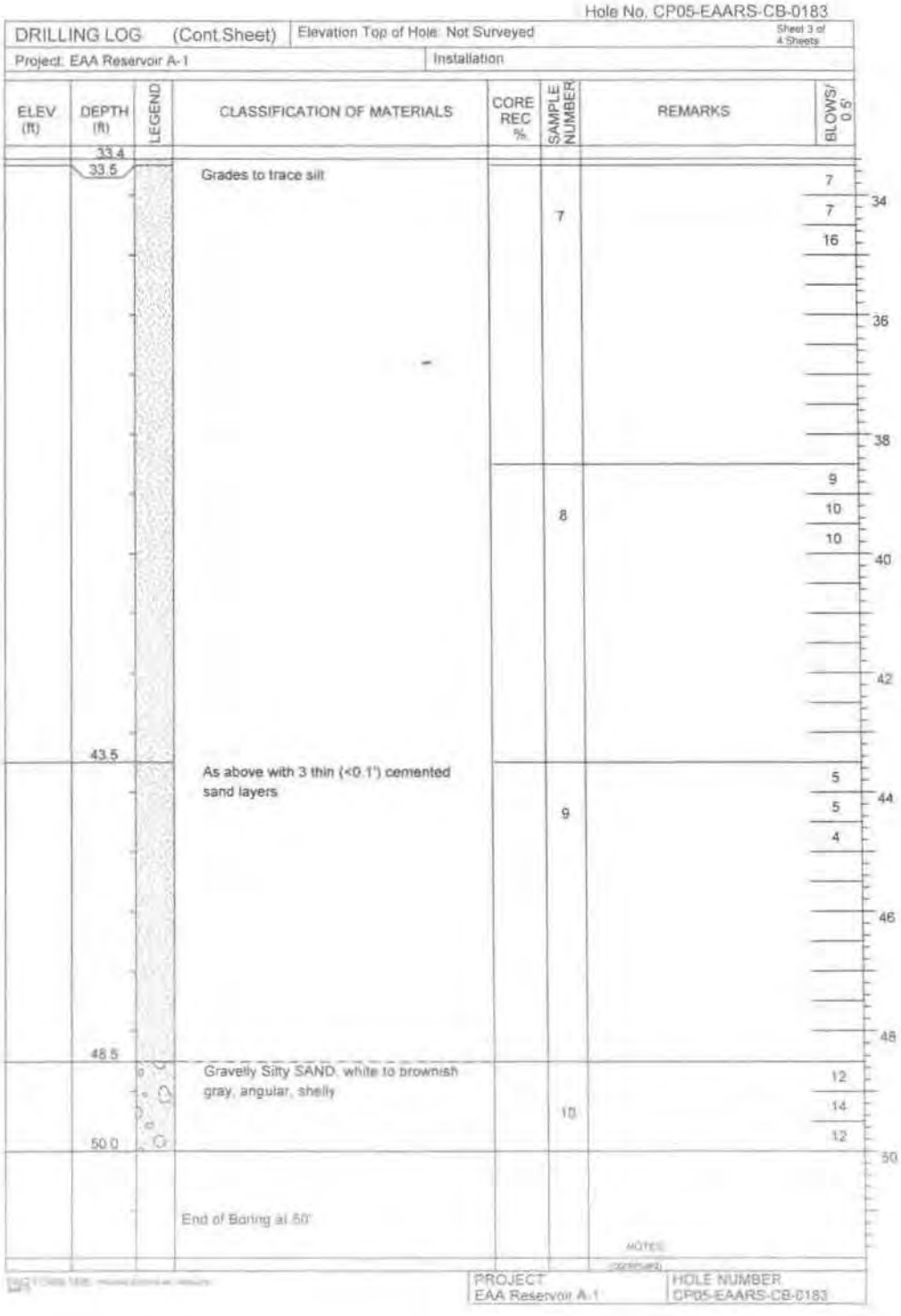
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						
						Hard drilling from 16'-17'	16
	18.5						18
			Shelly SAND; gray, medium dense to very dense, fine grained, poorly graded, subangular, some silt, trace gravel, calcareous		4	SAND with some Silt and trace Gravel	11 11 12 20
							22
	23.5		LIMESTONE; brown, shelly, hard, strong		5	Drilled hard down to 23.7'. Drilled hard 26' to 27.3'	50/2" 24
							26
	27.3		SAND; light greenish gray, loose to medium dense, fine grained, poorly sorted, with shells and silt				28
					6	SAND with some Gravel and trace Silt	12 9 9 30
							32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0183



Hole No. CP05-EAARS-CB-0183

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

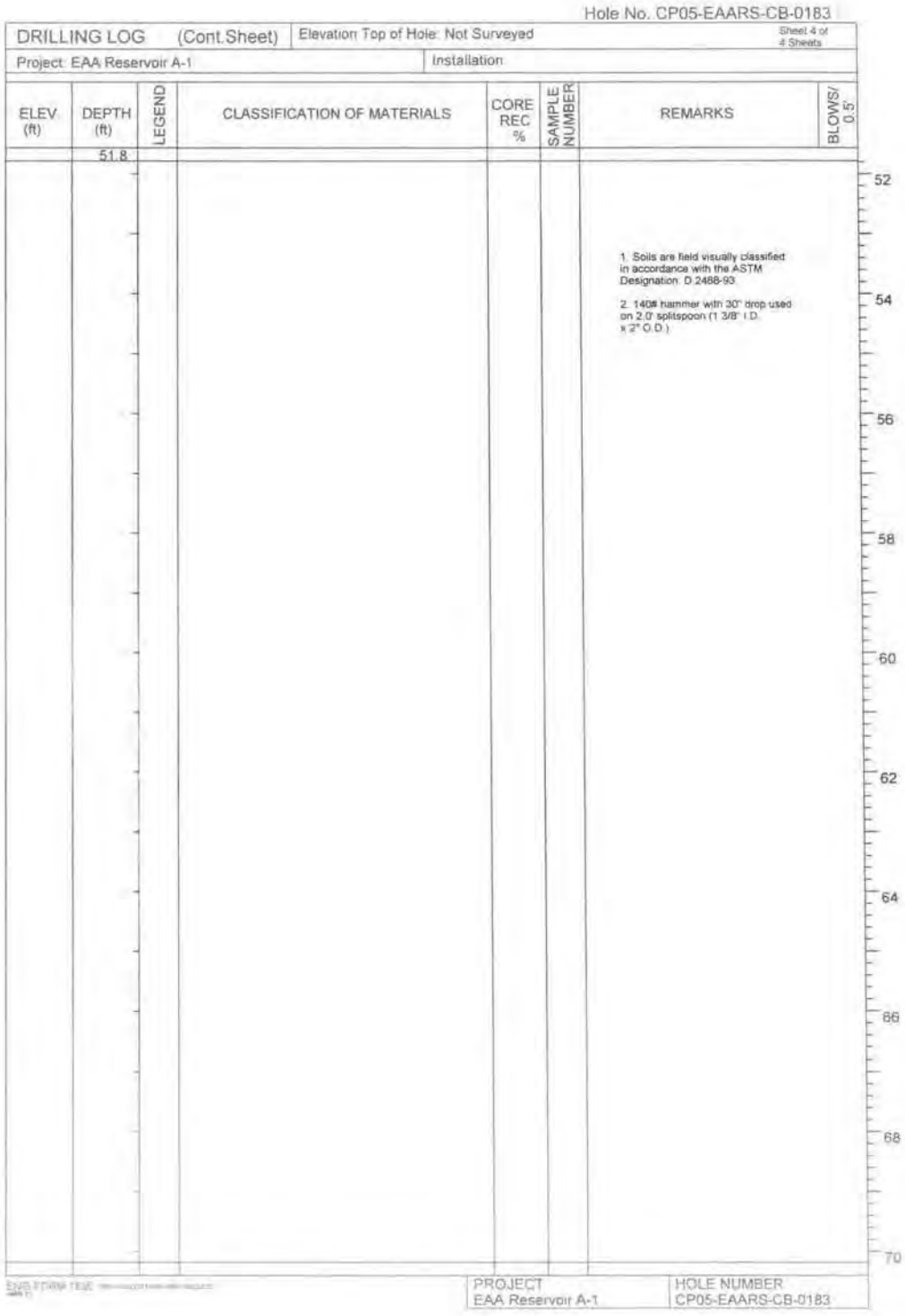
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Grades to trace silt		7		7 7 16
					8		9 10 10
	43.5		As above with 3 thin (<0.1') cemented sand layers		9		5 5 4
	48.5		Gravelly Silty SAND, white to brownish gray, angular, shelly		10		12 14 12
	50.0		End of Boring at 50'				

34 36 38 40 42 44 46 48 50

NOTES:

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0183



Hole No. CP05-EAARS-CB-0183

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0183

Hole No. CP05-EAARS-CB-0184

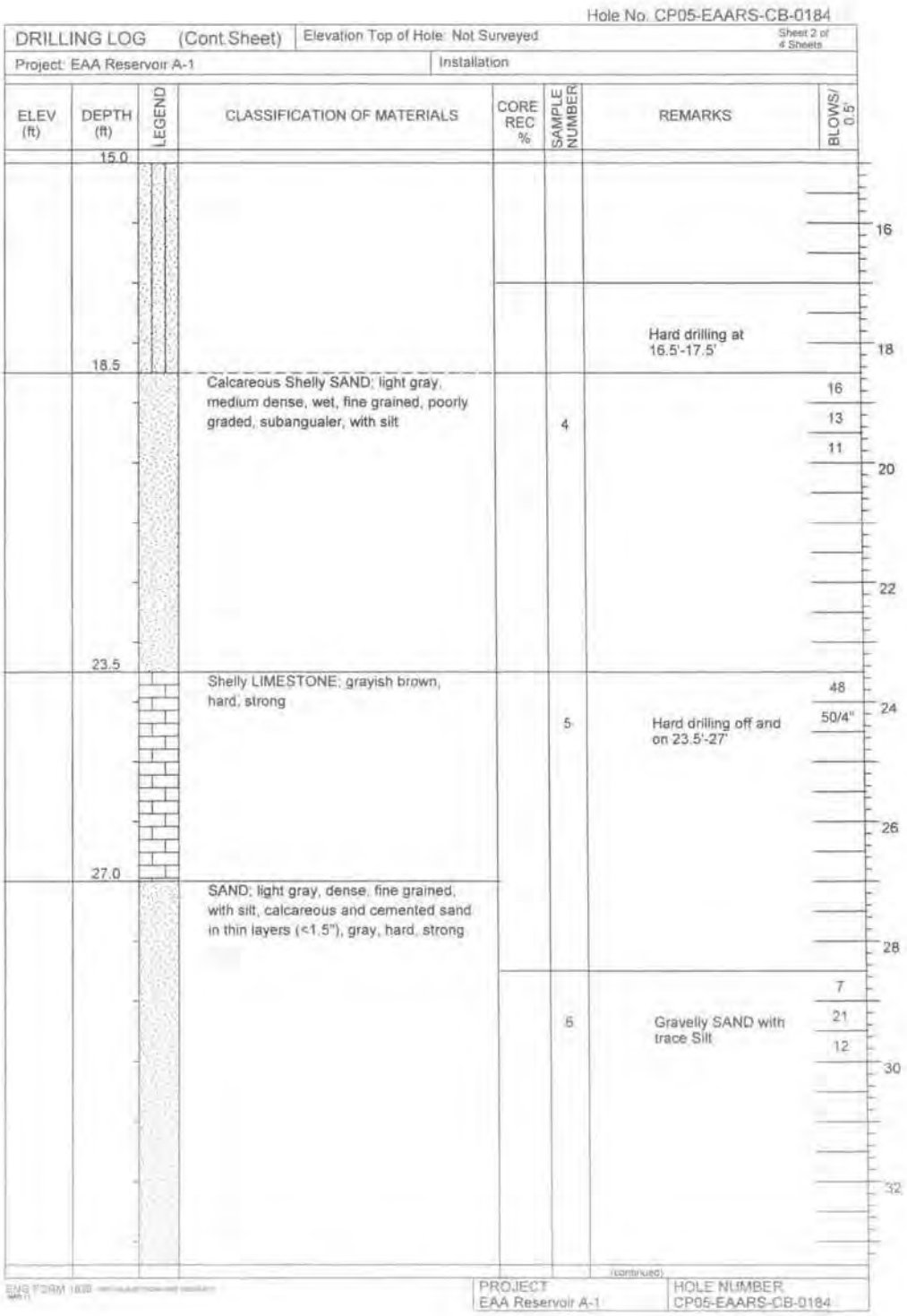
DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N774619.8, E762328.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No. CP05-EAARS-CB-0184	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: N/A
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 12/10/2004 Completed 12/11/2004
7. Thickness of Burden: 1.7 ft	17. Elevation Top of Hole: Not Surveyed (ft)
8. Thickness of cap rock: 4.9 ft	18. Total Core Recovery for hole: N/A
9. Depth of hole: 50 ft	19. Inspector: Ray Brainard

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0		PEAT			Start drilling 4:20 WYO-Ben Mud. run 1 4:26-4:37	0
	1.7		LIMESTONE; tan, hard, strong, medium to slightly weathered, filled burrows	REC=25 RQD=20	1		2
	6.6		Calcareous Gravelly Silty SAND, white, very dense, wet, fine to medium grained, poorly graded, angular, with shell fragments		1		6 10 50/5"
	8.5		Gravel grades out. Silty SAND, white, medium dense, fine grained, angular, shells		2		5 7 3
					3		14 14 14

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0184



Hole No. CP05-EAARS-CB-0184

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						16
	18.5					Hard drilling at 16.5'-17.5'	18
			Calcareous Shelly SAND; light gray, medium dense, wet, fine grained, poorly graded, subangualer, with silt		4		16 13 11 20
	23.5						22
			Shelly LIMESTONE; grayish brown, hard, strong		5	Hard drilling off and on 23.5'-27'	48 50/4" 24
	27.0						26
			SAND; light gray, dense, fine grained, with silt, calcareous and cemented sand in thin layers (<1.5"), gray, hard, strong				28
					6	Gravelly SAND with trace Silt	7 21 12 30
							32

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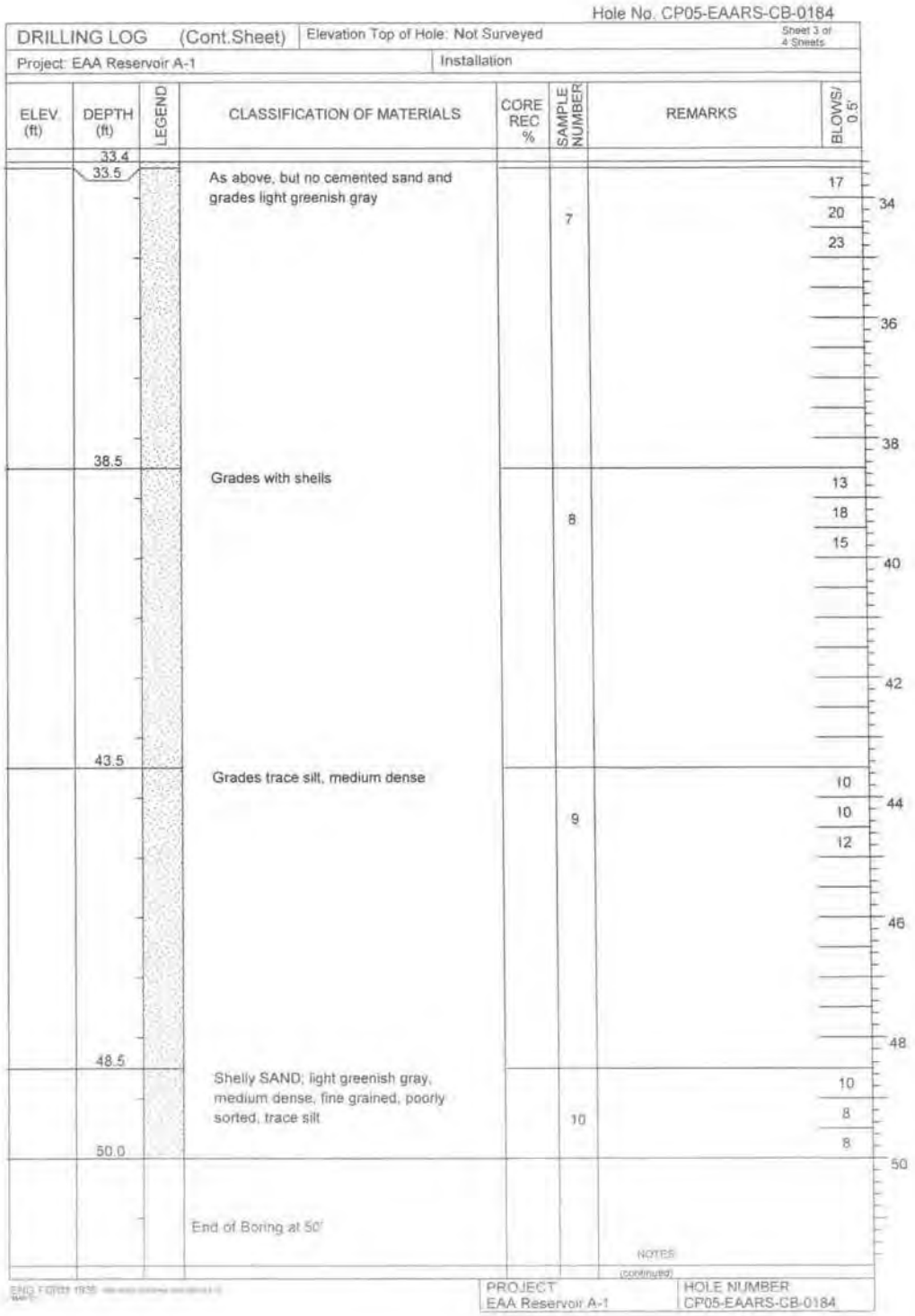
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0184



Hole No. CP05-EAARS-CB-0184

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		As above, but no cemented sand and grades light greenish gray		7		17 20 23 — 34
							36
	38.5						38
			Grades with shells		8		13 18 15 — 40
							42
	43.5		Grades trace silt, medium dense		9		10 10 12 — 44
							46
	48.5						48
			Shelly SAND; light greenish gray, medium dense, fine grained, poorly sorted, trace silt		10		10 8 8
	50.0						50
			End of Boring at 50'				

NOTES

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0184

Hole No. CP05-EAARS-CB-0184

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0184

Hole No. CP05-EAARS-CB-0185

DRILLING LOG	Division	Installation	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N773538.4, E761239.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0185		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/10/2004 Completed 12/11/2004	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
	0.5		Peat; Dark brown				
			LIMESTONE; yellowish gray at the top, gray in the middle and white at the bottom, moderately weathered at the top to slightly weathered at the bottom, vuggy			Core run start=10:45AM. Core run end=10:55am (0.5'-5.5')	
				REC=43 ROD=27	1		
	5.5		Calcareous Silty SAND; white, loose, wet, poorly graded, fine to medium grained, subangular, shell fragments		1		5 4 4
	8.5		Calcareous Silty SAND; white to gray, very dense, wet, poorly graded, fine to medium grained, subangular, shell fragments, trace gravel		2		2 2 50/5"
	13.5		Calcareous Silty SAND; white, dense, wet, poorly graded, fine grained, subangular, shell fragments		3		8 7 37

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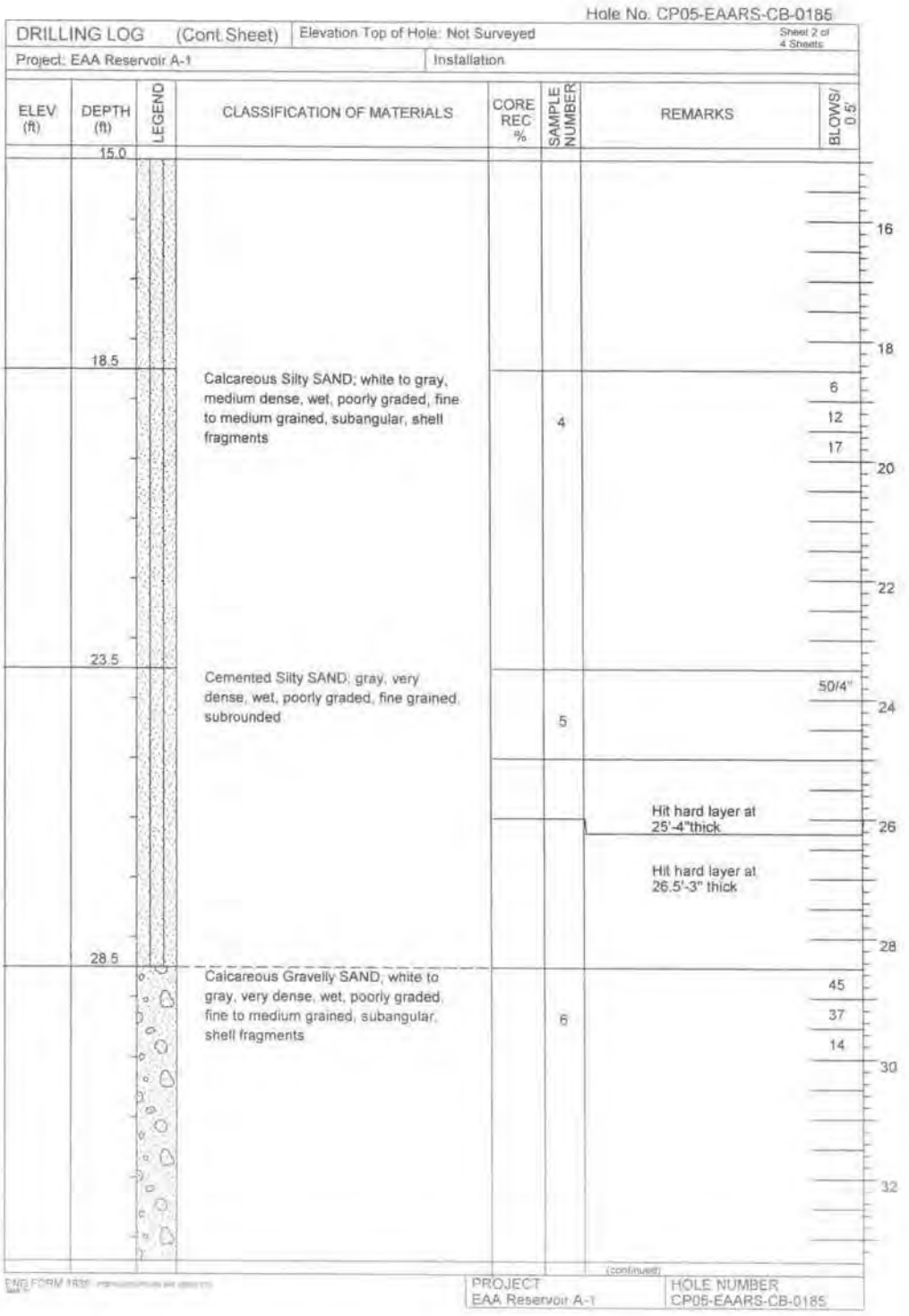
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0185



Hole No. CP05-EAARS-CB-0185

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						16
	18.5		Calcareous Silty SAND; white to gray, medium dense, wet, poorly graded, fine to medium grained, subangular, shell fragments		4		6 12 17 20
	23.5		Cemented Silty SAND; gray, very dense, wet, poorly graded, fine grained, subrounded		5		50/4"
						Hit hard layer at 25'-4"thick	26
	28.5					Hit hard layer at 26.5'-3" thick	28
			Calcareous Gravelly SAND; white to gray, very dense, wet, poorly graded, fine to medium grained, subangular, shell fragments		6		45 37 14 30
							32

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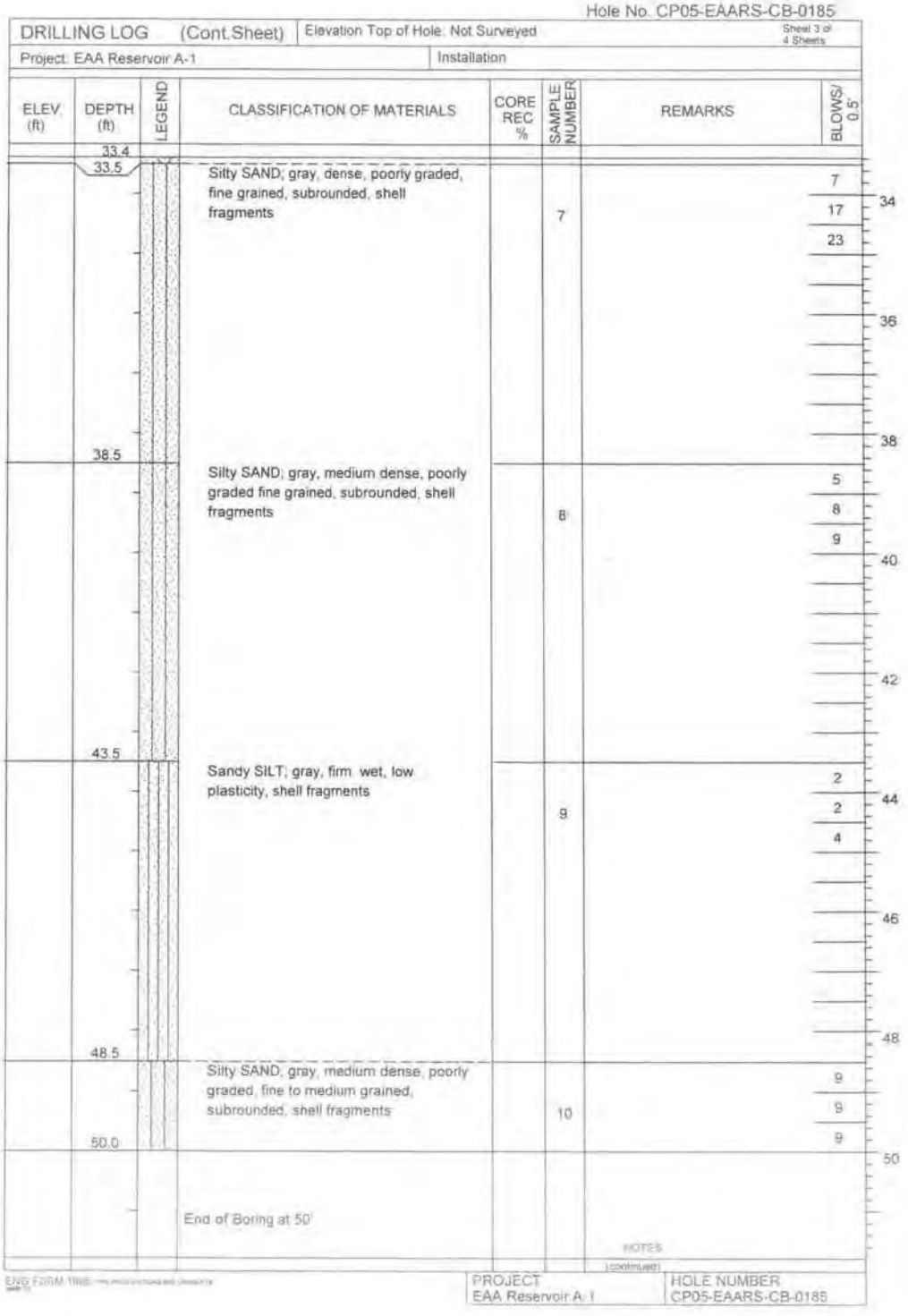
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0185



Hole No. CP05-EAARS-CB-0185

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Silty SAND; gray, dense, poorly graded, fine grained, subrounded, shell fragments		7		7 17 23
	38.5		Silty SAND; gray, medium dense, poorly graded fine grained, subrounded, shell fragments		8		5 8 9
	43.5		Sandy SILT; gray, firm wet, low plasticity, shell fragments		9		2 2 4
	48.5		Silty SAND; gray, medium dense, poorly graded, fine to medium grained, subrounded, shell fragments		10		9 9 9
	50.0		End of Boring at 50'				

34 36 38 40 42 44 46 48 50

NOTES (continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0185

Hole No. CP05-EAARS-CB-0185

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

ENG FORM 1838

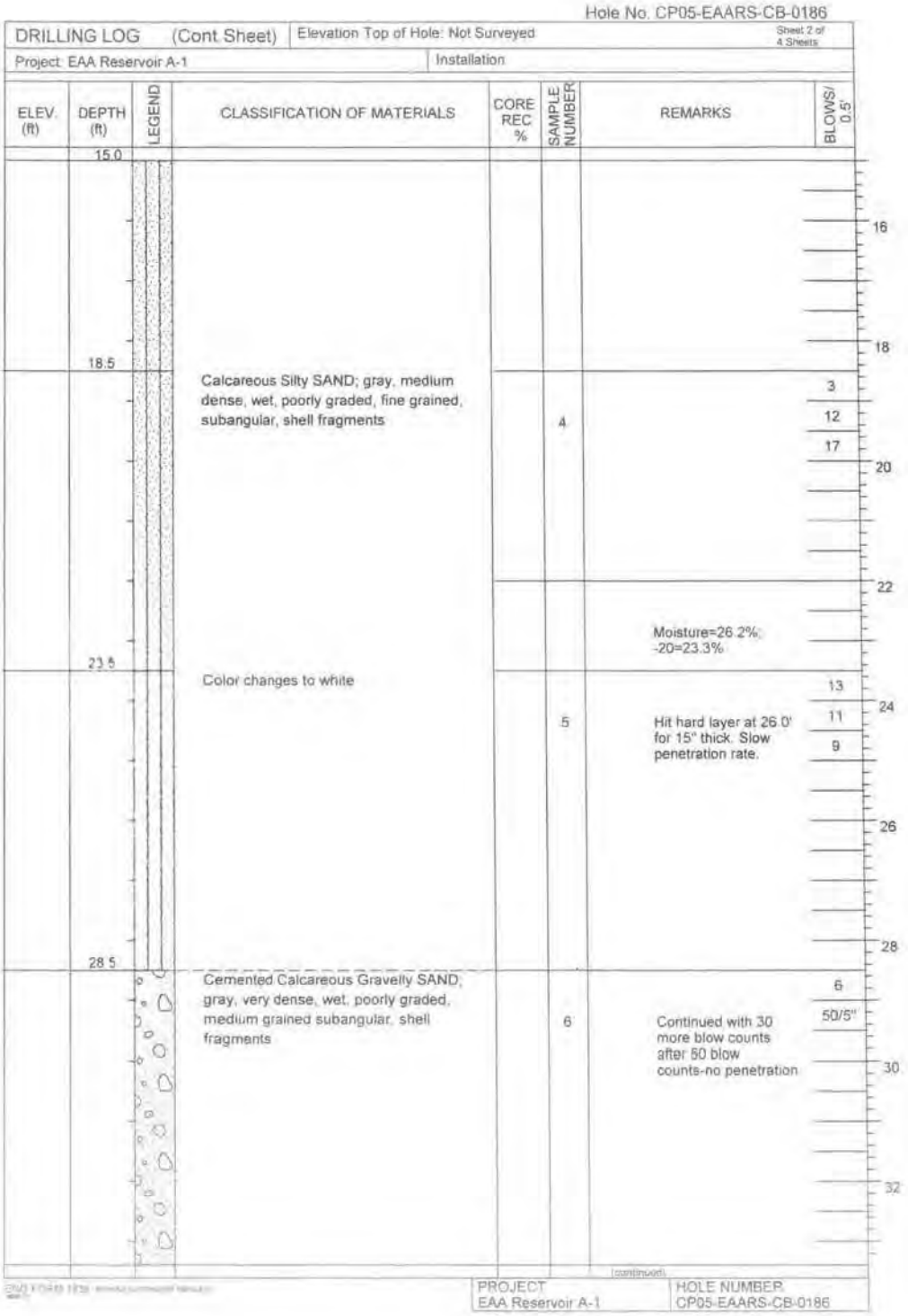
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0185

Hole No. CP05-EAARS-CB-0186

DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N773538.4, E762328.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0186		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/10/2004 Completed 12/11/2004	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						
	0.5		PEAT; Dark brown				
			LIMESTONE; gray to yellowish gray, slightly weathered at the top and bottom, moderately weathered in the middle, hard, vuggy, 0.5 inch hole at the bottom	REC=56 RQD=50	1	Drilled with hand sampler to 6" bgs. Core run start=3:55pm. Core run end=4:05pm (0.5'-5.5')	
	5.5						
			Calcareous Gravelly SAND; white, very dense, wet, poorly graded, fine grained, subangular, limestone seams		1		13 50 8
	8.5						
			Calcareous Silty SAND; white to gray, very loose to medium dense, wet, poorly graded, fine to medium grained, subangular, limestone seams, some gravel		2		4 2 2
					3		8 10 8

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0186



Hole No. CP05-EAARS-CB-0186

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 2 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	15.0						16
	18.5		Calcareous Silty SAND; gray, medium dense, wet, poorly graded, fine grained, subangular, shell fragments		4		3 12 17 20
	23.5		Color changes to white		5	Moisture=26.2%; -20=23.3% Hit hard layer at 26.0' for 15" thick. Slow penetration rate.	22 13 11 9 24 26
	28.5		Cemented Calcareous Gravelly SAND; gray, very dense, wet, poorly graded, medium grained subangular, shell fragments		6	Continued with 30 more blow counts after 50 blow counts-no penetration	28 6 50/5" 30 32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0186

Hole No. CP05-EAARS-CB-0186

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	33.4						
	33.5		Silty SAND, gray, loose to dense, wet, poorly graded, fine grained, subrounded		7		9 16 23
	38.5		same as above		8		12 22 20
	43.5		Cemented sand particle 1.5" in diameter		9		10 14 13
	48.5		Some gravel (cemented sand)		10		6 5 5
	50.0		End of Boring at 50'				

34 36 38 40 42 44 46 48 50

NOTES

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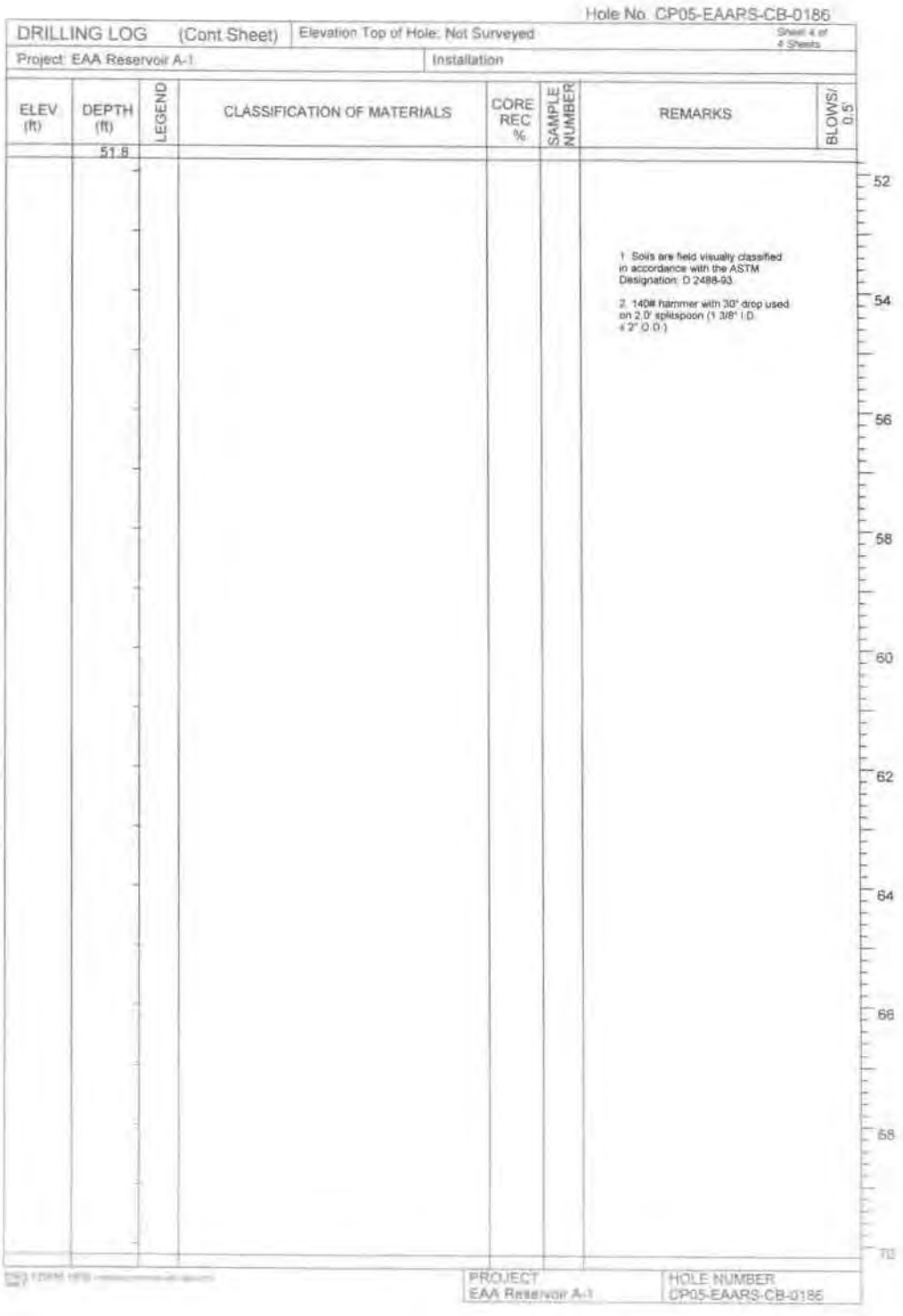
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0186



Hole No. CP05-EAARS-CB-0186

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0186

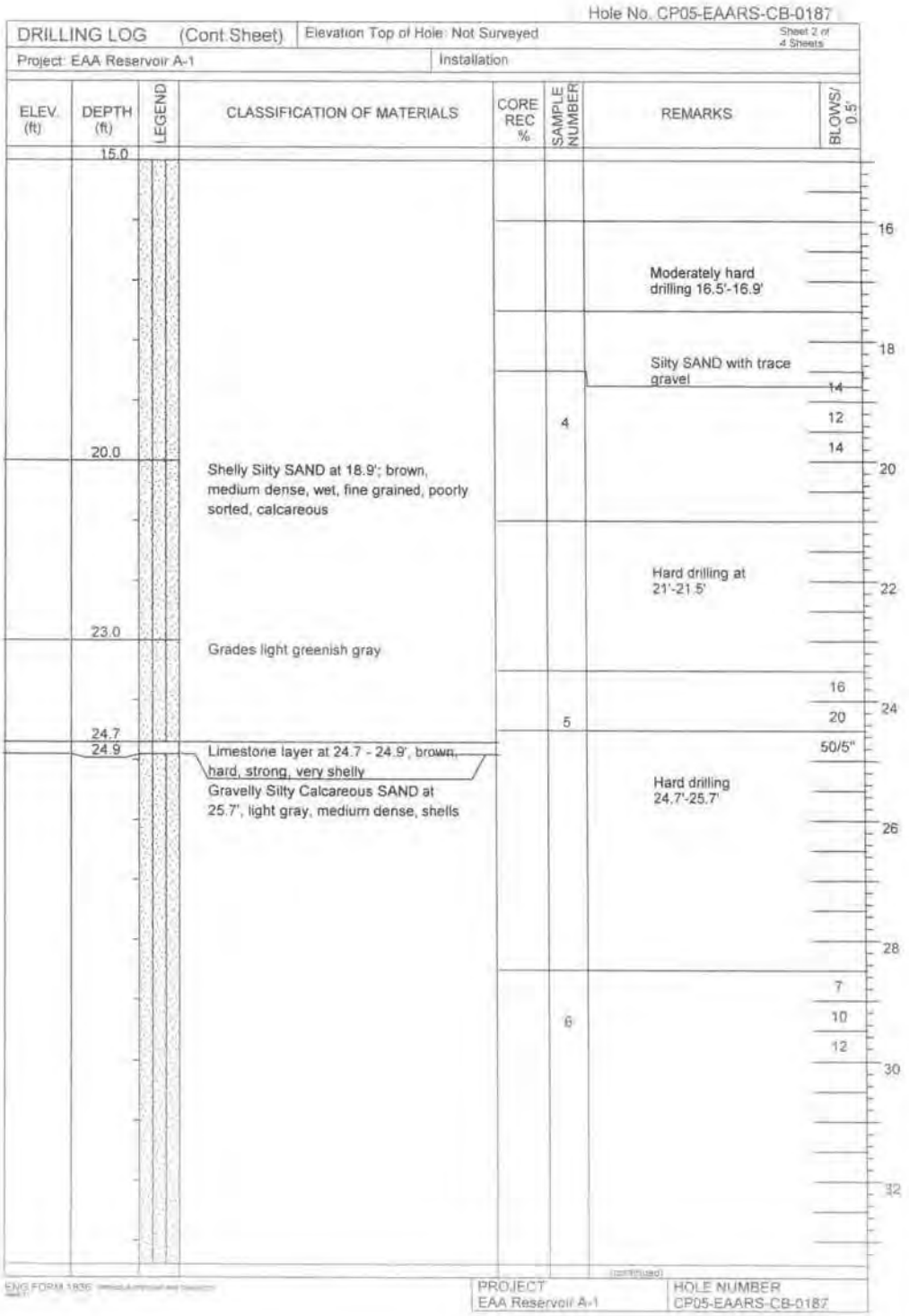
Hole No. CP05-EAARS-CB-0187

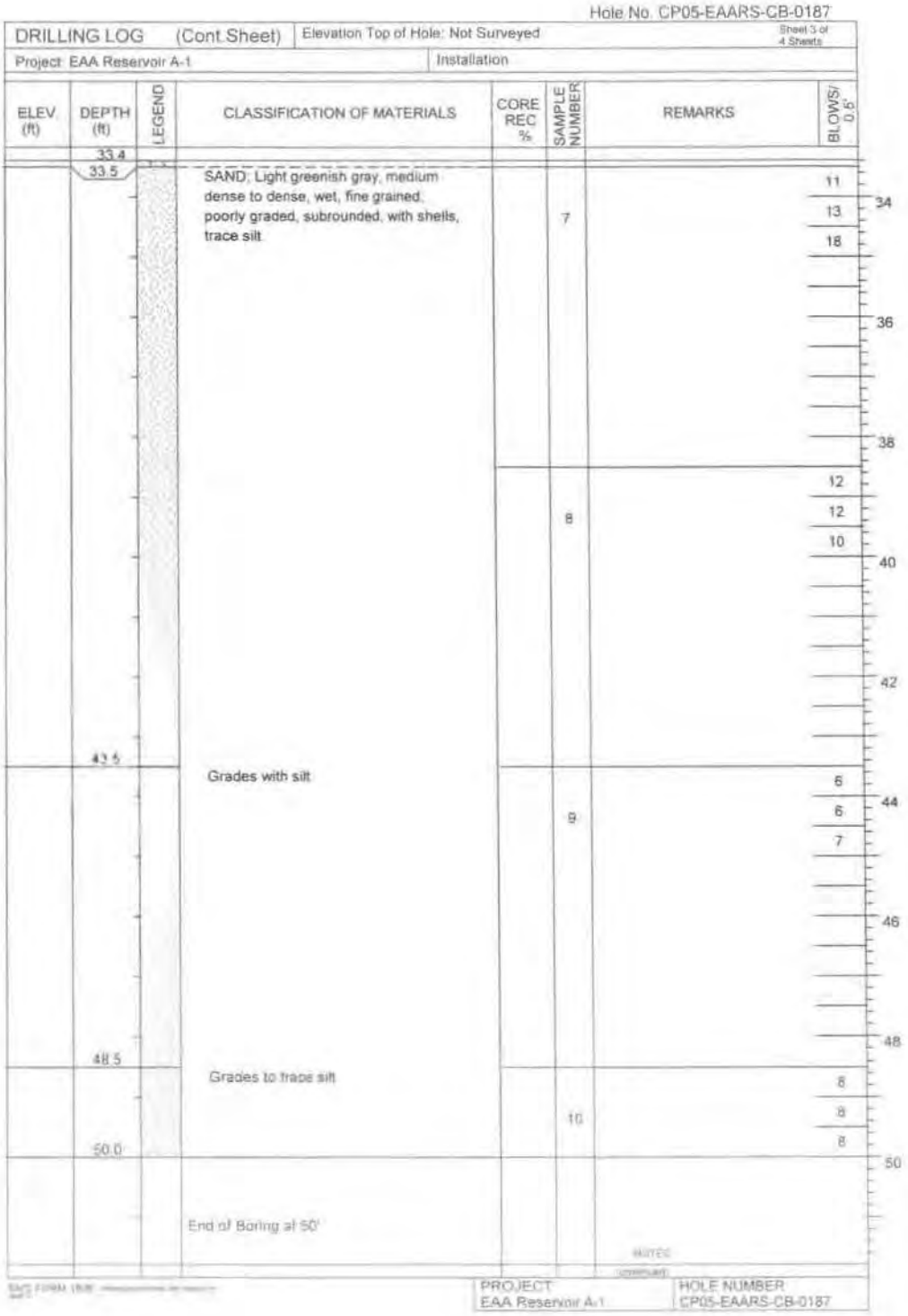
DRILLING LOG	Division:	Installation:	Sheet 1 of 4 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774079.1, E751783.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0187		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 12/11/2004 Completed 12/11/2004	
7. Thickness of Burden: 2.0 ft		17. Elevation Top of Hole: Not Surveyed (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 50 ft		19. Inspector: Cem Altuntas	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0						0
			PEAT			Start drilling at 10:35 WYO-Ben Mud. Run 1 10:47-10:57	
	2.0						2
			LIMESTONE; white, gray to light yellowish brown at top, hard, strong, some vugs, and shells	REC=16 RQD=14	1		4
							6
	7.0						4
			Calcareous Silty SAND; white, very loose to very dense, wet, fine grained, poorly graded, with shells		1		4
							8
							8
							5
					2		1
							2
							10
							12
							9
					3		7
							8
							14

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0187


Hole No. CP05-EAARS-CB-0187
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: Not Surveyed
Sheet 2 of 4 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
15.0
Moderately hard drilling 16.5'-16.9'
Silty SAND with trace gravel
14
12
14
4
20.0
Shelly Silty SAND at 18.9'; brown, medium dense, wet, fine grained, poorly sorted, calcareous
Hard drilling at 21'-21.5'
23.0
Grades light greenish gray
16
20
5
24.7
24.9
Limestone layer at 24.7 - 24.9', brown, hard, strong, very shelly
Gravelly Silty Calcareous SAND at 25.7', light gray, medium dense, shells
50/5"
Hard drilling 24.7'-25.7'
7
10
12
6
16
18
20
22
24
26
28
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0187



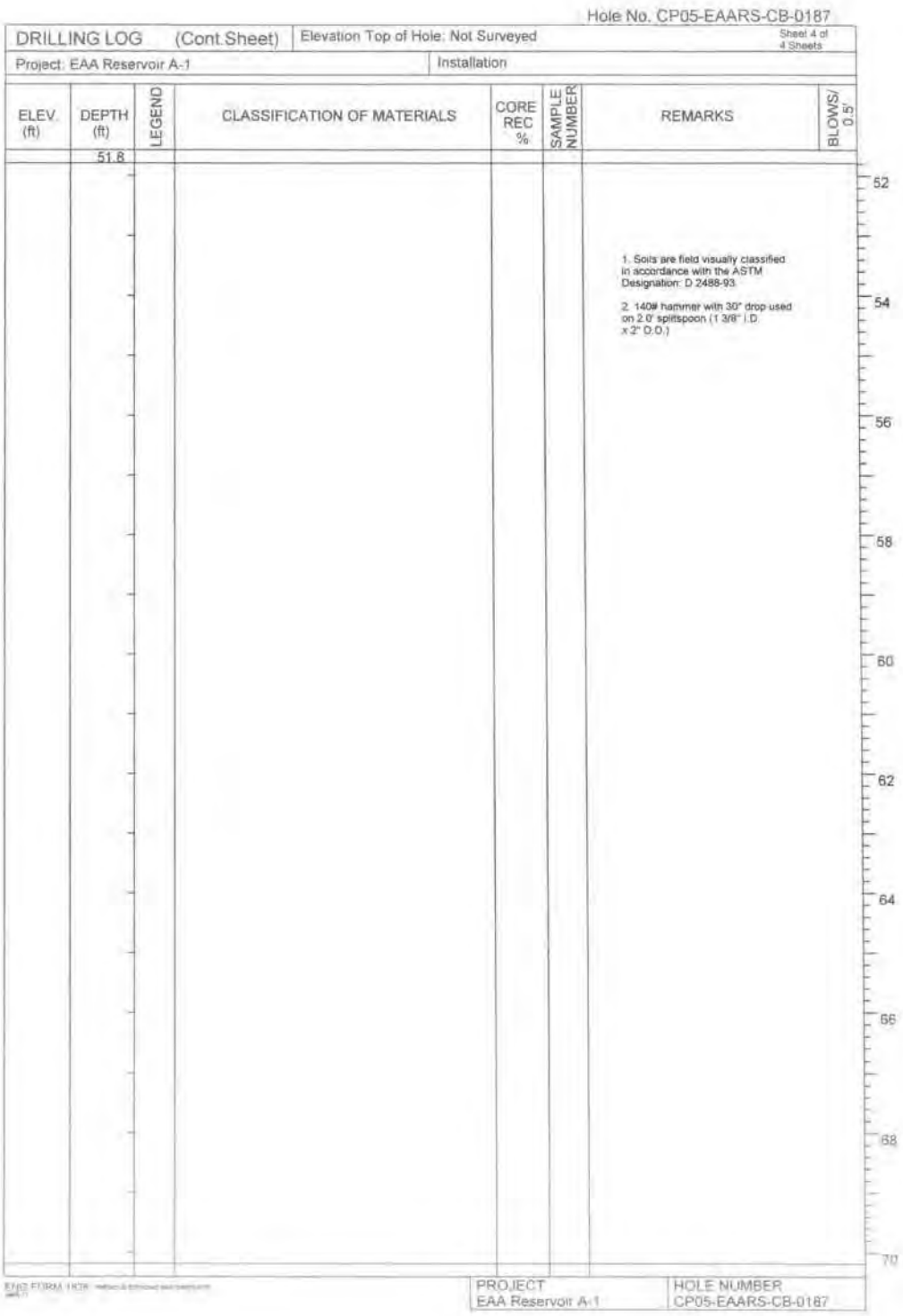
Hole No. CP05-EAARS-CB-0187

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 3 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.6'
	33.4						
	33.5		SAND; Light greenish gray, medium dense to dense, wet, fine grained, poorly graded, subrounded, with shells, trace silt		7		11 13 18
							34
							36
							38
					8		12 12 10
							40
							42
	43.5		Grades with silt		9		6 6 7
							44
							46
							48
	48.5		Grades to trace silt		10		8 8 8
	50.0		End of Boring at 50'				
							50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0187



Hole No. CP05-EAARS-CB-0187

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: Not Surveyed | Sheet 4 of 4 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	51.8						

1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

52 54 56 58 60 62 64 66 68 70

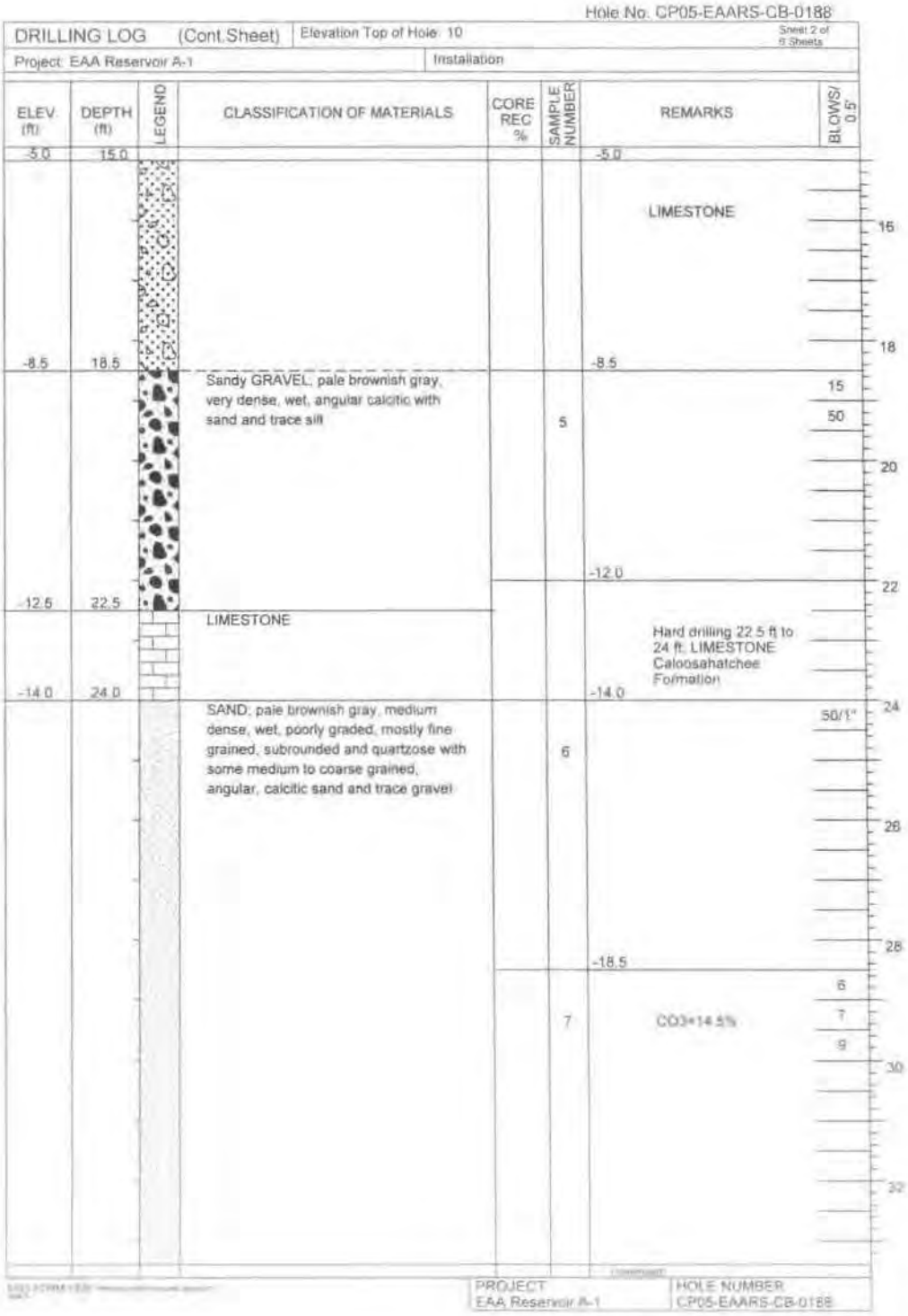
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0187

Hole No. CP05-EAARS-CB-0188

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774072, E760086.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0188		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Jim Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/24/2005 Completed 2/24/2005	
7. Thickness of Burden: 0.0 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 1.5 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			LIMESTONE Caprock			10.0	0
						All calcitic material is at least partly shell fragment	
8.5	1.5						
			SAND, pale brownish gray, loose, wet, well graded, calcitic with some silt and trace gravel				2
						7.0	
					1		5 3 5 4
4.0	6.0					4.0	
			Sandy GRAVEL: pale brownish gray, medium dense wet, calcitic, with some sand as above and trace silt		2		8 8 6 8
1.0	9.0					1.0	
			SAND; pale brownish gray, dense, wet, well graded, angular, calcitic, with some silt and trace gravel		3	CO3=82.3%	25 21 13 10
							12
-3.5	13.5					-3.5	
			Silty Gravelly SAND: pale brownish gray, medium dense, wet, well graded angular calcitic with fine angular gravel and silt		4	W=21% Silty SAND with Gravel Hard drilling 14.5 to 15 ft	5 7 13 14

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0188



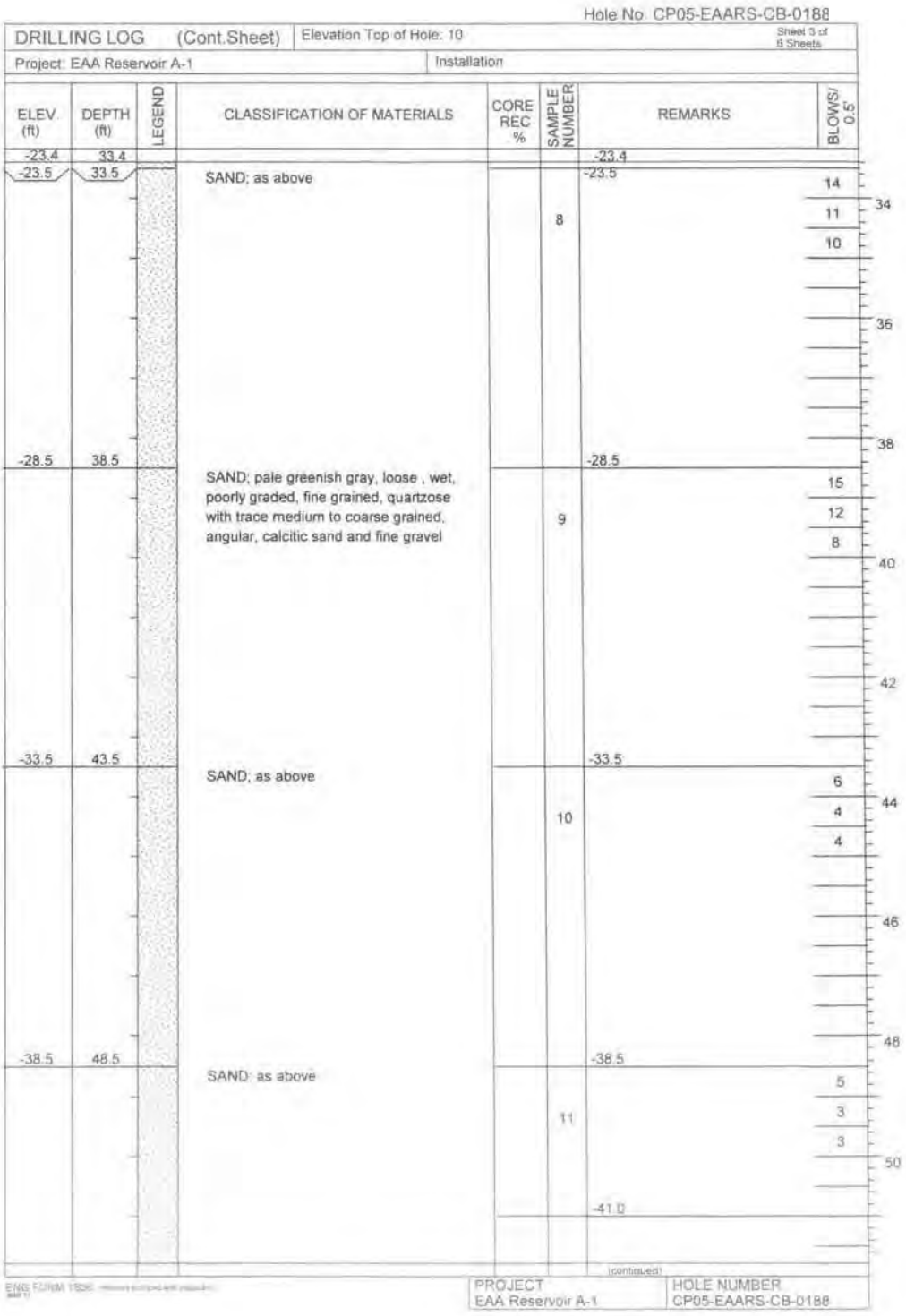
Hole No. CP05-EAARS-CB-0188

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0 LIMESTONE	
-8.5	18.5		Sandy GRAVEL, pale brownish gray, very dense, wet, angular calcitic with sand and trace silt		5	-8.5	15 50
-12.5	22.5		LIMESTONE			-12.0 Hard drilling 22.5 ft to 24 ft. LIMESTONE Caloosahatchee Formation	
-14.0	24.0		SAND, pale brownish gray, medium dense, wet, poorly graded, mostly fine grained, subrounded and quartzose with some medium to coarse grained, angular, calcitic sand and trace gravel		6	-14.0	50/1"
					7	-18.5 CO3=14.5%	6 7 9

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0188



Hole No. CP05-EAARS-CB-0188

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND; as above		8	-23.5	14 11 10 — 34
							36
							38
-28.5	38.5		SAND; pale greenish gray, loose , wet, poorly graded, fine grained, quartzose with trace medium to coarse grained, angular, calcitic sand and fine gravel		9	-28.5	15 12 8 — 40
							42
-33.5	43.5		SAND; as above		10	-33.5	6 4 4 — 44
							46
-38.5	48.5		SAND; as above		11	-38.5	48 5 3 3 — 50
						-41.0	

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0188

Hole No. CP05-EAARS-CB-0188

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 6 Sheets

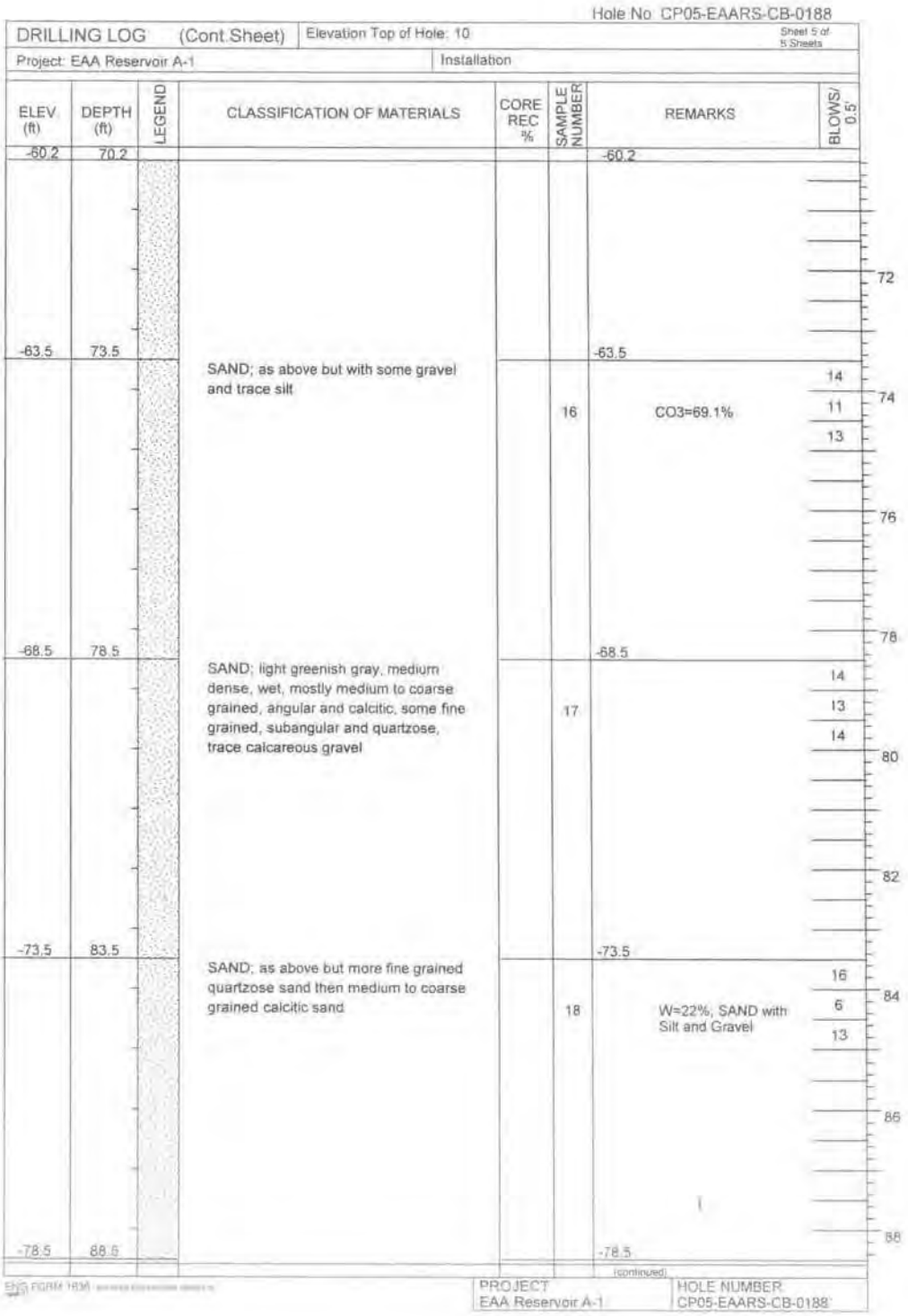
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
						Hard drilling 51 to 52 ft LIMESTONE	52
-43.5	53.5					-43.5	
			Sandy GRAVEL; pale greenish gray, very dense, wet, angular, fine grained, calcitic with fine, subrounded quartzose and medium to coarse grained, angular, calcitic sand and trace silt		12	W=17%; SAND with Silt and Gravel	26 37 45 54 56 58
-48.5	58.5					-48.5	
			SAND; pale greenish gray, medium dense, wet, poorly graded mostly medium grained, angular and calcitic with some fine grained, subrounded and quartzose, trace fine, angular gravel		13	W=25%; Silty SAND	5 14 13 60 62
-53.5	63.5					-53.5	
			SAND; as above but mostly fine grained, subrounded and quartzose with some medium grained, angular, calcitic sand and trace fine gravel		14	CO3=41.6%	13 8 7 64 66 68
-58.5	68.5					-58.5	
			SAND; light greenish gray, medium dense, wet, mostly medium to coarse grained, angular calcitic sand, some fine grained, subrounded, quartzose sand, trace gravel		15		16 12 13 70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0188



Hole No. CP05-EAARS-CB-0188

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.2	70.2					-60.2	
-63.5	73.5		SAND; as above but with some gravel and trace silt		16	-63.5 CO3=69.1%	14 11 13
-68.5	78.5		SAND; light greenish gray, medium dense, wet, mostly medium to coarse grained, angular and calcitic, some fine grained, subangular and quartzose, trace calcareous gravel		17	-68.5	14 13 14
-73.5	83.5		SAND; as above but more fine grained quartzose sand then medium to coarse grained calcitic sand		18	-73.5 W=22%, SAND with Silt and Gravel	16 6 13
-78.5	88.5					-78.5	

72 74 76 78 80 82 84 86 88

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0188

Hole No. CP05-EAARS-CB-0188

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			SAND; pale greensih gray, medium dense, wet, well graded, fine grained, subrounded, quartzose, sand and medium to coarse grained, angular, calcitic sand, trace gravel		19	W=21%; SAND with Silt	9 8 12
-83.5	93.5					-83.5	
			SAND; as above but trace silt		20		14 12 15
-88.5	98.5					-88.5	
			SAND; as above but poorly graded, mostly medium to coarse grained, angular, calcitic with some fine grained, subrounded, quartzose, trace silt and fine gravel		21	W=15% SAND with Silt	15 12 15
-90.0	100.0						
			End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

90 92 94 96 98 100 102 104 106

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0188

Hole No. CP05-EAARS-CB-0189

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774459.7, E759898.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0189		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Jim Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/23/2005 Completed 2/23/2005	
7. Thickness of Burden: 0.0 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 3.5 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0		LIMESTONE caprock			10.0 All calcitic material noted below is at least partly shell fragments	
6.5	3.5		SAND: pale brownish gray, medium dense, wet, poorly graded, mostly fine grained, calcitic, trace gravel and silt			4.5	
					1	W=15%; Silty SAND	13 11 11
1.5	8.5		Grades very dense			1.5	
					2	CO3=79%	7 4 50
-3.5	13.5		Grades medium dense			-3.5	
					3		6 5 5

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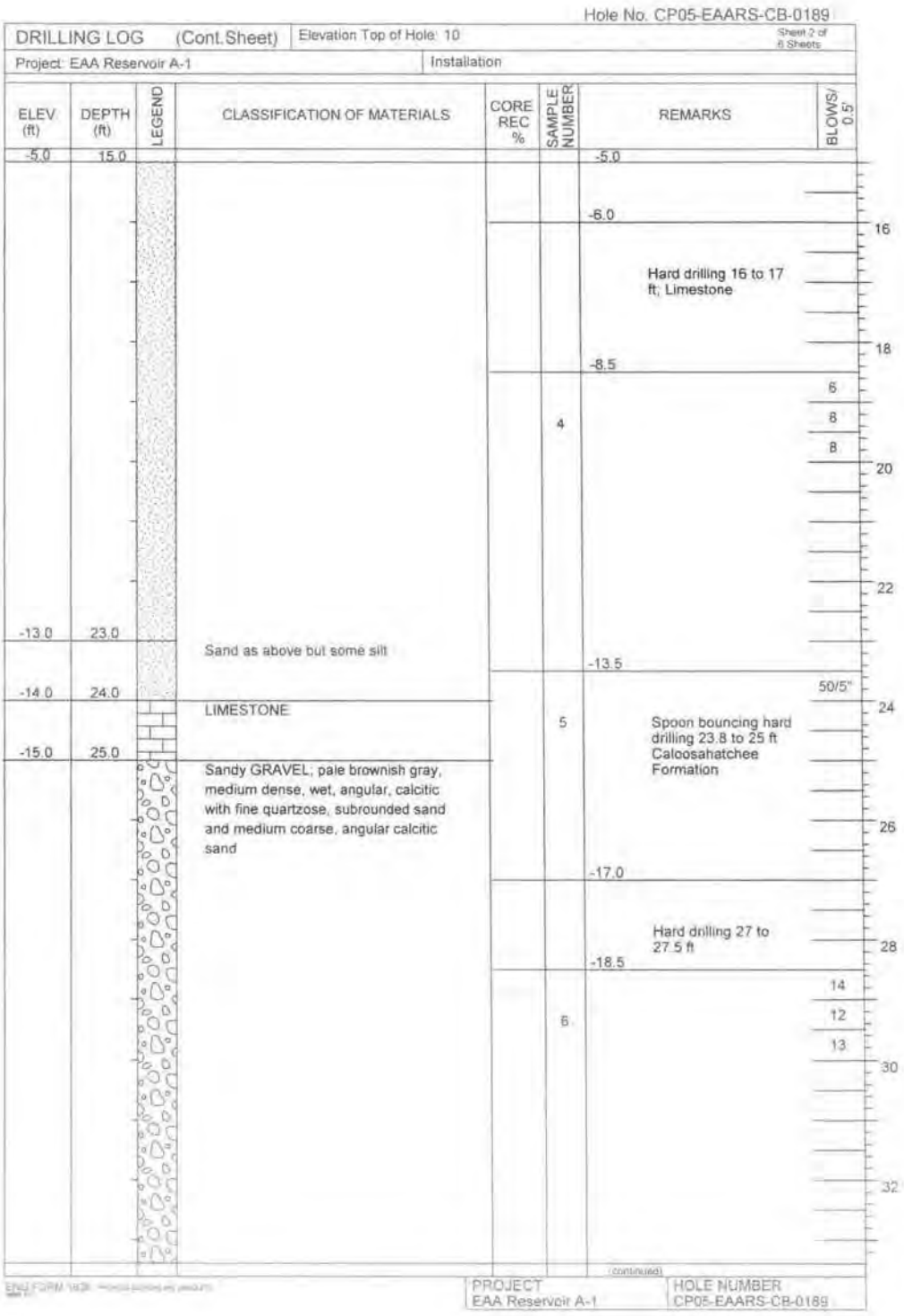
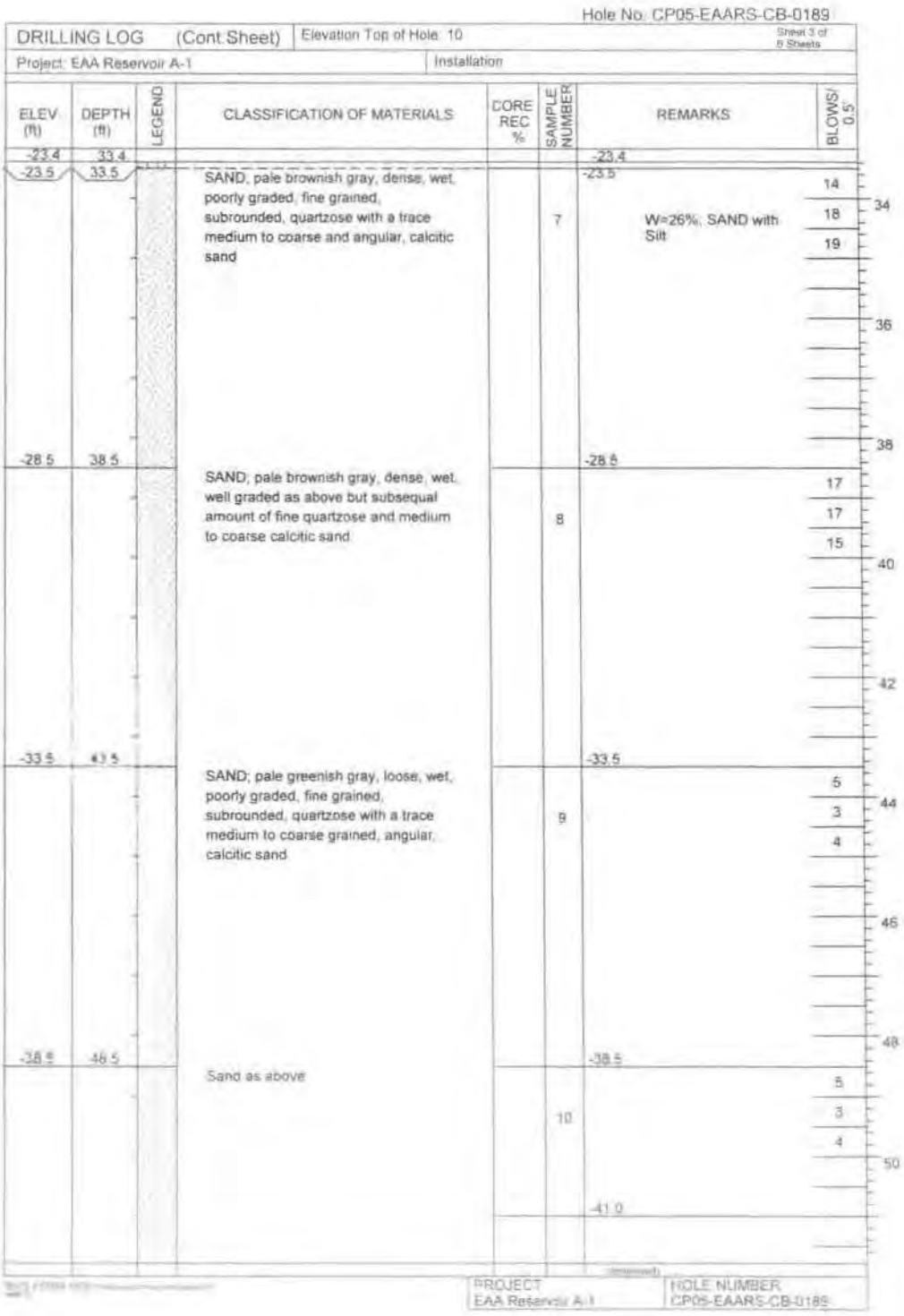
PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0189


Hole No. CP05-EAARS-CB-0189
DRILLING LOG (Cont. Sheet)
Elevation Top of Hole: 10
Sheet 2 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-5.0
15.0
-6.0
Hard drilling 16 to 17 ft; Limestone
-8.5
6
8
8
4
-13.0
23.0
Sand as above but some silt
-13.5
-14.0
24.0
LIMESTONE
50/5"
5
Spoon bouncing hard drilling 23.8 to 25 ft Caloosahatchee Formation
-15.0
25.0
Sandy GRAVEL; pale brownish gray, medium dense, wet, angular, calcitic with fine quartzose, subrounded sand and medium coarse, angular calcitic sand
-17.0
Hard drilling 27 to 27.5 ft
-18.5
14
12
13
6
16
18
20
22
24
26
28
30
32
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0189



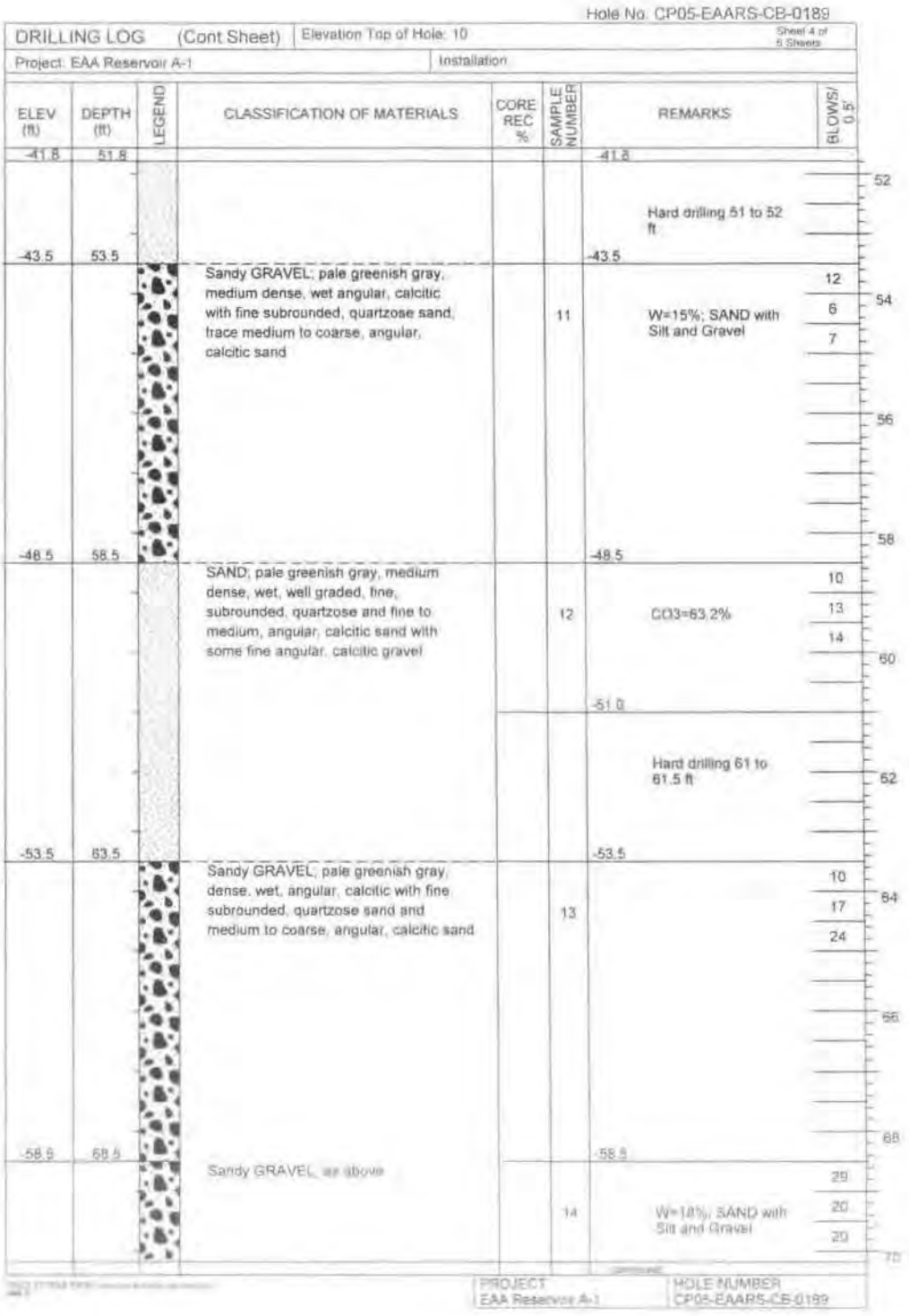
Hole No. CP05-EAARS-CB-0189

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND, pale brownish gray, dense, wet, poorly graded, fine grained, subrounded, quartzose with a trace medium to coarse and angular, calcitic sand		7	-23.5 W=26%; SAND with Silt	14 18 19 34 36 38
-28.5	38.5					-28.5	
			SAND, pale brownish gray, dense, wet, well graded as above but subequal amount of fine quartzose and medium to coarse calcitic sand		8		17 17 15 40 42
-33.5	43.5					-33.5	
			SAND; pale greenish gray, loose, wet, poorly graded, fine grained, subrounded, quartzose with a trace medium to coarse grained, angular, calcitic sand		9		5 3 4 44 46
-38.5	48.5					-38.5	48
			Sand as above		10		5 3 4 50
						-41.0	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0189



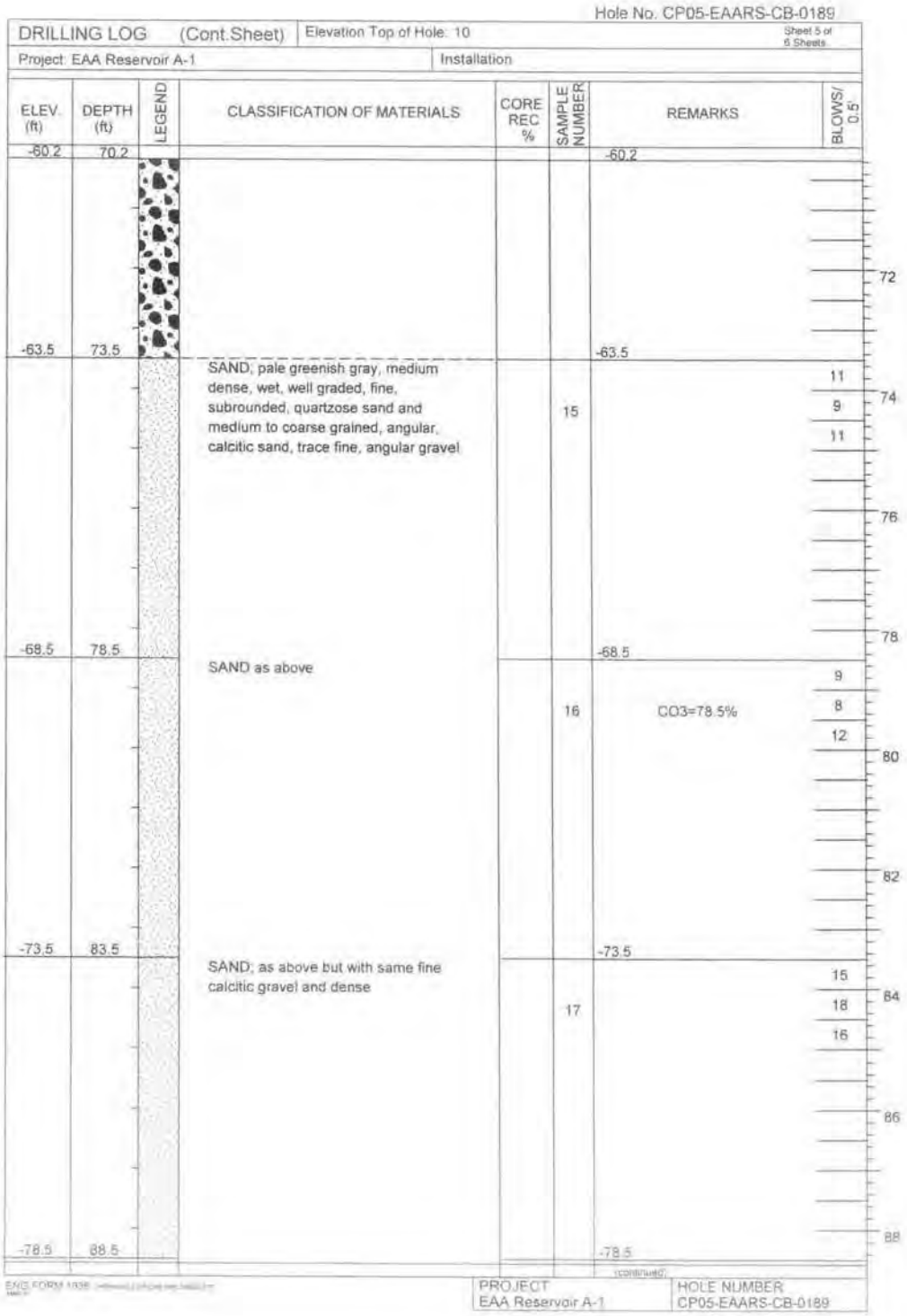
Hole No. CP05-EAARS-CB-0189

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
						Hard drilling 51 to 52 ft	52
-43.5	53.5					-43.5	
			Sandy GRAVEL; pale greenish gray, medium dense, wet angular, calcitic with fine subrounded, quartzose sand, trace medium to coarse, angular, calcitic sand		11	W=15%; SAND with Silt and Gravel	12 6 7
							54
							56
							58
-48.5	58.5					-48.5	
			SAND; pale greenish gray, medium dense, wet, well graded, fine, subrounded, quartzose and fine to medium, angular, calcitic sand with some fine angular, calcitic gravel		12	CO3=63.2%	10 13 14
							60
						-51.0	
						Hard drilling 61 to 61.5 ft	62
-53.5	63.5					-53.5	
			Sandy GRAVEL; pale greenish gray, dense, wet, angular, calcitic with fine subrounded, quartzose sand and medium to coarse, angular, calcitic sand		13		10 17 24
							64
							66
							68
-58.5	68.5					-58.5	
			Sandy GRAVEL, as above		14	W=18%; SAND with Silt and Gravel	29 20 20
							70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0189



Hole No. CP05-EAARS-CB-0189

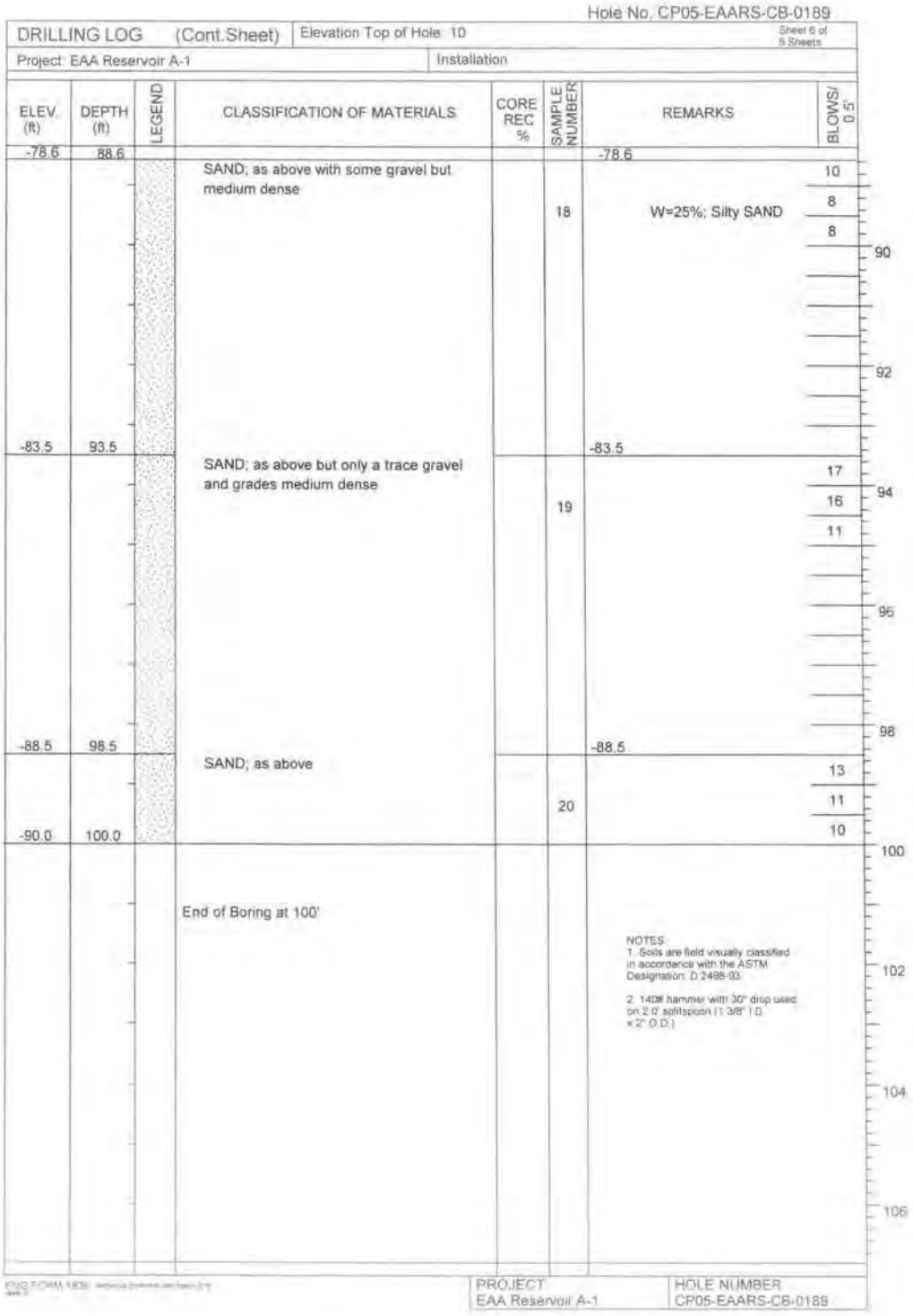
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.2	70.2					-60.2	
-63.5	73.5		SAND, pale greenish gray, medium dense, wet, well graded, fine, subrounded, quartzose sand and medium to coarse grained, angular, calcitic sand, trace fine, angular gravel		15	-63.5	11 9 11
-68.5	78.5		SAND as above		16	CO3=78.5%	9 8 12
-73.5	83.5		SAND, as above but with same fine calcitic gravel and dense		17	-73.5	15 18 16
-78.5	88.5					-78.5	

72 74 76 78 80 82 84 86 88

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0189



Hole No. CP05-EAARS-CB-0189

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole 10 | Sheet 6 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6		SAND; as above with some gravel but medium dense		18	-78.6 W=25%; Silty SAND	10 8 8
-83.5	93.5		SAND; as above but only a trace gravel and grades medium dense		19	-83.5	17 16 11
-88.5	98.5		SAND; as above		20	-88.5	13 11 10
-90.0	100.0		End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0189

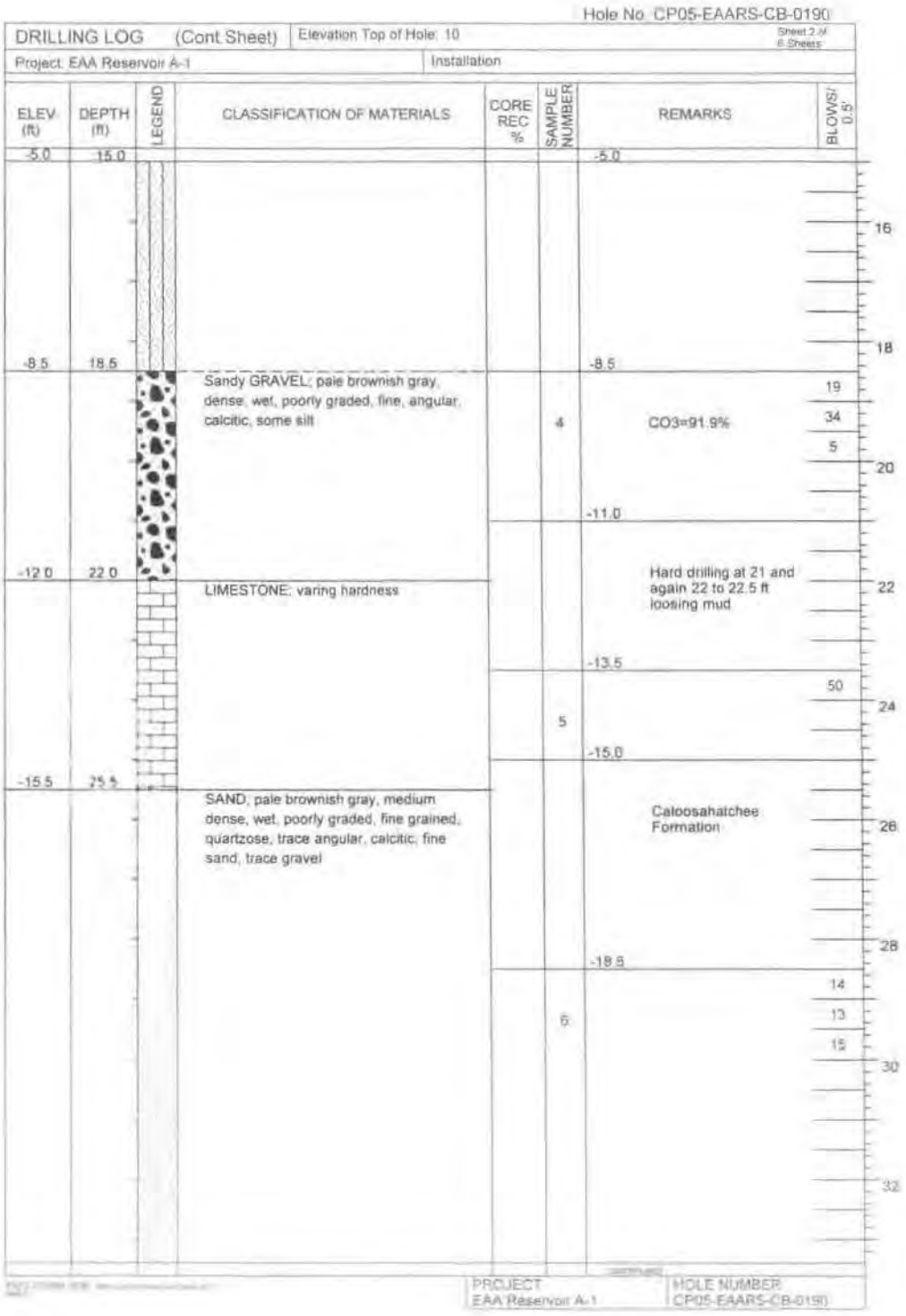
Hole No. CP05-EAARS-CB-0190

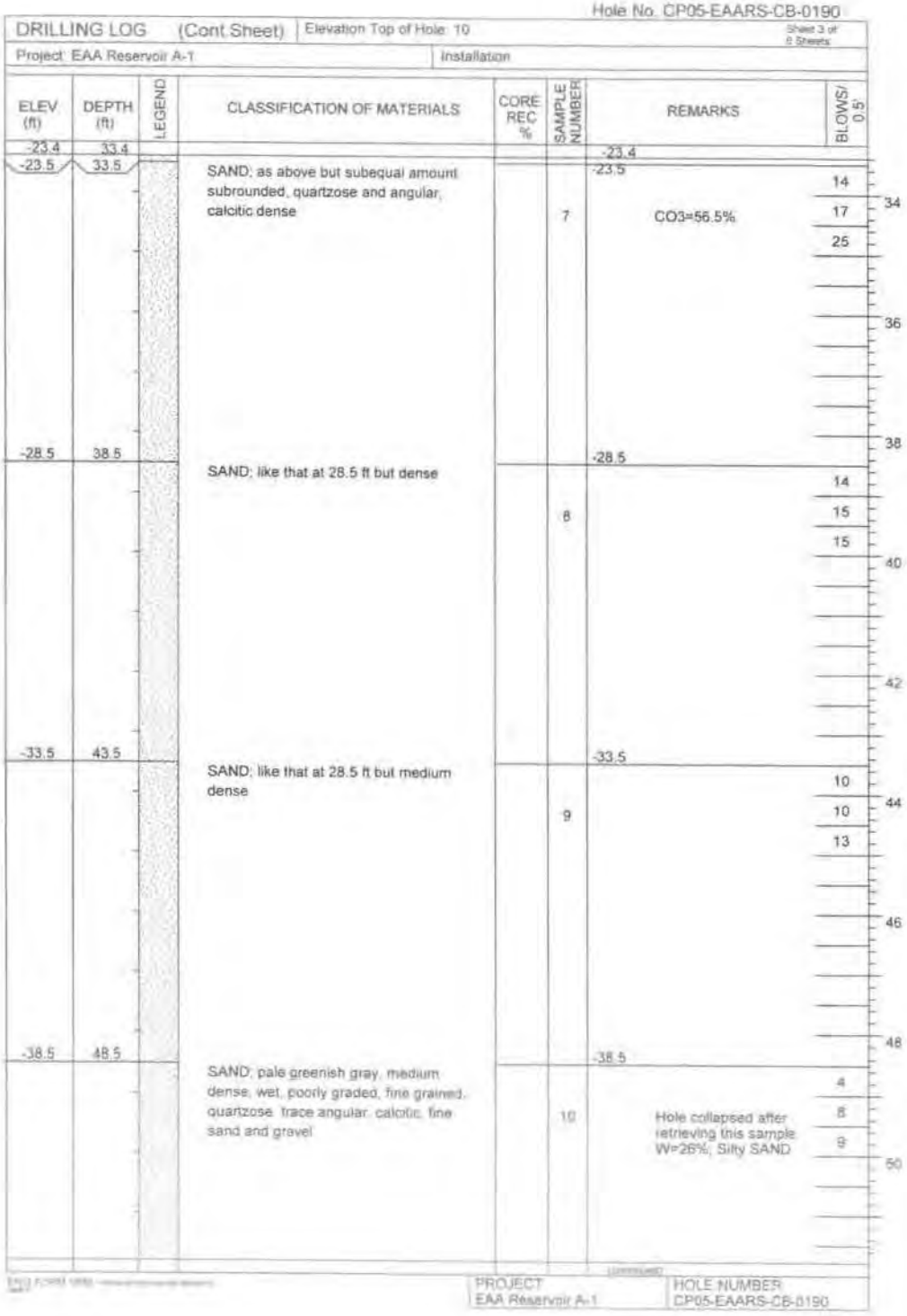
DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774072.2, E759311.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0190		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Jim Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/28/2005 Completed 3/1/2005	
7. Thickness of Burden: 0.0 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 2.5 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			LIMESTONE caprock			10.0 All calcitic materials are at least in part shell fragments	0
7.5	2.5						2
			SAND; pale brownish gray, very dense, wet, well graded, angular, calcitic, some angular, fine gravel, trace silt				4
						5.0	
					1	Loosing mud	9 4 50
						2.0	6
							50
					2	Probably thin LIMESTONE dense	8
							10
							12
-3.5	13.5					-3.5	
			Silty SAND: medium dense, wet, poorly graded, mostly fine grained, angular, calcitic, some fine angular gravel		3	W=28%, Silty SAND with Gravel	8 15 2
							14

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0190


Hole No. CP05-EAARS-CB-0190
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10
Sheet 2 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-5.0
15.0
-5.0
16
18
-8.5
18.5
Sandy GRAVEL; pale brownish gray, dense, wet, poorly graded, fine, angular, calcitic, some silt
-8.5
4
CO3=91.9%
19
34
5
20
-11.0
-12.0
22.0
LIMESTONE; varing hardness
Hard drilling at 21 and again 22 to 22.5 ft loosing mud
22
-13.5
50
5
24
-15.0
-15.5
25.5
SAND, pale brownish gray, medium dense, wet, poorly graded, fine grained, quartzose, trace angular, calcitic, fine sand, trace gravel
Caloosahatchee Formation
26
28
-18.5
14
6
13
15
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0190



Hole No. CP05-EAARS-CB-0190

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND; as above but subequal amount subrounded, quartzose and angular, calcitic dense		7	-23.5 CO3=56.5%	14 17 25
-28.5	38.5		SAND; like that at 28.5 ft but dense		8	-28.5	14 15 15
-33.5	43.5		SAND; like that at 28.5 ft but medium dense		9	-33.5	10 10 13
-38.5	48.5		SAND; pale greenish gray, medium dense, wet, poorly graded, fine grained, quartzose, trace angular, calcitic, fine sand and gravel		10	-38.5 Hole collapsed after retrieving this sample W=26%, Silty SAND	4 8 9

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0190

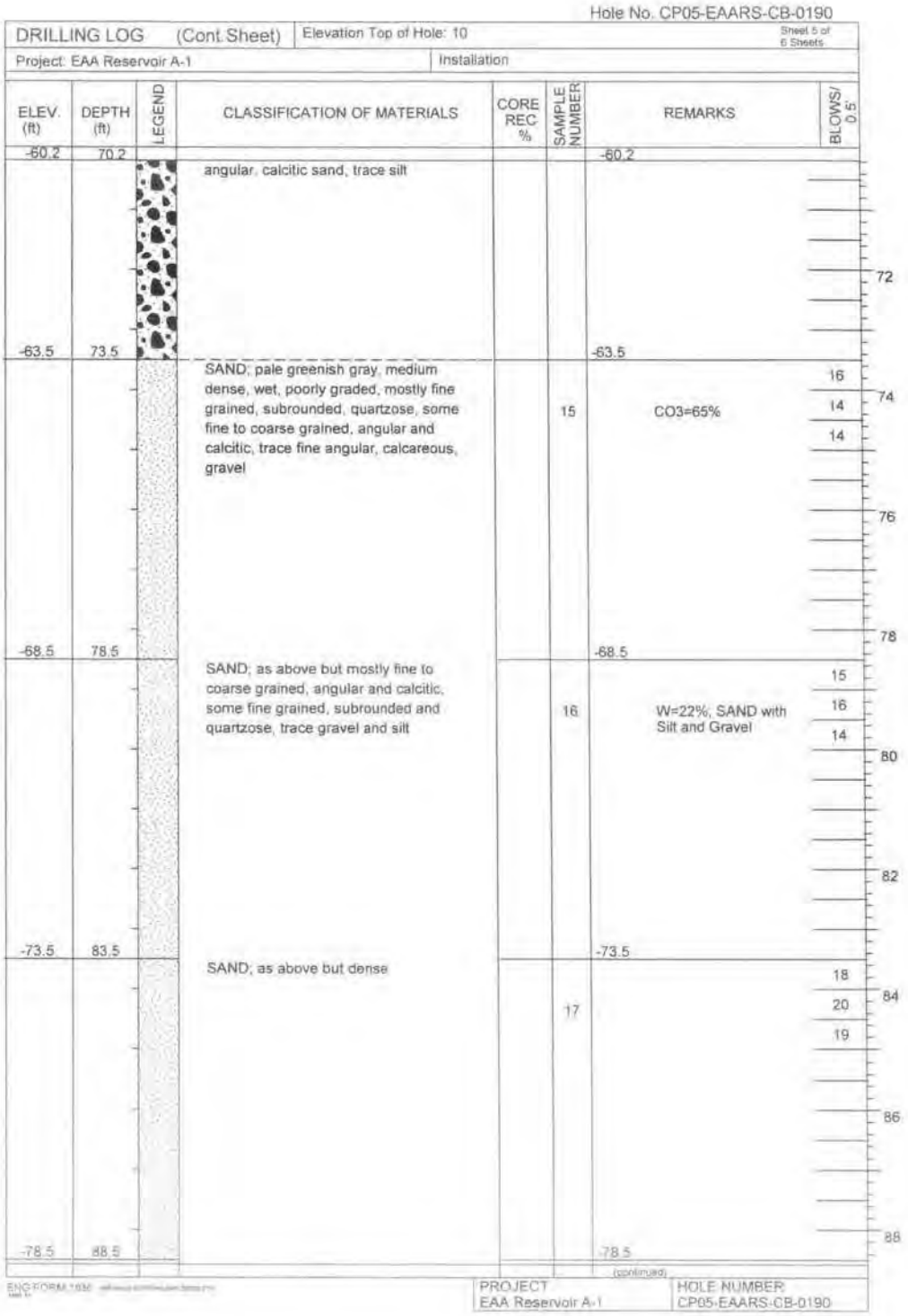
Hole No: CP05-EAARS-CB-0190

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
-43.5	53.5					-43.5	
			Sandy GRAVEL, pale greenish gray, medium dense, wet, poorly graded, fine grained, angular, calcitic with fine, both subrounded, quartzose and angular, calcitic sand, some silt		11	Hole collapses again	7 7 9
-48.5	58.5					-48.5	
			GRAVEL; only a few pieces of fine angular, calcareous gravel recovered with a trace fine sand and silt		12	Thin LIMESTONE; Lenses or cobbles at 58.7 and 63.6 ft	50/3"
-53.5	63.5					-53.5	
			Calcareous GRAVEL; as above		13		50/2"
-58.5	68.5					-58.5	
			Sandy GRAVEL, pale greenish gray, medium dense, wet, poorly graded, fine grained, calcareous with subequal amounts of fine grained, subrounded quartzose, and fine to coarse grained		14	W=19%, SAND with Silt and Gravel	30 15 14

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0190



Hole No. CP05-EAARS-CB-0190

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 5 of 6 Sheets

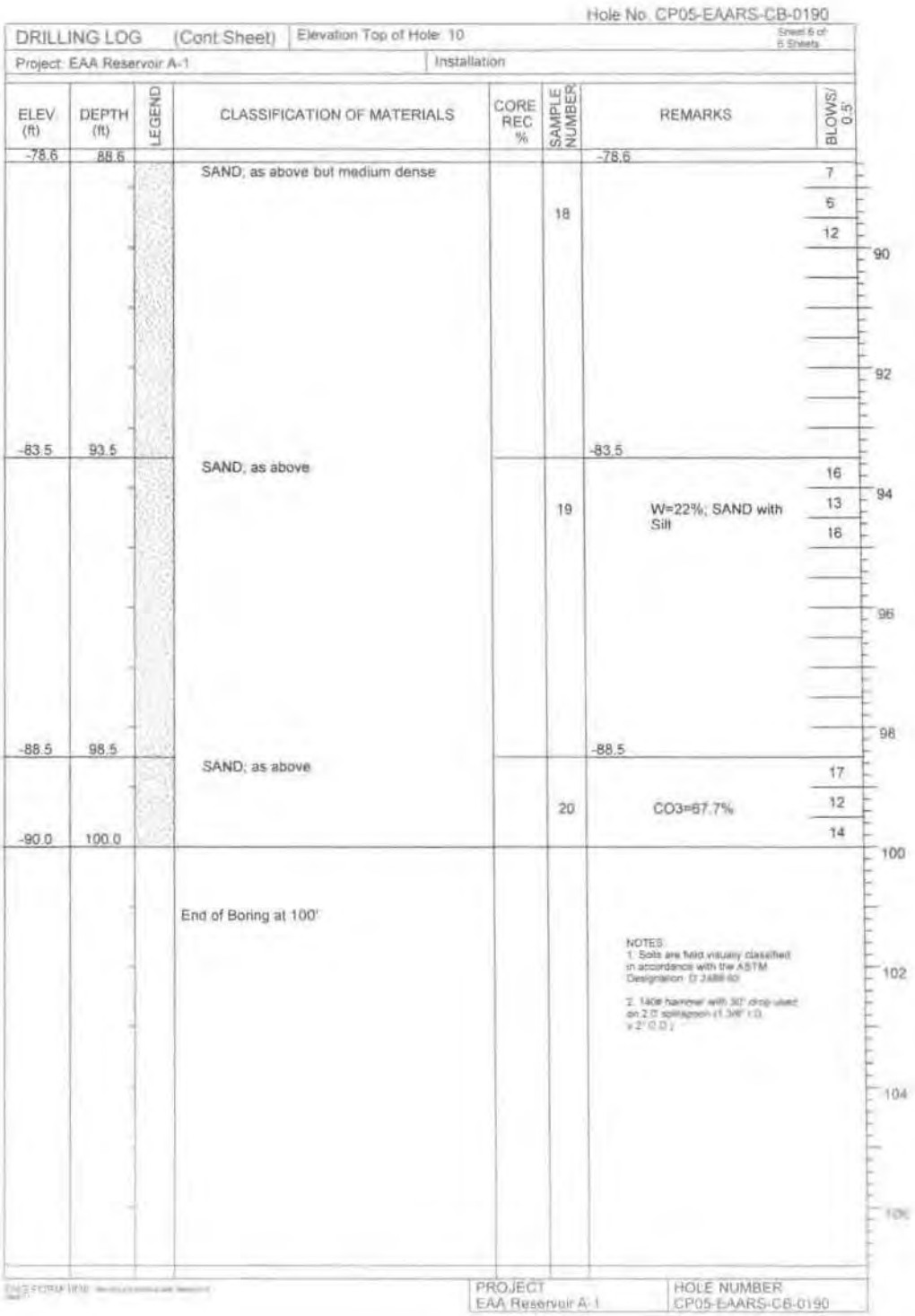
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5
-60.2	70.2					-60.2	
			angular, calcitic sand, trace silt				72
-63.5	73.5					-63.5	
			SAND; pale greenish gray, medium dense, wet, poorly graded, mostly fine grained, subrounded, quartzose, some fine to coarse grained, angular and calcitic, trace fine angular, calcareous, gravel		15	CO3=65%	16 14 14 74 76
-68.5	78.5					-68.5	78
			SAND; as above but mostly fine to coarse grained, angular and calcitic, some fine grained, subrounded and quartzose, trace gravel and silt		16	W=22%, SAND with Silt and Gravel	15 16 14 80 82
-73.5	83.5					-73.5	
			SAND; as above but dense		17		18 20 19 84 86
-78.5	88.5					-78.5	88

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0190



Hole No. CP05-EAARS-CB-0190

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6		SAND; as above but medium dense		18	-78.6	7 5 12
-83.5	93.5		SAND; as above		19	-83.5 W=22%; SAND with Silt	16 13 16
-88.5	98.5		SAND; as above		20	-88.5 CO3=67.7%	17 12 14
-90.0	100.0		End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" split spoon (1.38" I.D. x 2" O.D.)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0190

Hole No. CP05-EAARS-CB-0191

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N773684.7, E759698.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0191		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Jim Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/24/2005 Completed 2/24/2005	
7. Thickness of Burden: 3.0 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 3.5 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			Muck (peat) and Limestone rubble			10.0	0
						All calcitic material is at least partly shell fragments	
7.0	3.0						2
			LIMESTONE caprock				4
3.5	6.5						6
			Sandy GRAVEL; pale brownish gray medium, dense angular, wet, calcitic with trace silt, well graded			3.0	
					1		7
							4
1.0	9.0					1.0	13 8
			Gravelly SAND, as above but more dense and more sand				3
					2	Loosing Drill fluid	21
							50/1.5" 10
-3.5	13.5					-3.5	12
			Silty SAND; pale brownish gray, medium dense, poorly graded, fine grained, angular, calcitic with trace fine gravel				6
					3	W=21%; Silty SAND	4 14
							12

(continued)

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0191

Hole No. CP05-EAARS-CB-0191

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	
-8.5	18.5		Sandy GRAVEL: like that at 7 ft above but may contain trace very fine grained quartzose sand		4	-8.5 CO3=87.1%	7 35 50/3"
-12.0	22.0		LIMESTONE			-12.0	
-13.7	23.7		SAND: pale brownish gray, medium dense, wet, poorly graded, fine grained, subrounded, quartzose, with a trace angular calcitic sand and calcareous gravel		5	-13.5 Hard drilling at 22 ft, very hard from 23 to 23.7 ft Caloosahatchee Formation	50/1"
					6	-18.5	24 11 9

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0191

Hole No. CP05-EAARS-CB-0191

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND; pale brownish gray, medium dense, wet, poorly graded, mostly fine grained, subrounded, and quartzose, some fine to coarse grained, angualr and calcitic, trace gravel		7	-23.5 W=20%; SAND -26.0	11 14 9 34
						Hard drilling 36 to 37 ft.	36 38
-28.5	38.5		SAND; as above		8	-28.5 CO3=40.7%	9 9 14 40 42
-33.5	43.5					-33.5	
-34.0	44.0		SAND; as above SAND; as above but pale greenish gray		9	CO3=25.3%	16 11 8 44 46
-38.5	48.5					-38.5	48
			SAND; pale greenish gray, loose, wet, poorly graded, fine grained, subrounded, quartzose, trace fine to coarse grained, angular, calcitic sand		10	Silty SAND	2 2 5 50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0191

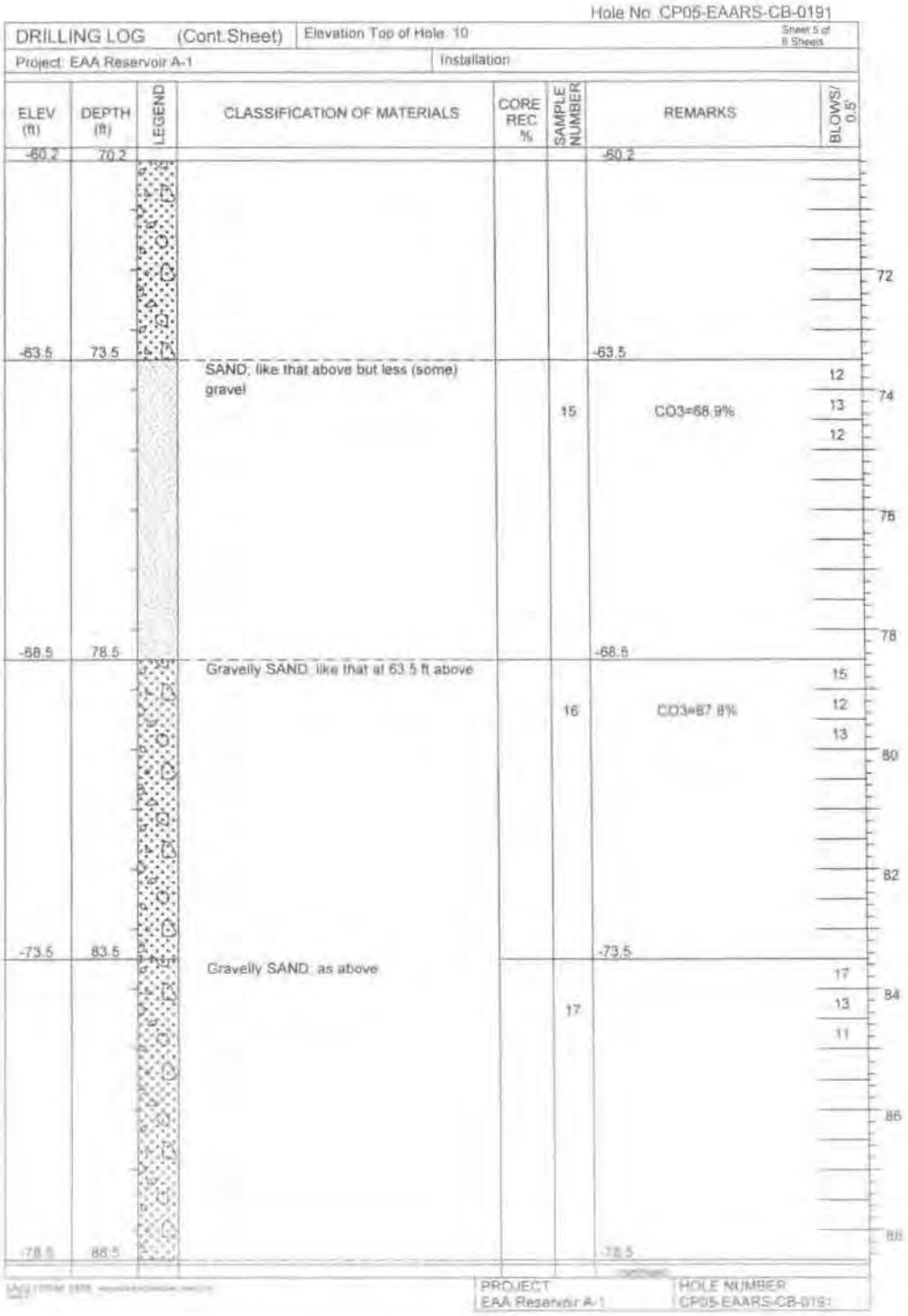
Hole No. CP05-EAARS-CB-0191

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-41.8	51.8					-41.8	
						-42.0	52
						Hard drilling 52 to 52.5 ft.	
-43.5	53.5					-43.5	
			Silty GRAVEL, pale greenish gray, medium dense, angualr, calcareous, with some fine sand, calcitic and quartzose		11		13 9 11
							54
							56
							58
-48.5	58.5					-48.5	
			Sandy GRAVEL, as above but with sand like that at 48.5 ft but mostly calcitic and trace silt		12		8 9 13
						-50.0	
							60
						Hard drilling 60 to 61 ft.	
							62
-53.5	63.5					-53.5	
			Gravelly SAND, pale greenish gray, very dense, wet, poorly graded, mostly medium to coarse grained, angular, and calcitic, some fine grained subrounded and quartzose, with fine angualr, calcareous gravel		13		36 50/5"
							64
							66
							68
-58.5	68.5					-58.5	
			Gravelly SAND, as above but dense		14		31 20 15
						w=20%, SAND with Silt and Gravel	
							70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0191


Hole No. CP05-EAARS-CB-0191
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10
Sheet 5 of 8 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-60.2
70.2
-63.5
73.5
SAND, like that above but less (some) gravel
15
CO3=68.9%
12
13
12
-68.5
78.5
Gravelly SAND, like that at 63.5 ft above
16
CO3=67.8%
15
12
13
-73.5
83.5
Gravelly SAND, as above
17
17
13
11
-78.5
88.5
72
74
76
78
80
82
84
86
88
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0191

Hole No. CP05-EAARS-CB-0191

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

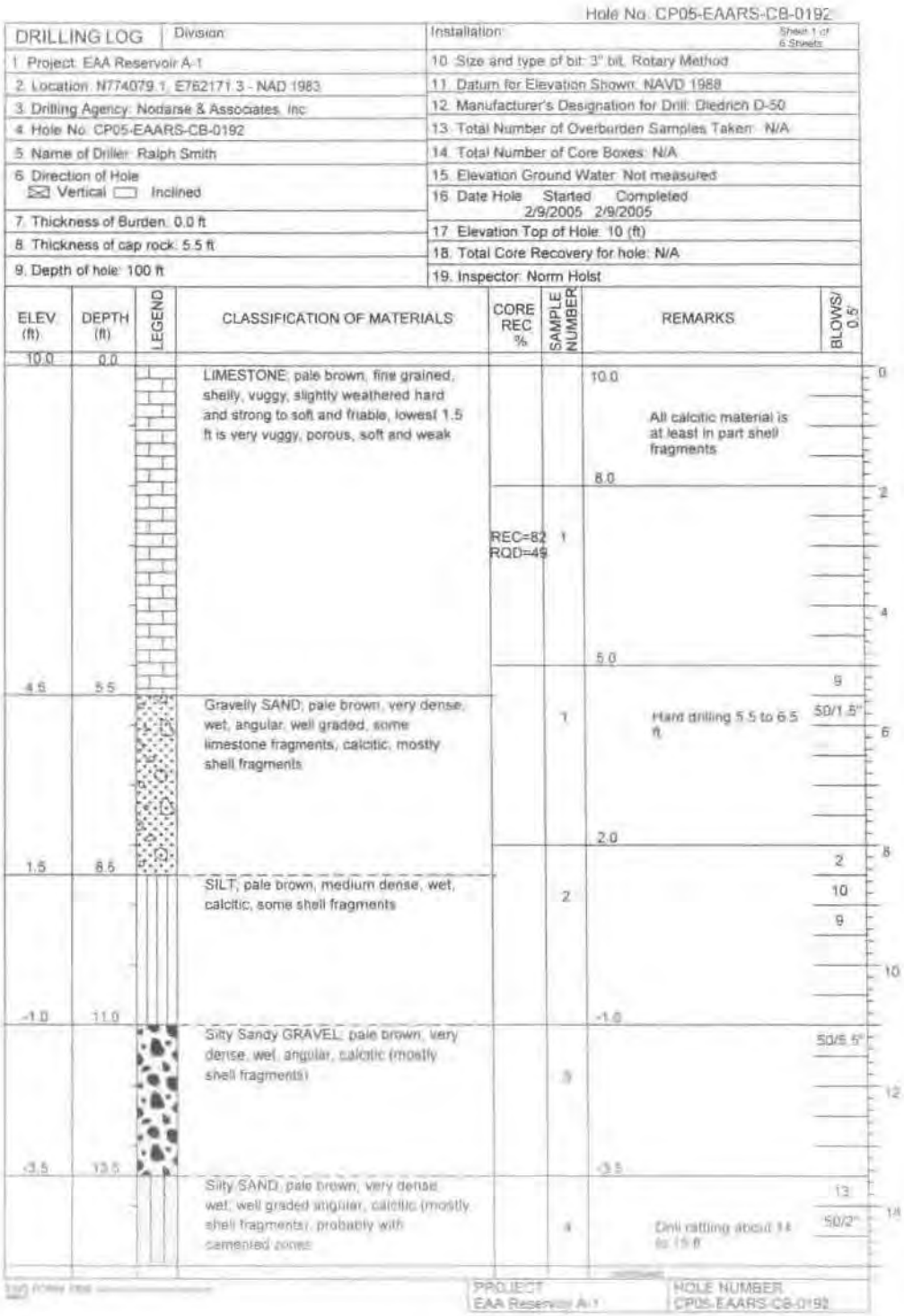
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			SAND; pale greenish gray, medium dense, wet, poorly graded, mostly fine grained, subrounded and quartzose, with some medium to coarse grained angular, calcitic sand, some fine calcareous gravel		18		16 11 14
-83.5	93.5					-83.5	
			SAND; as above but trace silt and gravel		19	W=23%; SAND with Silt	14 13 14
-88.5	98.5					-88.5	
			SAND; pale greenish gray, medium dense, wet, poorly graded, mostly medium to coarse grained, angular and calcitic, some fine grained, subrounded and quartzose, trace fine gravel and silt		20		16 13 11
-90.0	100.0		End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

90 92 94 96 98 100 102 104 106

ENG FORM 1836

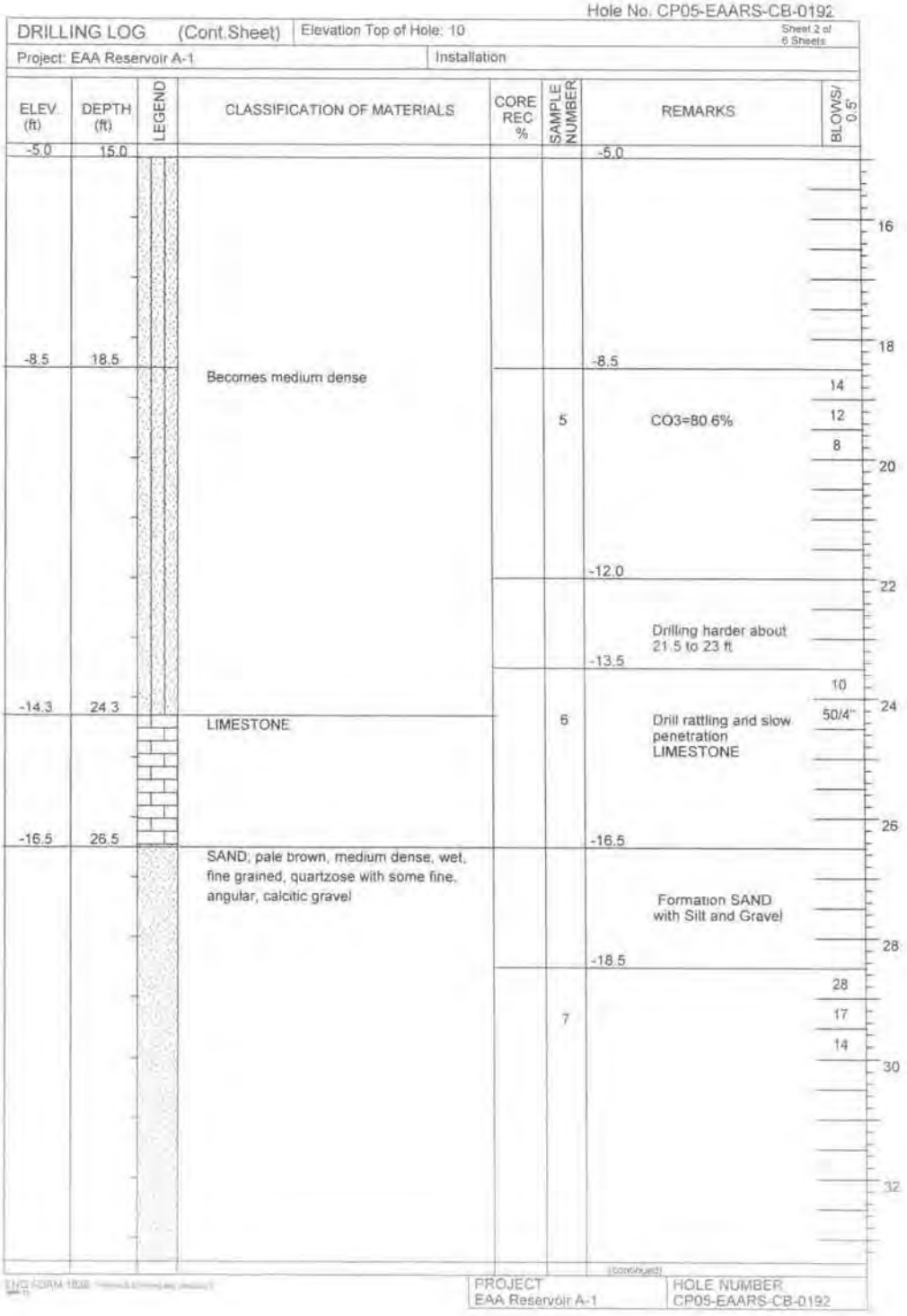
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0191



Hole No. CP05-EAARS-CB-0192

DRILLING LOG	Division	Installation	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774079.1, E762171.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0192		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/9/2005 Completed 2/9/2005	
7. Thickness of Burden: 0.0 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 5.5 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			LIMESTONE: pale brown, fine grained, shelly, vuggy, slightly weathered hard and strong to soft and friable, lowest 1.5 ft is very vuggy, porous, soft and weak			10.0 All calcitic material is at least in part shell fragments	
						8.0	
				REC=82 RQD=49	1		
						5.0	
4.5	5.5						9
			Gravelly SAND: pale brown, very dense, wet, angular, well graded, some limestone fragments, calcitic, mostly shell fragments		1	Hard drilling 5.5 to 6.5 ft	50/1.5"
						2.0	
1.5	8.5						2
			SILT: pale brown, medium dense, wet, calcitic, some shell fragments		2		10
							9
-1.0	11.0					-1.0	
			Silty Sandy GRAVEL: pale brown, very dense, wet, angular, calcitic (mostly shell fragments)		3		50/6.5"
-3.5	13.5					-3.5	
			Silty SAND: pale brown, very dense, wet, well graded angular, calcitic (mostly shell fragments), probably with cemented zones		4	Drill rattling about 14 to 15 ft	13 50/2"
						PROJECT EAA Reservoir A-1	HOLE NUMBER CP05-EAARS-CB-0192



Hole No. CP05-EAARS-CB-0192

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	
-8.5	18.5		Becomes medium dense		5	-8.5 CO3=80.6%	14 12 8
						-12.0 Drilling harder about 21.5 to 23 ft	
-14.3	24.3		LIMESTONE		6	-13.5 Drill rattling and slow penetration LIMESTONE	10 50/4"
-16.5	26.5		SAND, pale brown, medium dense, wet, fine grained, quartzose with some fine, angular, calcitic gravel			-16.5 Formation SAND with Silt and Gravel	
					7	-18.5	28 17 14

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0192

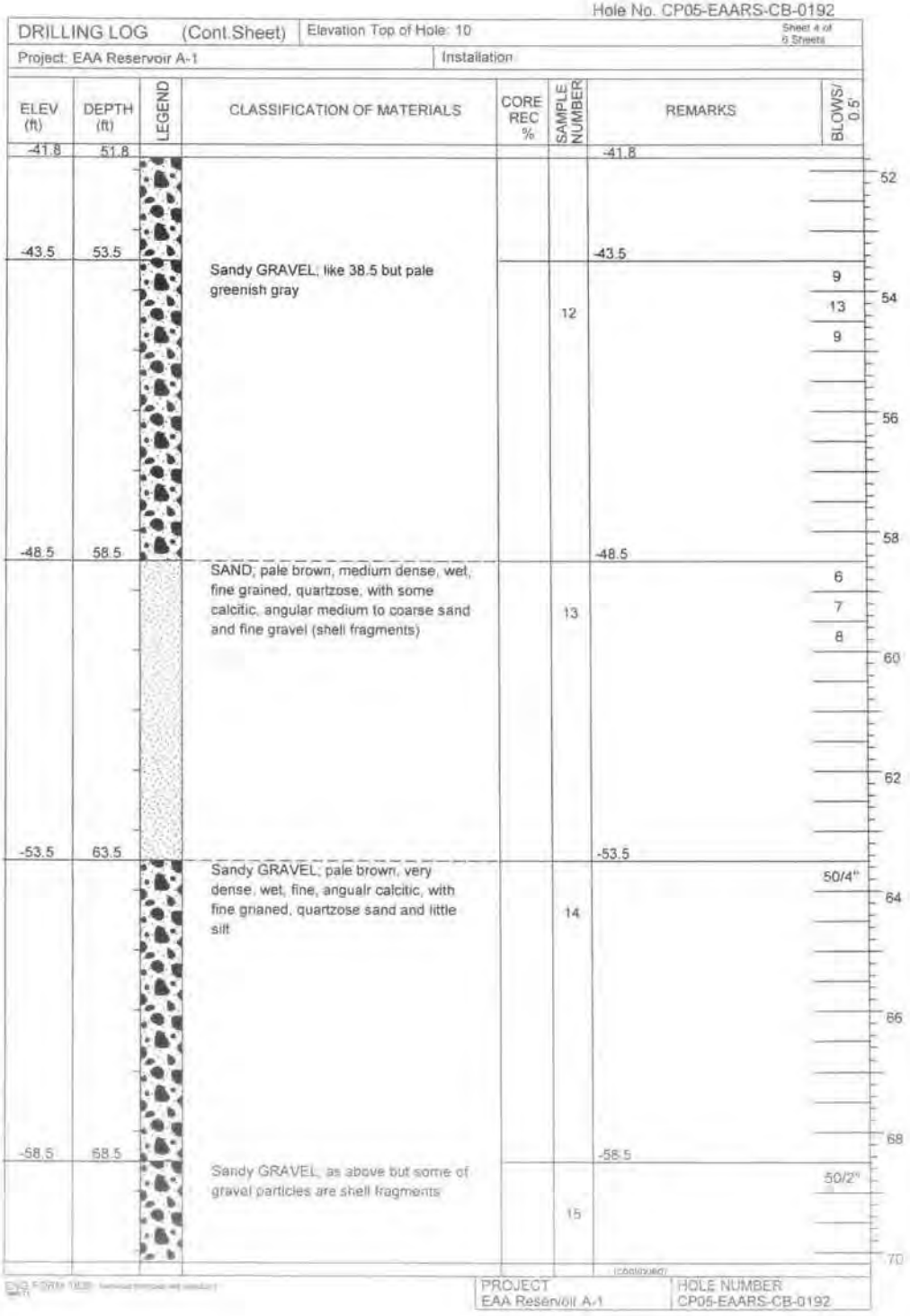
Hole No. CP05-EAARS-CB-0192

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND, pale brown, dense, wet, fine grained, quartzose, some medium to coarse, angular shell fragments, trace silt		8	-23.5	11 18 14 34 36 38
-28.5	38.5		Sandy GRAVEL, pale brown, medium dense, wet, fine grianed, calcitic, angular, with fine, quartzose sand, trace shell in the sand		9	-28.5	15 12 9 40 42
-33.5	43.5		SAND, pale greenish gray, medium dense, wet, fine grained, quartzose, with little calcitic, angular coarse sand and fine gravel and shell fragments		10	-33.5	7 5 5 44 46 48
-38.5	48.5		Sandy GRAVEL, like 38.5 ft		11	-38.5 Gravel with Sand	15 18 11 50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0192



Hole No. CP05-EAARS-CB-0192

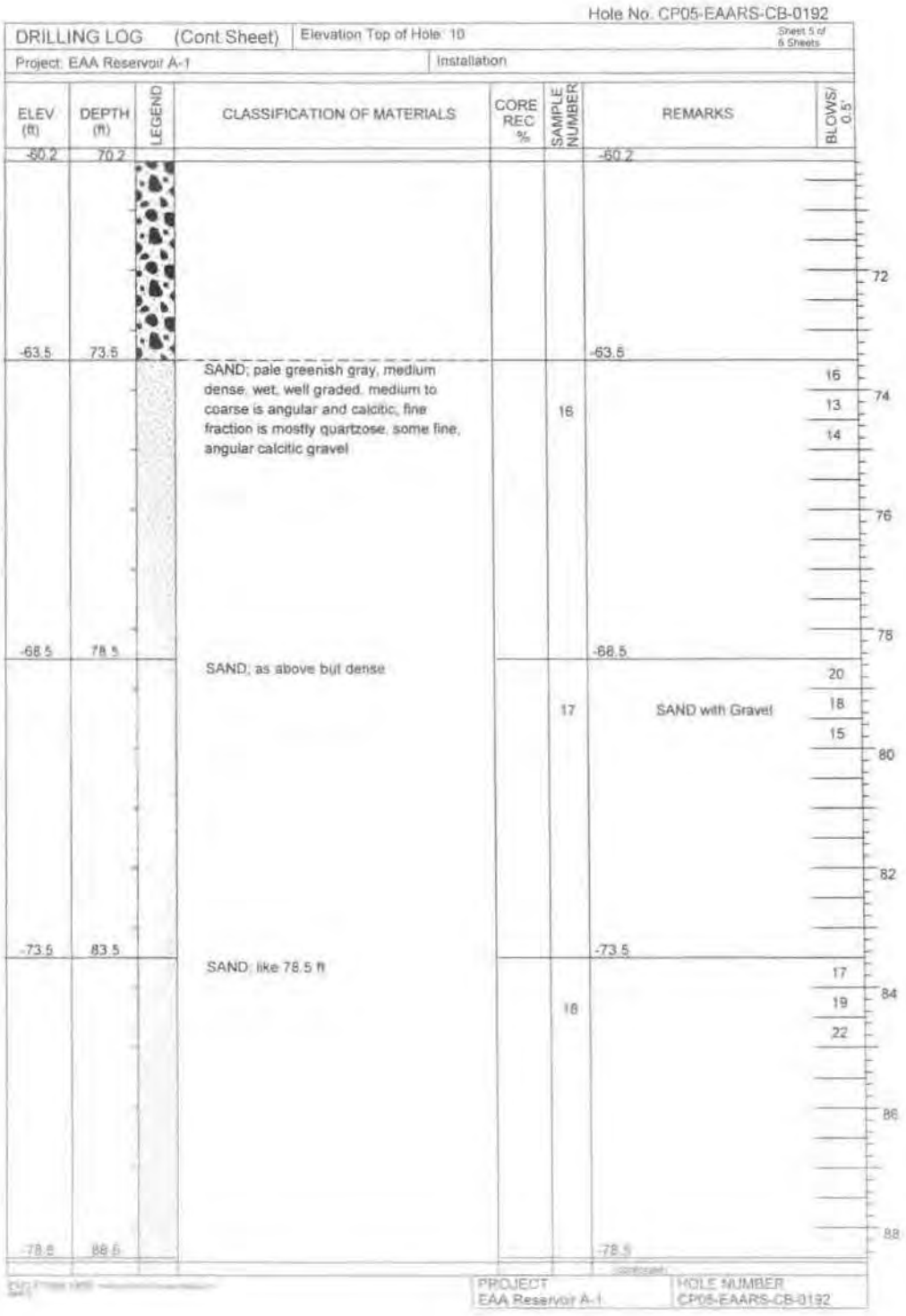
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 9 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
-43.5	53.5		Sandy GRAVEL; like 38.5 but pale greenish gray		12	-43.5	9 13 9
-48.5	58.5		SAND; pale brown, medium dense, wet, fine grained, quartzose, with some calcitic, angular medium to coarse sand and fine gravel (shell fragments)		13	-48.5	6 7 8
-53.5	63.5		Sandy GRAVEL; pale brown, very dense, wet, fine, angualr calcitic, with fine grianed, quartzose sand and little silt		14	-53.5	50/4"
-58.5	68.5		Sandy GRAVEL, as above but some of gravel particles are shell fragments		15	-58.5	50/2"

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0192


Hole No. CP05-EAARS-CB-0192
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10
Sheet 5 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-60.2
70.2
-63.5
73.5
SAND; pale greenish gray, medium dense, wet, well graded, medium to coarse is angular and calcitic, fine fraction is mostly quartzose, some fine, angular calcitic gravel
16
13
14
-68.5
78.5
SAND; as above but dense
20
18
15
17
SAND with Gravel
-73.5
83.5
SAND; like 78.5 ft
17
19
22
18
-78.5
88.5
72
74
76
78
80
82
84
86
88
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0192

Hole No. CP05-EAARS-CB-0192

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			SAND; as above		19		15 18 14
-83.5	93.5					-83.5	
			SAND; as above but medium dense		20		19 21 17
						-88.5	
-90.0	100.0				21		15 12 7
			End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" split spoon (1 3/8" I.D. x 2" O.D.).

90 92 94 96 98 100 102 104 106

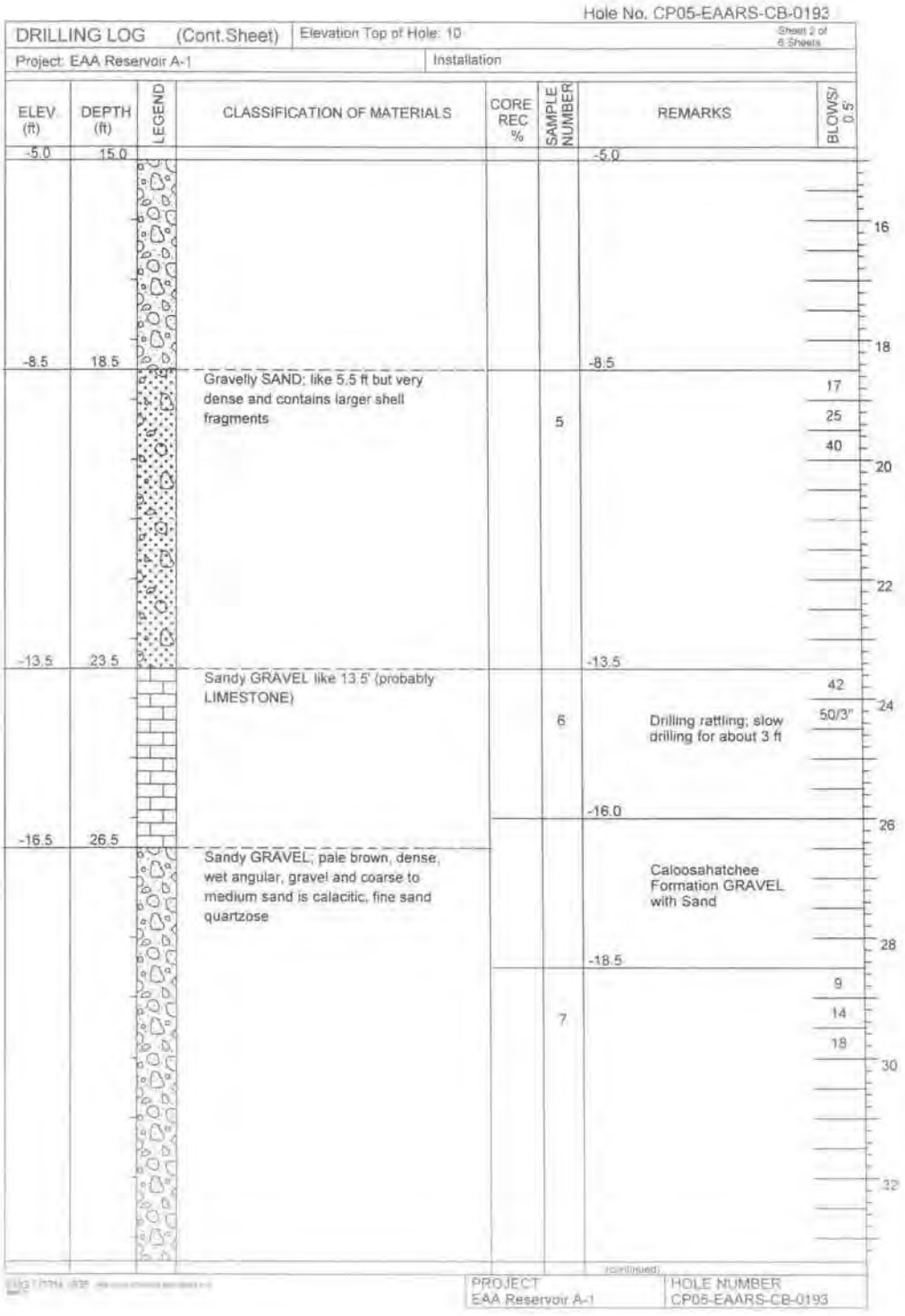
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0192

Hole No. CP05-EAARS-CB-0193

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774466.6, E761983.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No. CP05-EAARS-CB-0193		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/9/2005 Completed 2/10/2005	
7. Thickness of Burden: 0.5 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
9.5	0.5		Muck; organic silt, dark brown			10.0	0
			LIMESTONE; pale brown to yellow, fine grained, shelly, vuggy, slightly weathered, strong and hard to soft, friable			All calcitic material is at least in part shell fragments	
						8.0	2
				REC=42 RQD=16	1		4
4.5	5.5					4.5	
			Gravelly SAND; light brown, medium dense, wet, angular, well graded, calcitic, shell fragments		1	GRAVEL with SAND	10 11 10
1.5	8.5					1.5	6 8
			Silty GRAVEL; white, medium dense, wet, fine, angular, non plastic, calcitic, shell fragments		2	GRAVEL with Silt and Sand	6 5 4
-1.0	11.0					-1.0	10
			GRAVEL; pale brown, very dense, wet, fine, angular, calcitic, trace sand and silt, shell fragments		3	SAND with Gravel	8 50/5.5"
-3.5	13.5					-3.5	12
			Sandy GRAVEL; pale brown, very dense, fine angular, calcitic, some silt, shell fragments		4	Gravel with Silt and SAND	12 34 40
						(continued)	14

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0193



Hole No. CP05-EAARS-CB-0193

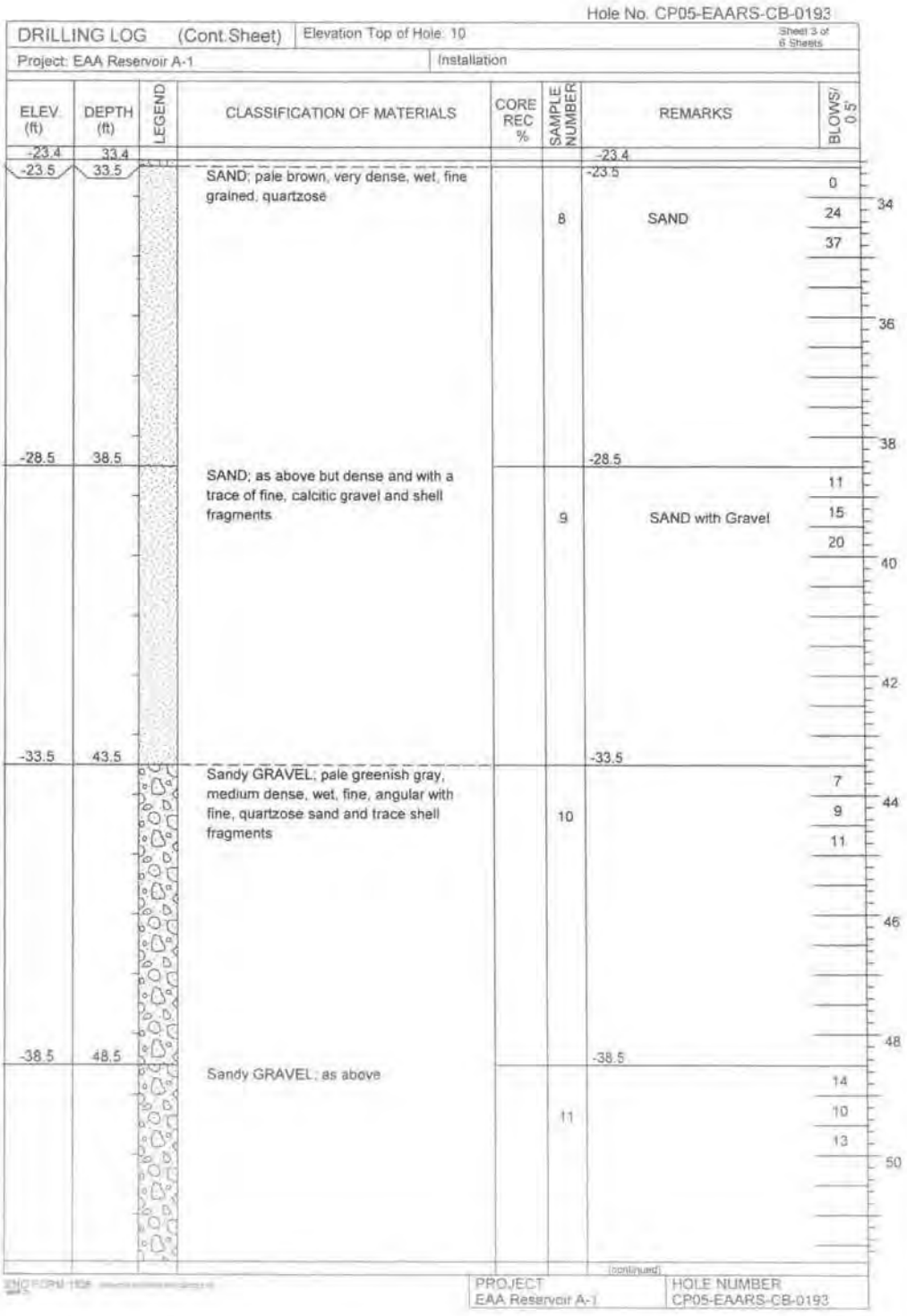
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	
							16
							18
-8.5	18.5		Gravelly SAND; like 5.5 ft but very dense and contains larger shell fragments		5	-8.5	17 25 40
							20
							22
-13.5	23.5		Sandy GRAVEL like 13.5' (probably LIMESTONE)		6	-13.5 Drilling rattling; slow drilling for about 3 ft	42 50/3"
							24
-16.5	26.5		Sandy GRAVEL; pale brown, dense, wet angular, gravel and coarse to medium sand is calacitic, fine sand quartzose			-16.0	
						Caloosahatchee Formation GRAVEL with Sand	
							26
							28
						-18.5	
					7		9 14 18
							30
							32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0193



Hole No. CP05-EAARS-CB-0193

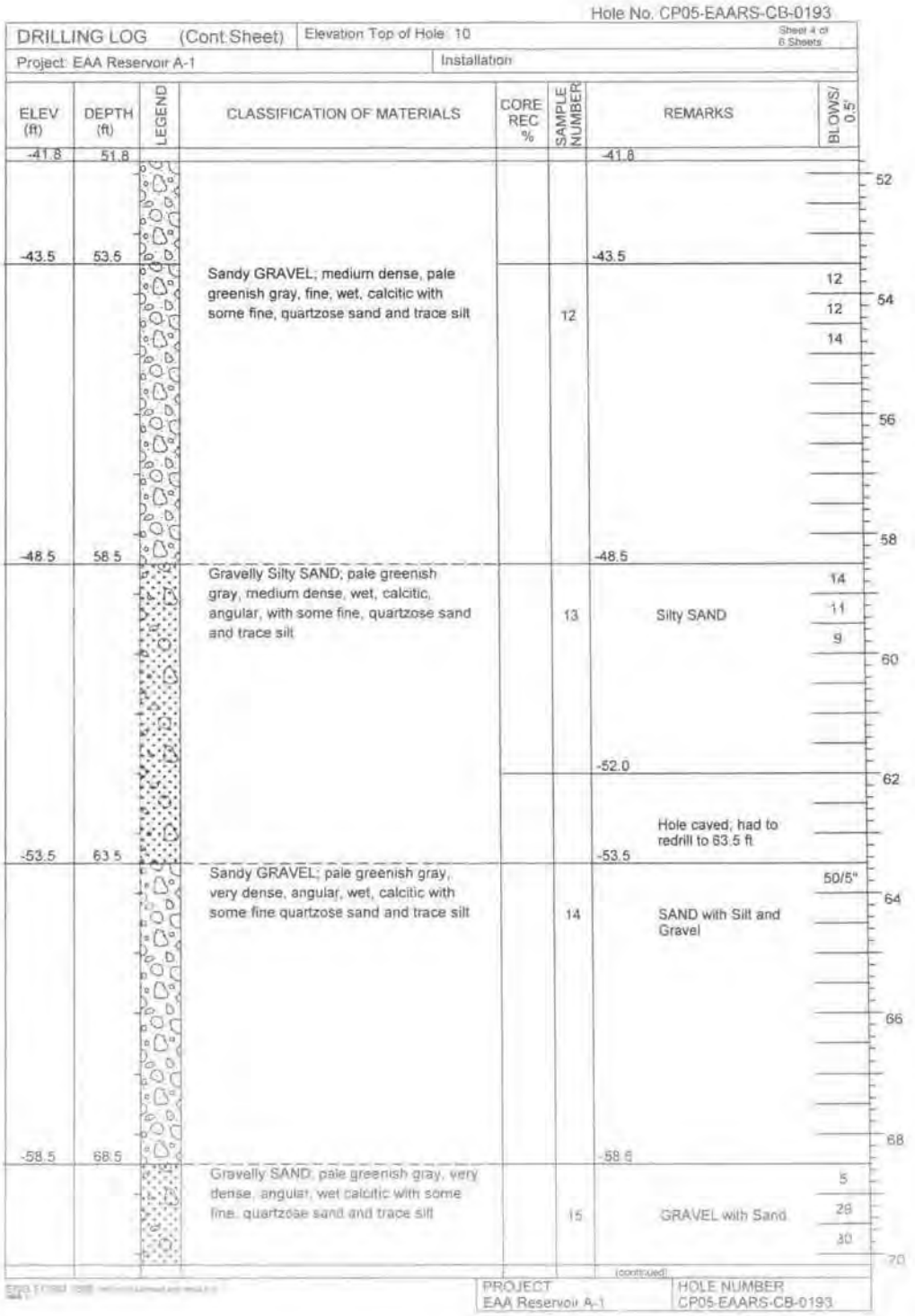
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND; pale brown, very dense, wet, fine grained, quartzose			-23.5	0
					8	SAND	24
							37
-28.5	38.5					-28.5	
			SAND; as above but dense and with a trace of fine, calcitic gravel and shell fragments		9	SAND with Gravel	11
							15
							20
-33.5	43.5					-33.5	
			Sandy GRAVEL; pale greenish gray, medium dense, wet, fine, angular with fine, quartzose sand and trace shell fragments		10		7
							9
							11
-38.5	48.5					-38.5	
			Sandy GRAVEL; as above		11		14
							10
							13

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0193



Hole No. CP05-EAARS-CB-0193

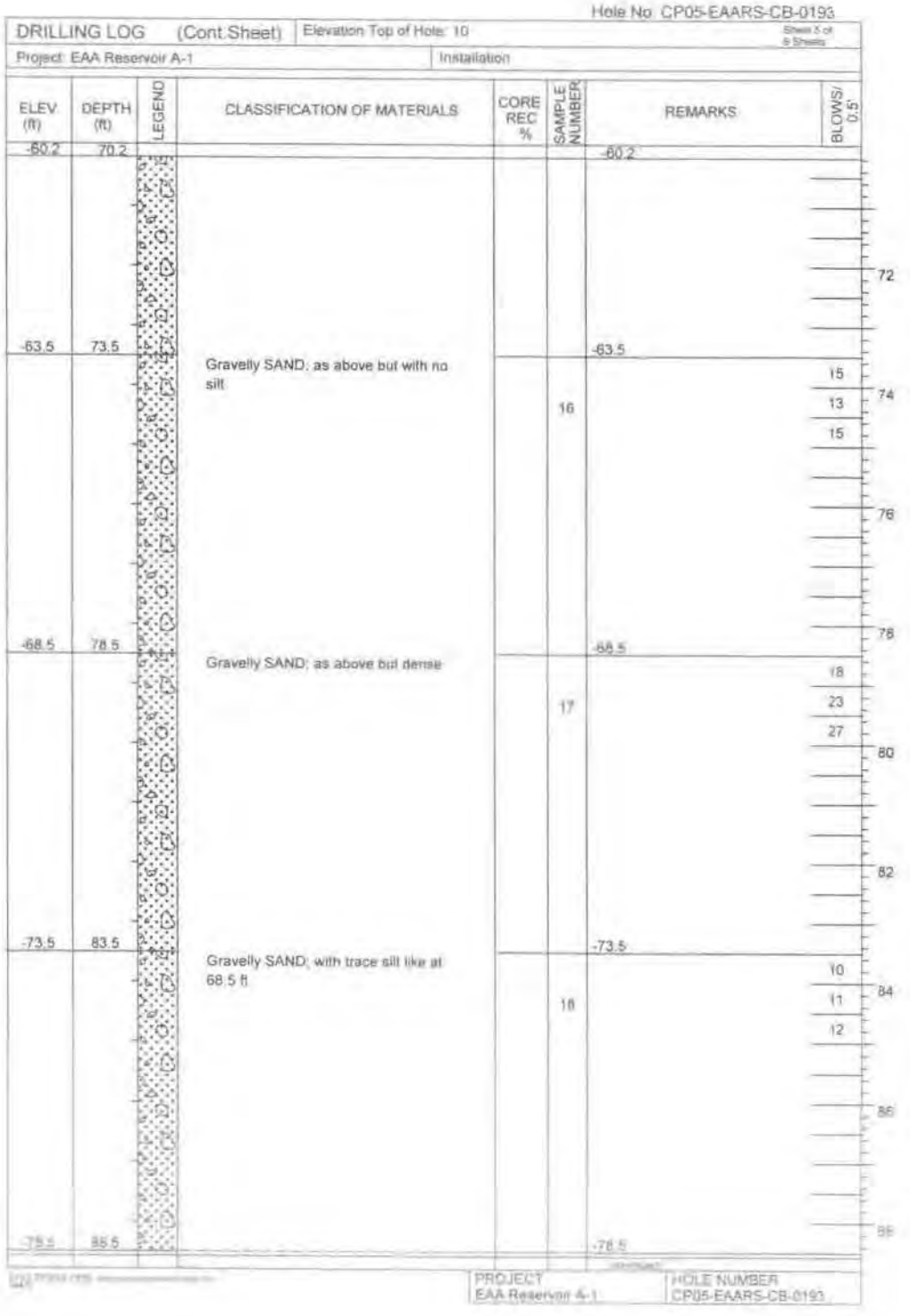
DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
-43.5	53.5		Sandy GRAVEL; medium dense, pale greenish gray, fine, wet, calcitic with some fine, quartzose sand and trace silt		12	-43.5	12 12 14
-48.5	58.5		Gravelly Silty SAND; pale greenish gray, medium dense, wet, calcitic, angular, with some fine, quartzose sand and trace silt		13	Silty SAND -52.0 Hole caved, had to redrill to 63.5 ft	14 11 9
-53.5	63.5		Sandy GRAVEL; pale greenish gray, very dense, angular, wet, calcitic with some fine quartzose sand and trace silt		14	-53.5 SAND with Silt and Gravel	50/5"
-58.5	68.5		Gravelly SAND; pale greenish gray, very dense, angular, wet calcitic with some fine, quartzose sand and trace silt		15	-58.6 GRAVEL with Sand	5 28 30

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0193


Hole No. CP05-EAARS-CB-0193
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-60.2
70.2
-63.5
73.5
Gravelly SAND; as above but with no silt
16
15
13
15
72
74
76
-68.5
78.5
Gravelly SAND; as above but dense
17
18
23
27
78
80
82
-73.5
83.5
Gravelly SAND; with trace silt like at 68.5 ft
18
10
11
12
84
86
88
-78.5
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0193

Hole No. CP05-EAARS-CB-0193

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			SAND; pale greenish gray, dense, wet, mostly fine grained and quartzose with some calcitic, angular, fine to medium sand and trace angular, calcitic fine gravel and trace silt		19		22 20 22
-83.5	93.5					-83.5	
			SAND; as above		20		18 15 16
-88.5	98.5					-88.5	
			SAND; as above		21		14 12 10
-90.0	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0193

Hole No. CP05-EAARS-CB-0194

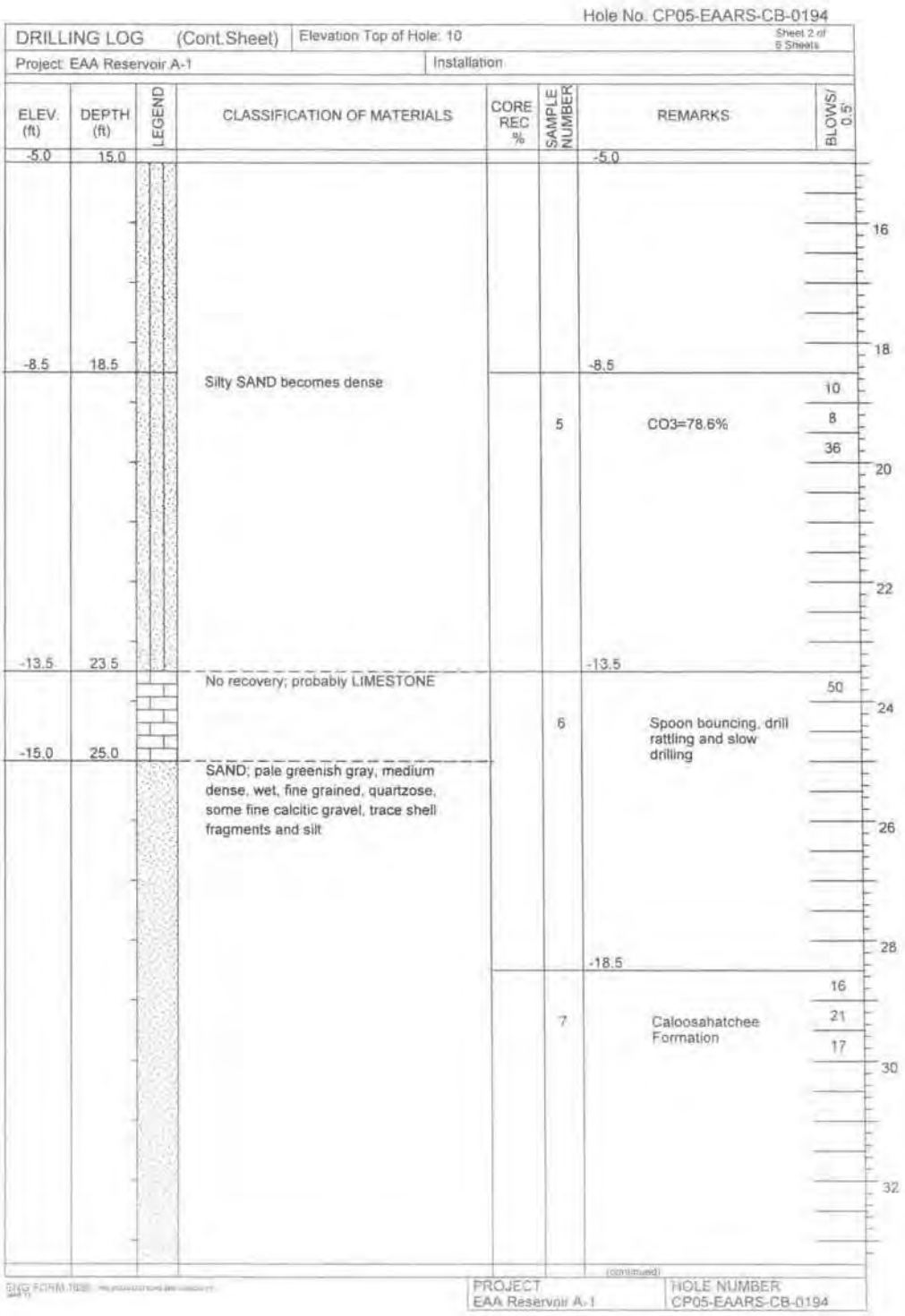
DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N774079.1, E761396.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0194	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: N/A
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 2/10/2005 Completed 2/11/2005
7. Thickness of Burden: 1.0 ft	17. Elevation Top of Hole: 10 (ft)
8. Thickness of cap rock: 5.5 ft	18. Total Core Recovery for hole: N/A
9. Depth of hole: 100 ft	19. Inspector: Norm Holst

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			Fill and residual muck			10.0	0
9.0	1.0					Cored caprock	
			LIMESTONE; light brownish gray to pale brown, fine grained, shelly, vuggy, dense, hard and strong to soft, weak and porous			8.0	2
				REC=36 ROD=13	1		4
4.5	5.5					4.5	
			Gravelly SAND; very light to pale brown, very dense, wet, angular, calcitic, fine to medium grained, trace shells		1	All calcitic material is at least in part shell fragments	4 36 15 6
1.5	8.5					1.5	8
			Silty GRAVEL; white, medium dense, wet, angular, calcitic and Gravelly SAND as above		2		4 16 50 10
-1.0	11.0					-1.0	
			Silty SAND; pale brown, medium dense, fine to medium grained, wet, angular, calcitic; some fine angular gravel		3		13 4 15 12
-3.5	13.5					-3.5	
			Silty SAND becomes very dense		4		4 18 50/5" 14

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0194



Hole No. CP05-EAARS-CB-0194

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	
-8.5	18.5		Silty SAND becomes dense			-8.5	
					5	CO3=78.6%	10 8 36
-13.5	23.5		No recovery; probably LIMESTONE			-13.5	
					6	Spoon bouncing, drill rattling and slow drilling	50
-15.0	25.0		SAND; pale greenish gray, medium dense, wet, fine grained, quartzose, some fine calcitic gravel, trace shell fragments and silt				
						-18.5	
					7	Caloosahatchee Formation	16 21 17

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0194

193

Hole No. CP05-EAARS-CB-0194

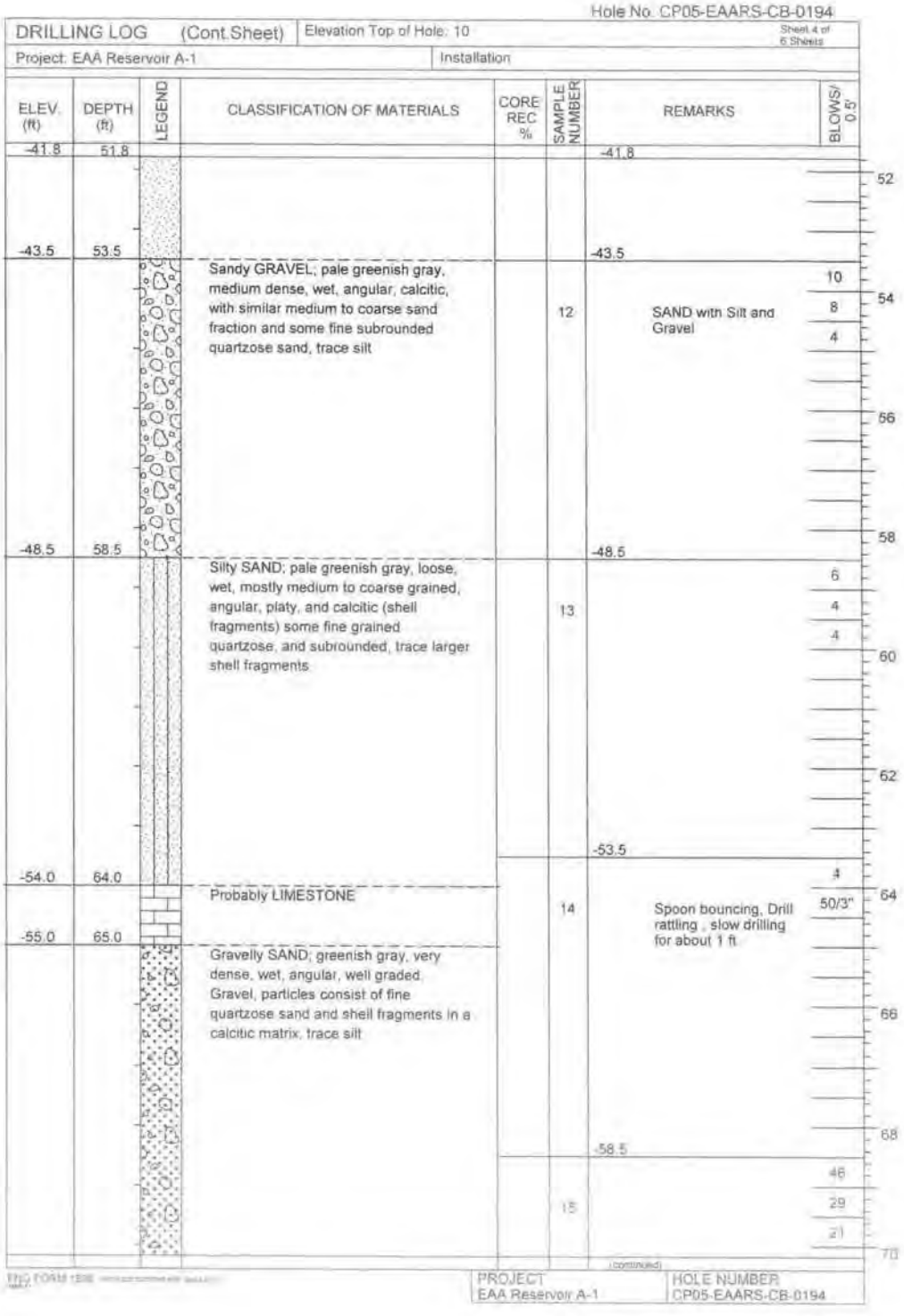
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		SAND; pale greenish gray, medium dense, wet, fine grained, quartzose, subrounded		8	-23.5 CO3=23.3% SAND with Silt	12 14 14
-28.5	38.5		SAND; as above but with a trace fine, angular, calcitic gravel		9	-28.5	10 7 14
-33.5	43.5		SAND; pale greenish gray, loose, wet, very fine grained, quartzose, subrounded, trace silt and shell fragments		10	-33.5	3 3 5
-38.5	48.5		SAND; pale greenish gray, dense, wet mostly fine grained, quartzose and subrounded, some medium to coarse grained, angular, and calcitic (shell fragments) trace fine, angular, calcitic gravel		11	-38.5	21 16 15

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0194

34 36 38 40 42 44 46 48 50



Hole No. CP05-EAARS-CB-0194

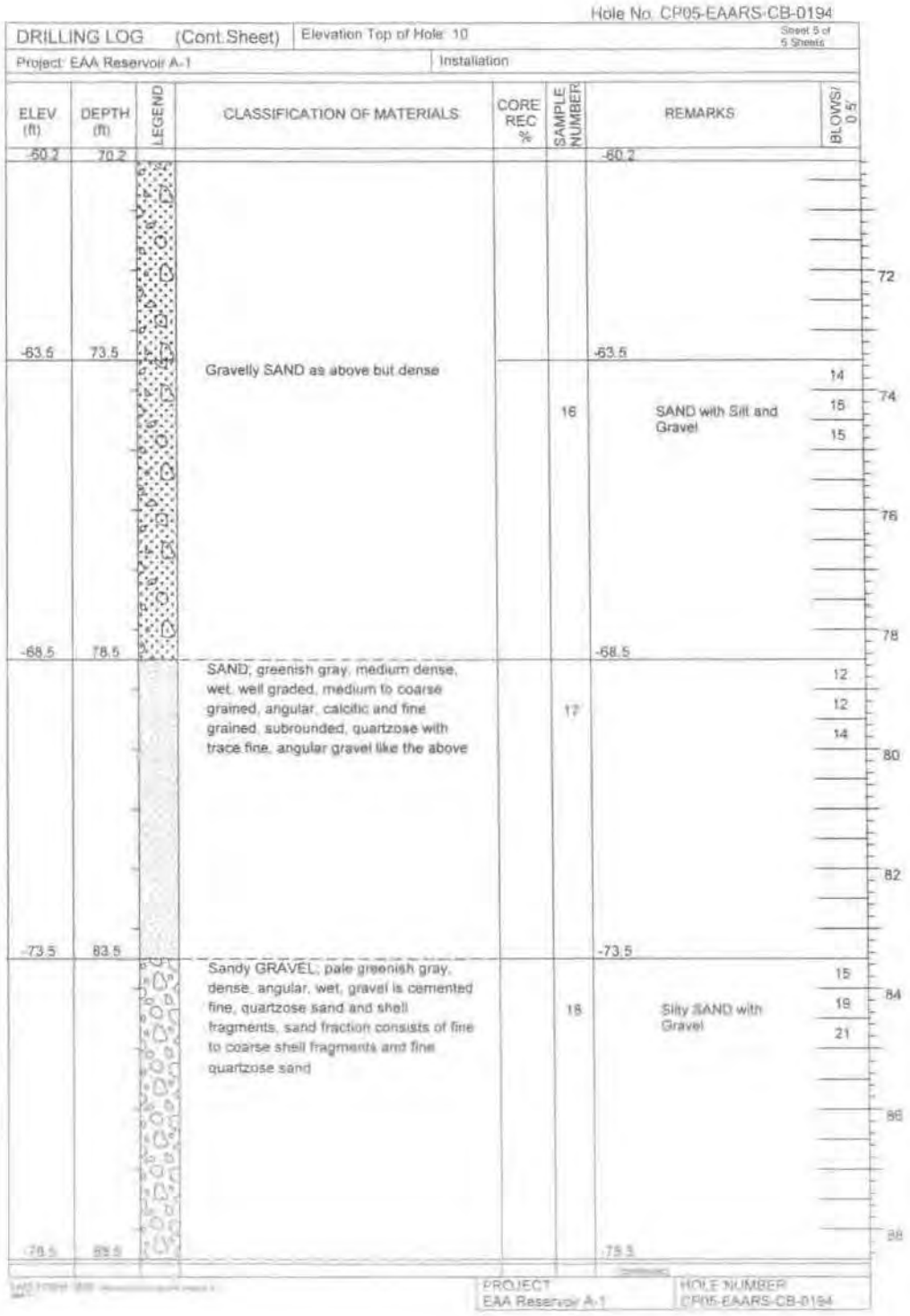
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
-43.5	53.5		Sandy GRAVEL; pale greenish gray, medium dense, wet, angular, calcitic, with similar medium to coarse sand fraction and some fine subrounded quartzose sand, trace silt		12	-43.5 SAND with Silt and Gravel	10 8 4
-48.5	58.5		Silty SAND; pale greenish gray, loose, wet, mostly medium to coarse grained, angular, platy, and calcitic (shell fragments) some fine grained quartzose, and subrounded, trace larger shell fragments		13	-48.5	6 4 4
-54.0	64.0		Probably LIMESTONE		14	-53.5 Spoon bouncing, Drill rattling , slow drilling for about 1 ft	4 50/3"
-55.0	65.0		Gravelly SAND; greenish gray, very dense, wet, angular, well graded. Gravel, particles consist of fine quartzose sand and shell fragments in a calcitic matrix, trace silt			-58.5	
					15		46 29 21

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0194



Hole No. CP05-EAARS-CB-0194

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.2	70.2					-60.2	
							72
-63.5	73.5		Gravelly SAND as above but dense			-63.5	
					16	SAND with Silt and Gravel	14, 15, 15
							74
							76
-68.5	78.5					-68.5	78
			SAND; greenish gray, medium dense, wet, well graded, medium to coarse grained, angular, calcitic and fine grained, subrounded, quartzose with trace fine, angular gravel like the above		17		12, 12, 14
							80
							82
-73.5	83.5					-73.5	
			Sandy GRAVEL; pale greenish gray, dense, angular, wet, gravel is cemented fine, quartzose sand and shell fragments, sand fraction consists of fine to coarse shell fragments and fine quartzose sand		18	Silty SAND with Gravel	15, 19, 21
							84
							86
-78.5	88.5					-78.5	88

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0194

Hole No. CP05-EAARS-CB-0194

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			SAND; like that at 78.5 ft		19		14 14 12
-83.5	93.5					-83.5	
			SAND; light greenish gray, dense, wet, well graded, fine grained, quartzose, subrounded, and fine to coarse grained, angular, calcitic, some silt and fine angular gravel		20		20 15 15
-88.5	98.5					-88.5	
			SAND; as above		21		17 12 16
-90.0	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0194

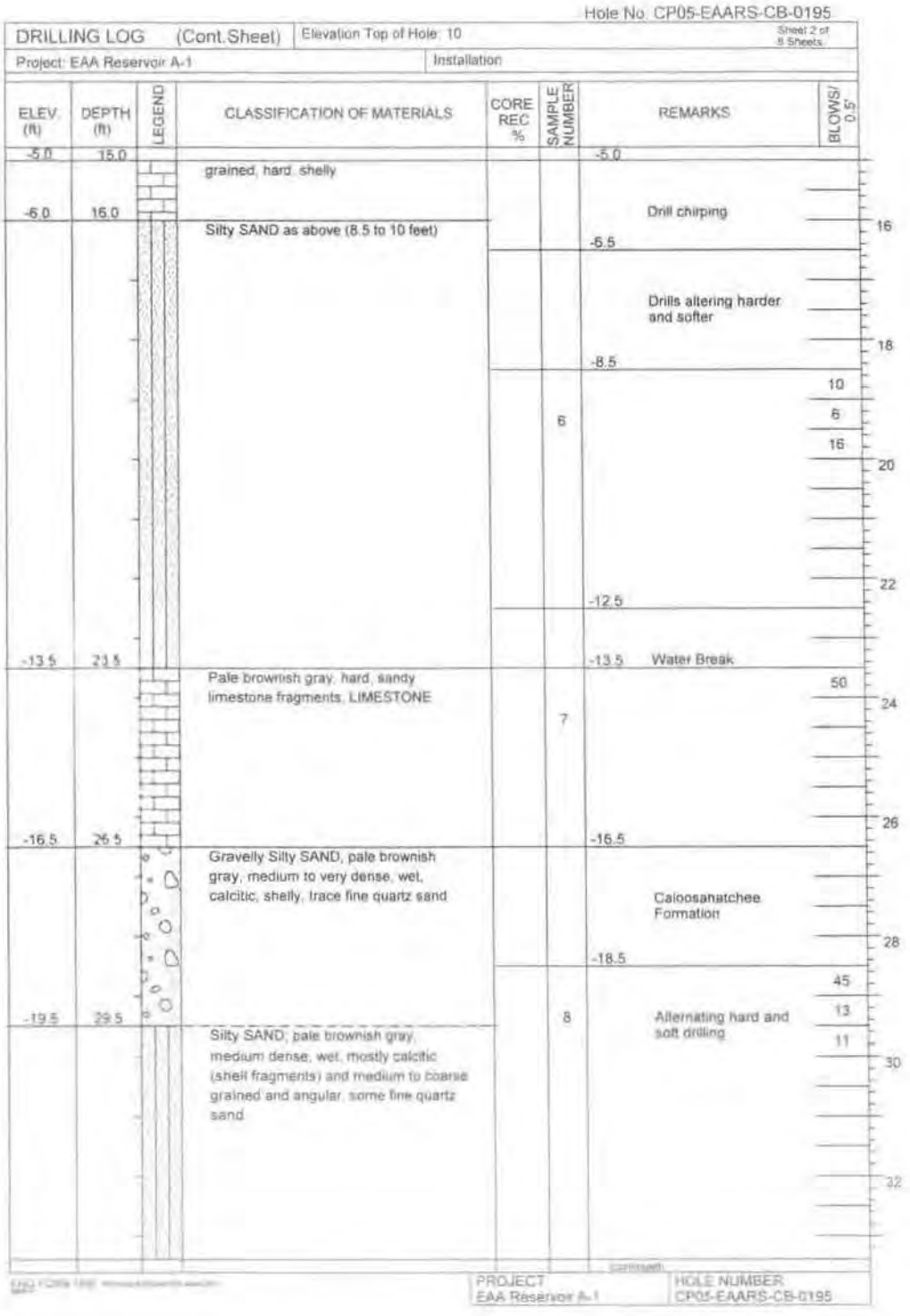
Hole No. CP05-EAARS-CB-0195

DRILLING LOG	Division:	Installation	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N773691.6, E761783.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0195		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Eric Blumke		14. Total Number of Core Boxes: N/A	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 2/8/2005 Completed 2/8/2005	
7. Thickness of Burden: 0.0 ft		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: 5.0 ft		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: Norm Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			LIMESTONE (caprock): pale gray to pale yellow, fine grained, thinly bedded, hard, strong, slightly weathered, vuggy and pitted, some shells, becomes moderately hard			10.0 Start 0919. Drill through caprock with tricone roller bit	0
							2
						6.5	
					1	Only limestone fragments recovered. Fort Thompson Formation	10 15 5
5.0	5.0						4
			Silty Sandy GRAVEL: pale brownish gray, well graded, medium dense, wet, subangular, calcitic, some phosphate			4.0	
					2		5 6 8
1.5	8.5					1.5	8
			Silty SAND: pale brownish gray, medium dense, wet, subangular, calcitic, some gravel and shells		3	Silty SAND	10 11 16
						-1.0	10
					4		20 14 14
3.5	13.5					-3.5	12
			As above				4
-4.5	14.5				5	-4.5 CO3=89.5%	4 14
			LIMESTONE: pale brownish gray, fine				28

(continued)

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0195



Hole No. CP05-EAARS-CB-0195

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0		grained, hard, shelly			-5.0	
-6.0	16.0		Silty SAND as above (8.5 to 10 feet)			Drill chirping -6.5	16
						Drills altering harder and softer -8.5	18
					6		10 6 16 20
						-12.5	22
-13.5	23.5					-13.5 Water Break	
			Pale brownish gray, hard, sandy limestone fragments, LIMESTONE		7		50 24
-16.5	26.5					-16.5	26
			Gravelly Silty SAND, pale brownish gray, medium to very dense, wet, calcitic, shelly, trace fine quartz sand			Caloosahatchee Formation -18.5	28
-19.5	29.5				8	Alternating hard and soft drilling	45 13 11 30
			Silty SAND, pale brownish gray, medium dense, wet, mostly calcitic (shell fragments) and medium to coarse grained and angular, some fine quartz sand				32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0195

Hole No. CP05-EAARS-CB-0195

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.6'
-23.4	33.4					-23.4	
					9	-23.5	10 12 18
							34 36 38
					10	-28.5	7 6 9
							40 42
-33.5	43.5		SAND; pale greenish gray, loose, wet, very fine grained, quartzose		11	-33.5 Silty SAND	5 2 4
							44 46
-38.5	48.5					-38.5	48
			SAND; pale greenish gray, medium dense, wet, fine grained, quartz, calcareous (shelly)		12		9 9 14
							50

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0195

Hole No. CP05-EAARS-CB-0195

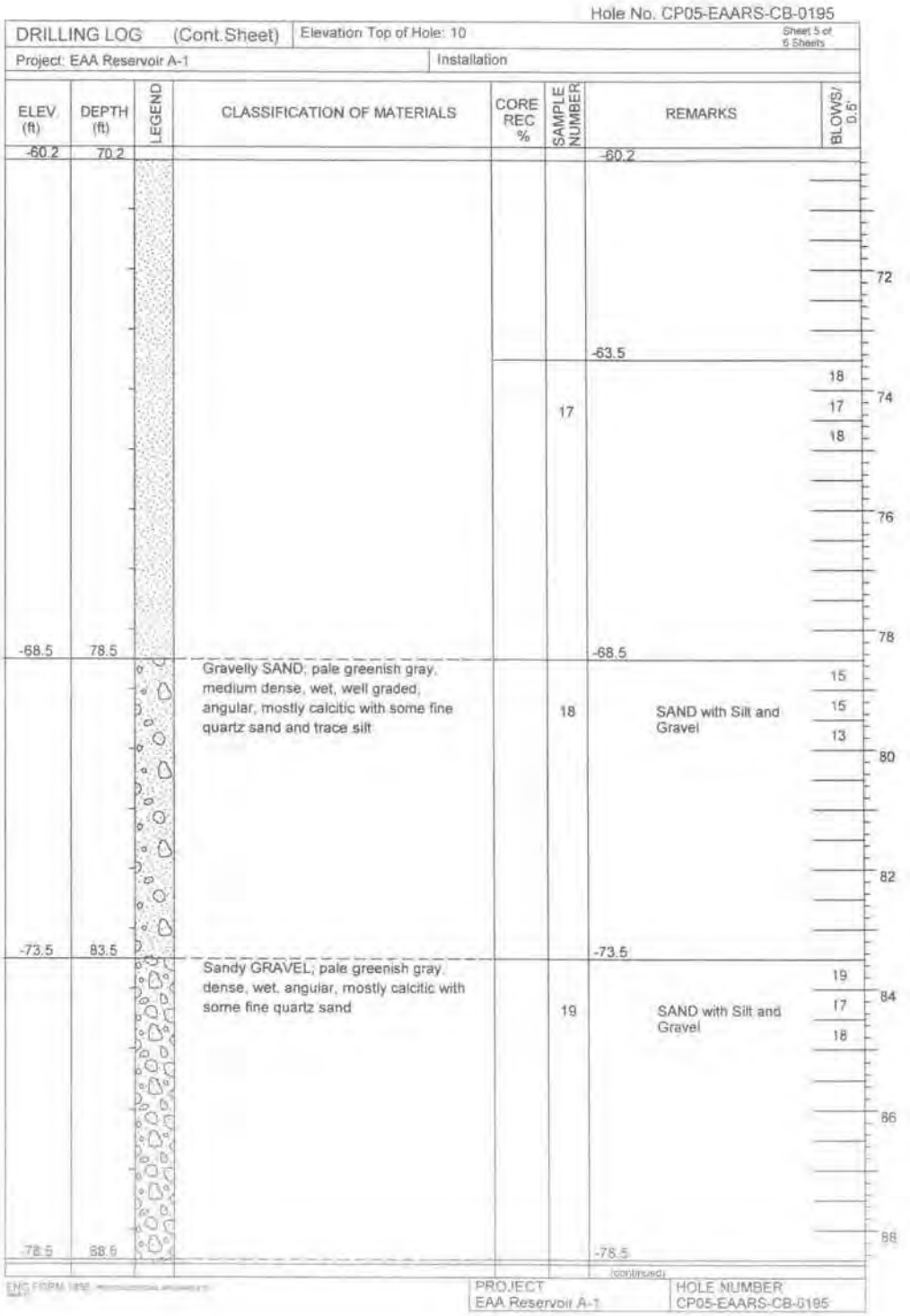
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
-43.5	53.5		SAND, pale brown to pale greenish gray, medium dense, wet, mostly medium to coarse shell fragments with little fine quartz sand, trace larfer shells or shell fragments		13	-43.5 Shell hash SAND with Silt	7 5 8
-47.5						-47.5	
-48.5	58.5		SAND; pale greenish gray, medium dense, wet, fine grained, quartz, calcareous (some shell fragments, mostly coarse sand size)		14	-48.5 Fuel break, refill mud tank -51.0	9 7 12
-53.5	63.5		Large shell fragments		15	-53.5 Very shelly Bit plugged -56.0	7 8 14
-58.5	68.5					Hard drilling at 65.5 ft, 1 ft -58.5	
-58.9	68.9		Only hard, angular limestone fragments recovered, drill chirping, LIMESTONE about 4 in thick Sand as above at 63.5 ft		16	Very Shelly	50

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0195



Hole No. CP05-EAARS-CB-0195

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 5 of 6 Sheets

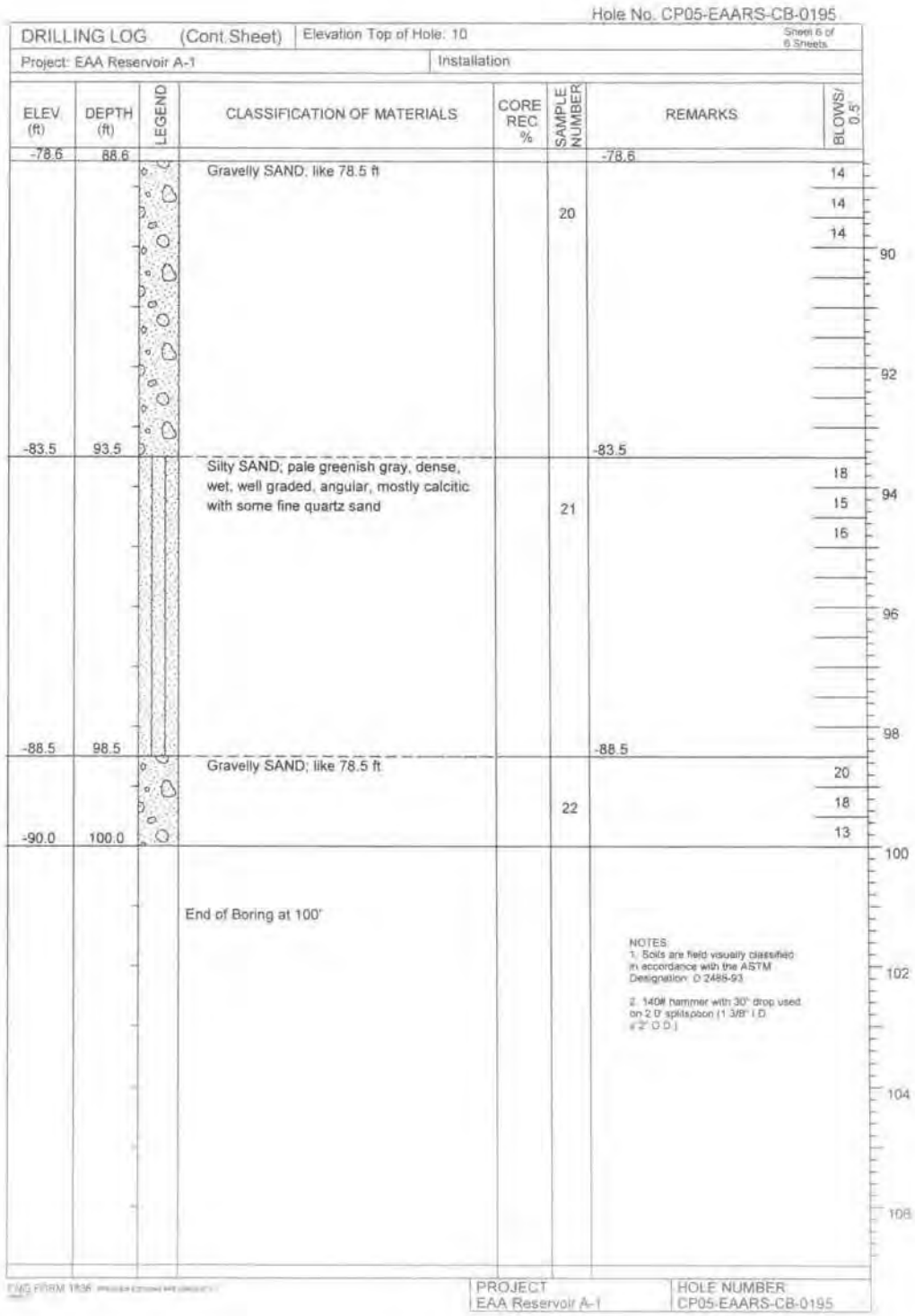
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.2	70.2					-60.2	
							72
						-63.5	
							18
					17		17 74
							18
							76
							78
-68.5	78.5					-68.5	
			Gravelly SAND; pale greenish gray, medium dense, wet, well graded, angular, mostly calcitic with some fine quartz sand and trace silt		18	SAND with Silt and Gravel	15 15 13
							80
							82
-73.5	83.5					-73.5	
			Sandy GRAVEL; pale greenish gray, dense, wet, angular, mostly calcitic with some fine quartz sand		19	SAND with Silt and Gravel	19 17 18 84
							86
							88
-78.5	88.5					-78.5	

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0195



Hole No. CP05-EAARS-CB-0195

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			Gravelly SAND; like 78.5 ft		20		14 14 14
-83.5	93.5					-83.5	
			Silty SAND; pale greenish gray, dense, wet, well graded, angular, mostly calcitic with some fine quartz sand		21		18 15 16
-88.5	98.5					-88.5	
			Gravelly SAND; like 78.5 ft		22		20 18 13
-90.0	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

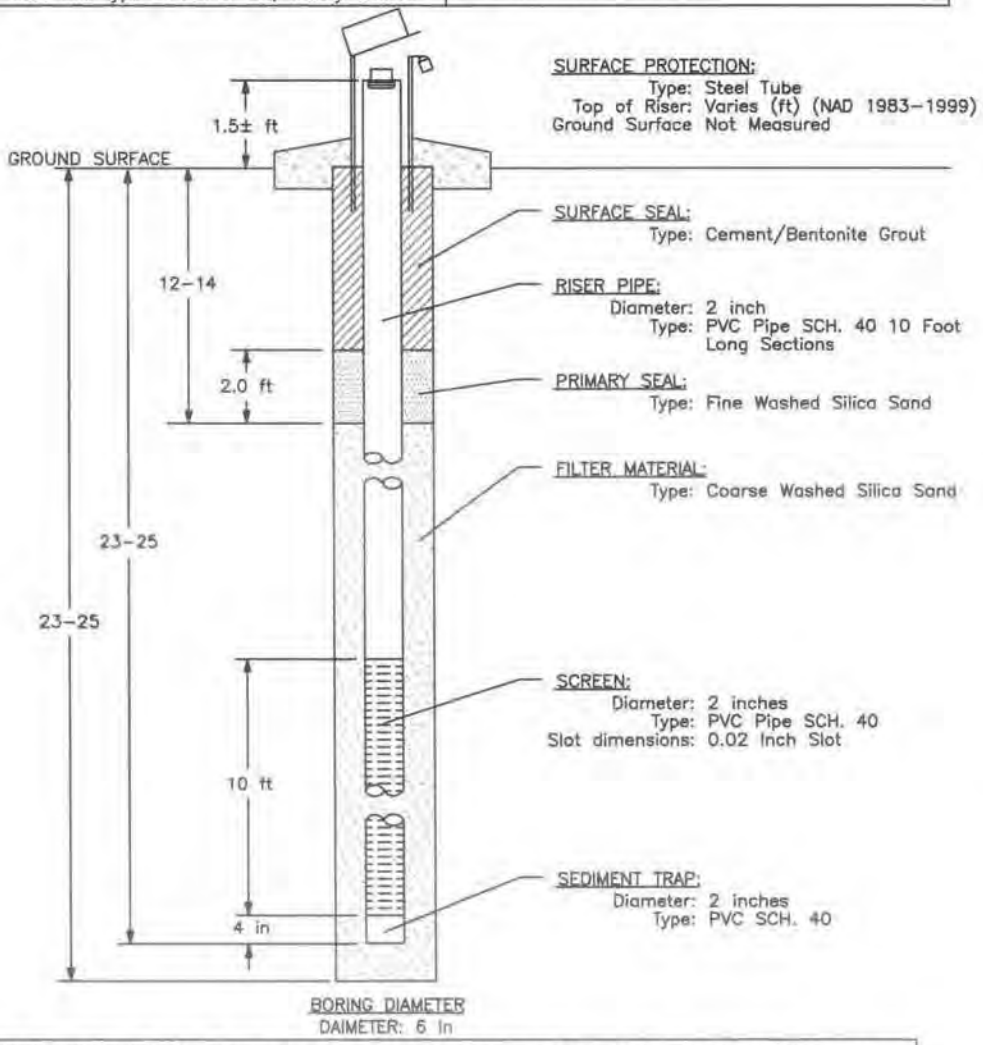
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0195

Hole No. CP05-EAARS-TW-0196

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773022, E 759162		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0196		11. Date Hole: Started 1-20-05 Completed 1-20-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.15
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

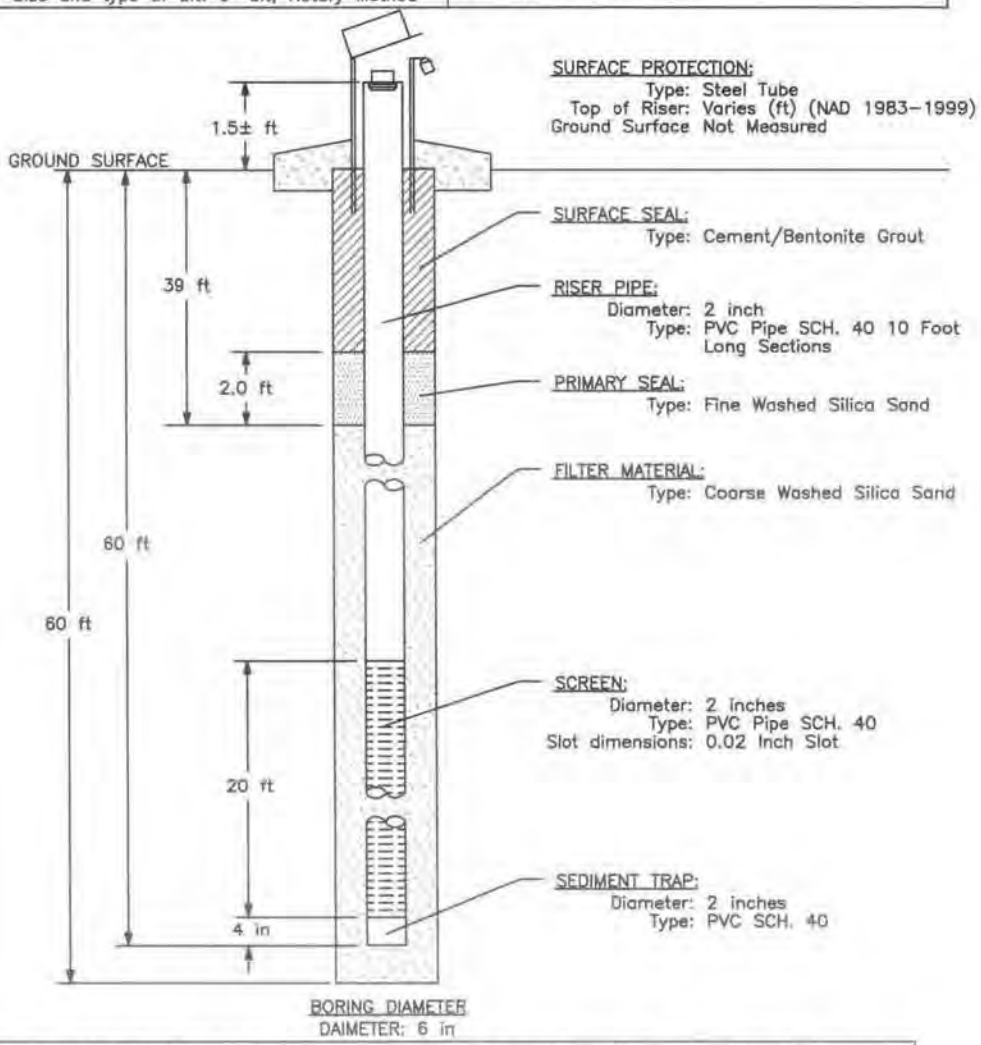


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0197

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773032, E 759162		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0197		11. Date Hole: Started 1-27-05 Completed 1-27-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.57
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

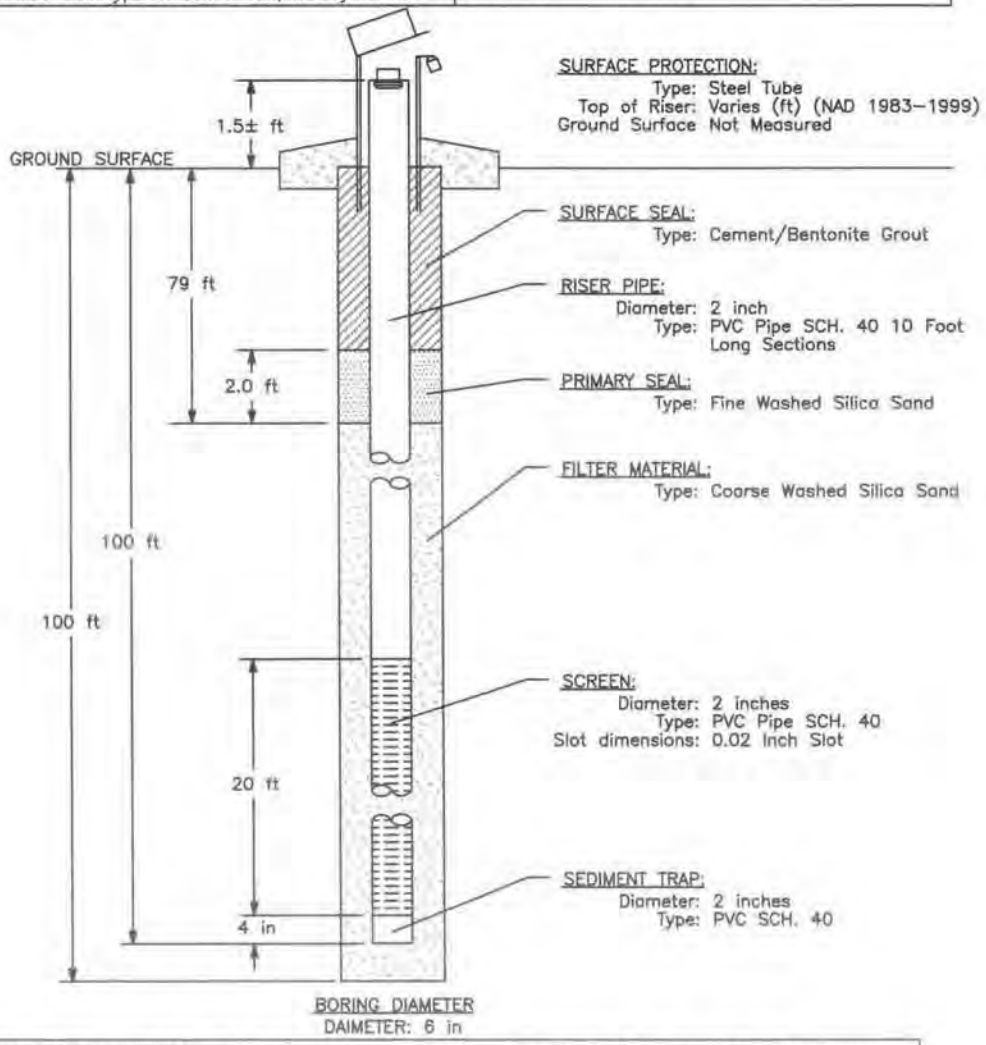


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0198

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773042, E 759162		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0198		11. Date Hole: Started 1-28-05 Completed 1-28-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.31
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

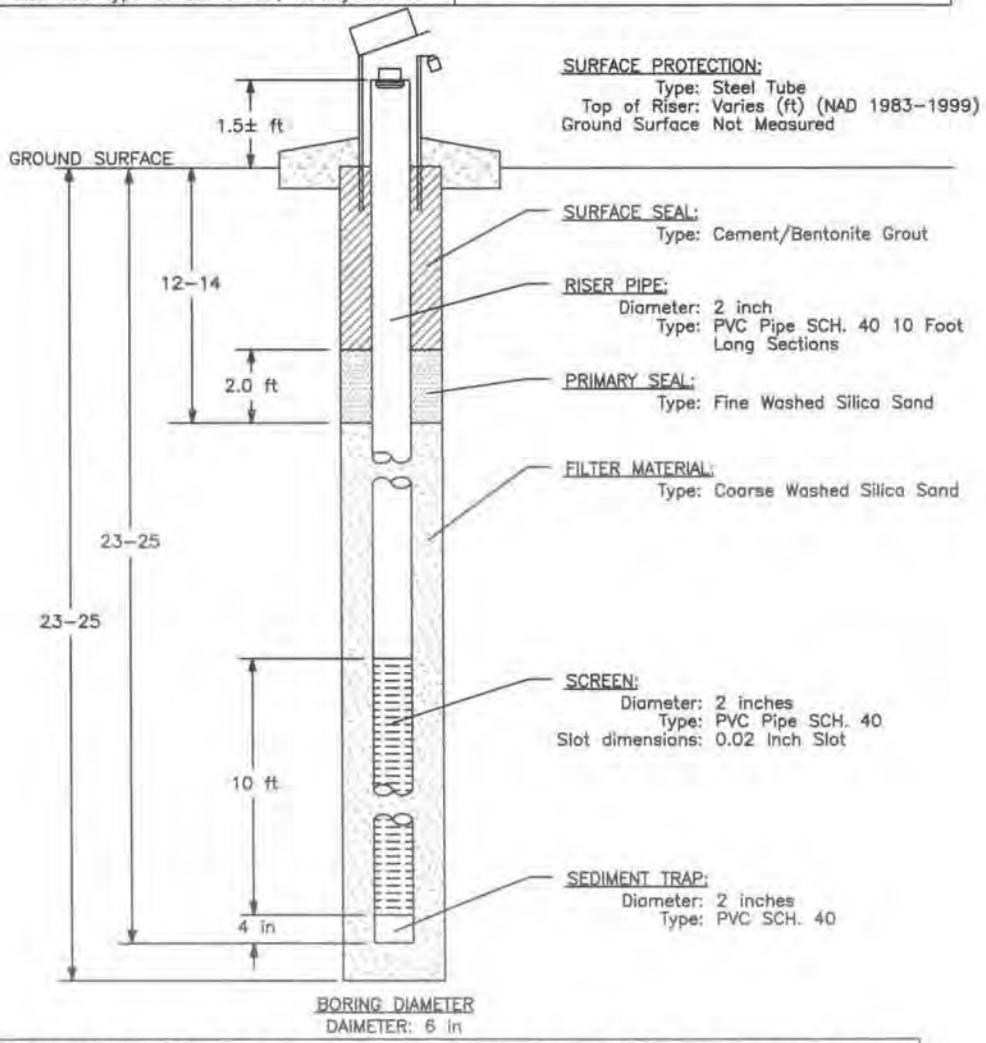


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05-EAARS-TW-0199

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774066, E 760740		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0199		11. Date Hole: Started 1-20-05 Completed 1-20-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.73
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

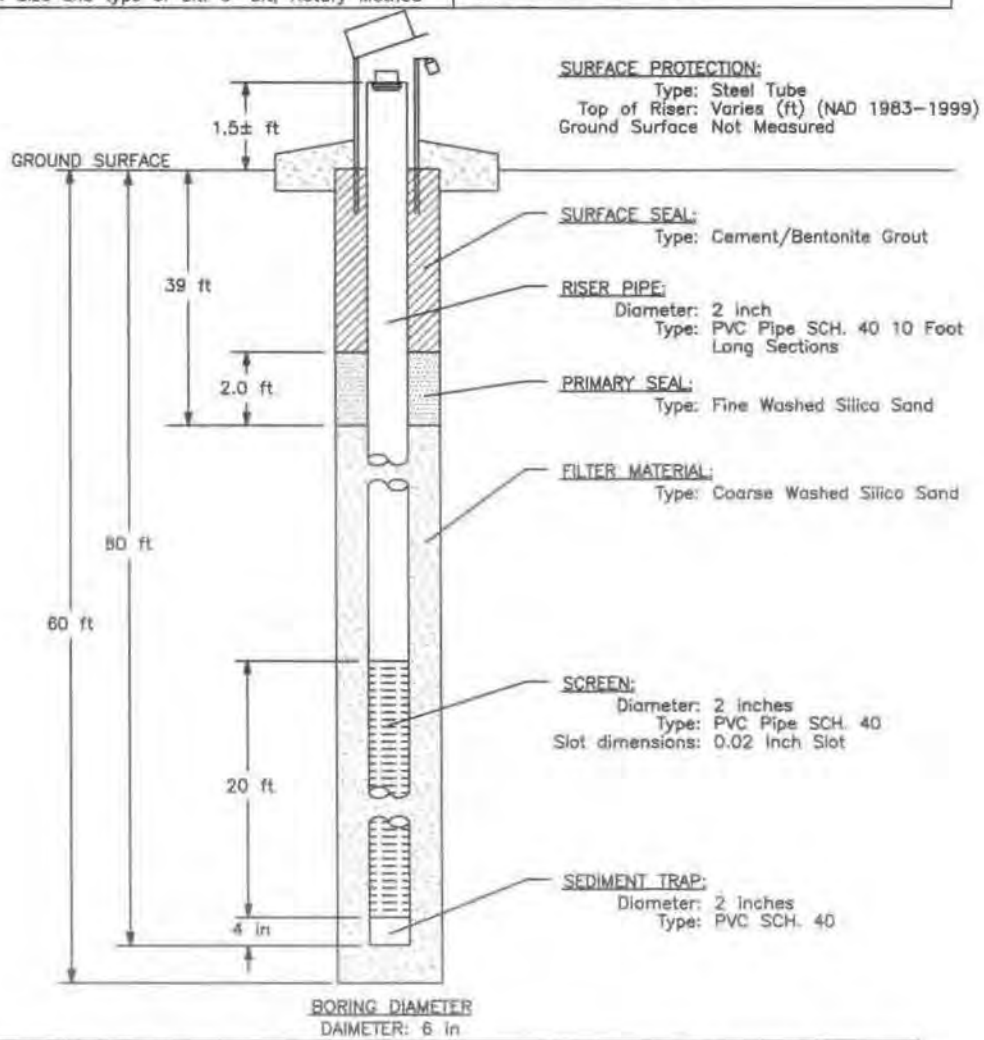


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0200

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774076, E 760740		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0200		11. Date Hole: Started 1-26-05 Completed 1-26-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.92
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		



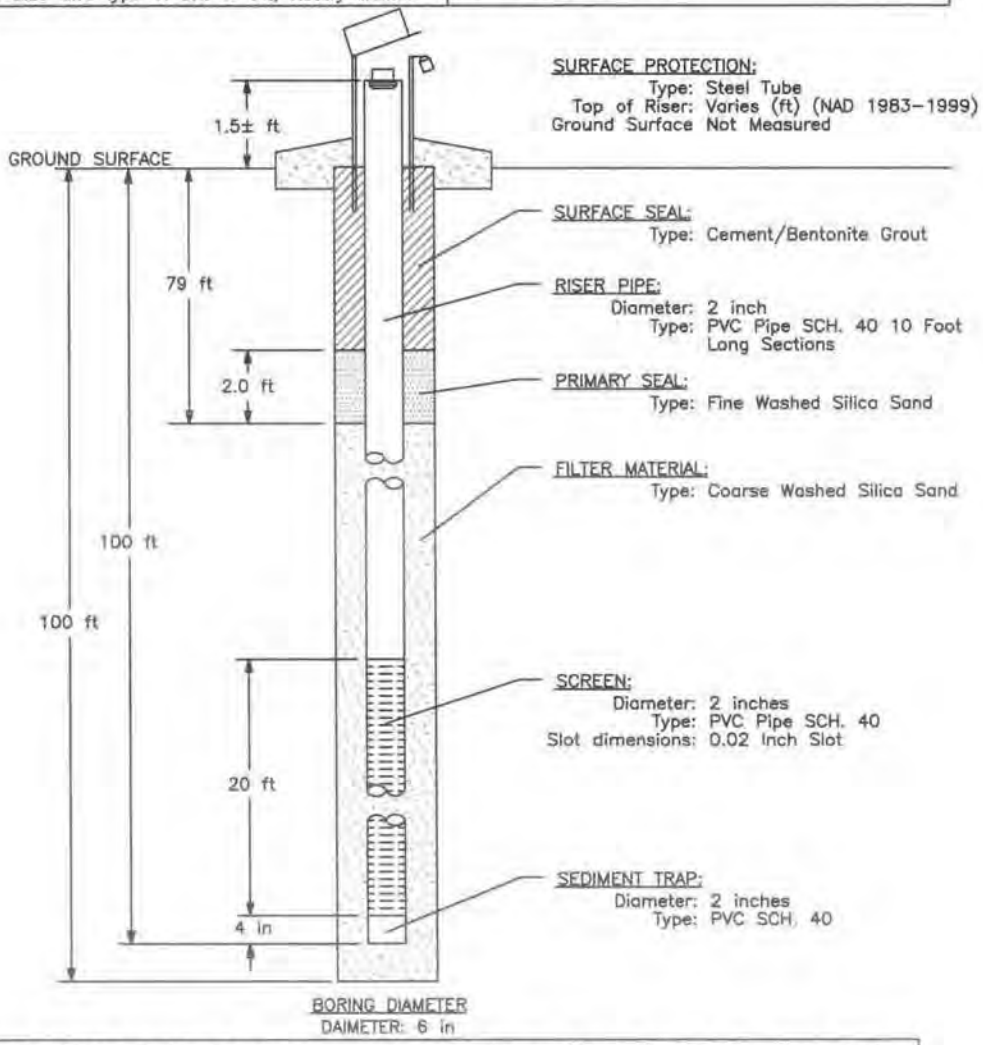
INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

APPENDIX 1
TEST CELL BORINGS AND PIEZOMETER INSTALLATION LOGS: 201-220

Hole No. CP05-EAARS-TW-0201

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774086, E 760740		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0201		11. Date Hole: Started 1-27-05 Completed 1-27-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.45
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

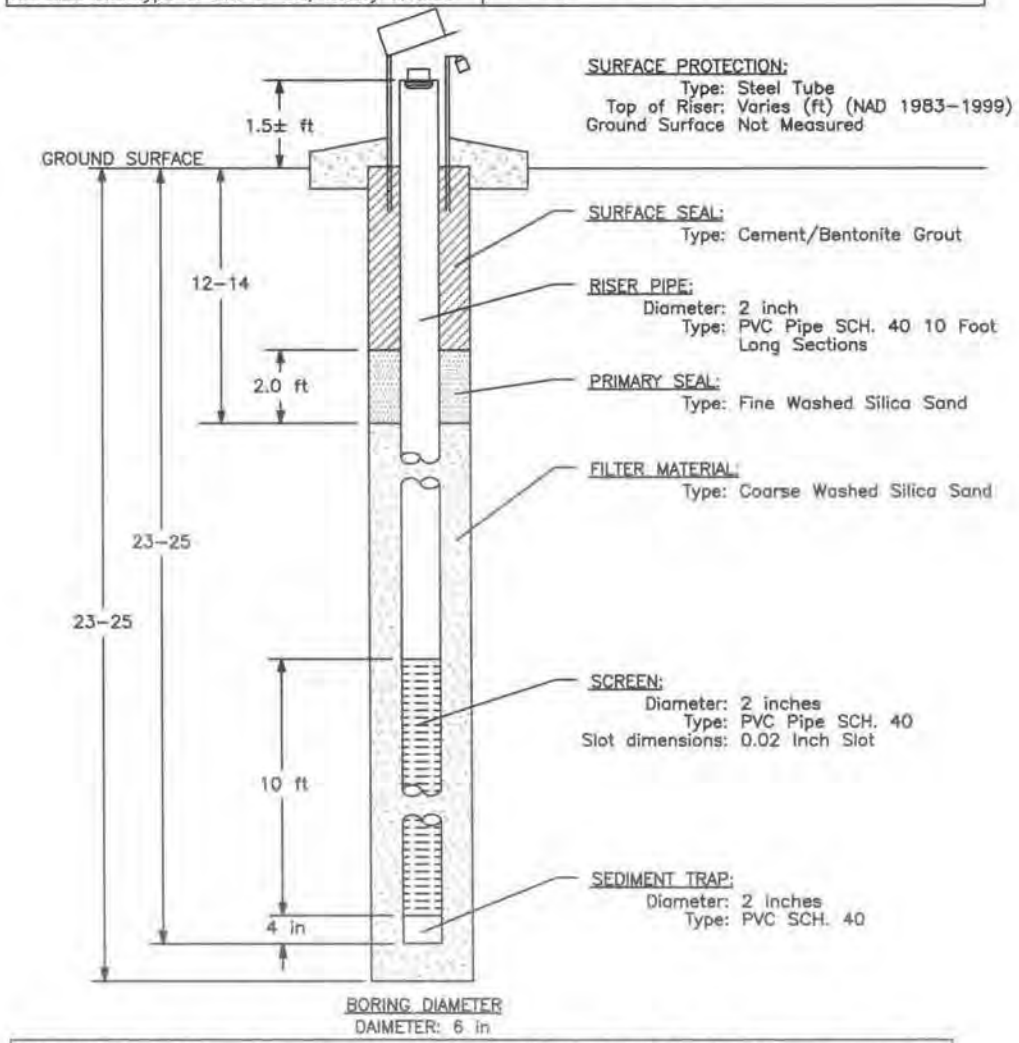


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0202

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 775110, E 762336		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0202		11. Date Hole: Started 1-19-05 Completed 1-19-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.45
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

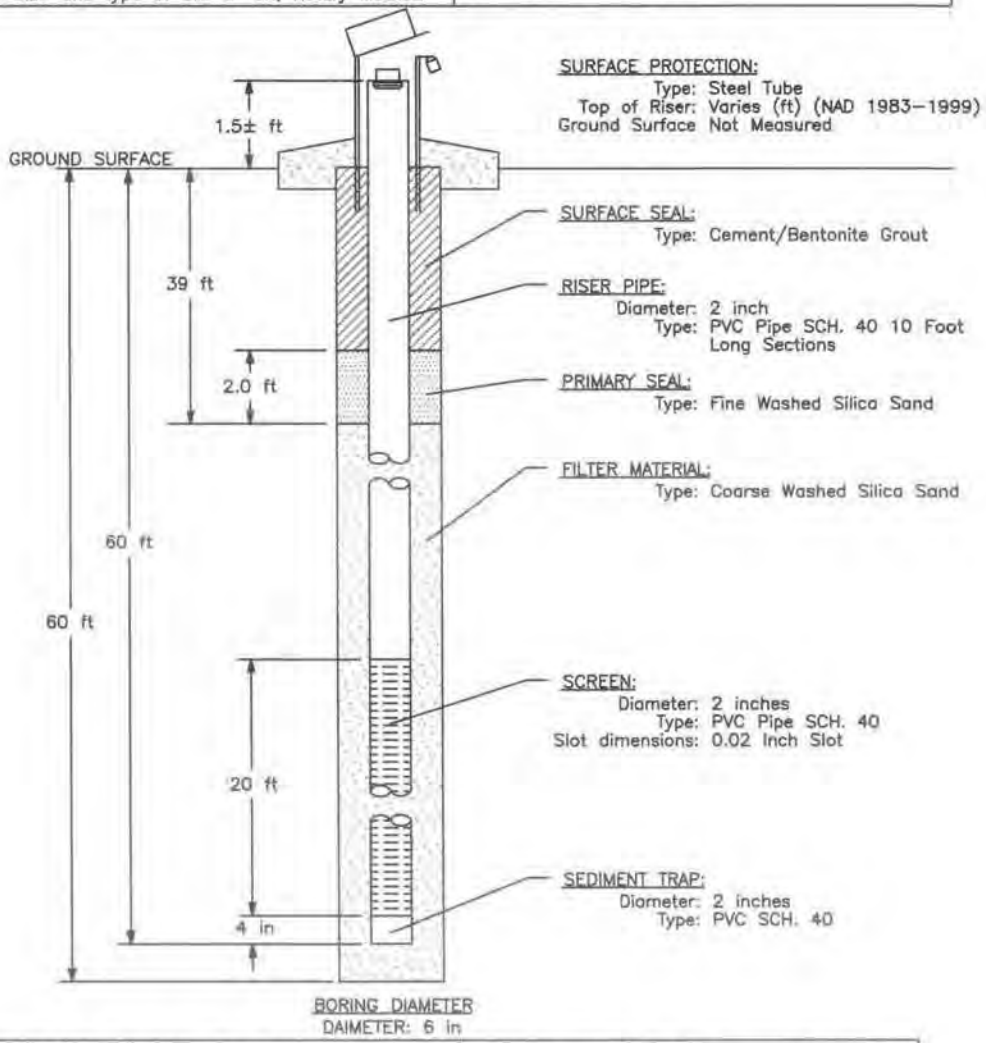


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0203

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 775120, E 762336		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0203		11. Date Hole: Started 1-29-05 Completed 1-29-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.08
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

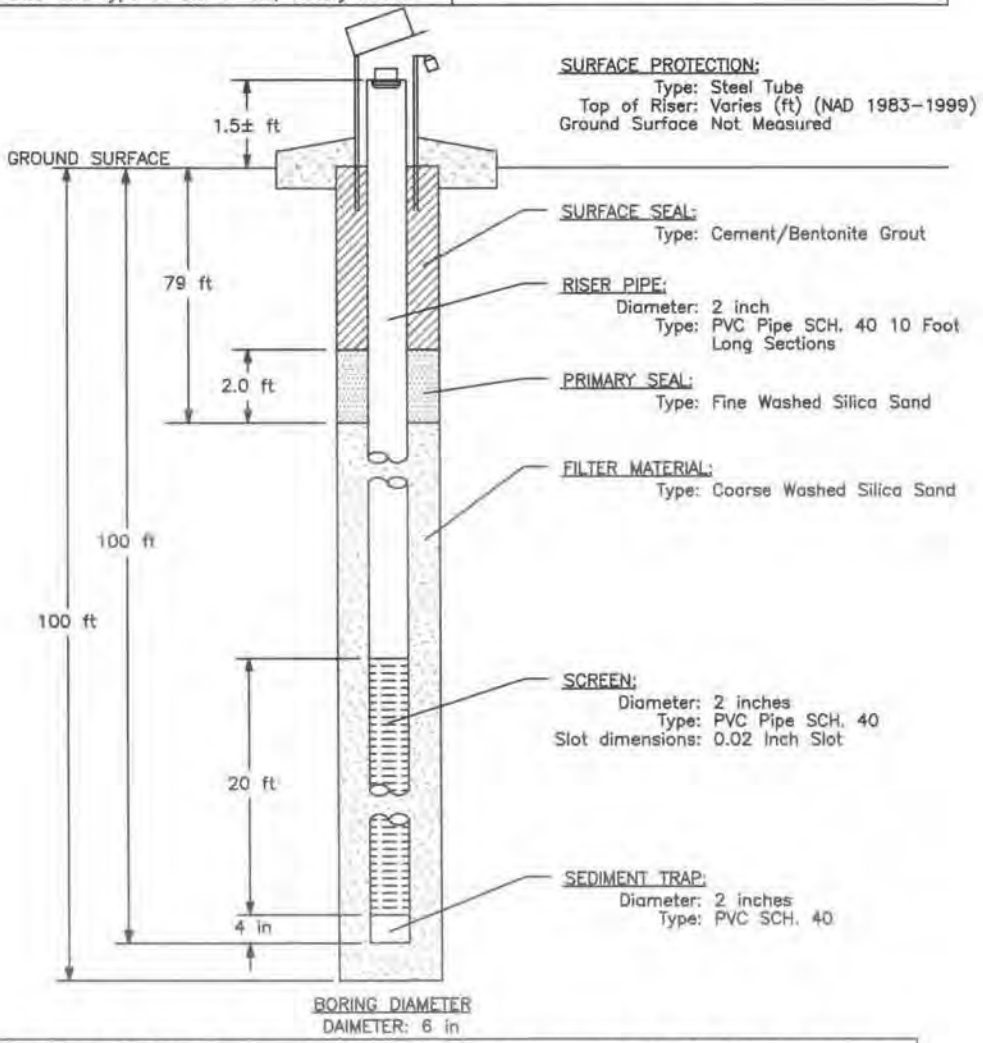


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0204

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 775130, E 762336		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0204		11. Date Hole: Started 1-30-05 Completed 1-30-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.28
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

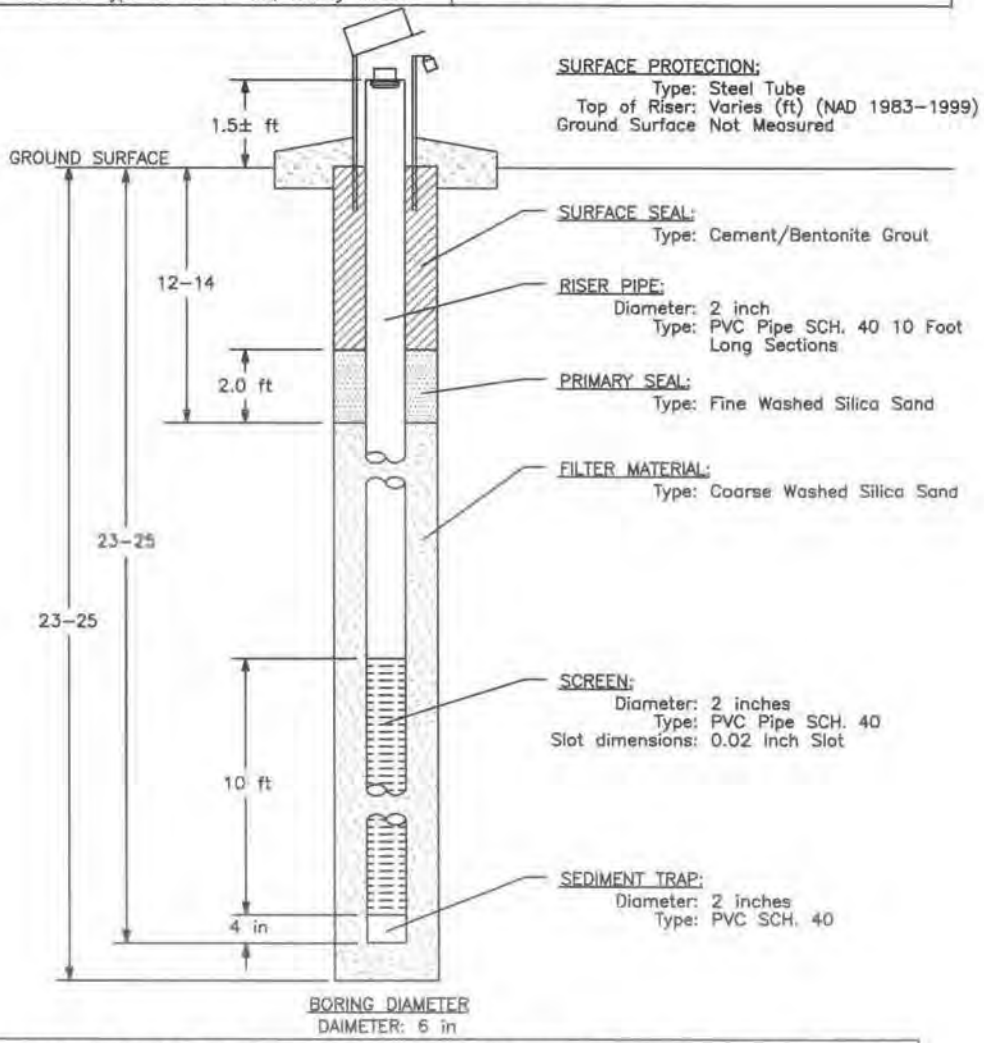


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05-EAARS-TW-0205

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 761240, E 773038		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0205		11. Date Hole: Started 3-28-05 Completed 3-28-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 11.73
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

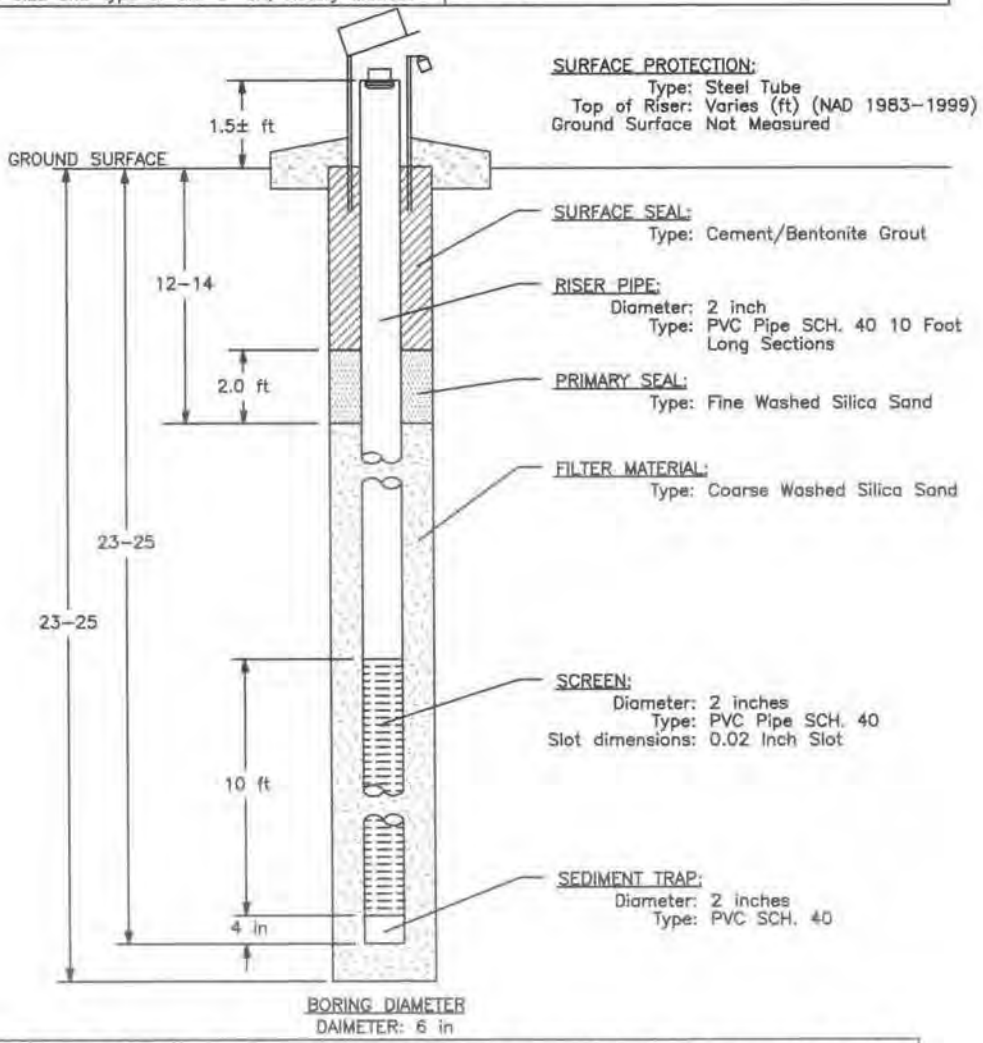


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0206

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 762328, E 773038		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0206		11. Date Hole: Started 3-28-05 Completed 3-28-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 11.37
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

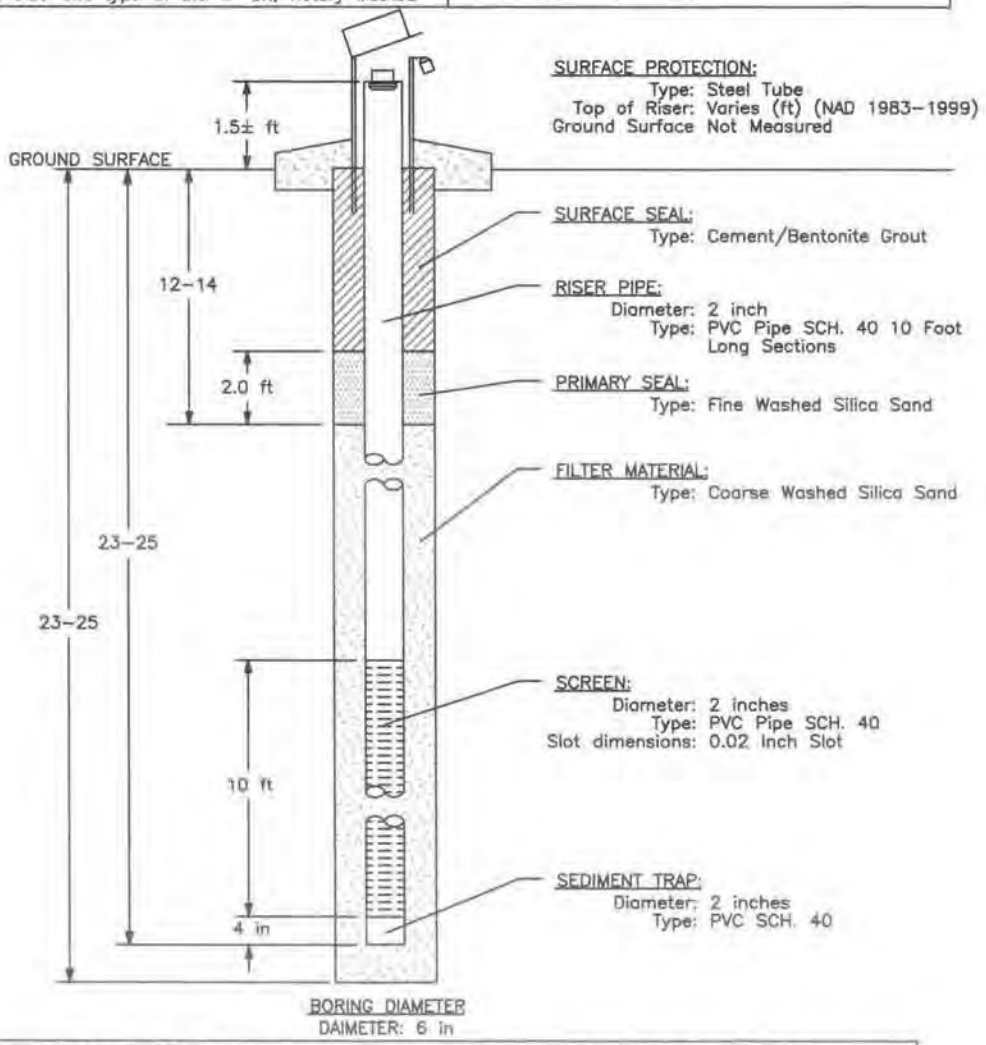


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0207

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774398, E 759697		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0207		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.61
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

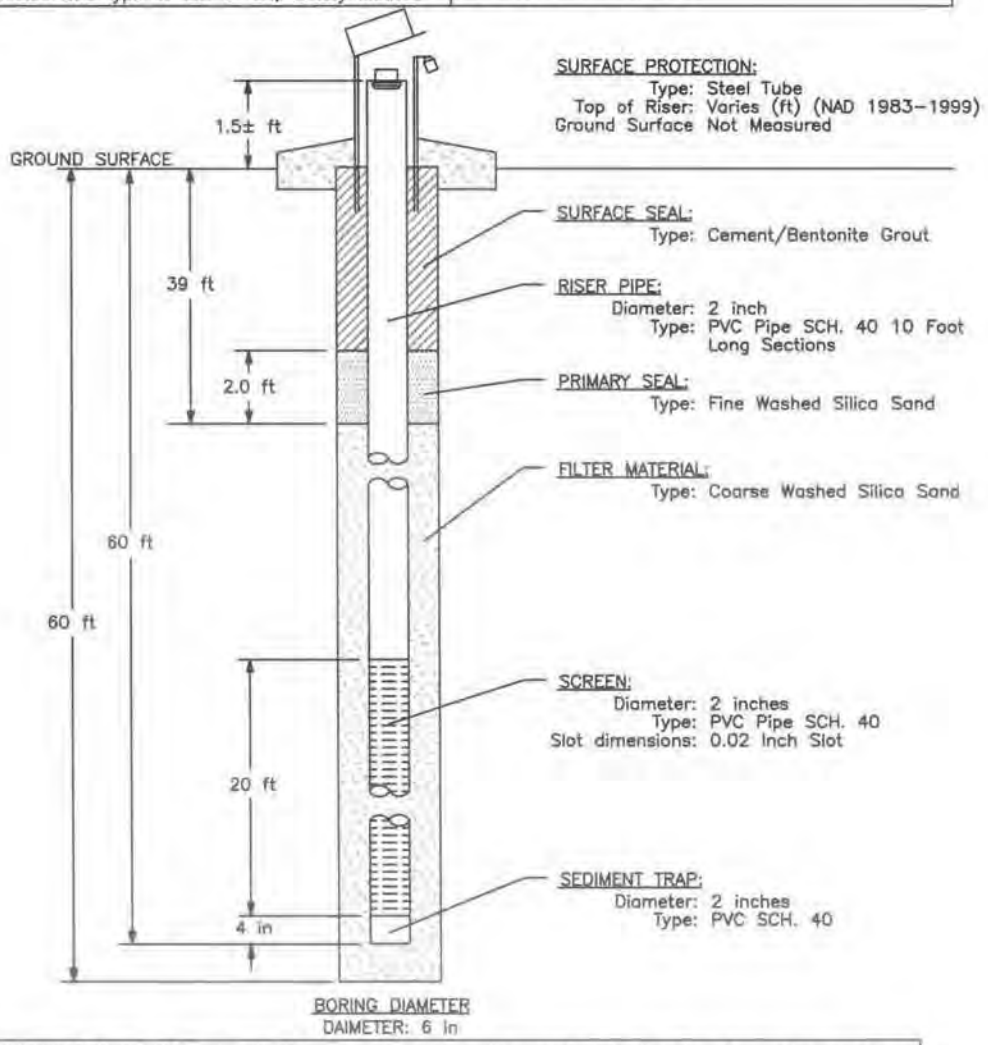


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0208

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774408, E 759697		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0208		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.39
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

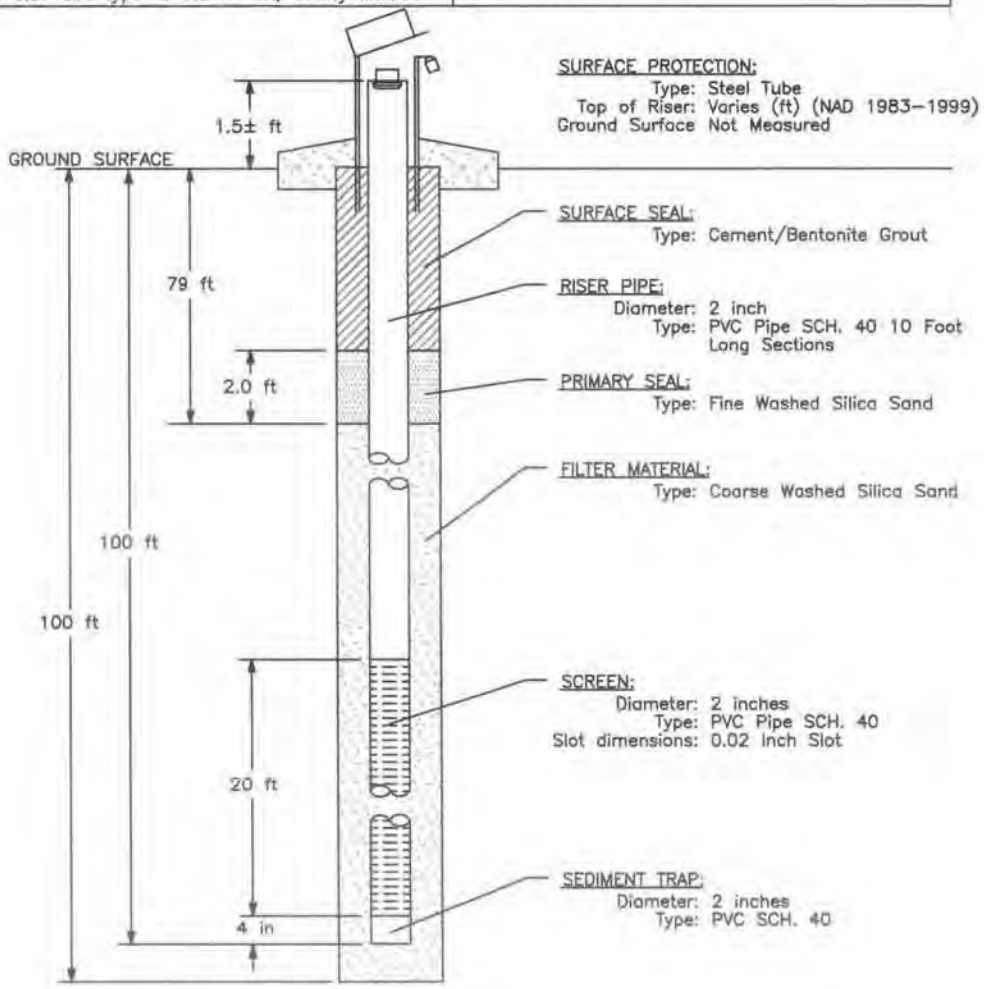


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0209

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774418, E 759697		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0209		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.45
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

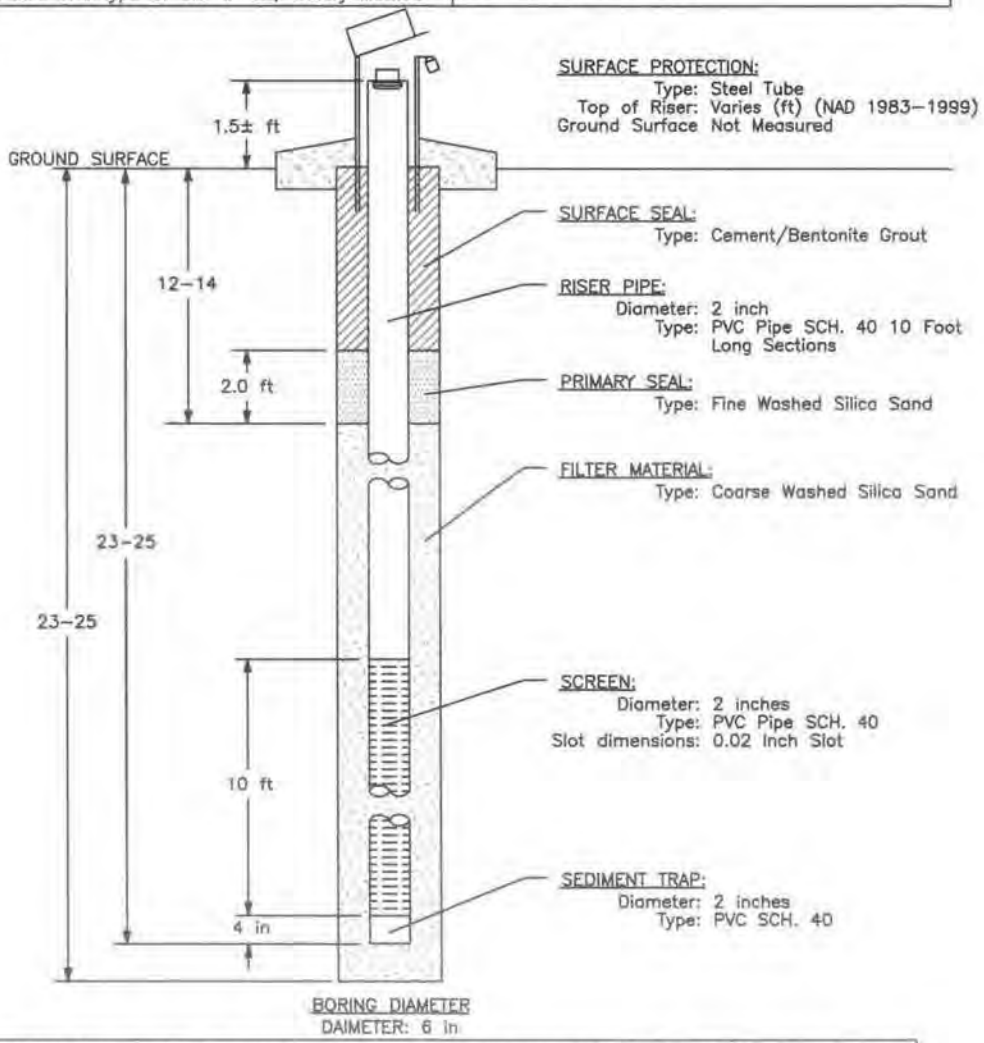


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0210

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774488, E 759697		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0210		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.48
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

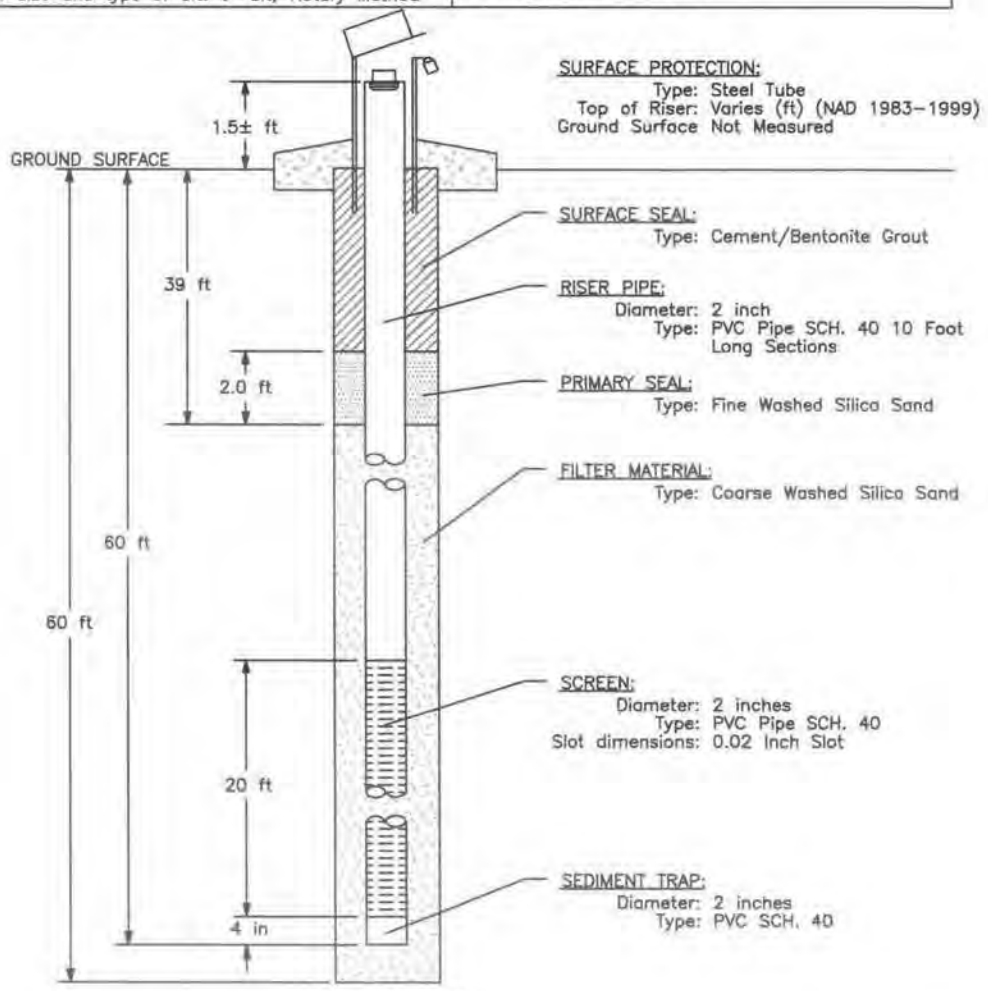


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0211

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774498, E 759697		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0211		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.32
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

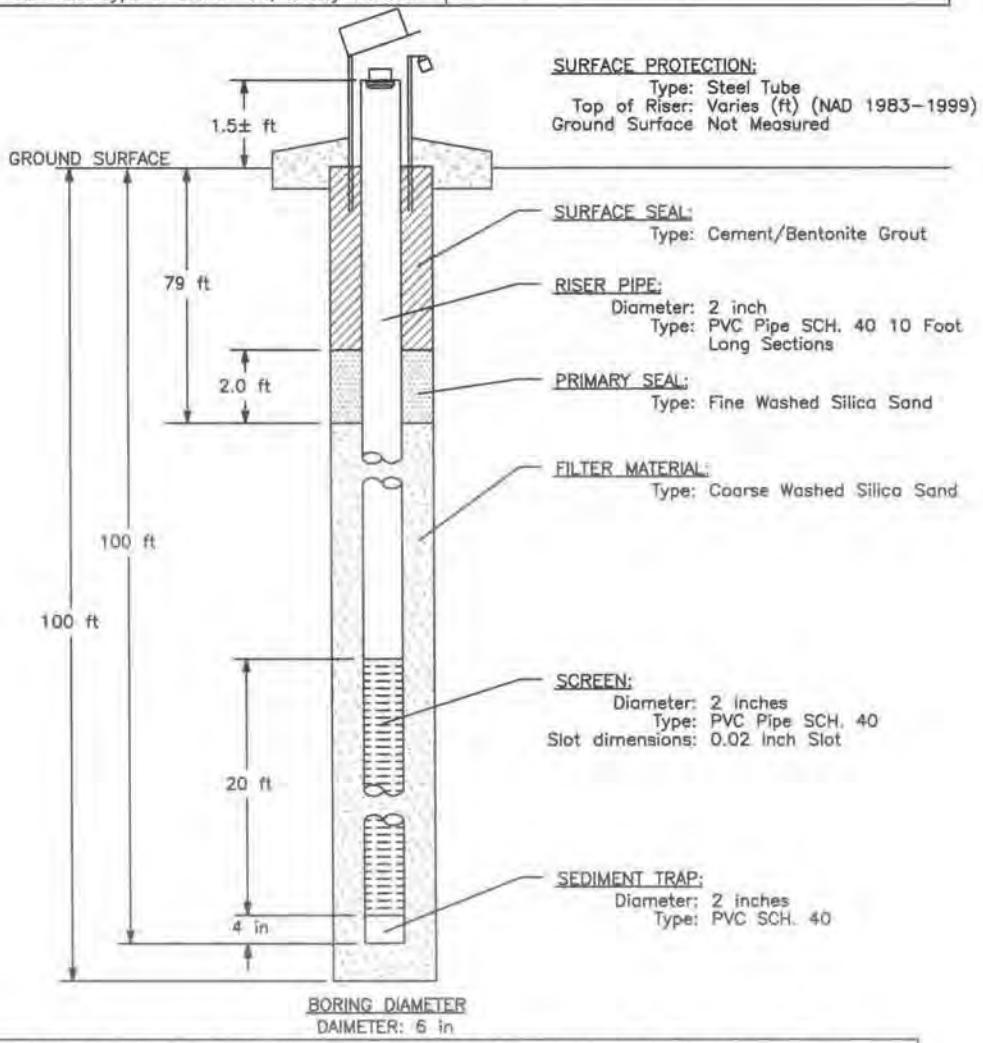


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No, CP05-EAARS-TW-0212

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774508, E 759697		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0212		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.32
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

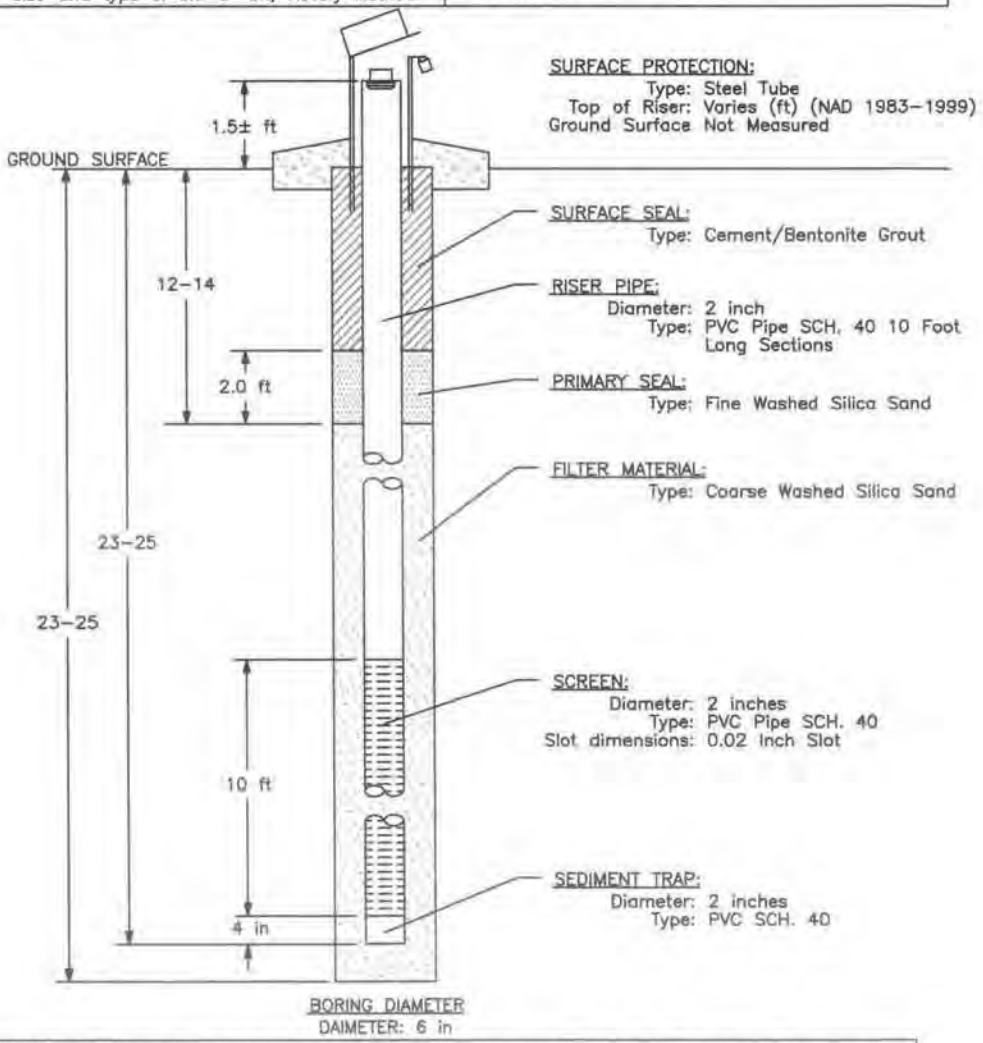


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0213

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774074, E 760028		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0213		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.63
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

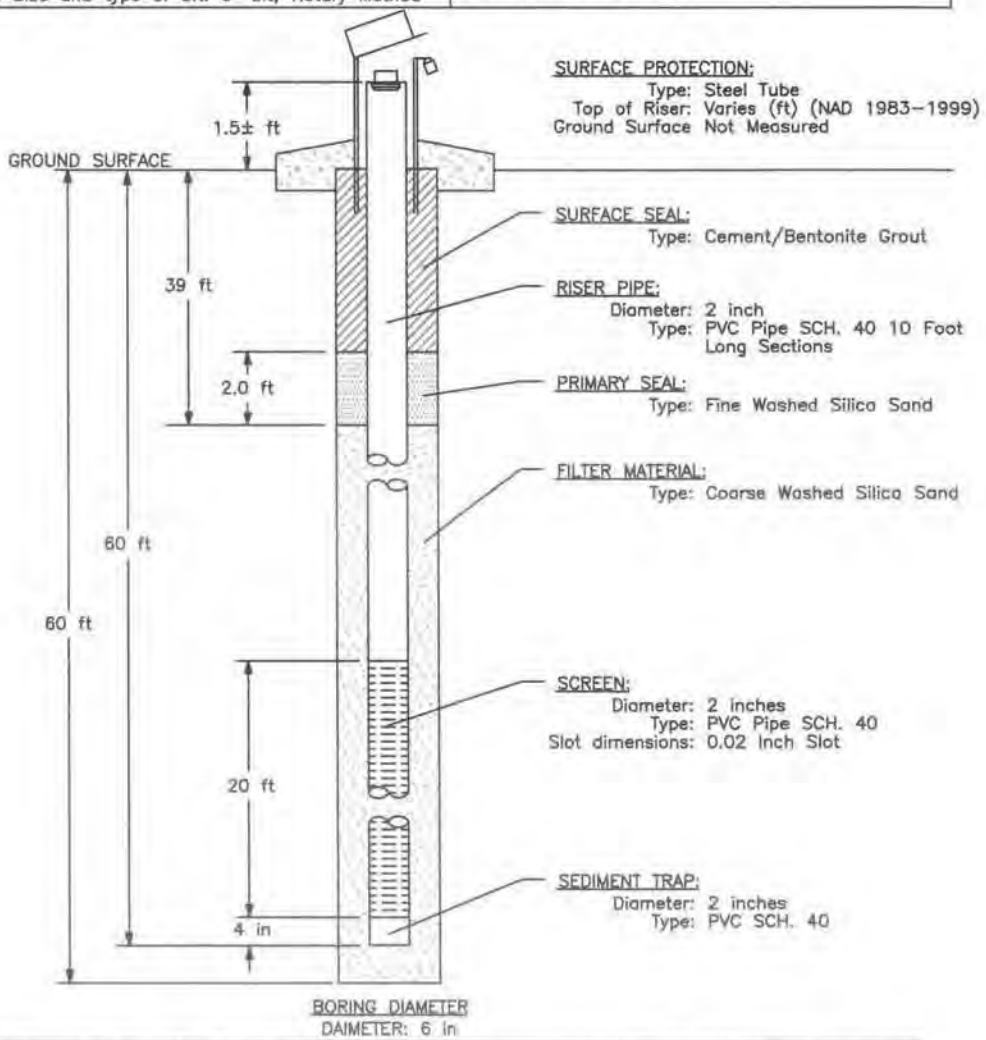


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0214

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774074, E 760038		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0214		11. Date Hole: Started 3-15-05 Completed 3-15-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.57
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

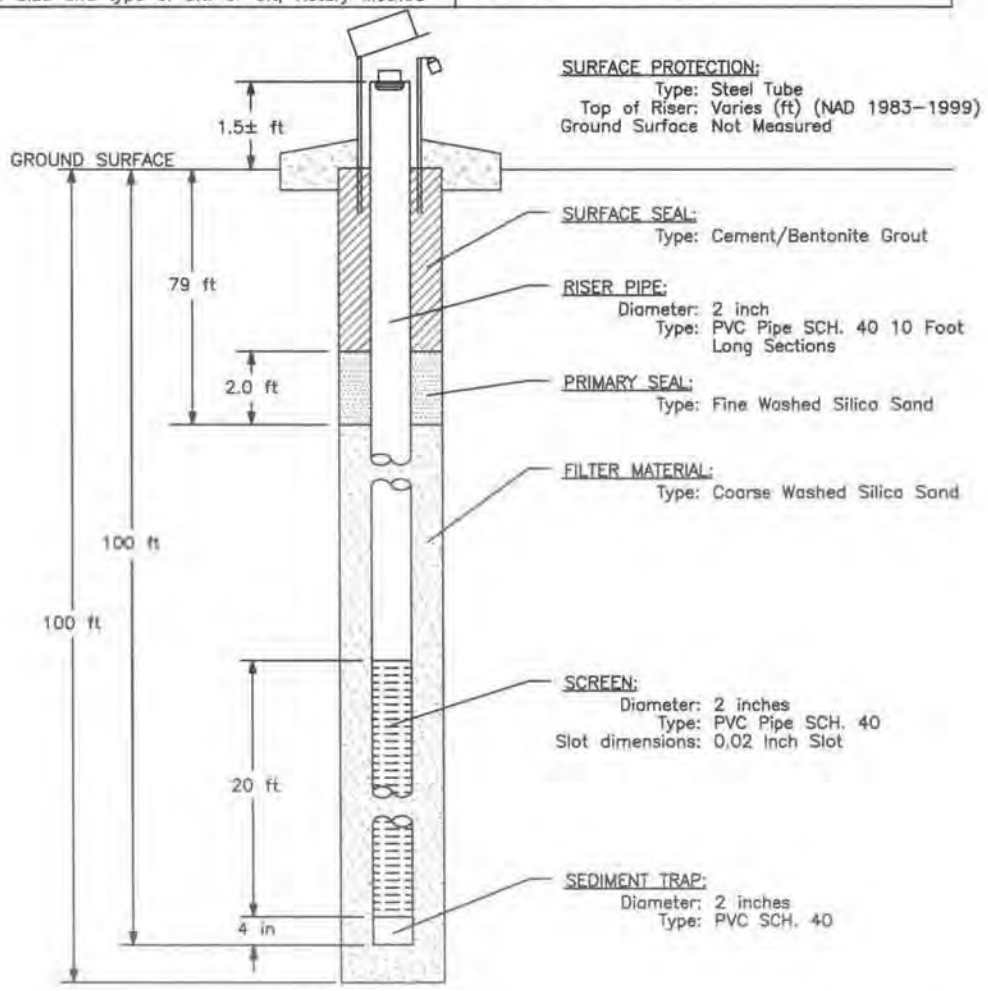


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No, CP05–EAARS–TW–0215

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774074, E 760048		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0215		11. Date Hole: Started 3–15–05 Completed 3–15–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.19
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

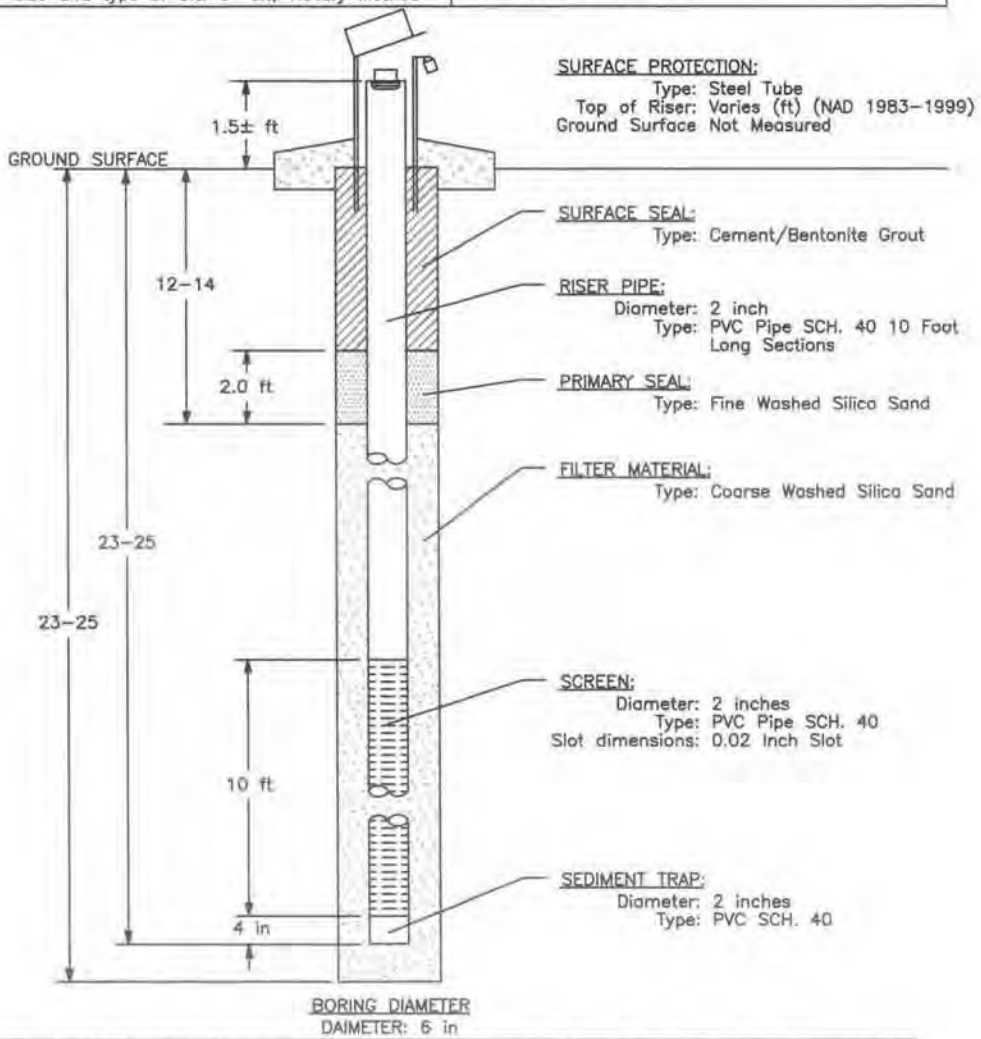


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05-EAARS-TW-0216

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774074, E 760118		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0216		11. Date Hole: Started 3-16-05 Completed 3-16-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.40
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

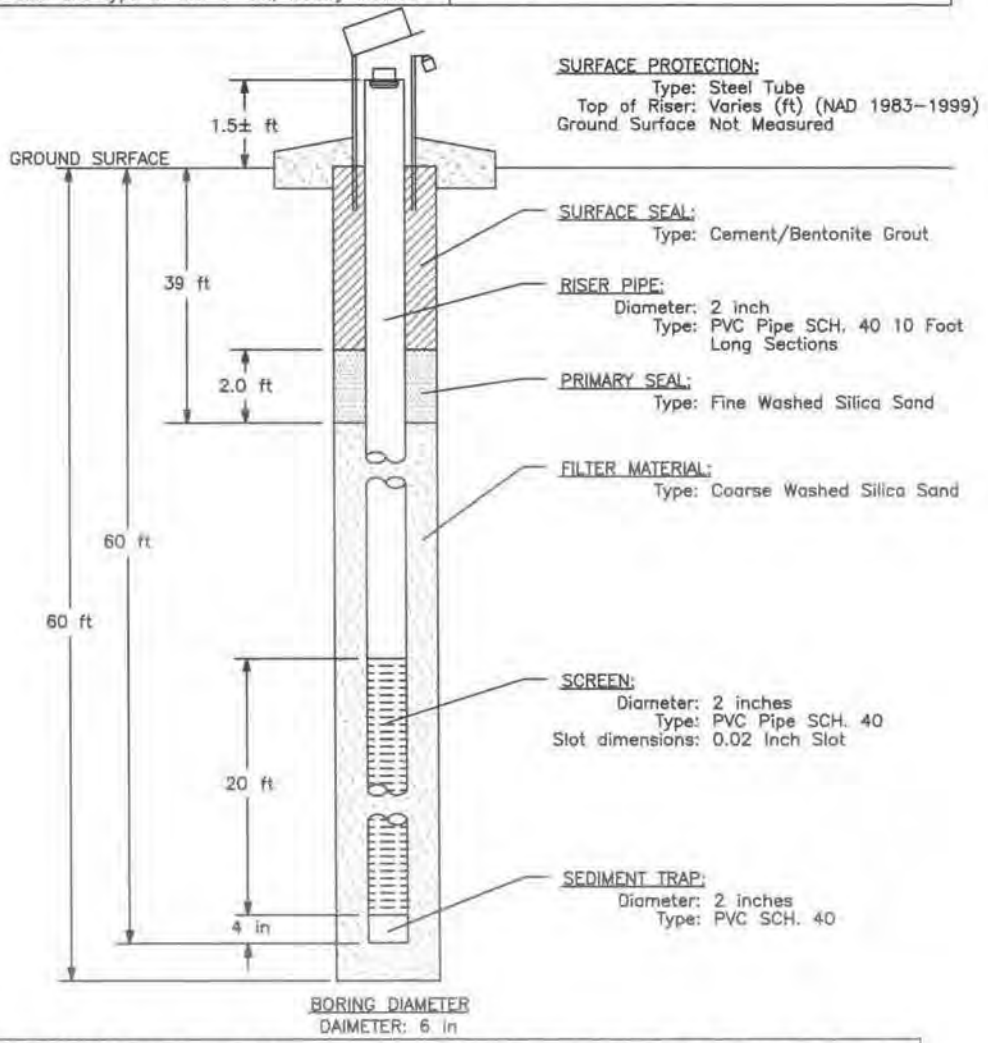


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0217

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774074, E 760128		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0217		11. Date Hole: Started 3-16-05 Completed 3-16-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.04
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

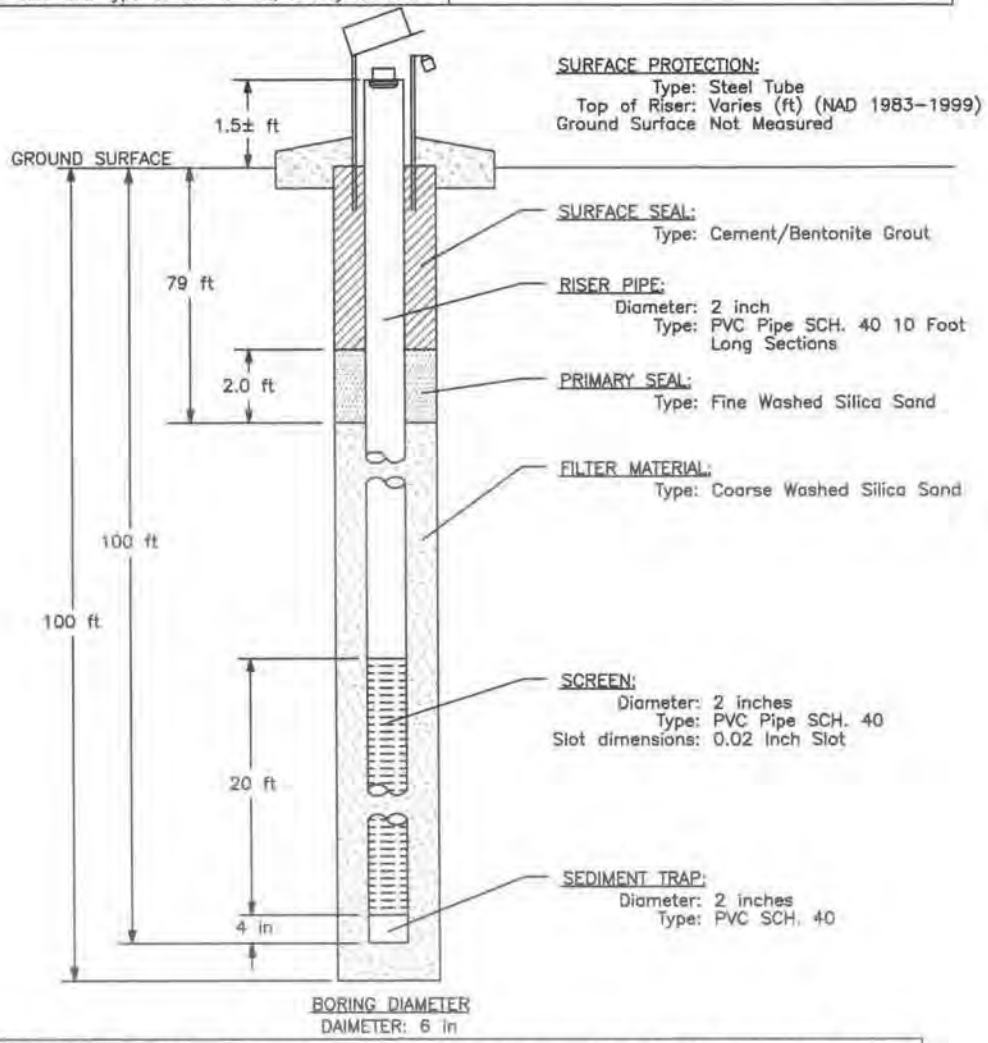


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0218

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774074, E 760138		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0218		11. Date Hole: Started 3-16-05 Completed 3-16-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 7.81
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

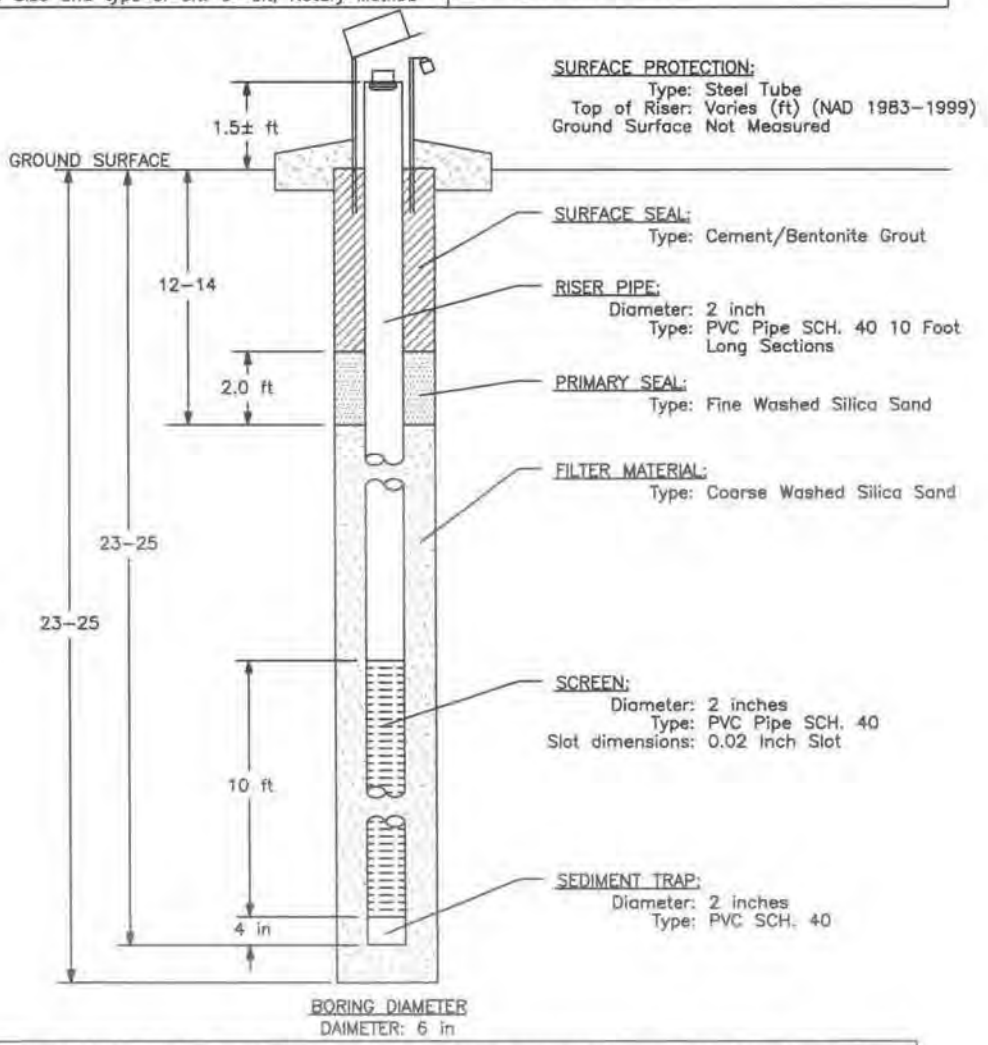


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05–EAARS–TW–0219

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 773747, E 759701		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0219		11. Date Hole: Started 3–2–05 Completed 3–2–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.75
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

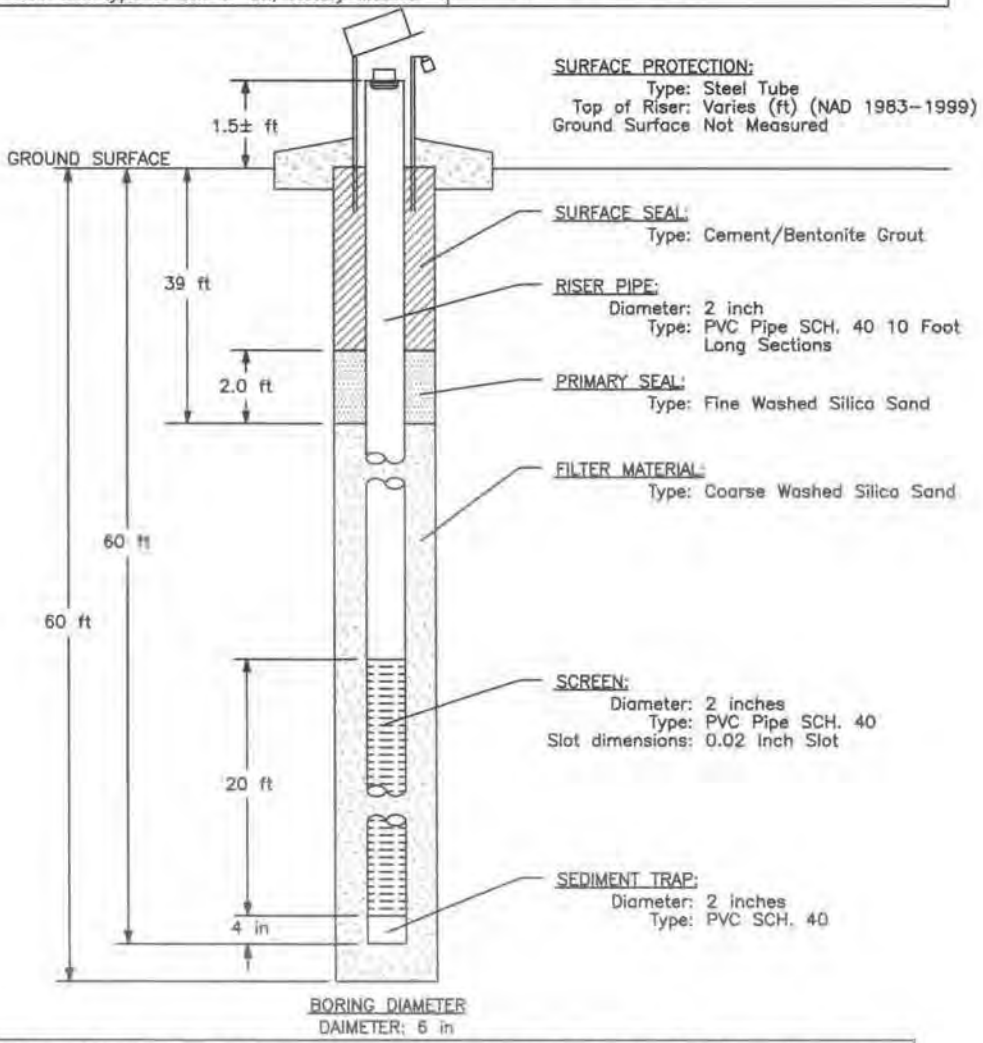


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5 feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0220

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773737, E 759701		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0220		11. Date Hole: Started 3-3-05 Completed 3-3-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.27
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		



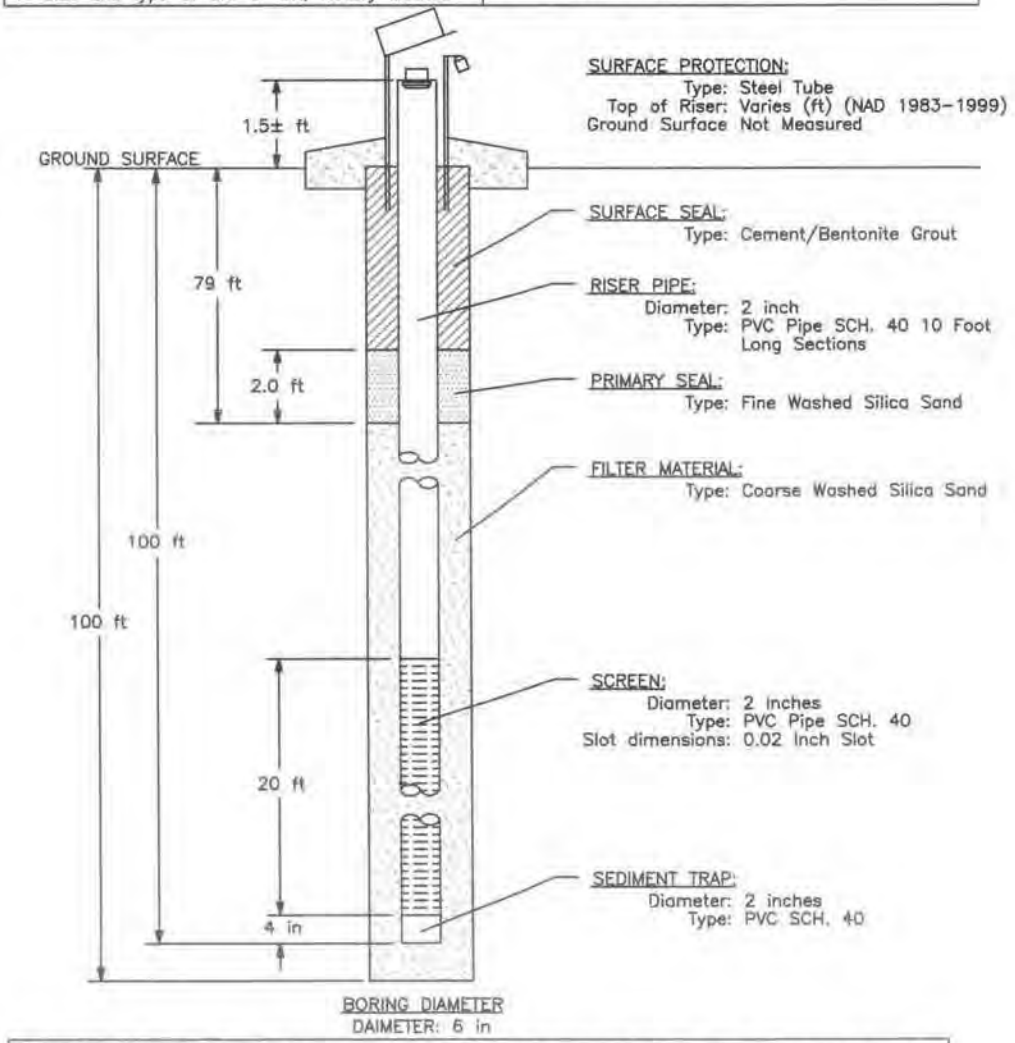
INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

APPENDIX 1
TEST CELL BORINGS AND PIEZOMETER INSTALLATION LOGS: 221-240

Hole No. CP05-EAARS-TW-0221

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773727, E 759701		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0221		11. Date Hole: Started 3-3-05 Completed 3-3-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.30
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

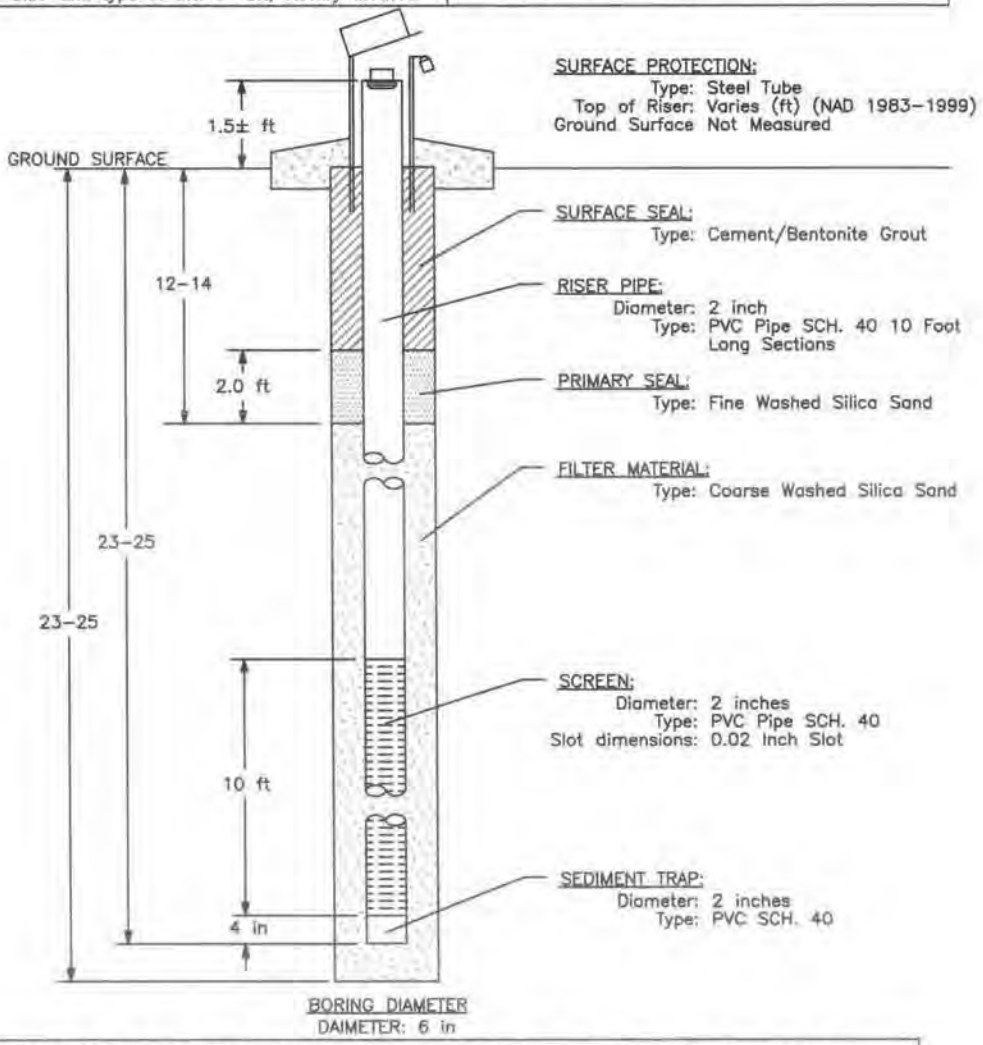


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0222

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773657, E 759701		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0222		11. Date Hole: Started 3-5-05 Completed 3-5-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.79
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

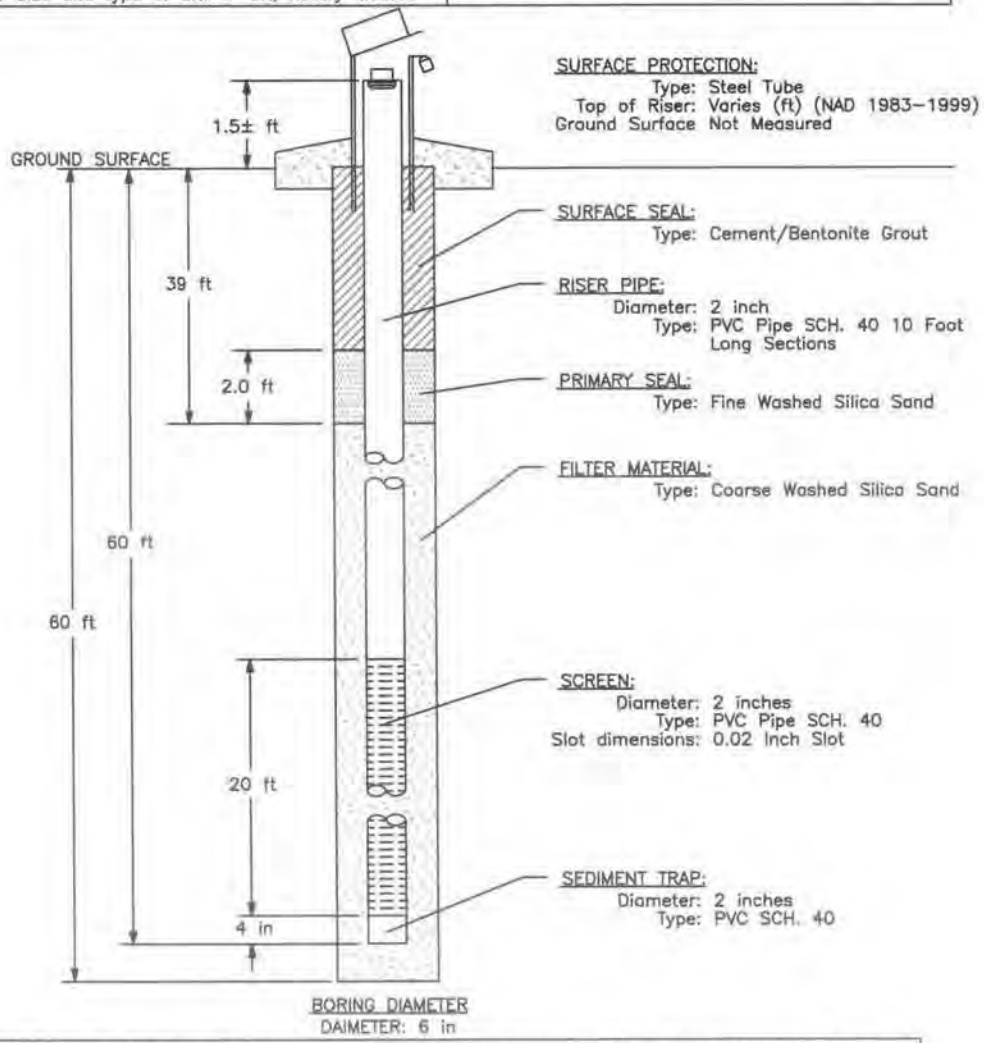


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0223

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773647, E 759701		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0223		11. Date Hole: Started 3-5-05 Completed 3-5-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 7.75
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

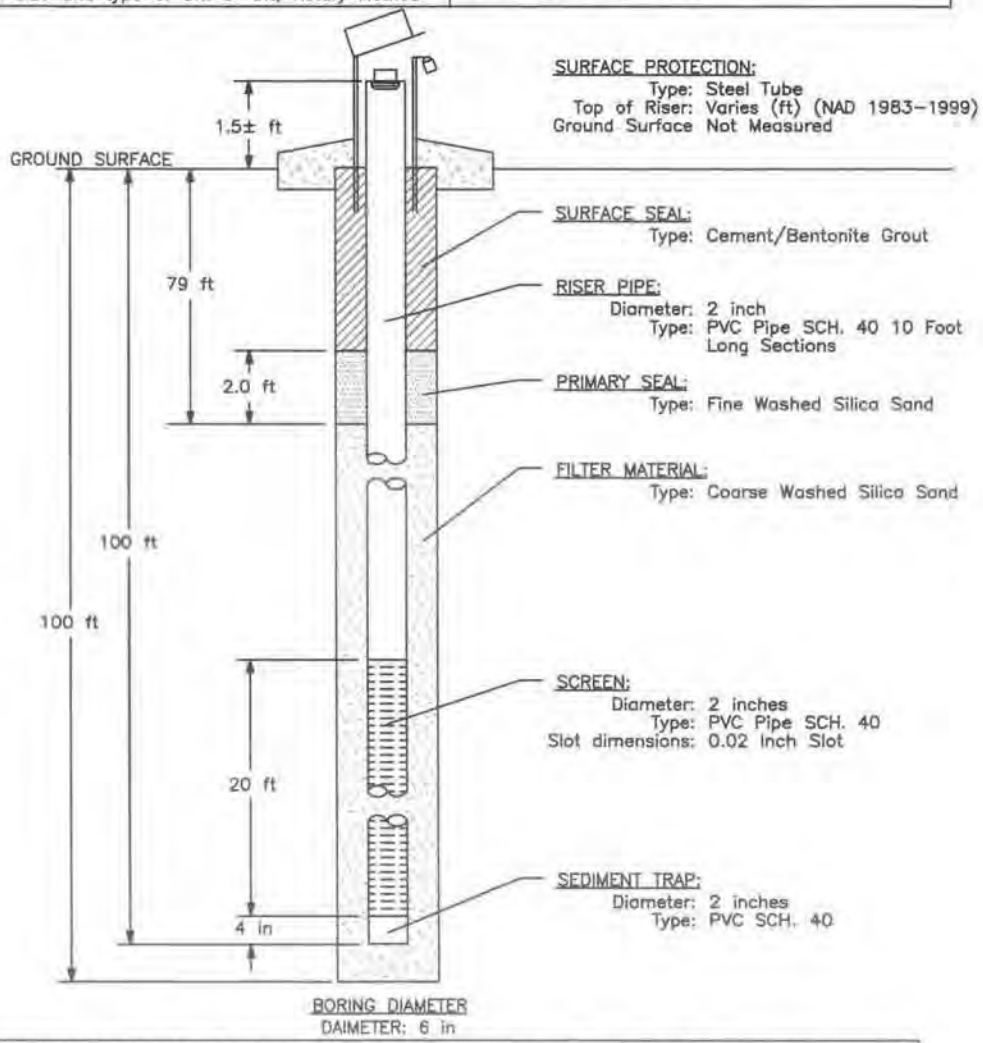


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0224

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773637, E 759701		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0224		11. Date Hole: Started 3-5-05 Completed 3-5-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 7.92
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

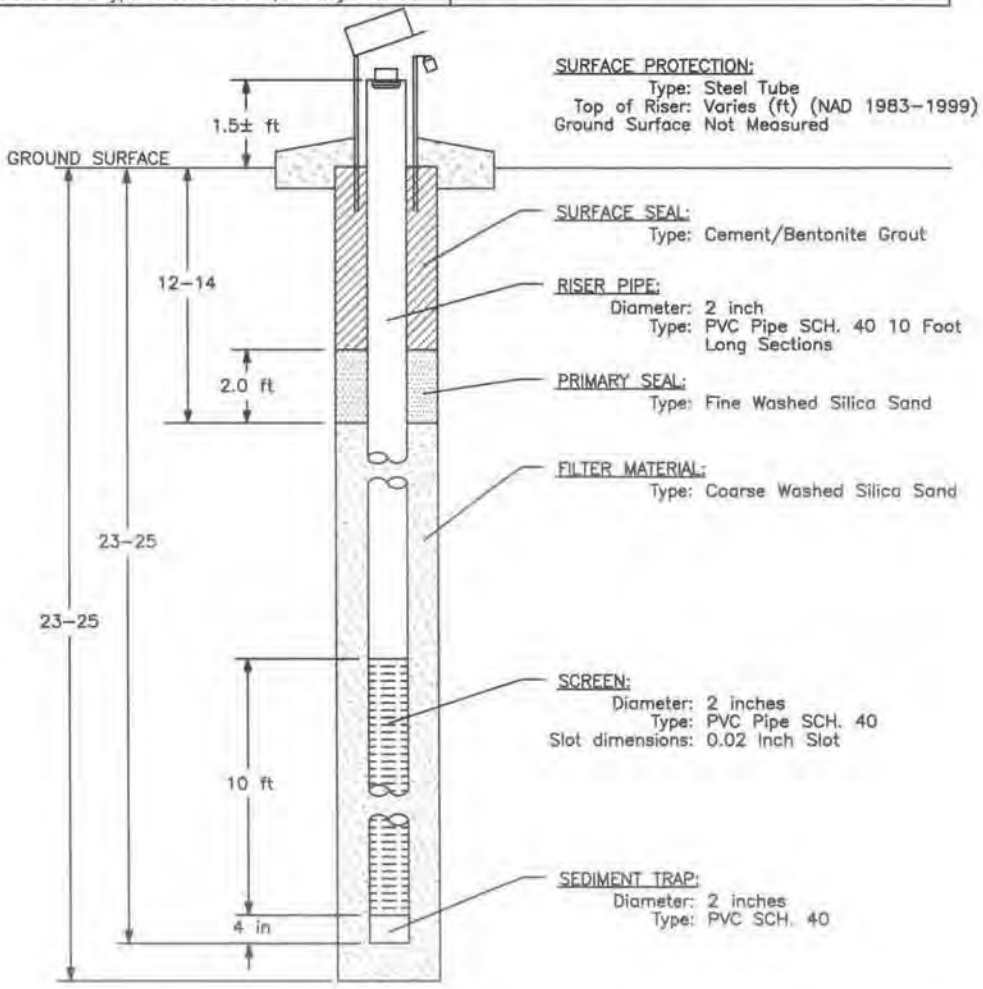


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0225

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774070, E 759370		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0225		11. Date Hole: Started 3-10-05 Completed 3-10-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.41
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		



INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

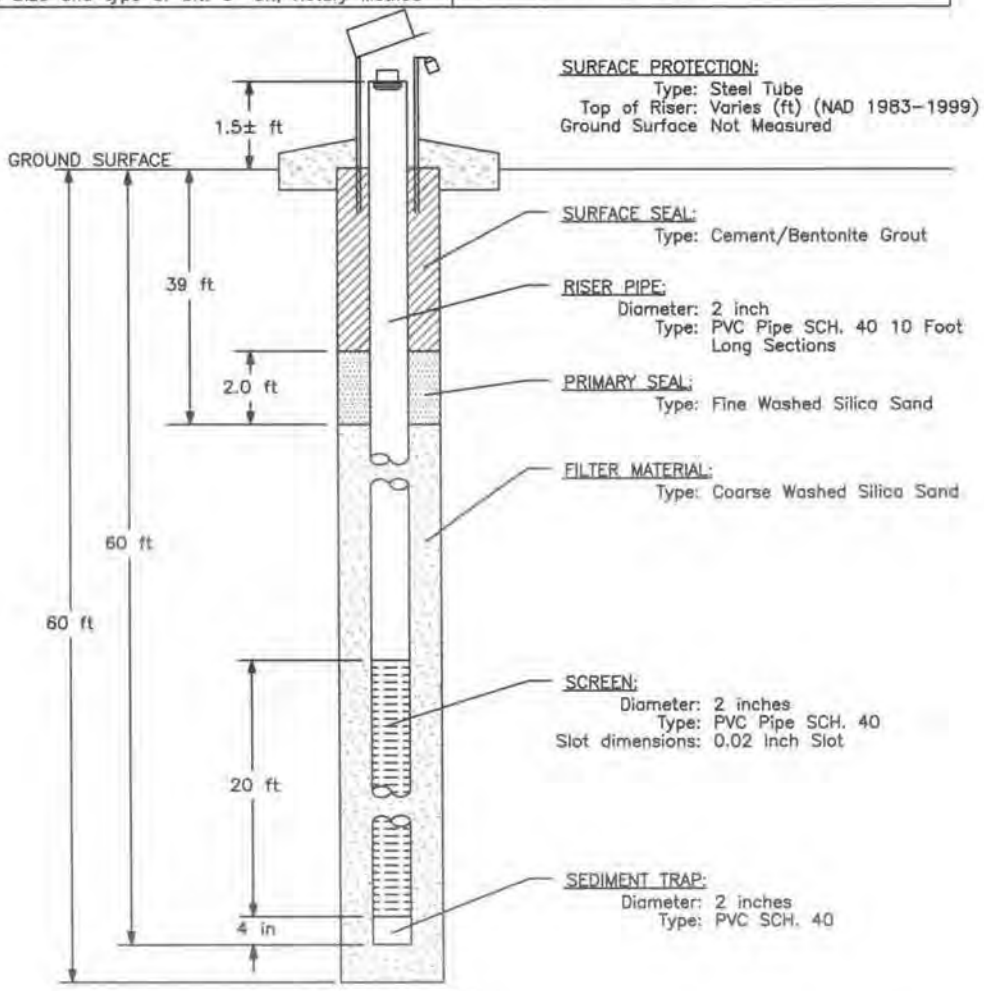
NOTES: Typical 25 foot Piezometer Installation

APPENDIX 2

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 255-260

Hole No, CP05-EAARS-TW-0226

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774070, E 759360		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0226		11. Date Hole: Started 3-10-05 Completed 3-10-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.25
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

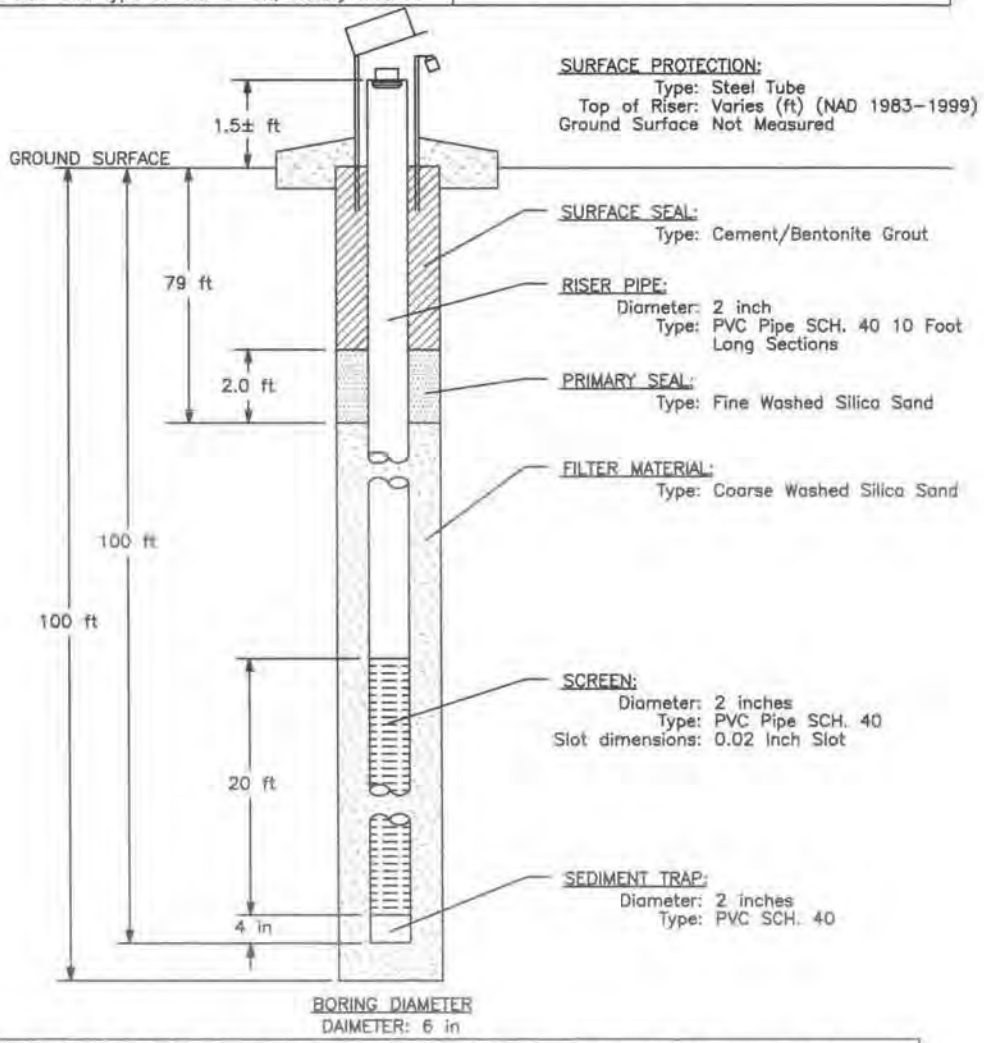


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No, CP05–EAARS–TW–0227

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774070, E 759350		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0227		11. Date Hole: Started 3–10–05 Completed 3–10–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.38
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

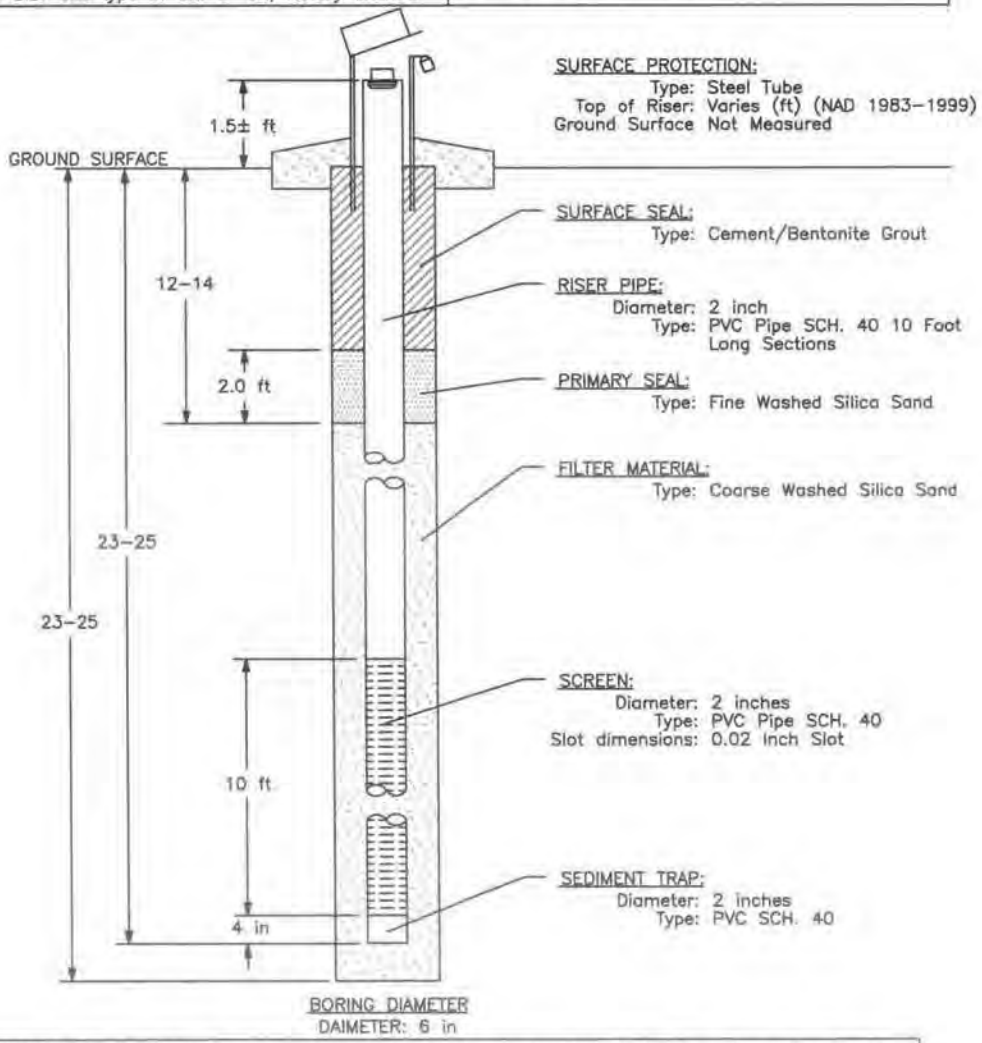


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0228

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774070, E 759280		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0228		11. Date Hole: Started 3-10-05 Completed 3-10-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.52
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

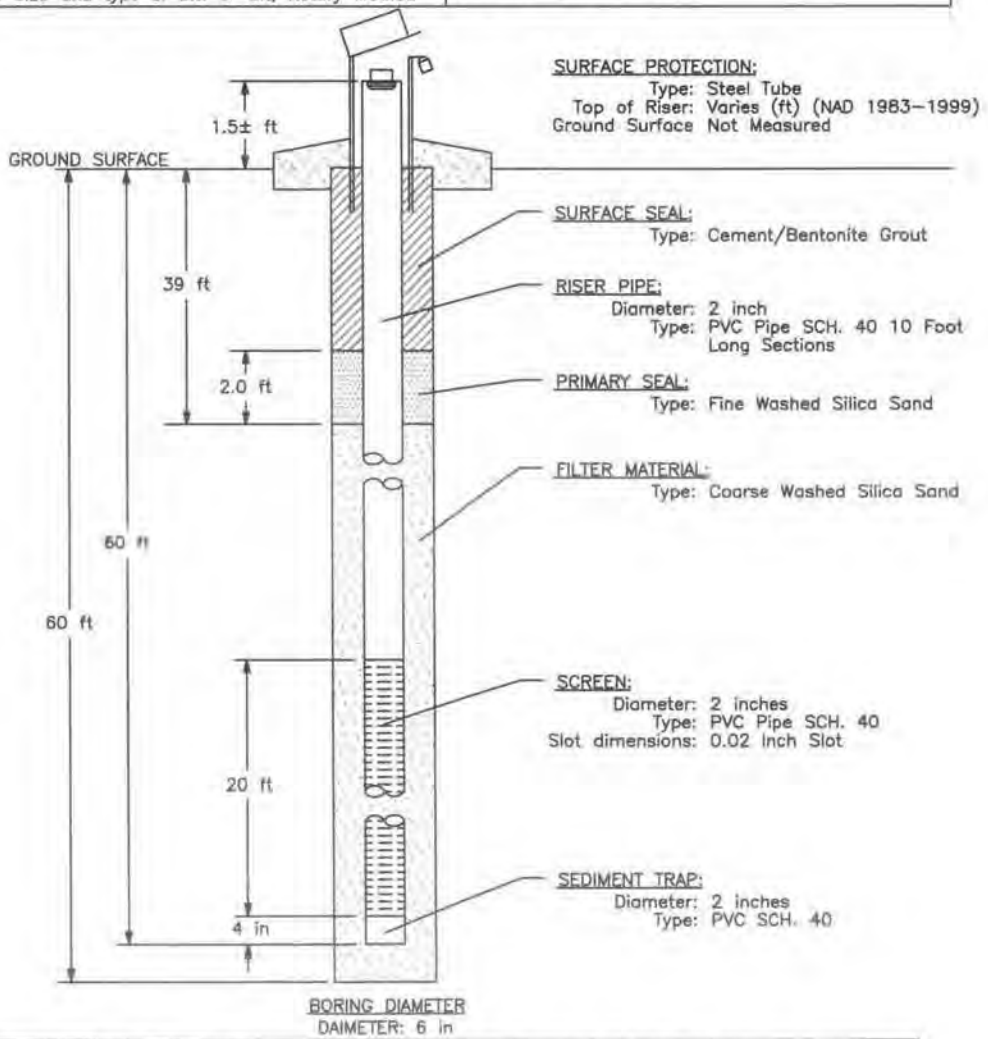


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No, CP05-EAARS-TW-0229

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774070, E 759270		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
229		11. Date Hole: Started 3-10-05 Completed 3-10-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.23
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

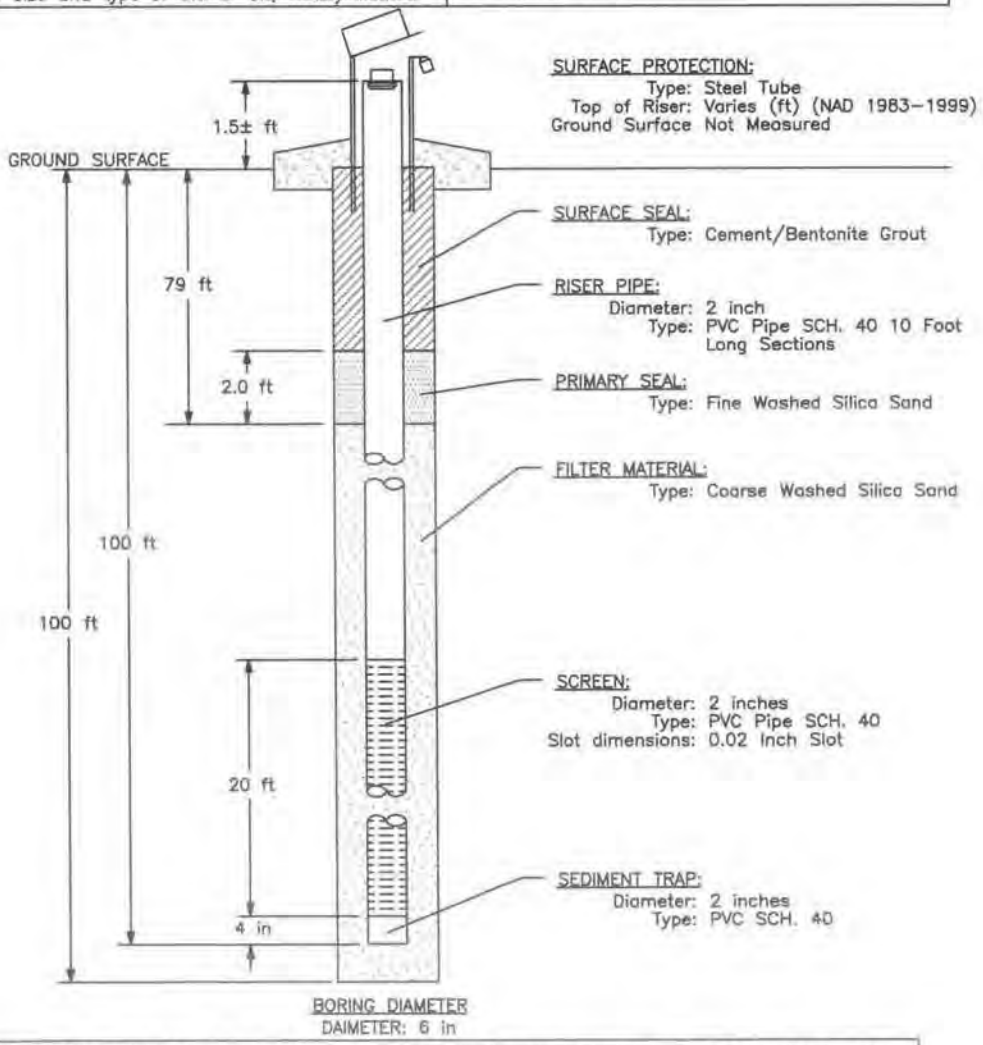


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0230

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774070, E 759260		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0230		11. Date Hole: Started 3-10-05 Completed 3-10-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.47
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

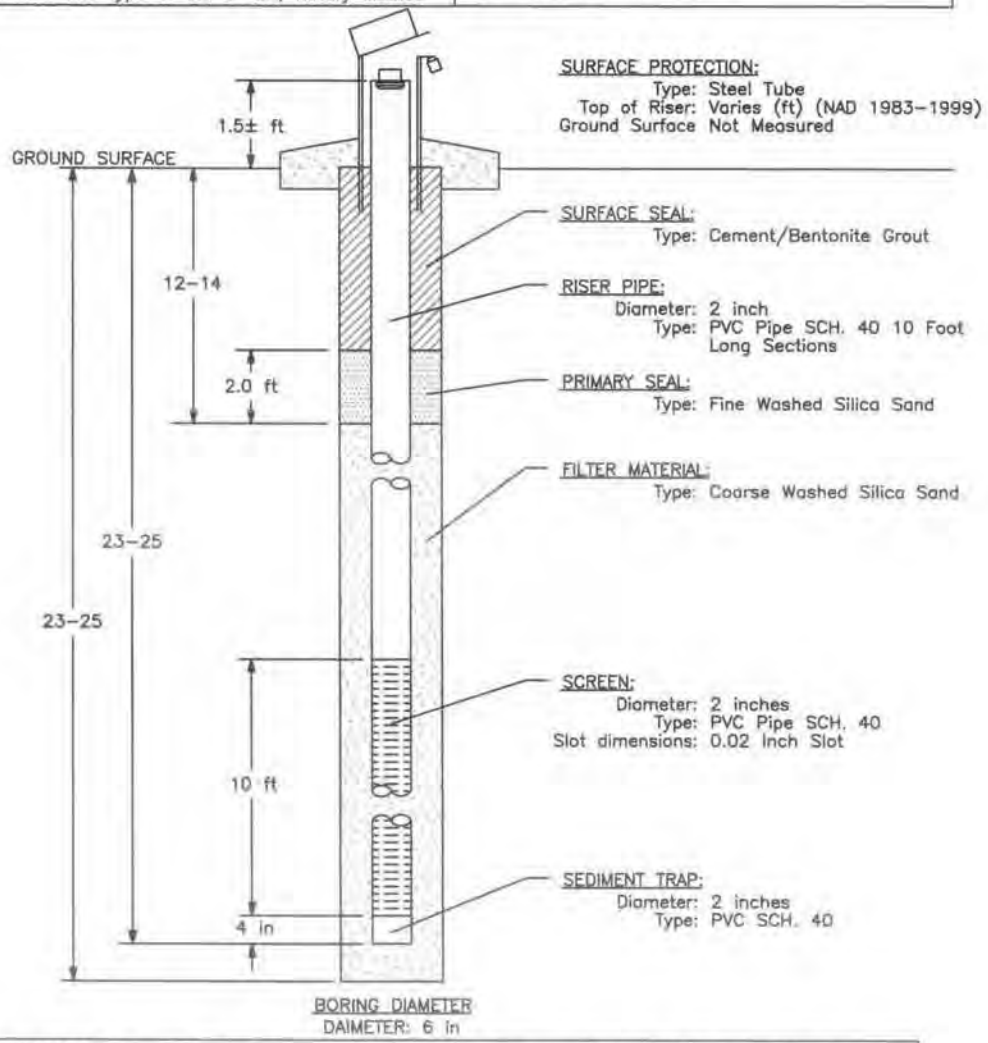


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05–EAARS–TW–0231

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774415, E 781772		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0231		11. Date Hole: Started 3–21–05 Completed 3–21–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.23
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

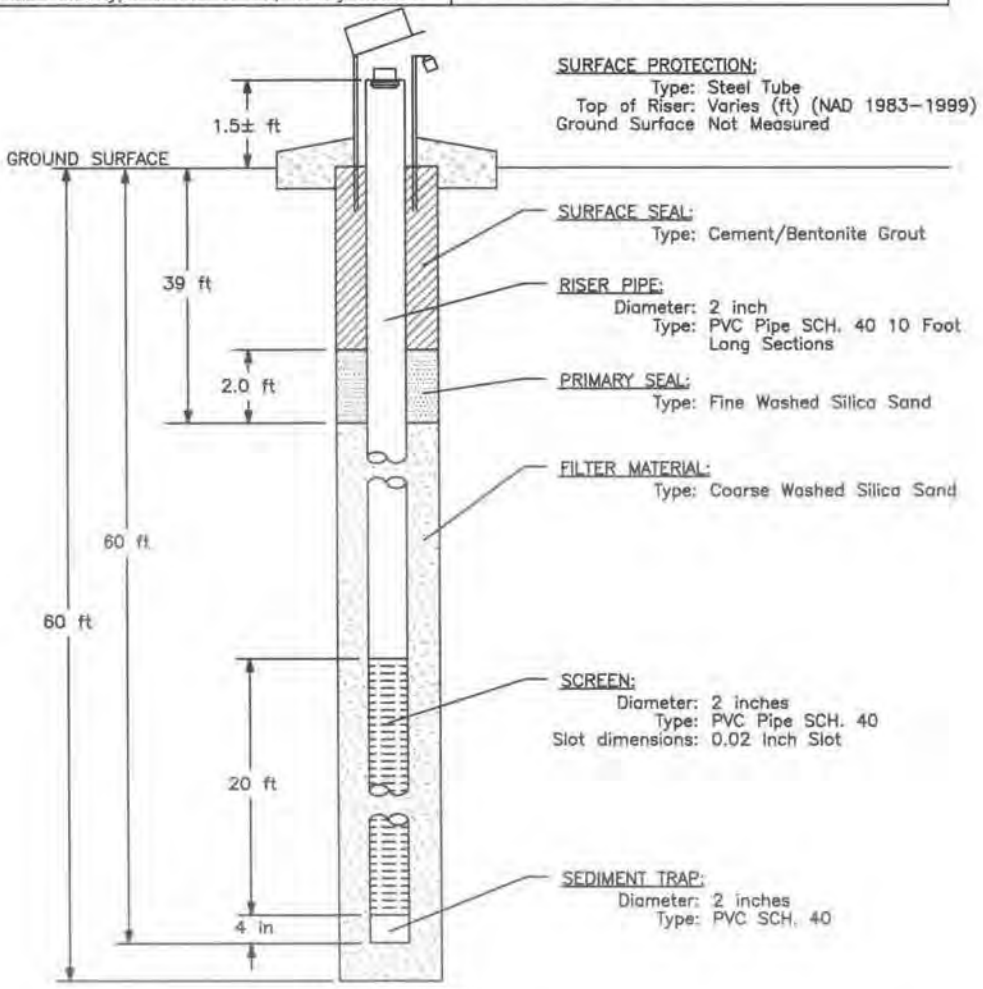


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0232

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774415, E 761782		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0232		11. Date Hole: Started 3-21-05 Completed 3-21-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.09
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

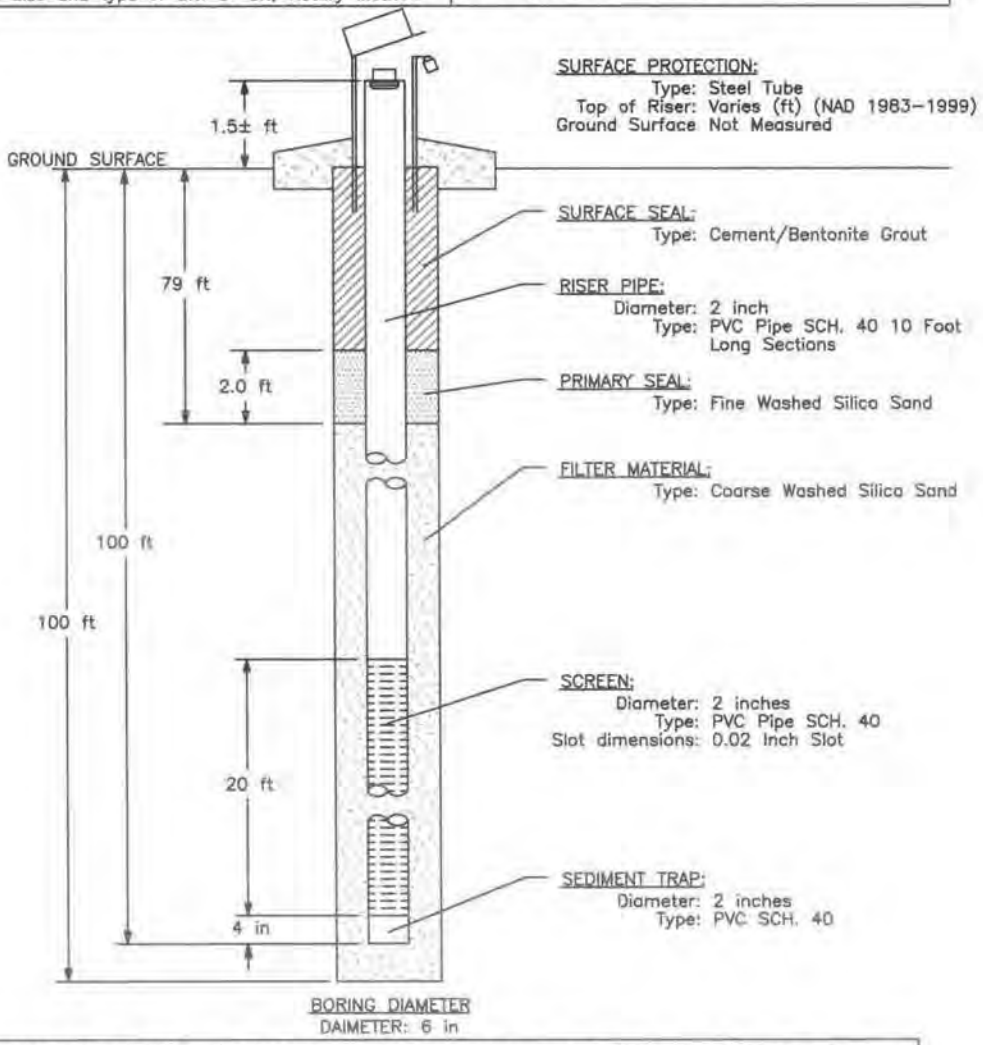


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0233

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774415, E 761792		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0233		11. Date Hole: Started 3-21-05 Completed 3-21-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.06
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

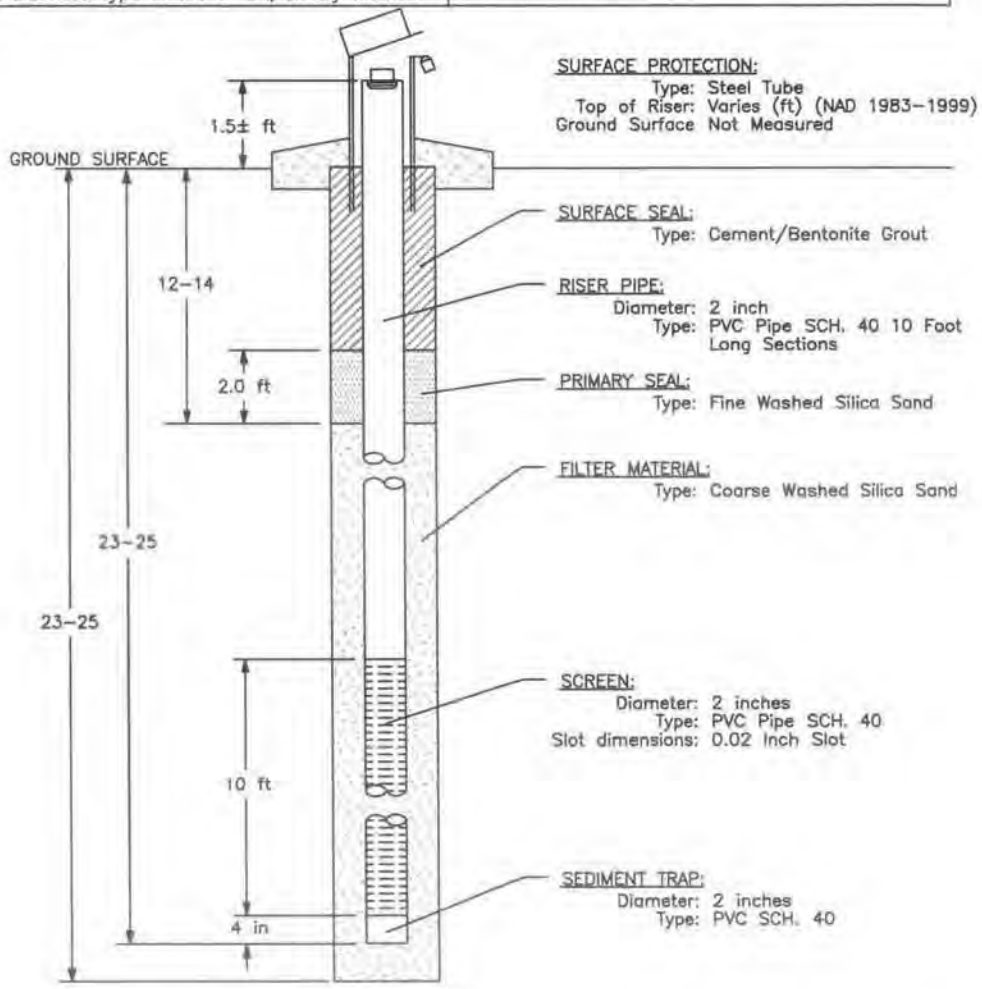


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5 feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05–EAARS–TW–0234

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774515, E 761772		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0234		11. Date Hole: Started 3–17–05 Completed 3–17–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 10.09
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

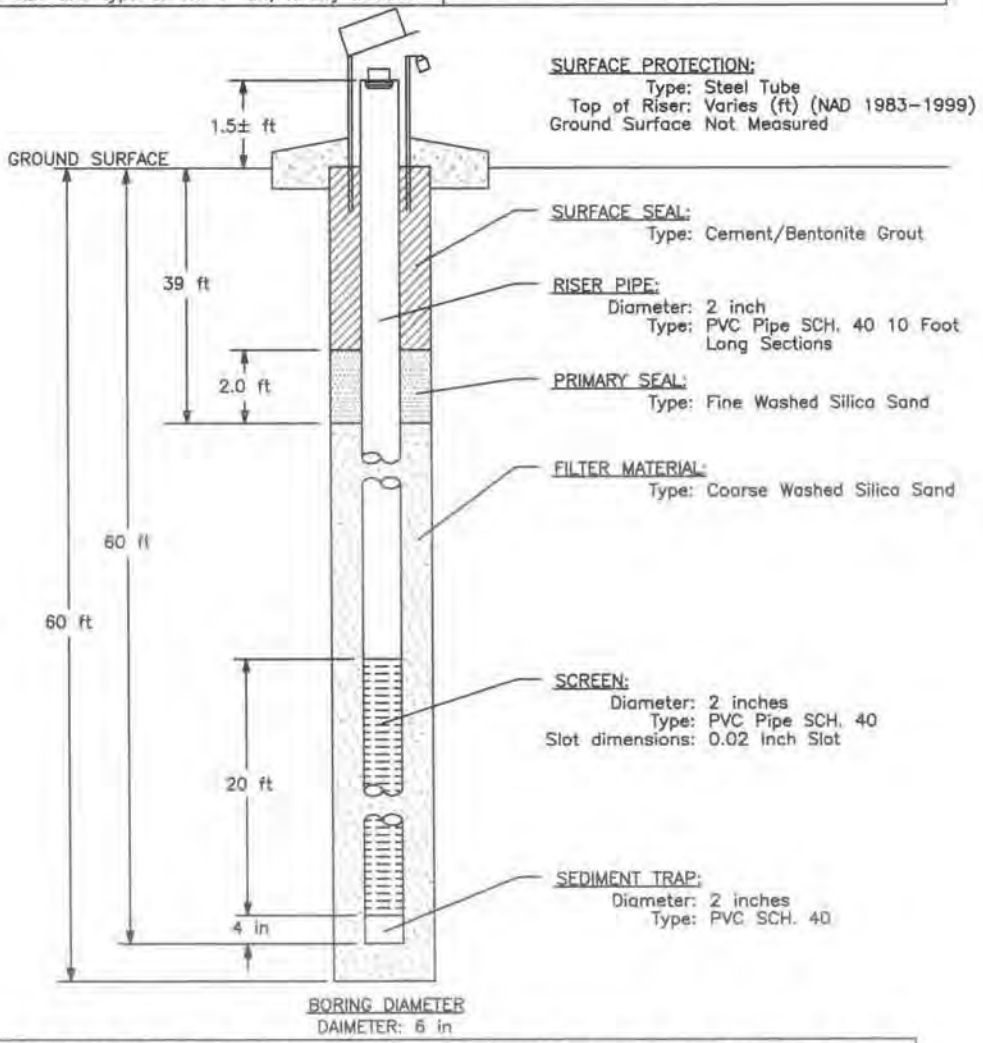


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0235

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774515, E 761782		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0235		11. Date Hole: Started 3-16-05 Completed 3-16-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.98
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

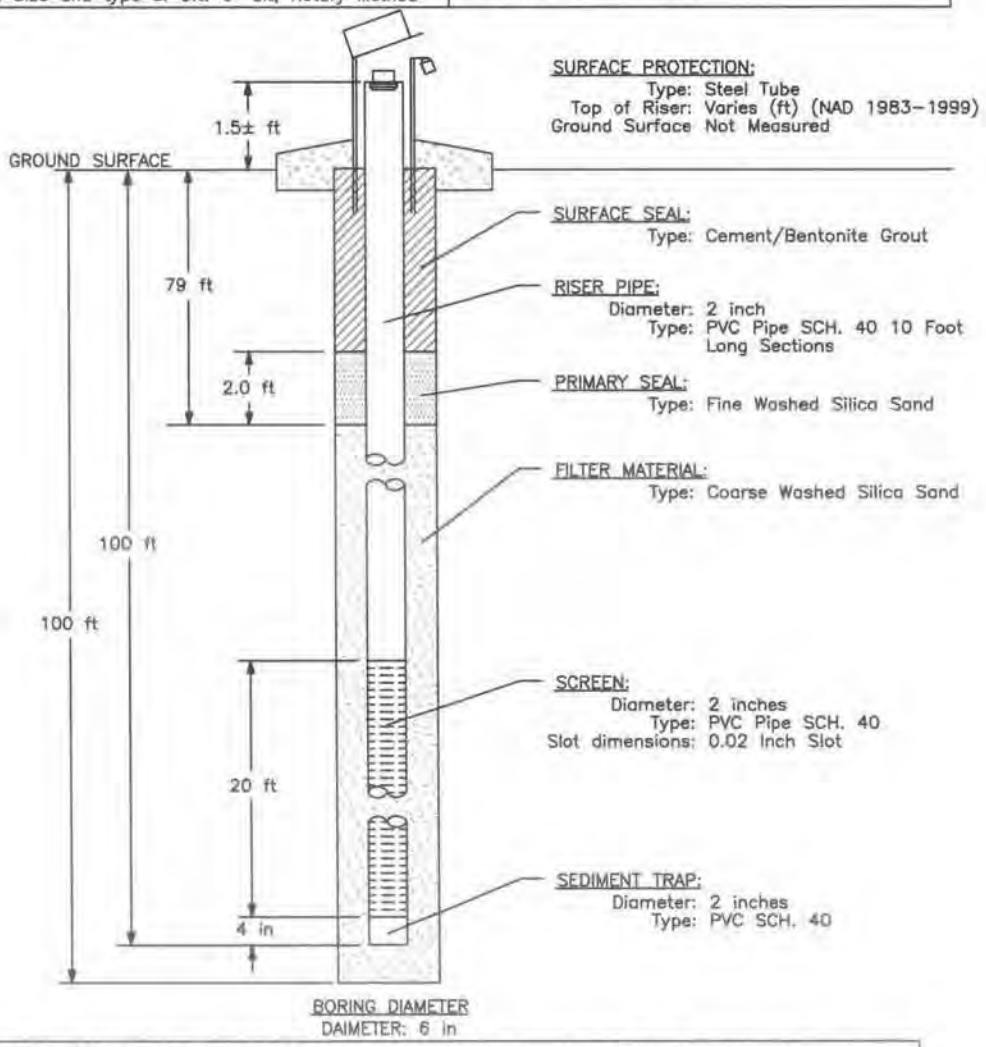


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0236

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774515, E 761792		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0236		11. Date Hole: Started 3-17-05 Completed 3-17-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.90
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

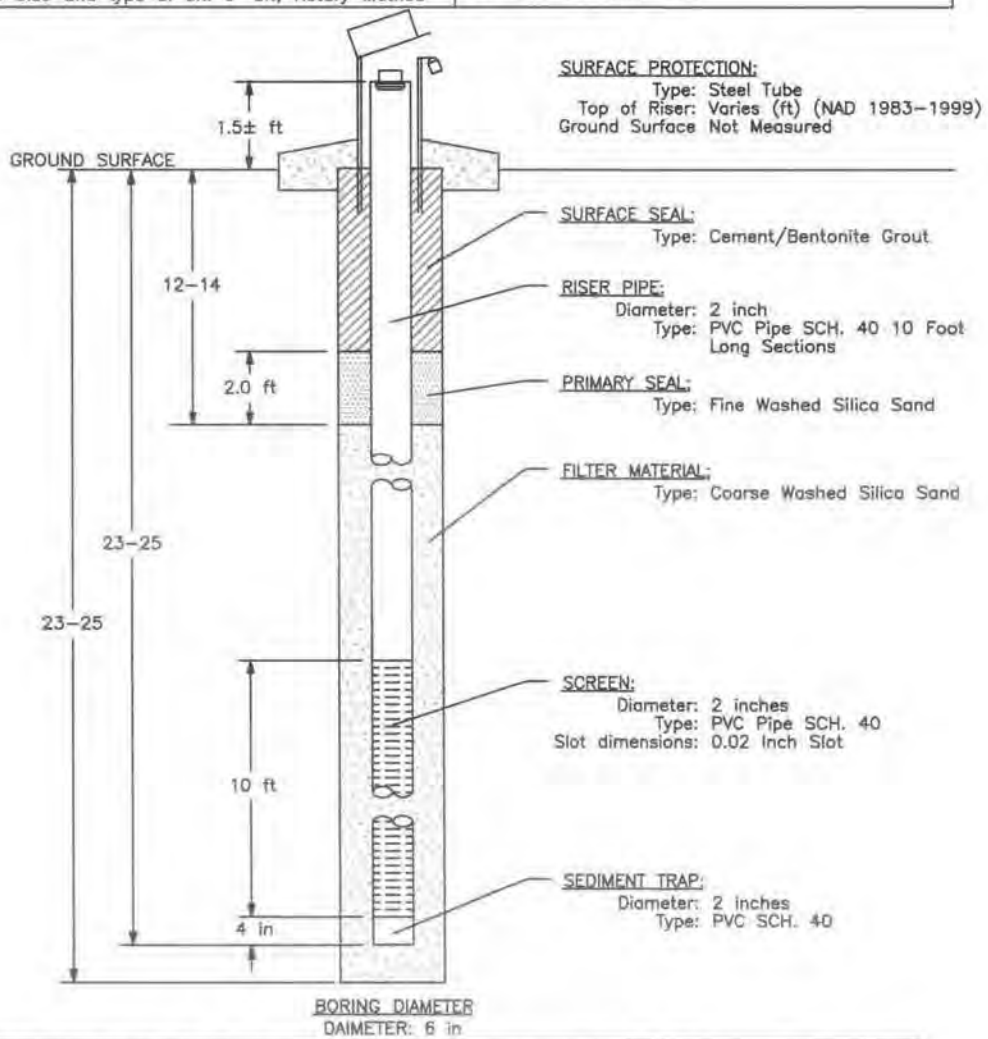


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0237

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774071, E 762123		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0237		11. Date Hole: Started 12/7/2004 Completed 12/7/2004
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.04
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

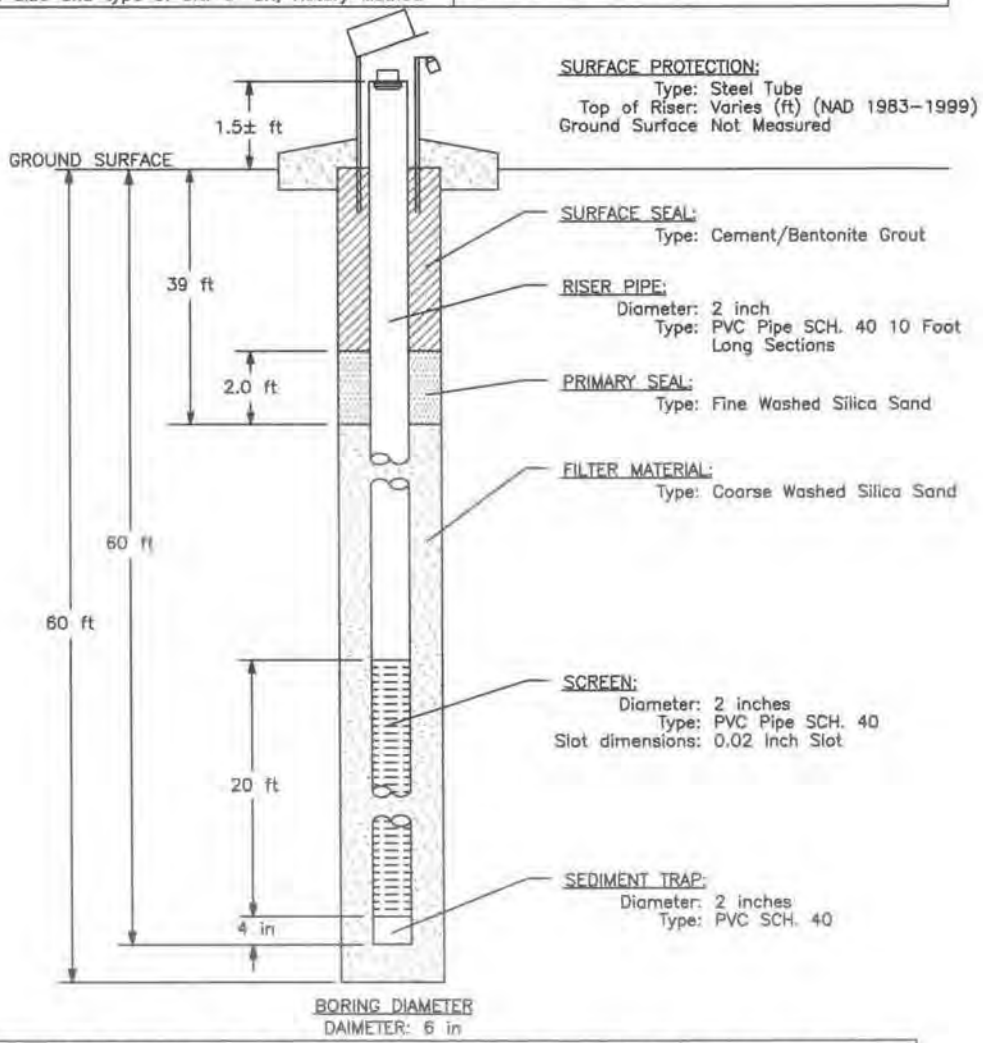


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer installation

Hole No, CP05–EAARS–TW–0238

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774081, E 762123		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0238		11. Date Hole: Started 3–26–05 Completed 3–26–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.87
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

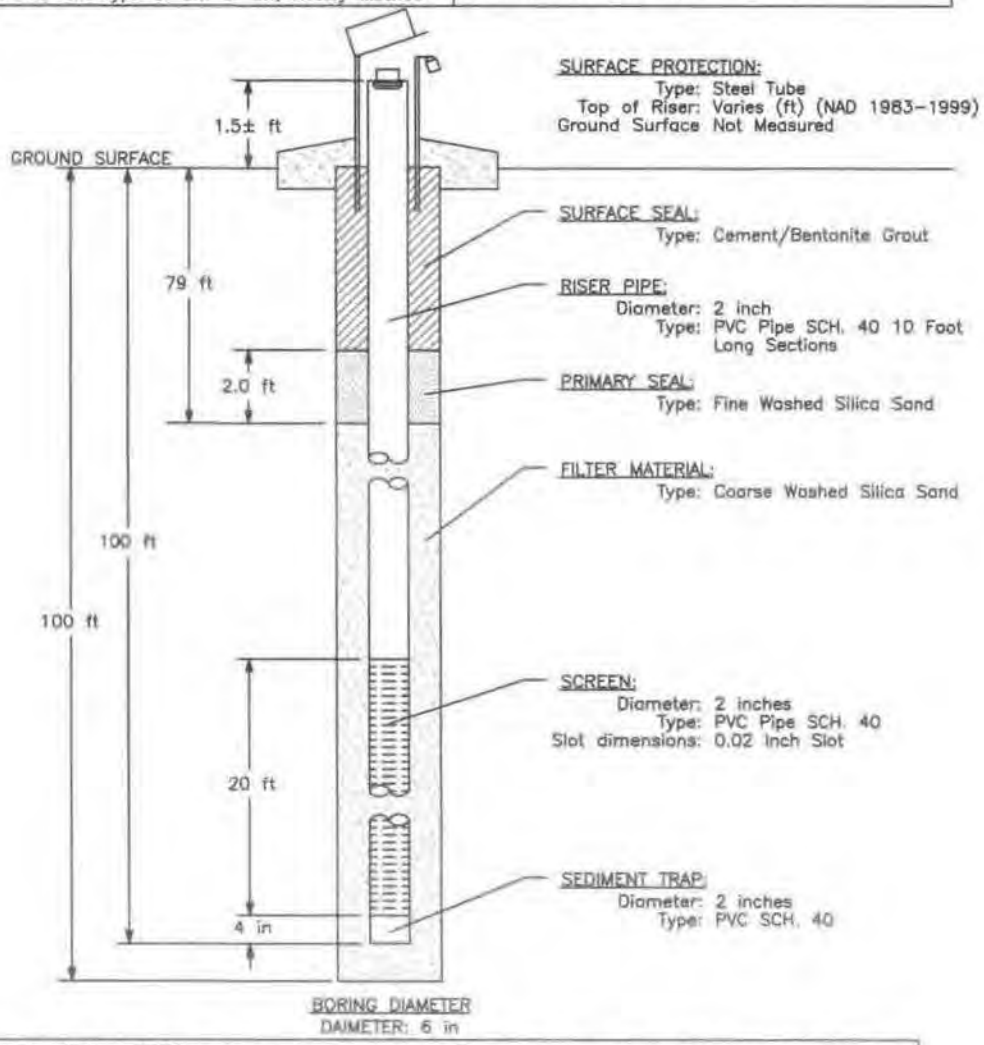


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0239

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774091, E 762123		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0239		11. Date Hole: Started 3-26-05 Completed 3-26-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.95
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

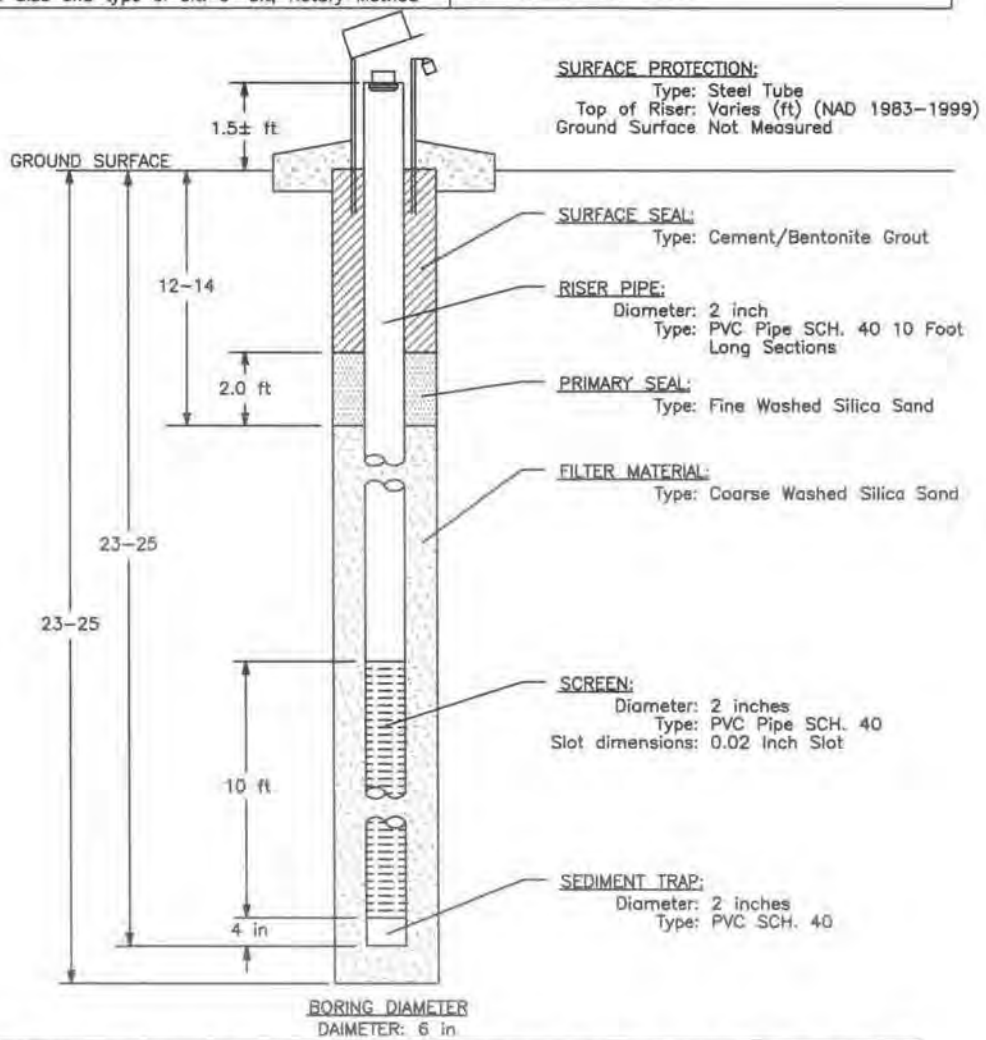


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer installation

Hole No. CP05-EAARS-TW-0240

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774071, E 762223		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0240		11. Date Hole: Started 3-16-05 Completed 3-16-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.11
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		



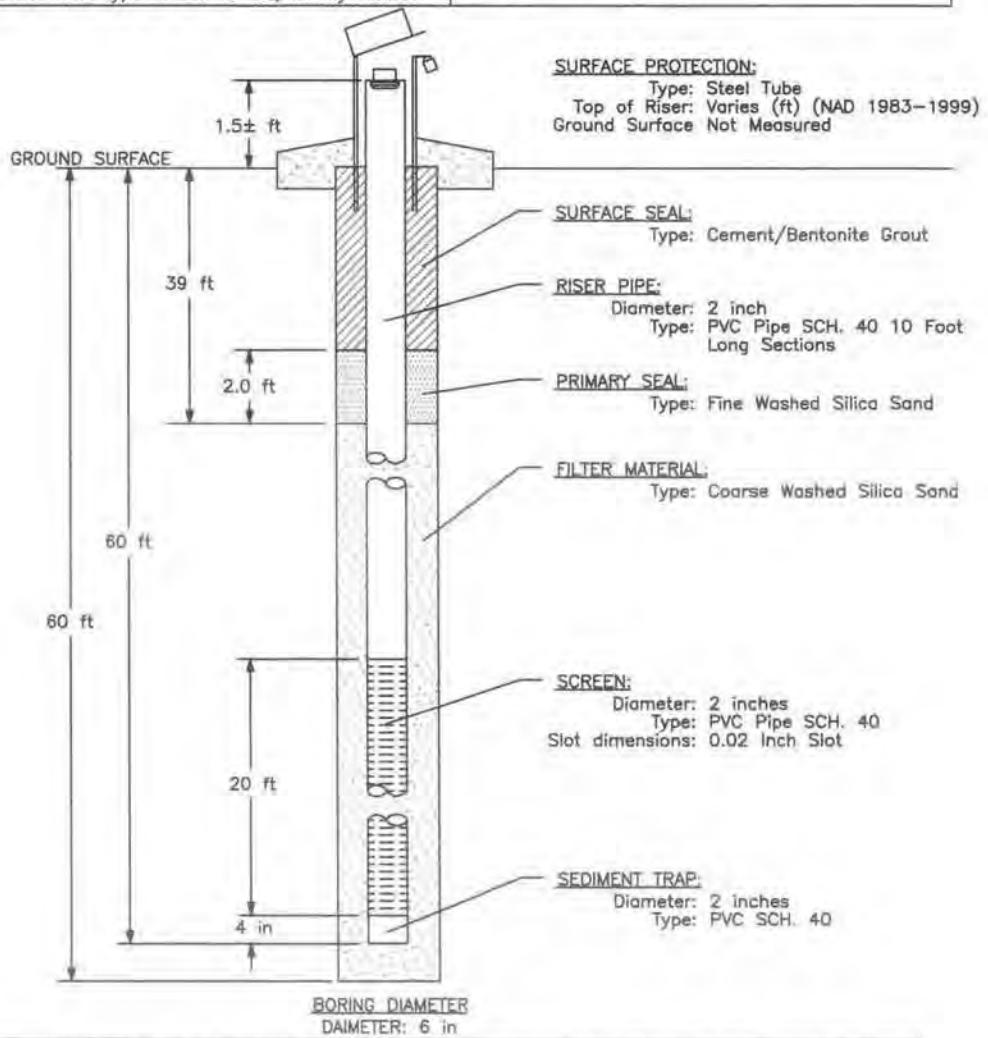
INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

APPENDIX 1
TEST CELL BORINGS AND PIEZOMETER INSTALLATION LOGS: 241-254

Hole No, CP05–EAARS–TW–0241

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N, E		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0		11. Date Hole: Started 3–16–05 Completed 3–16–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.11
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

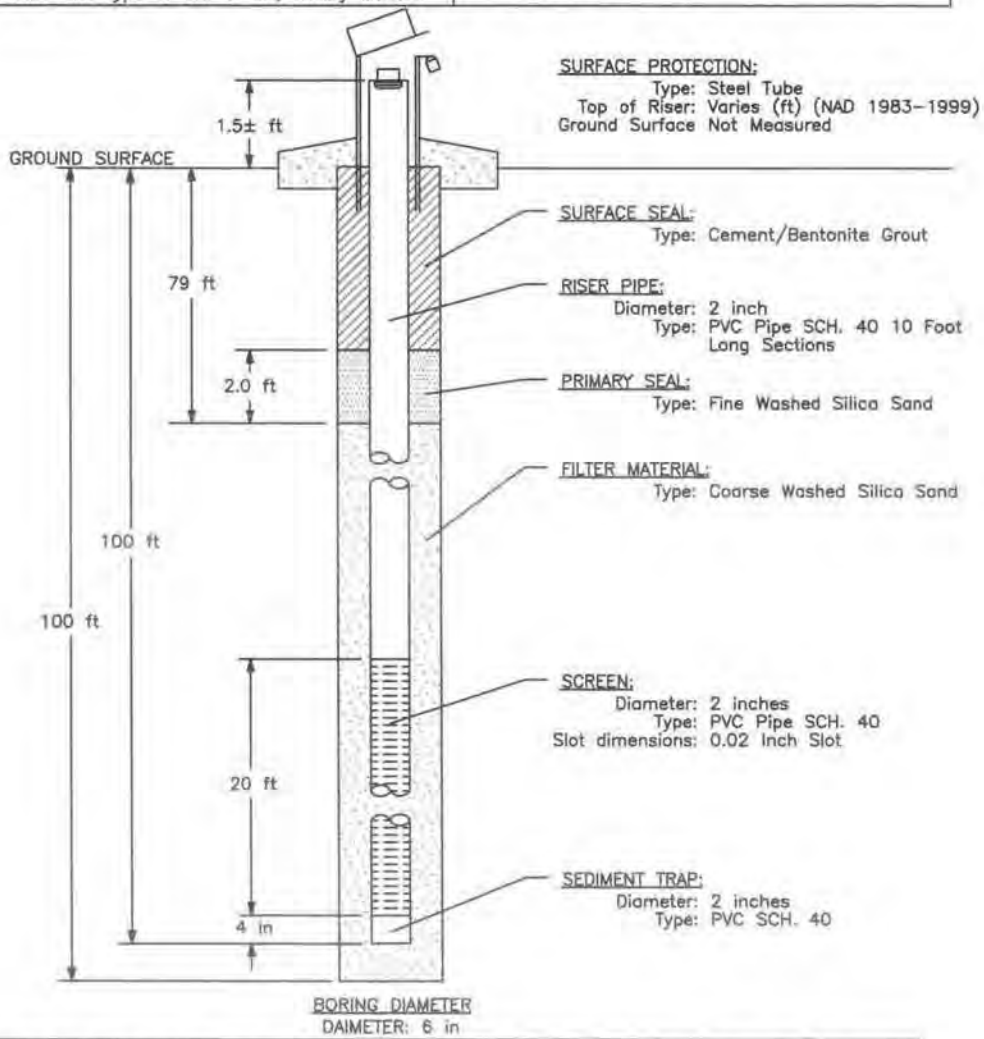


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0242

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774091, E 762223		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0242		11. Date Hole: Started 3-16-05 Completed 3-16-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 7.99
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

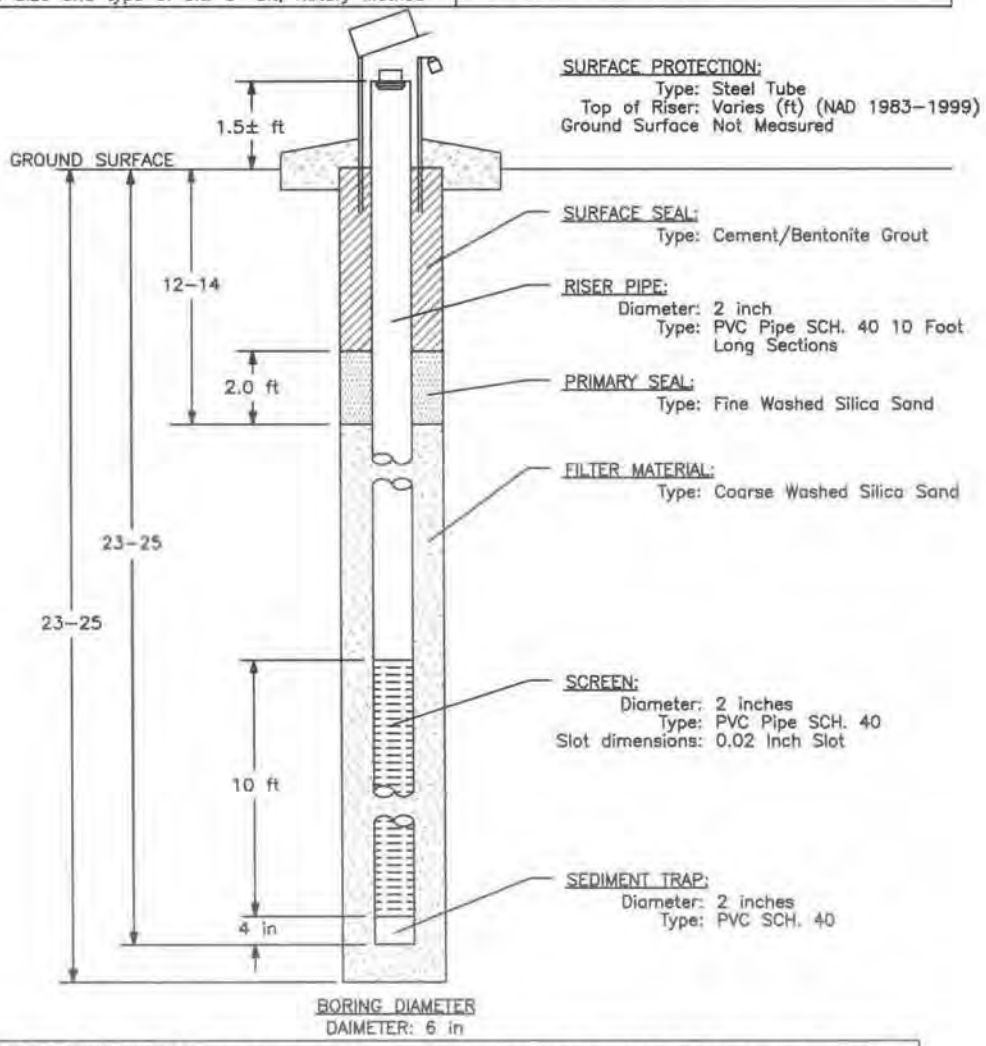


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0243

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773743, E 761776		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0243		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.91
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

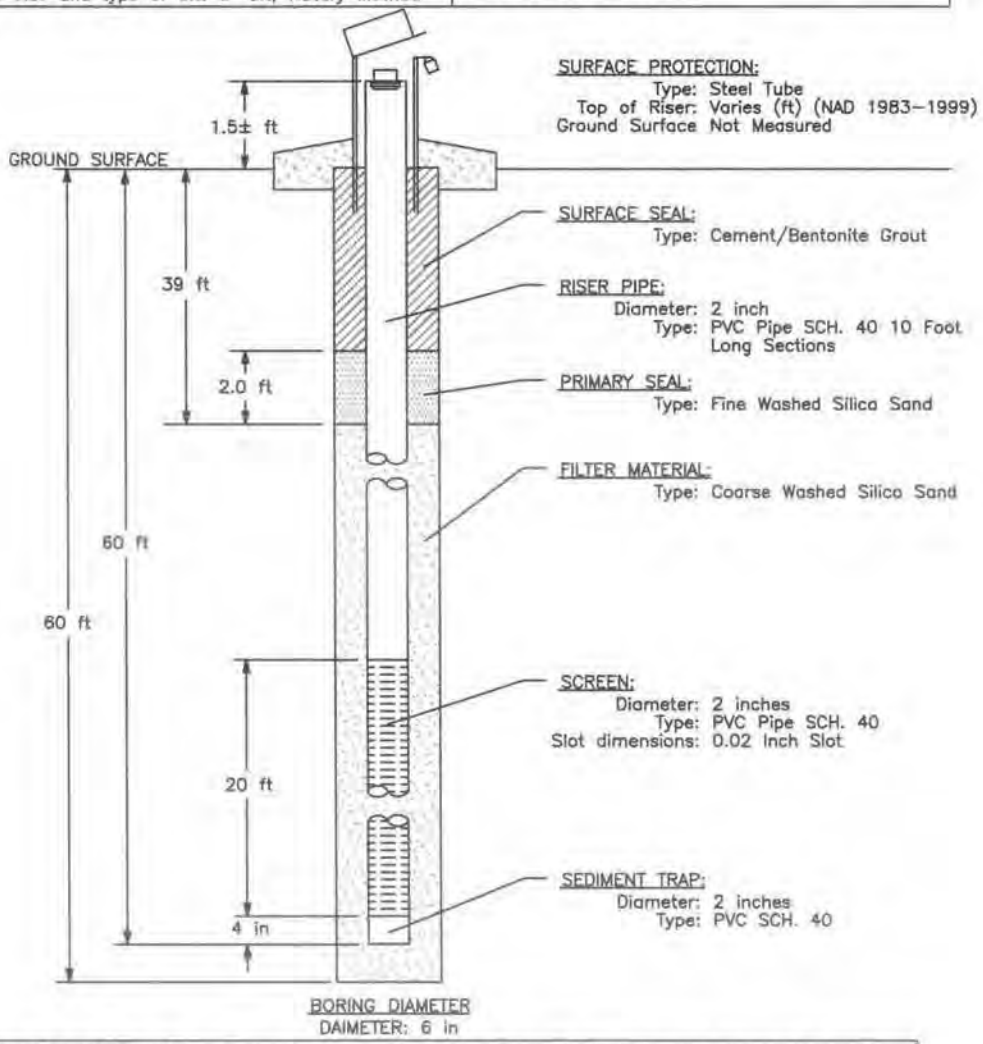


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0244

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773743, E 761786		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0244		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.12
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 8" bit, Rotary Method		

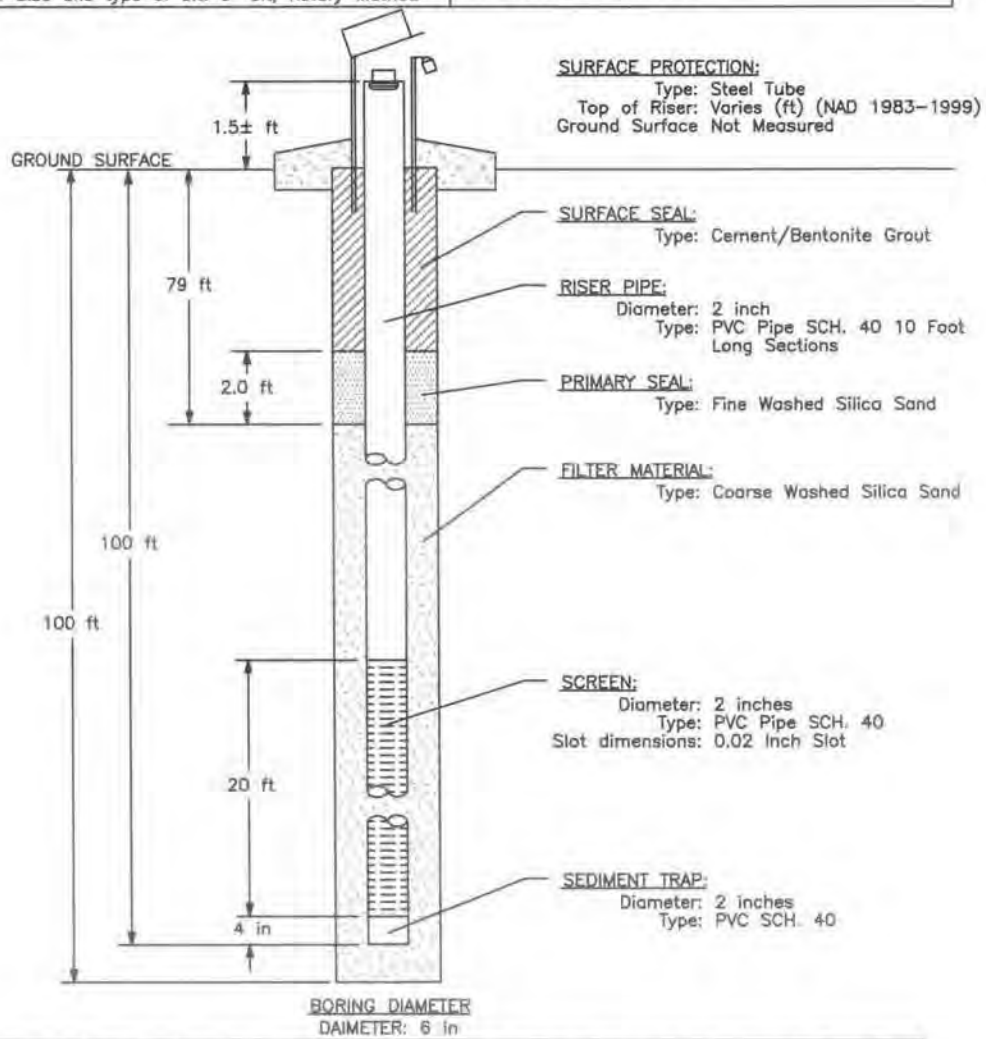


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer installation

Hole No. CP05-EAARS-TW-0245

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773743, E 761796		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0245		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.63
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

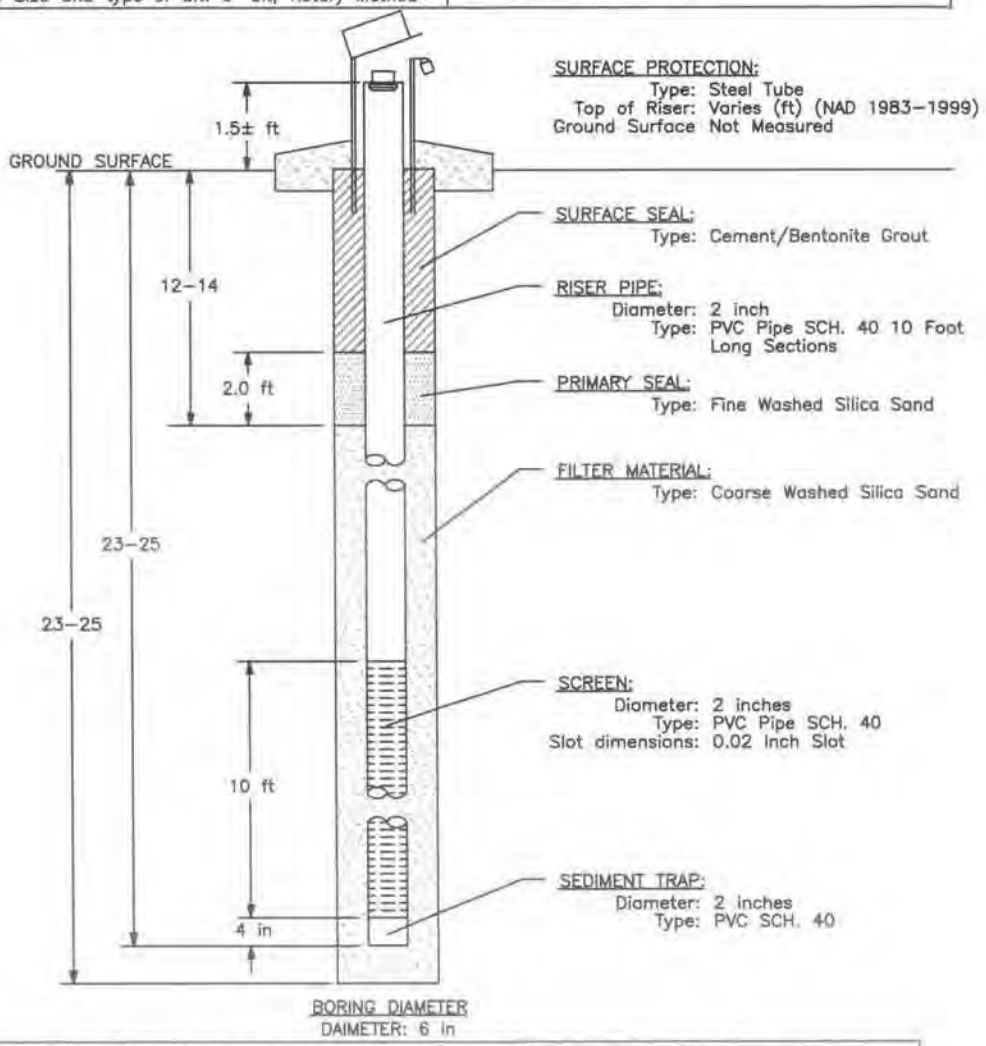


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No, CP05-EAARS-TW-0246

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773643, E 761776		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0246		11. Date Hole: Started 3-24-05 Completed 3-24-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.19
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

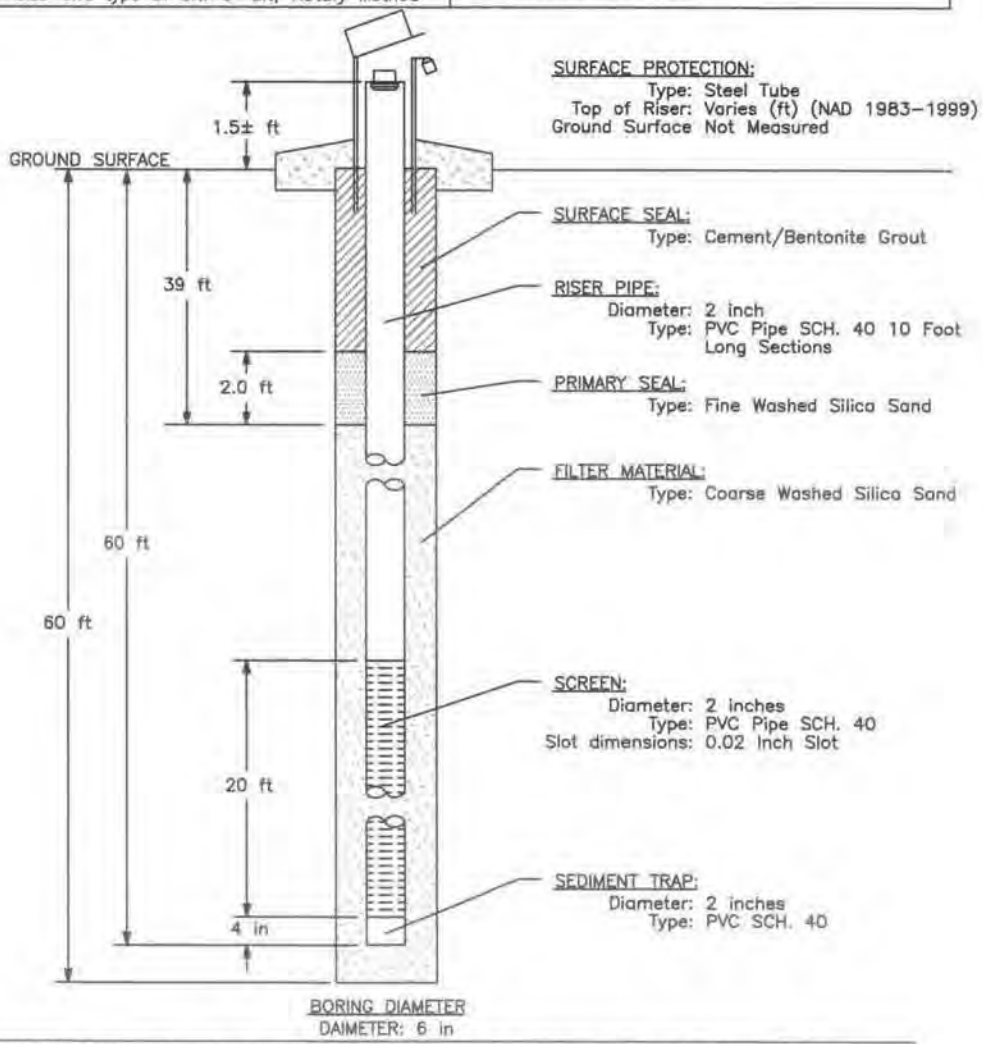


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0247

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773643, E 761786		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0247		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.02
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

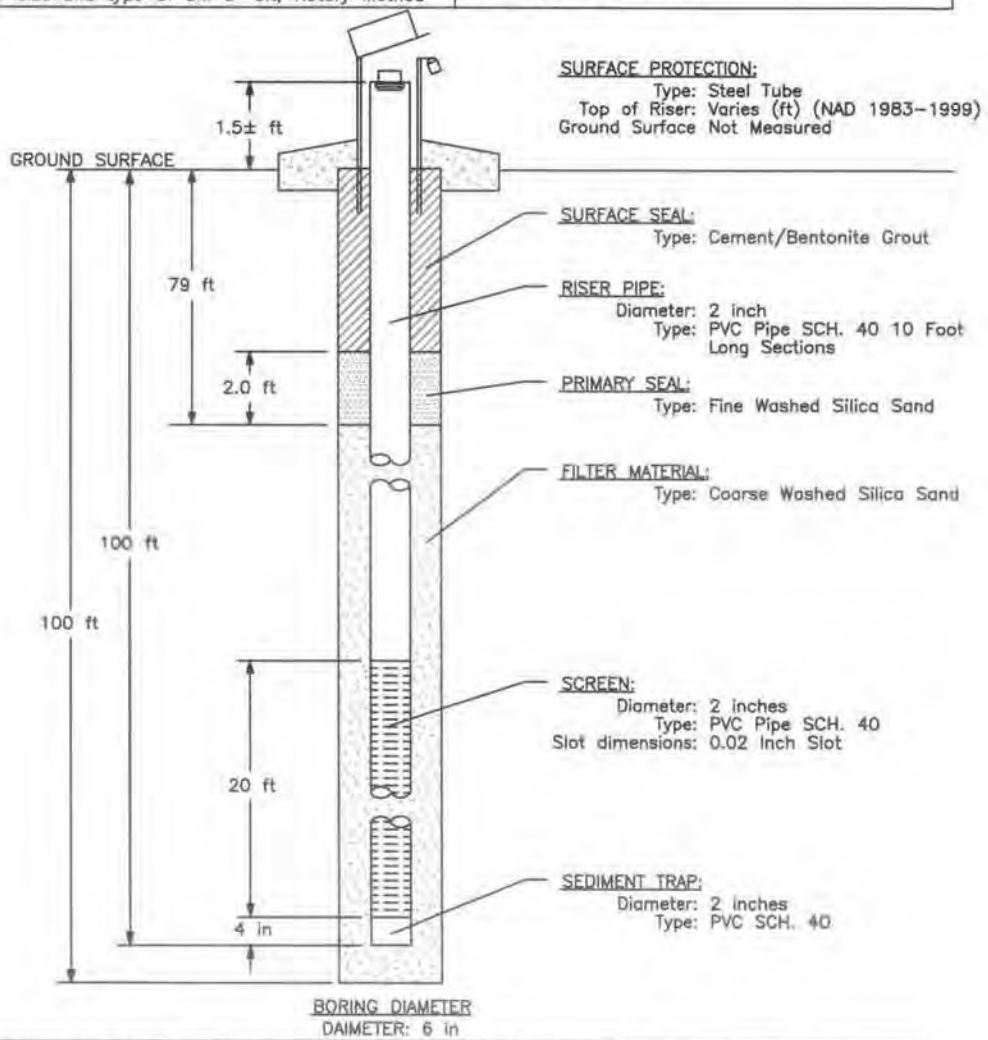


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0248

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 773643, E 761786		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0248		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 8.63
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

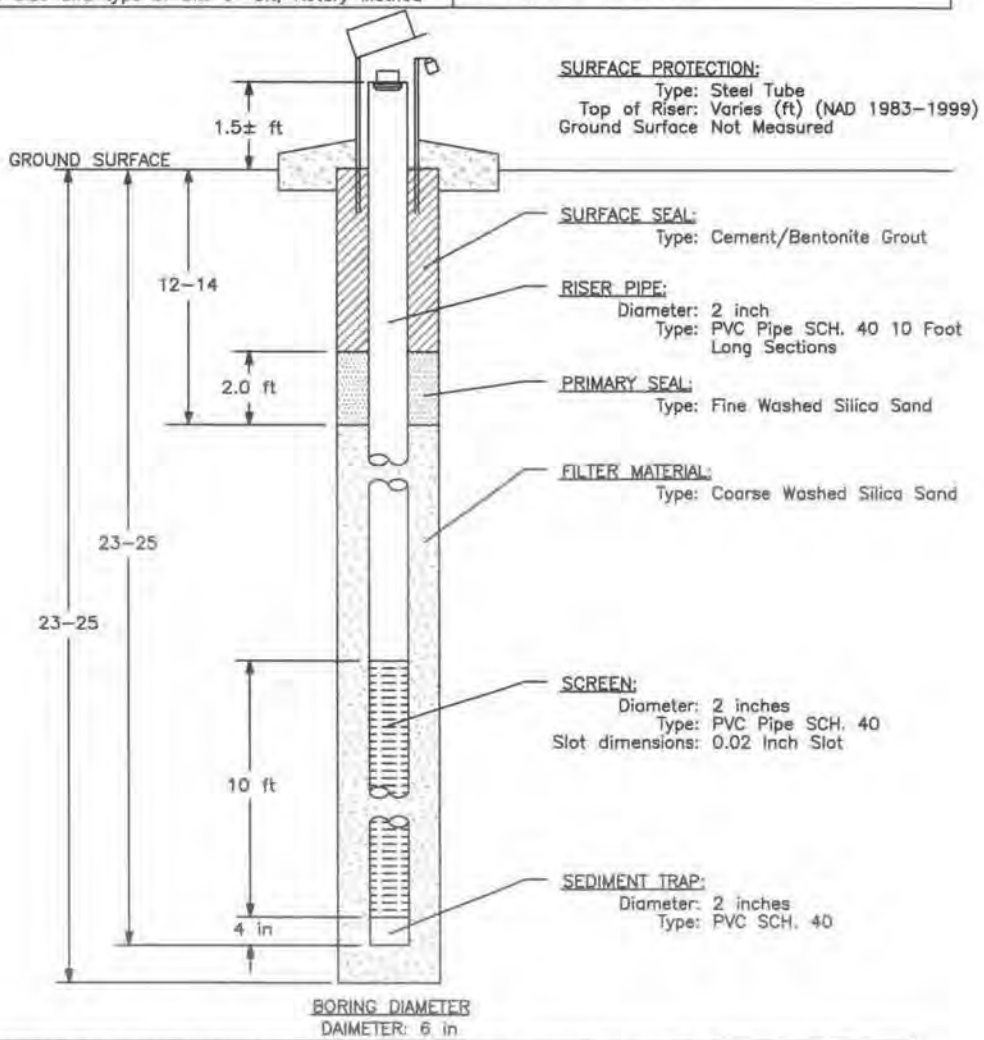


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0249

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774067, E 774825		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0249		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.81
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

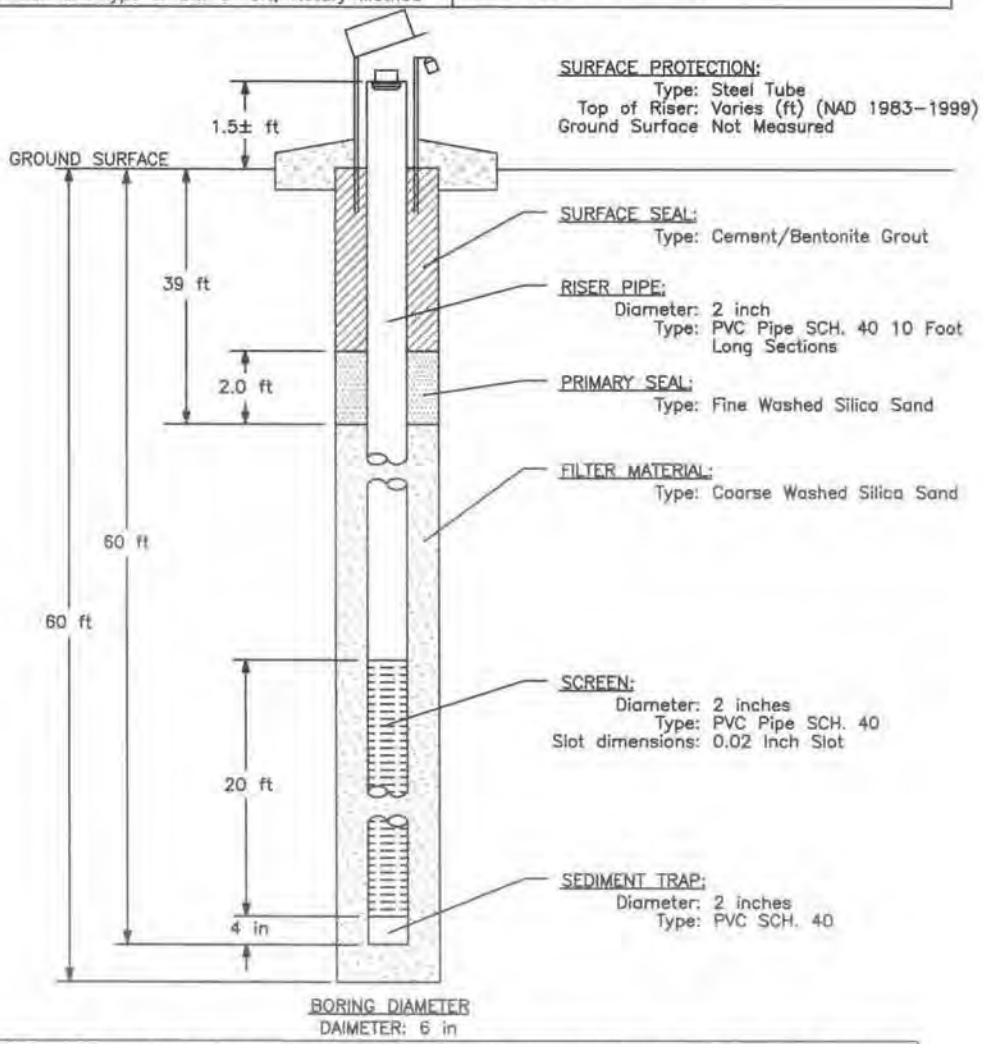


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0250

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774077, E 774825		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0250		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.60
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

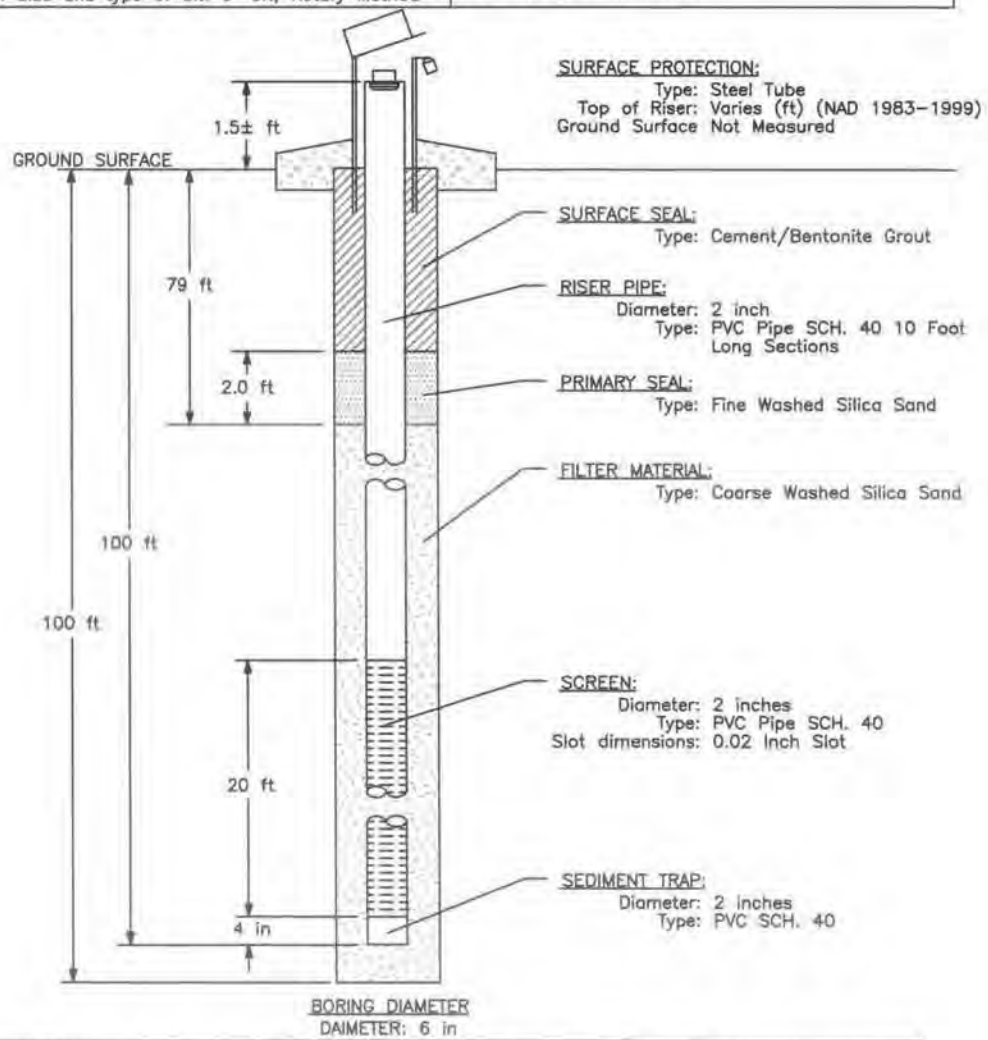


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05–EAARS–TW–0251

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774087, E 774825		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0251		11. Date Hole: Started 3–25–05 Completed 3–25–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.59
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

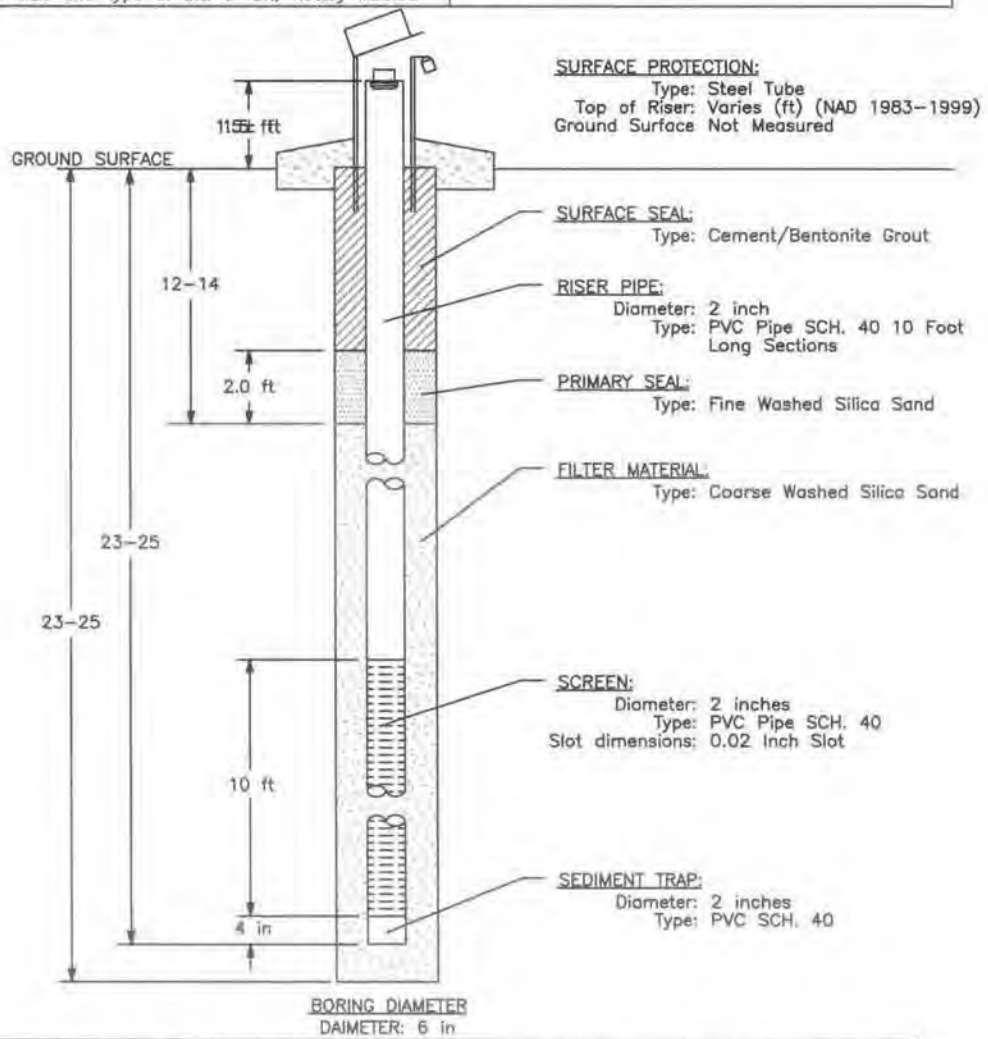


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0252

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774067, E 774725		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0252		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.35
6. Depth of Piezometer: 25 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

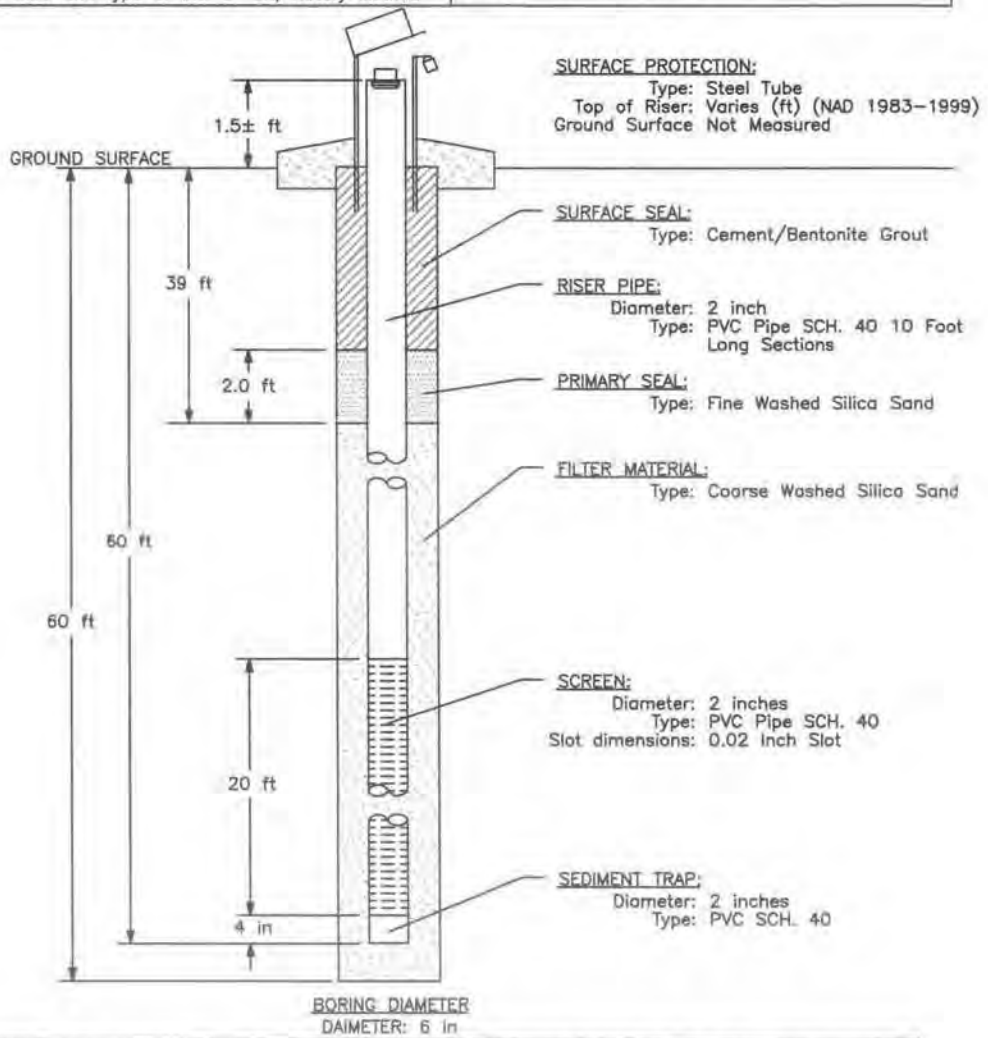


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

Hole No, CP05–EAARS–TW–0253

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A–1		8. Datum of Elevation Shown: NAD83
2. Location N 774077, E 774725		9. Manufacture's Designation for Drill: Diedrich D–50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05–EAARS–TW–0253		11. Date Hole: Started 3–25–05 Completed 3–25–05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.20
6. Depth of Piezometer: 60 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		

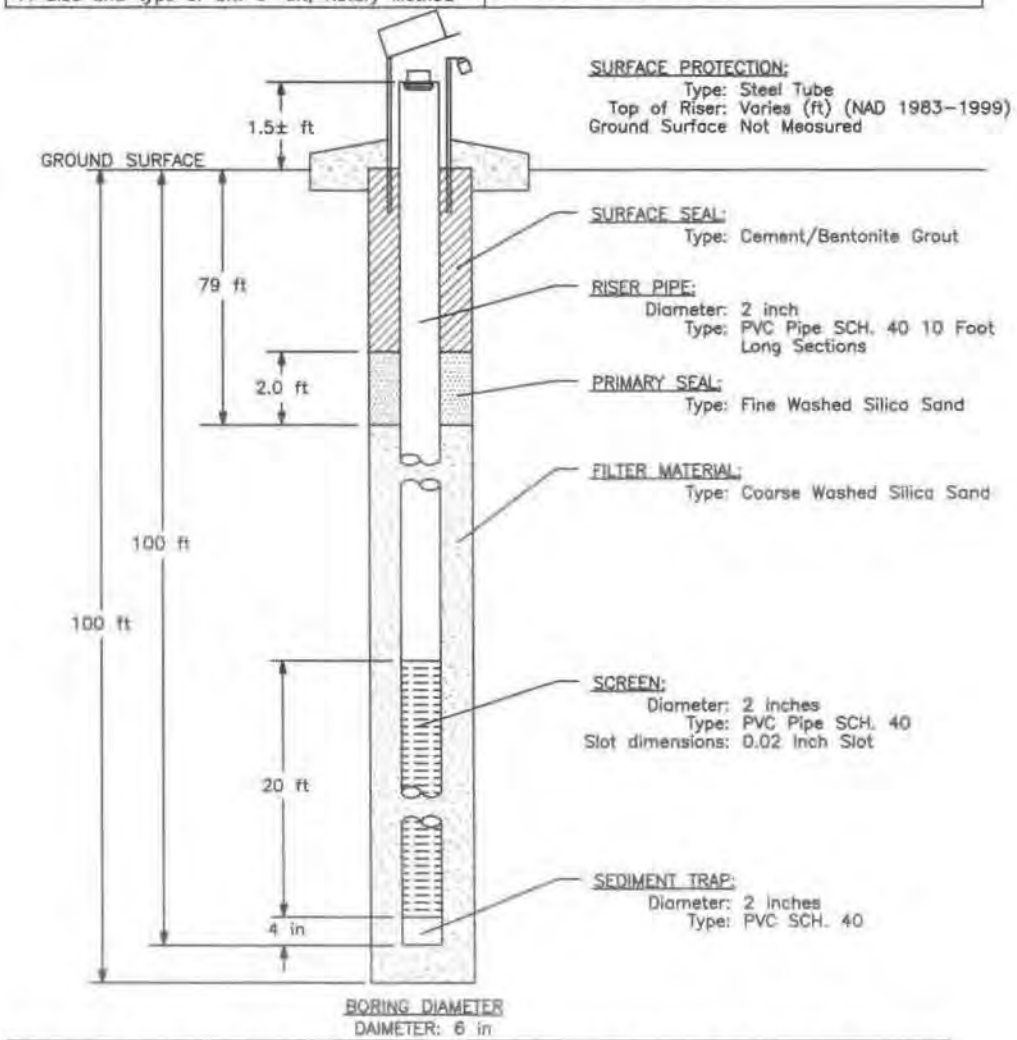


INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 60 foot Piezometer Installation

Hole No. CP05-EAARS-TW-0254

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 774087, E 774725		9. Manufacture's Designation for Drill: Diedrich D-50
3. Drilling Agency: Nodarse & Associates, Inc.		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0254		11. Date Hole: Started 3-25-05 Completed 3-25-05
5. Name of Driller: Nodarse & Associates, Inc.		12. Elevation Top of Riser: 9.45
6. Depth of Piezometer: 100 ft		13. Inspector: Norm Holst
7. Size and type of bit: 6" bit, Rotary Method		



INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 100 foot Piezometer Installation

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING ON NO 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Hole No. CP05-EAARS-CB-0255

DRILLING LOG	Division	Installation	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N781906.1, E758378.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0255		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 6/30/2005 Completed 6/30/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst and A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.7	0.0						
			PEAT			8.7	7
7.7	1.0				1	7.7 SPT. At least part of the calcitic material noted below is shell fragments	50
			LIMESTONE: tan to light brown, mostly fine grained with some shells, thinly bedded, hard, strong, vuggy	22 (RQD 16%)	1	HQ coring	
2.7	6.0					2.7	
			SAND: very pale brown, wet, medium dense, well graded, fine to medium grained, angular, calcitic, trace silt			2.2	2
					2	SPT	7
-0.3	9.0					-0.3	11
			Silty SAND: white, wet, loose, well graded, fine to coarse grained, angular, calcitic		3	SPT. SM: Silty sand with gravel. Moisture=33%	5
							4
							3
						-4.8	
			Silty SAND: as above but medium dense		4	SPT. SM: Silty sand with gravel. Moisture=27%	4
							7
							6

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0255

Hole No. CP05-EAARS-CB-0255

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 8.7 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

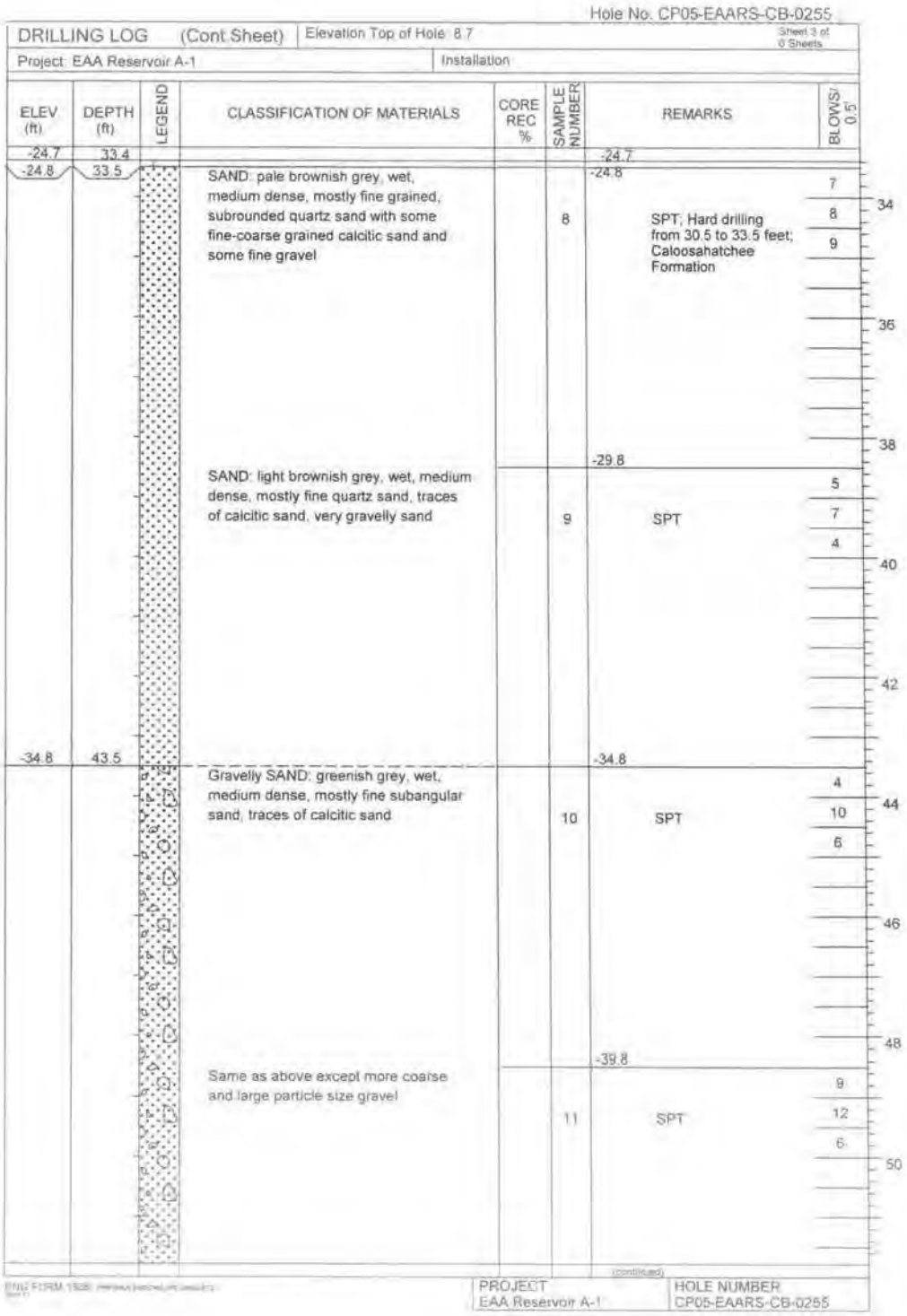
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.3	15.0					-6.3	
-9.8	18.5		SAND: very pale brownish grey, wet, dense, well graded, fine to coarse grained, angular, calcitic, some silt, trace fine gravel		5	-9.8 SPT; SW-SM; Well graded sand with silt and gravel; Moisture=19%	17 23 10
			SAND: as above but medium dense		6	-14.8 SPT	9 13 10
-18.3	27.0		Only one limestone chip recovered, hard, grey, shelly		7	-19.8 SPT; Hard drilling from 27 to 30 feet; spoon bouncing	50/1"

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0255



Hole No. CP05-EAARS-CB-0255

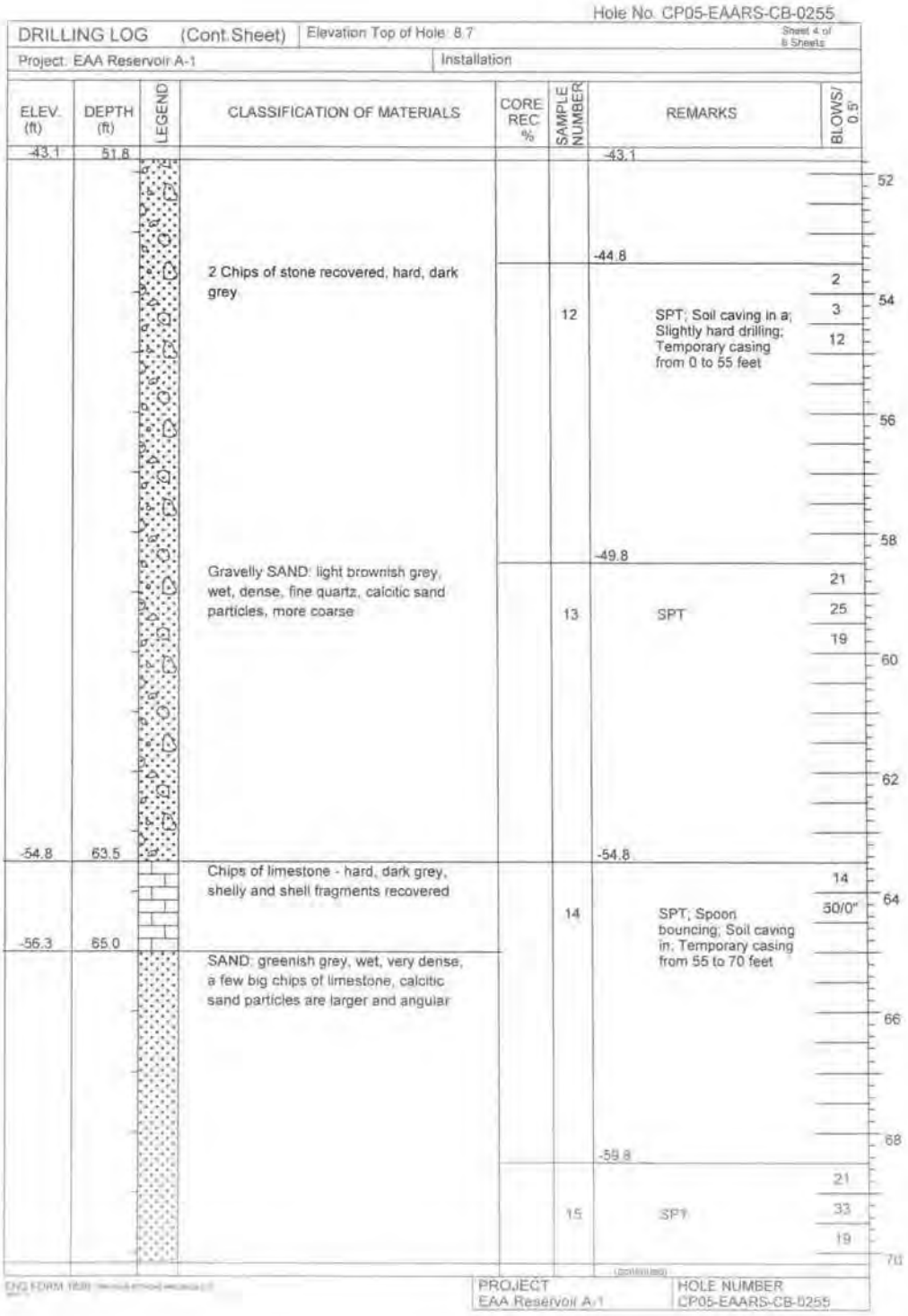
DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 8.7 | Sheet 3 of 0 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-24.7	33.4					-24.7	
-24.8	33.5		SAND: pale brownish grey, wet, medium dense, mostly fine grained, subrounded quartz sand with some fine-coarse grained calcitic sand and some fine gravel		8	-24.8 SPT; Hard drilling from 30.5 to 33.5 feet; Caloosahatchee Formation	7 8 9 34 36 38
			SAND: light brownish grey, wet, medium dense, mostly fine quartz sand, traces of calcitic sand, very gravelly sand		9	-29.8 SPT	5 7 4 40 42
-34.8	43.5		Gravelly SAND: greenish grey, wet, medium dense, mostly fine subangular sand, traces of calcitic sand		10	-34.8 SPT	4 10 6 44 46
			Same as above except more coarse and large particle size gravel		11	-39.8 SPT	9 12 6 48 50

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0255



Hole No. CP05-EAARS-CB-0255

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 4 of 8 Sheets

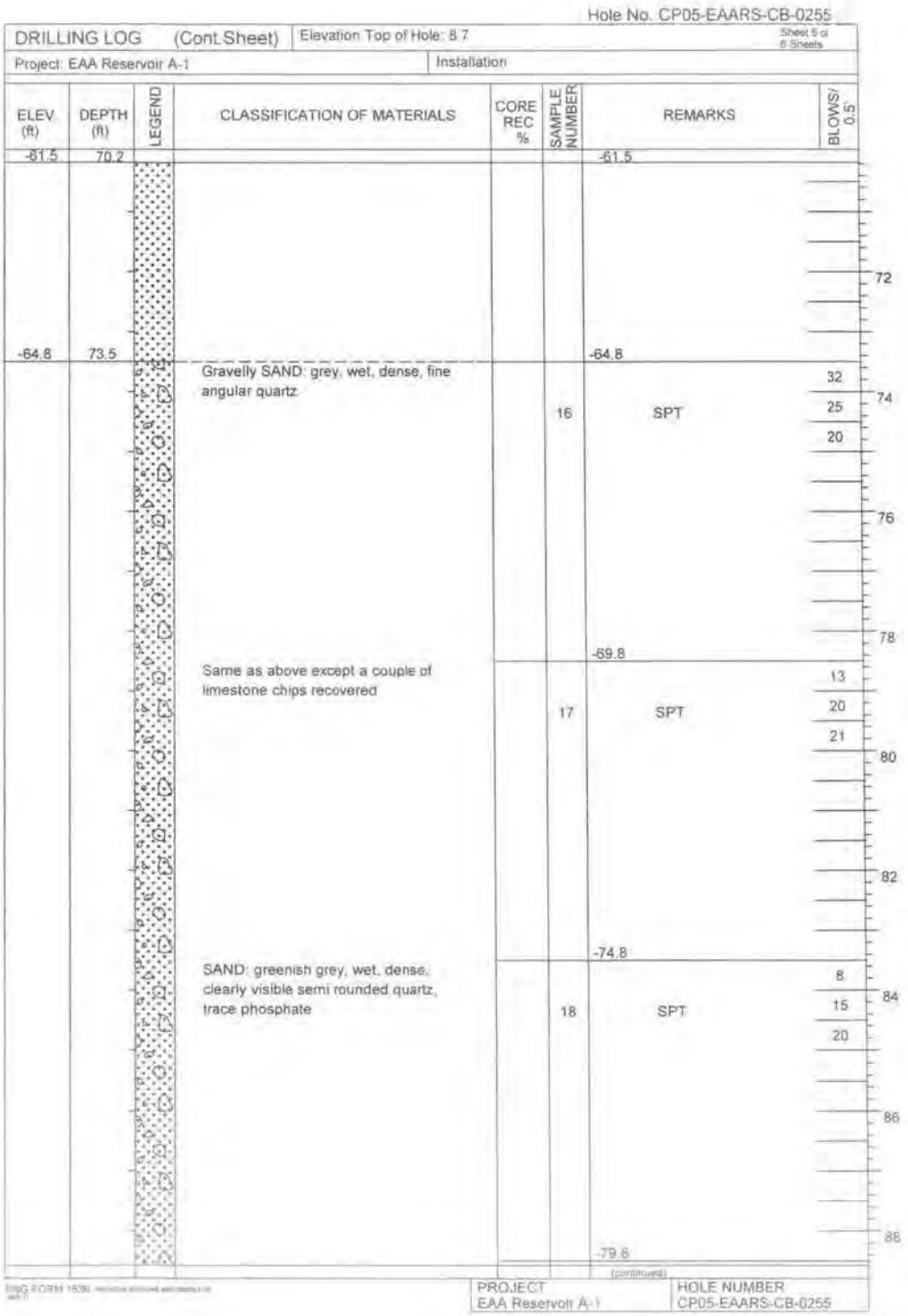
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-43.1	51.8					-43.1	
			2 Chips of stone recovered, hard, dark grey			-44.8	
					12	SPT; Soil caving in a; Slightly hard drilling; Temporary casing from 0 to 55 feet	2, 3, 12
			Gravelly SAND: light brownish grey, wet, dense, fine quartz, calcitic sand particles, more coarse			-49.8	
					13	SPT	21, 25, 19
-54.8	63.5					-54.8	
			Chips of limestone - hard, dark grey, shelly and shell fragments recovered				
					14	SPT; Spoon bouncing; Soil caving in; Temporary casing from 55 to 70 feet	14, 50/0"
-56.3	65.0		SAND: greenish grey, wet, very dense, a few big chips of limestone, calcitic sand particles are larger and angular				
						-59.8	
					15	SPT	21, 33, 19

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0255



Hole No. CP05-EAARS-CB-0255

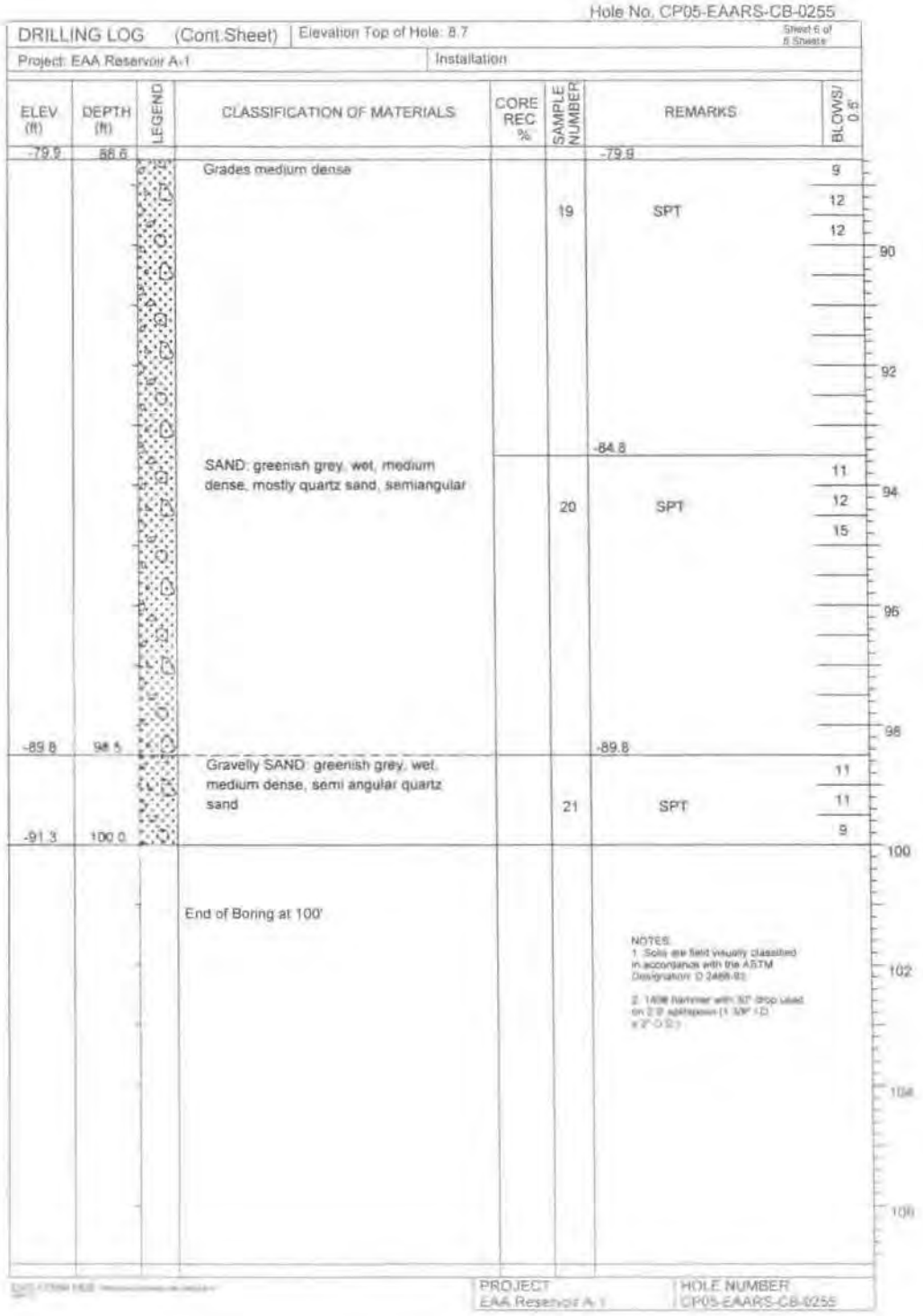
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-61.5	70.2					-61.5	
-64.8	73.5		Gravelly SAND: grey, wet, dense, fine angular quartz		16	SPT	32 25 20
			Same as above except a couple of limestone chips recovered		17	-69.8 SPT	13 20 21
			SAND: greenish grey, wet, dense, clearly visible semi rounded quartz, trace phosphate		18	-74.8 SPT	8 15 20
						-79.8	

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0255



Hole No. CP05-EAARS-CB-0255

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 6 of 8 Sheets

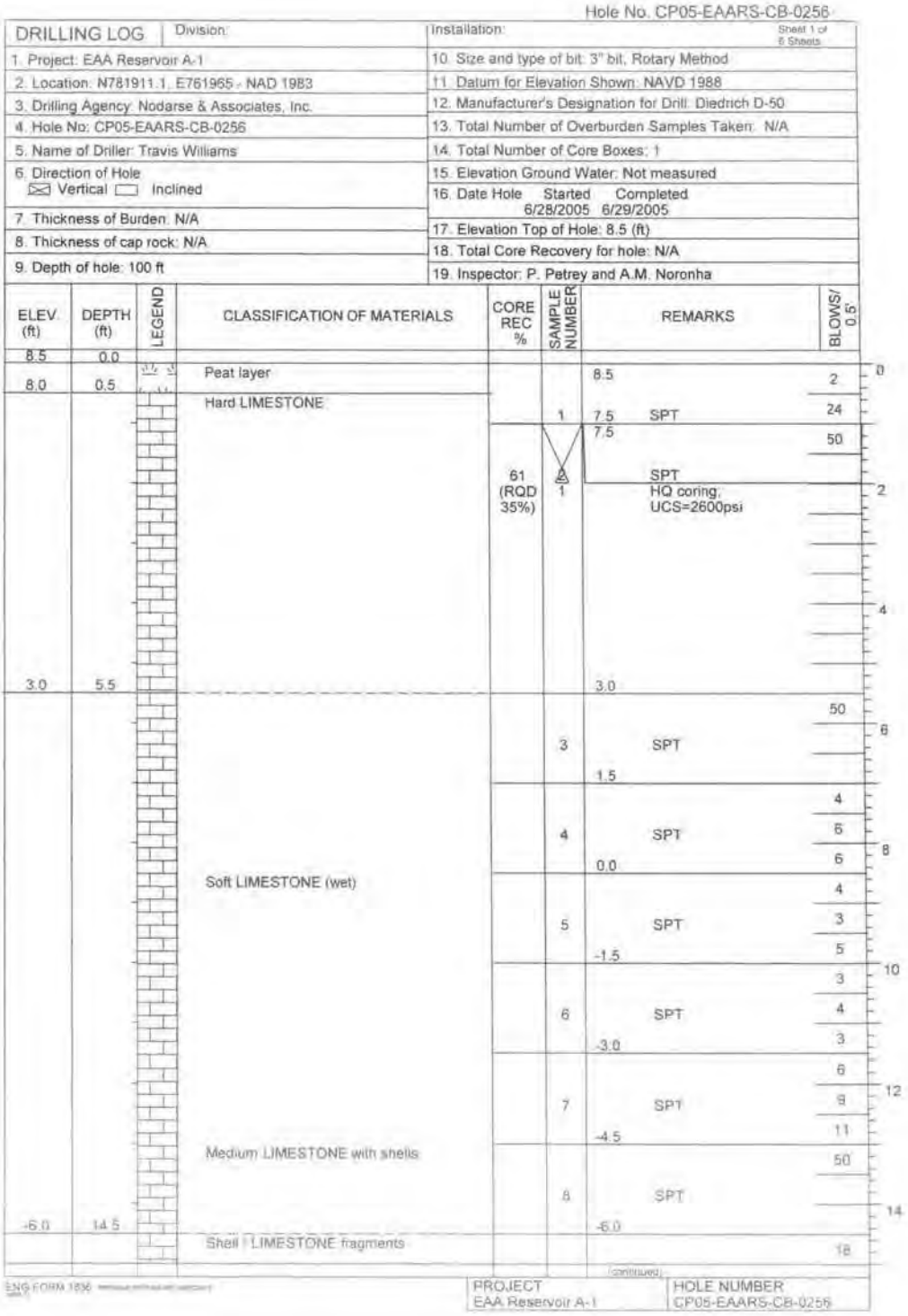
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-79.9	88.6					-79.9	
			Grades medium dense		19	SPT	9 12 12
						-84.8	
			SAND: greenish grey, wet, medium dense, mostly quartz sand, semiangular		20	SPT	11 12 15
-89.8	98.5					-89.8	
			Gravelly SAND: greenish grey, wet, medium dense, semi angular quartz sand		21	SPT	11 11 9
-91.3	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" split spoon (1 3/8" I.D. x 2" O.D.).

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0255



Hole No. CP05-EAARS-CB-0256

DRILLING LOG | Division: | Installation: | Sheet 1 of 6 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N781911.1, E761965 , NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0256	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Travis Williams	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 6/28/2005 Completed 6/29/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 100 ft	19. Inspector: P. Petrey and A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER		REMARKS	BLOWS/ 0.5'
8.5	0.0							
8.0	0.5		Peat layer			8.5		2
			Hard LIMESTONE		1	7.5	SPT	24
						7.5		50
				61 (RQD 35%)	1		SPT HQ coring, UCS=2600psi	
3.0	5.5					3.0		
					3	1.5	SPT	50
					4	0.0	SPT	4 6 6
			Soft LIMESTONE (wet)		5	-1.5	SPT	4 3 5
					6	-3.0	SPT	3 4 3
					7	-4.5	SPT	6 9 11
			Medium LIMESTONE with shells		8	-6.0	SPT	50
-6.0	14.5		Shell LIMESTONE fragments					18

(continued)

ENG FORM 1836 | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0256

Hole No. CP05-EAARS-CB-0256

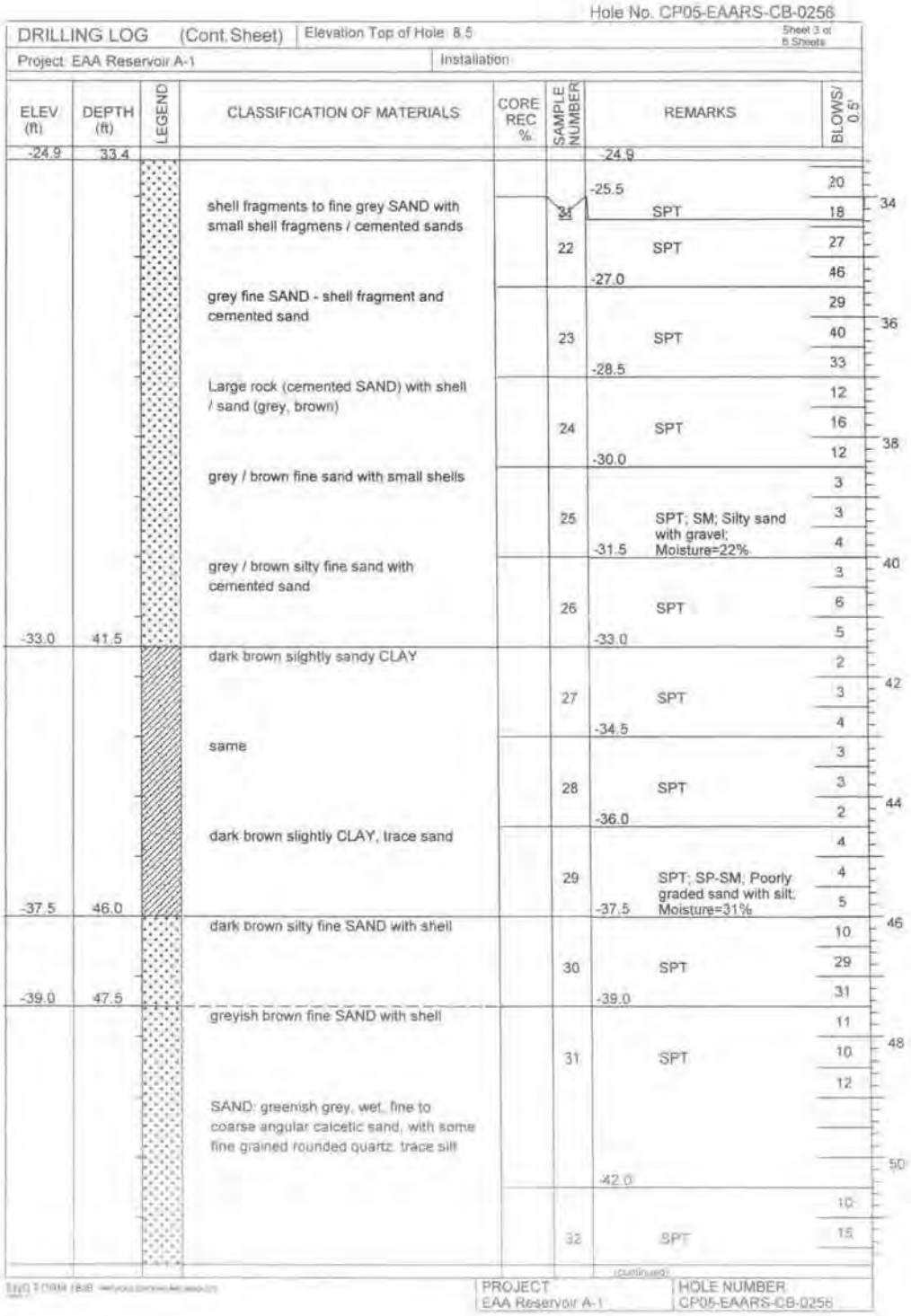
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'	
-6.5	15.0					-6.5		
			Grey fine SAND with silt / shell		9	-7.5 SPT; GP-GM; Poorly graded gravel with silt+sand; Moisture=26%	11 8 4	16
					10	SPT -9.0	5 4	
			Grey fine SAND with cemented sand and silt		11	SPT -10.5	22 50	18
			Grey fine SAND with large shell fragments		12	SPT -12.0	33 32 28	20
			Grey coarse SAND with cemented sand, shell		13	-13.0 SPT; cemented sand	9 9	
			Grey fine SAND with fine shell fragments		14	-13.5 SM; Silty sand with gravel; Moisture=21% SPT -15.0	11 27 20 31	22
			Brown grey SAND with cemented sand		15	-16.5 SPT; SM; Silty sand with gravel; Moisture=29%	17 21 10	24
-16.5	25.0		Grey fine SAND, silt, shell		16	SPT -18.0	5 7 9	26
-18.0	26.5		Grey fine SAND with cemented sand with shell fragments		17	SPT -19.5	34 15 12	
-19.5	28.0		Color change Grey / brown fine SAND, cemented sand		18	SPT -21.0	4 50	28
			Grey / brown SAND, cemented sand, shell fragments		19	SPT; hard fragments -22.5	50	30
			shells, cemented SAND		20	SPT -24.0	50	32
			same shell / cement SAND fragments				23 29	

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0256



Hole No. CP05-EAARS-CB-0256

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'	
-24.9	33.4					-24.9		
			shell fragments to fine grey SAND with small shell fragmens / cemented sands		21	-25.5 SPT	20 18	34
					22	SPT	27 46	
			grey fine SAND - shell fragment and cemented sand		23	-27.0 SPT	29 40 33	36
			Large rock (cemented SAND) with shell / sand (grey, brown)		24	-28.5 SPT	12 16 12	38
			grey / brown fine sand with small shells		25	-30.0 SPT; SM; Silty sand with gravel; Moisture=22%	3 3 4	
			grey / brown silty fine sand with cemented sand		26	-31.5 SPT	3 6 5	40
-33.0	41.5		dark brown silghtly sandy CLAY		27	-33.0 SPT	2 3 4	42
			same		28	-34.5 SPT	3 3 2	44
			dark brown slightly CLAY, trace sand		29	-36.0 SPT; SP-SM; Poorly graded sand with silt; Moisture=31%	4 4 5	
-37.5	46.0		dark brown silty fine SAND with shell		30	-37.5 SPT	10 29 31	46
-39.0	47.5		greyish brown fine SAND with shell		31	-39.0 SPT	11 10 12	48
			SAND: greenish grey, wet, fine to coarse angular calcetic sand, with some fine grained rounded quartz, trace silt			-42.0		50
					32	SPT	10 15	

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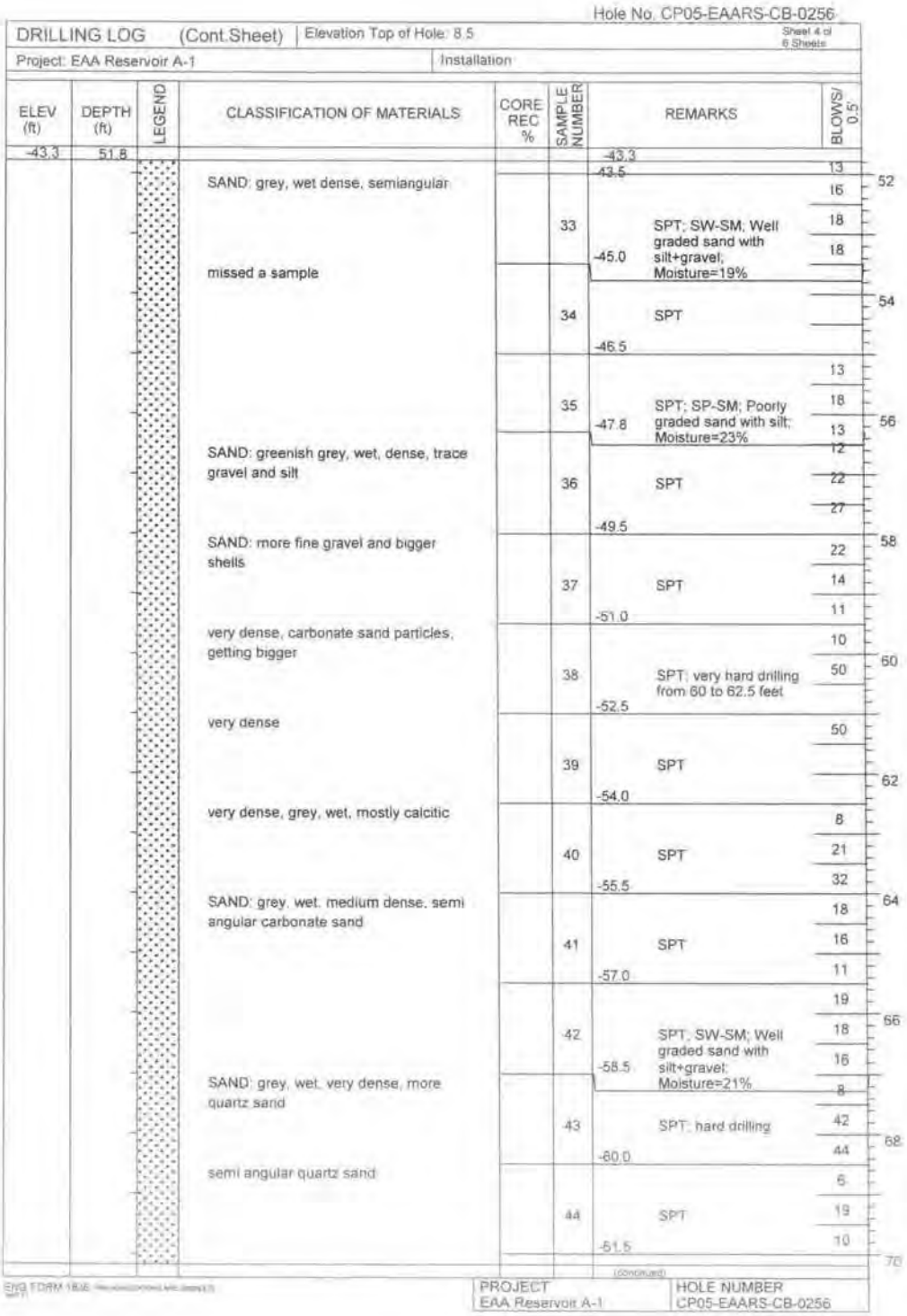
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0256



Hole No. CP05-EAARS-CB-0256

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-43.3	51.8					-43.3	
			SAND: grey, wet dense, semiangular			-43.5	13 16 18 18
					33	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=19%	
			missed a sample			-45.0	
					34	SPT	
						-46.5	
					35	SPT; SP-SM; Poorly graded sand with silt; Moisture=23%	13 18 13 12
			SAND: greenish grey, wet, dense, trace gravel and silt			-47.8	
					36	SPT	22 27
						-49.5	
			SAND: more fine gravel and bigger shells				22
					37	SPT	14 11
						-51.0	
			very dense, carbonate sand particles, getting bigger				10
					38	SPT; very hard drilling from 60 to 62.5 feet	50
						-52.5	
			very dense				50
					39	SPT	
						-54.0	
			very dense, grey, wet, mostly calcitic				8
					40	SPT	21 32
						-55.5	
			SAND: grey, wet, medium dense, semi angular carbonate sand				18
					41	SPT	16 11
						-57.0	
							19
					42	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=21%	18 16
						-58.5	
			SAND: grey, wet, very dense, more quartz sand				8
					43	SPT; hard drilling	42 44
						-60.0	
			semi angular quartz sand				6
					44	SPT	19 10
						-51.5	

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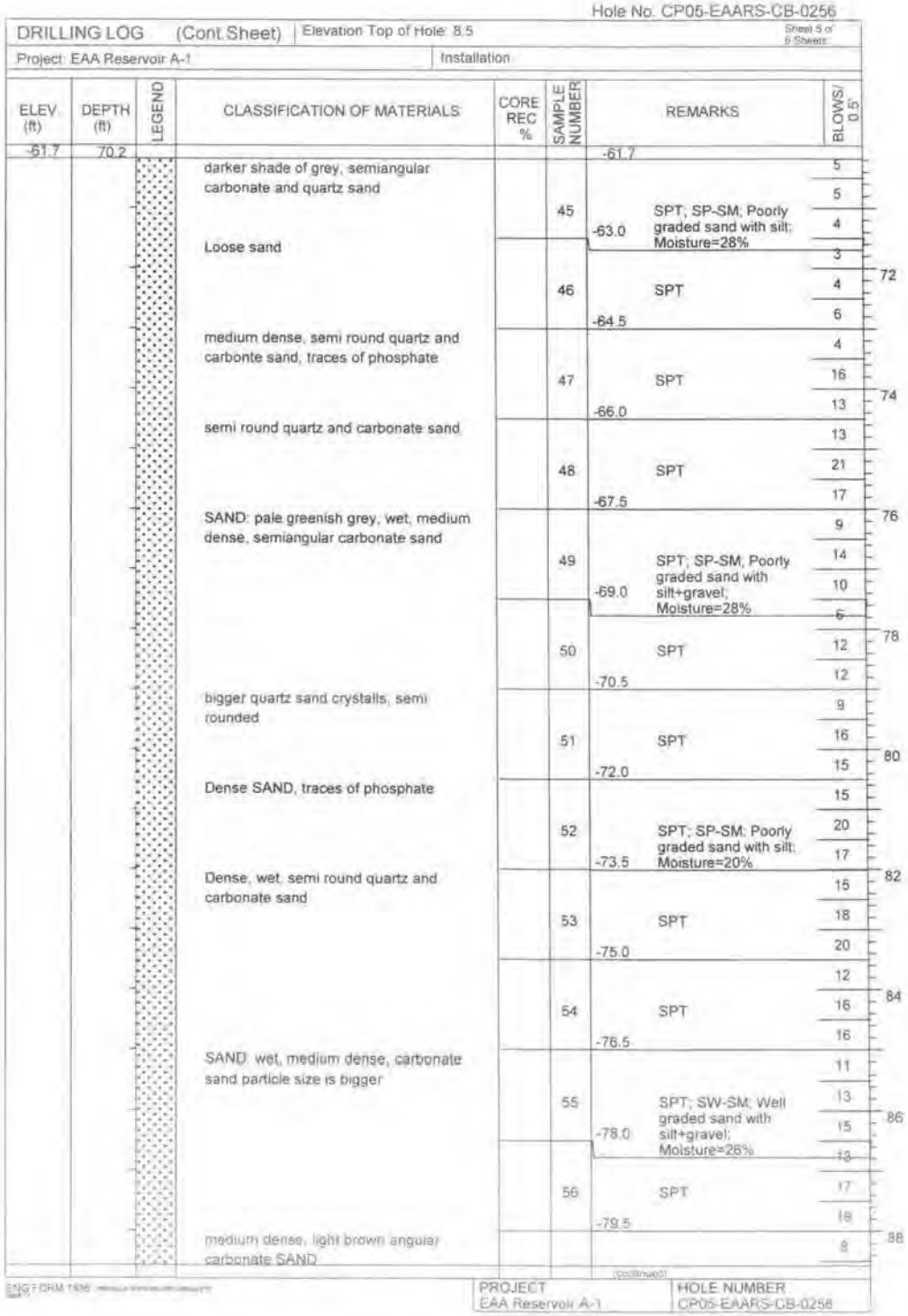
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0256



Hole No. CP05-EAARS-CB-0256

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'	
-61.7	70.2					-61.7		
			darker shade of grey, semiangular carbonate and quartz sand		45	SPT; SP-SM; Poorly graded sand with silt; Moisture=28%	5 5 4	
			Loose sand			-63.0	3	
					46	SPT	4 6	72
			medium dense, semi round quartz and carbonte sand, traces of phosphate			-64.5	4	
					47	SPT	16 13	74
			semi round quartz and carbonate sand			-66.0	13	
					48	SPT	21 17	
			SAND: pale greenish grey, wet, medium dense, semiangular carbonate sand			-67.5	9	76
					49	SPT; SP-SM; Poorly graded sand with silt+gravel; Moisture=28%	14 10	
						-69.0	6	
					50	SPT	12 12	78
			bigger quartz sand crystalls, semi rounded			-70.5	9	
					51	SPT	16 15	80
			Dense SAND, traces of phosphate			-72.0	15	
					52	SPT; SP-SM; Poorly graded sand with silt; Moisture=20%	20 17	
			Dense, wet, semi round quartz and carbonate sand			-73.5	15	82
					53	SPT	18 20	
						-75.0	12	
					54	SPT	16 16	84
			SAND wet, medium dense, carbonate sand particle size is bigger			-76.5	11	
					55	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=26%	13 15	86
						-78.0	13	
					56	SPT	17 18	
			medium dense, light brown angular carbonate SAND			-79.5	8	88

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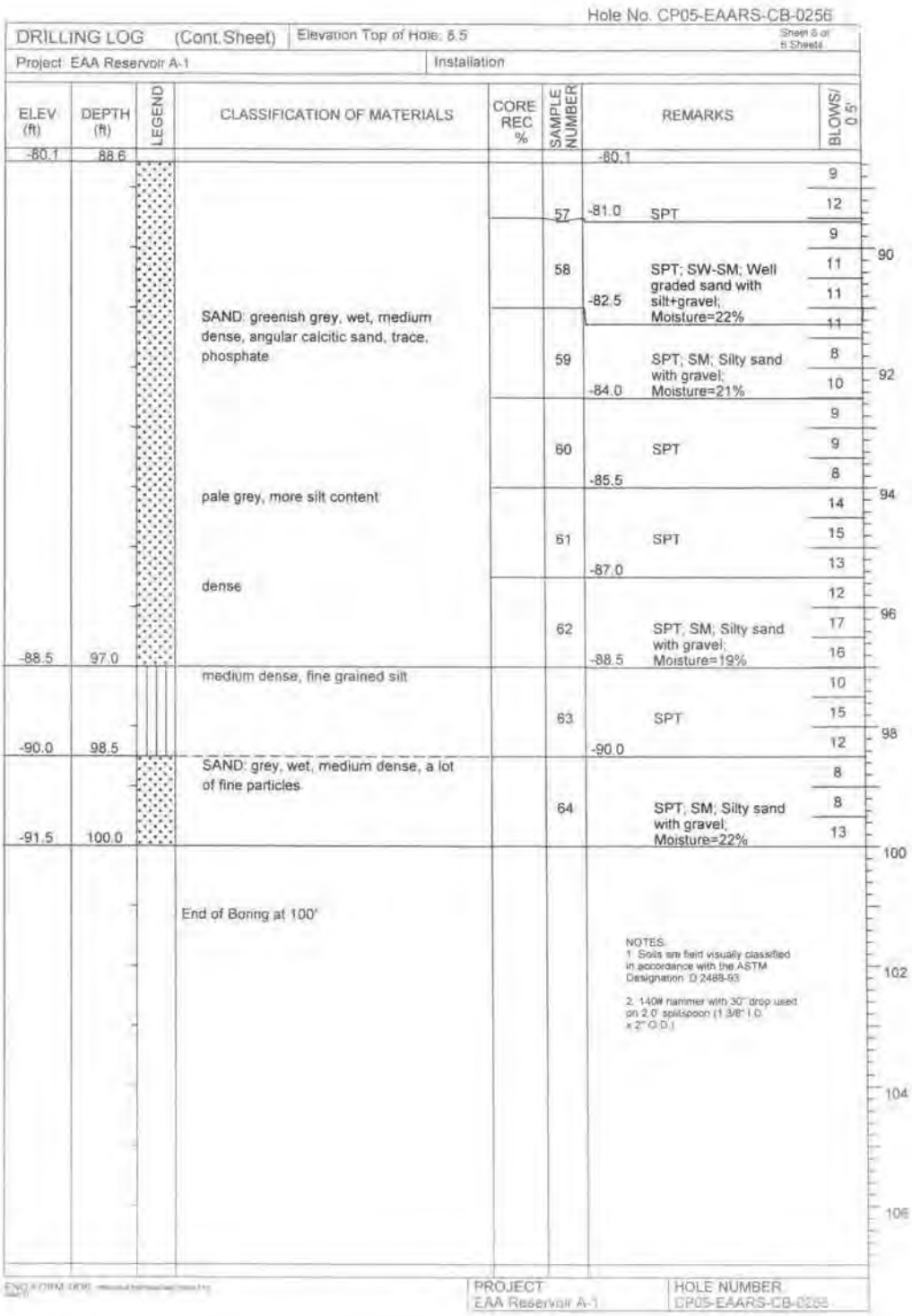
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0256



Hole No. CP05-EAARS-CB-0256

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-80.1	88.6					-80.1	
					57	-81.0 SPT	9, 12
					58	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=22%	9, 11, 11
			SAND: greenish grey, wet, medium dense, angular calcitic sand, trace, phosphate			-82.5	11
					59	SPT; SM; Silty sand with gravel; Moisture=21%	8, 10
						-84.0	
					60	SPT	9, 9, 8
			pale grey, more silt content			-85.5	
					61	SPT	14, 15, 13
			dense			-87.0	
					62	SPT; SM; Silty sand with gravel; Moisture=19%	12, 17, 16
-88.5	97.0					-88.5	
			medium dense, fine grained silt		63	SPT	10, 15, 12
-90.0	98.5					-90.0	
			SAND: grey, wet, medium dense, a lot of fine particles		64	SPT; SM; Silty sand with gravel; Moisture=22%	8, 8, 13
-91.5	100.0						
			End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

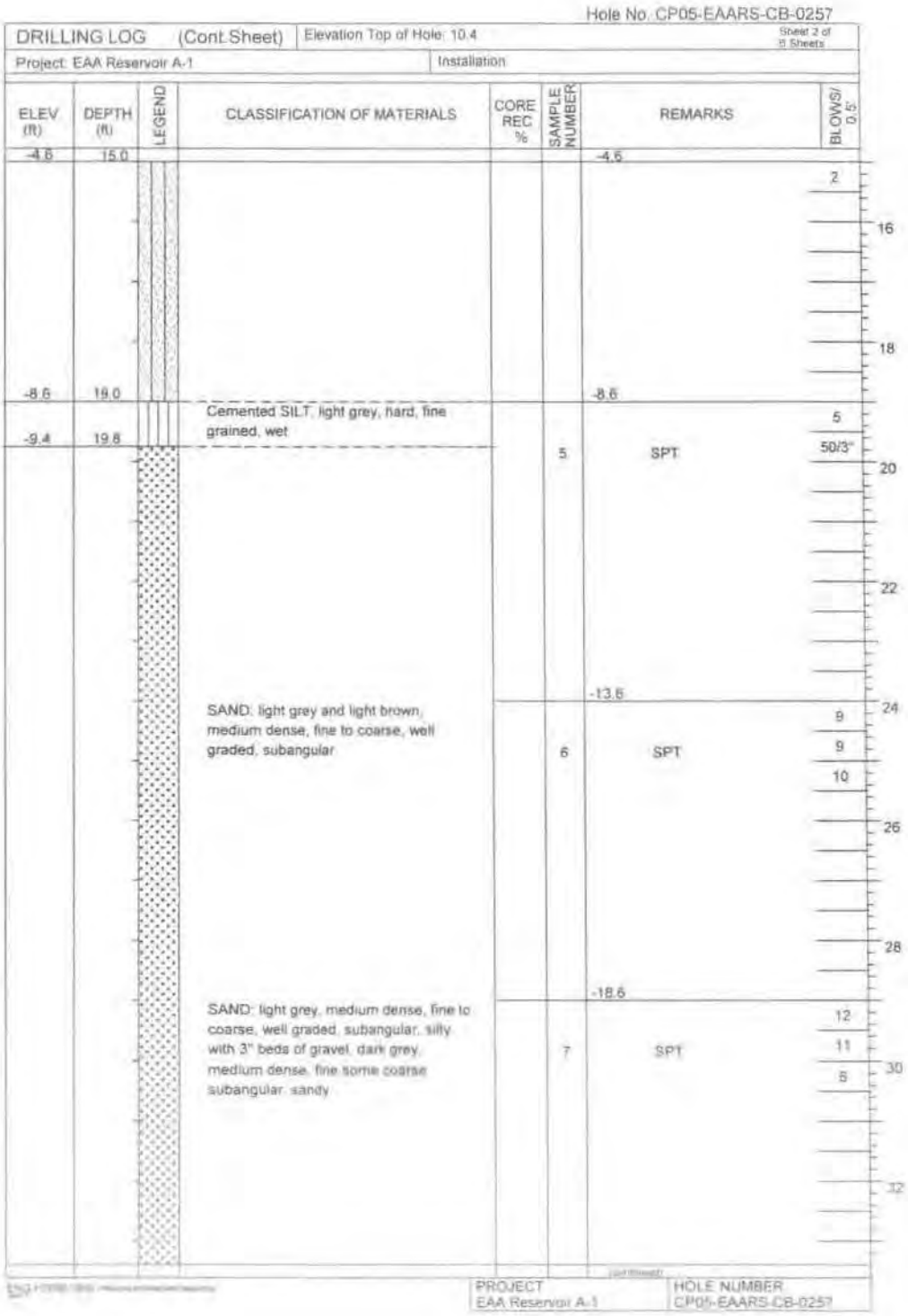
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0256

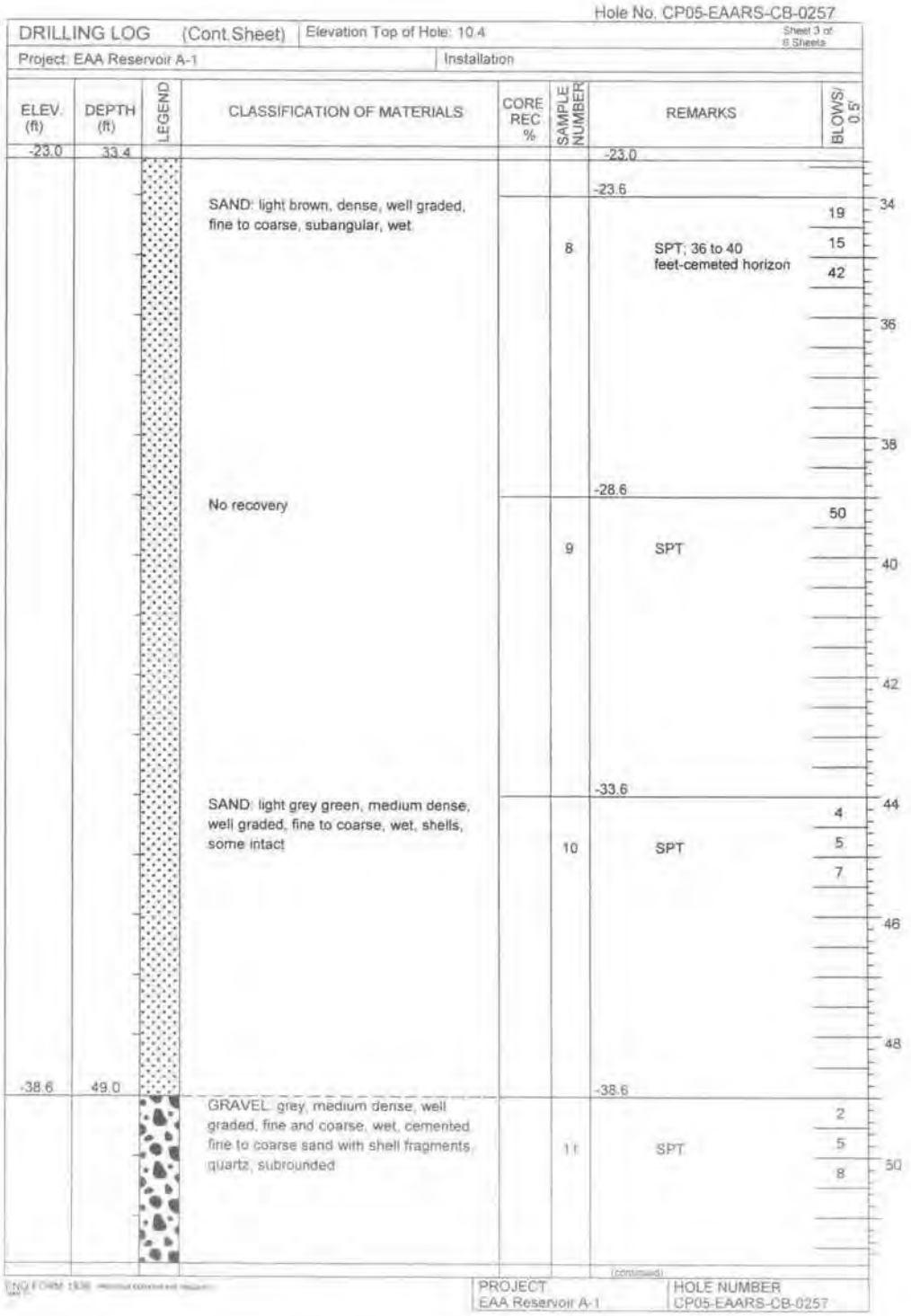
Hole No. CP05-EAARS-CB-0257

DRILLING LOG	Division	Installation	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N783712.2, E767710.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0257		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/14/2005 Completed 7/18/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.4 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: J. Petrie	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.4	0.0						
10.2	0.2		Asphalt with sub base beneath, comprising sandy GRAVEL, light grey to creamy white, very dense, fine gravel occasional, dry, subangular			9.9	
			Gravelly SAND, light grey, dense, well graded, fine to coarse, subangular, dry, trace of shell frequently		1	SPT	15 31 26
8.4	2.0		SAND, light grey and black, medium dense, fine to medium, well graded, some subangular to subrounded fine gravel, dry, calcareous, trace medium quartz sand		2	8.4 SPT	11 19 17
6.4	4.0		GRAVEL, light creamy grey, hard, angular, flakes of limestone			6.4	9
5.7	4.8		Light creamy grey, medium bedded, moderately strong to strong, fine grained occasionally shelly LIMESTONE with some voids		3	5.7 SPT	50/3"
			Yellowish greenish grey, thinly bedded, moderately strong, fine grained, shelly LIMESTONE and SILTSTONE interbedded, shells included, silty partings	76 (RQD 48%)	1	HQ coring, UCS=1250psi	
			Light grey moderately strong becoming weak at depth, medium bedded, fine grained, shelly LIMESTONE with vugs/voids, silty partings			0.7	
			Light creamy grey, medium bedded, moderately strong to strong, fine grained, occasionally shelly LIMESTONE, bottom 0.5 ft with some voids/vugs and becoming weaker	100 (RQD 92%)	2	HQ coring	
-1.4	11.8		Silty SAND, light grey, loose, well graded, fine to coarse, subangular, wet			-1.4	
						-3.6	
					4	SPT	3 3

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0257


Hole No. CP05-EAARS-CB-0257
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.4
Sheet 2 of 5 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-4.6
15.0
-8.6
19.0
Cemented SILT, light grey, hard, fine grained, wet
-9.4
19.8
5
SPT
2
16
18
5
50/3"
20
22
-13.6
SAND: light grey and light brown, medium dense, fine to coarse, well graded, subangular
6
SPT
9
9
10
24
26
28
-18.6
SAND: light grey, medium dense, fine to coarse, well graded, subangular, silty with 3" beds of gravel, dark grey, medium dense, fine some coarse subangular, sandy
7
SPT
12
11
8
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0257



Hole No. CP05-EAARS-CB-0257

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.4 | Sheet 3 of 6 Sheets

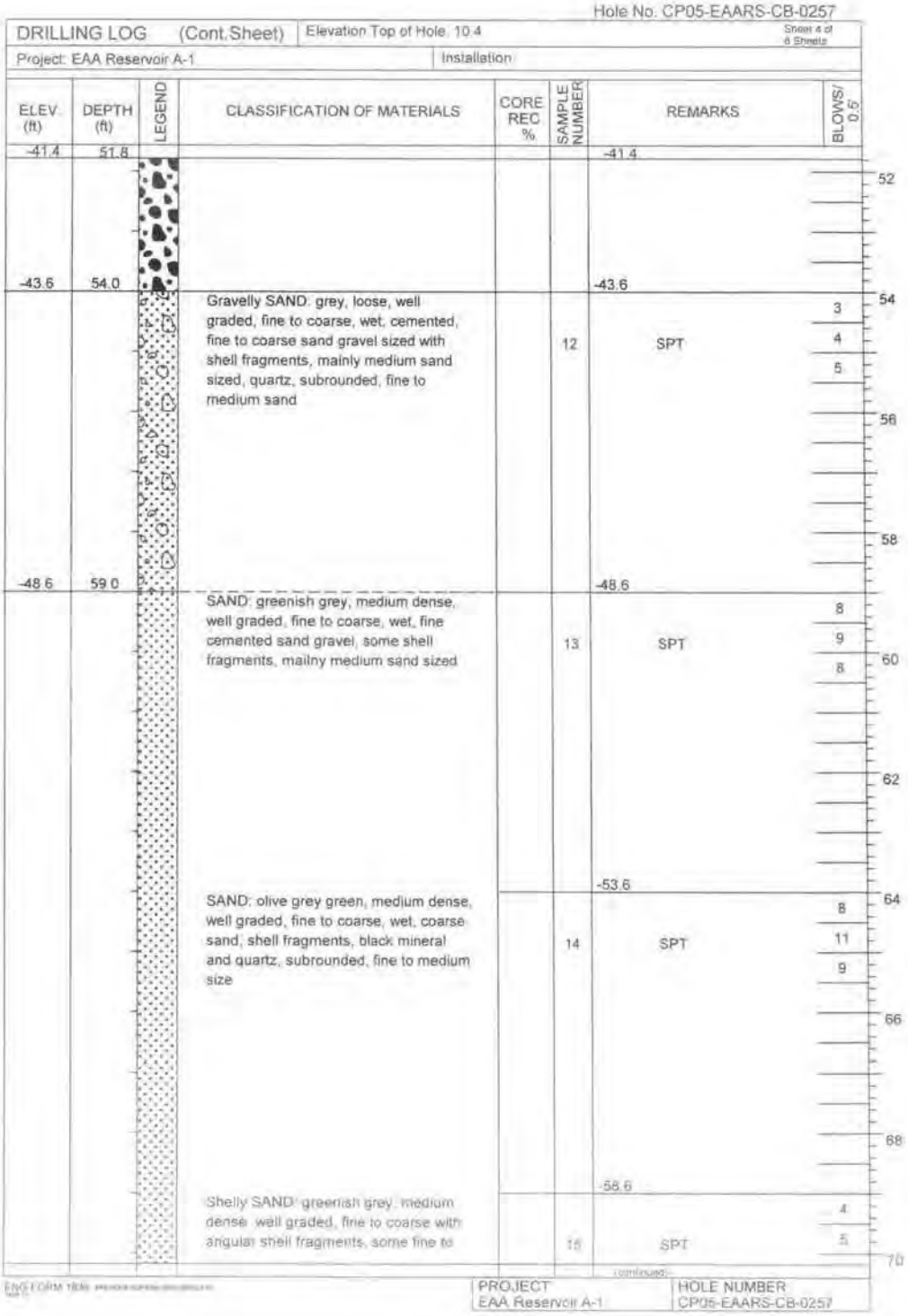
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.0	33.4					-23.0	
						-23.6	
			SAND: light brown, dense, well graded, fine to coarse, subangular, wet		8	SPT; 36 to 40 feet-cemeted horizon	19 15 42
						-28.6	
			No recovery		9	SPT	50
						-33.6	
			SAND: light grey green, medium dense, well graded, fine to coarse, wet, shells, some intact		10	SPT	4 5 7
-38.6	49.0					-38.6	
			GRAVEL: grey, medium dense, well graded, fine and coarse, wet, cemented fine to coarse sand with shell fragments, quartz, subrounded		11	SPT	2 5 8

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0257



Hole No. CP05-EAARS-CB-0257

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.4	51.8					-41.4	
-43.6	54.0		Gravelly SAND: grey, loose, well graded, fine to coarse, wet, cemented, fine to coarse sand gravel sized with shell fragments, mainly medium sand sized, quartz, subrounded, fine to medium sand		12	-43.6 SPT	3, 4, 5
-48.6	59.0		SAND: greenish grey, medium dense, well graded, fine to coarse, wet, fine cemented sand gravel, some shell fragments, mailny medium sand sized		13	-48.6 SPT	8, 9, 8
			SAND: olive grey green, medium dense, well graded, fine to coarse, wet, coarse sand, shell fragments, black mineral and quartz, subrounded, fine to medium size		14	-53.6 SPT	8, 11, 9
			Shelly SAND: greenish grey, medium dense, well graded, fine to coarse with angular shell fragments, some fine to		15	-58.6 SPT	4, 5

52 54 56 58 60 62 64 66 68 70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0257

Hole No. CP05-EAARS-CB-0257

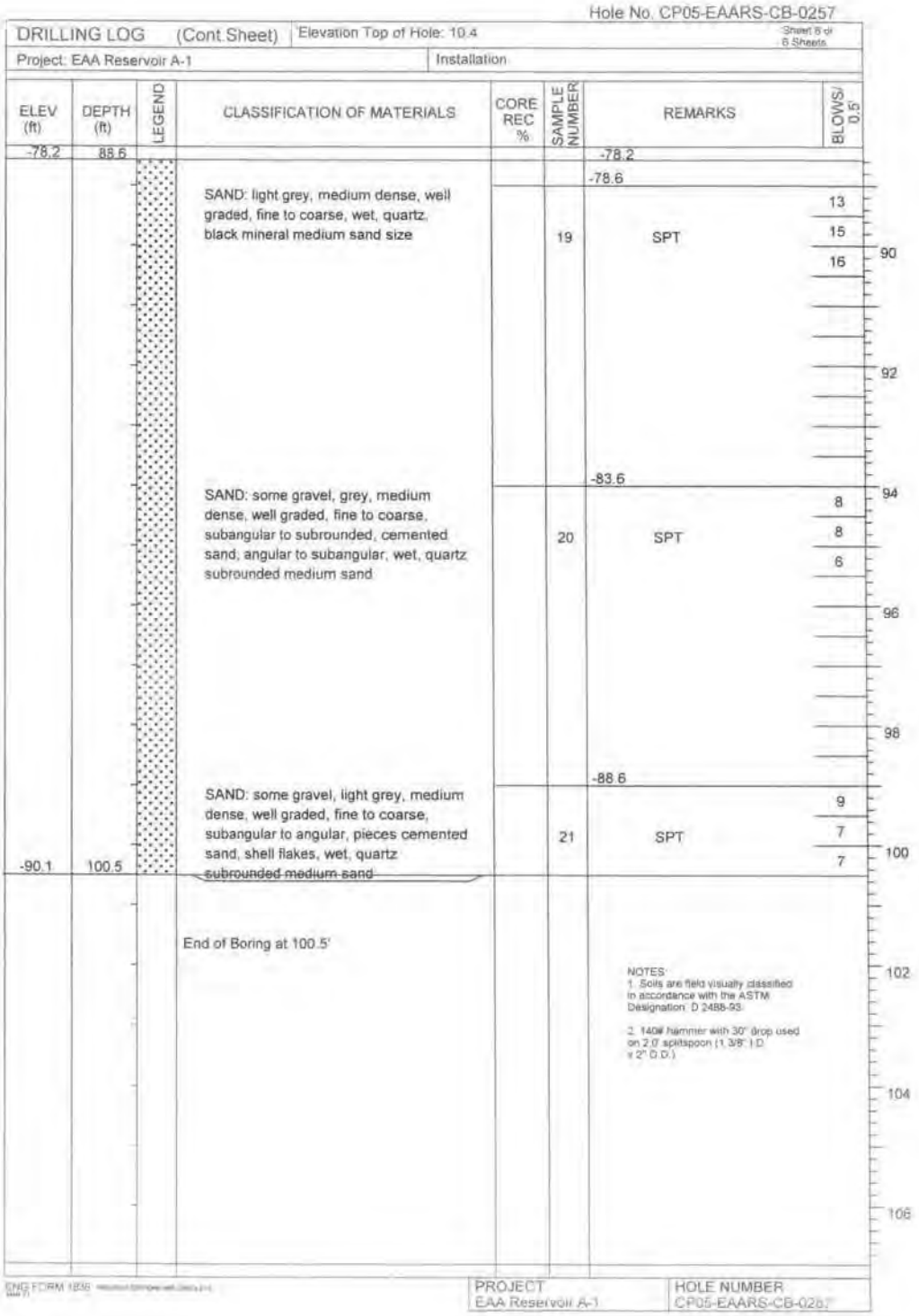
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 5 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.8	70.2					-59.8	9
			medium black mineral and quartz subrounded				72
-63.6	74.0					-63.6	
			Sandy GRAVEL: creamy light grey, very dense, well graded fine occasional coarse, angular to subangular cemented sand (fine to coarse), shell fragments included "Gravelly drilling"		16	SPT; "Gravelly drilling"	3 23 45 74 76 78
						-68.6	
			As above, except grey, dense		17	SPT	10 20 26 80 82
-73.6	84.0					-73.6	
			SAND: light grey, loose, well graded, fine to medium occasional coarse, wet, shelly fragments		18	SPT	6 3 4 84 86 88

ENG FORM 1836 (continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0257



Hole No. CP05-EAARS-CB-0257

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.2	88.6					-78.2	
						-78.6	
			SAND: light grey, medium dense, well graded, fine to coarse, wet, quartz, black mineral medium sand size		19	SPT	13 15 16
						-83.6	
			SAND: some gravel, grey, medium dense, well graded, fine to coarse, subangular to subrounded, cemented sand, angular to subangular, wet, quartz subrounded medium sand		20	SPT	8 8 6
						-88.6	
-90.1	100.5		SAND: some gravel, light grey, medium dense, well graded, fine to coarse, subangular to angular, pieces cemented sand, shell flakes, wet, quartz subrounded medium sand		21	SPT	9 7 7
			End of Boring at 100.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

90 92 94 96 98 100 102 104 106

ENG FORM 1836

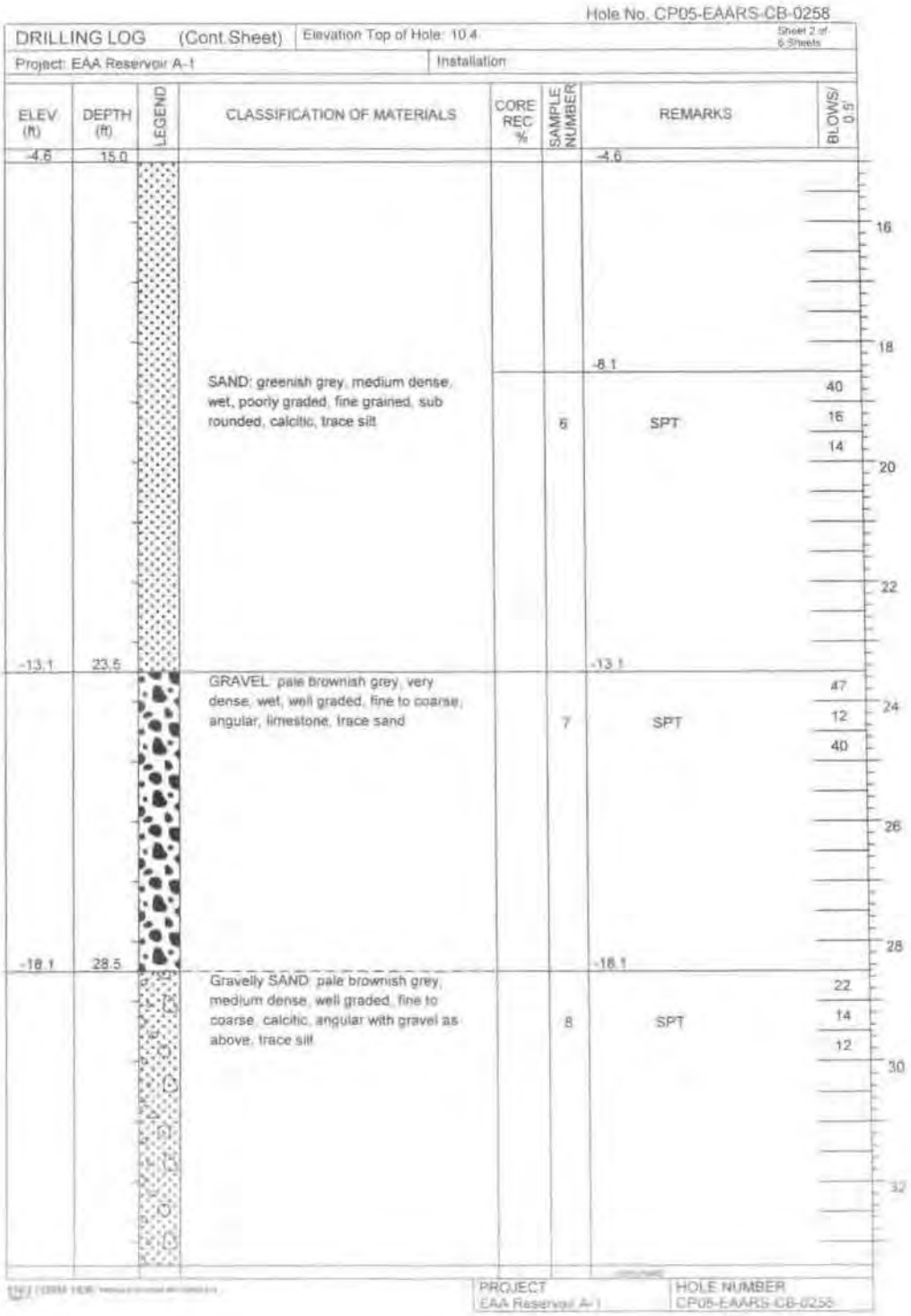
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0257

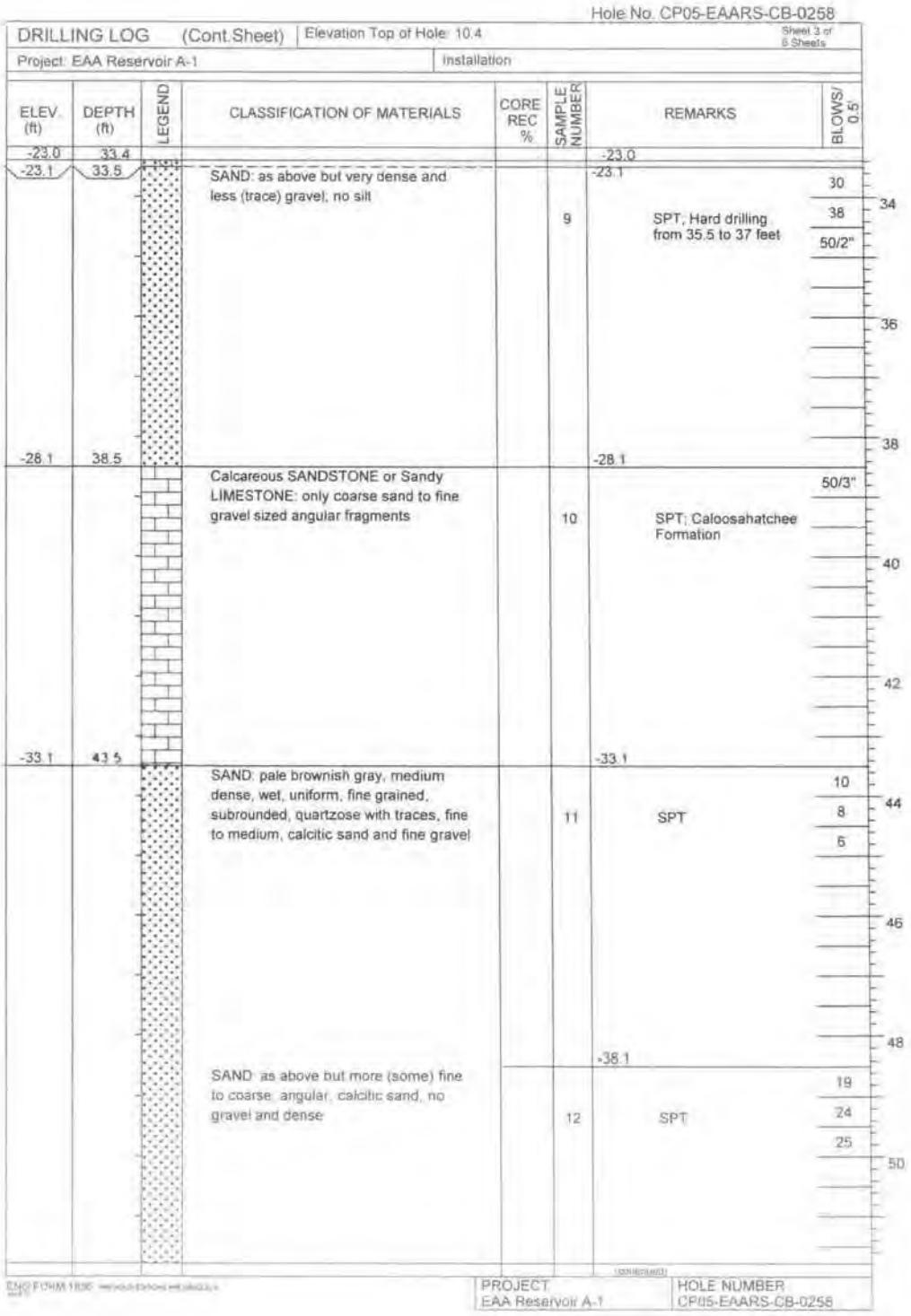
Hole No. CP05-EAARS-CB-0258

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N780135.8, E770597.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0258		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole: ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/5/2005 Completed 8/9/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.4 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.4	0.0						
			PEAT: brownish black, moist, loose, fine grained, non-plastic, organic, roots		1	10.4 SPT; All calcitic material noted below is at least in part shells	3, 3, 3, 2
					2	8.9 SPT	2, 2, 3
					3	7.4 SPT	2, 27, 50/4"
5.9	4.5					5.9	
			LIMESTONE: tan to light gray and light brown, thinly bedded, fine to coarse grained, fossiliferous, vuggs, strong and hard to soft, weak and porous	54 (RQD 22%)	1	HQ coring. Ranges from wackestone to grainstone	
1.9	8.5						
			Gravelly SAND: light brownish gray, very dense, wet, well graded, fine to coarse grained, angular,calcitic, some silt			0.9	
					4	SPT; Hard drilling from 10 to 11.5 feet	33, 50/3"
-3.1	13.5					-3.1	
			SAND: light grey, medium dense, wet, moderately graded, fine to medium grained, angular, calcitic, some silt		5	SPT	14, 12, 14

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0258


Hole No. CP05-EAARS-CB-0258
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.4
Sheet 2 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-4.6
15.0
-8.1
SAND: greenish grey, medium dense, wet, poorly graded, fine grained, sub rounded, calcitic, trace silt
6
SPT
40
16
14
-13.1
23.5
GRAVEL: pale brownish grey, very dense, wet, well graded, fine to coarse, angular, limestone, trace sand
7
SPT
47
12
40
-18.1
28.5
Gravelly SAND: pale brownish grey, medium dense, well graded, fine to coarse, calcitic, angular with gravel as above, trace silt
8
SPT
22
14
12
16
18
20
22
24
26
28
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0258



Hole No. CP05-EAARS-CB-0258

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 3 of 6 Sheets

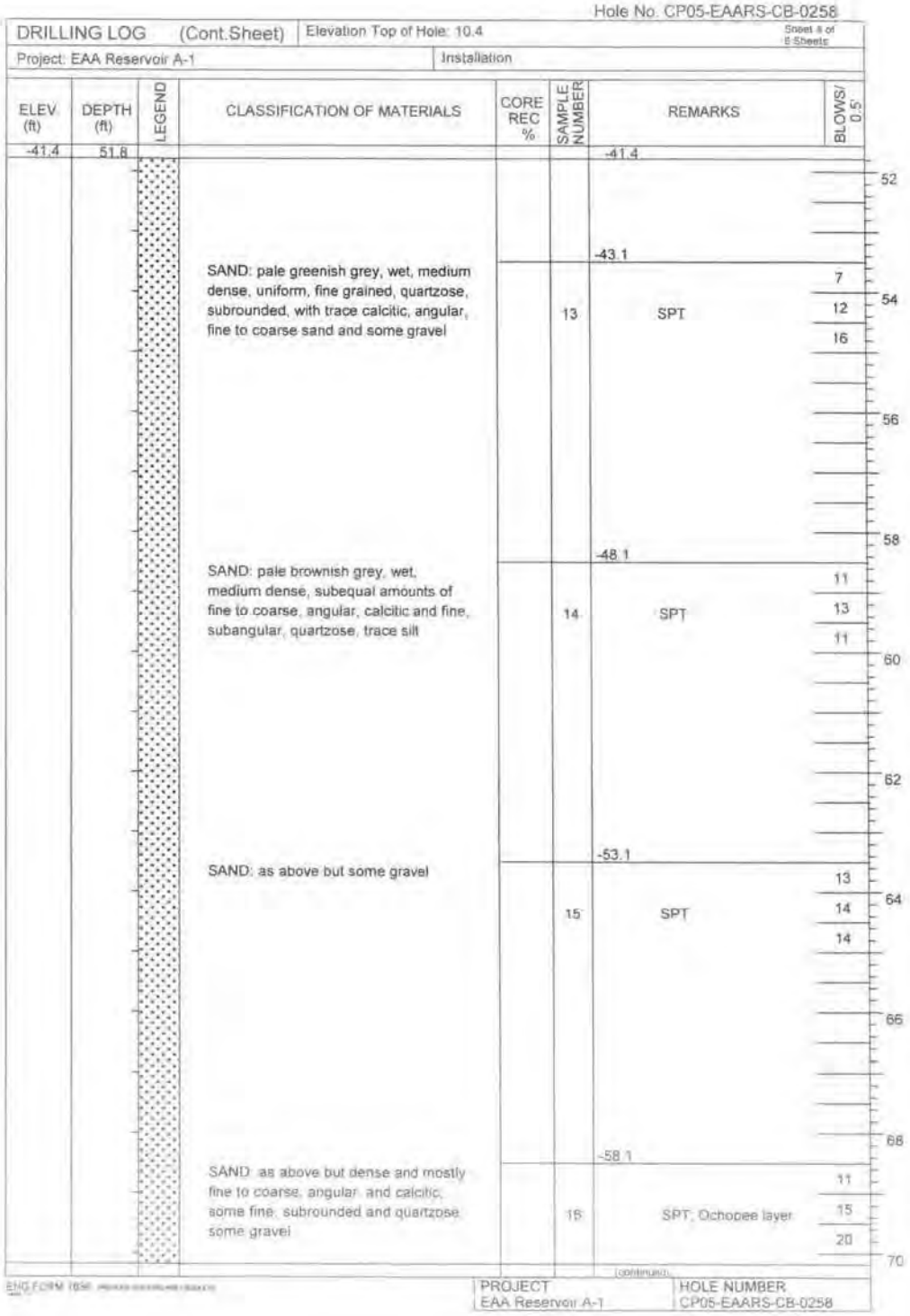
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.0	33.4					-23.0	
-23.1	33.5		SAND: as above but very dense and less (trace) gravel; no silt		9	-23.1 SPT; Hard drilling from 35.5 to 37 feet	30 38 50/2"
-28.1	38.5		Calcareous SANDSTONE or Sandy LIMESTONE: only coarse sand to fine gravel sized angular fragments		10	-28.1 SPT; Caloosahatchee Formation	50/3"
-33.1	43.5		SAND: pale brownish gray, medium dense, wet, uniform, fine grained, subrounded, quartzose with traces, fine to medium, calcitic sand and fine gravel		11	-33.1 SPT	10 8 6
			SAND: as above but more (some) fine to coarse, angular, calcitic sand, no gravel and dense		12	-38.1 SPT	19 24 25

34 36 38 40 42 44 46 48 50

ENG FORM 1836 (previous editions are obsolete)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0258



Hole No. CP05-EAARS-CB-0258

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 8 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

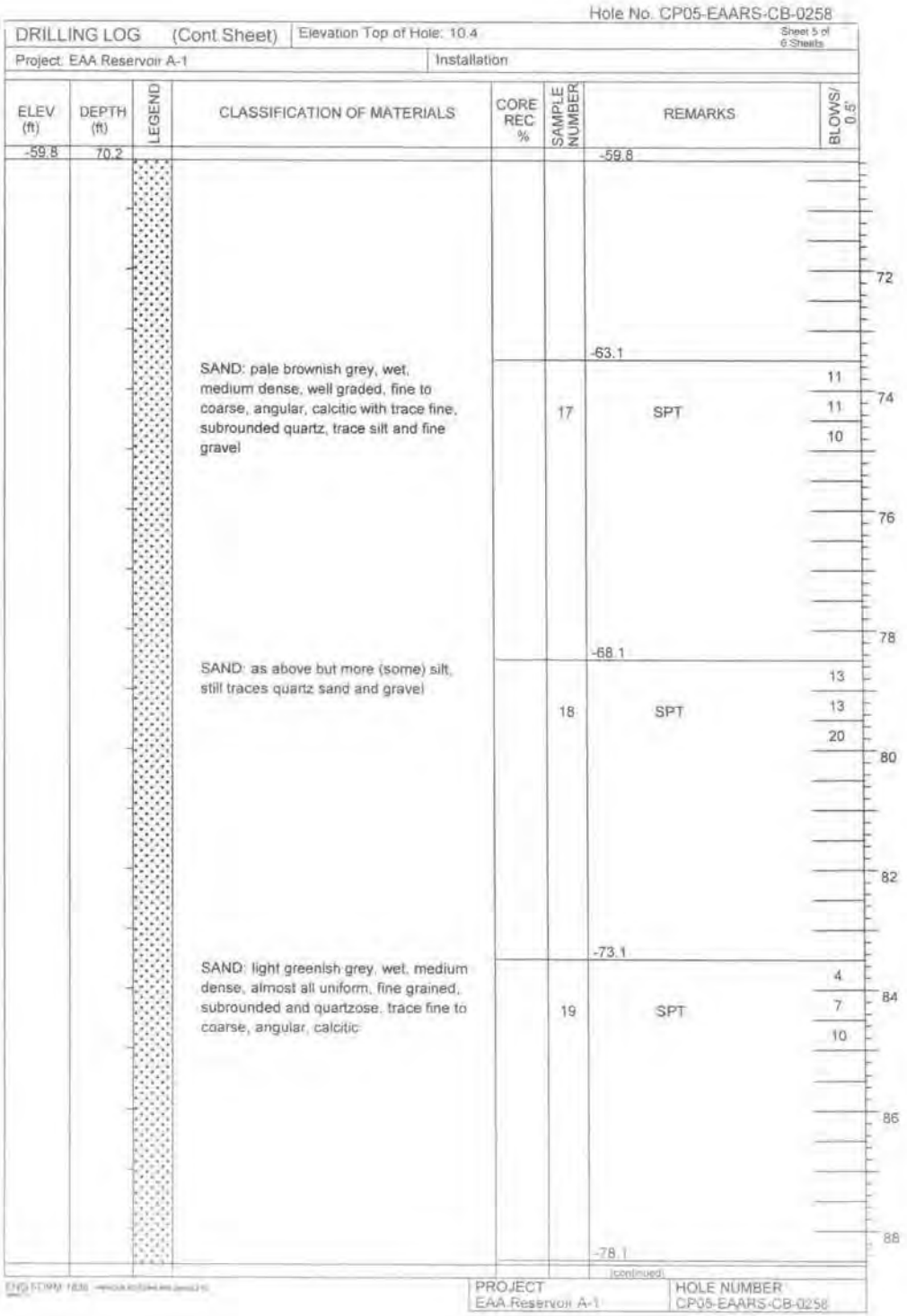
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.4	51.8					-41.4	
			SAND: pale greenish grey, wet, medium dense, uniform, fine grained, quartzose, subrounded, with trace calcitic, angular, fine to coarse sand and some gravel		13	SPT	7, 12, 16
						-48.1	
			SAND: pale brownish grey, wet, medium dense, subequal amounts of fine to coarse, angular, calcitic and fine, subangular, quartzose, trace silt		14	SPT	11, 13, 11
						-53.1	
			SAND: as above but some gravel		15	SPT	13, 14, 14
						-58.1	
			SAND: as above but dense and mostly fine to coarse, angular, and calcitic, some fine, subrounded and quartzose, some gravel		16	SPT; Ochopee layer	11, 15, 20

52 54 56 58 60 62 64 66 68 70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0258


Hole No. CP05-EAARS-CB-0258
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.4
Sheet 5 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-59.8
70.2
-59.8
72
-63.1
SAND: pale brownish grey, wet, medium dense, well graded, fine to coarse, angular, calcitic with trace fine, subrounded quartz, trace silt and fine gravel
17
SPT
11
11
10
74
76
78
-68.1
SAND: as above but more (some) silt, still traces quartz sand and gravel
18
SPT
13
13
20
80
82
-73.1
SAND: light greenish grey, wet, medium dense, almost all uniform, fine grained, subrounded and quartzose, trace fine to coarse, angular, calcitic
19
SPT
4
7
10
84
86
88
-78.1
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0258

Hole No. CP05-EAARS-CB-0258

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.2	88.6					-78.2	
			SAND: light gray, dense, wet, well graded, fine to medium, subangular to subrounded, subequal parts quartz and calcitic sand		20	SPT	14 16 28
						-83.1	
			SAND: as above but fine to coarse with a trace silt and some gravel, some coarse sand and gravel is aggregates of finer particles		21	SPT	13 17 18
						-88.1	
			SAND: as above		22	SPT	15 10 18
-89.6	100.0						
			End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

90 92 94 96 98 100 102 104 106

ENG FORM 1836 | PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0258

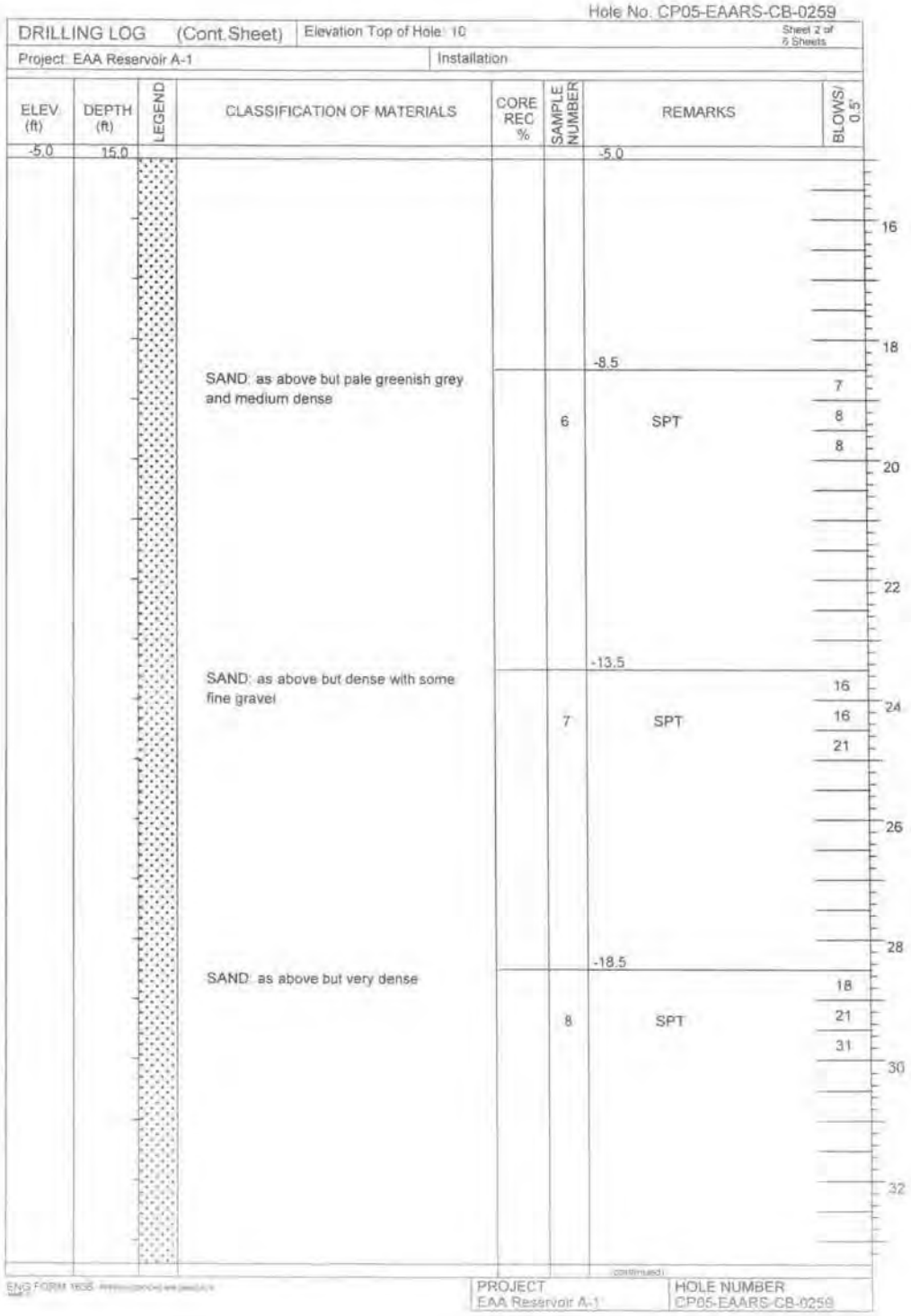
Hole No. CP05-EAARS-CB-0259

DRILLING LOG | Division: | Installation: | Sheet 1 of 0 Sheets

1. Project: EAA Reservoir A-1
2. Location: N776942.1, E772726.6 - NAD 1983
3. Drilling Agency: Nodarse & Associates, Inc
4. Hole No: CP05-EAARS-CB-0259
5. Name of Driller: Erik Bluemke
6. Direction of Hole: ☒ Vertical ☐ Inclined
7. Thickness of Burden: N/A
8. Thickness of cap rock: N/A
9. Depth of hole: 100 ft
10. Size and type of bit: 3" bit, Rotary Method
11. Datum for Elevation Shown: NAVD 1988
12. Manufacturer's Designation for Drill: Diedrich D-50
13. Total Number of Overburden Samples Taken: N/A
14. Total Number of Core Boxes: 1
15. Elevation Ground Water: Not measured
16. Date Hole: Started 7/15/2005, Completed 7/18/2005
17. Elevation Top of Hole: 10 (ft)
18. Total Core Recovery for hole: N/A
19. Inspector: N. Holst

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			Gravelly SAND: tan to light brown, dry, very dense, well graded, fine to coarse grained, angular calcitic, road fill		1	10.0 SPT 8.5	35, 37, 37
					2	SPT	43, 34, 21
7.0	3.0					7.0	
			LIMESTONE: caprock, tan to light brown, fine grained, fossiliferous, thinly bedded, vuggy, strong and hard to soft, weak and porous	56 (RQD 24%)	3 1	6.5 SPT HQ coring, UCS=1430psi	50/6"
4.0	6.0		No recovery: probably sand as below			2.0	
2.0	8.0		LIMESTONE: as above, but pale yellowish grey. Longest cylindrical piece is 0.15 ft between 8 and 10 ft.	55 (RQD 0%)	4 2	2.0 SPT HQ coring; very hard 8.0 to 8.5 feet 0.5	50/0"
0.0	10.0					-3.5	
			SAND: pale brownish grey, wet, loose, angular, calcitic, with some silt, well graded, fine to coarse grained		5	SPT	3, 5, 1

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0259



Hole No. CP05-EAARS-CB-0259

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	
							16
							18
						-8.5	
			SAND: as above but pale greenish grey and medium dense		6	SPT	7
							8
							8
							20
							22
						-13.5	
			SAND: as above but dense with some fine gravel		7	SPT	16
							16
							21
							24
							26
							28
						-18.5	
			SAND: as above but very dense		8	SPT	18
							21
							31
							30
							32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0259

Hole No. CP05-EAARS-CB-0259

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

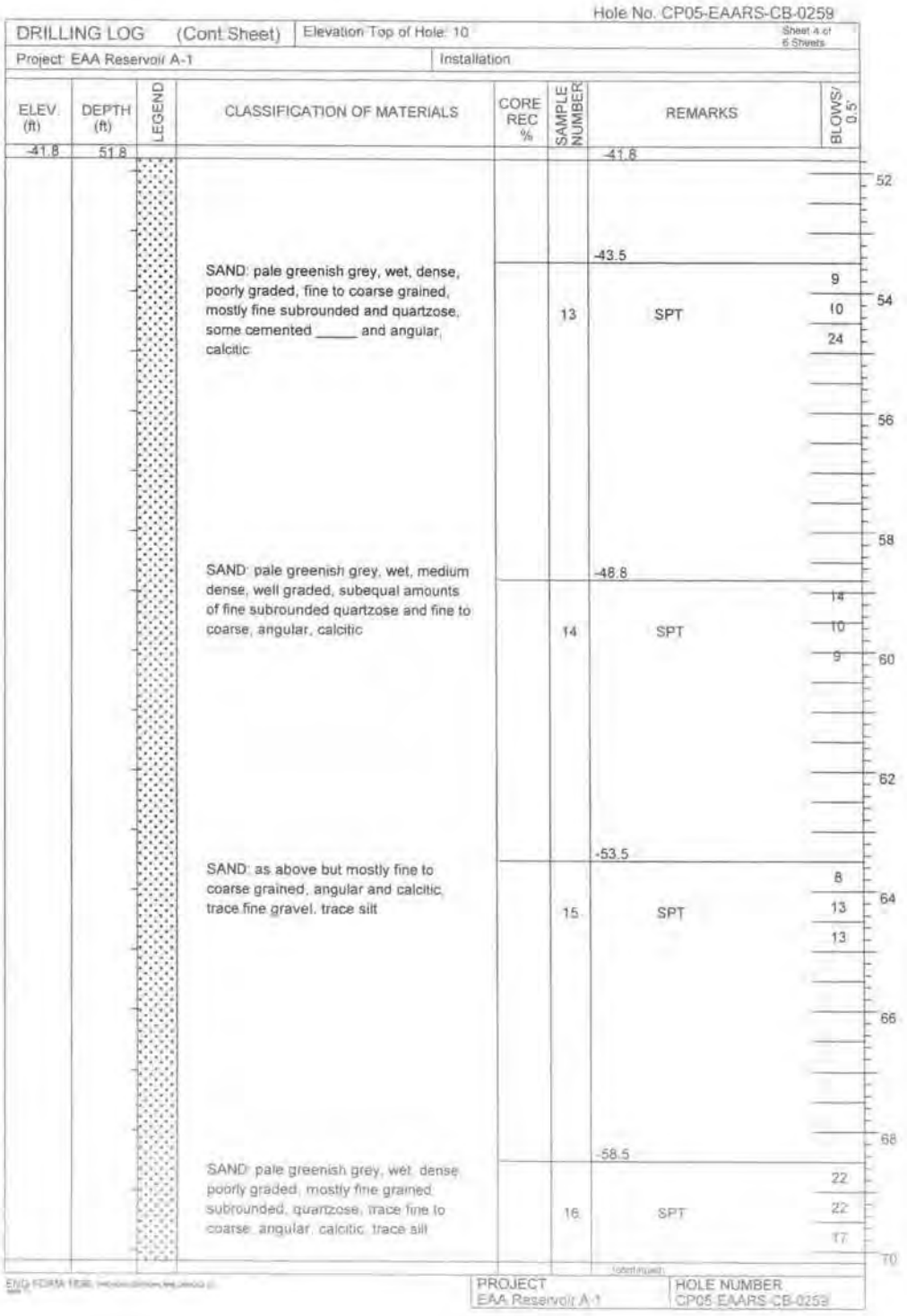
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-23.5	33.5		Gravelly SAND: as above but more gravel and very dense		9	-23.5 SPT	4 6 50/2"
-28.5	38.5		SAND: pale greenish grey, wet, medium dense, well graded, fine to coarse grained, mostly fine, subrounded and quartzose or angular cemented		10	-28.5 SPT; Caloosahatchee Formation	13 8 7
			SAND: pale brownish grey, wet, loose, subrounded, poorly graded, fine grained, trace of fine to coarse grained, angular, calcitic		11	-33.5 SPT	2 2 3
			SAND: as above		12	-38.5 SPT	4 4 6

34 36 38 40 42 44 46 48 50

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0259



Hole No. CP05-EAARS-CB-0259

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 4 of 6 Sheets

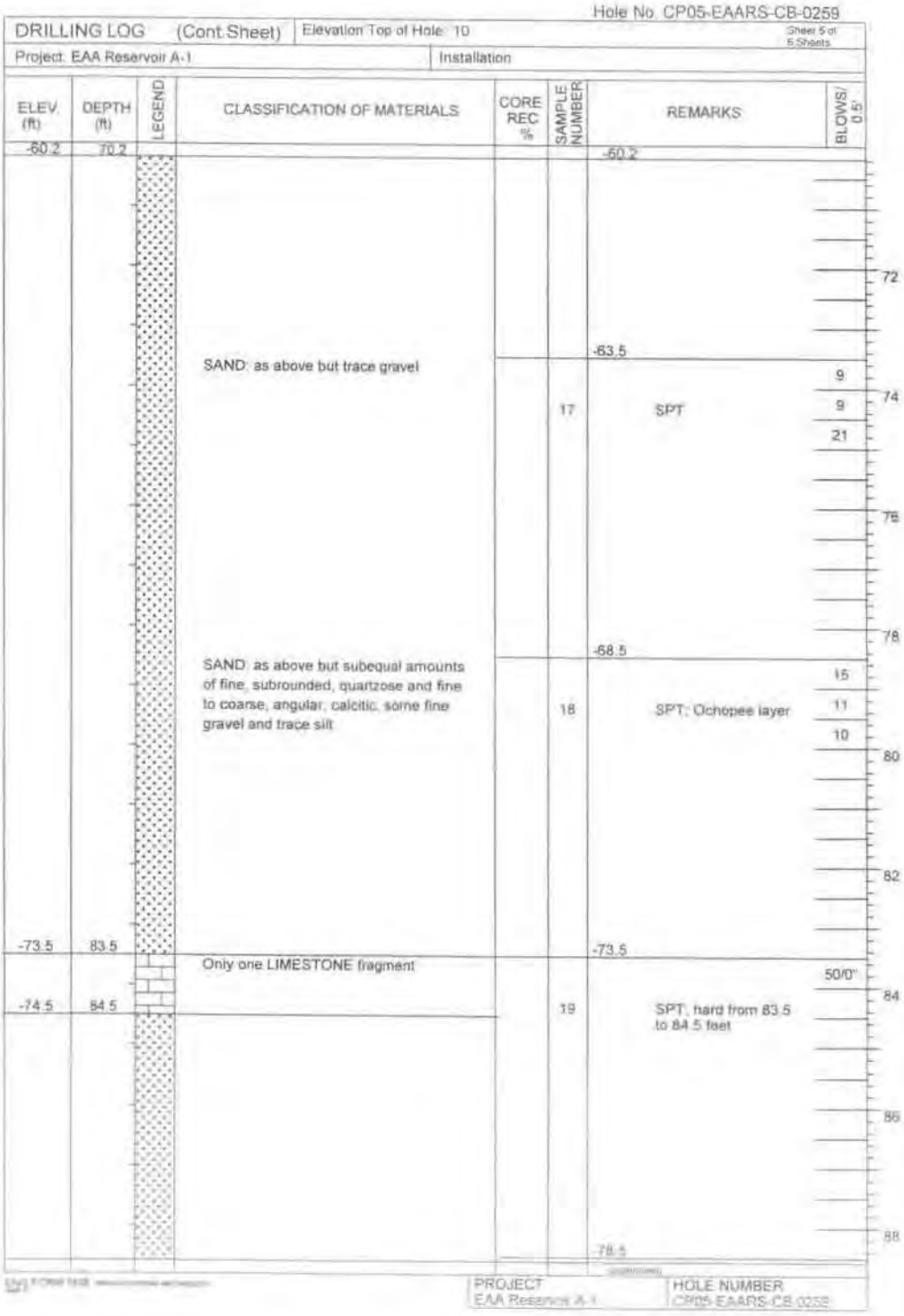
Project: EAA Reservoir A-1 | Installation

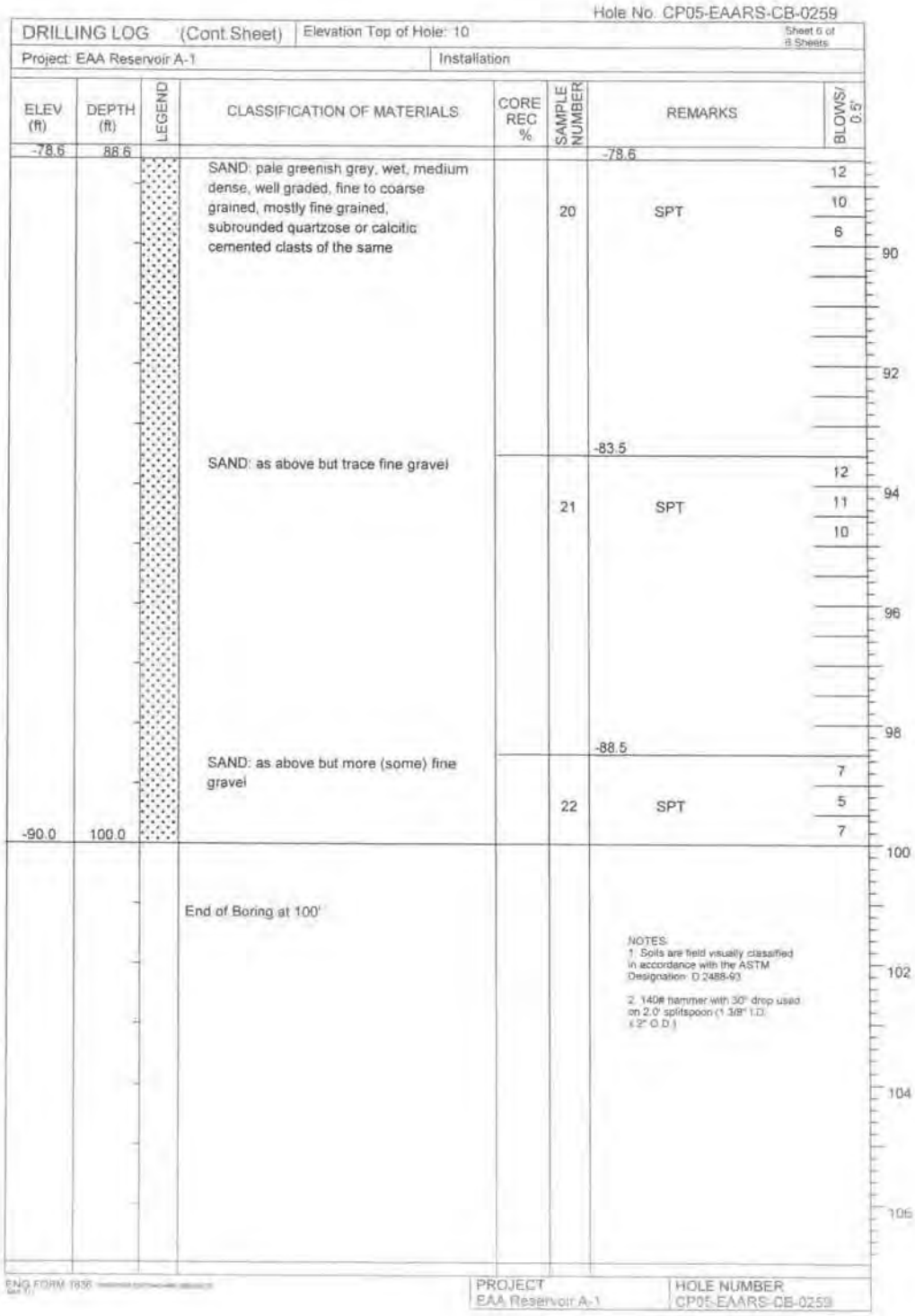
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.8	51.8					-41.8	
							52
						-43.5	
			SAND: pale greenish grey, wet, dense, poorly graded, fine to coarse grained, mostly fine subrounded and quartzose, some cemented _____ and angular, calcitic		13	SPT	9 10 24
							54
							56
							58
						-48.8	
			SAND: pale greenish grey, wet, medium dense, well graded, subequal amounts of fine subrounded quartzose and fine to coarse, angular, calcitic		14	SPT	14 10 9
							60
							62
						-53.5	
			SAND: as above but mostly fine to coarse grained, angular and calcitic, trace fine gravel, trace silt		15	SPT	8 13 13
							64
							66
							68
						-58.5	
			SAND: pale greenish grey, wet, dense, poorly graded, mostly fine grained subrounded, quartzose, trace fine to coarse, angular, calcitic, trace silt		16	SPT	22 22 17
							70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0259


Hole No. CP05-EAARS-CB-0259
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole 10
Sheet 5 of 5 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-60.2
70.2
-60.2
72
-63.5
SAND: as above but trace gravel
9
9
21
17
SPT
74
78
-68.5
78
SAND: as above but subequal amounts of fine, subrounded, quartzose and fine to coarse, angular, calcitic, some fine gravel and trace silt
15
11
10
18
SPT; Ochopee layer
80
82
-73.5
83.5
-73.5
Only one LIMESTONE fragment
50/0"
-74.5
84.5
19
SPT; hard from 83.5 to 84.5 feet
84
86
88
78.5
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0259



Hole No. CP05-EAARS-CB-0259

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10 | Sheet 6 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.6	88.6					-78.6	
			SAND: pale greenish grey, wet, medium dense, well graded, fine to coarse grained, mostly fine grained, subrounded quartzose or calcitic cemented clasts of the same		20	SPT	12 10 6
						-83.5	
			SAND: as above but trace fine gravel		21	SPT	12 11 10
						-88.5	
			SAND: as above but more (some) fine gravel		22	SPT	7 5 7
-90.0	100.0						
			End of Boring at 100'				

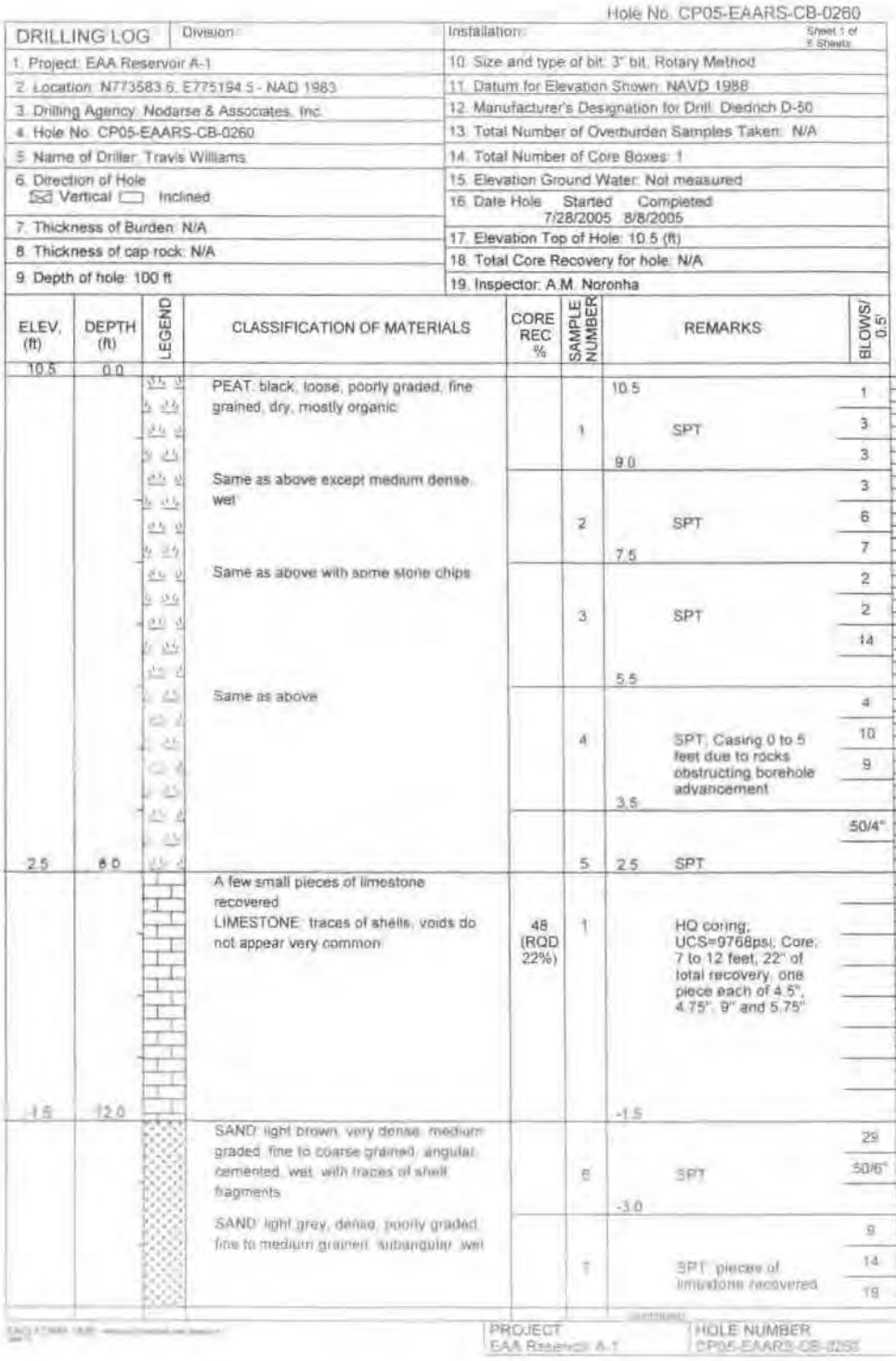
90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0259



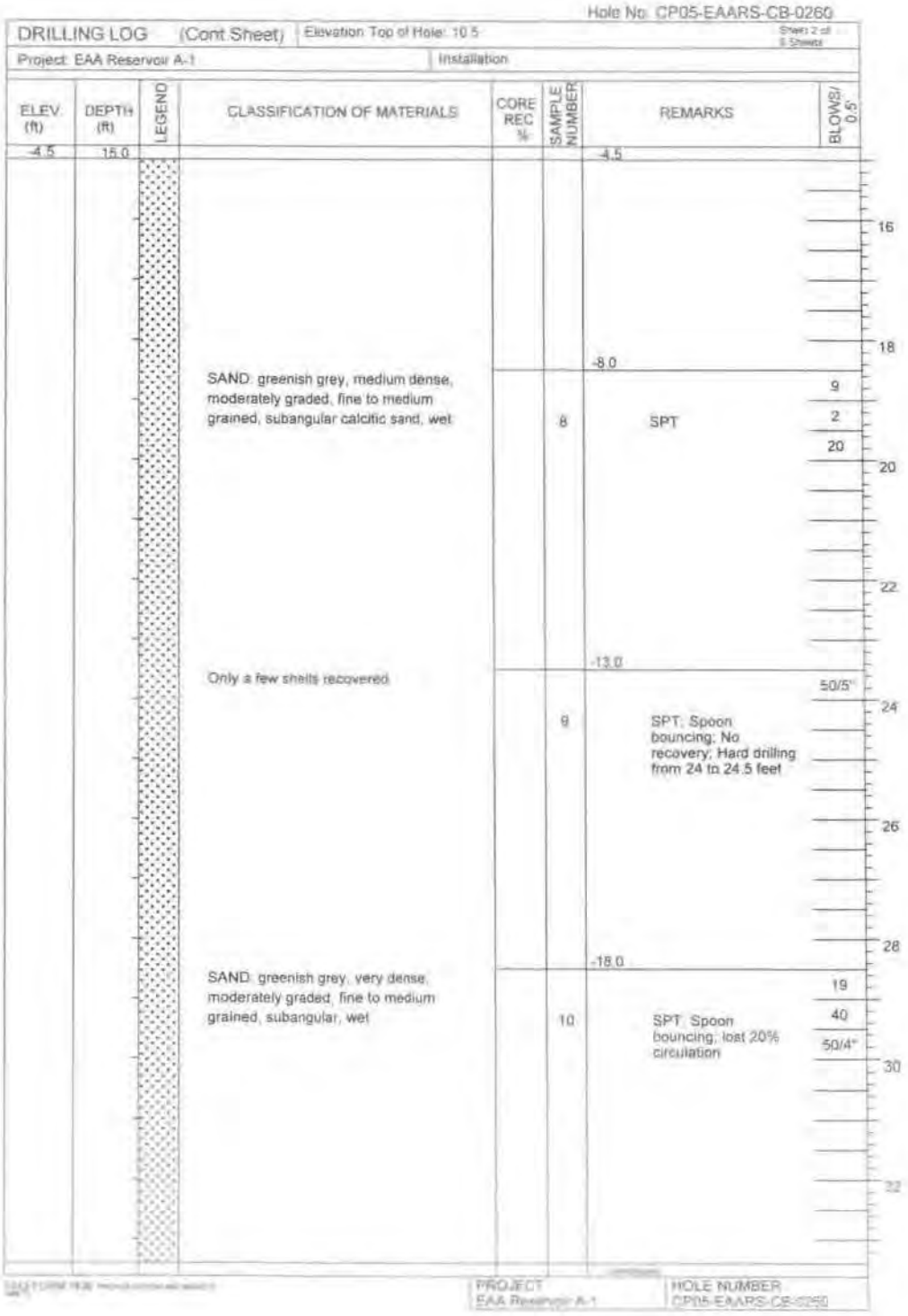
Hole No. CP05-EAARS-CB-0260

DRILLING LOG | Division: | Installation: | Sheet 1 of 6 Sheets

1. Project: EAA Reservoir A-1
2. Location: N773583.6, E775194.5 - NAD 1983
3. Drilling Agency: Nodarse & Associates, Inc.
4. Hole No: CP05-EAARS-CB-0260
5. Name of Driller: Travis Williams
6. Direction of Hole: ☒ Vertical ☐ Inclined
7. Thickness of Burden: N/A
8. Thickness of cap rock: N/A
9. Depth of hole: 100 ft
10. Size and type of bit: 3" bit, Rotary Method
11. Datum for Elevation Shown: NAVD 1988
12. Manufacturer's Designation for Drill: Diedrich D-50
13. Total Number of Overburden Samples Taken: N/A
14. Total Number of Core Boxes: 1
15. Elevation Ground Water: Not measured
16. Date Hole: Started 7/28/2005, Completed 8/8/2005
17. Elevation Top of Hole: 10.5 (ft)
18. Total Core Recovery for hole: N/A
19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.5	0.0						
			PEAT: black, loose, poorly graded, fine grained, dry, mostly organic		1	10.5 SPT 9.0	1, 3, 3
			Same as above except medium dense, wet		2	SPT 7.5	3, 6, 7
			Same as above with some stone chips		3	SPT 5.5	2, 2, 14
			Same as above		4	SPT: Casing 0 to 5 feet due to rocks obstructing borehole advancement 3.5	4, 10, 9
2.5	8.0				5	2.5 SPT	50/4"
			A few small pieces of limestone recovered. LIMESTONE: traces of shells, voids do not appear very common	48 (RQD 22%)	1	HQ coring, UCS=9768psi; Core, 7 to 12 feet, 22" of total recovery, one piece each of 4.5", 4.75", 9" and 5.75" -1.5	
-1.5	12.0		SAND: light brown, very dense, medium graded, fine to coarse grained, angular, cemented, wet, with traces of shell fragments		6	SPT -3.0	29, 50/6"
			SAND: light grey, dense, poorly graded, fine to medium grained, subangular, wet		7	SPT: pieces of limestone recovered	9, 14, 19

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0260



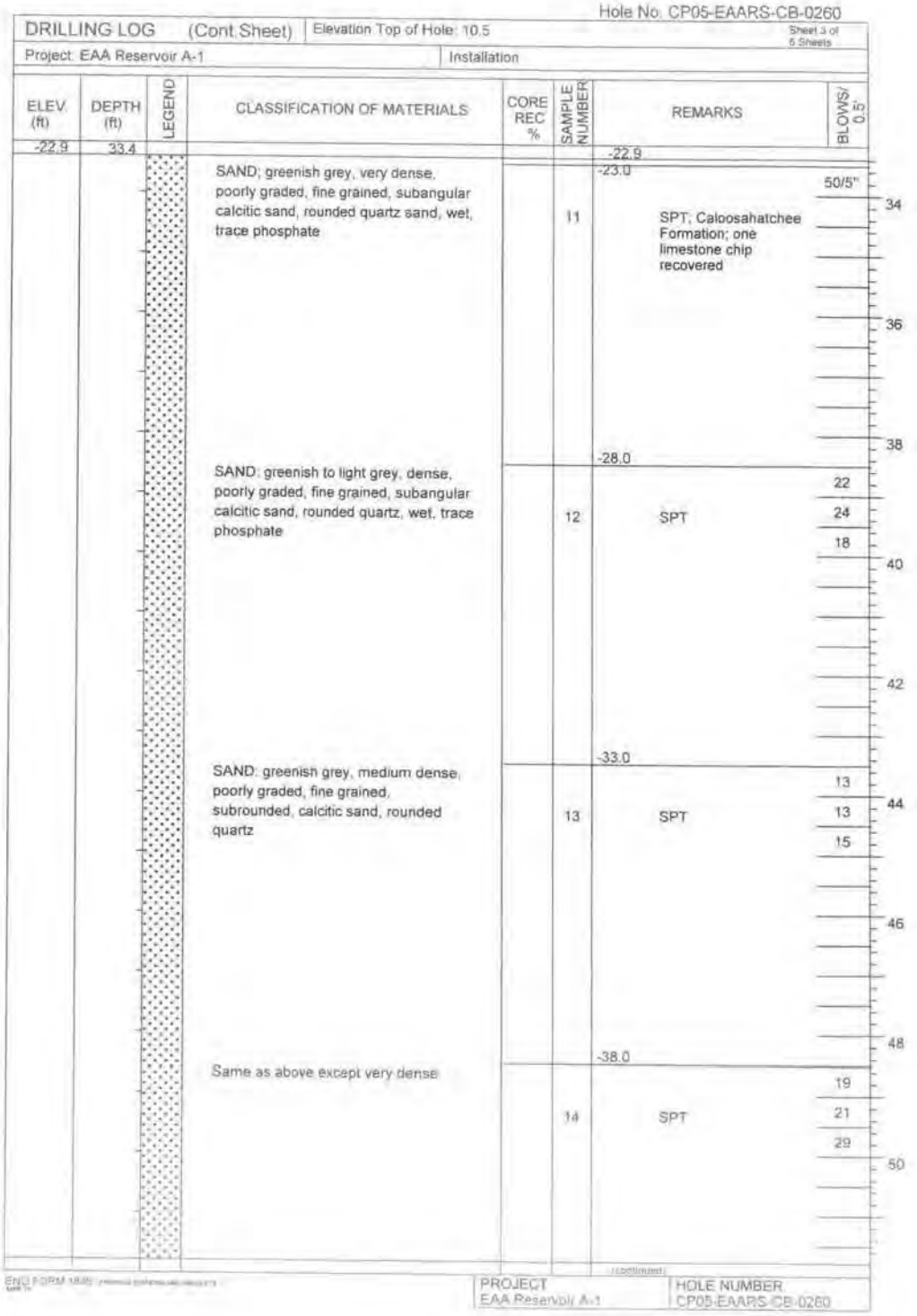
Hole No. CP05-EAARS-CB-0260

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.5 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.5	15.0					-4.5	
			SAND: greenish grey, medium dense, moderately graded, fine to medium grained, subangular calcitic sand, wet		8	SPT	9 2 20
						-8.0	
			Only a few shells recovered		9	SPT, Spoon bouncing; No recovery; Hard drilling from 24 to 24.5 feet	50/5"
						-13.0	
			SAND: greenish grey, very dense, moderately graded, fine to medium grained, subangular, wet		10	SPT, Spoon bouncing; lost 20% circulation	19 40 50/4"
						-18.0	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0260



Hole No. CP05-EAARS-CB-0260

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.5 | Sheet 3 of 6 Sheets

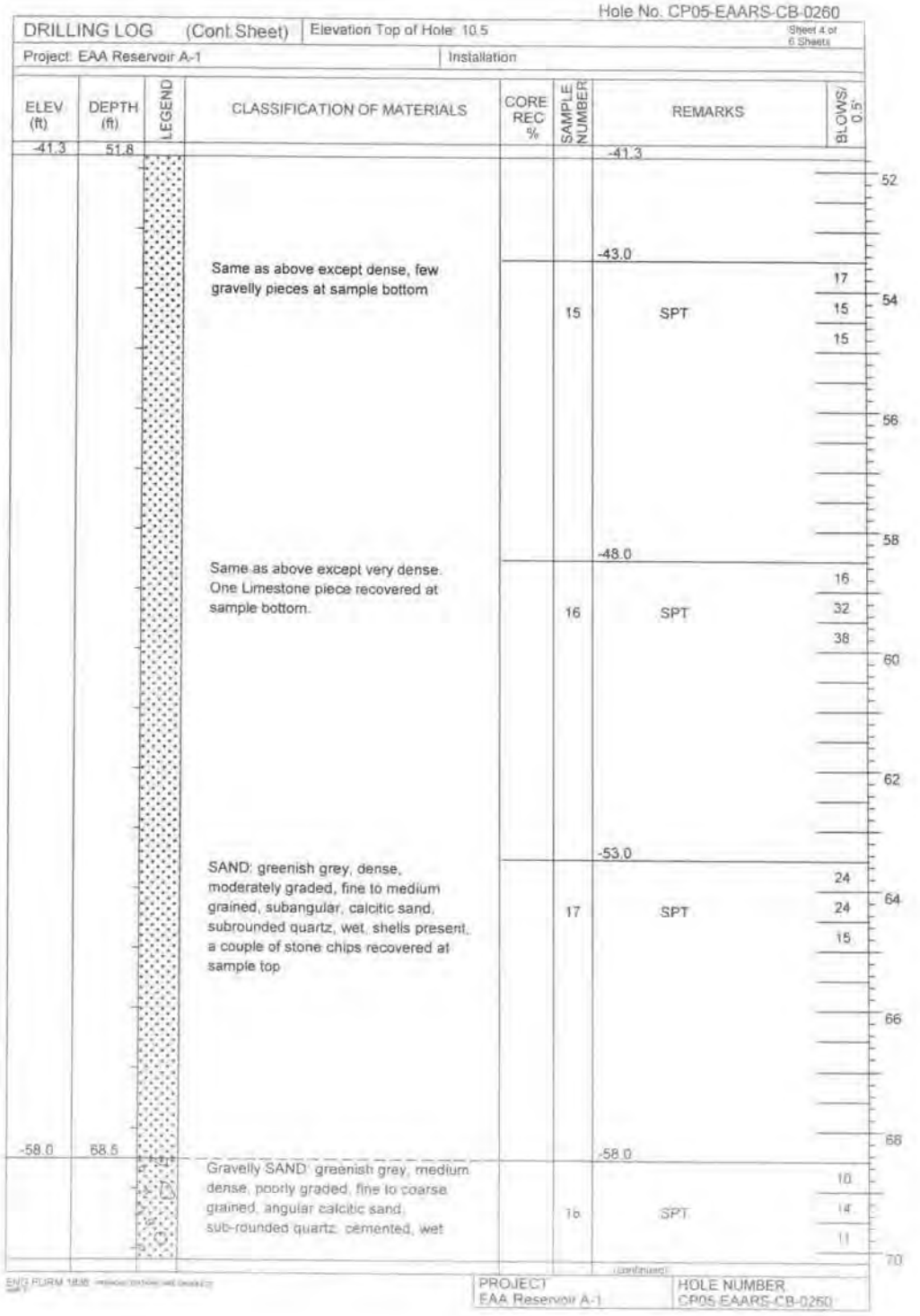
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.9	33.4					-22.9	
			SAND; greenish grey, very dense, poorly graded, fine grained, subangular calcitic sand, rounded quartz sand, wet, trace phosphate			-23.0	50/5"
					11	SPT; Caloosahatchee Formation; one limestone chip recovered	34
							36
							38
			SAND: greenish to light grey, dense, poorly graded, fine grained, subangular calcitic sand, rounded quartz, wet, trace phosphate			-28.0	22
					12	SPT	24
							18
							40
							42
			SAND: greenish grey, medium dense, poorly graded, fine grained, subrounded, calcitic sand, rounded quartz			-33.0	13
					13	SPT	13
							15
							44
							46
							48
			Same as above except very dense			-38.0	19
					14	SPT	21
							29
							50

(continued)

ENG FORM 1835

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0260



Hole No. CP05-EAARS-CB-0260

DRILLING LOG (Cont. Sheet) | Elevation Top of Hole: 10.5 | Sheet 4 of 6 Sheets

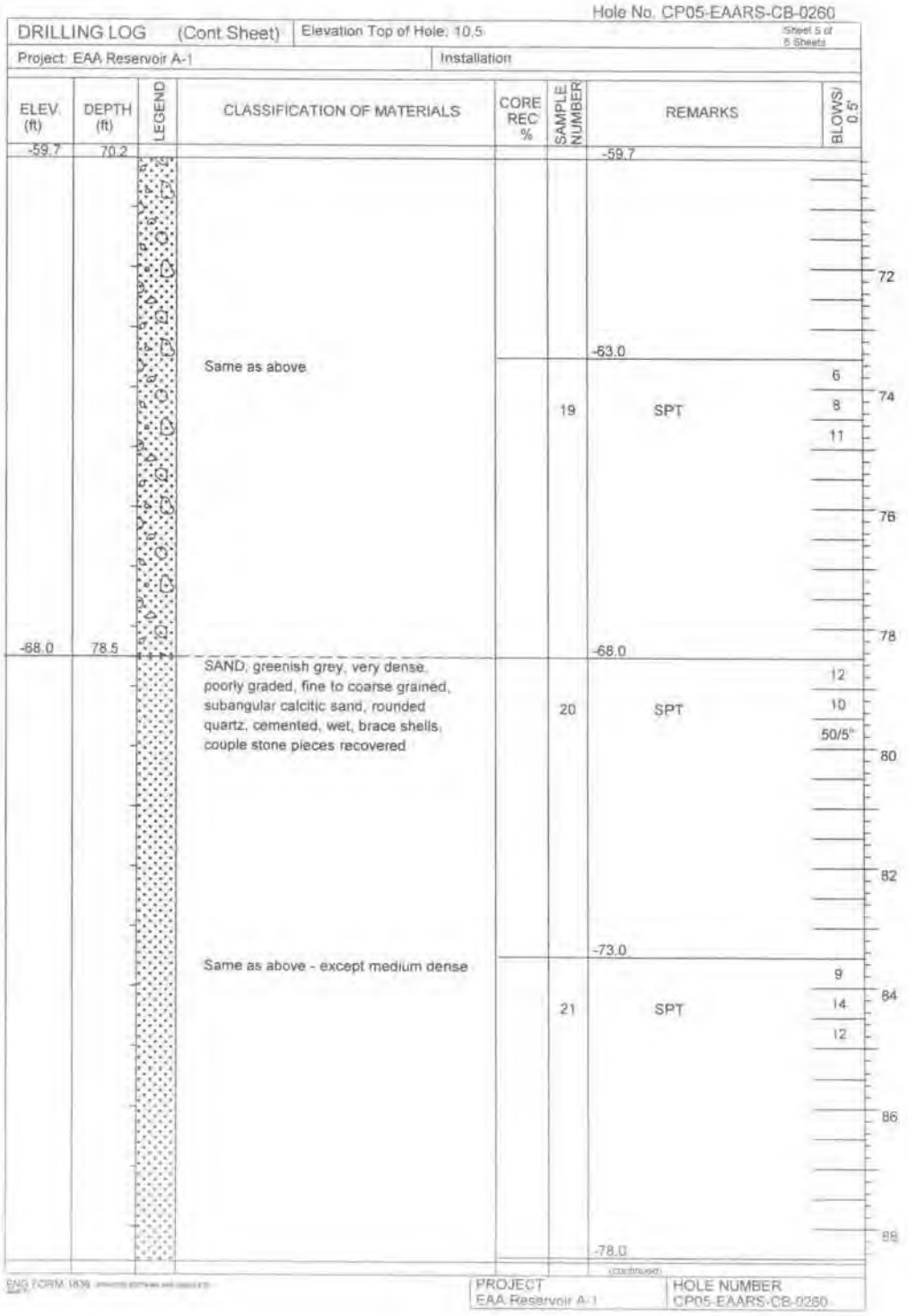
Project: EAA Reservoir A-1 | Installation

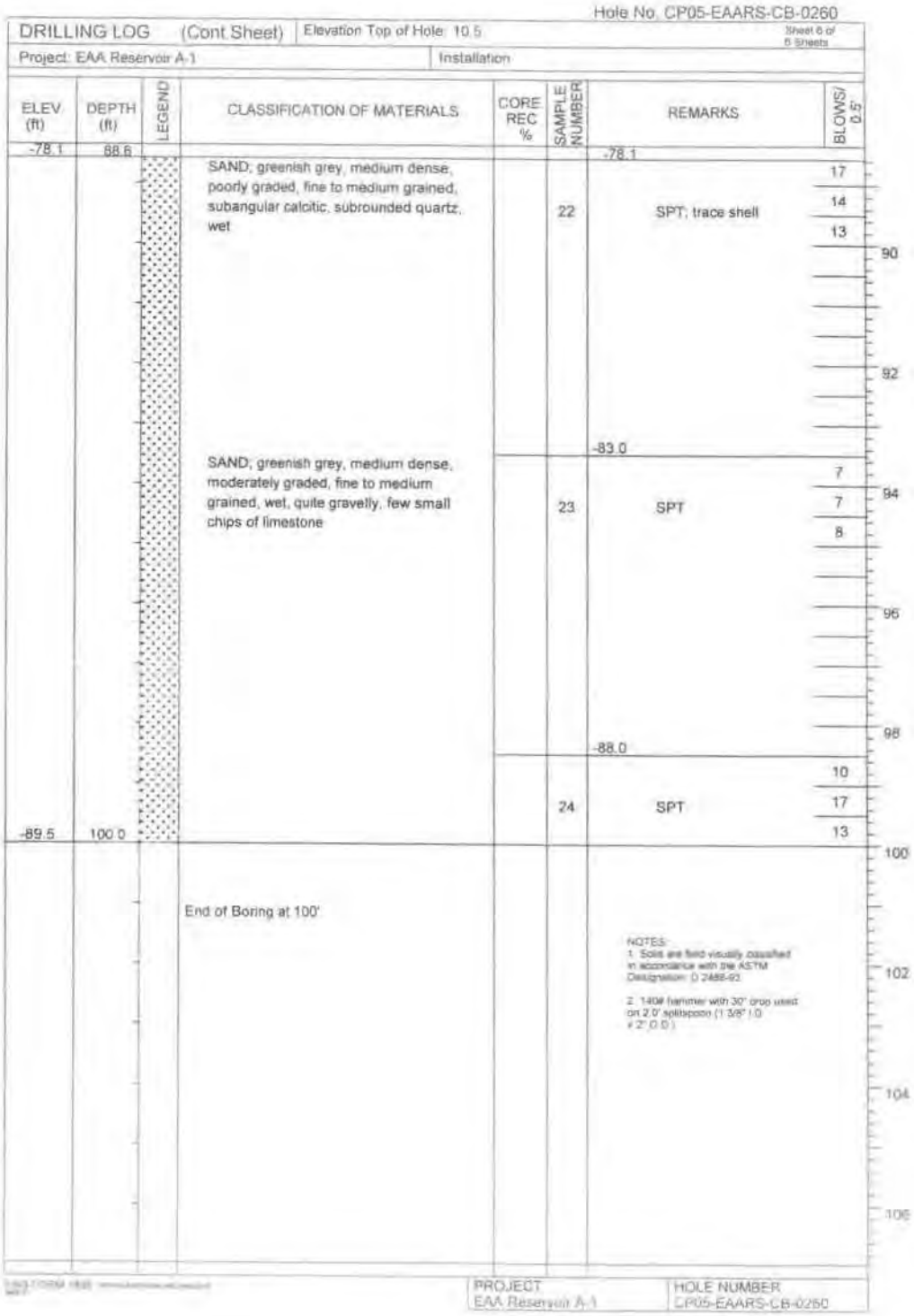
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.3	51.8					-41.3	
							52
						-43.0	
			Same as above except dense, few gravelly pieces at sample bottom		15	SPT	17 15 15
							54
							56
							58
						-48.0	
			Same as above except very dense. One Limestone piece recovered at sample bottom.		16	SPT	16 32 38
							60
							62
						-53.0	
			SAND: greenish grey, dense, moderately graded, fine to medium grained, subangular, calcitic sand, subrounded quartz, wet, shells present, a couple of stone chips recovered at sample top		17	SPT	24 24 15
							64
							66
							68
-58.0	68.5					-58.0	
			Gravelly SAND: greenish grey, medium dense, poorly graded, fine to coarse grained, angular calcitic sand, sub-rounded quartz, cemented, wet		18	SPT	10 14 11
							70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05 EAARS-CB-0260


Hole No. CP05-EAARS-CB-0260
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.5
Sheet 5 of 5 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-59.7
70.2
-59.7
72
-63.0
Same as above
6
8
11
19
SPT
74
76
-68.0
78.5
78
-68.0
SAND, greenish grey, very dense, poorly graded, fine to coarse grained, subangular calcitic sand, rounded quartz, cemented, wet, brace shells, couple stone pieces recovered
12
10
50/5"
20
SPT
80
82
-73.0
Same as above - except medium dense
9
14
12
21
SPT
84
86
88
-78.0
(continued)
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0260



Hole No. CP05-EAARS-CB-0260

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.5 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.1	88.6					-78.1	
			SAND; greenish grey, medium dense, poorly graded, fine to medium grained, subangular calcitic, subrounded quartz, wet		22	SPT; trace shell	17 14 13
						-83.0	
			SAND; greenish grey, medium dense, moderately graded, fine to medium grained, wet, quite gravelly, few small chips of limestone		23	SPT	7 7 8
						-88.0	
-89.5	100.0				24	SPT	10 17 13
			End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. # 2" O.D.)

90 92 94 96 98 100 102 104 106

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0260

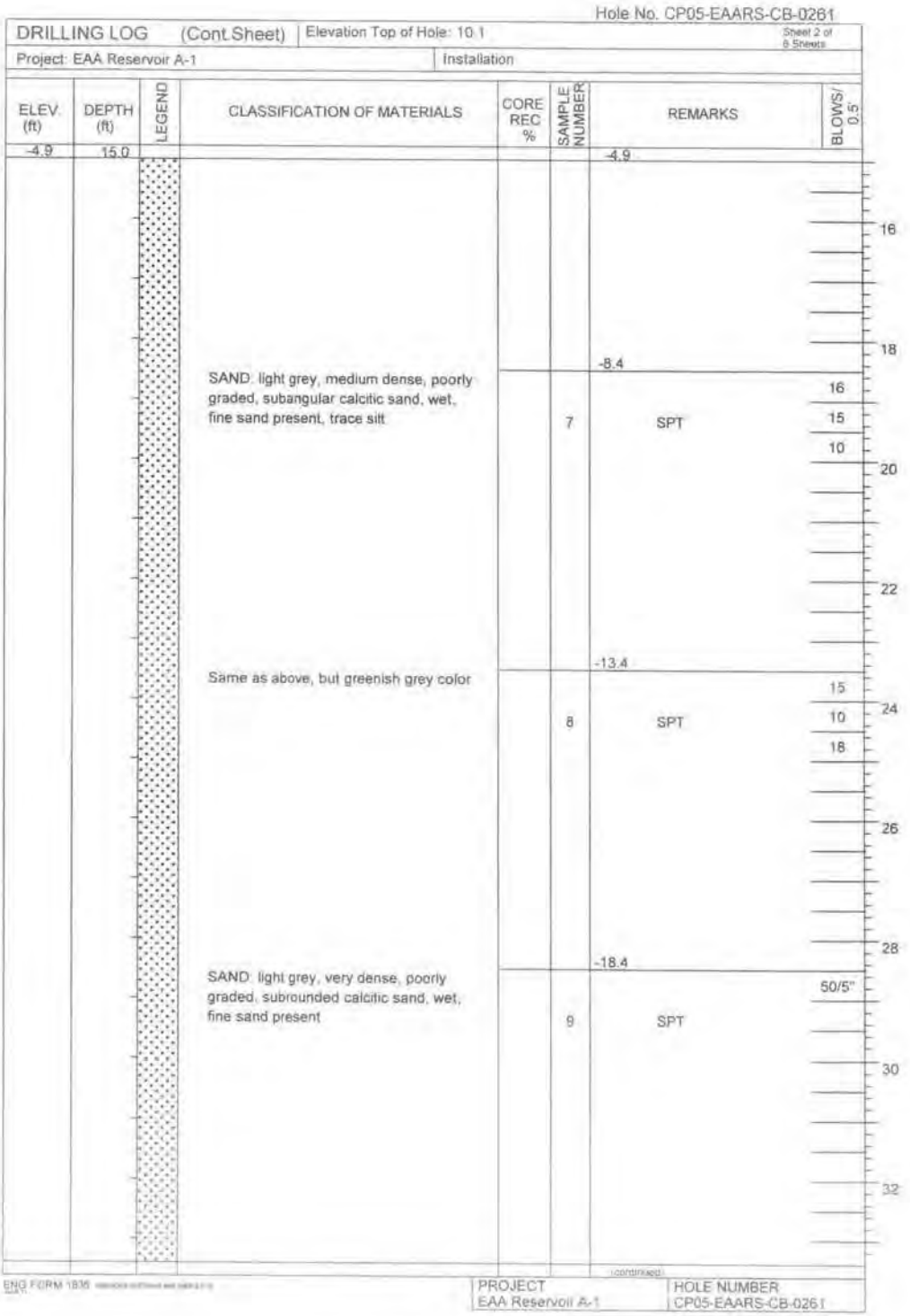
APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 261-280

Hole No. CP05-EAARS-CB-0261

DRILLING LOG	Division:	Installation:	Sheet 1 of 5 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N770311.3, E777073.7 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0261		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/18/2005 Completed 7/18/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.1 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: J. Petrie and A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.1	0.0						
			ROADFILL: Sandy GRAVEL, dense, creamy gray, well graded, fine and coarse, subangular to angular, dry		1	10.1 SPT 8.6	22 33 12
8.6	1.5						
			PEAT: black, very loose, fine grained, clayey Sample jar # 3) Peat		2	SPT 7.1	1 1 1
6.6	3.5						
			3a) Gravelly SAND: greenish grey, dense, angular calcitic sand, wet		3	SPT 5.6	1 6 27
			Same as above - but very dense, limestone chips		4	4.6 SPT	12 50/4"
4.6	5.5						
			LIMESTONE: light grey to white, very hard, shell fragments, quite porous	32 (ROD 14%)	1	HQ coring; UCS=4340psi; Core 5.5 to 10.5 feet	
-0.4	10.5					-0.4	
			SAND: greenish grey, medium dense, moderately graded, angular calcitic sand, wet, trace gravel		5	SPT, 2 limestone chips recovered	8 8 8
						-3.4	
			SAND: light grey, medium dense, moderately graded, angular calcitic sand, wet		6	SPT. Hard drilling from 12 to 13.5 feet	12 8 5

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0261



Hole No. CP05-EAARS-CB-0261

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 2 of 9 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.9	15.0					-4.9	
			SAND: light grey, medium dense, poorly graded, subangular calcitic sand, wet, fine sand present, trace silt		7	SPT	16 15 10
						-8.4	
			Same as above, but greenish grey color		8	SPT	15 10 18
						-13.4	
			SAND: light grey, very dense, poorly graded, subrounded calcitic sand, wet, fine sand present		9	SPT	50/5"
						-18.4	

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0261

Hole No. CP05-EAARS-CB-0261

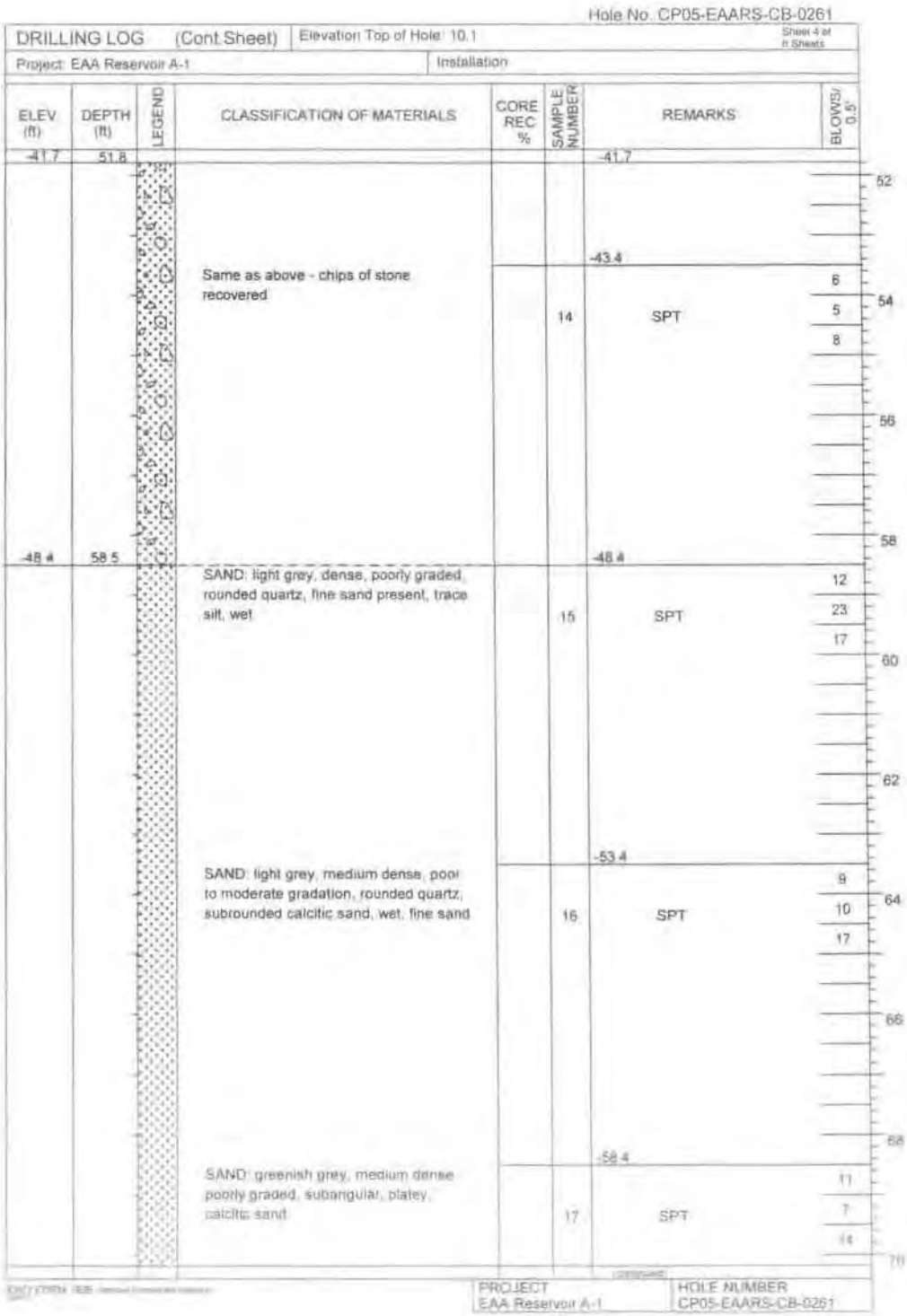
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 3 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.3	33.4					-23.3	
-23.4	33.5		Some shells and stone fragments recovered			-23.4	50/2"
					10	SPT; Hard drilling from 33.5 to 36.5 feet	34
							36
-26.9	37.0					-26.9	
						Caloosahatchee Formation	38
						-28.4	
			SAND: greenish grey, medium dense, poorly graded, subrounded calcitic sand, a little rounded quartz, fine sand, trace silt, wet		11	SPT	8
							14
							12
							40
							42
						-33.4	
			Same as above				9
					12	SPT	10
							11
							44
							46
-38.4	48.5					-38.4	48
			Gravelly SAND: olive grey, medium dense, moderately graded, subangular calcitic sand, rounded quartz, wet		13	SPT	6
							6
							5
							50

(continued)

ENG FORM 1838 | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0261



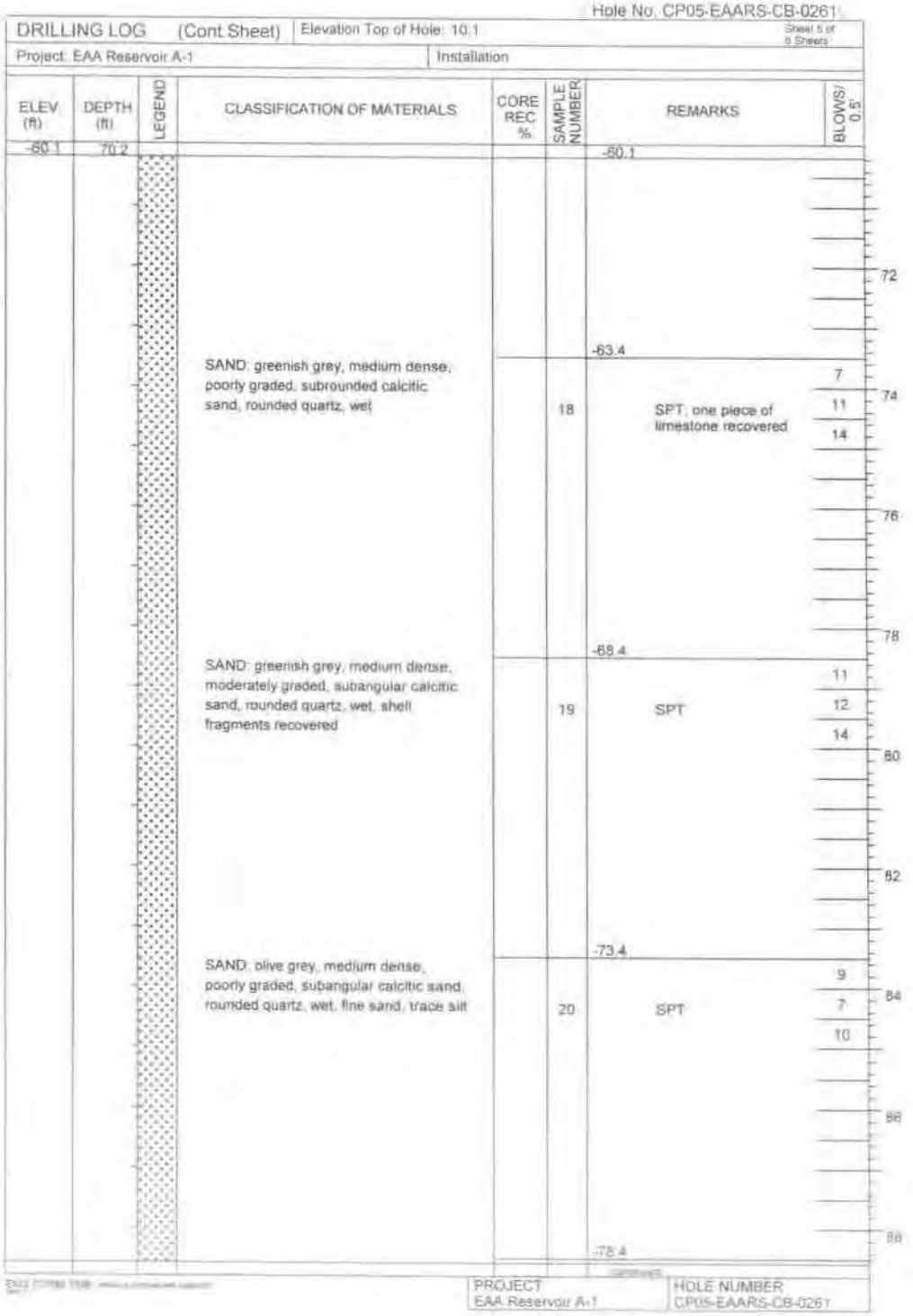
Hole No. CP05-EAARS-CB-0261

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.1 | Sheet 4 of n Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.7	51.8					-41.7	
						-43.4	52
			Same as above - chips of stone recovered		14	SPT	6 5 8
							54
							56
-48.4	58.5					-48.4	58
			SAND: light grey, dense, poorly graded, rounded quartz, fine sand present, trace silt, wet		15	SPT	12 23 17
							60
							62
						-53.4	
			SAND: light grey, medium dense, poor to moderate gradation, rounded quartz, subrounded calcitic sand, wet, fine sand		16	SPT	9 10 17
							64
							66
							68
						-58.4	
			SAND: greenish grey, medium dense poorly graded, subangular, platey, calcitic sand		17	SPT	11 7 14
							70

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0261



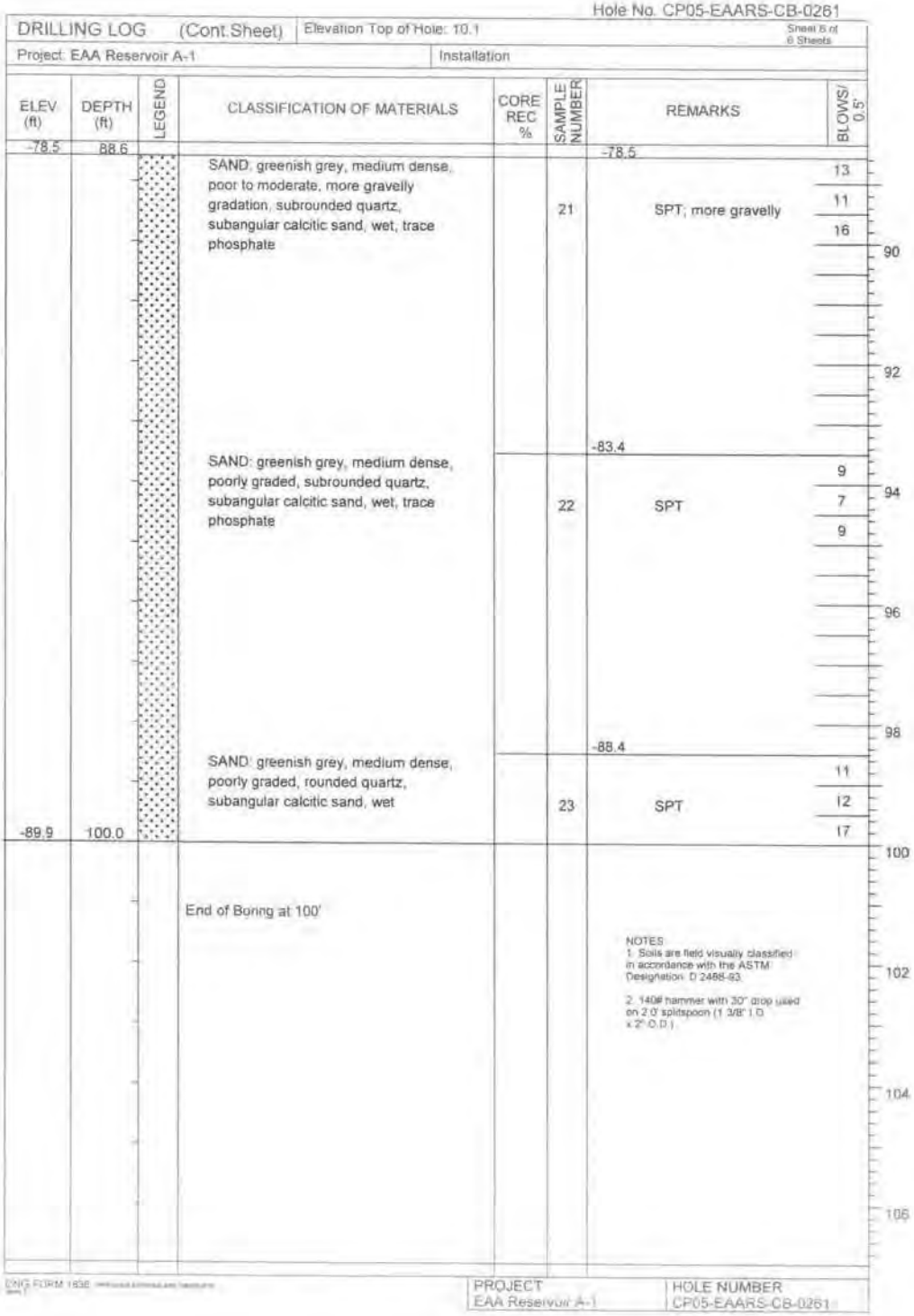
Hole No. CP05-EAARS-CB-0261

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.1 | Sheet 5 of 9 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.1	70.2					-60.1	
			SAND: greenish grey, medium dense, poorly graded, subrounded calcitic sand, rounded quartz, wet		18	SPT; one piece of limestone recovered	7 11 14
						-63.4	
			SAND: greenish grey, medium dense, moderately graded, subangular calcitic sand, rounded quartz, wet, shell fragments recovered		19	SPT	11 12 14
						-68.4	
			SAND: olive grey, medium dense, poorly graded, subangular calcitic sand, rounded quartz, wet, fine sand, trace silt		20	SPT	9 7 10
						-73.4	
						-78.4	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0261



Hole No. CP05-EAARS-CB-0261

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.5	88.6					-78.5	
			SAND: greenish grey, medium dense, poor to moderate, more gravelly gradation, subrounded quartz, subangular calcitic sand, wet, trace phosphate		21	SPT; more gravelly	13 11 16
						-83.4	
			SAND: greenish grey, medium dense, poorly graded, subrounded quartz, subangular calcitic sand, wet, trace phosphate		22	SPT	9 7 9
						-88.4	
-89.9	100.0		SAND: greenish grey, medium dense, poorly graded, rounded quartz, subangular calcitic sand, wet		23	SPT	11 12 17
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.).

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0261

Hole No. CP05-EAARS-CB-0262

DRILLING LOG Division: Installation: Sheet 1 of 5 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N763551, E781692.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0262	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
7. Thickness of Burden: N/A	16. Date Hole Started 7/18/2005 Completed 7/20/2005
8. Thickness of cap rock: N/A	17. Elevation Top of Hole: 11.8 (ft)
9. Depth of hole: 100.5 ft	18. Total Core Recovery for hole: N/A
	19. Inspector: J. Petrie

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.8	0.0						
			GRAVEL; light creamy grey, medium dense, fine, some coarse, angular to subangular, dry, silty and sandy		1	11.8 SPT; Road base	15 13 4
9.8	2.0					9.8	
			2' to 4.5' under our weight - no recovery Peat on side of SPT		2	SPT	0
						6.8	
			3" soft brown PEAT, then organic CLAY, very soft, brown black, wet		3	SPT	0 0 3
5.3	6.5					5.3	
			Light grey, thinly bedded, moderately strong to strong, fine grained LIMESTONE with rodent/worm holes Light grey and creamy brown, molted, medium bedded, moderately strong to strong, fine grained, shelly LIMESTONE becoming porous for bottom 0.3'	48 (RQD 30%)	1	HQ coring; UCS=3690psi	
0.3	11.5					0.3	
			Gravelly SAND: light grey, medium dense, well graded, fine to coarse, angular to subangular, wet, gravel flakes (fine size), limestone shell fragments				
						-2.2	
					4	SPT	10 18

ENG FORM 1836 PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0262

Hole No. CP05-EAARS-CB-0262

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.8 | Sheet 2 of 6 Sheets

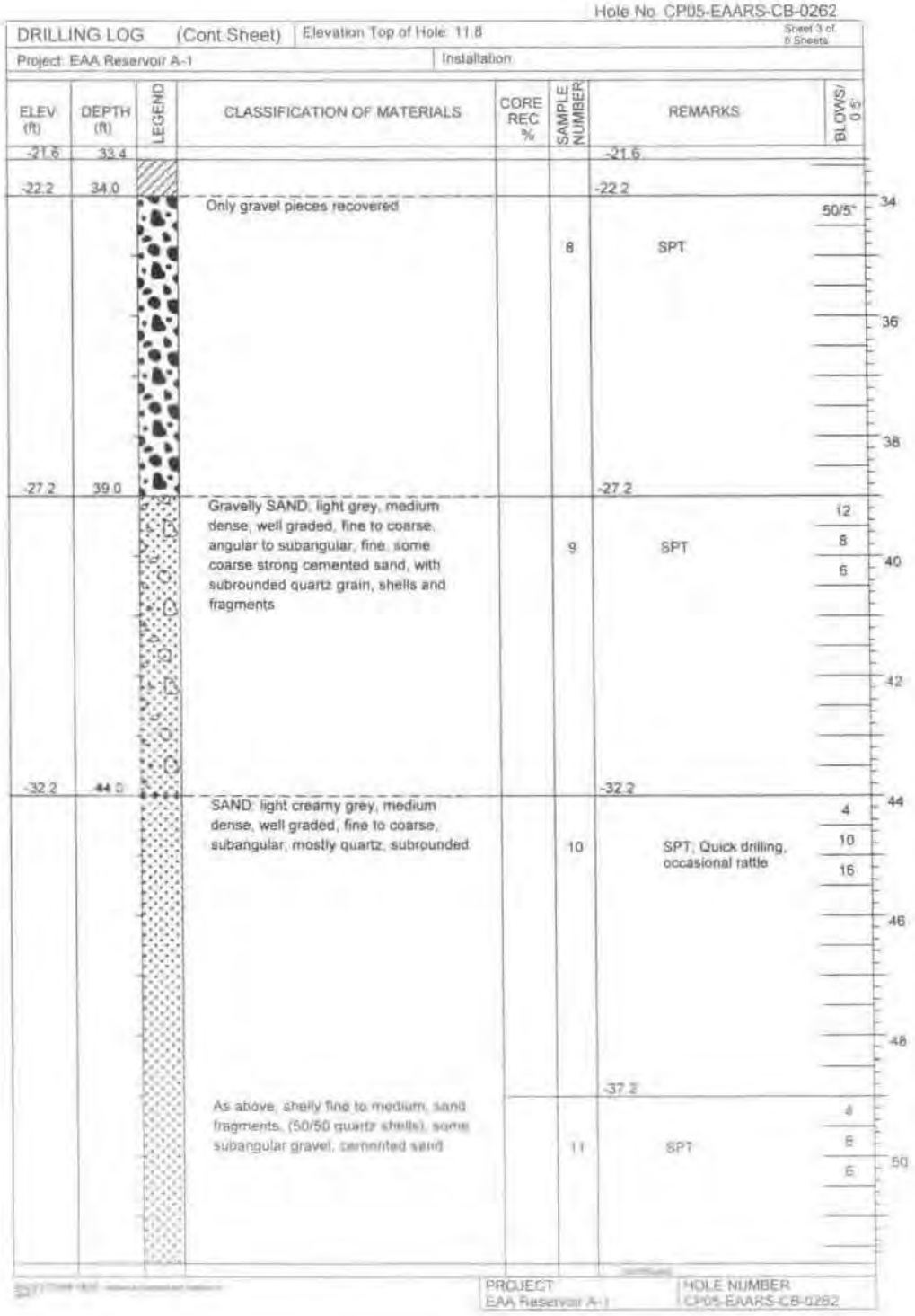
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.2	15.0					-3.2	8
							16
							18
-7.2	19.0		Clayey SAND: light grey, medium dense, well graded, fine to coarse, subangular, wet, shelly, fine quartz, calcareous sand		5	-7.2 SPT; soft and hard bands 0.5' thick	7 11 8
							20
							22
-12.2	24.0		SAND: light grey, medium dense, well graded, fine to medium, subangular with some fine gravel sized cemented sand, pieces and traces of clay, black rounded grains, fine medium sand		6	-12.2 SPT; thin cemented horizons less than 0.5' thick	2 3 11
							24
							26
							28
-17.2	29.0		Clayey SAND: dark brown, loose, well graded, fine o coarse, some hard cemented fine gravel, subangular, shelly		7	-17.2 SPT	5 4 14
							30
							32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0262



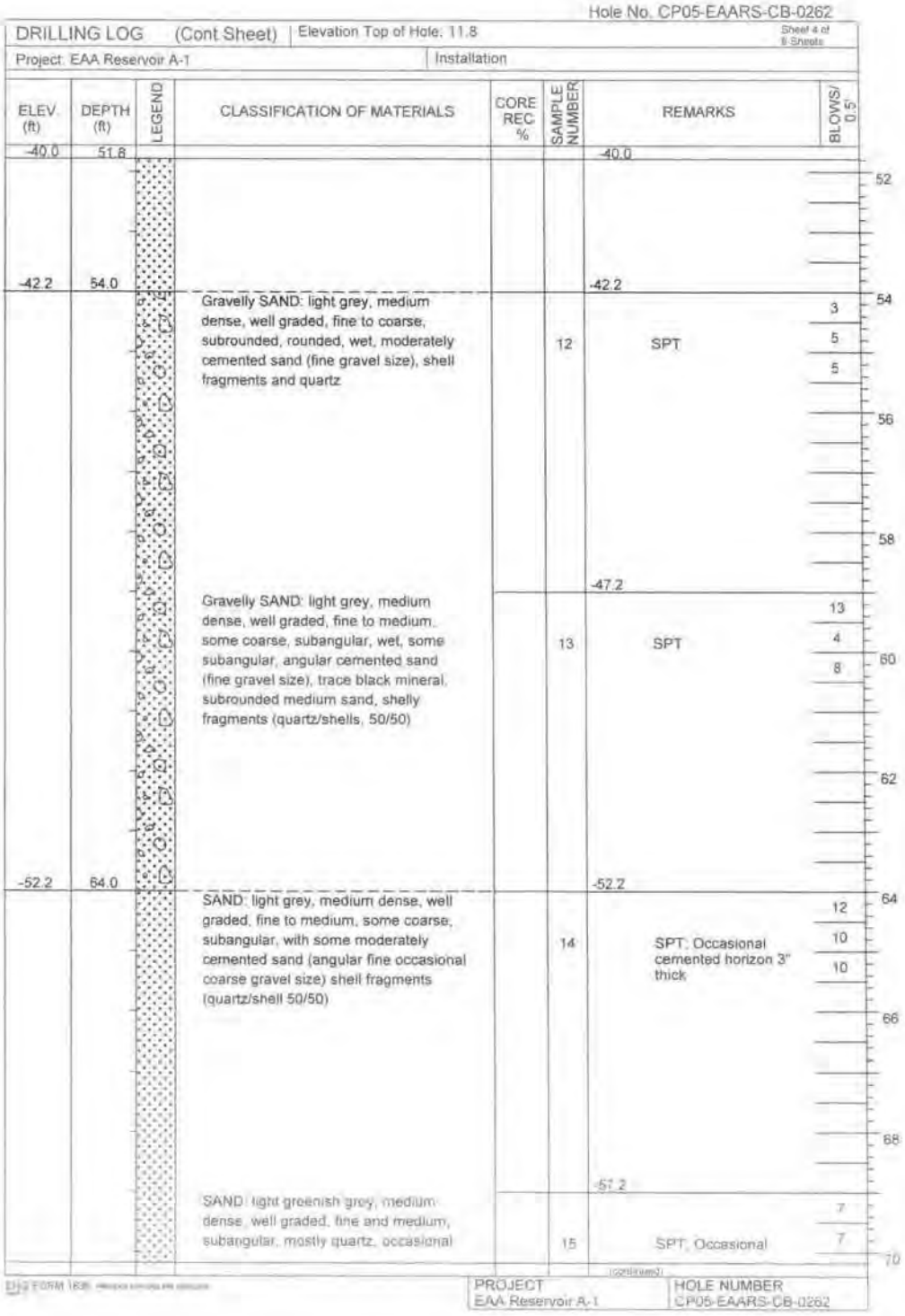
Hole No. CP05-EAARS-CB-0262

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.8 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.6	33.4					-21.6	
-22.2	34.0					-22.2	
			Only gravel pieces recovered		8	SPT	50/5"
-27.2	39.0					-27.2	
			Gravelly SAND: light grey, medium dense, well graded, fine to coarse, angular to subangular, fine, some coarse strong cemented sand, with subrounded quartz grain, shells and fragments		9	SPT	12 8 6
-32.2	44.0					-32.2	
			SAND: light creamy grey, medium dense, well graded, fine to coarse, subangular, mostly quartz, subrounded		10	SPT; Quick drilling, occasional rattle	4 10 16
						-37.2	
			As above, shelly fine to medium, sand fragments, (50/50 quartz shells), some subangular gravel, cemented sand		11	SPT	4 6 6

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0262



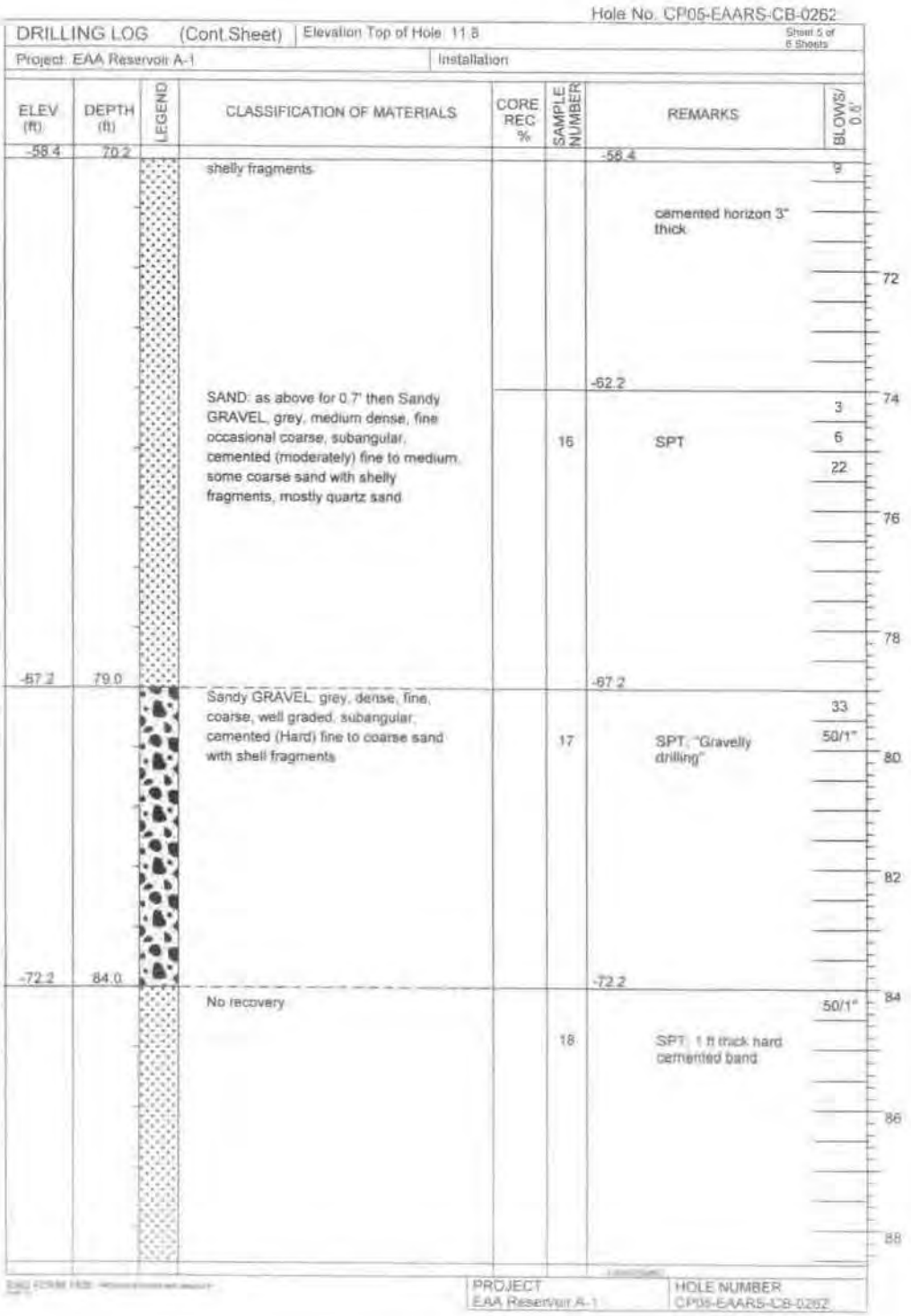
Hole No. CP05-EAARS-CB-0262

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.8 | Sheet 4 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-40.0	51.8					-40.0	
-42.2	54.0		Gravelly SAND: light grey, medium dense, well graded, fine to coarse, subrounded, rounded, wet, moderately cemented sand (fine gravel size), shell fragments and quartz		12	-42.2 SPT	3 5 5
			Gravelly SAND: light grey, medium dense, well graded, fine to medium, some coarse, subangular, wet, some subangular, angular cemented sand (fine gravel size), trace black mineral, subrounded medium sand, shelly fragments (quartz/shells, 50/50)		13	-47.2 SPT	13 4 8
-52.2	64.0		SAND: light grey, medium dense, well graded, fine to medium, some coarse, subangular, with some moderately cemented sand (angular fine occasional coarse gravel size) shell fragments (quartz/shell 50/50)		14	-52.2 SPT; Occasional cemented horizon 3" thick	12 10 10
			SAND: light greenish grey, medium dense, well graded, fine and medium, subangular, mostly quartz, occasional		15	-57.2 SPT; Occasional	7 7

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0262



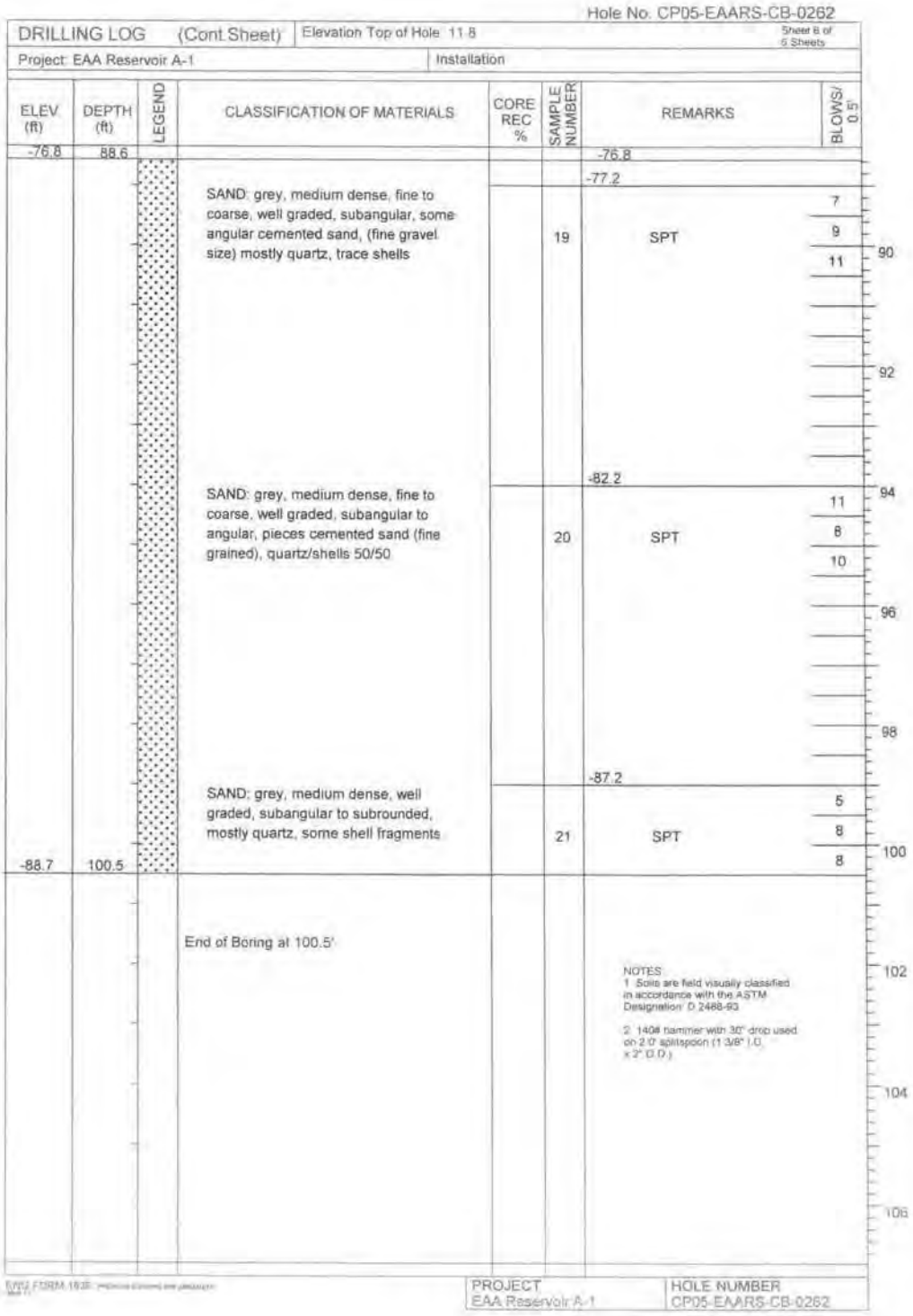
Hole No. CP05-EAARS-CB-0262

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.8 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-58.4	70.2					-58.4	
			shelly fragments			cemented horizon 3" thick	72
						-62.2	
			SAND: as above for 0.7' then Sandy GRAVEL, grey, medium dense, fine occasional coarse, subangular, cemented (moderately) fine to medium, some coarse sand with shelly fragments, mostly quartz sand		16	SPT	3 6 22 74 76
-67.2	79.0					-67.2	78
			Sandy GRAVEL, grey, dense, fine, coarse, well graded, subangular, cemented (Hard) fine to coarse sand with shell fragments		17	SPT, "Gravelly drilling"	33 50/1" 80 82
-72.2	84.0					-72.2	
			No recovery		18	SPT, 1 ft thick hard cemented band	50/1" 84 86 88

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0262



Hole No. CP05-EAARS-CB-0262

DRILLING LOG (Cont Sheet) | Elevation Top of Hole 11.8 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-76.8	88.6					-76.8	
						-77.2	
			SAND: grey, medium dense, fine to coarse, well graded, subangular, some angular cemented sand, (fine gravel size) mostly quartz, trace shells		19	SPT	7 9 11
						-82.2	
			SAND: grey, medium dense, fine to coarse, well graded, subangular to angular, pieces cemented sand (fine grained), quartz/shells 50/50		20	SPT	11 8 10
						-87.2	
			SAND: grey, medium dense, well graded, subangular to subrounded, mostly quartz, some shell fragments		21	SPT	5 8 8
-88.7	100.5						
			End of Boring at 100.5'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation D 2488-93.
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0262

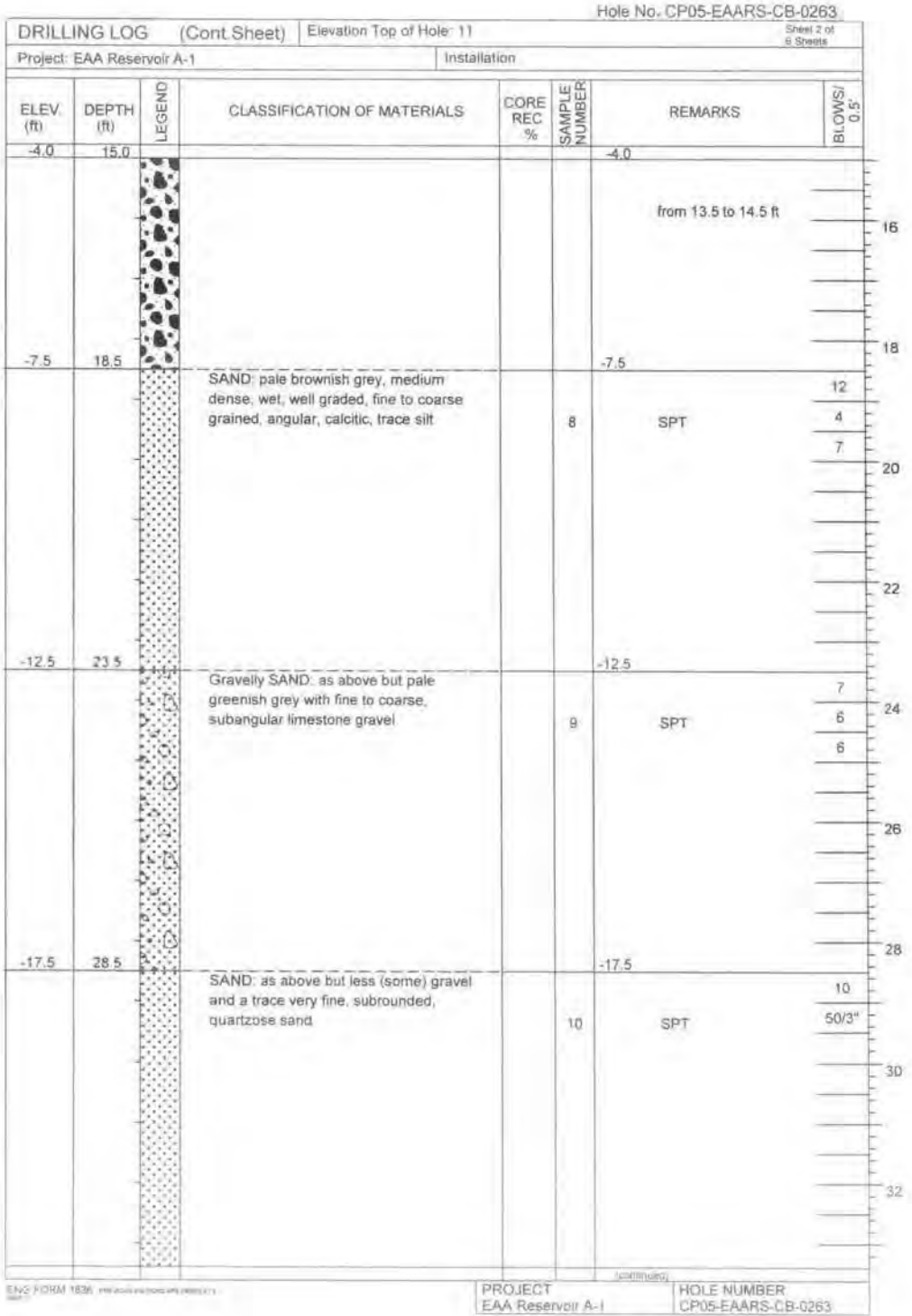
Hole No. CP05-EAARS-CB-0263

DRILLING LOG	Division:	Installation:	Sheet 1 of # Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N759777, E784912.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No. CP05-EAARS-CB-0263		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/29/2005 Completed 8/2/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.0	0.0						
			PEAT: black, dry, medium dense, fine grained, organic, with some fine to coarse, angular limestone gravel. Moist at 3.6 ft		1	11.0 SPT; Fill 9.5	5 5 6
					2	SPT 8.0	10 7 4
					3	SPT 6.5	4 2 3
6.5	4.5		Silty SAND: light brownish grey, wet, medium dense, well graded, fine to coarse, angular, calcitic, slightly plastic with some angular, fine to coarse, limestone, gravel		4	SPT 5.0	16 10 14
4.6	6.4		LIMESTONE caprock		5	SPT; Limestone caprock from 6.4 to 11 ft 3.5	50/5"
					6	2.5 SPT; Only limestone chips at 7.5 ft; Hard drilling from 7.5 to 8.5 ft	50/2"
				20 (RQD 0%)	1	HQ coring	
0.0	11.0		Sandy GRAVEL: light brownish grey, very dense, wet, well graded, fine to coarse, angular, limestone			-2.5	
					7	SPT; Quit at 13.5 ft on 7/29/05; Resumed 8/2/05; Hard drilling	30 50/3"

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0263



Hole No. CP05-EAARS-CB-0263

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11 | Sheet 2 of 6 Sheets

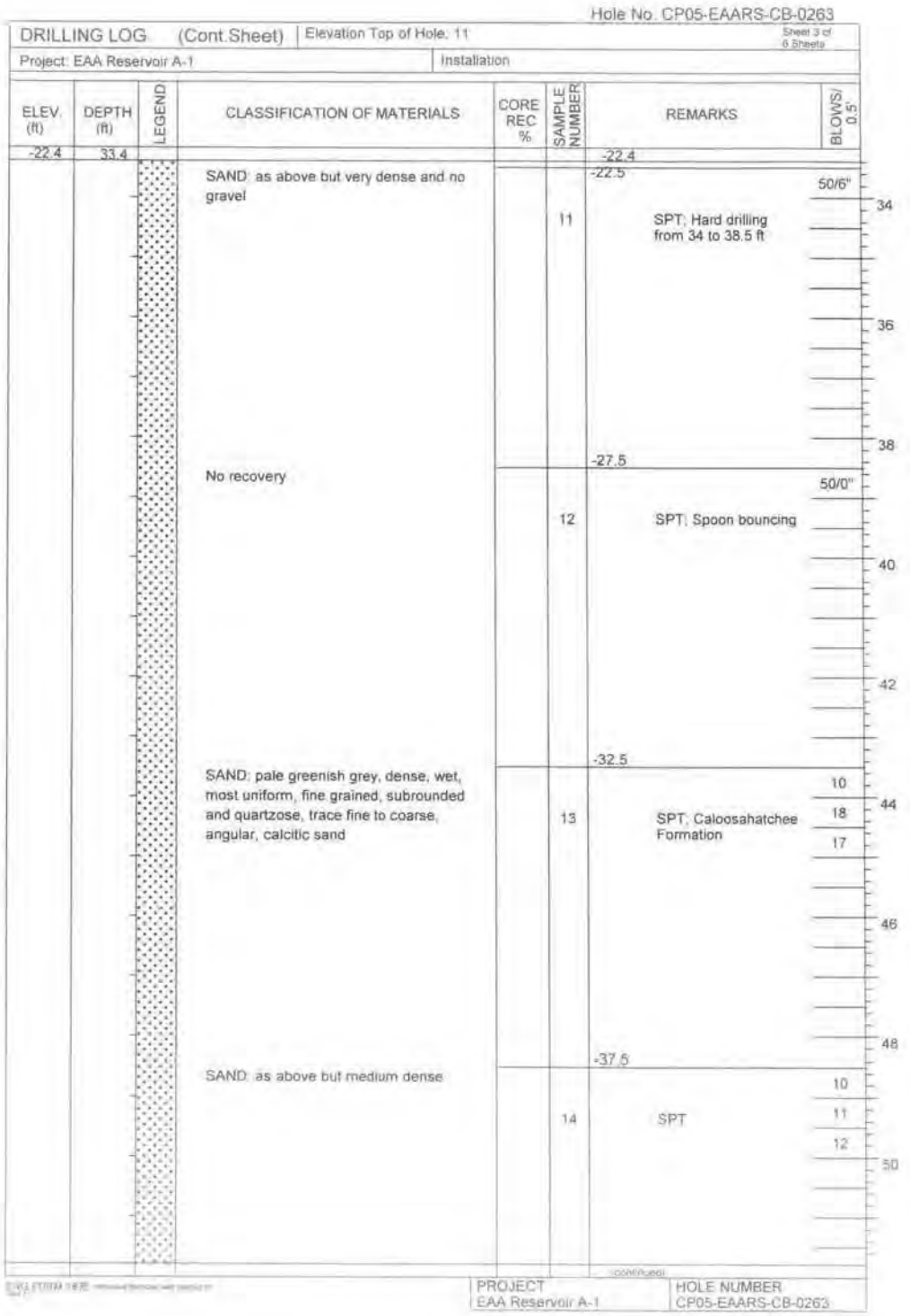
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.0	15.0					-4.0	
						from 13.5 to 14.5 ft	16
-7.5	18.5		SAND: pale brownish grey, medium dense, wet, well graded, fine to coarse grained, angular, calcitic, trace silt		8	-7.5 SPT	18 12 4 7
-12.5	23.5		Gravelly SAND: as above but pale greenish grey with fine to coarse, subangular limestone gravel		9	-12.5 SPT	20 7 6 6
-17.5	28.5		SAND: as above but less (some) gravel and a trace very fine, subrounded, quartzose sand		10	-17.5 SPT	22 24 26 28 10 50/3"
							30 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-I | HOLE NUMBER: CP05-EAARS-CB-0263



Hole No. CP05-EAARS-CB-0263

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.4	33.4					-22.4	
			SAND: as above but very dense and no gravel			-22.5	50/6"
					11	SPT; Hard drilling from 34 to 38.5 ft	34
							36
							38
			No recovery			-27.5	50/0"
					12	SPT; Spoon bouncing	40
							42
						-32.5	
			SAND: pale greenish grey, dense, wet, most uniform, fine grained, subrounded and quartzose, trace fine to coarse, angular, calcitic sand		13	SPT; Caloosahatchee Formation	10 18 17
							44
							46
							48
						-37.5	
			SAND: as above but medium dense		14	SPT	10 11 12
							50

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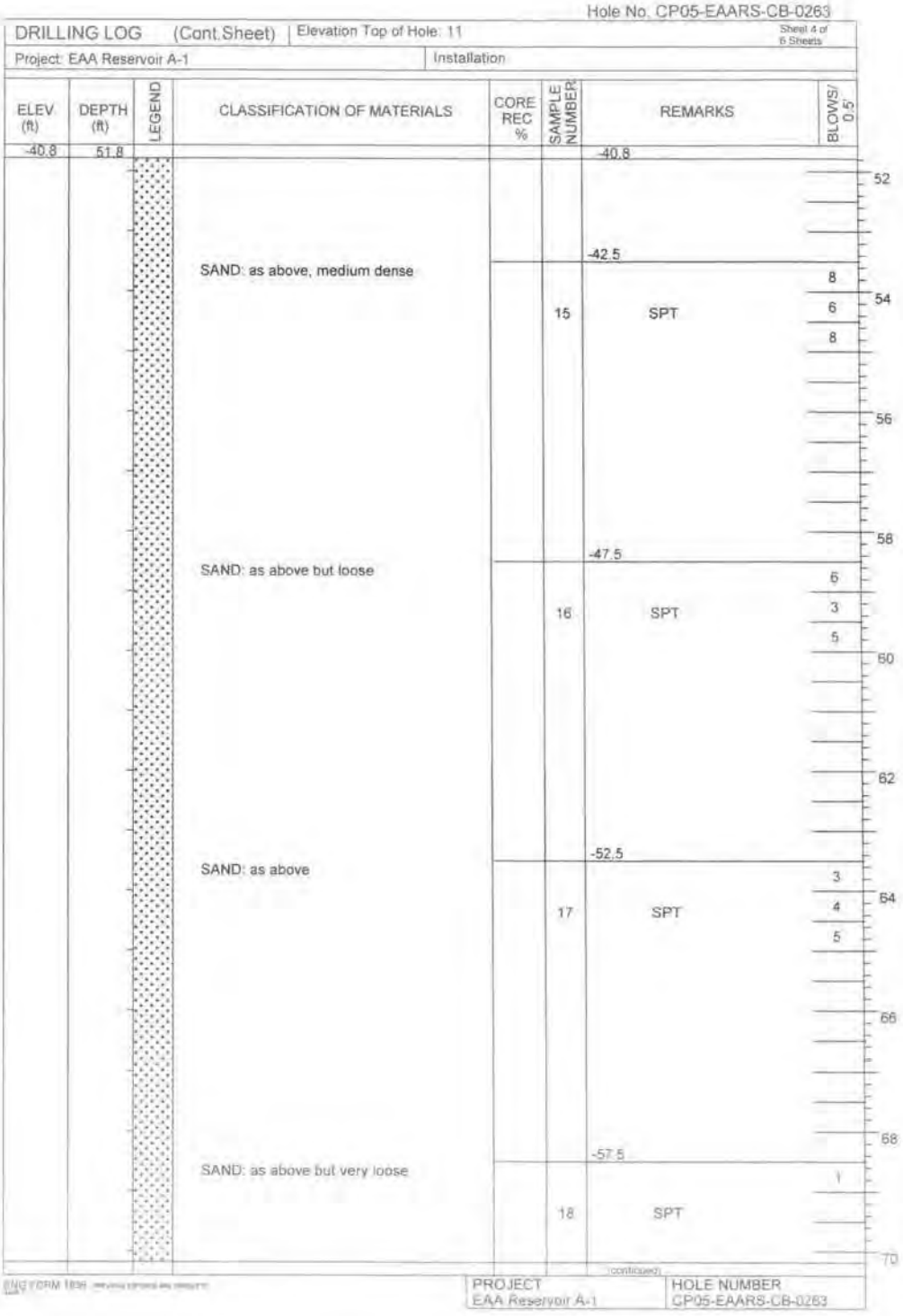
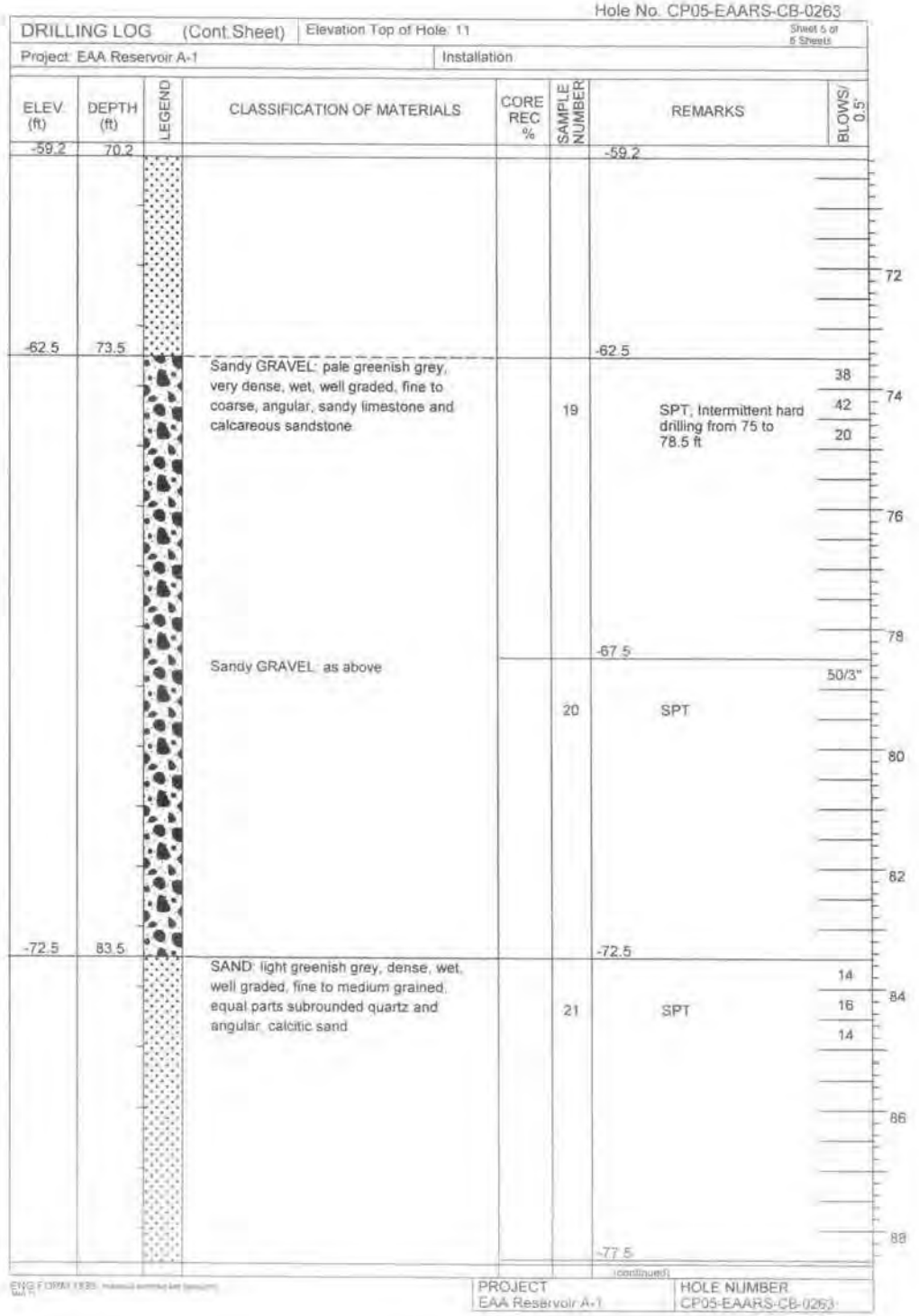
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0263


Hole No. CP05-EAARS-CB-0263
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11
Sheet 4 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-40.8
51.8
-40.8
SAND: as above, medium dense
-42.5
15
SPT
8
6
8
SAND: as above but loose
-47.5
16
SPT
6
3
5
SAND: as above
-52.5
17
SPT
3
4
5
SAND: as above but very loose
-57.5
18
SPT
1
52
54
56
58
60
62
64
66
68
70
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0263



Hole No. CP05-EAARS-CB-0263

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.2	70.2					-59.2	
-62.5	73.5		Sandy GRAVEL: pale greenish grey, very dense, wet, well graded, fine to coarse, angular, sandy limestone and calcareous sandstone		19	-62.5 SPT, Intermittent hard drilling from 75 to 78.5 ft	38 42 20
			Sandy GRAVEL: as above		20	-67.5 SPT	50/3"
-72.5	83.5		SAND: light greenish grey, dense, wet, well graded, fine to medium grained, equal parts subrounded quartz and angular, calcitic sand		21	-72.5 SPT	14 16 14
						-77.5	

(continued)

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0263

Hole No. CP05-EAARS-CB-0263

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-77.6	88.6					-77.6	
			SAND: light greenish grey, dense, wet, well graded, fine to coarse grained, mostly angular, calcitic, trace subrounded quartzose		22	SPT	14 15 16
						-82.5	
			SAND: as above but with some fine gravel and medium dense		23	SPT	11 12 11
						-87.5	
			SAND: as above with some fine gravel but dense		24	SPT	14 19 14
-89.0	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0263

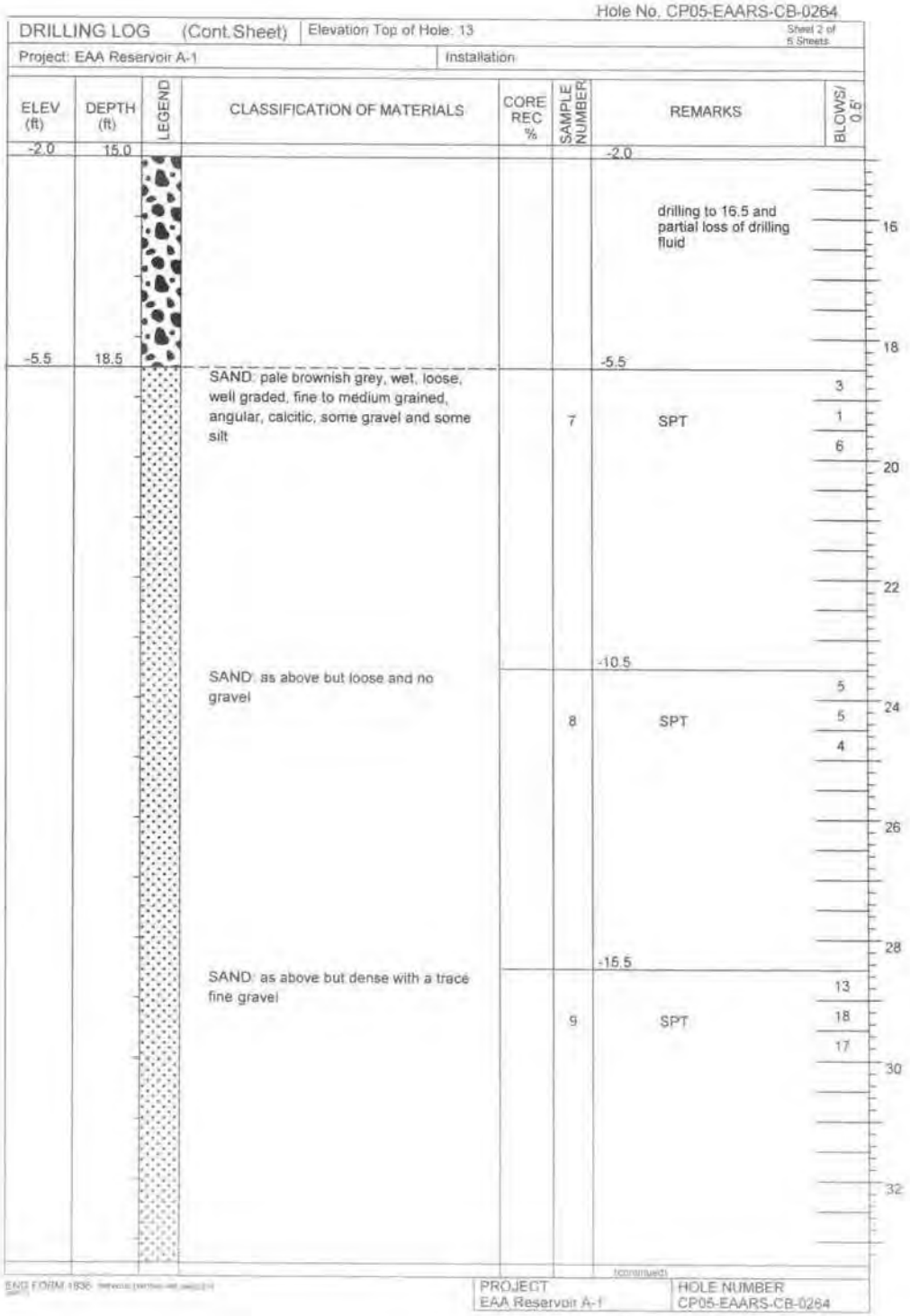
Hole No. CP05-EAARS-CB-0264

DRILLING LOG	Division:	Installation:	Sheet 1 of 9 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N756489.3, E786955.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0264	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/19/2005 Completed 7/19/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 13 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 100 ft	19. Inspector: N. Holst

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
13.0	0.0						
			Gravelly SAND: yellowish grey to light brown, dry, very dense, well graded, fine to coarse grained, angular, calcitic, roadfill		1	13.0 SPT 11.5	39 40 33
					2	SPT 9.5	18 18 23
9.5	3.5		PEAT at 3.5 ft to 5.7 ft		3	SPT 8.0	1 2 2
7.3	5.7				4	SPT 6.5	2 1 50/5"
6.5	6.5		Gravelly CLAY: dark gray, plastic, soft				
			LIMESTONE: pale yellow grey, grey and light brown, fine grained, thinly bedded, fossiliferous, vuggy, moderately strong and hard to soft and weak	64 (RQD 40%)	1	HQ coring; UCS=1530psi 1.5	
3.0	10.0						
			GRAVEL: pale brownish grey, wet, loose, angular, calcitic, trace sand		5	SPT -0.5	2 2 5
			GRAVEL: as above but very dense		6	SPT: Hard drilling from 13.5 to 18 ft, then intermittent hard	50/4"

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0264



Hole No. CP05-EAARS-CB-0264

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.0	15.0					-2.0	
						drilling to 16.5 and partial loss of drilling fluid	16
-5.5	18.5					-5.5	18
			SAND: pale brownish grey, wet, loose, well graded, fine to medium grained, angular, calcitic, some gravel and some silt		7	SPT	3 1 6
							20
							22
						-10.5	
			SAND: as above but loose and no gravel		8	SPT	5 5 4
							24
							26
						-15.5	28
			SAND: as above but dense with a trace fine gravel		9	SPT	13 18 17
							30
							32

(continued)

END FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0264

Hole No. CP05-EAARS-CB-0264

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 13 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-20.4	33.4					-20.4	
-20.5	33.5		Gravelly SAND: as above but more gravel		10	-20.5 SPT	50/3"
-25.5	38.5		Only one angular fragment of LIMESTONE recovered		11	-25.5 SPT; Spoon bouncing; Hard drilling from 38.5 to 42 ft	50/0"
-29.0	42.0		SAND: pale brownish grey to grey, wet, dense, poorly graded, fine grained, subrounded, quartzose with a trace to some fine to coarse, angular, calcitic sand		12	-30.5 SPT; Caloosahatchee Formation	20, 17, 17
			SAND: as above but pale greenish grey and medium dense, very little calcitic sand <1%		13	-35.5 SPT	9, 7, 11

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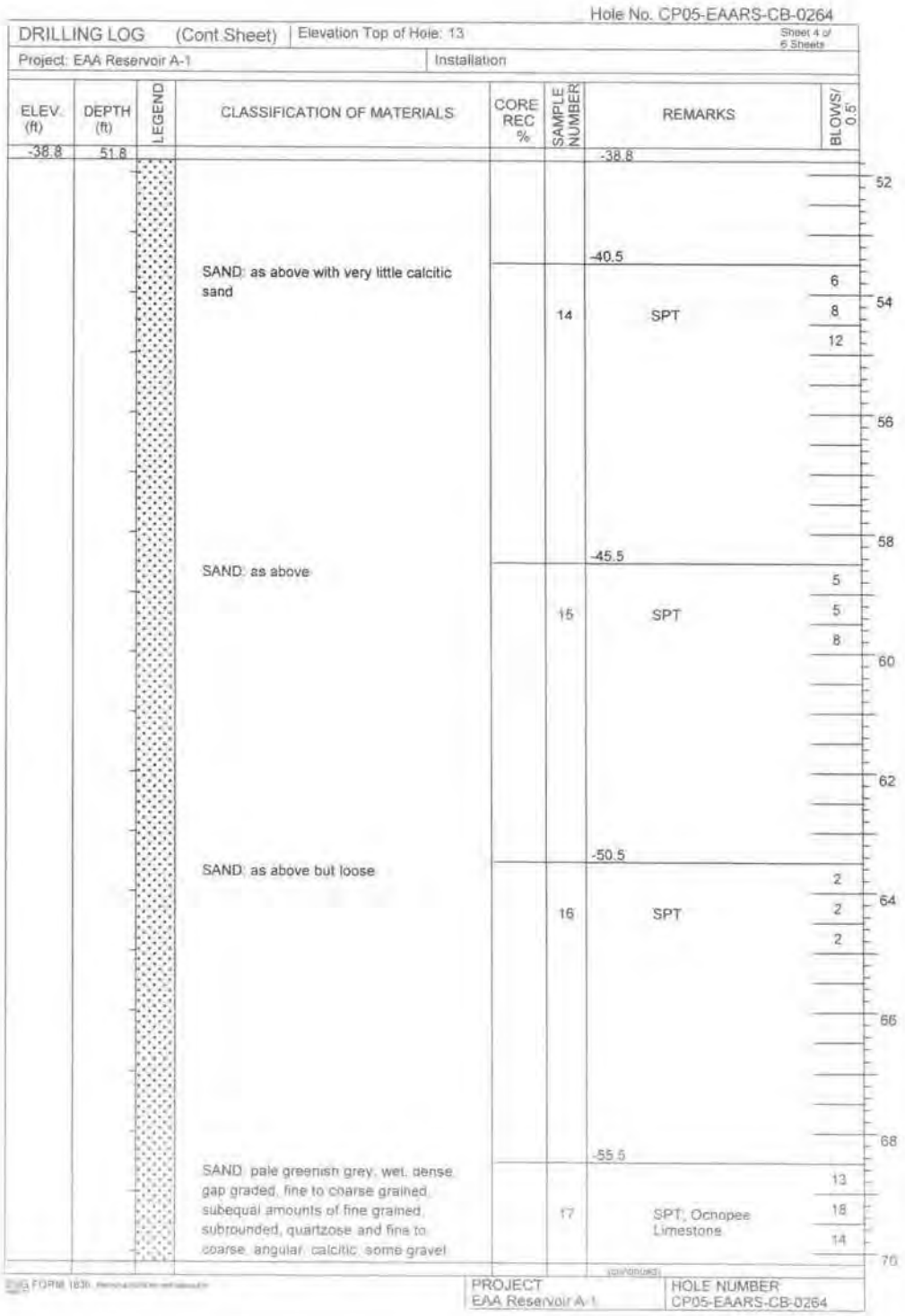
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0264



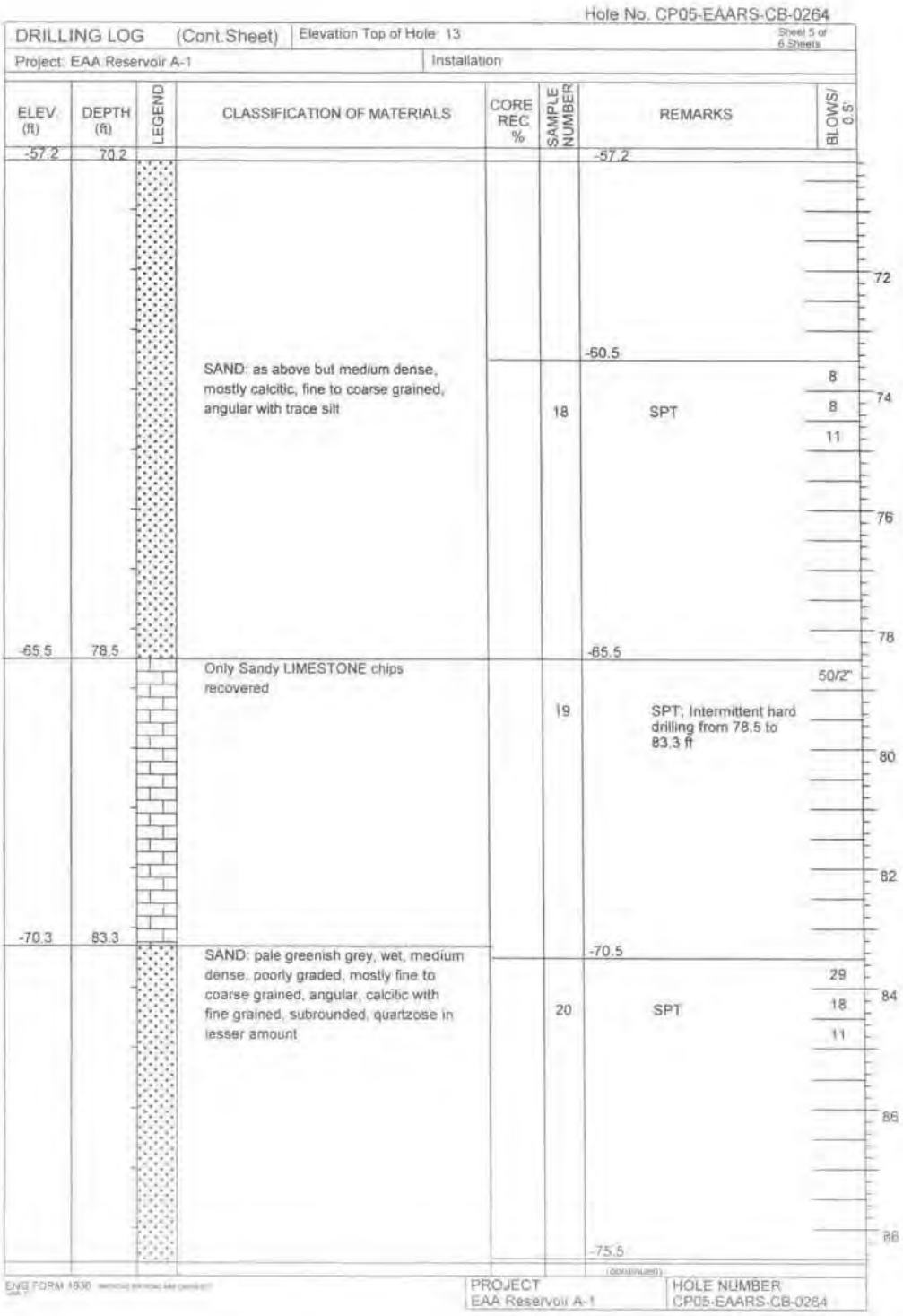
Hole No. CP05-EAARS-CB-0264

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 13 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-38.8	51.8					-38.8	
			SAND: as above with very little calcitic sand		14	SPT	6, 8, 12
						-40.5	
			SAND: as above		15	SPT	5, 5, 8
						-45.5	
			SAND: as above but loose		16	SPT	2, 2, 2
						-50.5	
			SAND: pale greenish grey, wet, dense, gap graded, fine to coarse grained, subequal amounts of fine grained, subrounded, quartzose and fine to coarse, angular, calcitic, some gravel		17	SPT; Ochopee Limestone	13, 18, 14
						-55.5	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0264



Hole No. CP05-EAARS-CB-0264

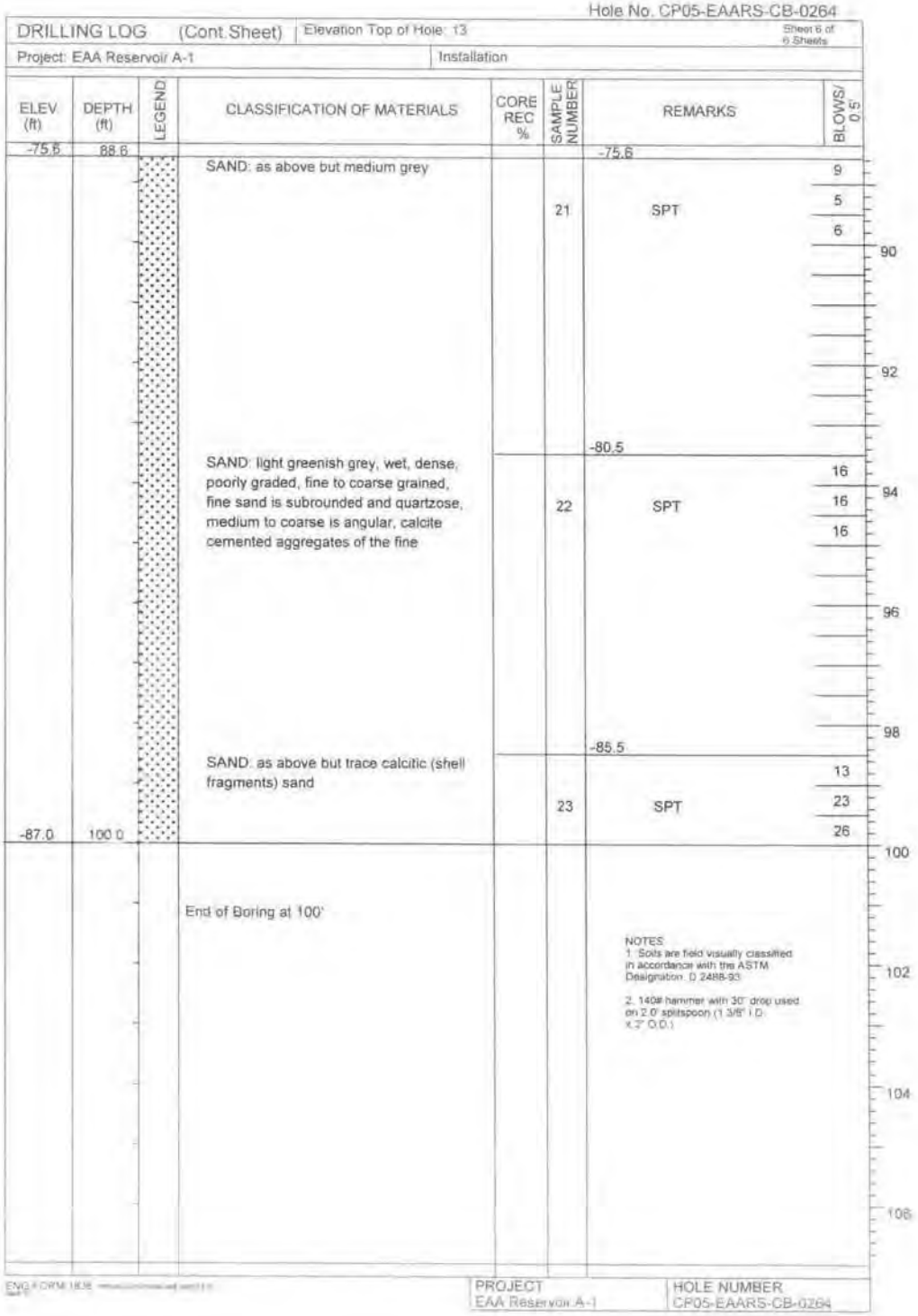
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-57.2	70.2					-57.2	
			SAND: as above but medium dense, mostly calcitic, fine to coarse grained, angular with trace silt		18	-60.5 SPT	8 8 11
-65.5	78.5		Only Sandy LIMESTONE chips recovered		19	-65.5 SPT; Intermittent hard drilling from 78.5 to 83.3 ft	50/2"
-70.3	83.3		SAND: pale greenish grey, wet, medium dense, poorly graded, mostly fine to coarse grained, angular, calcitic with fine grained, subrounded, quartzose in lesser amount		20	-70.5 SPT	29 18 11
						-75.5	

72 74 76 78 80 82 84 86 88

ENG FORM 1836 | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0264



Hole No. CP05-EAARS-CB-0264

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-75.6	88.6					-75.6	
			SAND: as above but medium grey		21	SPT	9 5 6
							90
							92
						-80.5	
			SAND: light greenish grey, wet, dense, poorly graded, fine to coarse grained, fine sand is subrounded and quartzose, medium to coarse is angular, calcite cemented aggregates of the fine		22	SPT	16 16 16
							94
							96
							98
						-85.5	
			SAND: as above but trace calcitic (shell fragments) sand		23	SPT	13 23 26
-87.0	100.0						
							100
			End of Boring at 100'				
							102
							104
							106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0264

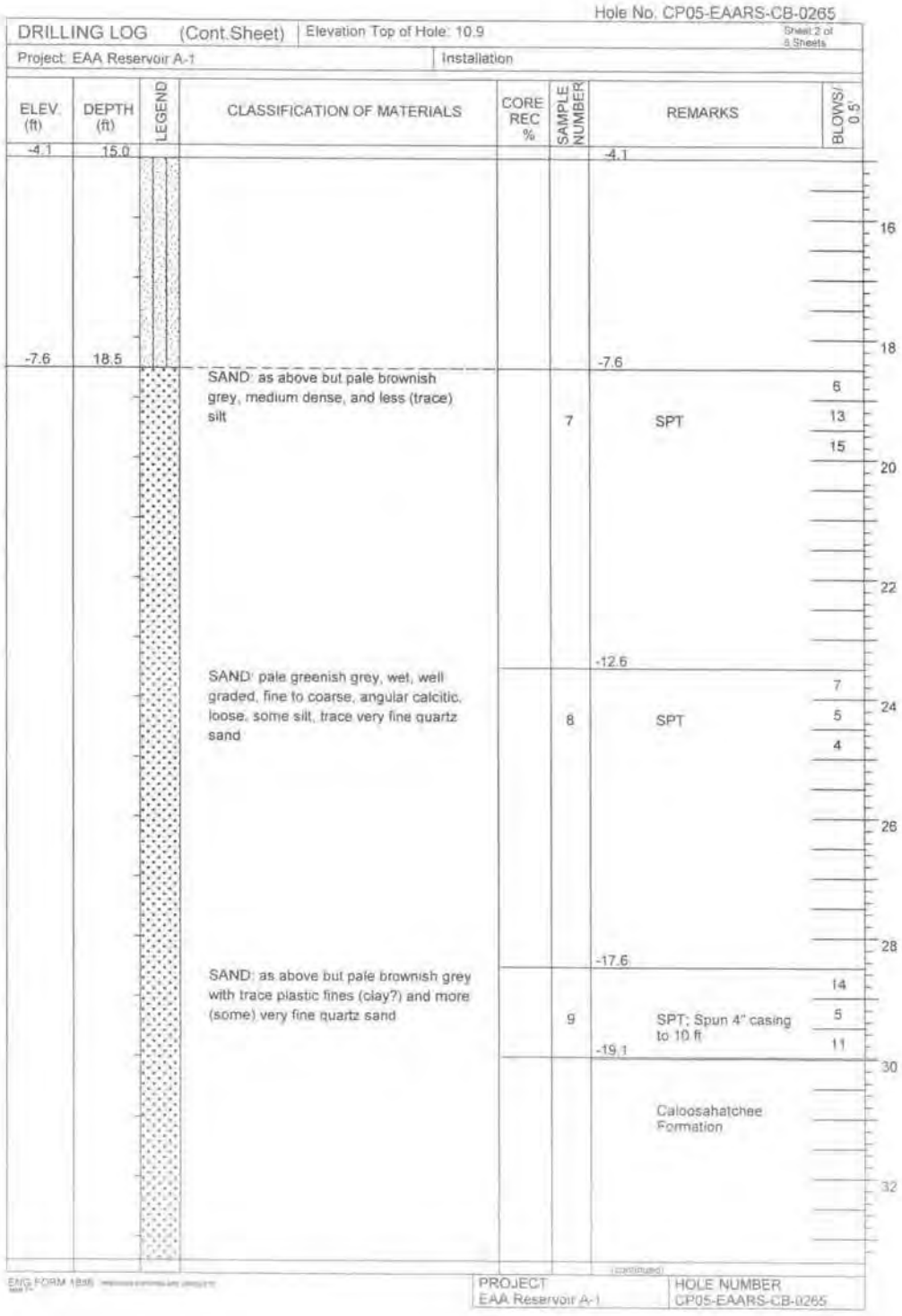
Hole No. CP05-EAARS-CB-0265

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N753196.9, E789525.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0265	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole: ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/28/2005 Completed 7/28/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 100 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.9	0.0						
			PEAT: black, fine grained, moist, loose to moderately dense, organic			10.9	4
					1	SPT	4
						9.4	9
							5
					2	SPT	5
						7.9	3
			Wet at 3.0 ft, limestone chips				0
					3	SPT	0
6.5	4.4					6.5	18
			LIMESTONE: tan, fine to coarse, thinly bedded, fossiliferous, vuggy, strong and hard to soft, weak, porous, friable			6.4	50/0"
					4	5.7 SPT	
						HQ coring, GW: Well graded gravel with sand; Hard drilling at 4.4 ft; Spoon bouncing	
			Limestone above is probably a boulder in Fill				
3.9	7.0					Limestone is probably a boulder in Fill	
			PEAT: as above and limestone chips				
						1.4	50/5"
					5	SPT	
-2.1	13.0						
			Silty SAND: pale greenish grey, well graded, fine to coarse grained, angular calcitic, loose, trace limestone gravel, wet			-2.6	
					6	SPT: Hard drilling from -2.5 to -13 ft	3 5 3

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0265



Hole No. CP05-EAARS-CB-0265

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 2 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.1	15.0					-4.1	
-7.6	18.5		SAND: as above but pale brownish grey, medium dense, and less (trace) silt		7	-7.6 SPT	6, 13, 15
			SAND: pale greenish grey, wet, well graded, fine to coarse, angular calcitic, loose, some silt, trace very fine quartz sand		8	-12.6 SPT	7, 5, 4
			SAND: as above but pale brownish grey with trace plastic fines (clay?) and more (some) very fine quartz sand		9	-17.6 SPT; Spun 4" casing to 10 ft	14, 5, 11
						-19.1 Caloosahatchee Formation	

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0265

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Hole No. CP05-EAARS-CB-0265

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.5	33.4					-22.5	
			SAND: pale greenish grey, wet, medium dense, well graded, subequal amount , fine, quartz, subrounded and fine to coarse, angular, calcitic sand, trace gravel		10	-22.6 SPT; Firm to hard drilling to 38.5 ft	3 4 15
						-27.6	
			SAND: as above with limestone chips		11	SPT	50/4"
-32.6	43.5					-32.6	
			Sandy GRAVEL: pale greenish grey, dense, wet, poorly graded, fine angular sandy limestone gravel with sand as above		12	SPT	13 17 21
-37.5	48.5					-37.6	
			SAND: light olive grey, dense, wet, mostly uniform, fine grained, quartzose, some fine to coarse, angular, calcitic		13	SPT	9 11 20

END FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0265

Hole No. CP05-EAARS-CB-0265

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.9 | Sheet 4 of 6 Sheets

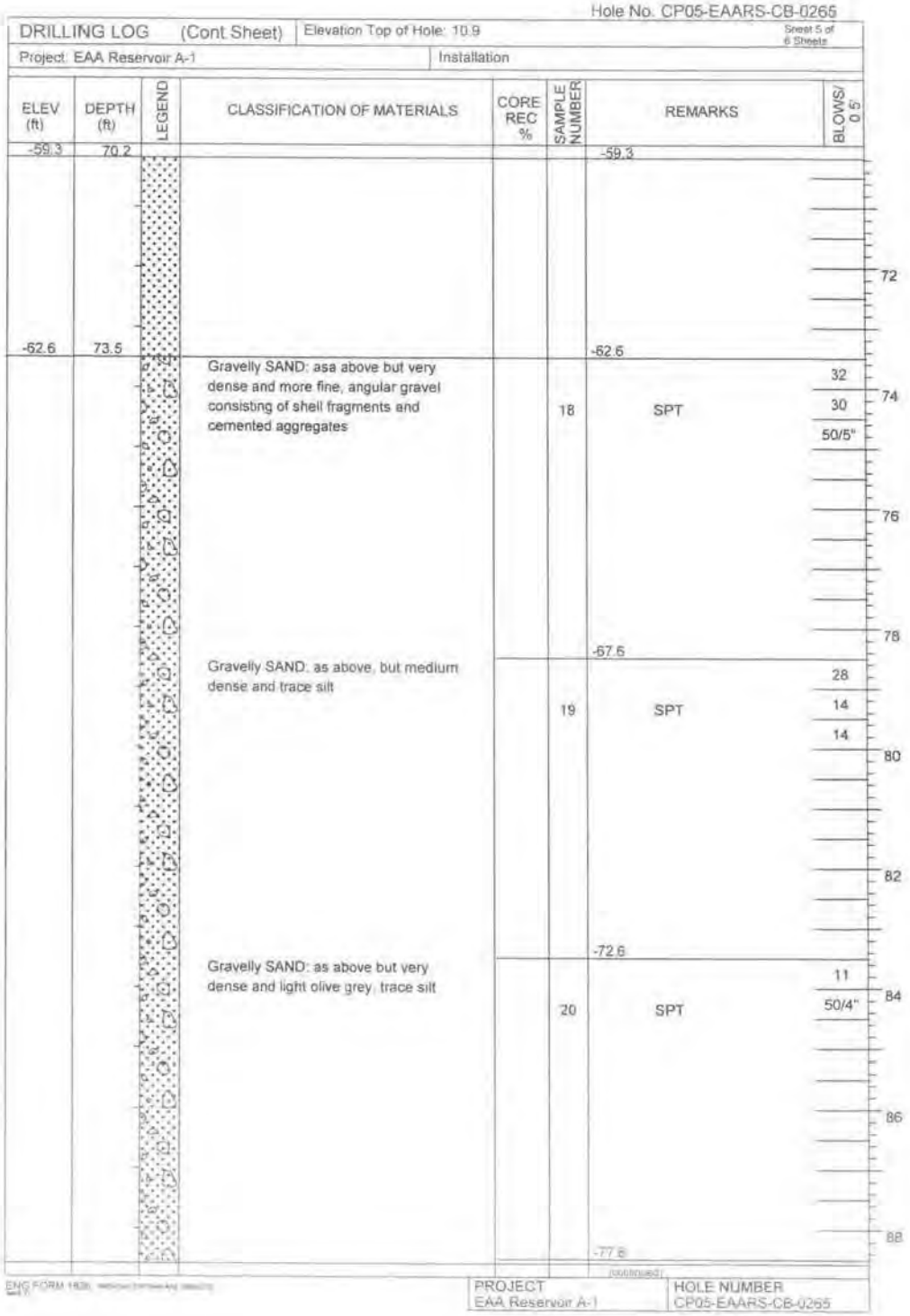
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-40.9	51.8					-40.9	52
			SAND: as above but only a trace calcitic sand, almost all fine quartz and medium dense, trace silt		14	-42.6 SPT	10, 9, 10 — 54, 56, 58
			SAND: as above		15	-47.6 SPT	5, 6, 7 — 60, 62
			SAND: as above but loose		16	-52.6 SPT	3, 3, 3 — 64, 66, 68
			SAND: pale greenish grey, wet, medium dense, poorly graded, subequal portions, fine subrounded, quartzose and fine to coarse, angular calcitic trace gravel		17	-57.6 SPT, Ochopee Limestone	11, 10, 13 — 70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0265



Hole No. CP05-EAARS-CB-0265

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.9 | Sheet 5 of 6 Sheets

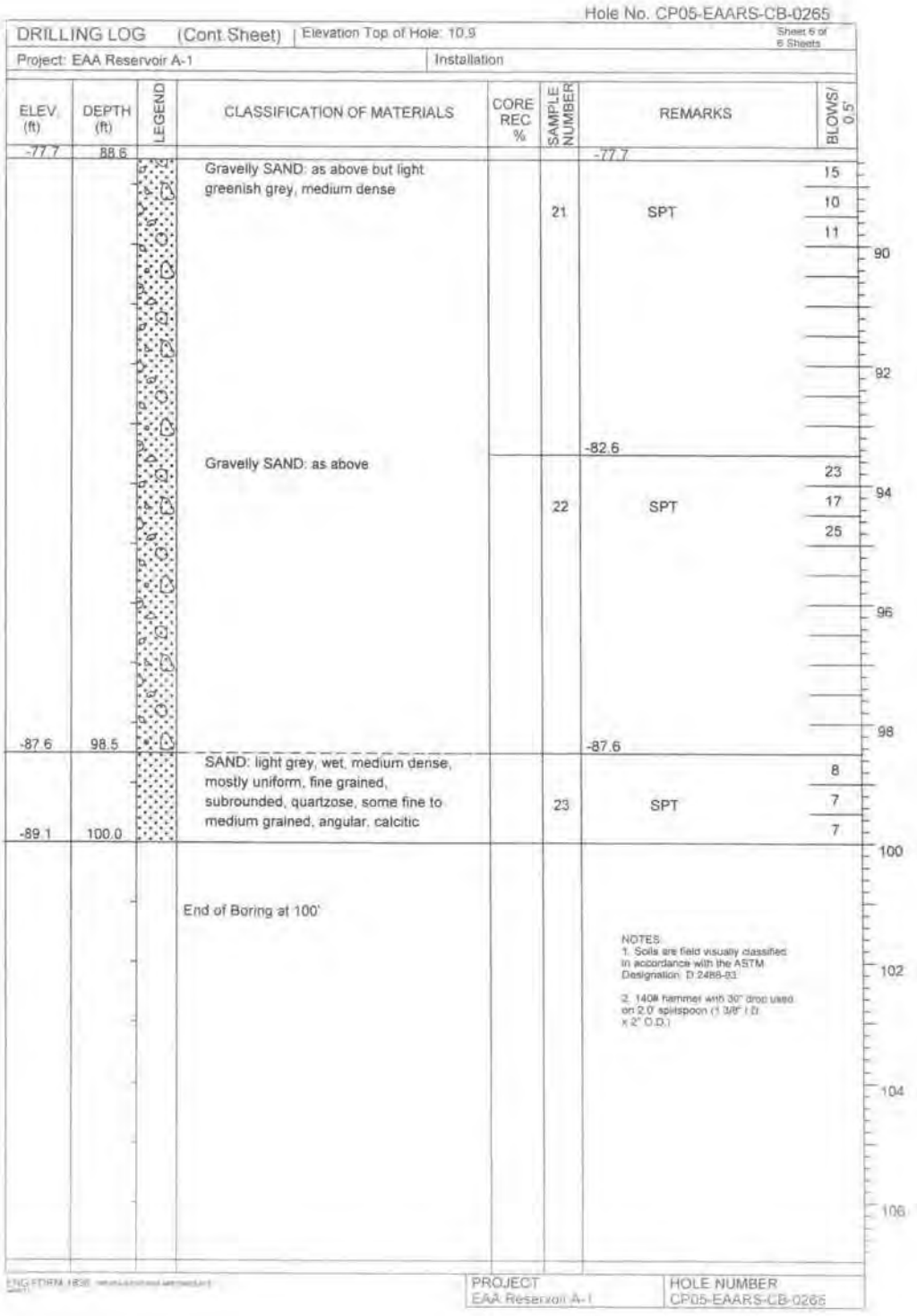
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.3	70.2					-59.3	
-62.6	73.5		Gravelly SAND: asa above but very dense and more fine, angular gravel consisting of shell fragments and cemented aggregates		18	-62.6 SPT	32, 30, 50/5"
			Gravelly SAND: as above, but medium dense and trace silt		19	-67.6 SPT	28, 14, 14
			Gravelly SAND: as above but very dense and light olive grey, trace silt		20	-72.6 SPT	11, 50/4"
						-77.6	

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0265



Hole No. CP05-EAARS-CB-0265

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.9 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-77.7	88.6					-77.7	
			Gravelly SAND: as above but light greenish grey, medium dense		21	SPT	15 10 11
						-82.6	
			Gravelly SAND: as above		22	SPT	23 17 25
-87.6	98.5					-87.6	
			SAND: light grey, wet, medium dense, mostly uniform, fine grained, subrounded, quartzose, some fine to medium grained, angular, calcitic		23	SPT	8 7 7
-89.1	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0265

Hole No. CP05-EAARS-CB-0266

DRILLING LOG	Division	Installation	Sheet 1 of 8 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750586, E791226.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0266		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole: ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/6/2005 Completed 7/6/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.3	0.0						
			SAND: light brownish grey, wet, top 0.5 ft medium dense, semi angular calcitic sand, shell fragments, trace gravel and silt			10.3	15
9.3	1.0				1	9.3 SPT	50/5"
			CORE: only a few chips of limestone recovered, pale white, shell fragments in chips	16 (RQD 0%)	1	HQ coring: Core: 1.0 to 4.0 ft	
6.3	4.0					6.3	
						4.8	
			Gravelly SAND: grey, wet, very dense, angular, carbonate sand		2	SPT: CO3=76.8%; SW-SM; Well graded sand with silt+gravel; Moisture=13%	7 32 32
			Same as above, except medium dense		3	3.3 SPT	5 6 6
			Gravelly SAND: dark greenish grey, wet		4	1.8 SPT	50/4"
			Gravelly SAND: angular carbonate sand		5	0.3 SPT: spoon bouncing. Quite hard drilling from 9.0 to 15.5 ft	22 50/1"
-1.2	11.5		SAND: finer particles, trace silt, very dense		6	-1.2 SPT: SM: Silty sand; Moisture=24%	30 50/4"
			Same as above, shelly fragments recovered		7	-2.1 SPT	39 11 42
			SAND: greenish grey, wet, very dense			-4.2	50/5"

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0266

Hole No. CP05-EAARS-CB-0266

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.3 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'	
-4.7	15.0					-4.7		
			semiangular, carbonate sand		8	-5.7 SPT; SM; Silty sand with gravel; Moisture=34%		
			SAND: light grey, wet, very loose, semi-angular carbonate sand				7	16
					9	SPT; SM; Silty sand; Moisture=36%	4	
						-7.2	4	
			Same as above, but dense				7	
					10	SPT	17	18
						-8.7	20	
			Same as above, except medium dense and more silt				4	
					11	SPT	3	
						-10.2	9	20
			SAND: light grey, wet, medium dense, angular carbonate sand, trace phosphate				13	
					12	SPT; SM; Silty sand; Moisture=87%	5	
						-11.7	10	
			Same as above, shell fragments recovered				8	22
					13	SPT	9	
						-13.2	7	
			Same as above				4	
					14	SPT	4	24
						-14.7	5	
			Trace semi round quartz				8	
					15	SPT	7	
						-16.2	50/5"	26
			Sand: greenish grey, wet, dense, semiangular carbonate sand, semi round quartz, trace silt				7	
					16	SPT; SW-SM; Well graded sand with silt; Moisture=22%	30	
						-17.7	9	
							8	28
					17	SPT	9	
						-19.2	13	
			Shell fragments				50/4"	
					18	SPT; lost circulation at 30 ft		30
						-20.7		
			SAND: light grey, wet, medium dense, round quartz, semiangular carbonate sand				24	
					19	SPT; SM; Silty sand; Moisture=22%	13	
						-22.2	10	32
			Same as above, except very dense				11	
							50/4"	

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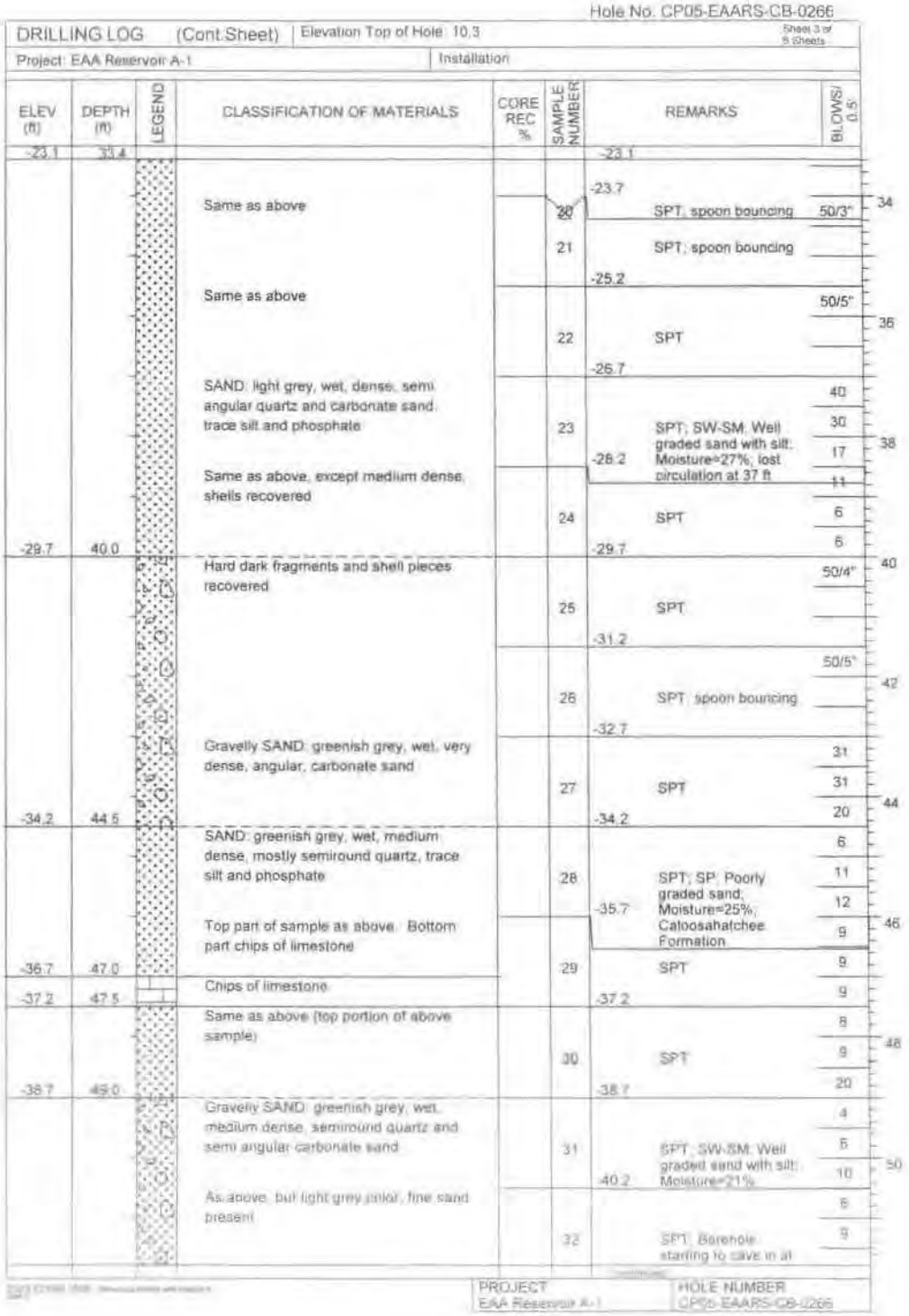
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0266



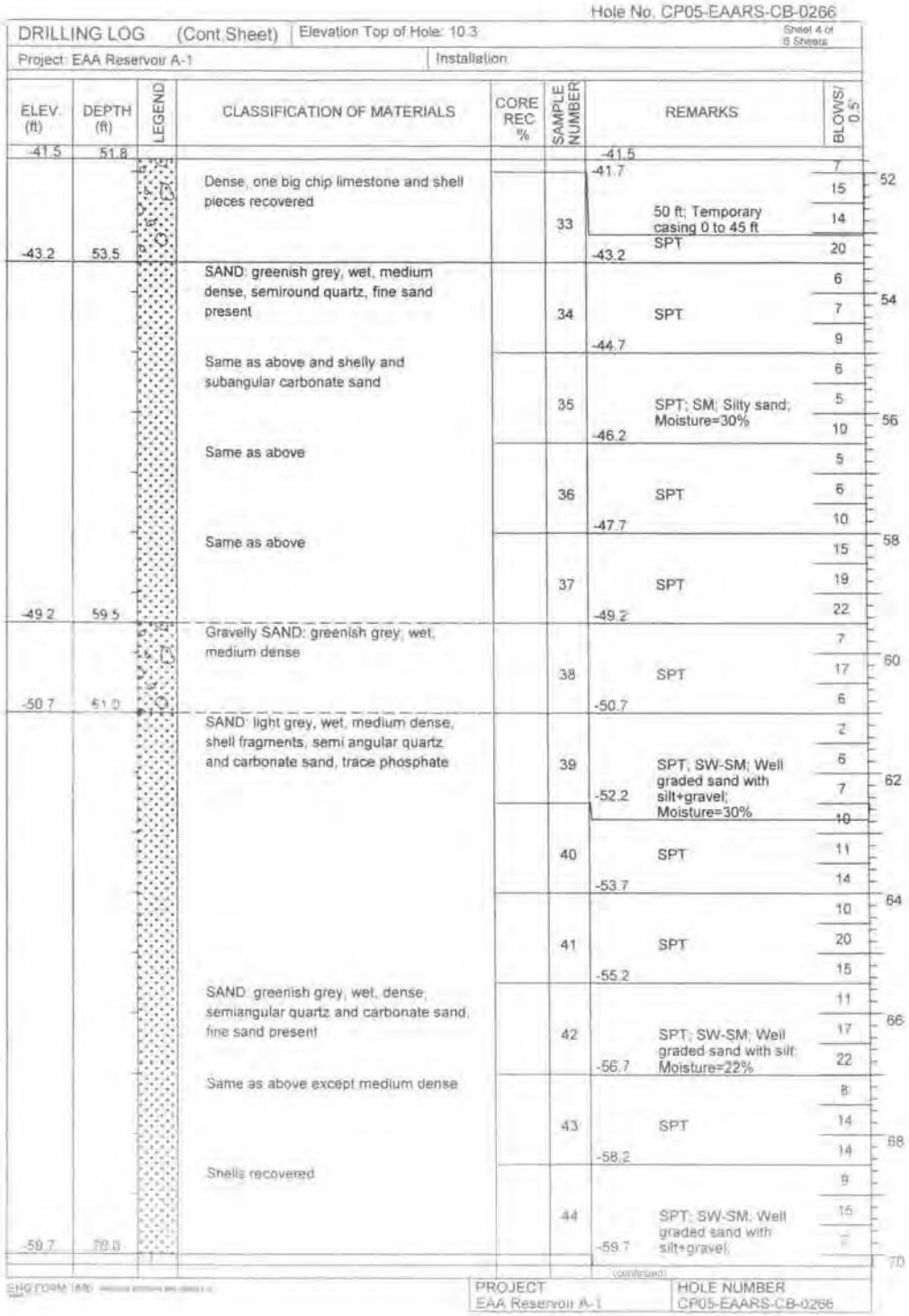
Hole No. CP05-EAARS-CB-0266

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.3 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'	
-23.1	33.4					-23.1		
			Same as above			-23.7		
					20	SPT; spoon bouncing	50/3"	34
					21	SPT; spoon bouncing		
			Same as above			-25.2	50/5"	
					22	SPT		36
			SAND: light grey, wet, dense, semi angular quartz and carbonate sand, trace silt and phosphate			-26.7	40	
					23	SPT; SW-SM. Well graded sand with silt; Moisture=27%; lost circulation at 37 ft	30	
						-28.2	17	38
			Same as above, except medium dense, shells recovered				11	
					24	SPT	6	
-29.7	40.0					-29.7	6	
			Hard dark fragments and shell pieces recovered				50/4"	40
					25	SPT		
						-31.2	50/5"	
					26	SPT; spoon bouncing		42
			Gravelly SAND: greenish grey, wet, very dense, angular, carbonate sand			-32.7	31	
					27	SPT	31	
-34.2	44.5					-34.2	20	44
			SAND: greenish grey, wet, medium dense, mostly semiround quartz, trace silt and phosphate				6	
					28	SPT; SP. Poorly graded sand; Moisture=25%; Caloosahatchee Formation	11	
			Top part of sample as above. Bottom part chips of limestone			-35.7	12	
-36.7	47.0						9	46
					29	SPT	9	
-37.2	47.5		Chips of limestone			-37.2	9	
			Same as above (top portion of above sample)				8	
					30	SPT	9	48
-38.7	49.0					-38.7	20	
			Gravelly SAND: greenish grey, wet, medium dense, semiround quartz and semi angular carbonate sand				4	
					31	SPT; SW-SM. Well graded sand with silt; Moisture=21%	6	
			As above, but light grey color, fine sand present			-40.2	10	50
							6	
					32	SPT. Borehole starting to cave in at	9	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0266



Hole No. CP05-EAARS-CB-0266

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.3 | Sheet 4 of 5 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-41.5	51.8					-41.5	
			Dense, one big chip limestone and shell pieces recovered		33	-41.7 50 ft; Temporary casing 0 to 45 ft SPT	7, 15, 14, 20
-43.2	53.5		SAND: greenish grey, wet, medium dense, semiround quartz, fine sand present		34	-43.2 SPT	6, 7, 9
			Same as above and shelly and subangular carbonate sand		35	-44.7 SPT; SM; Silty sand; Moisture=30%	6, 5, 10
			Same as above		36	-46.2 SPT	5, 6, 10
			Same as above		37	-47.7 SPT	15, 19, 22
-49.2	59.5		Gravelly SAND: greenish grey, wet, medium dense		38	-49.2 SPT	7, 17, 6
-50.7	61.0		SAND: light grey, wet, medium dense, shell fragments, semi angular quartz and carbonate sand, trace phosphate		39	-50.7 SPT; SW-SM; Well graded sand with silt+gravel; Moisture=30%	2, 6, 7, 10
					40	-52.2 SPT	11, 14
					41	-53.7 SPT	10, 20, 15
			SAND: greenish grey, wet, dense, semiangular quartz and carbonate sand, fine sand present		42	-55.2 SPT; SW-SM; Well graded sand with silt; Moisture=22%	11, 17, 22
			Same as above except medium dense		43	-56.7 SPT	8, 14, 14
			Shells recovered		44	-58.2 SPT; SW-SM; Well graded sand with silt+gravel;	9, 15, 7
-59.7	70.0					-59.7 (continued)	

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0266

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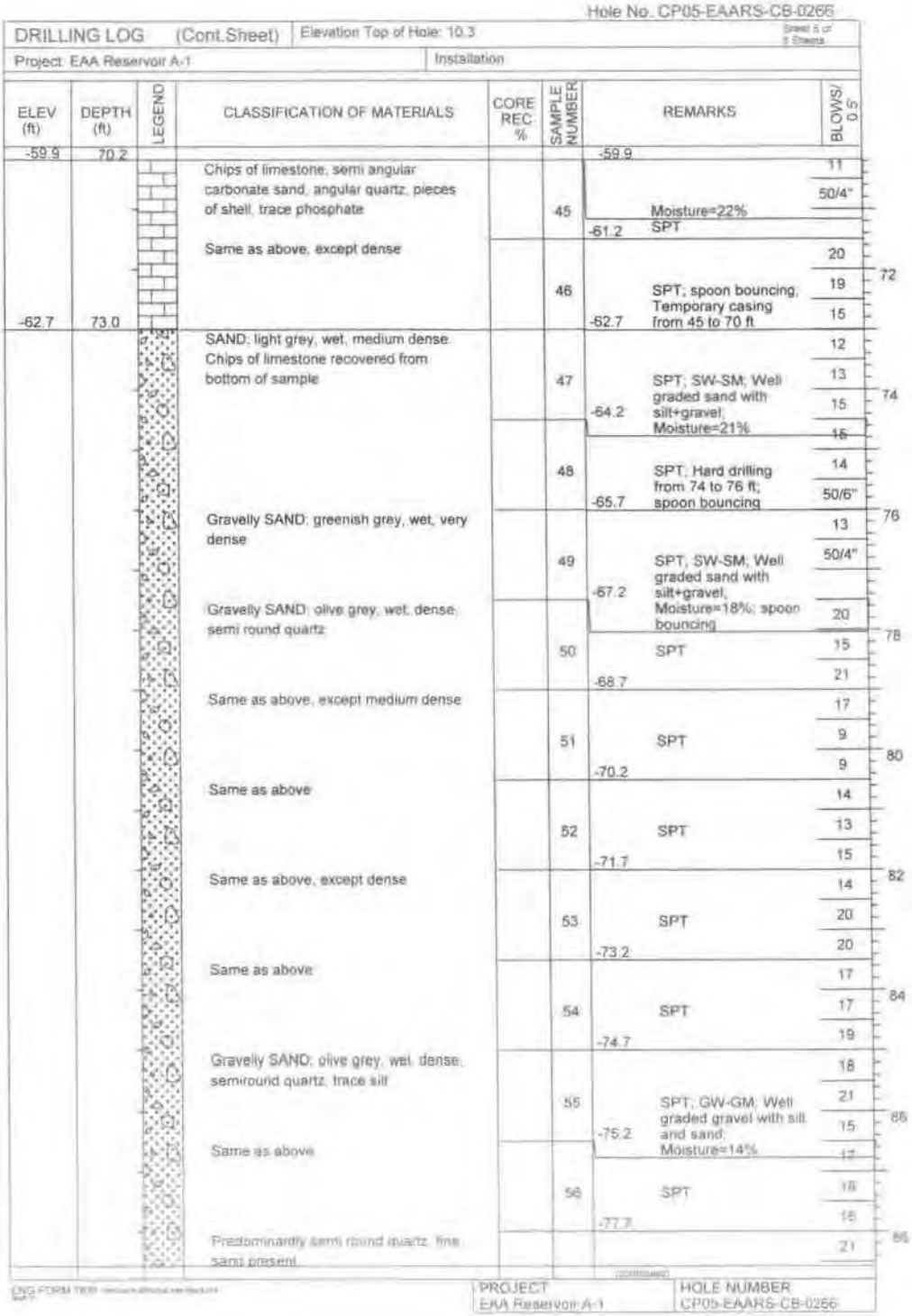


Hole No. CP05-EAARS-CB-0266

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.3 | Sheet 5 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

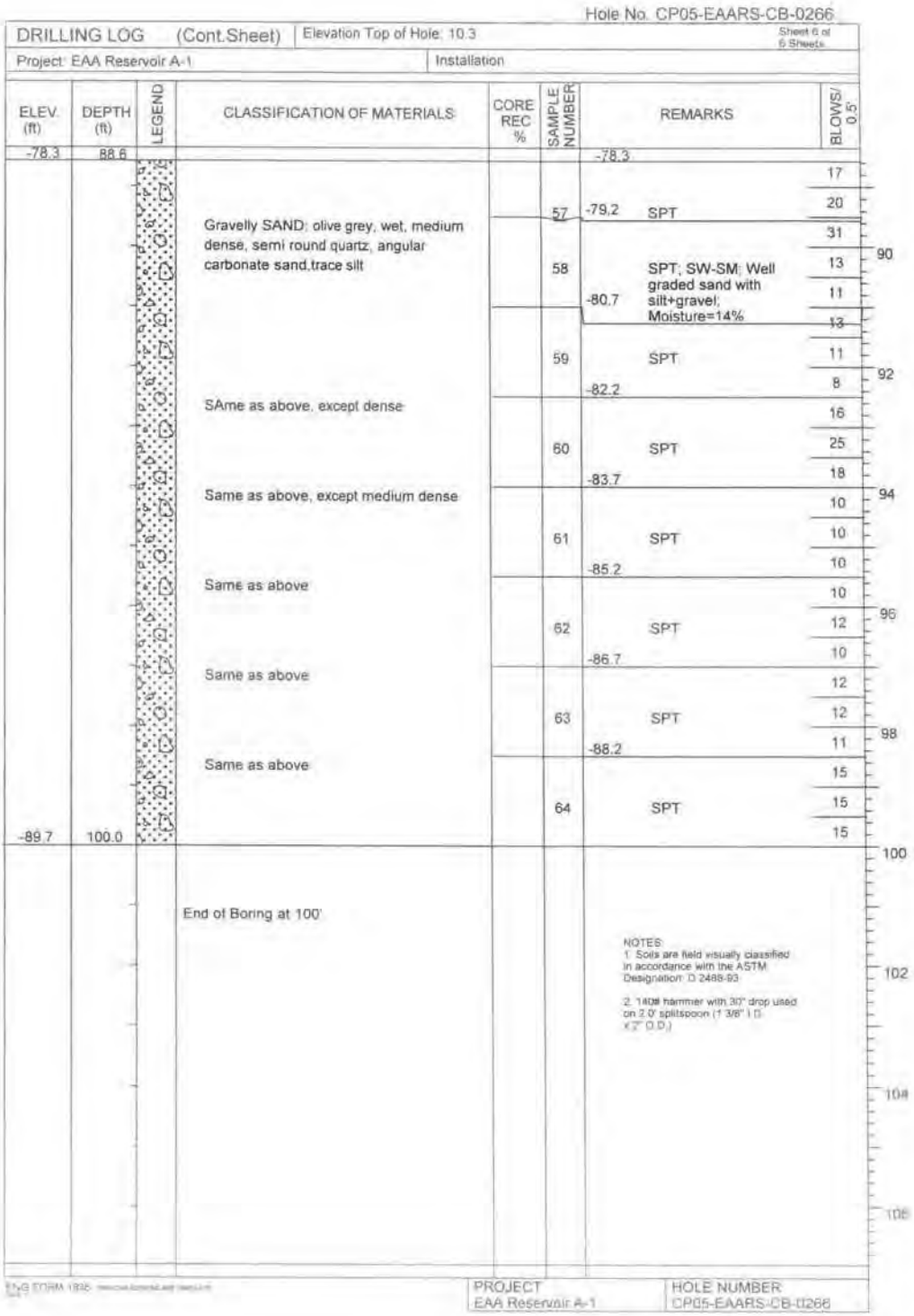
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.9	70.2					-59.9	
			Chips of limestone, semi angular carbonate sand, angular quartz, pieces of shell, trace phosphate		45	Moisture=22% SPT -61.2	11, 50/4"
			Same as above, except dense		46	SPT; spoon bouncing, Temporary casing from 45 to 70 ft -62.7	20, 19, 15
-62.7	73.0		SAND: light grey, wet, medium dense. Chips of limestone recovered from bottom of sample		47	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=21% -64.2	12, 13, 15, 16
					48	SPT; Hard drilling from 74 to 76 ft; spoon bouncing -65.7	14, 50/6"
			Gravelly SAND: greenish grey, wet, very dense		49	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=18%; spoon bouncing -67.2	13, 50/4"
			Gravelly SAND: olive grey, wet, dense, semi round quartz		50	SPT -68.7	20, 15, 21
			Same as above, except medium dense		51	SPT -70.2	17, 9, 9
			Same as above		52	SPT -71.7	14, 13, 15
			Same as above, except dense		53	SPT -73.2	14, 20, 20
			Same as above		54	SPT -74.7	17, 17, 19
			Gravelly SAND: olive grey, wet, dense, semiround quartz, trace silt		55	SPT; GW-GM; Well graded gravel with silt and sand; Moisture=14% -75.2	18, 21, 15
			Same as above		56	SPT -77.7	17, 16, 16
			Predominantly semi round quartz, fine sand present				21

72, 74, 76, 78, 80, 82, 84, 86, 88

(continued)

ENG FORM 1836 | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0266

340



Hole No. CP05-EAARS-CB-0266

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.3 | Sheet 6 of 6 Sheet/s

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.3	88.6					-78.3	
			Gravelly SAND; olive grey, wet, medium dense, semi round quartz, angular carbonate sand,trace silt		57	-79.2 SPT	17, 20
					58	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=14%	31, 13, 11
						-80.7	13
					59	SPT	11, 8
			SAme as above, except dense			-82.2	
					60	SPT	16, 25, 18
			Same as above, except medium dense			-83.7	
					61	SPT	10, 10, 10
			Same as above			-85.2	
					62	SPT	10, 12, 10
			Same as above			-86.7	
					63	SPT	12, 12, 11
			Same as above			-88.2	
					64	SPT	15, 15, 15
-89.7	100.0						
			End of Boring at 100'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

90 92 94 96 98 100 102 104 106

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0266

Hole No: CP05-EAARS-CB-0267

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750246, E787702.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0267		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/14/2005 Completed 7/14/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.7	0.0						
			SAND: greenish grey, very dense, moderate to well graded, angular calcitic sand, dry		1	10.7 SPT, chips of limestone recovered 9.2	19, 38, 50/5"
			Same as above, except wet to dry		2	SPT, hard drilling from 1 to 3 ft. 7.7	27, 38, 50/5"
7.7	3.0		Gravelly SAND: pale to greenish grey, medium dense, poorly graded, angular, wet		3	SPT 6.2	5, 9, 8
6.2	4.5		SAND: olive grey, very dense, moderately graded, angular calcitic sand, wet, fine sand, trace silt		4	SPT 4.7	6, 11, 50/3"
4.7	6.0		CORE LIMESTONE: white, very hard, quite porous, shells in upper core portion	54 (RQD 29%)	1	HQ coring, Core 6 to 9.5 ft 1.2	
1.2	9.5		SAND: greenish grey, dense, moderately graded, subangular calcitic sand, wet		5	SPT, limestone chips recovered at the bottom of the sample 2.8	1, 3, 32
			SAND: greenish grey, very loose, subangular calcitic sand, wet		6	SPT	1, 1, 3

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0267

Hole No. CP05-EAARS-CB-0267

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

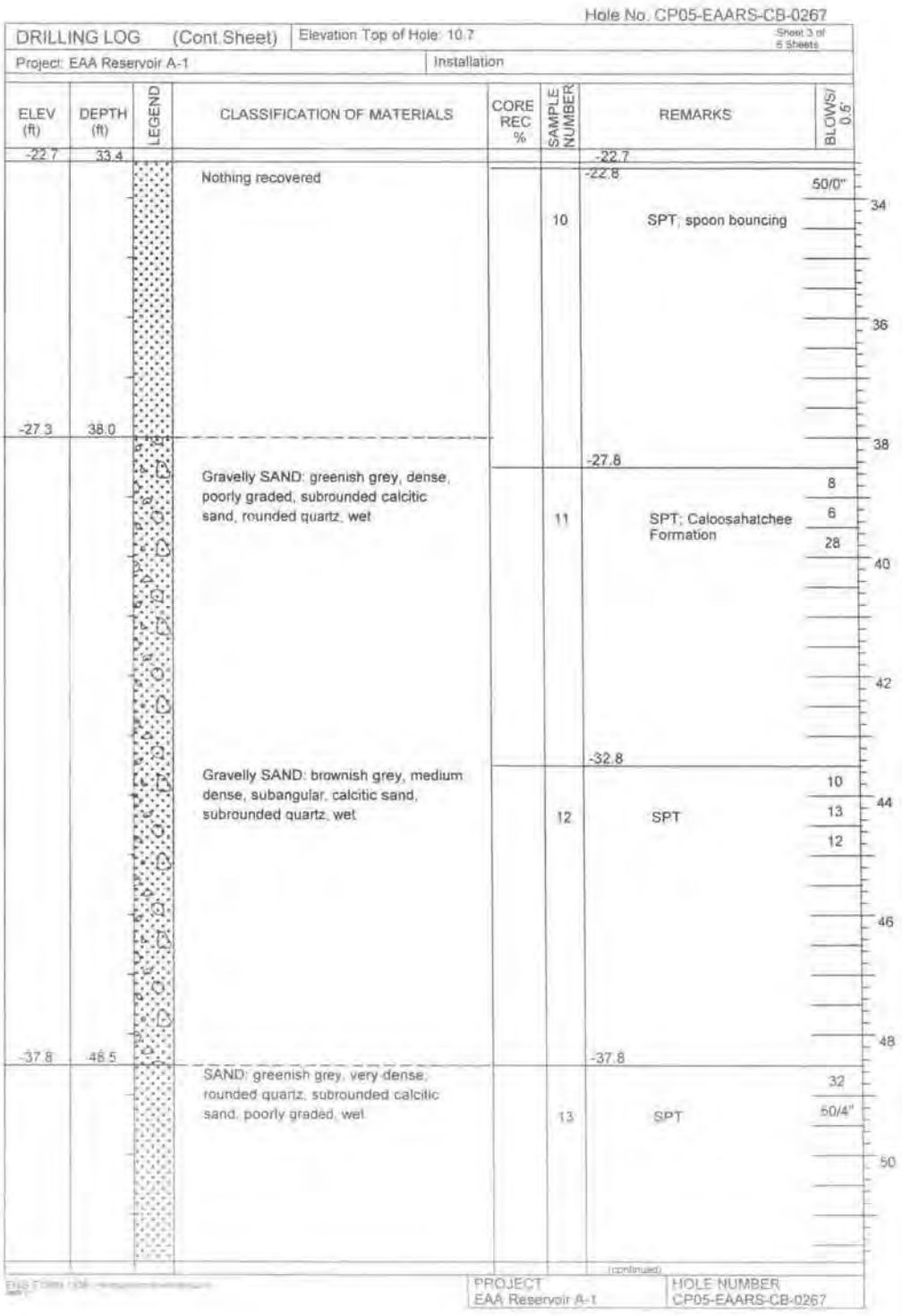
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.3	15.0					-4.3	
			SAND: light grey, medium dense, moderately graded, subrounded, calcitic sand, wet		7	SPT	6 8 9
						-12.8	
			Same as above, except very dense		8	SPT; spoon bouncing	38 50/1"
						-17.8	
			SAND: greenish grey, very dense, angular, calcitic sand, gravel present, wet		9	SPT; Hard drilling from 24.5 to 37.5 ft	50/5"

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0267



Hole No. CP05-EAARS-CB-0267

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.7	33.4					-22.7	
			Nothing recovered			-22.8	50/0"
					10	SPT; spoon bouncing	34
							36
-27.3	38.0						38
			Gravelly SAND: greenish grey, dense, poorly graded, subrounded calcitic sand, rounded quartz, wet			-27.8	8
					11	SPT; Caloosahatchee Formation	6
							28
							40
							42
			Gravelly SAND: brownish grey, medium dense, subangular, calcitic sand, subrounded quartz, wet			-32.8	10
					12	SPT	13
							12
							44
							46
-37.8	48.5					-37.8	48
			SAND: greenish grey, very dense, rounded quartz, subrounded calcitic sand, poorly graded, wet				32
					13	SPT	50/4"
							50

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0267

Hole No. CP05-EAARS-CB-0267

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.1	51.8					-41.1	
			Same as above		14	-42.8 SPT	28 50/5"
			SAND: greenish grey, dense, rounded quartz, subangular calcitic sand, wet		15	-47.8 SPT	17 15 17
			SAND: greenish grey, dense, moderately graded, subangular calcitic sand, wet		16	-52.8 SPT	15 16 16
			Same as above, except chips of limestone and shell fragments recovered		17	-57.8 SPT	11 14 31

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0267

Hole No. CP05-EAARS-CB-0267

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.5	70.2					-59.5	
							72
						-62.8	
			SAND: greenish grey, very dense, poorly graded, subangular calcitic sand, rounded quartz, wet, fine sand present, trace silt		18	SPT	17 24 27
							74
							76
							78
						-67.8	
			Same as above		19	SPT	6 24 50/4"
							80
							82
						-72.8	
			SAND: olive grey, loose, poorly graded, angular calcitic sand, subrounded quartz, wet, shells present		20	SPT	4 5 3
							84
							86
							88
-77.8	88.5					-77.8	

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0267

Hole No. CP05-EAARS-CB-0267

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-77.9	88.6					-77.9	
			Silty SAND: olive grey, medium dense, poorly graded, rounded quartz, wet, predominately fine sand present, trace silt		21	SPT; SM; Silty SAND; Moisture=21%	3 6 8
-82.8	93.5					-82.8	
			SAND: olive grey, dense, poorly graded, subrounded quartz, and calcitic sand, wet		22	SPT	25 11 24
						-87.8	
			SAND: olive grey, dense, moderately graded, sub rounded quartz, sub angular calcetic sand, wet		23	SPT	21 20 15
-89.3	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

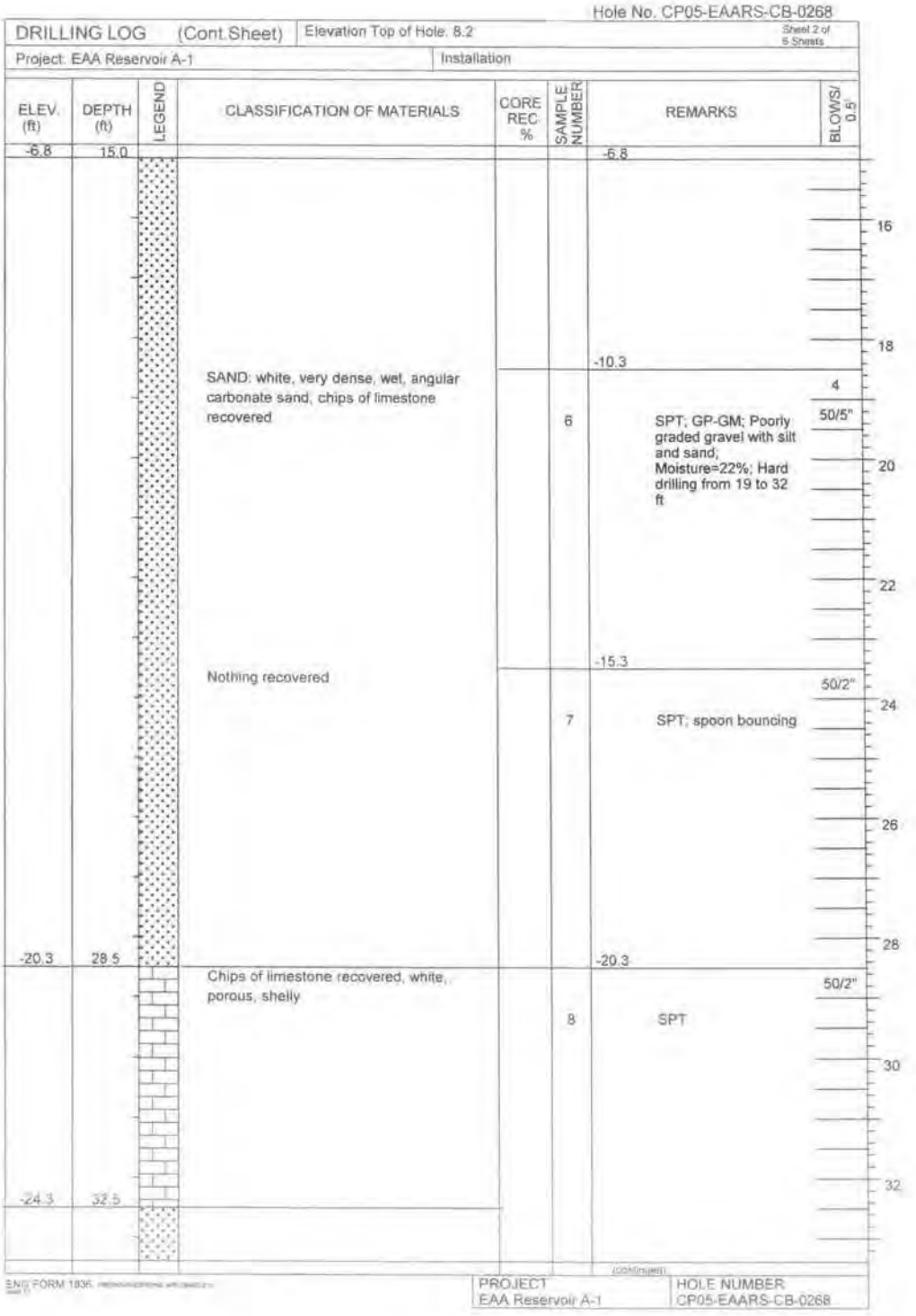
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0267

Hole No. CP05-EAARS-CB-0268

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750548.1, E784360.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0268		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/11/2005 Completed 7/11/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.2 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.2	0.0						
			Silty SAND (Peat): black, loose, fine grain, dry to wet, mostly organic			8.2	1
					1	SPT	2
						6.7	4
6.5	1.8						50/4"
			One piece of hardstone recovered, possibly limestone			6.2	
			LIMESTONE: white, a little porous, hard, shells present		2	SPT	
				50 (RQD 12%)	1	HQ coring	
1.2	7.0					1.2	
			Gravelly SAND: light grey, dense, wet, angular, carbonate sand, silt and shells present				4
					3	SPT: CO3=81.6%	25
						-0.3	22
			Same as above, except loose				7
					4	SPT	4
							4
-5.3	13.5					-5.3	
			SAND: white, loose, wet, angular, carbonate sand, fine sand present, trace silt		5	SPT: SM: Silty sand, Moisture=30%	5
							4
							3

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0268



Hole No. CP05-EAARS-CB-0268

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.2 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.8	15.0					-6.8	
			SAND: white, very dense, wet, angular carbonate sand, chips of limestone recovered		6	-10.3 SPT; GP-GM; Poorly graded gravel with silt and sand; Moisture=22%; Hard drilling from 19 to 32 ft	4 50/5"
			Nothing recovered		7	-15.3 SPT; spoon bouncing	50/2"
-20.3	28.5					-20.3	
			Chips of limestone recovered, white, porous, shelly		8	SPT	50/2"
-24.3	32.5						

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0268

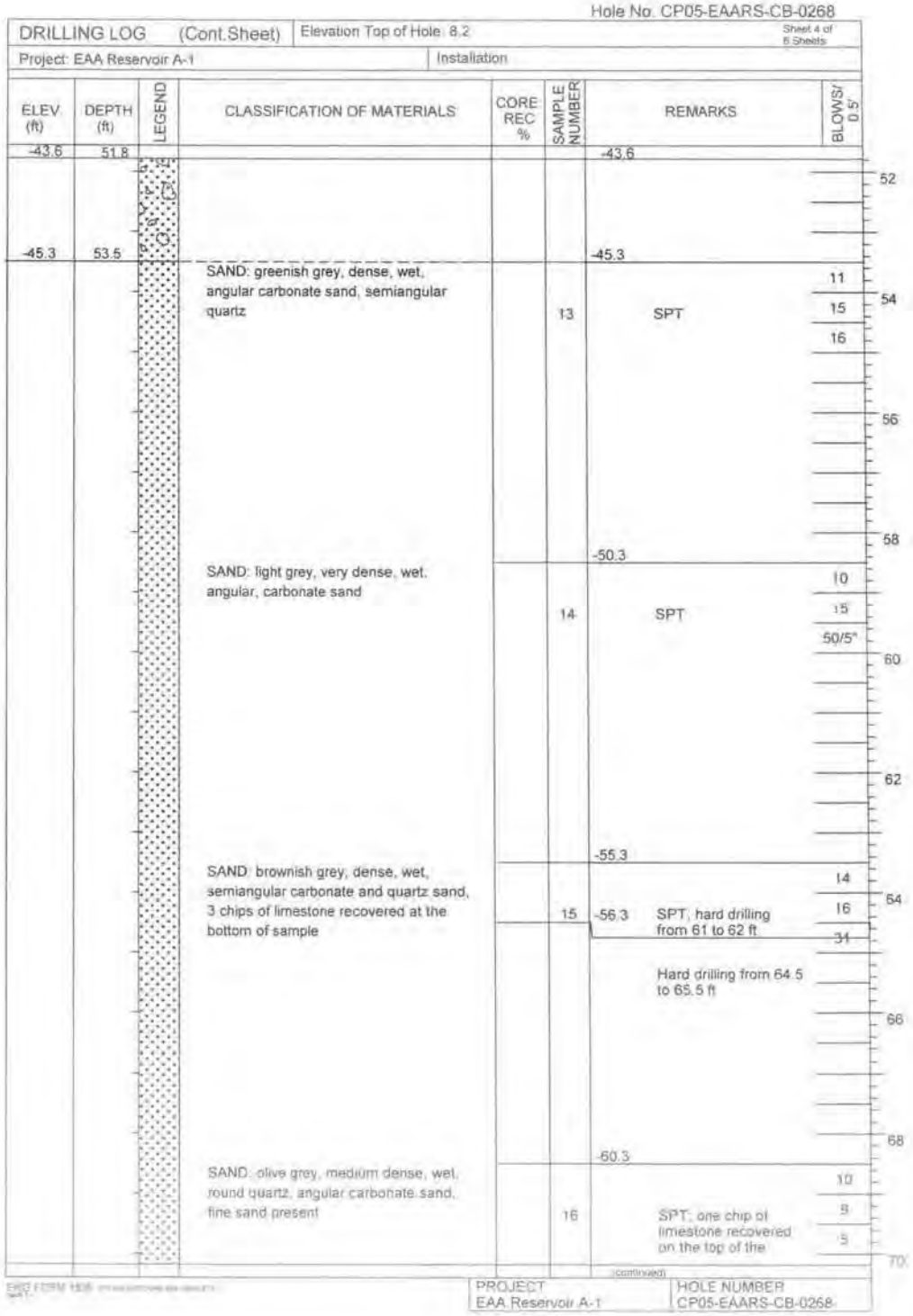
Hole No. CP05-EAARS-CB-0268

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 8.2 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-25.2	33.4					-25.2	
			SAND: light grey, dense, wet, rounded quartz sand, angular carbonate sand, fine sand and silt		9	-25.3 SPT; SW-SM; Well graded sand with silt+gravel; Moisture=18%; Caloosahatchee Formation	15 18 14 34 35 38
			SAND: light grey, dense, wet, rounded quartz, semiangular carbonate sand, more fine sand present, shells present		10	-30.3 SPT	11 22 26 40 42
			SAND: greenish grey, dense, wet, rounded quartz, angular carbonate sand, shells present		11	-35.3 SPT	11 15 26 44 46 48
-40.3	48.5		Same as above, more gravelly		12	-40.3 SPT	6 7 6 50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0268



Hole No. CP05-EAARS-CB-0268

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.2 | Sheet 4 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-43.6	51.8					-43.6	
-45.3	53.5		SAND: greenish grey, dense, wet, angular carbonate sand, semiangular quartz		13	-45.3 SPT	11 15 16
						-50.3	
			SAND: light grey, very dense, wet, angular, carbonate sand		14	SPT	10 15 50/5"
						-55.3	
			SAND: brownish grey, dense, wet, semiangular carbonate and quartz sand, 3 chips of limestone recovered at the bottom of sample		15	-56.3 SPT, hard drilling from 61 to 62 ft Hard drilling from 64.5 to 65.5 ft	14 16 31
						-60.3	
			SAND: olive grey, medium dense, wet, round quartz, angular carbonate sand, fine sand present		16	SPT; one chip of limestone recovered on the top of the	10 9 5

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0268

Hole No. CP05-EAARS-CB-0268

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.2 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-62.0	70.2					-62.0	
						sample	72
						-65.3	
			SAND: olive grey, medium dense, angular carbonate sand, semi angular quartz, many shell fragments		17	SPT; very shelly sample	3 5 8 74 76
-70.3	78.5					-70.3	78
			Silty SAND: olive grey, loose, wet, round quartz, angular carbonate sand, fine sand present		18	SPT, SM; Silty Sand, Moisture=26%	3 2 4 80 82
						-75.3	
-76.0	84.2		Silty SAND: loose, wet, round quartz, semiround carbonate sand				9
-76.2	84.4		2" yellowish orange limestone chips		19	SPT; Ochopee Limestone	3 5 84
			Gravelly SAND: loose, wet, round quartz, semiround carbonate sand				86 88
						-80.3	
						(continued)	

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0268

Hole No. CP05-EAARS-CB-0268

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.2 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-80.4	88.6					-80.4	
			Gravelly SAND: olive grey, dense, wet, round quartz, semiround carbonate sand		20	SPT	14 14 18
						-85.3	
			Gravelly SAND: olive grey, medium dense, wet, semiround quartz, semiangular carbonate sand		21	SPT	14 8 14
						-90.3	
			Same as above		22	SPT	12 13 19
-91.8	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

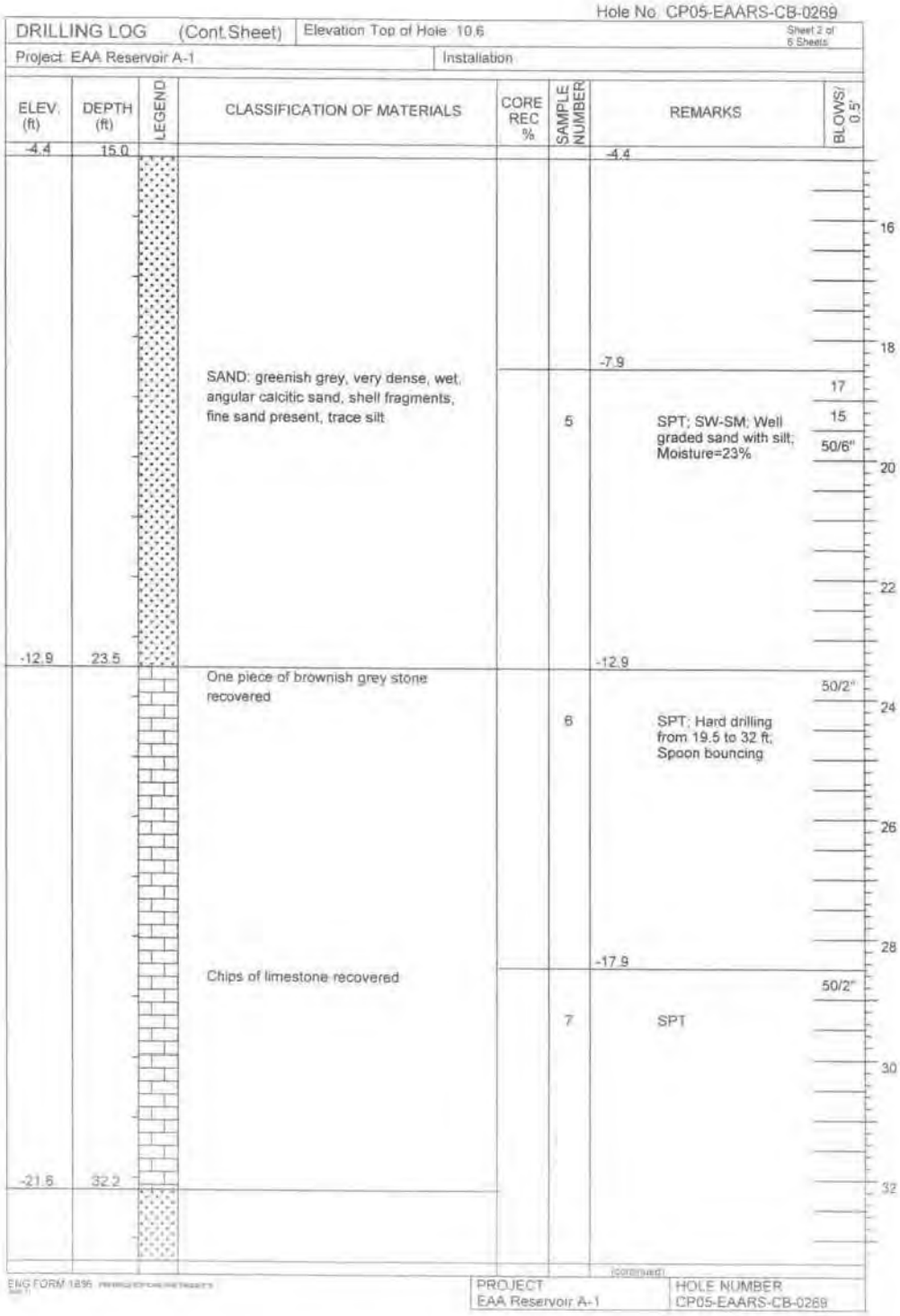
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0268

Hole No. CP05-EAARS-CB-0269

DRILLING LOG	Division:	Installation:	Sheet 1 of 5 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750200.6, E780370.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0269		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 7/13/2005 Completed 7/13/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 10.6 (ft)	
9. Depth of hole: 100 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.6	0.0					10.6	1
			Silty SAND (Peat): black, very loose, wet, mostly organic		1	SPT; SM; Silty sand with gravel; Moisture=137%; mostly peat; one chip of limestone recovered	1
						9.1	1
			Couple of limestone chips and peat				4
8.4	2.3				2	8.1 SPT	50/3"
			LIMESTONE: mostly pale white, few pieces brownish grey, very hard, shell fragments	28 (RQD 10%)	1	HQ coring, UCS=1570psi; core 2.5 to 7.5 ft	
3.1	7.5					3.1	
			SAND: light grey, dense, wet, semiangular carbonate sand, shell fragments			2.1	
					3	SPT: SW-SM; Well graded sand with silt+gravel; Moisture=24%	10
							8
							35
						2.9	
			SAND: light grey, medium dense, wet, angular calcitic sand, shell fragments, fine sand present, trace silt		4	SPT; SM; Silty sand with gravel; Moisture=32%	5
							6
							6

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0269



Hole No. CP05-EAARS-CB-0269

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.4	15.0					-4.4	
			SAND: greenish grey, very dense, wet, angular calcitic sand, shell fragments, fine sand present, trace silt		5	SPT; SW-SM; Well graded sand with silt; Moisture=23%	17 15 50/6"
-12.9	23.5					-12.9	
			One piece of brownish grey stone recovered		6	SPT; Hard drilling from 19.5 to 32 ft; Spoon bouncing	50/2"
						-17.9	
			Chips of limestone recovered		7	SPT	50/2"
-21.6	32.2						

16 18 20 22 24 26 28 30 32

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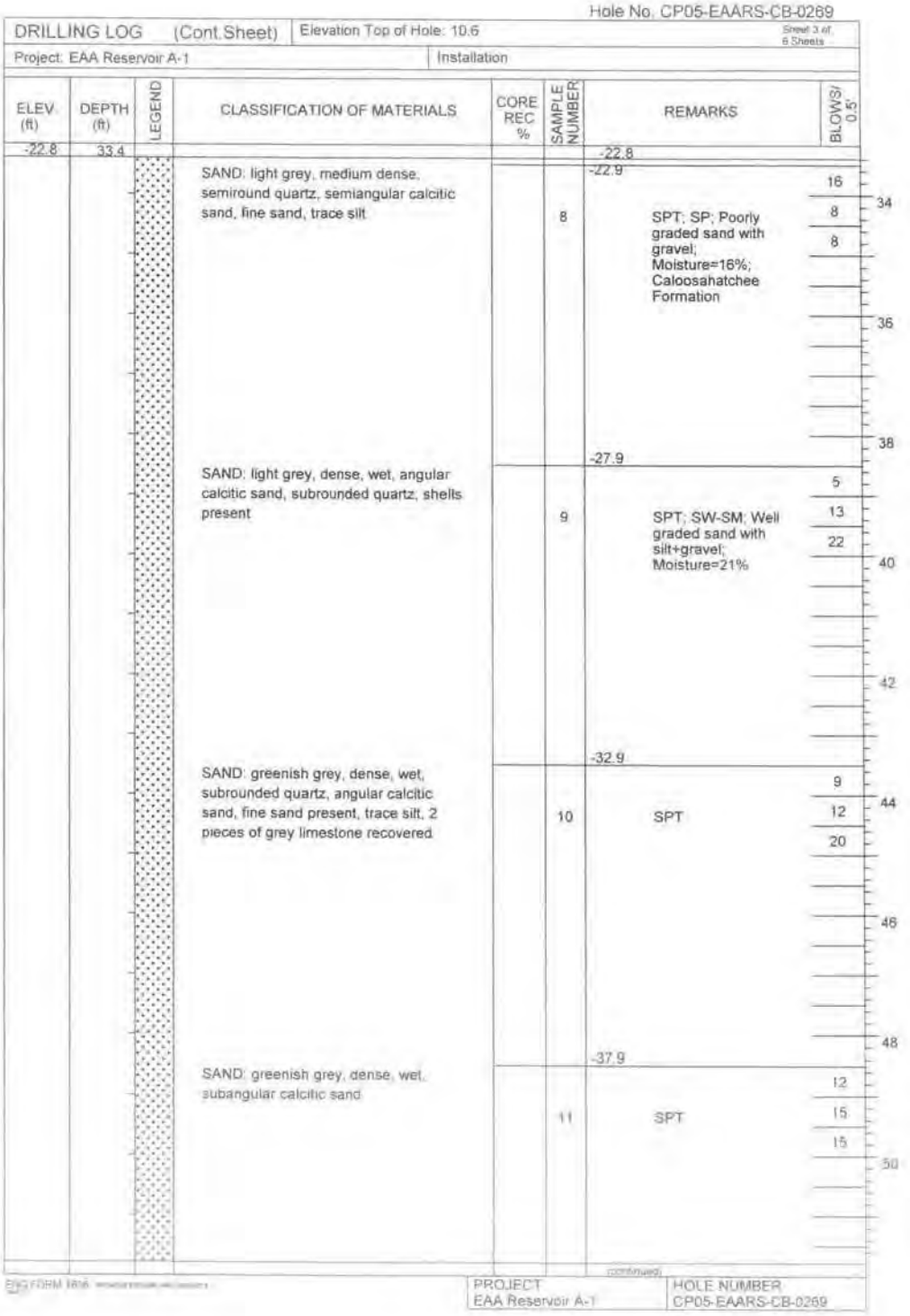
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0269



Hole No. CP05-EAARS-CB-0269

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

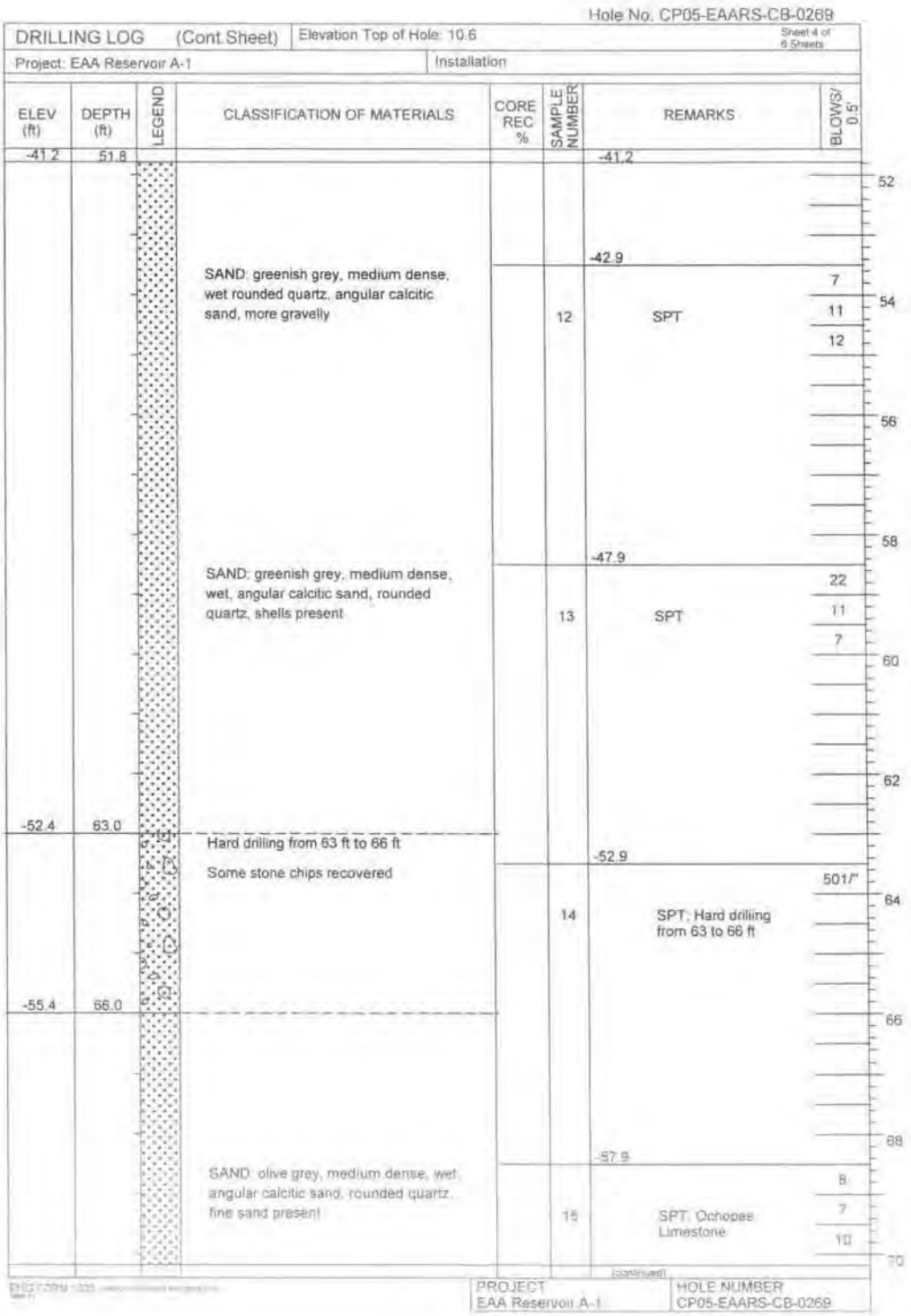
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.8	33.4					-22.8	
			SAND: light grey, medium dense, semiround quartz, semiangular calcitic sand, fine sand, trace silt		8	-22.9 SPT; SP; Poorly graded sand with gravel; Moisture=16%; Caloosahatchee Formation	16 8 8
						-27.9	
			SAND: light grey, dense, wet, angular calcitic sand, subrounded quartz, shells present		9	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=21%	5 13 22
						-32.9	
			SAND: greenish grey, dense, wet, subrounded quartz, angular calcitic sand, fine sand present, trace silt, 2 pieces of grey limestone recovered		10	SPT	9 12 20
						-37.9	
			SAND: greenish grey, dense, wet, subangular calcitic sand		11	SPT	12 15 15

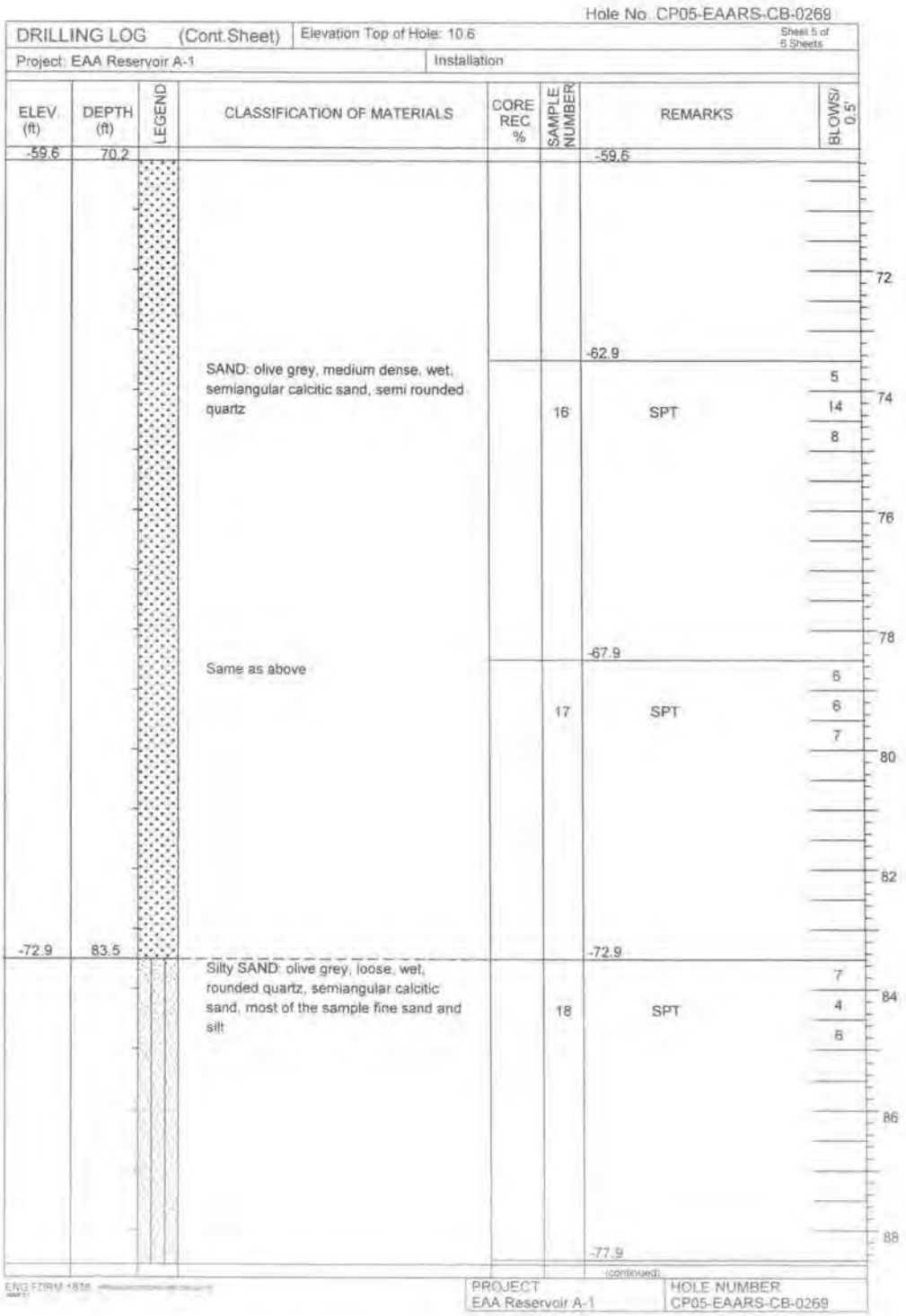
34 36 38 40 42 44 46 48 50

(continued)

EIG FORM 186

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0269


Hole No. CP05-EAARS-CB-0269
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.6
Sheet 4 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-41.2
51.8
-42.9
SAND: greenish grey, medium dense, wet rounded quartz, angular calcitic sand, more gravelly
12
SPT
7
11
12
-47.9
SAND: greenish grey, medium dense, wet, angular calcitic sand, rounded quartz, shells present
13
SPT
22
11
7
-52.4
63.0
Hard drilling from 63 ft to 66 ft
Some stone chips recovered
-52.9
14
SPT; Hard drilling from 63 to 66 ft
50/1"
-55.4
66.0
-57.9
SAND: olive grey, medium dense, wet, angular calcitic sand, rounded quartz, fine sand present
15
SPT; Ochopee Limestone
8
7
10
52
54
56
58
60
62
64
66
68
70
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0269


Hole No. CP05-EAARS-CB-0269
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 5 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-59.6
70.2
-59.6
72
-62.9
SAND: olive grey, medium dense, wet, semiangular calcitic sand, semi rounded quartz
16
SPT
5
14
8
74
76
-67.9
Same as above
17
SPT
5
6
7
78
80
82
-72.9
83.5
-72.9
Silty SAND: olive grey, loose, wet, rounded quartz, semiangular calcitic sand, most of the sample fine sand and silt
18
SPT
7
4
5
84
86
88
-77.9
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0269

Hole No. CP05-EAARS-CB-0269

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.0	88.6					-78.0	
			Silty SAND: olive grey, loose, wet		19	SPT	3 3 6
-82.9	93.5					-82.9	
			Gravelly SAND: olive grey, dense, wet semiround quartz, semiangular calcitic sand		20	SPT	5 16 19
-87.9	98.5					-87.9	
			SAND: greenish grey, very dense, wet, semirounded quartz, semiangular calcitic sand, fine sand present, trace silt		21	SPT	35 34 34
-89.4	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0269

Hole No. CP05-EAARS-CB-0270

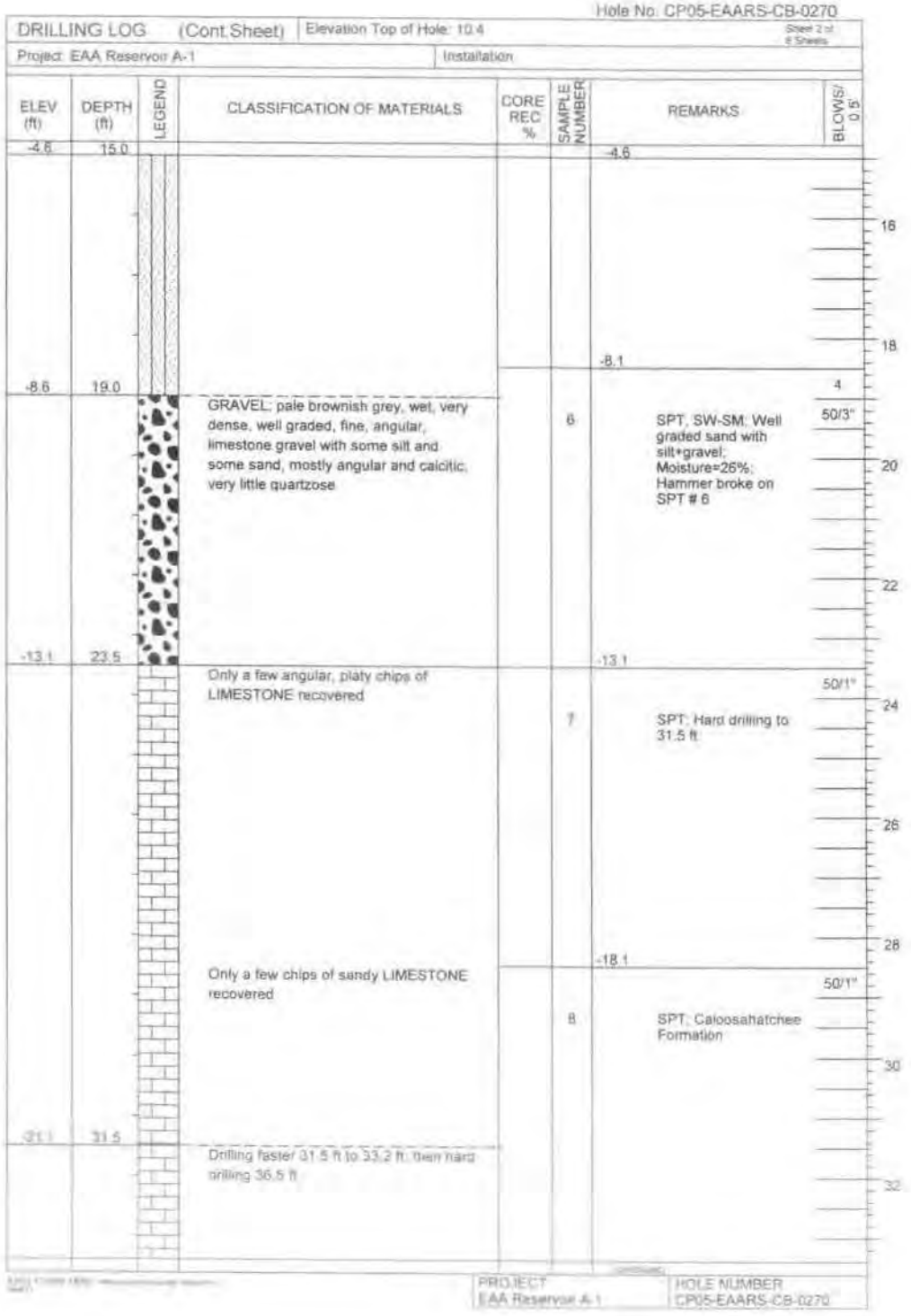
DRILLING LOG	Division:	Installation:	Sheet 1 of 5 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750191.9, E776521.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0270		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/7/2005 Completed 7/11/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.4 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.4	0.0						
			Gravelly SAND: pale brownish grey, moist, medium dense, well graded, fine to coarse grained, calcitic, road fill		1	10.4 SPT 8.9	6 10 8
7.9	2.5				2	SPT, SW-SM; Well graded sand with silt+gravel; Moisture=158%	6 2 2
6.9	3.5		Peat			6.9	
			Sandy GRAVEL: weathered LIMESTONE		3	SPT	25 17 50/5"
5.4	5.0					5.4	
			LIMESTONE: tan to light brown, fine grained, fossiliferous, vuggy, hard and strong to soft, weak and porous	26 (RQD 22%)	1	HQ coring; UCS=1860psi. Cased to 5 ft	
2.1	8.3					1.9	
			SAND: pale brownish grey, wet, dense, well graded, fine to coarse grained, angular calcitic, trace silt and fine gravel		4	SPT; GW; Silty gravel with sand; Moisture=27%	4 15 34
-3.1	13.5					-3.1	
			Silty SAND: as above but more silt		5	SPT; SW; Well graded sand with gravel; Moisture=38%	3 5 13

(continued)

ENG FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0270



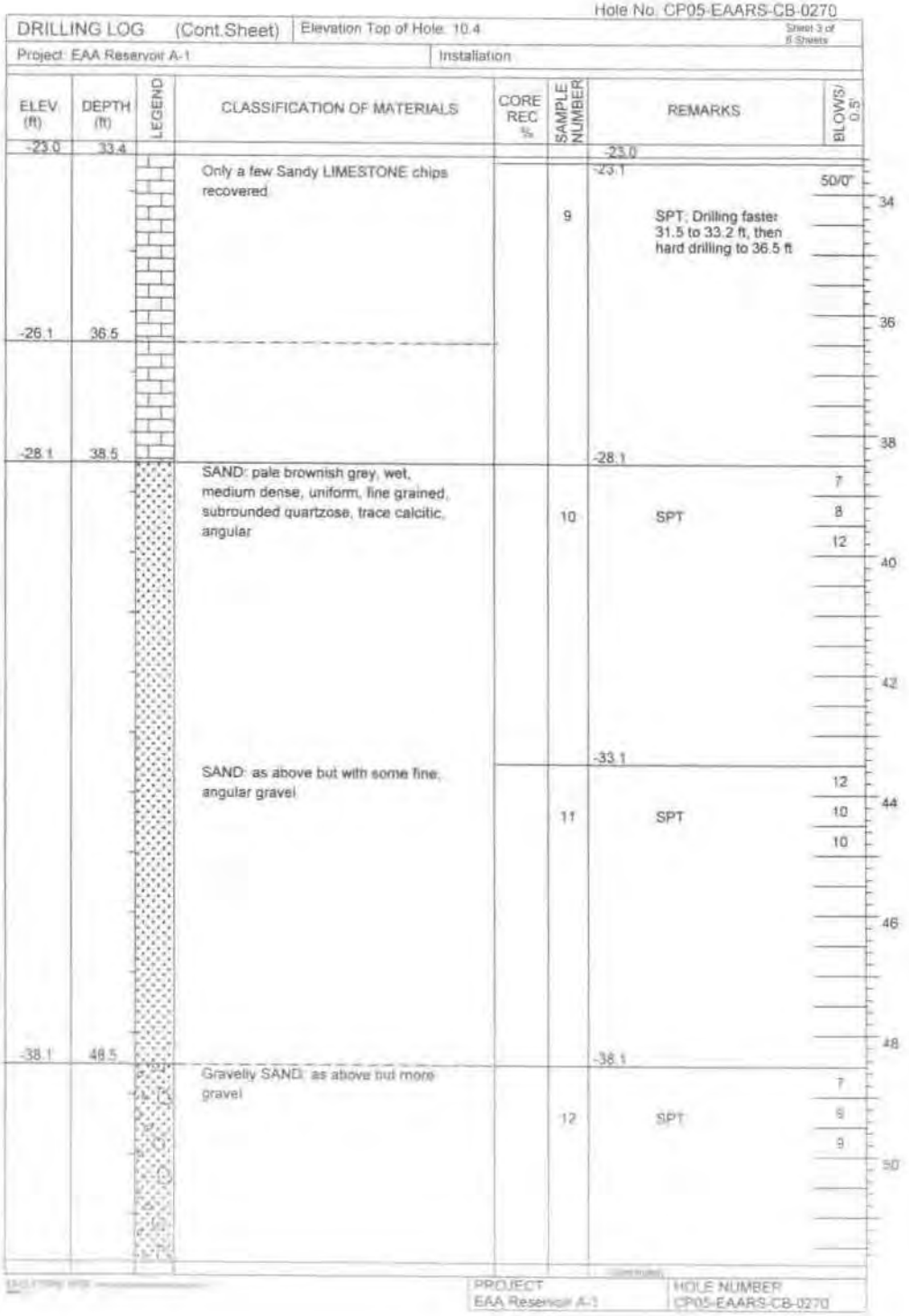
Hole No. CP05-EAARS-CB-0270

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.6	15.0					-4.6	16
							18
-8.6	19.0		GRAVEL: pale brownish grey, wet, very dense, well graded, fine, angular, limestone gravel with some silt and some sand, mostly angular and calcitic, very little quartzose		6	-8.1 SPT, SW-SM: Well graded sand with silt+gravel; Moisture=26%; Hammer broke on SPT # 6	4 50/3"
							20
							22
-13.1	23.5		Only a few angular, platy chips of LIMESTONE recovered		7	-13.1 SPT: Hard drilling to 31.5 ft	50/1"
							24
							26
							28
-21.1	31.5		Only a few chips of sandy LIMESTONE recovered Drilling faster 31.5 ft to 33.2 ft, then hard drilling 36.5 ft		8	-18.1 SPT: Caloosahatchee Formation	50/1"
							30
							32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0270



Hole No. CP05-EAARS-CB-0270

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.0	33.4					-23.0	
			Only a few Sandy LIMESTONE chips recovered		9	-23.1 SPT; Drilling faster 31.5 to 33.2 ft, then hard drilling to 36.5 ft	50/0"
-26.1	36.5						
-28.1	38.5					-28.1	
			SAND: pale brownish grey, wet, medium dense, uniform, fine grained, subrounded quartzose, trace calcitic, angular		10	SPT	7 8 12
						-33.1	
			SAND: as above but with some fine, angular gravel		11	SPT	12 10 10
-38.1	48.5					-38.1	
			Gravelly SAND: as above but more gravel		12	SPT	7 9 9

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0270

Hole No. CP05-EAARS-CB-0270

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 4 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.4	51.8					-41.4	
-43.1	53.5					-43.1	
			SAND: pale greenish grey, wet, medium dense, well graded, mostly fine to coarse grained, angular, calcitic, some fine and quartzose, trace fine gravel and silt		13	SPT	10 8 12
						-48.1	
			SAND: as above, but pale brownish grey		14	SPT	14 12 16
-53.1	63.5					-53.1	
			Gravelly SAND: as above but more gravel		15	SPT; Hole caving below 61 ft; Cased hole to 65 ft	3 6 20
-58.1	68.5					-58.1	
-59.1	69.5		Only chips of hard calcareous SANDSTONE recovered, about one foot thick		16	SPT; Spoon bouncing	50
			SAND: olive grey, wet, loose, mostly uniform, fine grained, subrounded				

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0270

Hole No. CP05-EAARS-CB-0270

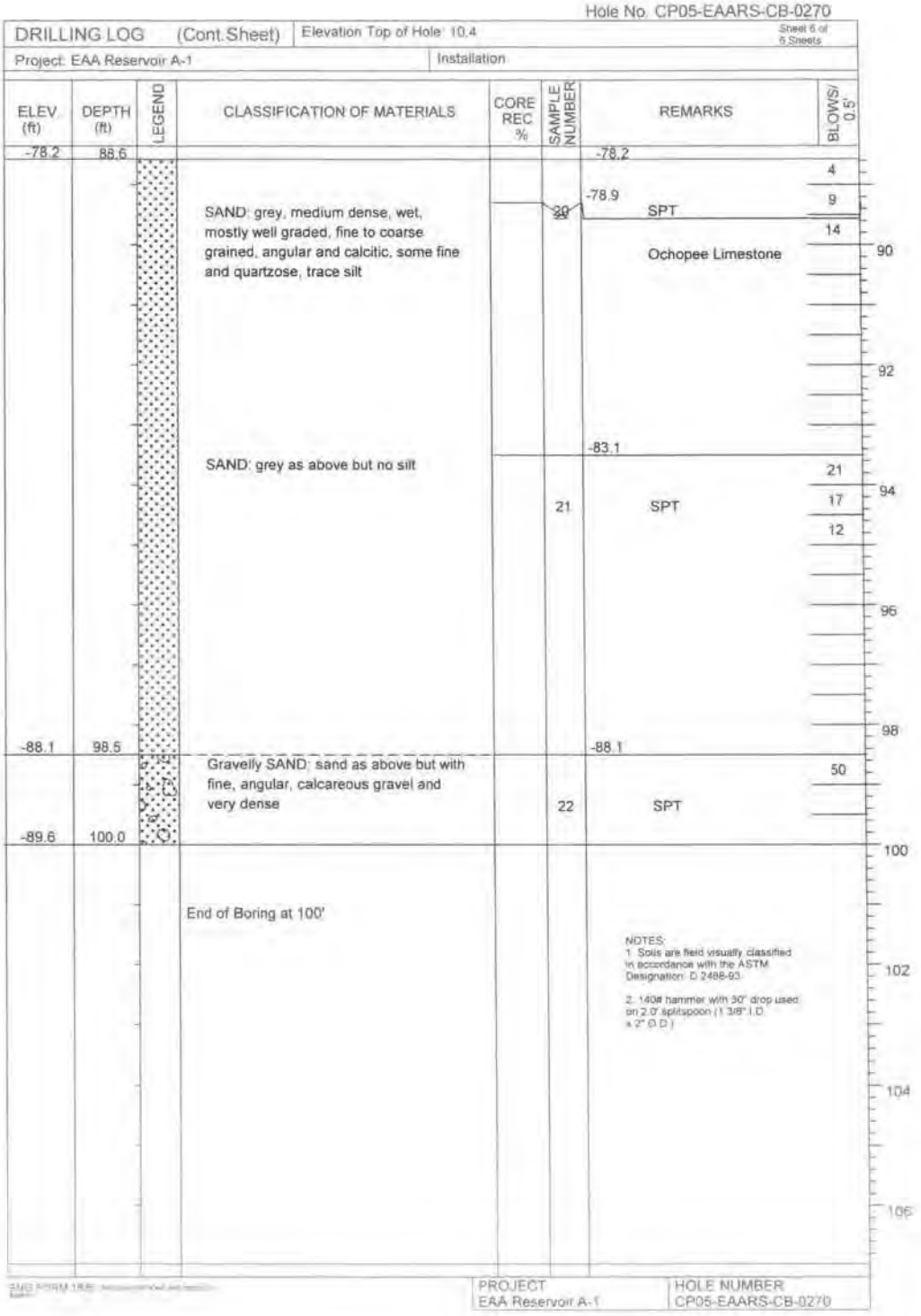
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.4 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.8	70.2					-59.8	
			quartzose with trace angular, calcitic, fine to coarse sand and fine gravel				72
						-63.1	
					17	SPT	4, 5, 3 — 74, 76
						-68.1	78
			SAND: as above but with a trace silt and medium dense		18	SPT	3, 15, 11 — 80, 82
						-73.1	
			SAND: olive grey, loose, wet, uniform, very fine grained, subrounded, quartzose, trace silt		19	SPT	3, 4, 6 — 84, 86
						-78.1	88

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0270


Hole No. CP05-EAARS-CB-0270
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.4
Sheet 6 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-78.2
88.6
-78.2
4
9
-78.9
SAND: grey, medium dense, wet, mostly well graded, fine to coarse grained, angular and calcitic, some fine and quartzose, trace silt
20
SPT
14
Ochopee Limestone
90
92
-83.1
SAND: grey as above but no silt
21
17
21
SPT
12
94
96
98
-88.1
98.5
-88.1
Gravelly SAND: sand as above but with fine, angular, calcareous gravel and very dense
50
22
SPT
-89.6
100.0
100
End of Boring at 100'
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)
102
104
106
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0270

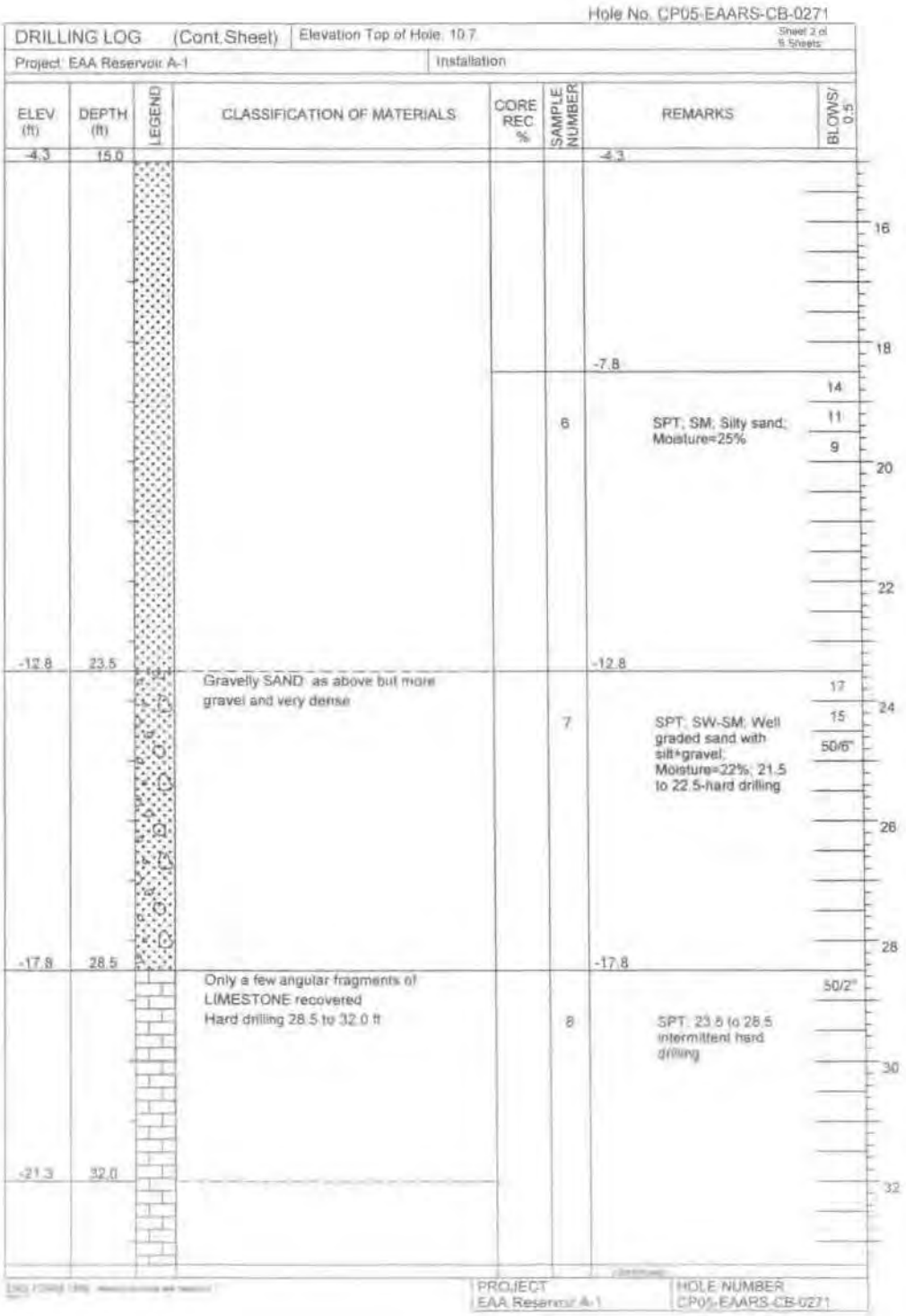
Hole No. CP05-EAARS-CB-0271

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750122.5, E769324.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0271		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/12/2005 Completed 7/13/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.7	0.0					10.7	16
			Gravelly SAND: pale yellow grey, dry, medium dense, well graded, fine to medium grained, angular, calcitic, becomes wet at 3 ft		1	SPT; SM; Silty sand with gravel; Moisture=12%	14
							9
						8.7	
					2	SPT; SM; Silty sand with gravel; Moisture=20%; Road fill	15
							7
							4
7.2	3.5					7.2	
			LIMESTONE: caprock, tan to light brown, fine grained, fossiliferous, thinly bedded, vuggy, strong and hard to soft, weak and porous	48 (RQD 45%)	1	7.2 SPT HQ coring; UCS=4620psi; Drill fluid returned black at 3.5 ft	50/0"
						4.2	
				25 (RQD 9%)	2	HQ coring	
0.7	10.0					0.2	
			Sandy GRAVEL: pale brown-grey, wet, medium dense, well graded, fine to coarse, calcitic, with calcitic sand, trace silt		4	SPT; SM; Silty sand with gravel; Moisture=24%; Soft at 10 ft, Intermittent hard drilling to 13.5 ft	9
							8
							19
-2.8	13.5					-2.8	
			SAND: pale brownish grey, wet, medium dense, well graded, fine to coarse grained, angular calcitic, some fine gravel and some silt		5	SPT; CO3=81.8%	3
							2
							20

ENG FORM 1836 (Continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0271



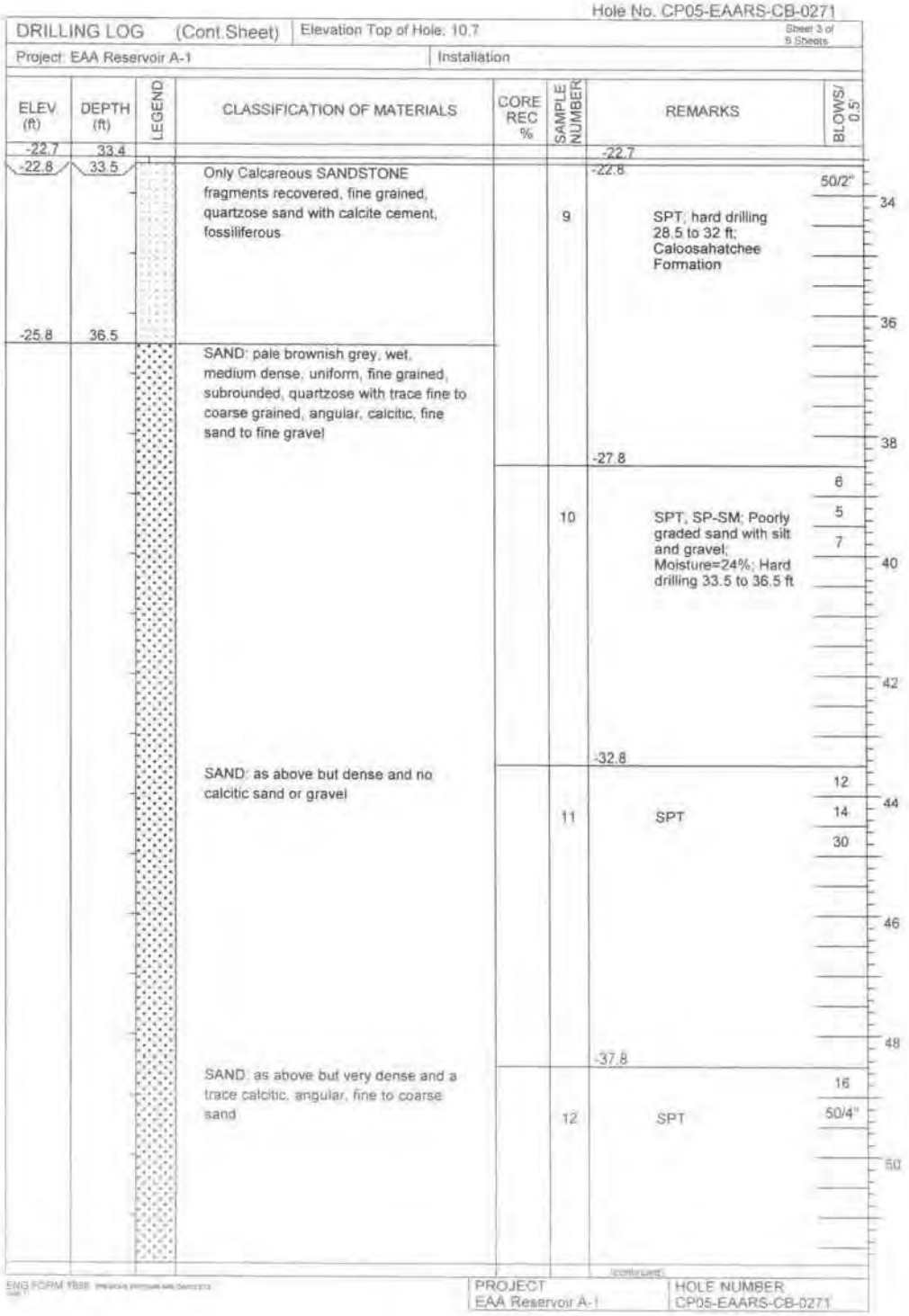
Hole No. CP05-EAARS-CB-0271

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 2 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/0.5
-4.3	15.0					-4.3	
							16
							18
						-7.8	
							14
					6	SPT, SM; Silty sand; Moisture=25%	11
							9
							20
							22
-12.8	23.5					-12.8	
			Gravelly SAND as above but more gravel and very dense				17
					7	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=22%; 21.5 to 22.5-hard drilling	15
							50/6"
							24
							26
							28
-17.8	28.5					-17.8	
			Only a few angular fragments of LIMESTONE recovered Hard drilling 28.5 to 32.0 ft				50/2"
					8	SPT; 23.8 to 28.5 intermittent hard drilling	
							30
-21.3	32.0						
							32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0271



Hole No. CP05-EAARS-CB-0271

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.7	33.4					-22.7	
-22.8	33.5		Only Calcareous SANDSTONE fragments recovered, fine grained, quartzose sand with calcite cement, fossiliferous		9	-22.8 SPT; hard drilling 28.5 to 32 ft; Caloosahatchee Formation	50/2"
-25.8	36.5		SAND: pale brownish grey, wet, medium dense, uniform, fine grained, subrounded, quartzose with trace fine to coarse grained, angular, calcitic, fine sand to fine gravel			-27.8	
					10	SPT, SP-SM; Poorly graded sand with silt and gravel; Moisture=24%; Hard drilling 33.5 to 36.5 ft	6 5 7
						-32.8	
			SAND: as above but dense and no calcitic sand or gravel		11	SPT	12 14 30
						-37.8	
			SAND: as above but very dense and a trace calcitic, angular, fine to coarse sand		12	SPT	16 50/4"

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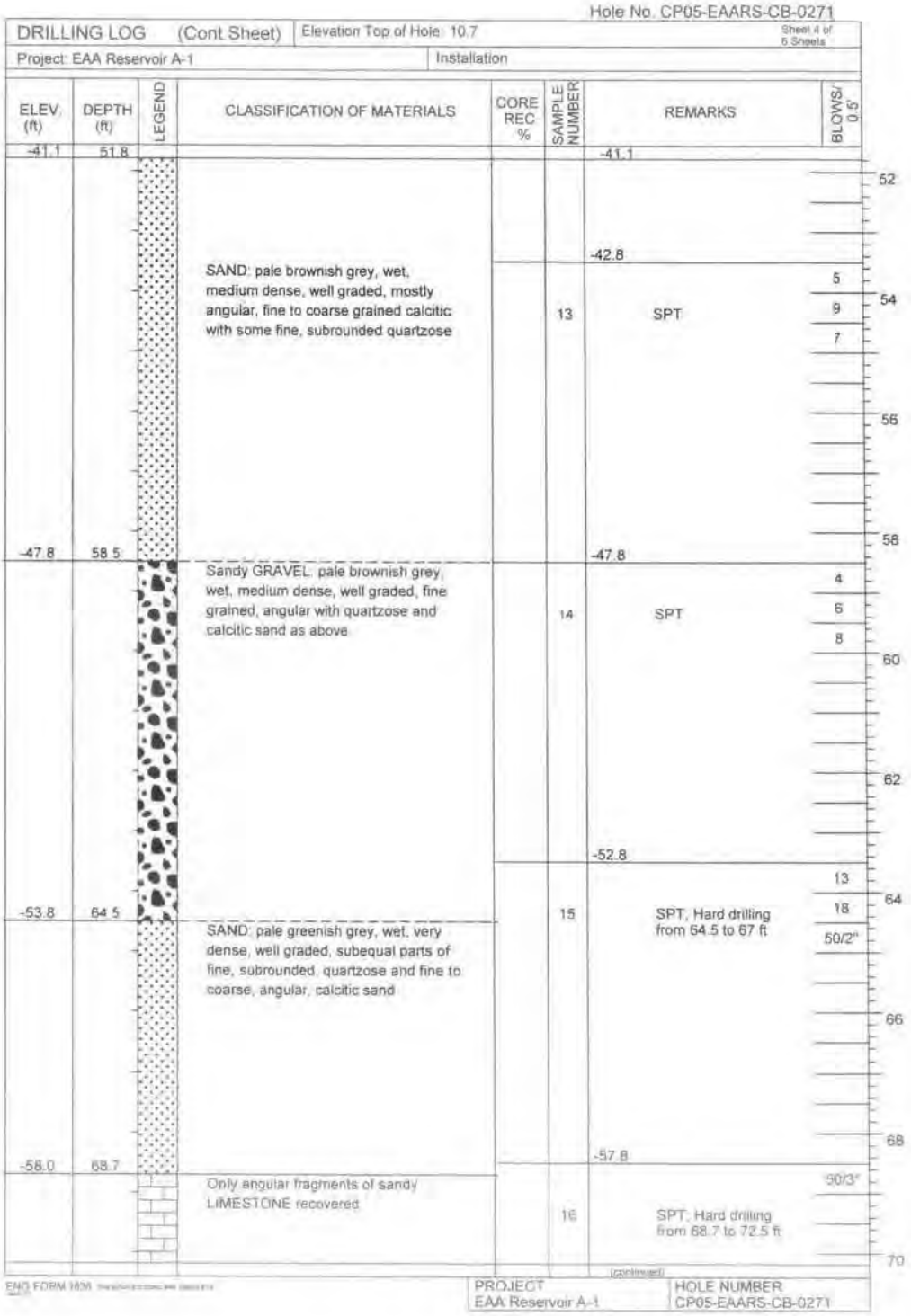
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0271



Hole No. CP05-EAARS-CB-0271

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.7 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.1	51.8					-41.1	
			SAND: pale brownish grey, wet, medium dense, well graded, mostly angular, fine to coarse grained calcitic with some fine, subrounded quartzose		13	-42.8 SPT	5 9 7
-47.8	58.5		Sandy GRAVEL: pale brownish grey, wet, medium dense, well graded, fine grained, angular with quartzose and calcitic sand as above		14	-47.8 SPT	4 6 8
-53.8	64.5		SAND: pale greenish grey, wet, very dense, well graded, subequal parts of fine, subrounded, quartzose and fine to coarse, angular, calcitic sand		15	-52.8 SPT, Hard drilling from 64.5 to 67 ft	13 18 50/2"
-58.0	68.7		Only angular fragments of sandy LIMESTONE recovered		16	-57.8 SPT, Hard drilling from 68.7 to 72.5 ft	50/3"

52 54 56 58 60 62 64 66 68 70

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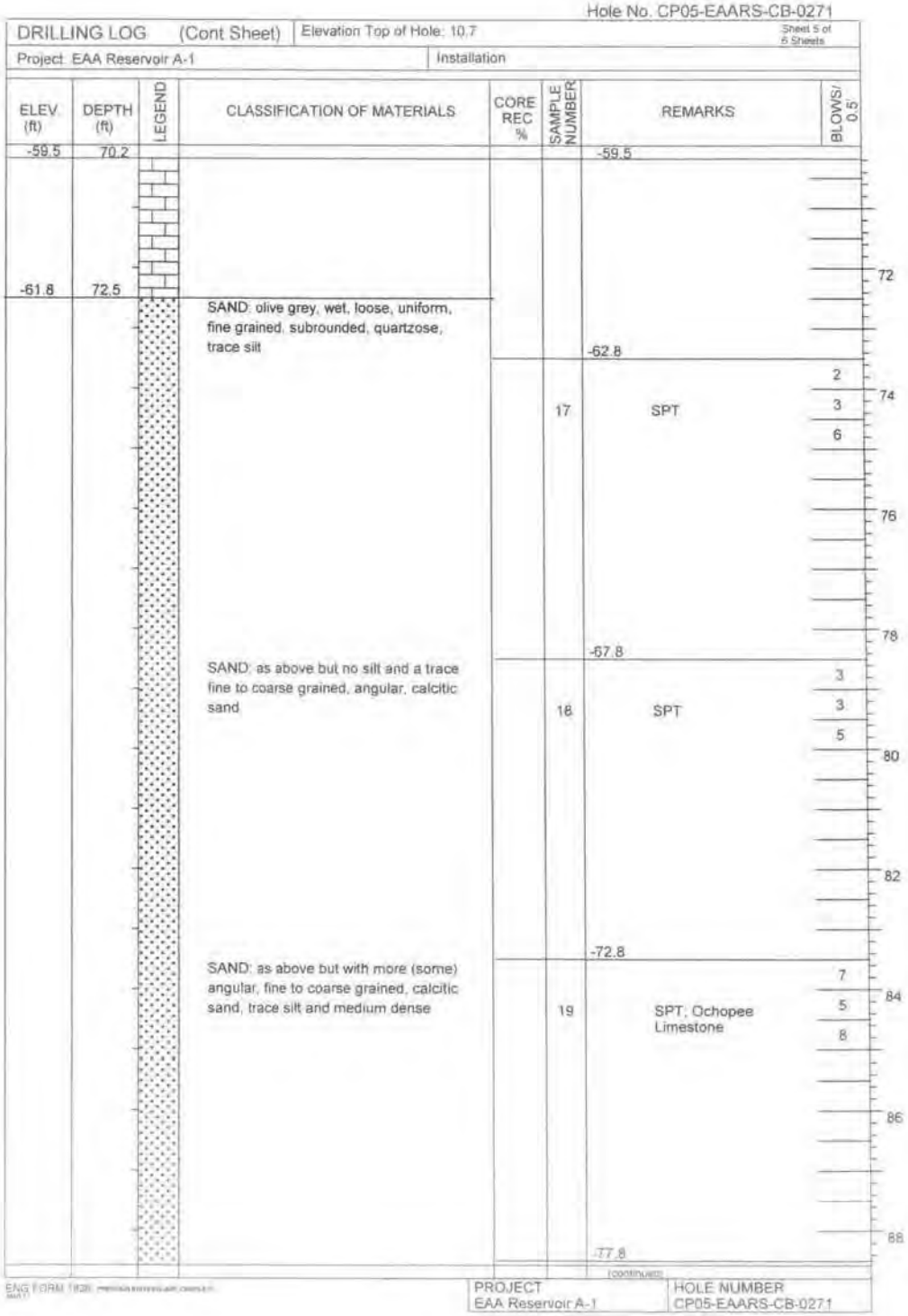
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0271



Hole No. CP05-EAARS-CB-0271

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.7 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.5	70.2					-59.5	
-61.8	72.5		SAND: olive grey, wet, loose, uniform, fine grained, subrounded, quartzose, trace silt			-62.8	72
					17	SPT	2 3 6
							74 76 78
			SAND: as above but no silt and a trace fine to coarse grained, angular, calcitic sand			-67.8	
					18	SPT	3 3 5
							80 82
			SAND: as above but with more (some) angular, fine to coarse grained, calcitic sand, trace silt and medium dense			-72.8	
					19	SPT, Ochopee Limestone	7 5 8
							84 86 88
						-77.8	

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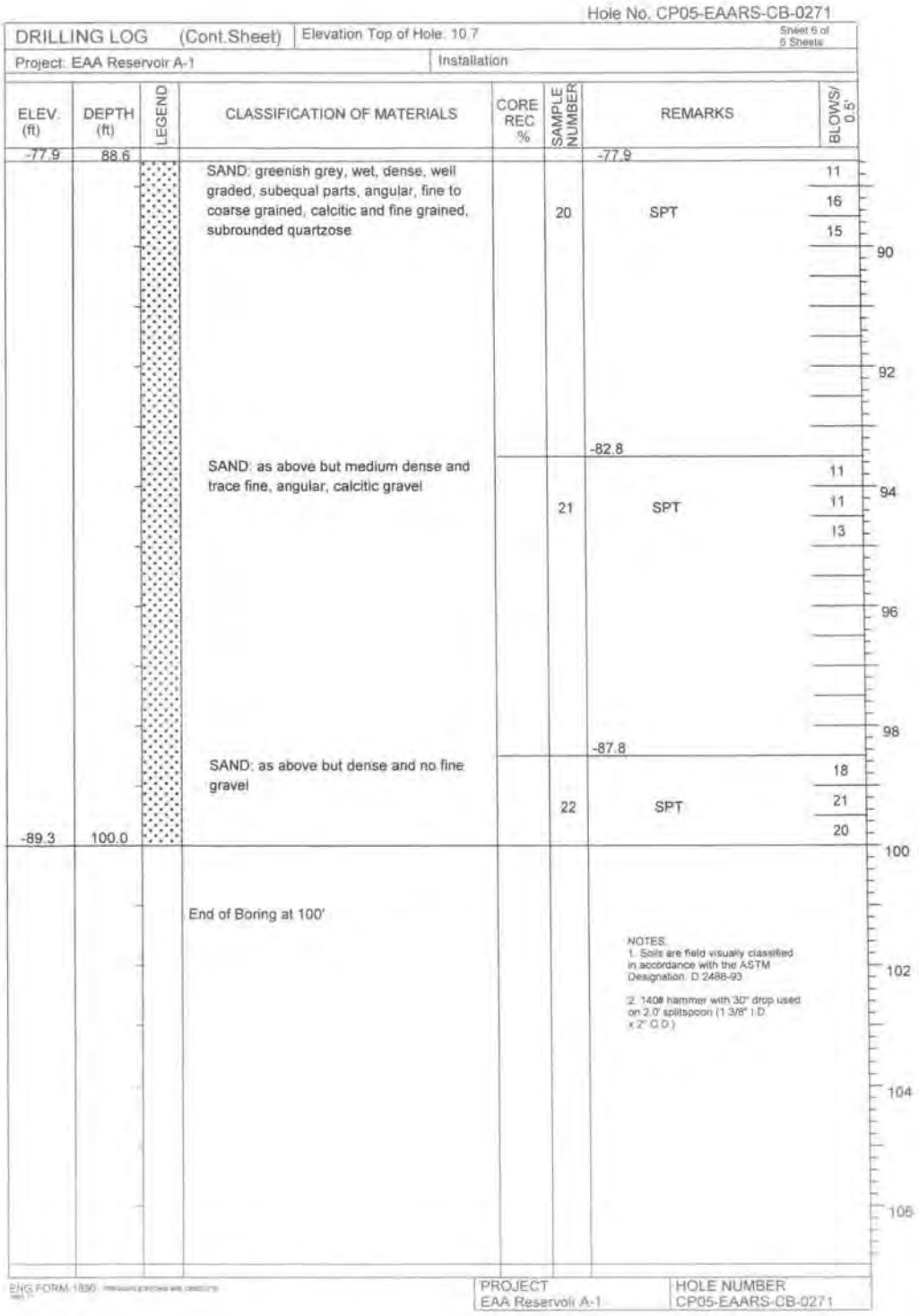
EAG FORM 1828

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0271



Hole No. CP05-EAARS-CB-0271

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-77.9	88.6					-77.9	
			SAND: greenish grey, wet, dense, well graded, subequal parts, angular, fine to coarse grained, calcitic and fine grained, subrounded quartzose		20	SPT	11 16 15
						-82.8	
			SAND: as above but medium dense and trace fine, angular, calcitic gravel		21	SPT	11 11 13
						-87.8	
			SAND: as above but dense and no fine gravel		22	SPT	18 21 20
-89.3	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0271

Hole No. CP05-EAARS-CB-0272

DRILLING LOG	Division:	Installation:	Sheet 1 of 5 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750226.1, E765882 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0272		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/6/2005 Completed 7/7/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.7	0.0						
8.5	0.2		Peat: 2 inches			8.7	50/2"
			LIMESTONE: caprock, tan to light brown, mostly fine grained, fossiliferous, vuggy, strong and hard to soft, weak and porous		1	7.7 SPT	
				46 (RQD 14%)	1	HQ coring, UCS=2650psi	
3.7	5.0					3.7	
			Gravelly SAND: pale brownish gray, very dense, wet angular, well graded, fine to coarse grained, calcitic, trace silt		2	SPT, SM; Silty sand with gravel; Moisture=18%	6 11 50/2"
1.2	7.5					1.2	
			Sandy Silty GRAVEL: as above but very dense and mostly fine, calcitic gravel		3	SPT	50
-1.3	10.0					-1.3	
			SAND: as above but less dense (medium) with some silt and fine gravel		4	SPT, SM; Silty sand with gravel; Moisture=29%	8 8 5
-4.8	13.5					-4.8	
			Only a few angular fragments of LIMESTONE recovered		5	SPT; Hard drilling to 17.5 ft	50/1"

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0272

Hole No. CP05-EAARS-CB-0272

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5
-6.3	15.0					-6.3	
-8.8	17.5		Gravelly SAND: pale brownish grey, dense, wet, uniform, fine grained, mostly subrounded and quartzose, some fine to coarse, angular, calcitic sand, angular, calcitic gravel		6	-9.8 SPT; SW-SM; Well graded sand with silt+gravel, Moisture=11%	26 26 14
-14.8	23.5		Sandy GRAVEL: pale brownish grey, medium dense, fine, angular limestone gravel with fine, subrounded, uniform, quartzose sand		7	-14.8 SPT; SW-SM; Well graded sand with silt+gravel, Moisture=15%, Intermittent hard drilling	6 10 10
-19.8	28.5		SAND: pale brownish grey, medium dense, wet, uniform, fine grained, subrounded quartzose, trace fine to medium, angular, calcitic sand		8	-19.8 SPT; SP; Poorly graded sand; Moisture=29%	10 14 13

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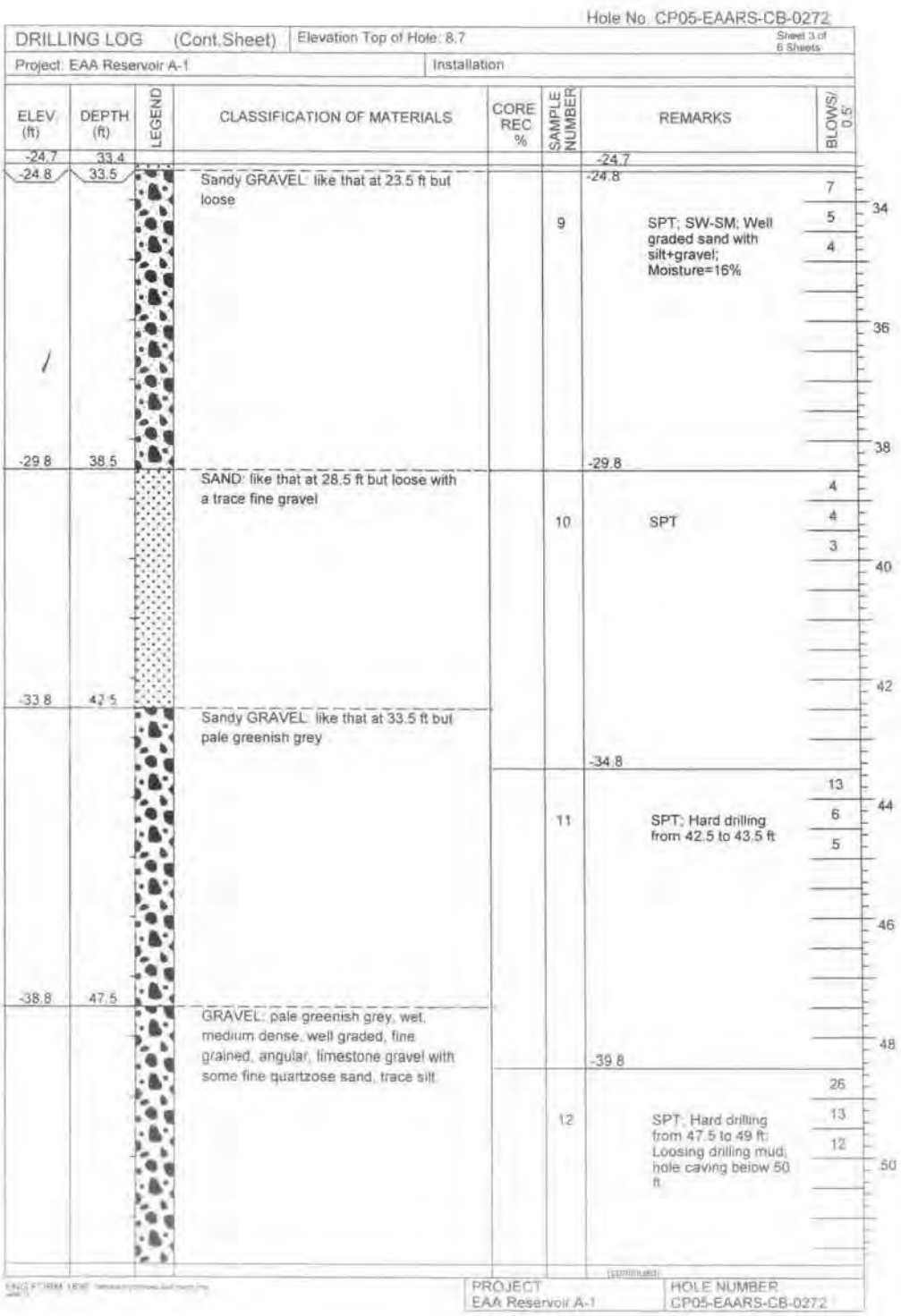
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0272



Hole No. CP05-EAARS-CB-0272

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.7	33.4					-24.7	
-24.8	33.5		Sandy GRAVEL: like that at 23.5 ft but loose		9	-24.8 SPT; SW-SM; Well graded sand with silt+gravel; Moisture=16%	7 5 4 34 36 38
-29.8	38.5		SAND: like that at 28.5 ft but loose with a trace fine gravel		10	-29.8 SPT	4 4 3 40 42
-33.8	42.5		Sandy GRAVEL: like that at 33.5 ft but pale greenish grey			-34.8	
-38.8	47.5		GRAVEL: pale greenish grey, wet, medium dense, well graded, fine grained, angular, limestone gravel with some fine quartzose sand, trace silt		11	SPT; Hard drilling from 42.5 to 43.5 ft	13 6 5 44 46 48
						-39.8	
					12	SPT; Hard drilling from 47.5 to 49 ft; Loosing drilling mud; hole caving below 50 ft	26 13 12 50

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0272

Hole No. CP05-EAARS-CB-0272

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 4 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-43.1	51.8					-43.1	
-43.3	52.0		Sandy GRAVEL: like that at 23.5 ft			-44.8	52
					13	SPT; Hard drilling from 50.5 to 52 ft	6 9 10 — 54
							56
-49.8	58.5					-49.8	58
			Silty SAND: olive grey, loose, wet, mostly uniform, fine subrounded, some calcitic, angular, fine sand to fine gravel, shell fragments		14	SPT; SP-SM; Poorly graded SAND with silt; Moisture=21%	5 5 5 — 60
							62
-54.8	63.5					-54.8	
			SAND: like that above but less (trace) silt		15	SPT; 5" Cased hole to 65 ft	4 3 4 — 64
							66
						-59.8	68
			SAND: as above, no silt, pale greenish grey		16	SPT	10 14 14 — 70

(continued)

ENG FORM 1836 (previous editions are obsolete)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0272

Hole No. CP05-EAARS-CB-0272

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 8.7 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-61.5	70.2					-61.5	
			SAND: pale greenish grey, wet, very dense, uniform, fine grained, subrounded, quartzose with trace, angular, fine to medium grained calcitic sand		17	SPT	44 50
						-64.8	
			SAND: pale greenish grey, wet, well graded, fine to coarse grained angular, calcitic with some fine, subrounded quartzose sand and trace silt, dense		18	SPT; Calcitic sand predominates; Tamiami Formation	24 22 27
						-74.8	
			SAND: light greenish grey, wet, dense, as above		19	SPT	16 20 16
						-79.8	

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0272

Hole No. CP05-EAARS-CB-0272

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 8.7 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-79.9	88.6					-79.9	
			SAND: as above but with a trace fine gravel and very dense		20	SPT	27 27 27
							90
							92
						-84.8	
			SAND: as above but subequal proportions of fine, uniform, subrounded, quartzose and fine to coarse, angular, calcitic		21	SPT	25 19 25
							94
							96
							98
						-89.8	
			SAND: as above		22	SPT	15 18 19
-91.3	100.0						
			End of Boring at 100'				100
							102
							104
							106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

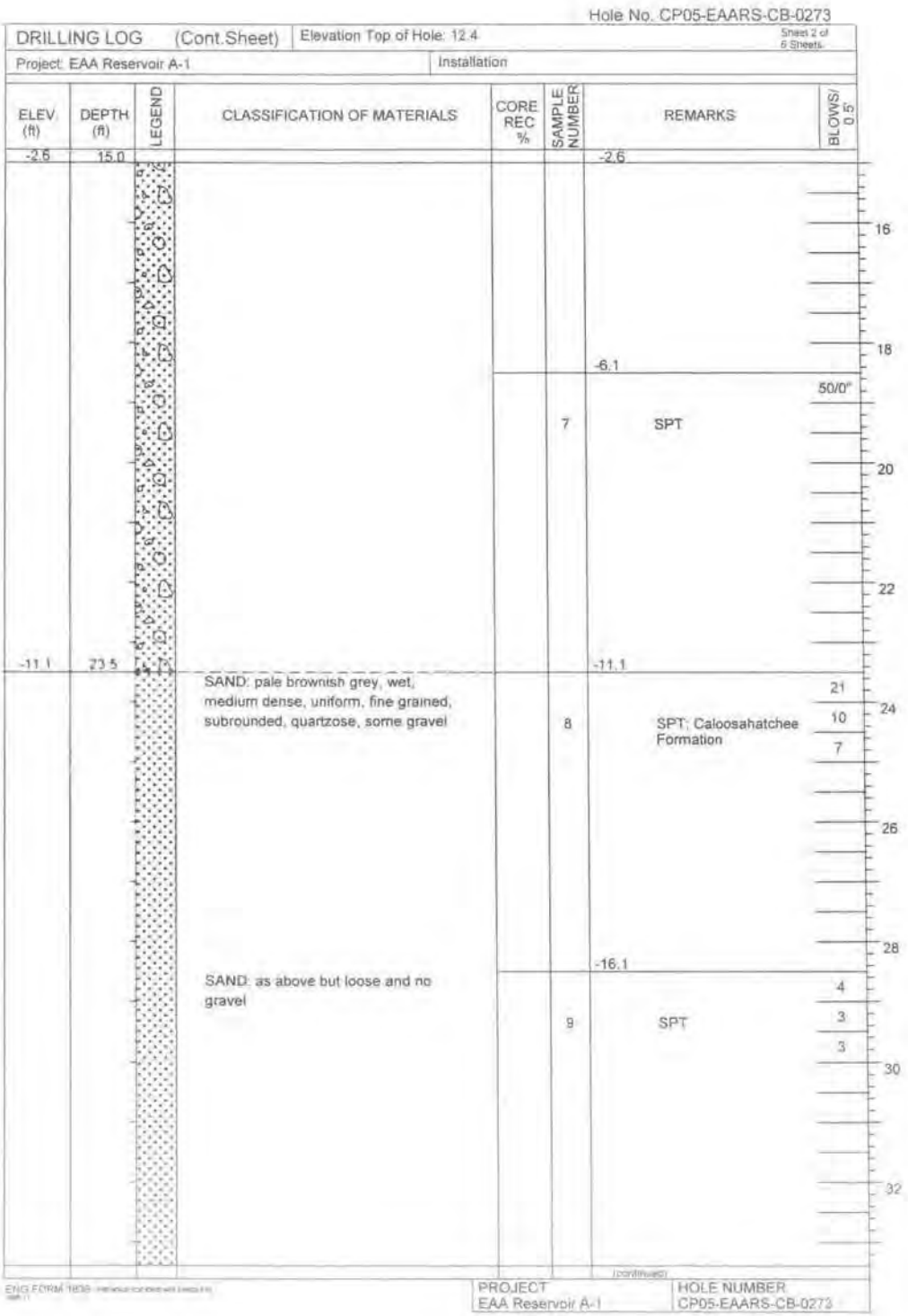
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0272

Hole No. CP05-EAARS-CB-0273

DRILLING LOG	Division	Installation	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750066.3, E762043.7 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0273		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/14/2005 Completed 7/14/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 12.4 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.4	0.0						
			Gravelly SAND and Peat: light brownish grey and black, dry to moist, medium dense, angular, calcitic sand and gravel, roadfill		1	12.4 SPT, All calcitic material noted below is at least partly shell fragments	13, 15, 7, 3
					2	10.9 SPT	3, 5, 8
					3	9.4 SPT	6, 4, 8
7.9	4.5		LIMESTONE: caprock, tan to light brown, fine grained, fossiliferous, thinly bedded, vuggy, hard and strong to soft, weak and porous	54 (RQD 30%)	4 1	7.9 SPT HQ coring, UCS=3090psi	50/0"
3.9	8.5		Gravelly SAND: pale brownish grey, wet, very dense, well graded, fine to coarse grained, angular, calcitic			2.9	
					5	SPT; Set 10 ft casing	30, 50/3"
			Gravelly SAND: as above but with some silt		6	-1.1 SPT, Intermittent hard drilling to 18ft, then hard drilling to 19.5 ft	5, 4, 13

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05 EAARS-CB-0273



Hole No. CP05-EAARS-CB-0273

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.6	15.0					-2.6	
							16
							18
						-6.1	
					7	SPT	50/0"
							20
							22
-11.1	23.5		SAND: pale brownish grey, wet, medium dense, uniform, fine grained, subrounded, quartzose, some gravel		8	-11.1 SPT; Caloosahatchee Formation	21 10 7
							24
							26
							28
						-16.1	
			SAND: as above but loose and no gravel		9	SPT	4 3 3
							30
							32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0273

Hole No. CP05-EAARS-CB-0273

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.0	33.4					-21.0	
-21.1	33.5		Only fine grained, calcareous sandstone fragments recovered, large fragments lodged in bits		10	-21.1 SPT	19 5 10
-26.1	38.5		SAND: as above but pale greenish grey		11	-26.1 SPT	5 10 9
-31.1	43.5		GRAVEL: medium grey, wet, loose, well graded, fine to medium grained, angular, calcareous sandstone gravel, fossiliferous, trace fine sand		12	-31.1 SPT; Hole caving	6 5 5
			GRAVEL: as above but medium dense		13	-36.1 SPT; Intermittent hard drilling 50.5 ft	6 8 8

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0273

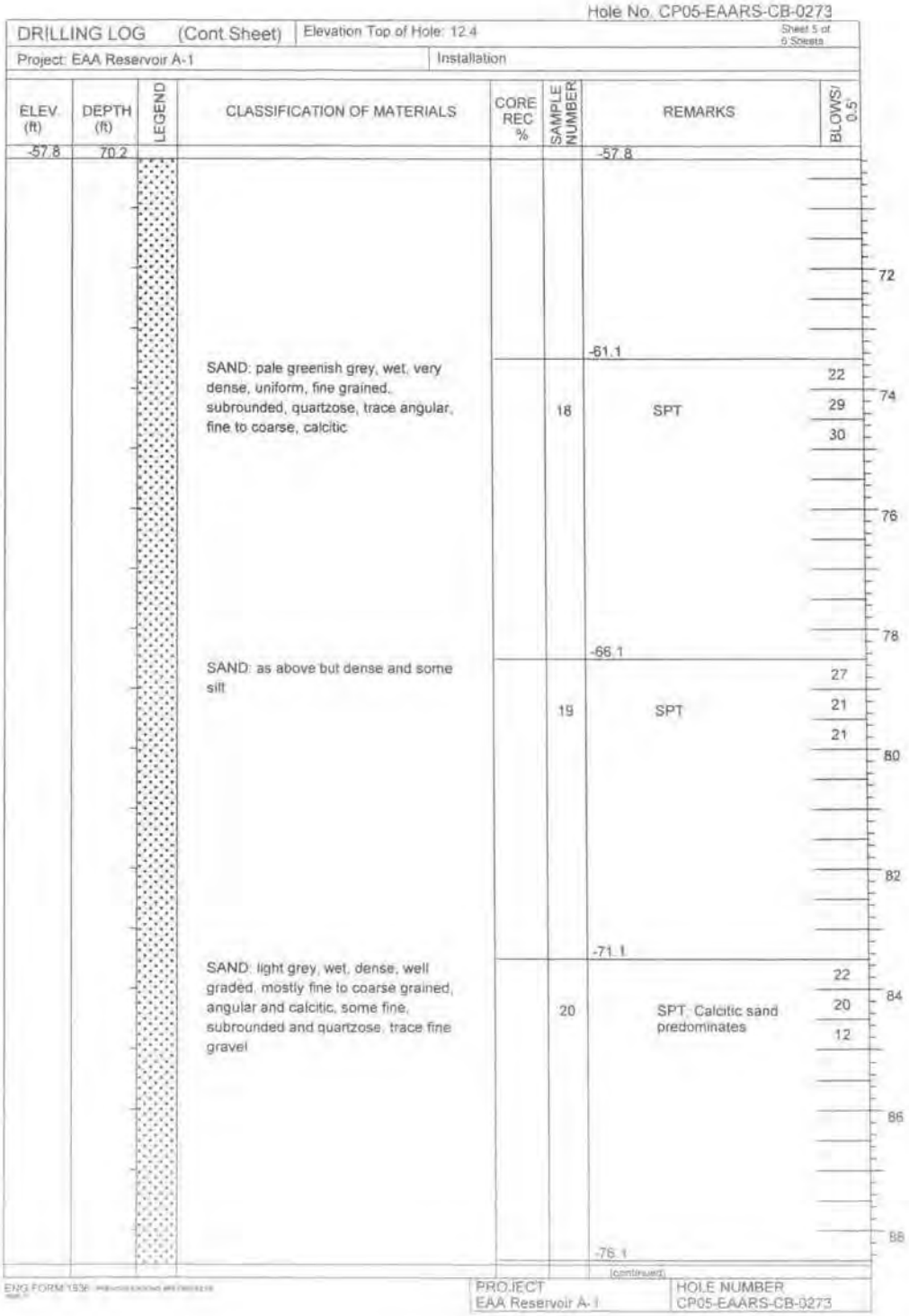
Hole No. CP05-EAARS-CB-0273

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 12.4 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-39.4	51.8					-39.4	
-41.1	53.5		Sandy Gravel: gravel as above but with fine subrounded quartzose and fine to coarse grained, angular, calcitic sand, trace silt		14	SPT	12 11 9
-46.1	58.5		Silty SAND: pale greenish grey, medium dense, wet, well graded, subequal parts, fine to coarse, angular, calcitic and fine grained, subrounded, quartzose, some gravel		15	-46.1 SPT	8 6 10
-51.1	63.5		SAND: greenish grey, wet, dense, poorly graded, mostly fine grained, subrounded and quartzose with some fine to coarse grained angular and calcitic, trace silt		16	-51.1 SPT	15 17 15
			SAND: as above just slightly lighter greenish grey and no silt		17	-58.1 SPT	16 15 14

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0273



Hole No. CP05-EAARS-CB-0273

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 12.4 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-57.8	70.2					-57.8	
			SAND: pale greenish grey, wet, very dense, uniform, fine grained, subrounded, quartzose, trace angular, fine to coarse, calcitic		18	SPT	22, 29, 30
						-61.1	
			SAND: as above but dense and some silt		19	SPT	27, 21, 21
						-66.1	
			SAND: light grey, wet, dense, well graded, mostly fine to coarse grained, angular and calcitic, some fine, subrounded and quartzose, trace fine gravel		20	SPT. Calcitic sand predominates	22, 20, 12
						-76.1	

72 74 76 78 80 82 84 86 88

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0273

Hole No. CP05-EAARS-CB-0273

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-76.2	88.6					-76.2	
			SAND: as above but medium dense		21	SPT	5 7 16
							90
							92
						-81.1	
			SAND: as above but pale greenish grey and very dense		22	SPT	29 25 28
							94
							96
							98
						-86.1	
			SAND: as above but grey		23	SPT	21 26 32
-87.6	100.0						
			End of Boring at 100'				100
							102
							104
							106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

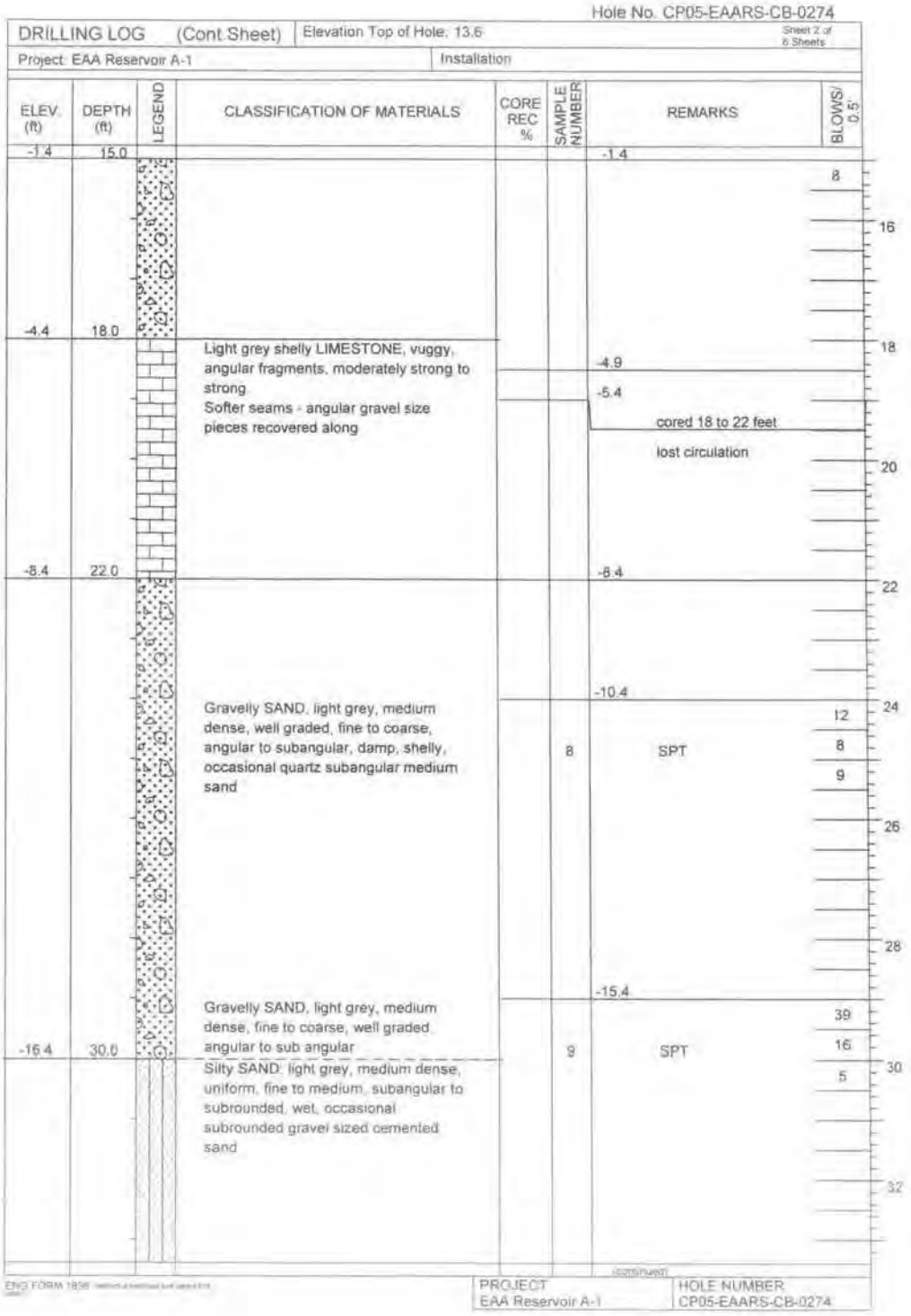
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0273

Hole No: CP05-EAARS-CB-0274

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750059.5, E758708.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0274		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/11/2005 Completed 7/14/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 13.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: J. Petrie	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
13.6	0.0						
			Gravelly Silty SAND, grey, dense, well graded, fine to coarse, subangular, dry, slightly organic, shelly fragments		1	13.6 SPT	6, 16, 15
11.6	2.0					11.6	
			Gravelly SAND, light grey, medium dense, well graded, fine to coarse, subangular, moist, slightly organic, shelly fragments		2	SPT	7, 14, 7
						9.6	
			Gravelly SAND, light grey, medium dense, well graded, fine to coarse, subangular, moist, shelly fragments		3	SPT	4, 13, 7
						6.6	
5.6	8.0				4	5.6 SPT	50/1"
			Gravelly sandy CLAY, light grey, firm, fine to coarse, subangular sand, moist, shelly. Cobble stopped penetration		5	SPT	6, 3
4.4	9.3					4.4	50/1"
			Cobble and gravel size, grey light brown, shelly LIMESTONE, moderately strong	30 (RQD 13%)	1	HQ coring, UCS=433psi	
1.6	12.0					1.6	
			Gravelly silty SAND, light grey, medium dense, well graded, fine to coarse, subangular, wet, shelly fragments		6	SPT	7, 7, 20
-0.4	14.0					-0.4	
			Gravelly SAND, light grey, loose, well graded, fine to coarse, subangular, wet, shelly		7	SPT	4, 4

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0274



Hole No. CP05-EAARS-CB-0274

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 13.6 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-1.4	15.0					-1.4	8
-4.4	18.0		Light grey shelly LIMESTONE, vuggy, angular fragments, moderately strong to strong Softer seams - angular gravel size pieces recovered along			-4.9 -5.4 cored 18 to 22 feet lost circulation	16 18 20
-8.4	22.0					-8.4	22
			Gravelly SAND, light grey, medium dense, well graded, fine to coarse, angular to subangular, damp, shelly, occasional quartz subangular medium sand		8	-10.4 SPT	12 8 9 24 26 28
-16.4	30.0		Gravelly SAND, light grey, medium dense, fine to coarse, well graded angular to sub angular Silty SAND: light grey, medium dense, uniform, fine to medium, subangular to subrounded, wet, occasional subrounded gravel sized cemented sand		9	-15.4 SPT	39 16 5 30 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0274

Hole No. CP05-EAARS-CB-0274

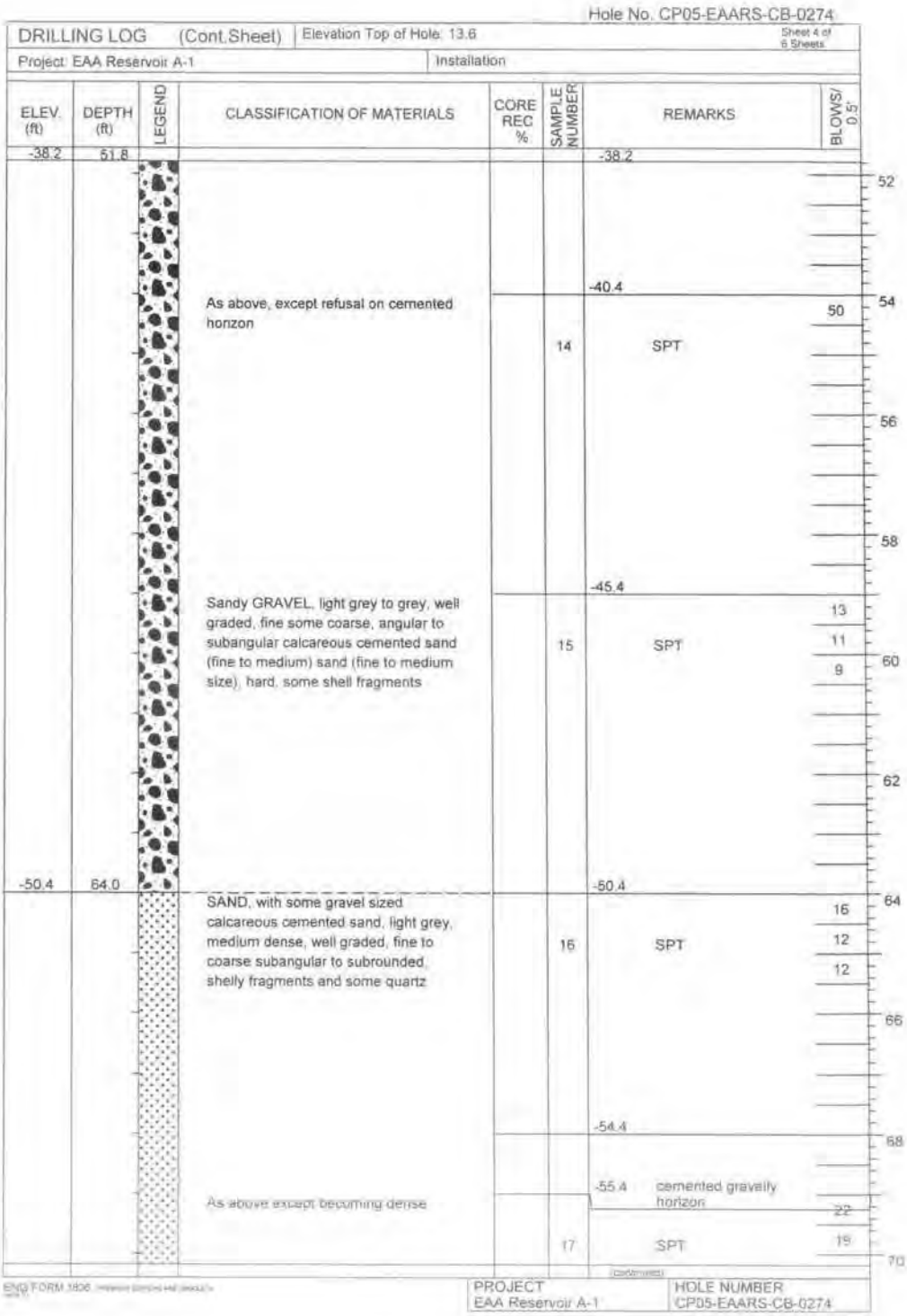
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.6 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-19.8	33.4					-19.8	
						-20.4	
			Silty SAND, light grey, medium dense, uniform, fine to medium, occasional subrounded gravel of cemented sand with shell fragments and occasional fine grained quartz sand		10	SPT	3 7 4
						-25.4	
			As above		11	SPT	2 4 6
			thin cemented horizons in sequence			-30.4	
-30.1	43.7		Sandy GRAVEL: light grey, medium dense, well graded, fine, some coarse angular to subangular pieces, cemented sand (fine to medium), some shell fragments		12	SPT	4 8 8
			thin cemented horizons			-35.4	
			As above, with fine to coarse gravel sized calcareous (shells) subrounded included		13	SPT, hard band at 48 ft, circulation loss at 49 ft	5 9 10

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0274



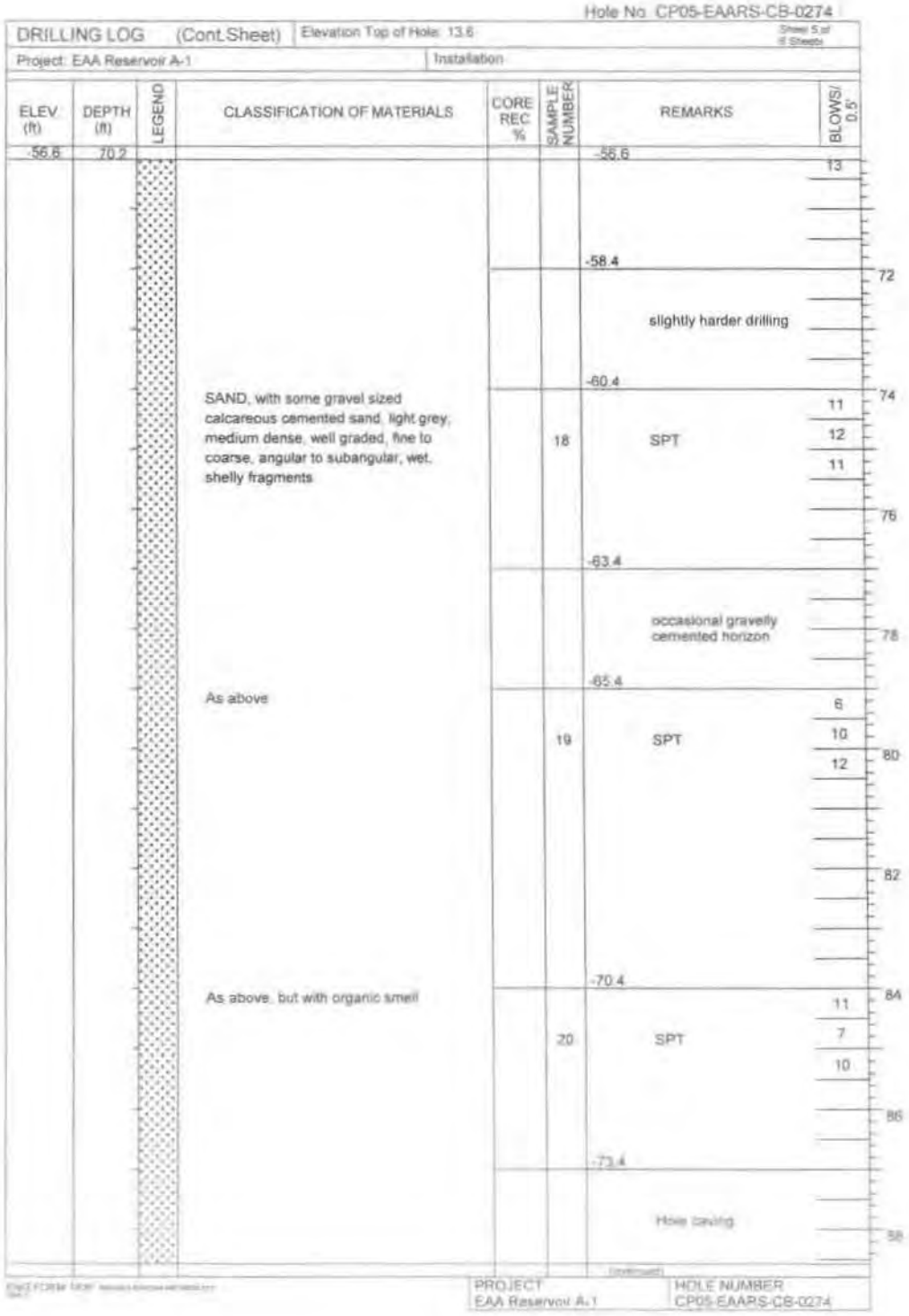
Hole No. CP05-EAARS-CB-0274

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.6 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-38.2	51.8					-38.2	
			As above, except refusal on cemented horizon		14	-40.4 SPT	50
			Sandy GRAVEL, light grey to grey, well graded, fine some coarse, angular to subangular calcareous cemented sand (fine to medium) sand (fine to medium size), hard, some shell fragments		15	-45.4 SPT	13, 11, 9
-50.4	64.0		SAND, with some gravel sized calcareous cemented sand, light grey, medium dense, well graded, fine to coarse subangular to subrounded, shelly fragments and some quartz		16	-50.4 SPT	16, 12, 12
			As above except becoming dense		17	-54.4 -55.4 cemented gravelly horizon SPT	22, 19

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0274



Hole No. CP05-EAARS-CB-0274

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.6 | Sheet 5 of # Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-56.6	70.2					-56.6	13
						-58.4	72
						slightly harder drilling	
						-60.4	74
			SAND, with some gravel sized calcareous cemented sand, light grey, medium dense, well graded, fine to coarse, angular to subangular, wet, shelly fragments		18	SPT	11, 12, 11
						-63.4	76
						occasional gravelly cemented horizon	78
						-65.4	
			As above		19	SPT	6, 10, 12
							80
							82
						-70.4	
			As above, but with organic smell		20	SPT	11, 7, 10
							84
							86
						-73.4	
						Hole caving	88

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0274

Hole No. CP05-EAARS-CB-0274

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.6 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-75.0	88.6					-75.0	
			As above, not organic			-75.4	
					21	SPT	15 14 9
							90
							92
						-80.4	
			SAND, with some gravel sized calcareous cemented sand, light grey, medium dense, well graded, fine to coarse, angular to subangular, wet, shelly fragments		22	SPT	13 11 10
							94
							96
							98
						-85.4	
			As above				13
-86.4	100.0				23	SPT	13
							14
			End of Boring at 100'				100
							102
							104
							106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

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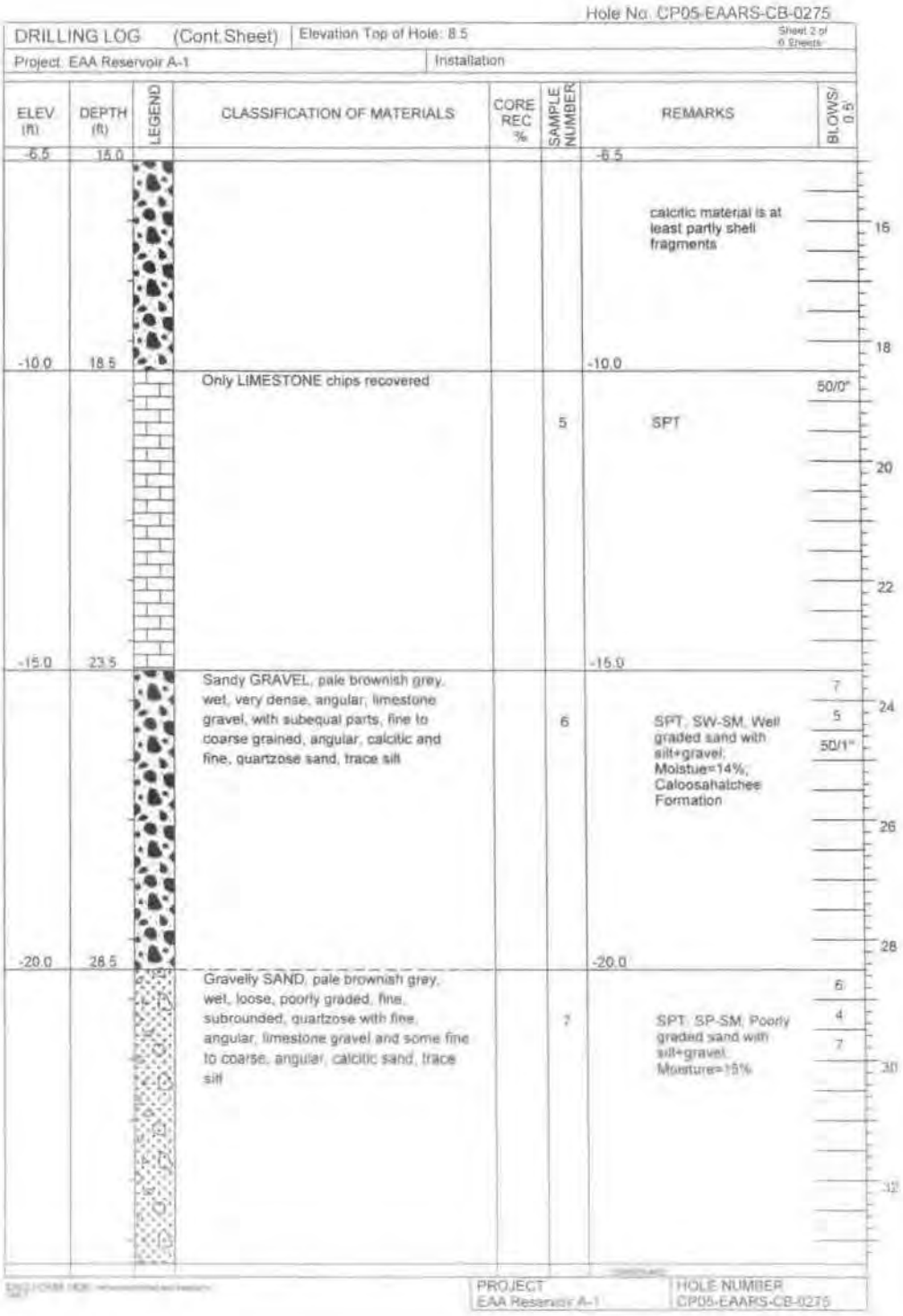
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0274

Hole No. CP05-EAARS-CB-0275

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N756300.2, E758665.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0275		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/1/2005 Completed 7/5/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.5 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.5	0.0						
8.0	0.5		Peat			8.5 8.0	50/5"
			LIMESTONE, caprock, tan to light brown, mostly fine grained with shells, thinly bedded, strong, hard, vuggy, locally porous	86 (RQD 24%)	1	SPT; loosing drilling water HQ coring; UCS=1676psi	
3.0	5.5					3.0	
			Sandy GRAVEL, pale brownish grey, wet, very dense, angular, calcitic with some silt, fine		2	SPT, SW-SM; Well graded sand with silt+gravel; Moisture=24%; Rotary wash 3.875" bit to 50 ft then 2.875" below	14 50/2"
1.0	7.5					1.0	7
			SAND, as above but mostly well graded, fine to coarse, angular, calcitic sand, some gravel and silt, loose		3	SPT, SM; Silty sand with gravel; Moisture=25%	3 4
-5.0	13.5					-5.0	
			Sandy GRAVEL, as above. Gravel is shelly, vuggy limestone probably limestone lenses broken by spoon, drill chatters intermittent		4	SPT, SM; Silty sand with gravel; Moisture=18%; Air	6 9 50/3"

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0275



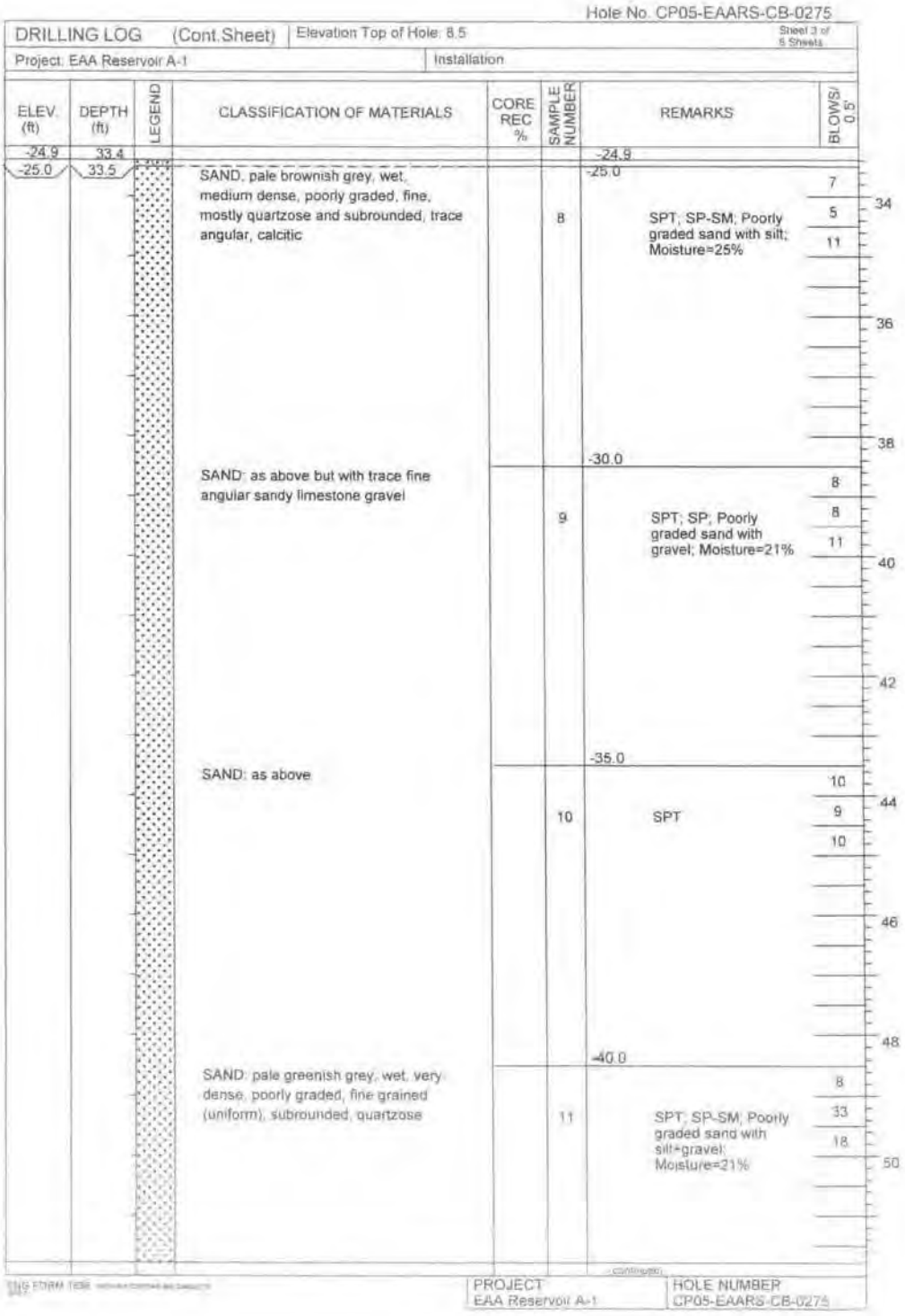
Hole No. CP05-EAARS-CB-0275

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-6.5	15.0					-6.5	
						calcitic material is at least partly shell fragments	16
-10.0	18.5					-10.0	18
			Only LIMESTONE chips recovered		5	SPT	50/0"
-15.0	23.5					-15.0	20
			Sandy GRAVEL, pale brownish grey, wet, very dense, angular, limestone gravel, with subequal parts, fine to coarse grained, angular, calcitic and fine, quartzose sand, trace silt		6	SPT, SW-SM, Well graded sand with silt+gravel; Moistue=14%; Caloosahatchee Formation	7 5 50/1"
-20.0	28.5					-20.0	24 26 28
			Gravelly SAND, pale brownish grey, wet, loose, poorly graded, fine, subrounded, quartzose with fine, angular, limestone gravel and some fine to coarse, angular, calcitic sand, trace silt		7	SPT, SP-SM, Poorly graded sand with silt+gravel; Moisture=15%	6 4 7 30 32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0275



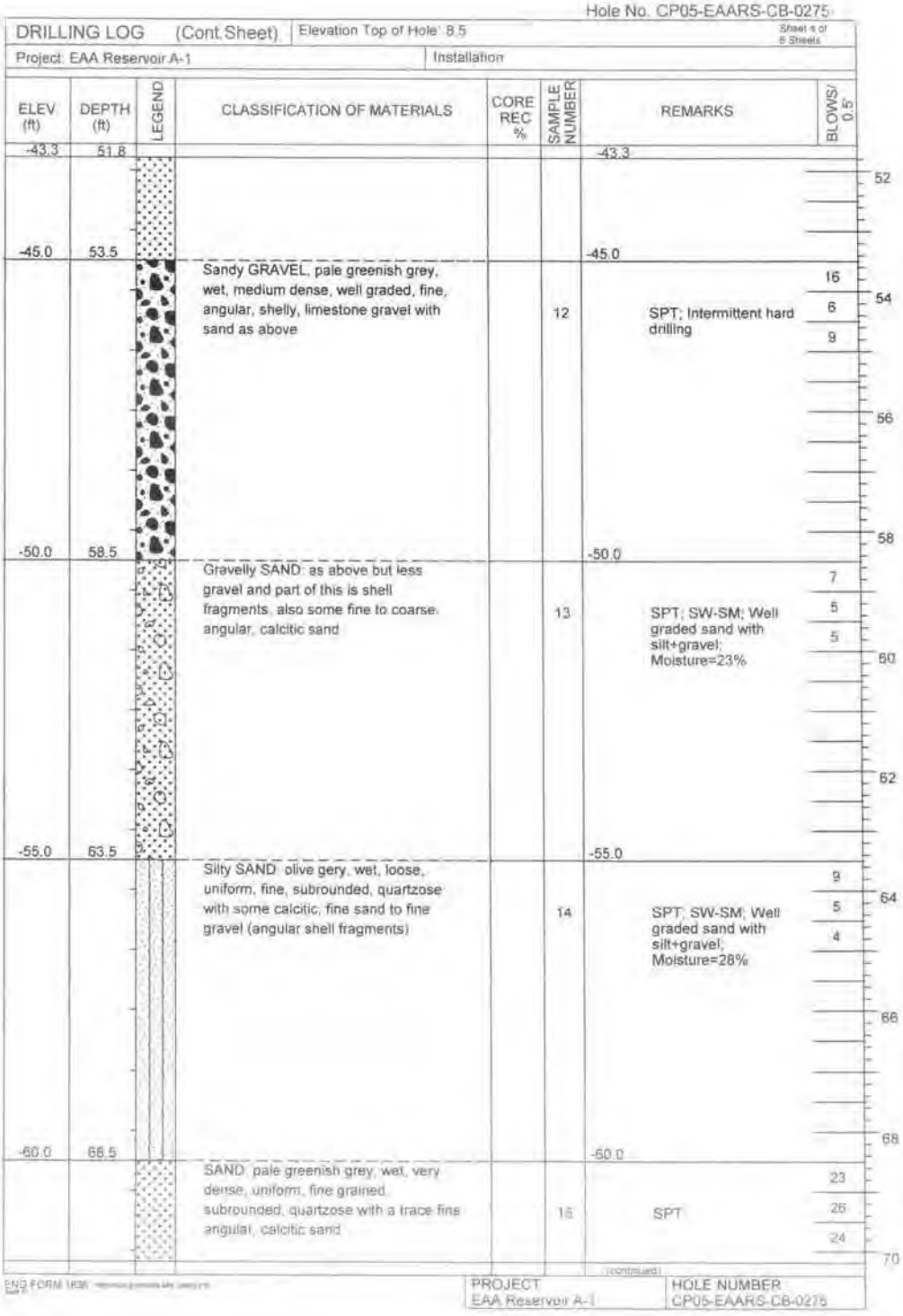
Hole No. CP05-EAARS-CB-0275

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.9	33.4					-24.9	
-25.0	33.5		SAND, pale brownish grey, wet, medium dense, poorly graded, fine, mostly quartzose and subrounded, trace angular, calcitic		8	-25.0 SPT; SP-SM; Poorly graded sand with silt; Moisture=25%	7 5 11 34 36 38
			SAND: as above but with trace fine angular sandy limestone gravel		9	-30.0 SPT; SP; Poorly graded sand with gravel; Moisture=21%	8 8 11 40 42
			SAND: as above		10	-35.0 SPT	10 9 10 44 46 48
			SAND: pale greenish grey, wet, very dense, poorly graded, fine grained (uniform), subrounded, quartzose		11	-40.0 SPT; SP-SM; Poorly graded sand with silt+gravel; Moisture=21%	8 33 18 50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0275



Hole No. CP05-EAARS-CB-0275

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 4 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

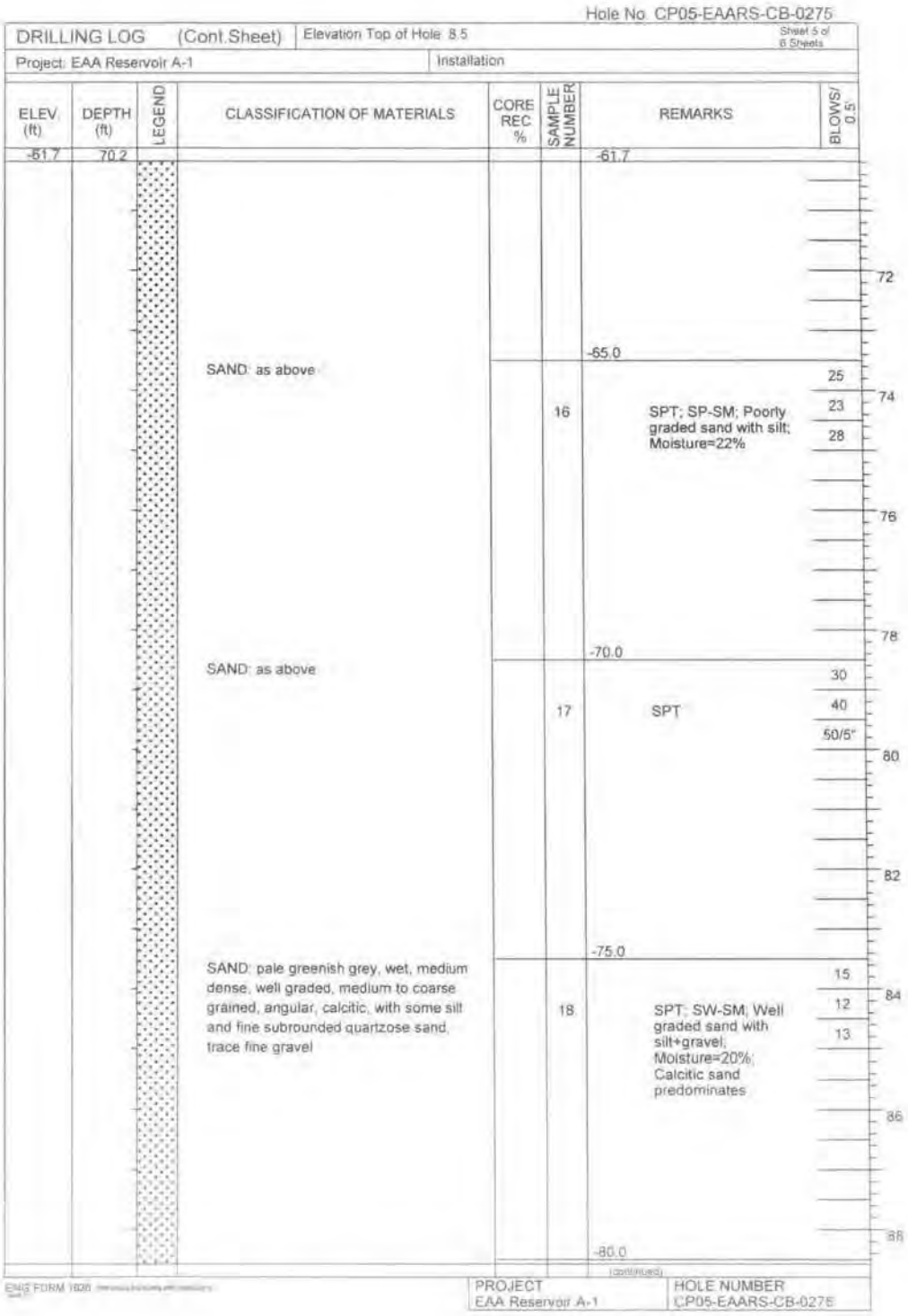
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-43.3	51.8					-43.3	
-45.0	53.5					-45.0	
			Sandy GRAVEL, pale greenish grey, wet, medium dense, well graded, fine, angular, shelly, limestone gravel with sand as above		12	SPT; Intermittent hard drilling	15 6 9
-50.0	58.5					-50.0	
			Gravelly SAND: as above but less gravel and part of this is shell fragments, also some fine to coarse, angular, calcitic sand		13	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=23%	7 5 5
-55.0	63.5					-55.0	
			Silty SAND: olive gery, wet, loose, uniform, fine, subrounded, quartzose with some calcitic, fine sand to fine gravel (angular shell fragments)		14	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=28%	9 5 4
-60.0	66.5					-60.0	
			SAND: pale greenish grey, wet, very dense, uniform, fine grained, subrounded, quartzose with a trace fins angular, calcitic sand		15	SPT	23 26 24

52 54 56 58 60 62 64 66 68 70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0275



Hole No. CP05-EAARS-CB-0275

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-61.7	70.2					-61.7	
							72
						-65.0	
			SAND: as above		16	SPT; SP-SM; Poorly graded sand with silt; Moisture=22%	25 23 28
							74
							76
							78
						-70.0	
			SAND: as above		17	SPT	30 40 50/5"
							80
							82
						-75.0	
			SAND: pale greenish grey, wet, medium dense, well graded, medium to coarse grained, angular, calcitic, with some silt and fine subrounded quartzose sand, trace fine gravel		18	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=20%; Calcitic sand predominates	15 12 13
							84
							86
							88
						-80.0	

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0275

Hole No. CP05-EAARS-CB-0275

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-80.1	88.6					-80.1	
			SAND: as above but less (trace) silt and dense		19	SPT	17 15 16
							90
							92
						-85.0	
			SAND: as above		20	SPT; SW-SM; Well graded sand with silt; Moisture=18%	27 20 24
							94
							96
							98
						-90.0	
			SAND: as above		21	SPT	24 22 16
-91.5	100.0						
			End of Boring at 100'				100
						NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	102
							104
							106

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0275

Hole No. CP05-EAARS-CB-0276

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N764127.4, E758491.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0276		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 6/30/2005 Completed 6/30/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: E. Requejo	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.0	0.0					11.0	2
10.0	1.0		Muck		1	10.0 SPT	50/2"
			Caprock	21 (RQD 13%)	1	HQ coring	
6.5	4.5					6.5	
						5.0	4
					2	SPT	30
						3.0	50
			SAND: Pale, light brown fine to coarse grained, very dense, with cemented sands		3	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=17%	7 39 7
			SAND: Tan color, well sorted, fine to coarse grained, dense				
						-2.5	26
			SAND: Tan color, well sorted, coarser grains than above, very dense		4	SPT; SM; Silty sand with gravel; Moisture=25%	21 50/2"

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0276

Hole No. CP05-EAARS-CB-0276

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.0	15.0					-4.0	
			SAND; Light brown, slightly SILTY, well sorted fine to medium grained, medium dense		5	SPT; SP-SM; Poorly graded sand with silt; Moisture=26%	10 9 6
						-12.5	
			SAND; Brownish, very fine, well sorted, medium dense		6	SPT; SP; Poorly graded sand; Moisture=25%	7 7 7
						-14.0 Caloosahatchee Formation	
						-17.5	
			SAND; Brownish, very fine, well sorted, with some traces of SILT, medium dense		7	SPT; SP-SM; Poorly graded sand with silt; Moisture=27%	14 10 15

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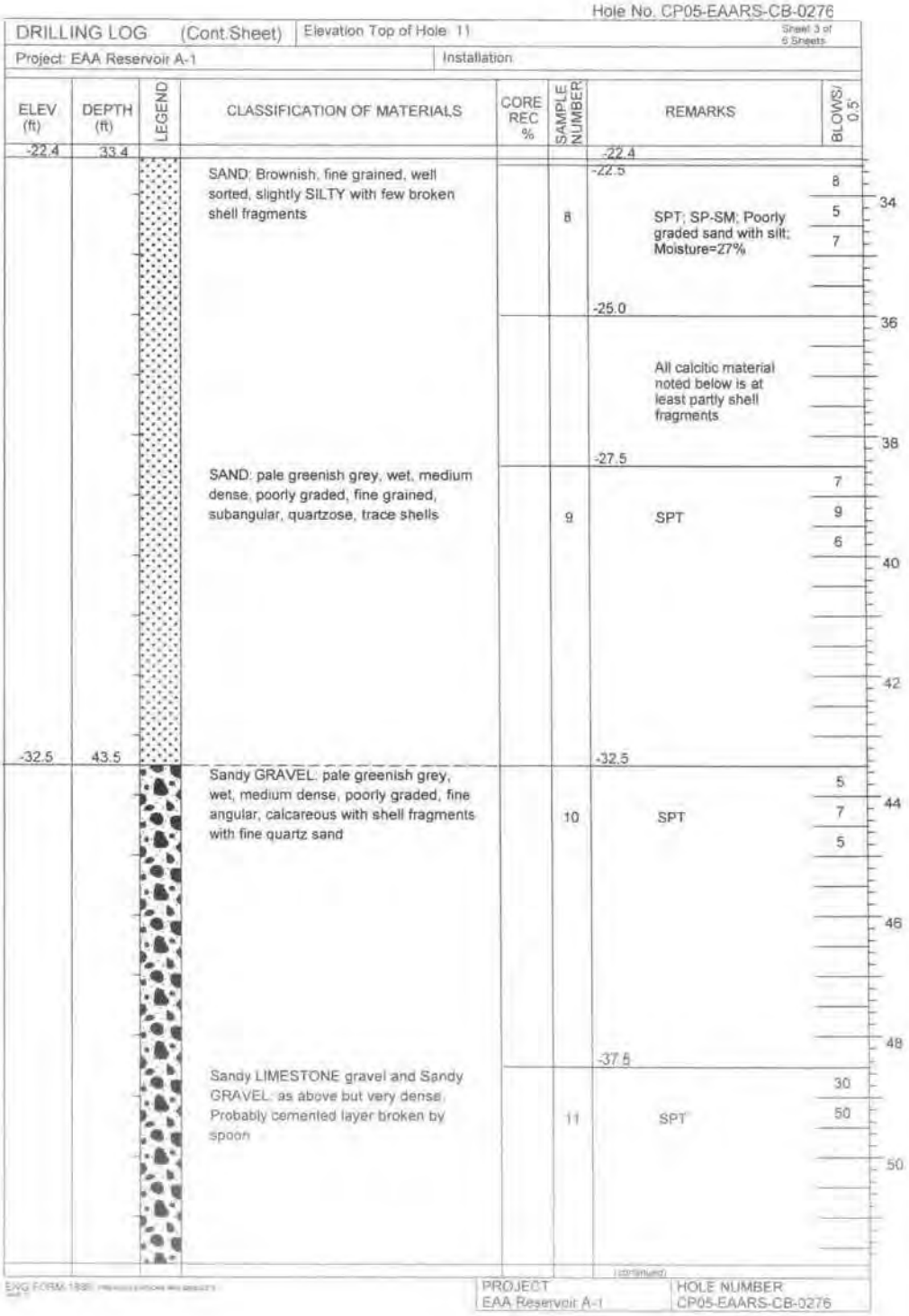
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0276



Hole No. CP05-EAARS-CB-0276

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-22.4	33.4					-22.4	
			SAND: Brownish, fine grained, well sorted, slightly SILTY with few broken shell fragments		8	-22.5 SPT; SP-SM; Poorly graded sand with silt; Moisture=27%	8 5 7
						-25.0 All calcitic material noted below is at least partly shell fragments	
			SAND: pale greenish grey, wet, medium dense, poorly graded, fine grained, subangular, quartzose, trace shells		9	-27.5 SPT	7 9 6
-32.5	43.5					-32.5	
			Sandy GRAVEL: pale greenish grey, wet, medium dense, poorly graded, fine angular, calcareous with shell fragments with fine quartz sand		10	SPT	5 7 5
						-37.5	
			Sandy LIMESTONE gravel and Sandy GRAVEL: as above but very dense. Probably cemented layer broken by spoon		11	SPT	30 50

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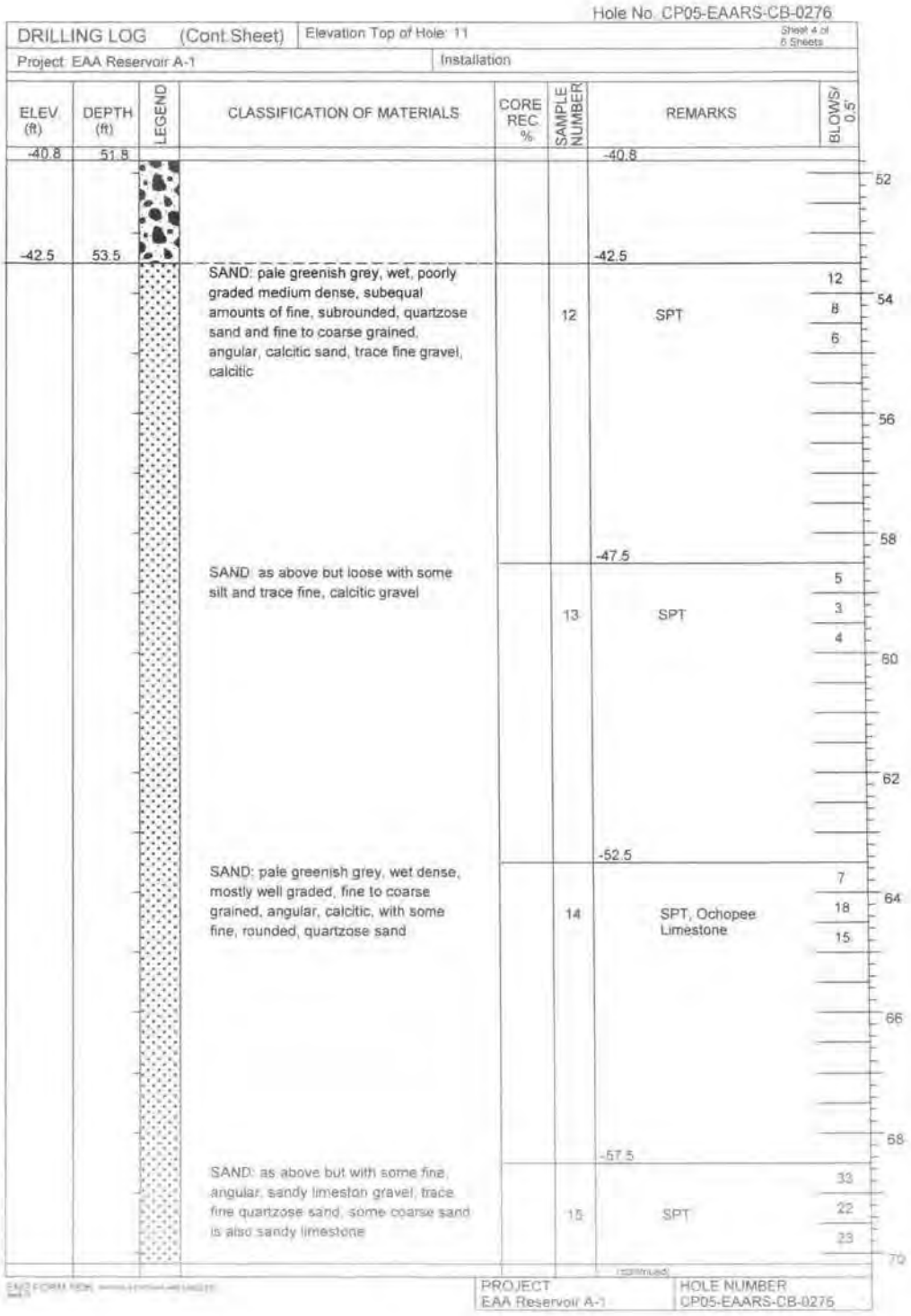
ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0276



Hole No. CP05-EAARS-CB-0276

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-40.8	51.8					-40.8	
-42.5	53.5		SAND: pale greenish grey, wet, poorly graded medium dense, subequal amounts of fine, subrounded, quartzose sand and fine to coarse grained, angular, calcitic sand, trace fine gravel, calcitic		12	-42.5 SPT	12 8 6
			SAND: as above but loose with some silt and trace fine, calcitic gravel		13	-47.5 SPT	5 3 4
			SAND: pale greenish grey, wet dense, mostly well graded, fine to coarse grained, angular, calcitic, with some fine, rounded, quartzose sand		14	-52.5 SPT, Ochopee Limestone	7 18 15
			SAND: as above but with some fine, angular, sandy limeston gravel, trace fine quartzose sand, some coarse sand is also sandy limestone		15	-57.5 SPT	33 22 23

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0276

Hole No. CP05-EAARS-CB-0276

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.2	70.2					-59.2	
							72
						-62.5	
			SAND: as above but medium dense and with trace sandy limestone gravel, trace fine quartzose sand		16	SPT	13 13 14
							74
							76
							78
						-67.5	
			SAND: as above but light grey		17	SPT	12 13 16
							80
							82
-72.5	83.5					-72.5	
			Gravelly SAND: pale grey, wet, very dense, mostly fine to coarse, angular, calcitic sand with some fine, subrounded, quartzose sand		18	SPT	35 26 24
							84
							86
							88
-77.5	88.5					-77.5	

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ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0276

Hole No. CP05-EAARS-CB-0276

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-77.5	88.6					-77.5	
			SAND: as above but dense and some (less) gravel		19	SPT	15 18 18
						-82.5	
			SAND: as above but with trace (less) fine gravel		20	SPT	26 22 20
						-87.5	
			SAND: as above		21	SPT	22 20 19
-89.0	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1.3/8" I.D. x 2" O.D.).

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0276

Hole No: CP05-EAARS-CB-0277

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N781542.5, E760486.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0277		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole: ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole: Started 6/29/2005 Completed 6/29/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 9.2 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: E. Requejo	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.2	0.0						
			Muck			9.2	0
					1	SPT	2
						7.7	2
							0
					2	SPT	2
6.2	3.0					6.2	10
			Cap rock, pale yellowish, slightly bedded, calcitic with traces of shells	13 (RQD 0%)	1	HQ coring; Core run from 1.5 to 6.5 ft; 8" collected from total length of core; no individual pieces over 4"	
2.7	6.5					2.7	
						0.7	
			Pale yellowish sand with silts and shell fragments, lime rock with silts, very dense, wet		3	SPT	9 20 21
						-0.8	
					4	SPT	21 25 50/4"
						-4.3	
			Pale yellowish / brownish cemented sand with silts and few shell fragments very dense		5	SPT	50/6"

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0277

Hole No. CP05-EAARS-CB-0277

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 9.2 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.8	15.0					-5.8	
			Pale brownish cemented sands with shell fragments, very dense		6	SPT	50/2"
						-14.3	
			Pale yellowish sand with few cemented sand pieces and broken shell fragments, slightly silty, loose, well sorted		7	SPT; SM; Silty sand; Moisture=25%; Ground 30% circulation loss	5 3 4
						-19.3	
			Pale yellowish silty fine sand, medium dense		8	SPT; SM; Silty sand with gravel; Moisture=24%	4 13 7

16 18 20 22 24 26 28 30 32

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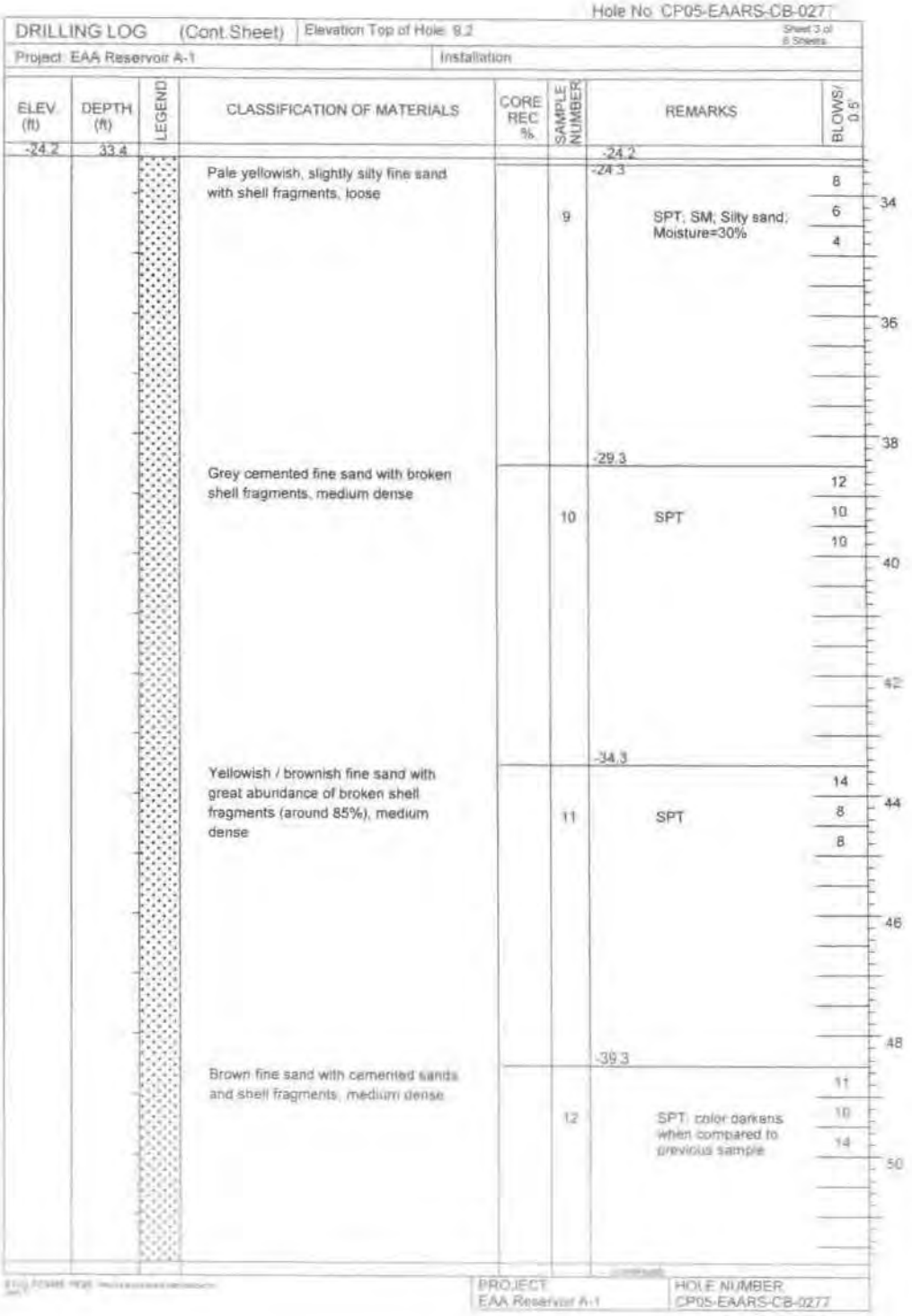
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0277



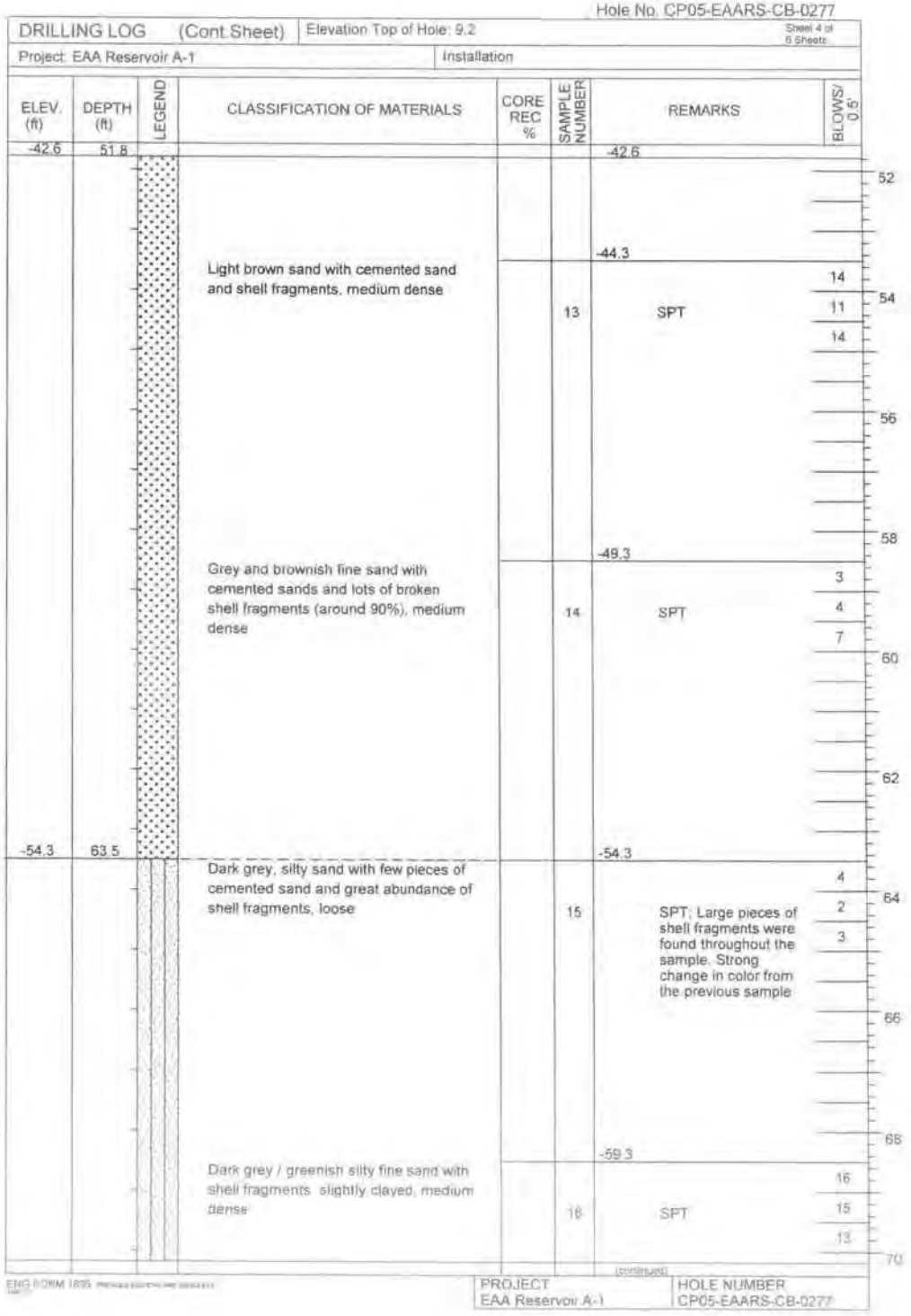
Hole No. CP05-EAARS-CB-0277

DRILLING LOG (Cont. Sheet) | Elevation Top of Hole: 9.2 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.2	33.4					-24.2	
			Pale yellowish, slightly silty fine sand with shell fragments, loose			-24.3	8
					9	SPT; SM; Silty sand; Moisture=30%	6
							4
						-29.3	
			Grey cemented fine sand with broken shell fragments, medium dense				12
					10	SPT	10
							10
						-34.3	
			Yellowish / brownish fine sand with great aburidance of broken shell fragments (around 85%), medium dense				14
					11	SPT	8
							8
						-39.3	
			Brown fine sand with cemented sands and shell fragments, medium dense				11
					12	SPT; color darkens when compared to previous sample	10
							14

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0277



Hole No. CP05-EAARS-CB-0277

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 9.2 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-42.6	51.8					-42.6	
			Light brown sand with cemented sand and shell fragments, medium dense		13	-44.3 SPT	14 11 14
			Grey and brownish fine sand with cemented sands and lots of broken shell fragments (around 90%), medium dense		14	-49.3 SPT	3 4 7
-54.3	63.5		Dark grey, silty sand with few pieces of cemented sand and great abundance of shell fragments, loose		15	-54.3 SPT; Large pieces of shell fragments were found throughout the sample. Strong change in color from the previous sample	4 2 3
			Dark grey / greenish silty fine sand with shell fragments slightly clayed, medium dense		16	-59.3 SPT	16 15 13

52 54 56 58 60 62 64 66 68 70

(continued)

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0277

Hole No. CP05-EAARS-CB-0277

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.2 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-61.0	70.2					-61.0	
-64.3	73.5		light grey cemented sand with shell fragments, dense		17	-64.3 SPT; Color changed to a much lighter grey; clay, silt, shell present	15 17 17
						-69.3	
			light grey cemented sand with shell fragments, dense		18	SPT	18 24 20
						-74.3	
			grey cemented sand with shell fragments, dense		19	SPT; darker in color	17 18 19
						-79.3	

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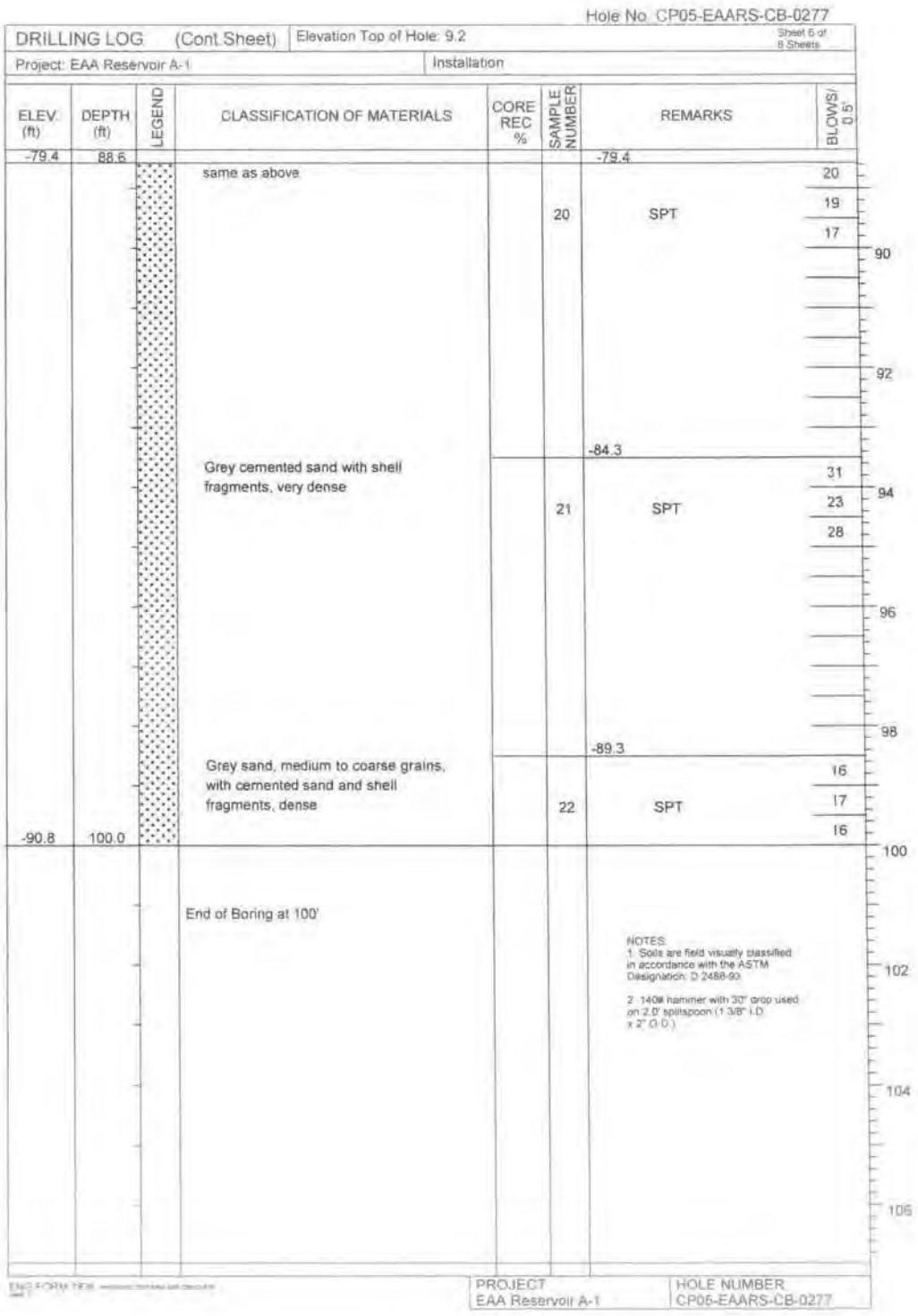
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0277



Hole No. CP05-EAARS-CB-0277

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 9.2 | Sheet 6 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-79.4	88.6					-79.4	
			same as above		20	SPT	20 19 17
							90
							92
						-84.3	
			Grey cemented sand with shell fragments, very dense		21	SPT	31 23 28
							94
							96
							98
						-89.3	
			Grey sand, medium to coarse grains, with cemented sand and shell fragments, dense		22	SPT	16 17 16
-90.8	100.0						
							100
			End of Boring at 100'				
							102
							104
							106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0277

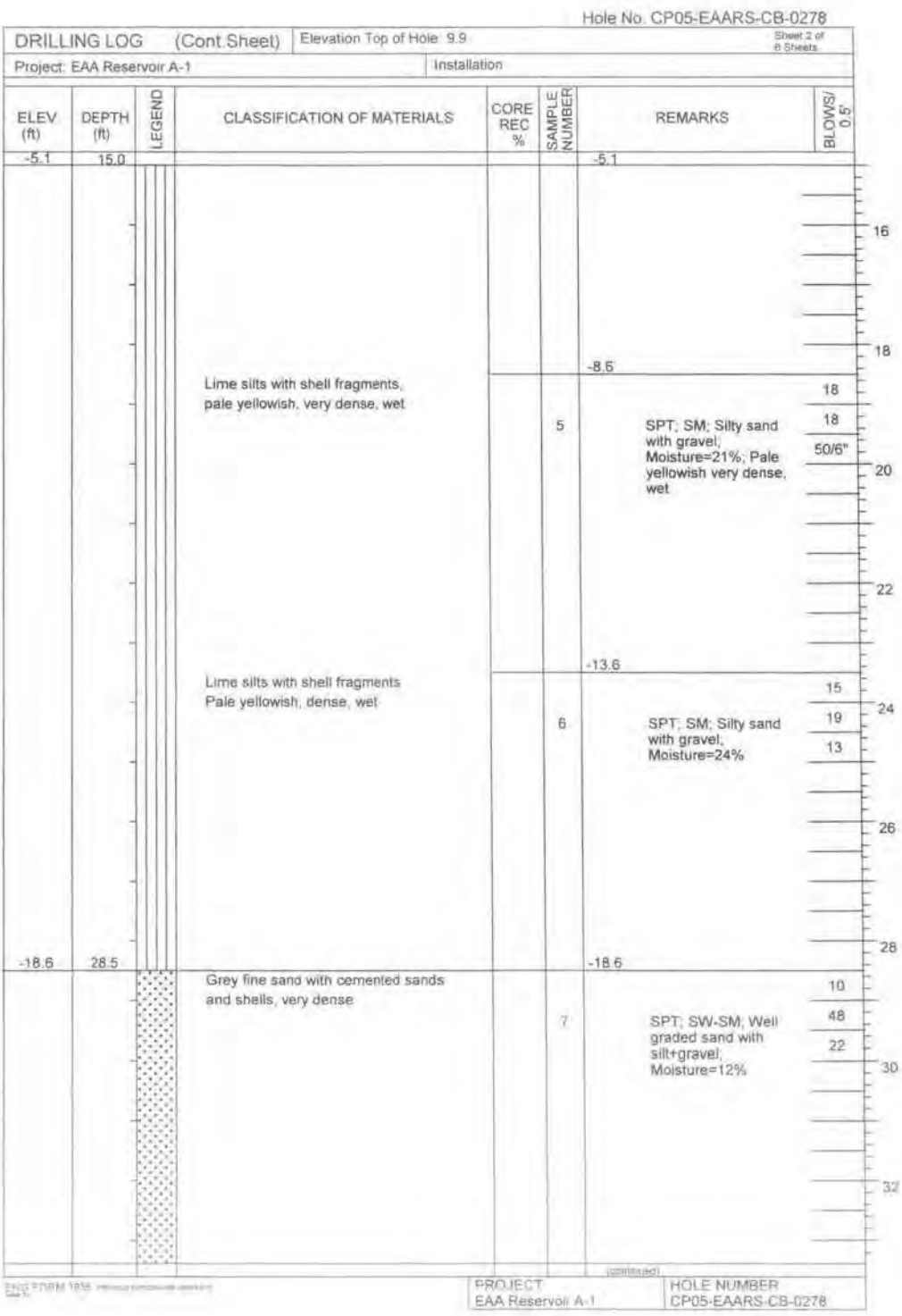
Hole No. CP05-EAARS-CB-0278

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N768835.2, E758022.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0278		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 6/24/2005 Completed 6/28/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 9.9 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: E. Requejo	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.9	0.0						
			Muck			9.9	2
					1	SPT	2
						8.4	2
							3
					2	SPT	3
							40
6.4	3.5					6.4	
			Cap rock: Pale yellowish for the first 1.5 ft, then darkens in color. Slightly bedded, calcitic with traces of shells	41 (RQD 7%)	1	HQ coring, Core run 3.5 to 8.5; set 5 ft of casing	
1.4	8.5					1.4	
			Lime silts with shell				13
					3	SPT	4
							4
						-3.6	
			Lime silts with shell				6
					4	SPT	6
							9

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0278



Hole No. CP05-EAARS-CB-0278

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 2 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.1	15.0					-5.1	
			Lime silts with shell fragments, pale yellowish, very dense, wet		5	SPT; SM; Silty sand with gravel; Moisture=21%; Pale yellowish very dense, wet	18 18 50/6"
						-8.6	
			Lime silts with shell fragments Pale yellowish, dense, wet		6	SPT; SM; Silty sand with gravel; Moisture=24%	15 19 13
						-13.6	
-18.6	28.5		Grey fine sand with cemented sands and shells, very dense		7	SPT; SW-SM; Well graded sand with silt+gravel; Moisture=12%	10 48 22
						-18.6	

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0278

Hole No. CP05-EAARS-CB-0278

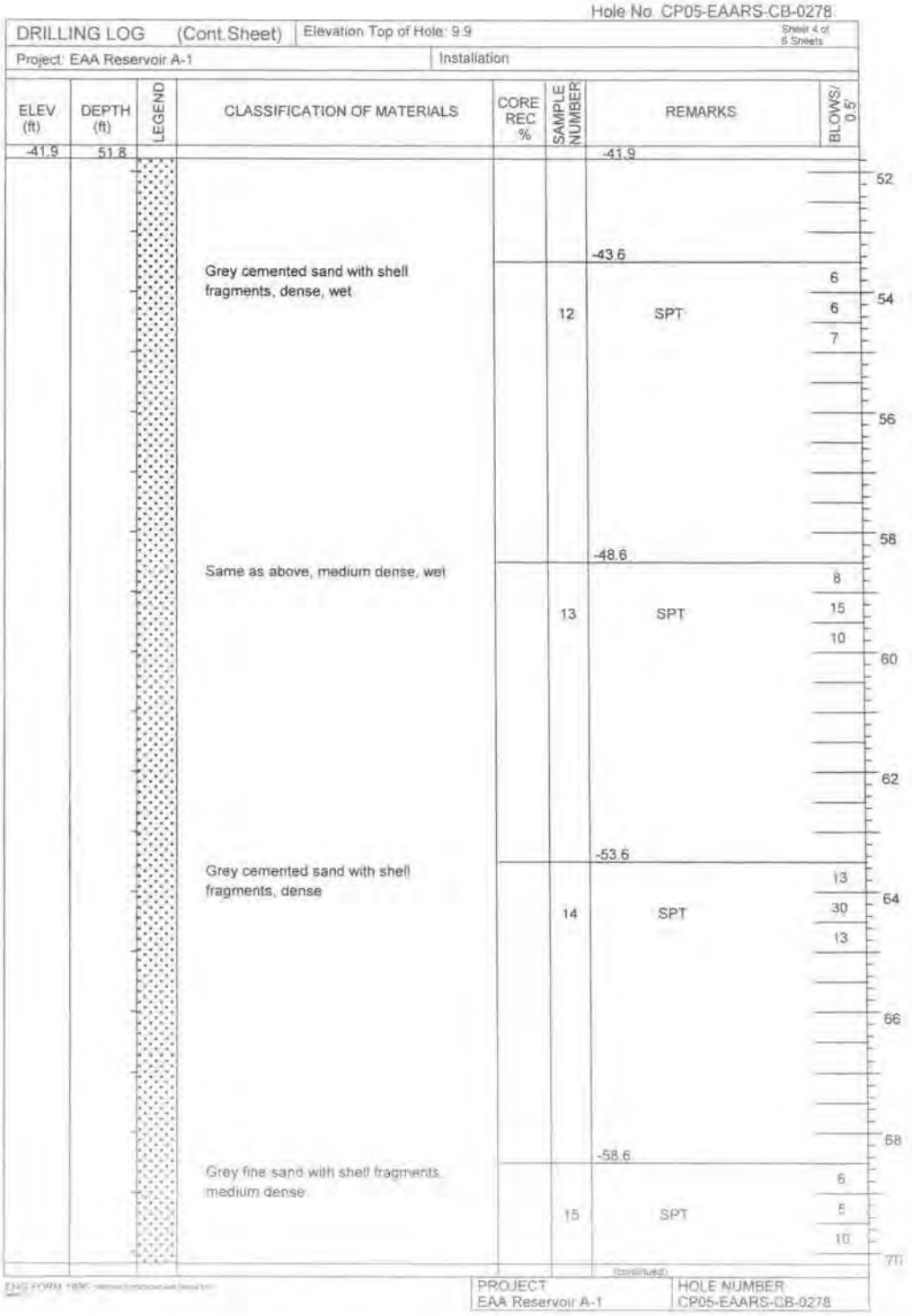
DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 9.9 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation:

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.5	33.4					-23.5	
			Grey and brown fine sand, dense, wet, well sorted		8	-23.6 SPT; SP-SM; Poorly graded sand with silt; Moisture=24%	9 20 24
						-28.6	
			Grey and brown fine sand, slightly silty with shell fragments, medium dense, wet		9	SPT	3 3 8
-33.6	43.5					-33.6	
			Grey silty fine sand with cemented sand and shell fragments, loose, wet		10	SPT	5 3 3
-38.6	48.5					-38.6	
			Cemented sand with shell fragments, loose, wet		11	SPT	12 9 9

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0278



Hole No. CP05-EAARS-CB-0278

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

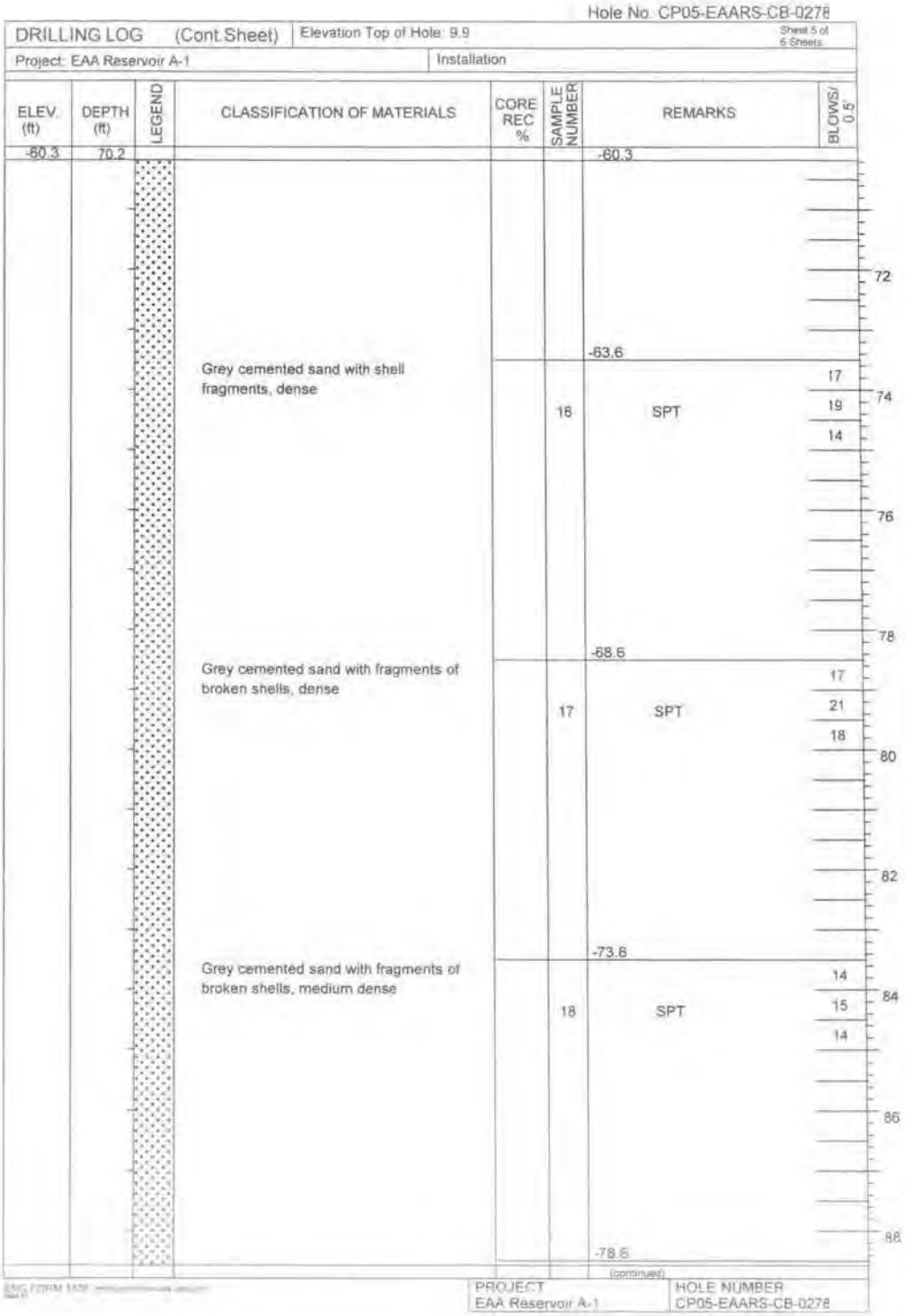
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.9	51.8					-41.9	
			Grey cemented sand with shell fragments, dense, wet		12	SPT	6, 6, 7
						-48.6	
			Same as above, medium dense, wet		13	SPT	8, 15, 10
						-53.6	
			Grey cemented sand with shell fragments, dense		14	SPT	13, 30, 13
						-58.6	
			Grey fine sand with shell fragments, medium dense		15	SPT	6, 5, 10

52 54 56 58 60 62 64 66 68 70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0278



Hole No. CP05-EAARS-CB-0278

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.3	70.2					-60.3	
							72
						-63.6	
			Grey cemented sand with shell fragments, dense		16	SPT	17 19 14
							74
							76
							78
						-68.6	
			Grey cemented sand with fragments of broken shells, dense		17	SPT	17 21 18
							80
							82
						-73.6	
			Grey cemented sand with fragments of broken shells, medium dense		18	SPT	14 15 14
							84
							86
							88
						-78.6	

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0278

Hole No. CP05-EAARS-CB-0278

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 9.9 | Sheet 6 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-78.7	88.6					-78.7	
			Grey fine sand with cemented fragments and shell fragments, medium dense		19	SPT	12 12 12
						-83.6	
			Grey fine sand with cemented fragments and shell fragments, medium dense		20	SPT	16 14 15
						-88.6	
			Grey fine sand with cemented fragments and shell fragments, dense		21	SPT	20 20 17
-90.1	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.).

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0278

Hole No. CP05-EAARS-CB-0279

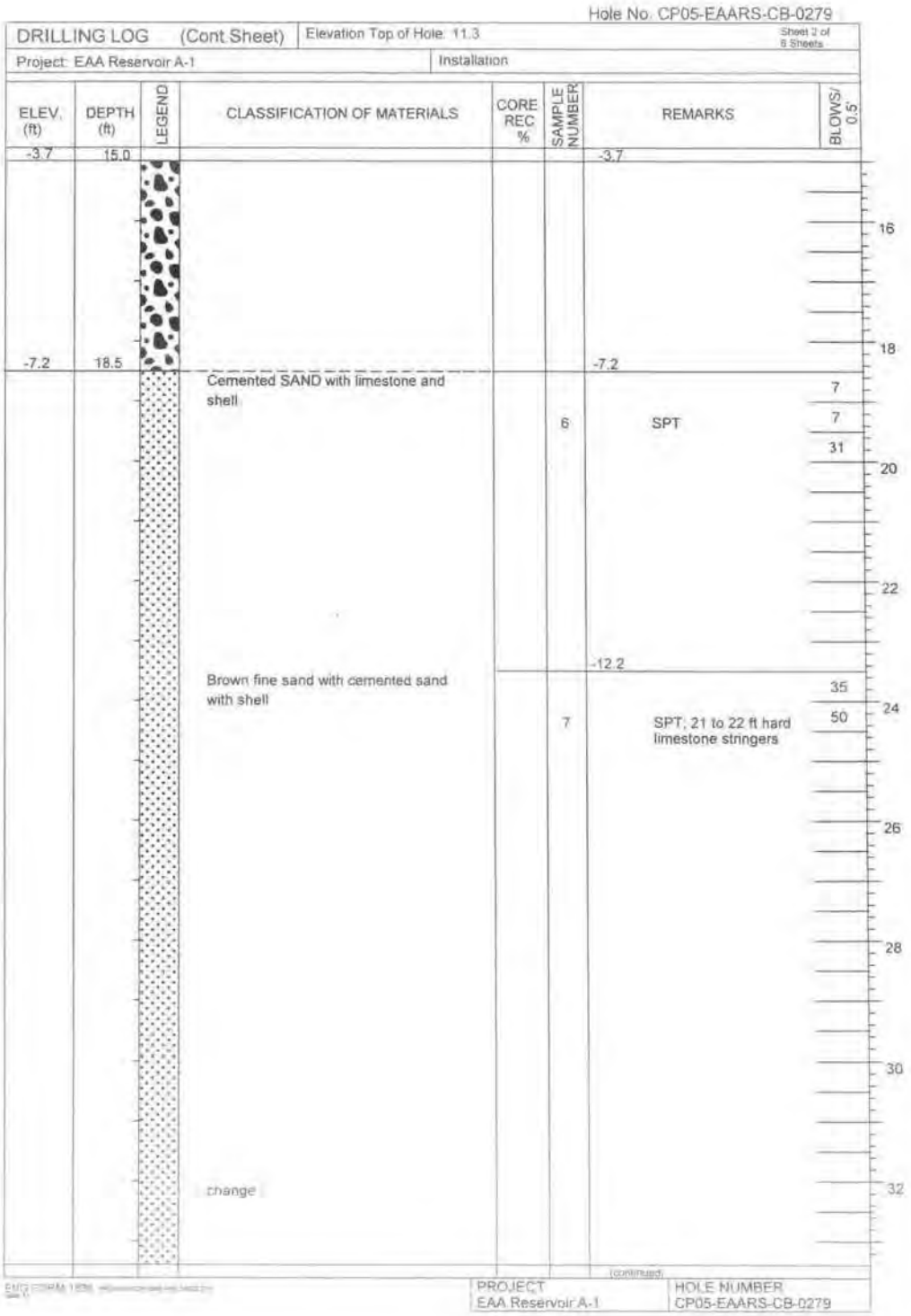
DRILLING LOG	Division	Installation	Sheet 1 of 8 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit; Rotary Method	
2. Location: N772219.8, E757976.7 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0279		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 6/21/2005 Completed 6/21/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: P. Petrey	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.3	0.0					11.3	18
			Rock fill (canal road)		1	10.3 SPT; GP-GM; Poorly graded GRAVEL with silt and sand; Moisture=11%; Spoon 1.5 ft weight 140 lbs	36
							9
9.3	2.0				2		5
			Peat			SPT	
						8.3	
7.8	3.5						9
			Lime Rock		3	7.3 SPT	50
				35 (RQD 18%)	1	HQ coring; UCS=1870psi	
						2.3	
1.8	9.5						50
			soft		4	SPT	
-1.7	13.0						
			Limerock with limerock silt with shell			-2.2	
					5	SPT: 11.5 to 13.5 ft soft	21
							25
							20

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0279

414



Hole No. CP05-EAARS-CB-0279

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.3 | Sheet 2 of 6 Sheets

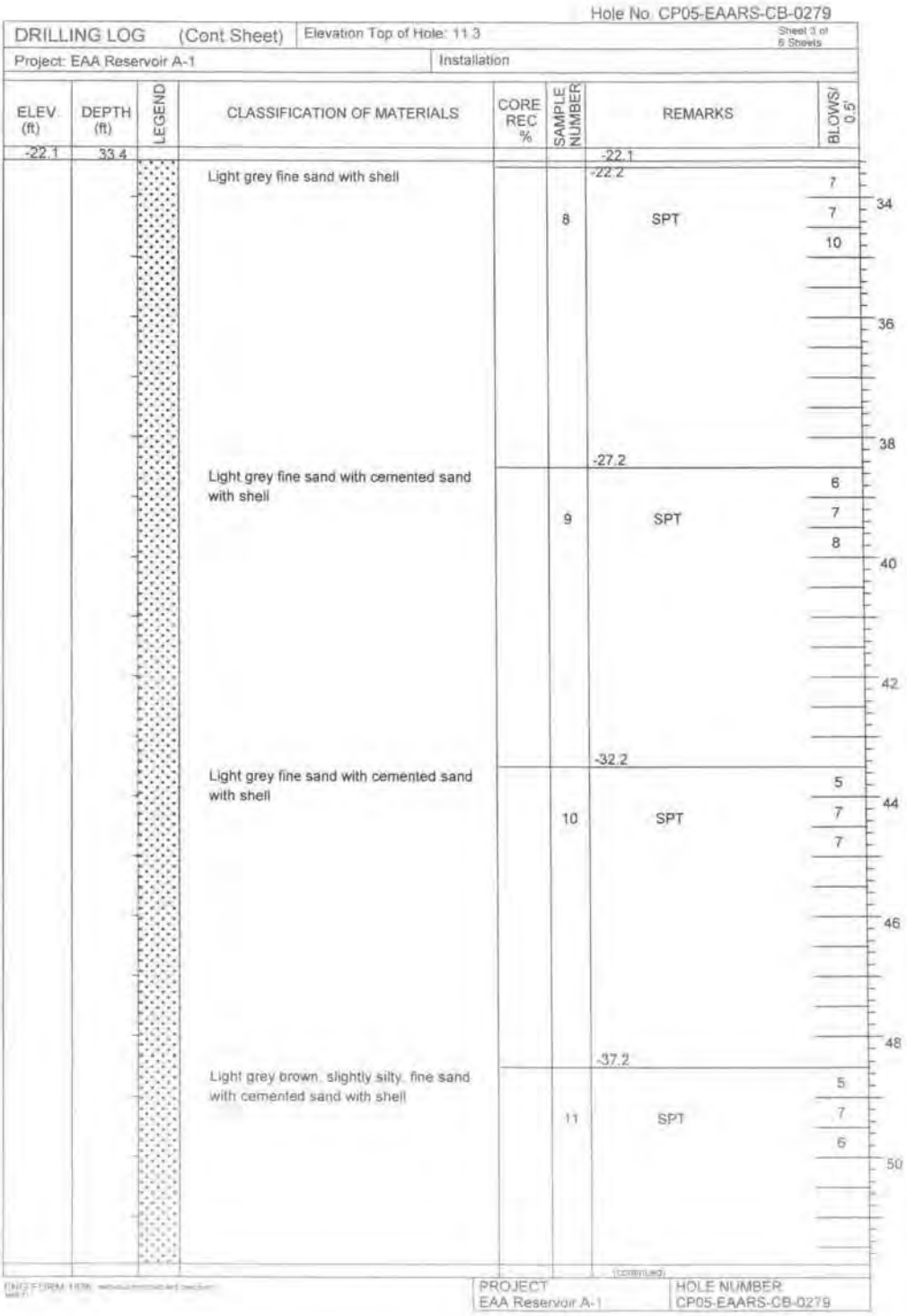
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.7	15.0					-3.7	
-7.2	18.5		Cemented SAND with limestone and shell		6	-7.2 SPT	7 7 31
			Brown fine sand with cemented sand with shell		7	-12.2 SPT; 21 to 22 ft hard limestone stringers	35 50
			change				

16 18 20 22 24 26 28 30 32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0279



Hole No. CP05-EAARS-CB-0279

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.3 | Sheet 3 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.1	33.4					-22.1	
			Light grey fine sand with shell		8	-22.2 SPT	7, 7, 10 = 34
			Light grey fine sand with cemented sand with shell		9	-27.2 SPT	6, 7, 8 = 40
			Light grey fine sand with cemented sand with shell		10	-32.2 SPT	5, 7, 7 = 44
			Light grey brown, slightly silty, fine sand with cemented sand with shell		11	-37.2 SPT	5, 7, 6 = 50

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0279

Hole No. CP05-EAARS-CB-0279

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.3 | Sheet 4 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-40.5	51.8					-40.5	
			Light grey brown fine sand with cemented sand with shell			-42.2	5 7 7
					12	SPT	
			same			-47.2	10 3 4
					13	SPT	
			Light brown / grey fine sand with cemented sand with shell			-52.2	20 18 11
					14	SPT	
			Light grey / brown fine sand with cemented sand with shell			-57.2	5 9 12
					15	SPT	

52 54 56 58 60 62 64 66 68 70

(continued)

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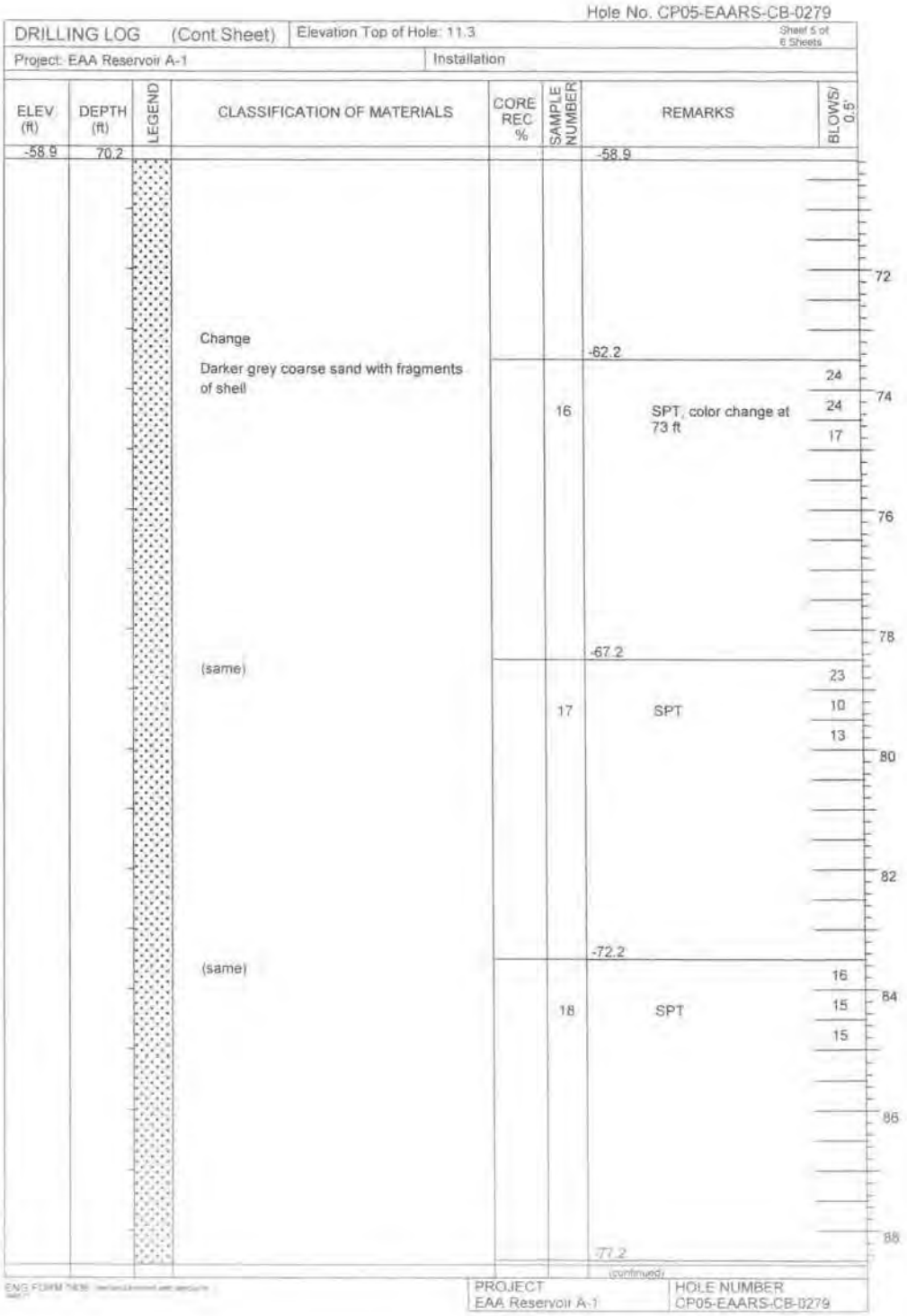
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0279



Hole No. CP05-EAARS-CB-0279

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.3 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-58.9	70.2					-58.9	
			Change Darker grey coarse sand with fragments of shell		16	-62.2 SPT, color change at 73 ft	24 24 17
			(same)		17	-67.2 SPT	23 10 13
			(same)		18	-72.2 SPT	16 15 15
						-77.2	

72 74 76 78 80 82 84 86 88

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0279

Hole No. CP05-EAARS-CB-0279

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.3 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-77.3	88.6					-77.3	
			(same)		19	SPT	21 18 19
							90
							92
						-82.2	
			Dark grey sand with cemented sand with shells		20	SPT	13 16 10
							94
							96
							98
			(same)				
-88.7	100.0						
			End of Boring at 100'				100

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.).

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0279

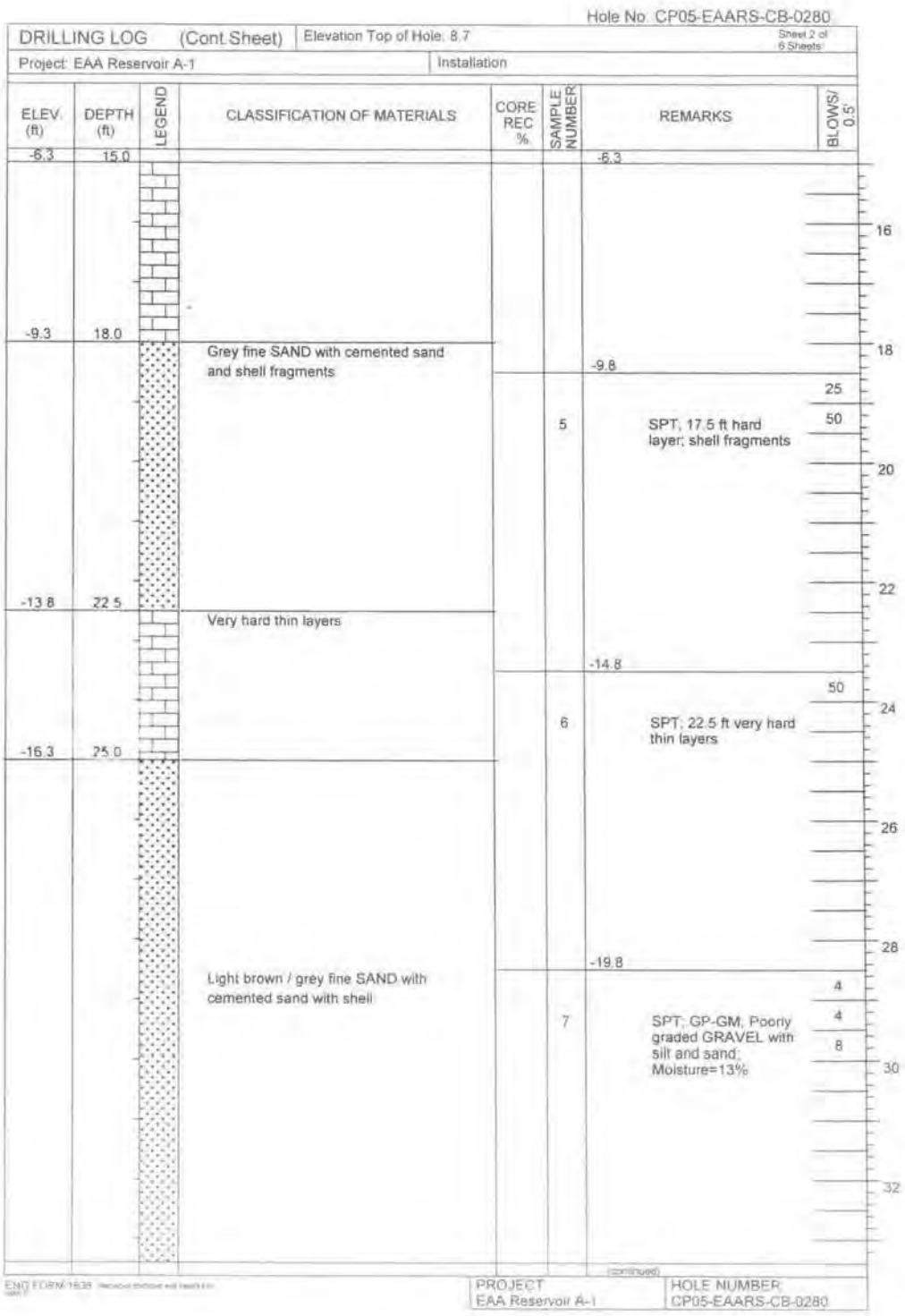
Hole No. CP05-EAARS-CB-0280

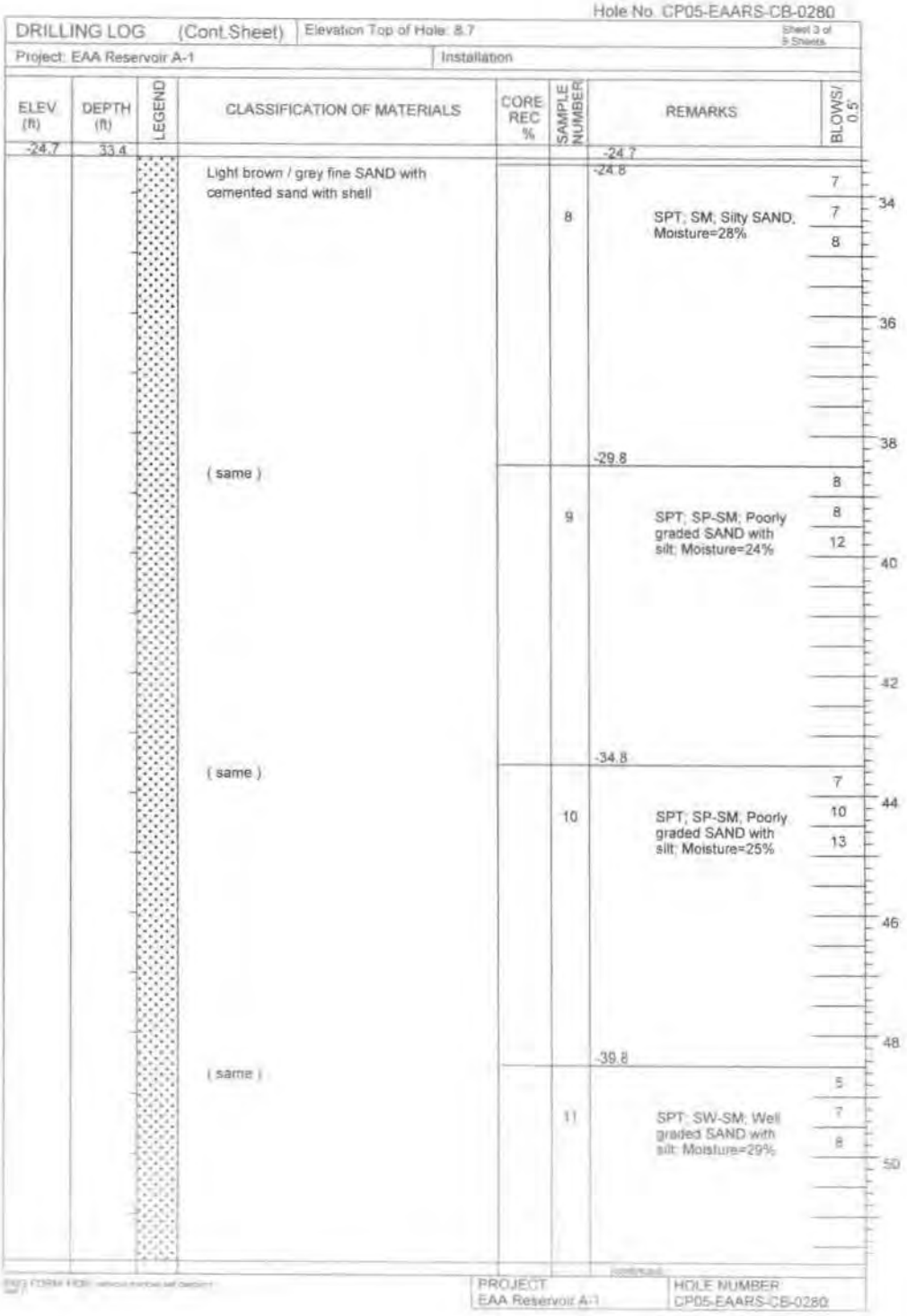
DRILLING LOG	Division	Installation	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776150.9, E757940.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0280		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 6/22/2005 Completed 6/22/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: P. Petrey	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.7	0.0					8.7	1
			Peat		1	7.7 SPT, PT; Moisture=184%, Organic Content=66%; spoon 1.5' weight 140 lbs	2
7.2	1.5						2
			Caprock		2	6.7 SPT	50
				22 (RQD 0%)	1	HQ coring	
1.7	7.0					1.7	
			Cemented SAND with shells and silts			GW; Well graded GRAVEL; Moisture=18%	
						-0.3	4
					3	SPT	5
-4.8	13.5					-4.8	
			Limerock with limerock silt		4	SPT	12 7 10

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0280


Hole No. CP05-EAARS-CB-0280
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 8.7
Sheet 2 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-6.3
15.0
-9.3
18.0
Grey fine SAND with cemented sand and shell fragments
-9.8
5
SPT; 17.5 ft hard layer; shell fragments
25
50
-13.8
22.5
Very hard thin layers
-14.8
6
SPT; 22.5 ft very hard thin layers
50
-16.3
25.0
-19.8
Light brown / grey fine SAND with cemented sand with shell
7
SPT; GP-GM, Poorly graded GRAVEL with silt and sand; Moisture=13%
4
4
8
16
18
20
22
24
26
28
30
32
(continued)
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0280



Hole No. CP05-EAARS-CB-0280

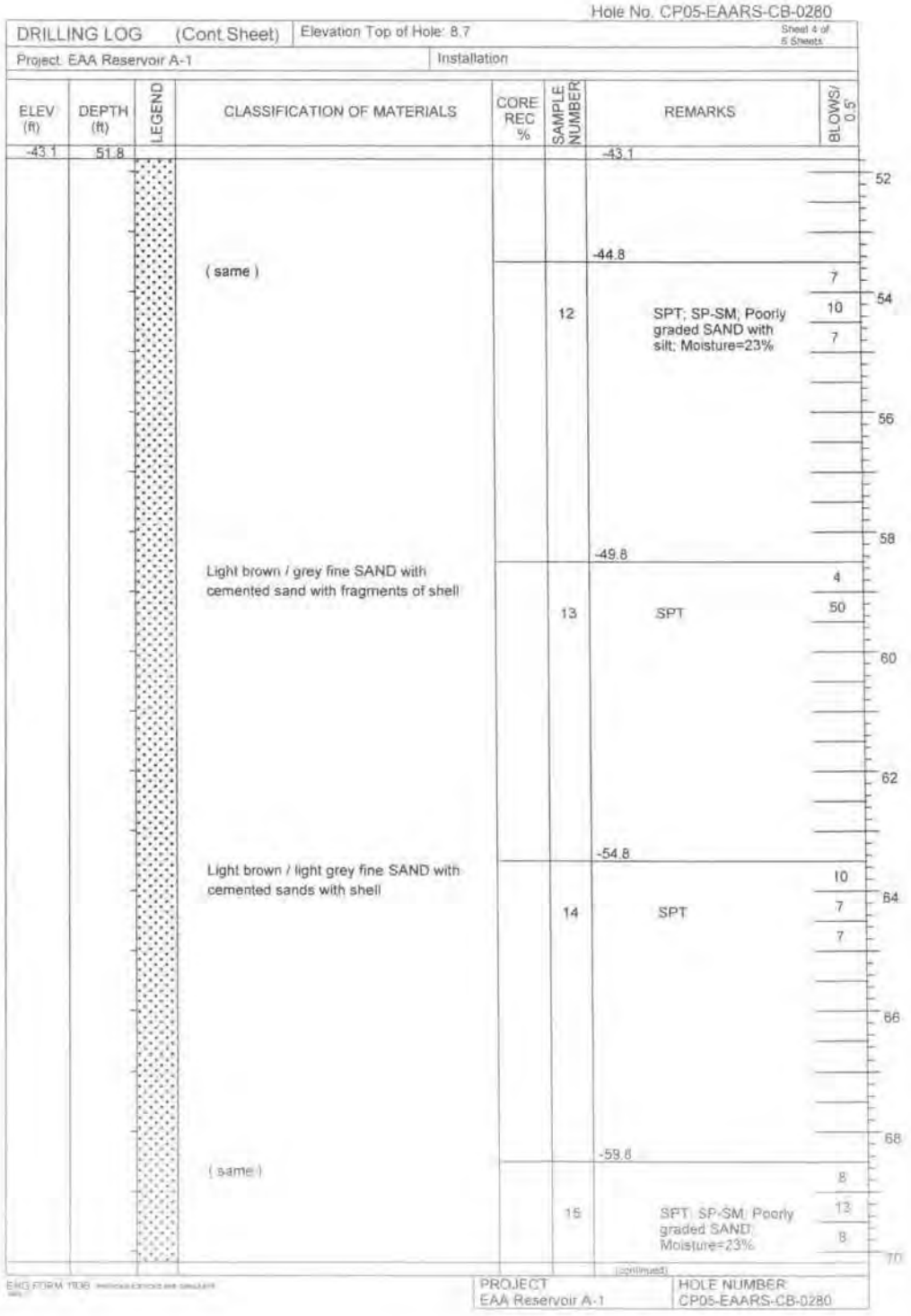
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 3 of 9 Sheets

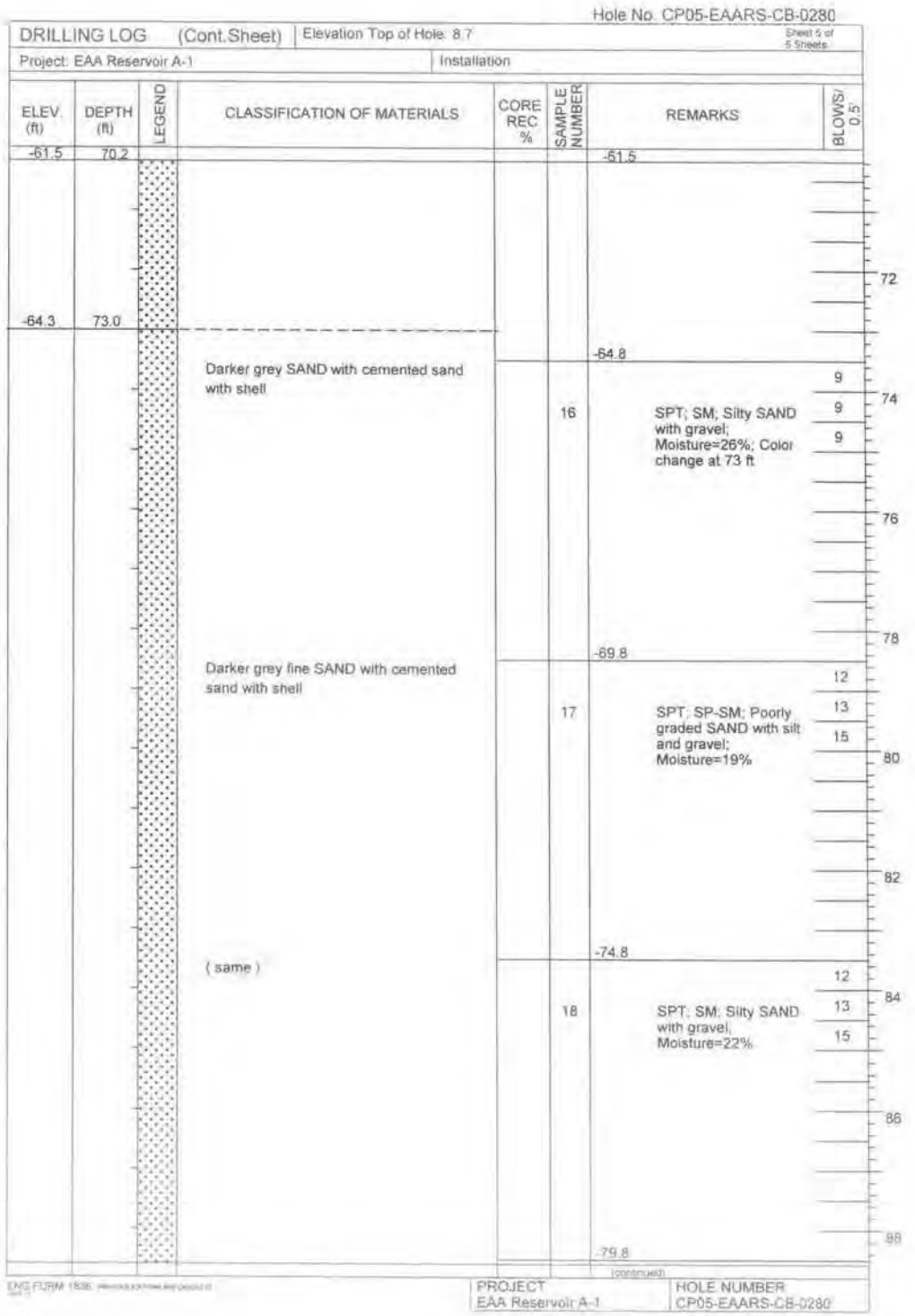
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.7	33.4					-24.7	
			Light brown / grey fine SAND with cemented sand with shell		8	-24.8 SPT; SM; Silty SAND; Moisture=28%	7 7 8
			(same)		9	-29.8 SPT; SP-SM; Poorly graded SAND with silt; Moisture=24%	8 8 12
			(same)		10	-34.8 SPT; SP-SM; Poorly graded SAND with silt; Moisture=25%	7 10 13
			(same)		11	-39.8 SPT; SW-SM; Well graded SAND with silt; Moisture=29%	5 7 8

34 36 38 40 42 44 46 48 50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0280


Hole No. CP05-EAARS-CB-0280
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 8.7
Sheet 4 of 5 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-43.1
51.8
-43.1
52
-44.8
(same)
7
10
7
12
SPT; SP-SM; Poorly graded SAND with silt; Moisture=23%
54
56
58
-49.8
Light brown / grey fine SAND with cemented sand with fragments of shell
4
50
13
SPT
60
62
-54.8
Light brown / light grey fine SAND with cemented sands with shell
10
7
7
14
SPT
64
66
68
-59.8
(same)
8
13
8
15
SPT; SP-SM; Poorly graded SAND; Moisture=23%
70
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0280



Hole No. CP05-EAARS-CB-0280

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 5 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5
-61.5	70.2					-61.5	
-64.3	73.0		Darker grey SAND with cemented sand with shell			-64.8	
					16	SPT; SM; Silty SAND with gravel; Moisture=26%; Color change at 73 ft	9, 9, 9
			Darker grey fine SAND with cemented sand with shell			-69.8	
					17	SPT; SP-SM; Poorly graded SAND with silt and gravel; Moisture=19%	12, 13, 15
			(same)			-74.8	
					18	SPT; SM; Silty SAND with gravel; Moisture=22%	12, 13, 15
						-79.8	

72 74 76 78 80 82 84 86 88

(continued)

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0280

Hole No. CP05-EAARS-CB-0280

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-79.9	88.6					-79.9	
			(same)		19	SPT; SM; Silty SAND; Moisture=23%	11 9 9
							90
							92
						-84.8	
			Grey cemented SAND with shell		20	SPT; SM; Silty SAND; Moisture=24%	15 20 11
							94
							96
							98
						-89.8	
			(same)		21	SPT; SP-SM; Poorly graded SAND with silt; Moisture=24%	11 11 11
-91.3	100.0						
			End of Boring at 100'				100
							102
							104
							106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.).

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PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0280

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 281-300

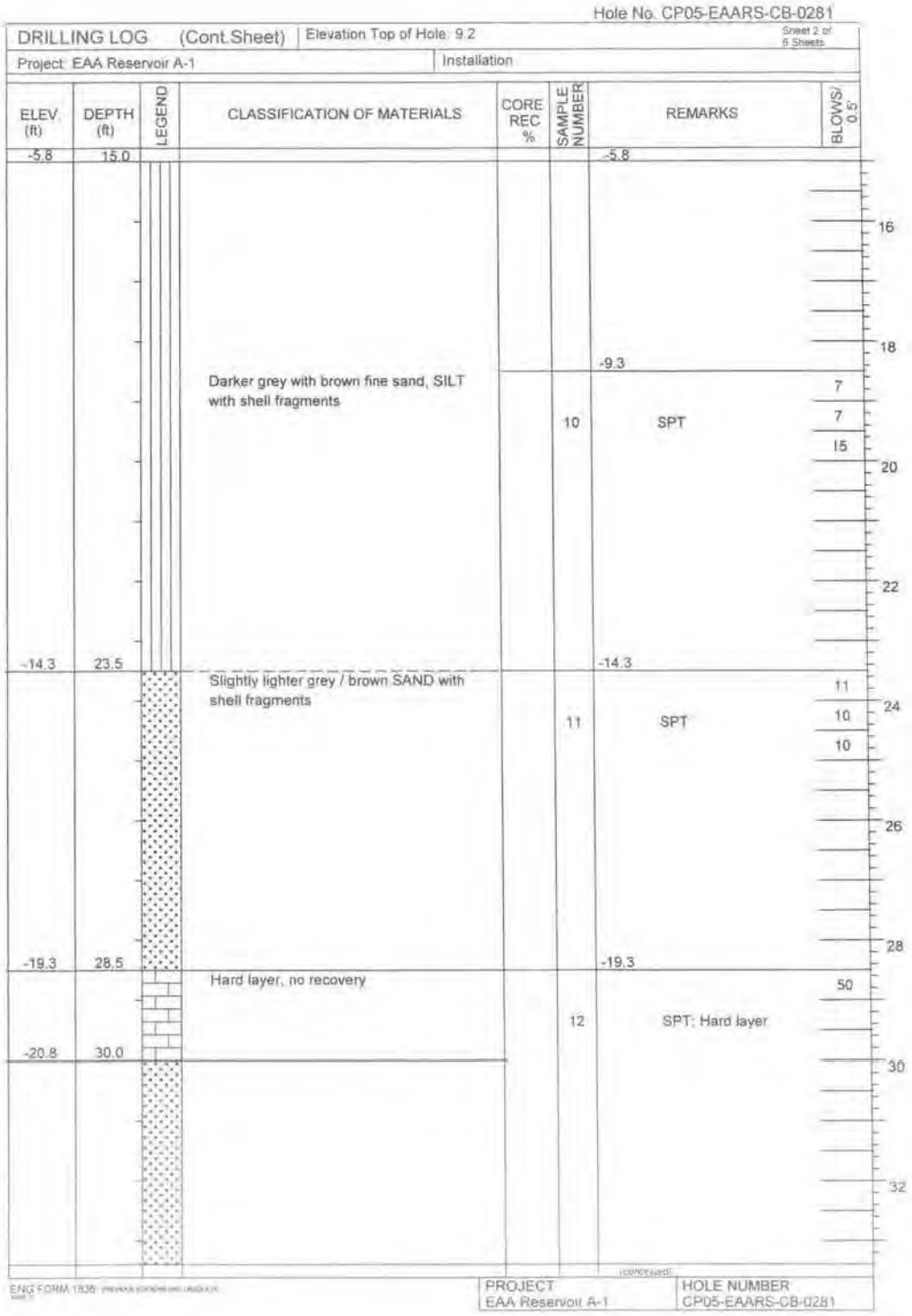
Hole No. CP05-EAARS-CB-0281

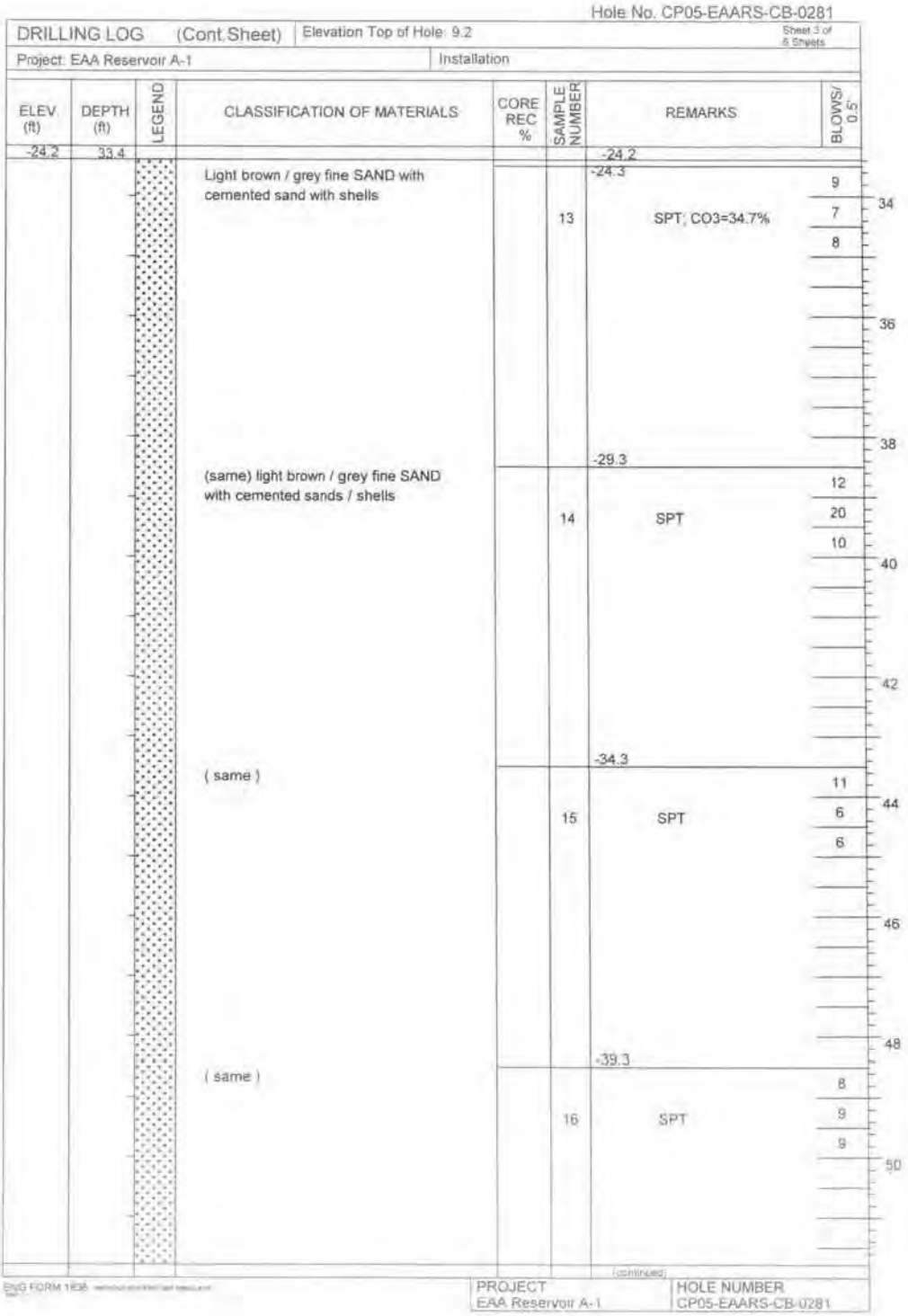
DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N779807, E757880.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0281	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 6/23/2005 Completed 6/23/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.2 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 100 ft	19. Inspector: P. Petrey

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER		REMARKS	BLOWS/ 0.5'
9.2	0.0					9.2		3
			Muck (Peat)		1	8.2	SPT; spoon 1.5 ft; weight 140 lbs	3
								4
					2	7.2	SPT	4
								2
					3	6.2	SPT	2
								2
					4	5.2	SPT	2
								2
					5	4.2	SPT	2
								3
					6	3.2	SPT	6
								6
2.2	7.0				7	2.2	SPT	7
			Limestone, hard then soft, hard layers of approx 2 inches, (no core recovered)					50
					8	1.2	SPT	
				0 (RQD 0%)	1		HQ coring	
-2.8	12.0					-2.8		
						-4.3		
			Light grey SILT with shell fragments, Limerock		9		SPT	9 7 8

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0281


Hole No. CP05-EAARS-CB-0281
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 9.2
Sheet 2 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-5.8
15.0
-5.8
16
18
-9.3
Darker grey with brown fine sand, SILT with shell fragments
10
SPT
7
7
15
20
22
-14.3
23.5
-14.3
Slightly lighter grey / brown SAND with shell fragments
11
SPT
11
10
10
24
26
28
-19.3
28.5
-19.3
Hard layer, no recovery
12
SPT; Hard layer
50
-20.8
30.0
30
32
(continued)
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0281



Hole No. CP05-EAARS-CB-0281

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.2 | Sheet 3 of 5 Sheets

Project: EAA Reservoir A-1 | Installation

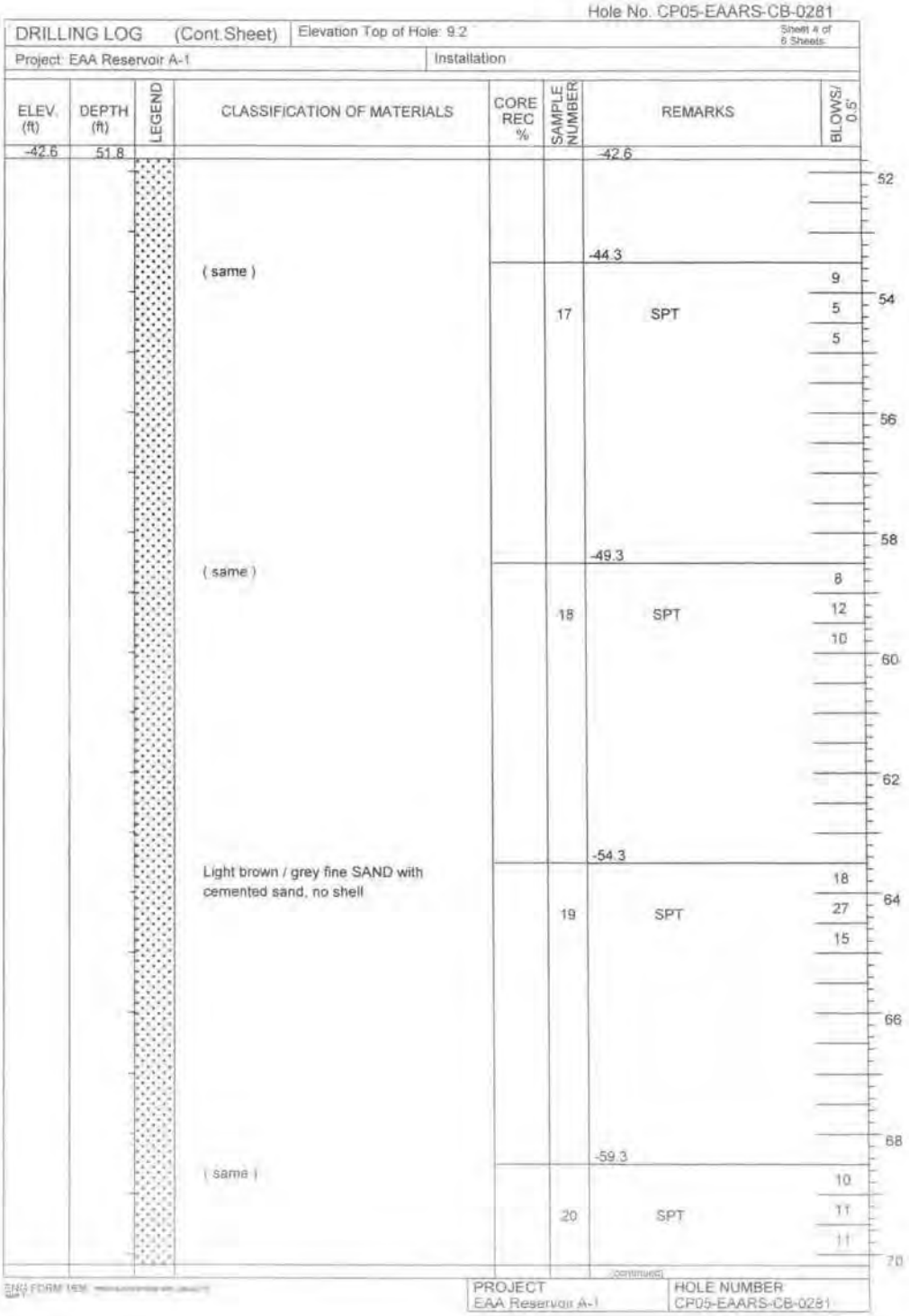
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-24.2	33.4					-24.2	
			Light brown / grey fine SAND with cemented sand with shells		13	-24.3 SPT; CO3=34.7%	9 7 8
			(same) light brown / grey fine SAND with cemented sands / shells		14	-29.3 SPT	12 20 10
			(same)		15	-34.3 SPT	11 6 6
			(same)		16	-39.3 SPT	8 9 9

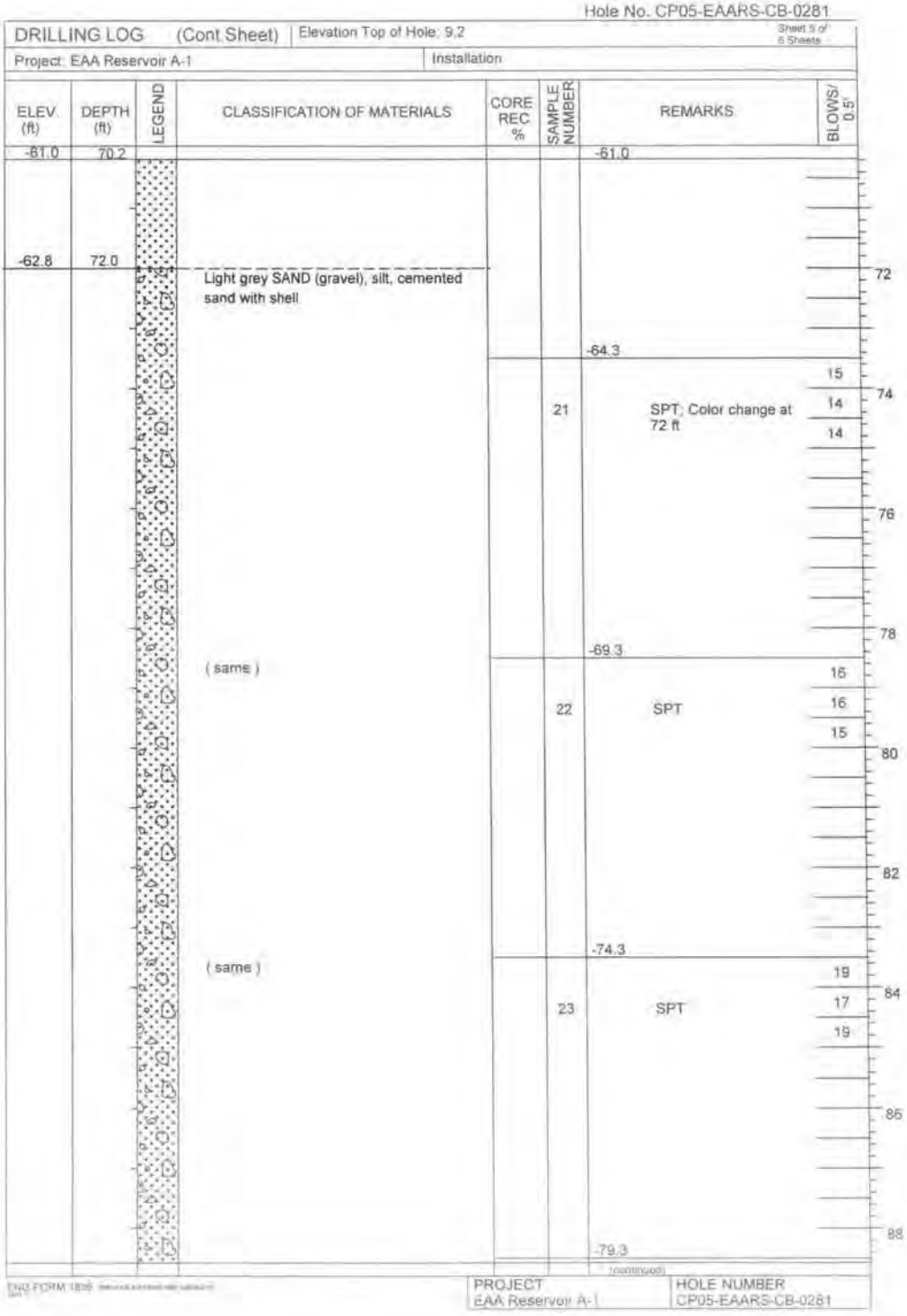
34 36 38 40 42 44 46 48 50

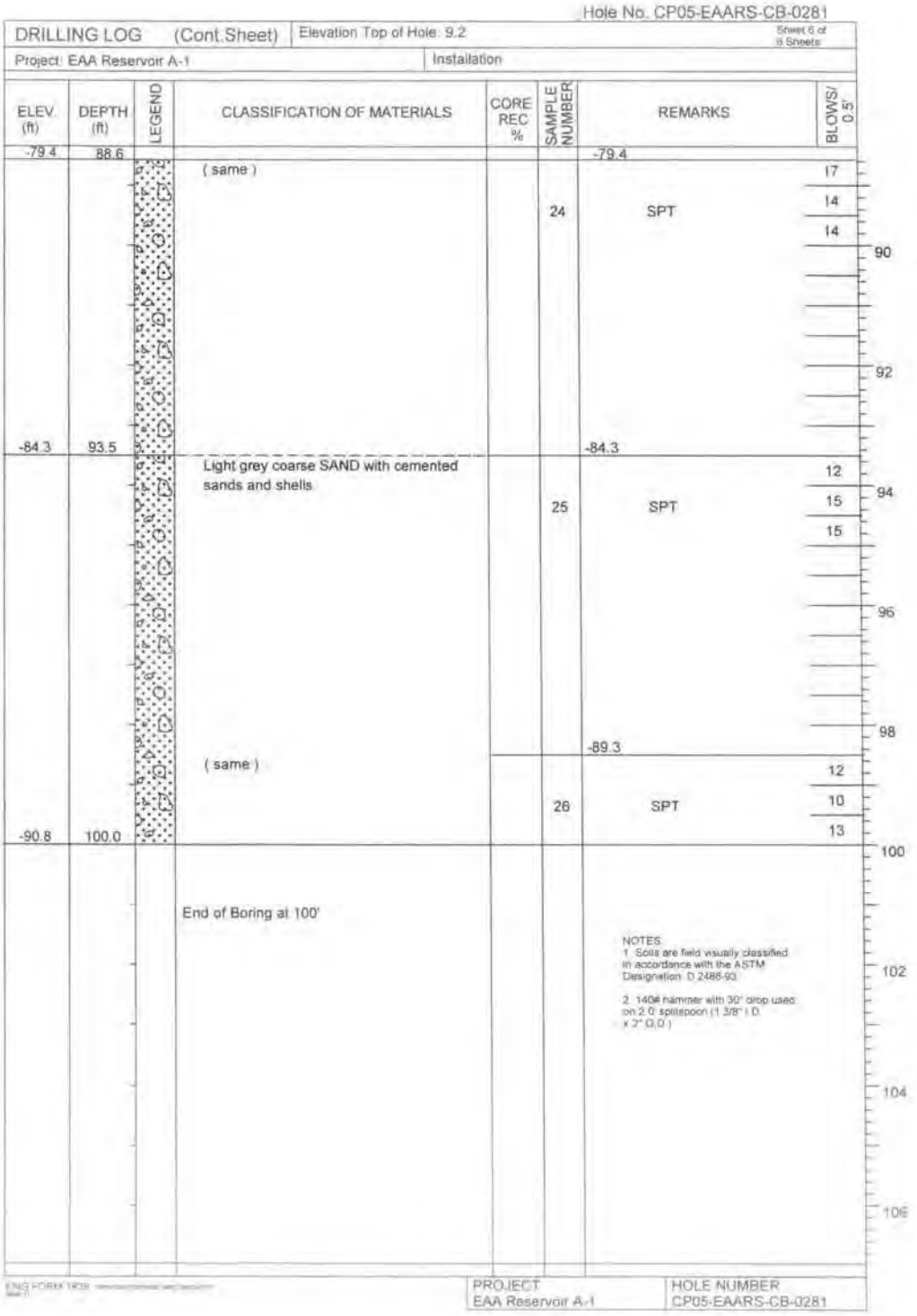
(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0281


Hole No. CP05-EAARS-CB-0281
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 9.2
Sheet 4 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-42.6
51.8
-42.6
52
-44.3
(same)
9
5
5
17
SPT
54
56
-49.3
(same)
8
12
10
18
SPT
60
62
-54.3
Light brown / grey fine SAND with cemented sand, no shell
18
27
15
19
SPT
64
66
68
-59.3
(same)
10
11
11
20
SPT
70
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0281


Hole No. CP05-EAARS-CB-0281
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 9.2
Sheet 5 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-61.0
70.2
-62.8
72.0
Light grey SAND (gravel), silt, cemented sand with shell
-64.3
15
14
14
21
SPT; Color change at 72 ft
72
74
76
78
-69.3
(same)
15
16
15
22
SPT
80
82
-74.3
(same)
19
17
19
23
SPT
84
86
88
-79.3
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0281



Hole No. CP05-EAARS-CB-0281

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.2 | Sheet 6 of 8 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-79.4	88.6					-79.4	
			(same)		24	SPT	17 14 14
-84.3	93.5		Light grey coarse SAND with cemented sands and shells		25	-84.3 SPT	12 15 15
						-89.3	
			(same)		26	SPT	12 10 13
-90.8	100.0						
			End of Boring at 100'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1838

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0281

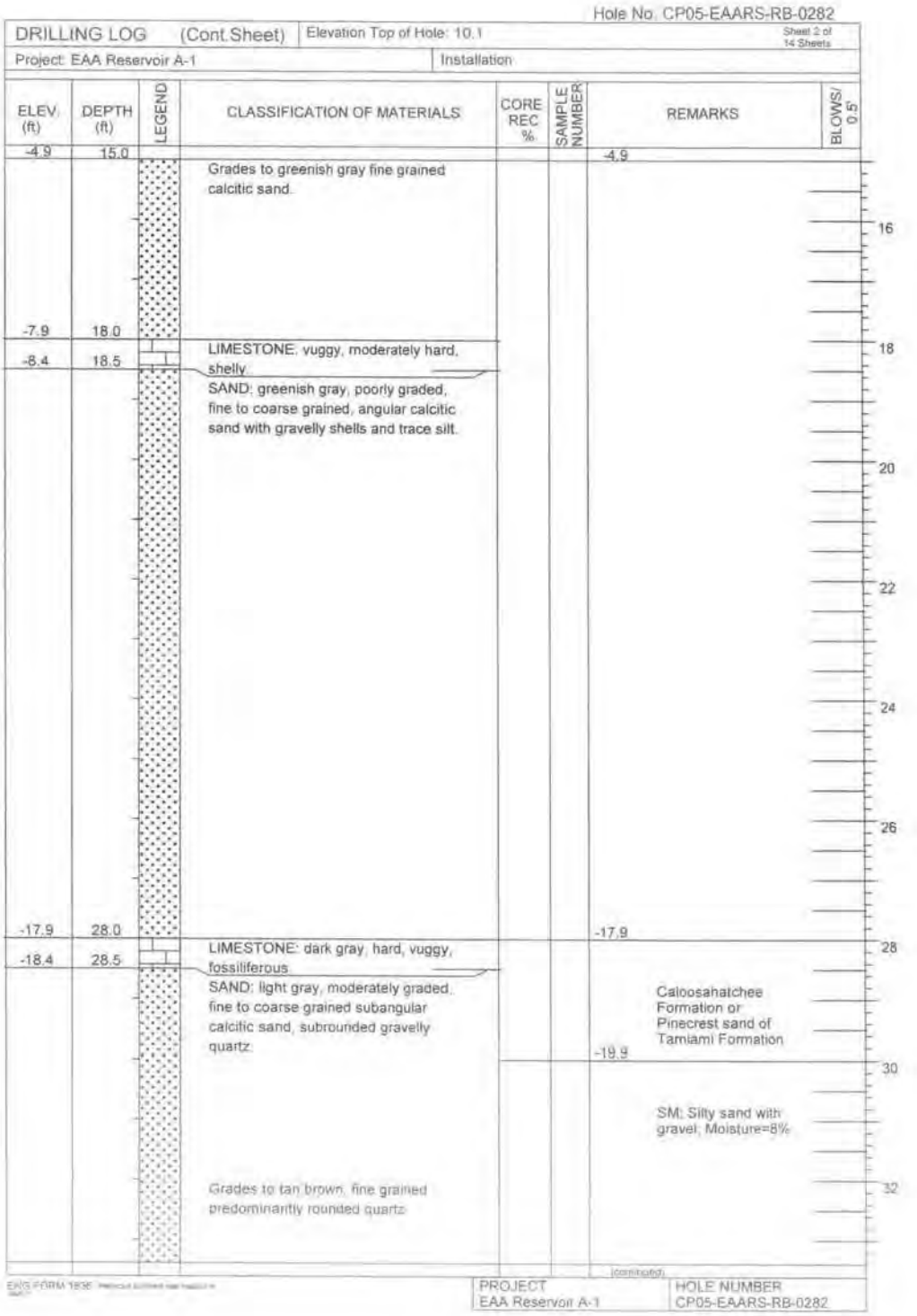
Hole No. CP05-EAARS-RB-0282

DRILLING LOG	Division:	Installation:	Sheet 1 of 14 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 5 inch	
2. Location: N766993.2, E778264.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse (sub-contracted to Prosonic)		12. Manufacturer's Designation for Drill: SRO-109	
4. Hole No: CP05-EAARS-RB-0282		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Fred Kruas		14. Total Number of Core Boxes: 23	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/29/2005 Completed 8/1/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.1 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 240 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.1	0.0						
			ROADFILL: Gravelly SAND, tan brown, moderately graded, fine sand to coarse gravel, angular grains.			10.1	0
8.9	1.2					Road fill material from 0 to 1 foot	
			PEAT: black, fine grained, mostly organic.				
7.4	2.7						2
			Clayey SAND				
6.6	3.5						
			SAND: tan brown, poorly graded, fine to medium grained, subangular calcitic sand with Limestone chips.				4
5.6	4.5						
			LIMESTONE: white, hard, flakey, quite porous, shelly (Caprock formation)			5.1	
4.4	5.7						
			Clayey SAND			GM, Silty gravel with sand; Moisture=6%; Caprock-4.5 to 5.7	6
3.4	6.7						
2.9	7.2		LIMESTONE: white, hard, flakey, quite porous, shelly				
			SAND: light gray, moderately graded, fine to medium grained, subangular calcitic sand with shells (Fort Thompson Formation)				8
						0.1	
							10
						SM, Silty SAND with gravel; Moisture=21%	
							12
-2.9	13.0						
-3.3	13.4		LIMESTONE				
			SAND: light brown, poorly graded, fine to medium grained				14

ENG FORM 1836 (previous editions are obsolete) CONTINUED

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-RB-0282



Hole No. CP05-EAARS-RB-0282

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 2 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.9	15.0		Grades to greenish gray fine grained calcitic sand.			-4.9	
-7.9	18.0		LIMESTONE: vuggy, moderately hard, shelly.				
-8.4	18.5		SAND: greenish gray, poorly graded, fine to coarse grained, angular calcitic sand with gravelly shells and trace silt.				
-17.9	28.0		LIMESTONE: dark gray, hard, vuggy, fossiliferous.			-17.9	
-18.4	28.5		SAND: light gray, moderately graded, fine to coarse grained subangular calcitic sand, subrounded gravelly quartz.			Caloosahatchee Formation or Pinecrest sand of Tamiami Formation	
						-19.9	
						SM: Silty sand with gravel; Moisture=8%	
			Grades to tan brown, fine grained predominantly rounded quartz.				

16 18 20 22 24 26 28 30 32

(continued)

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PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-RB-0282

Hole No. CP05-EAARS-RB-0282

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 3 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

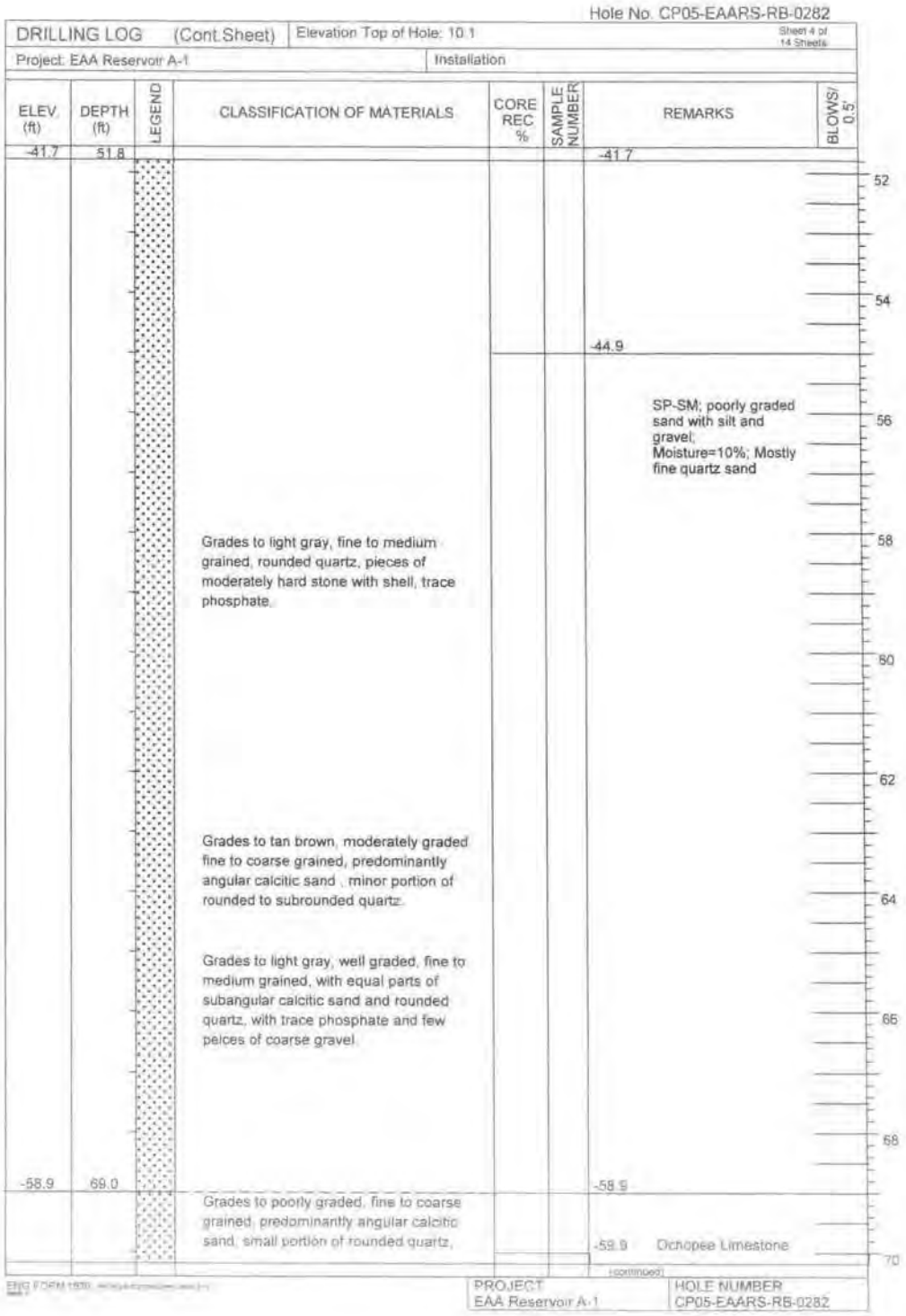
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.3	33.4					-23.3	
-24.9	35.0		SAND: light brown, poorly graded, fine to medium, grained, equal parts of of angular calcitic sand and subrounded quartz, shell fragments present.				
						-29.9	
			Grades to moderately graded, fine to coarse grained.			-34.9	
						SP; poorly graded sand with gravel; Moisture=14%	

34 36 38 40 42 44 46 48 50

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0282



Hole No. CP05-EAARS-RB-0282

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 4 of 14 Sheets

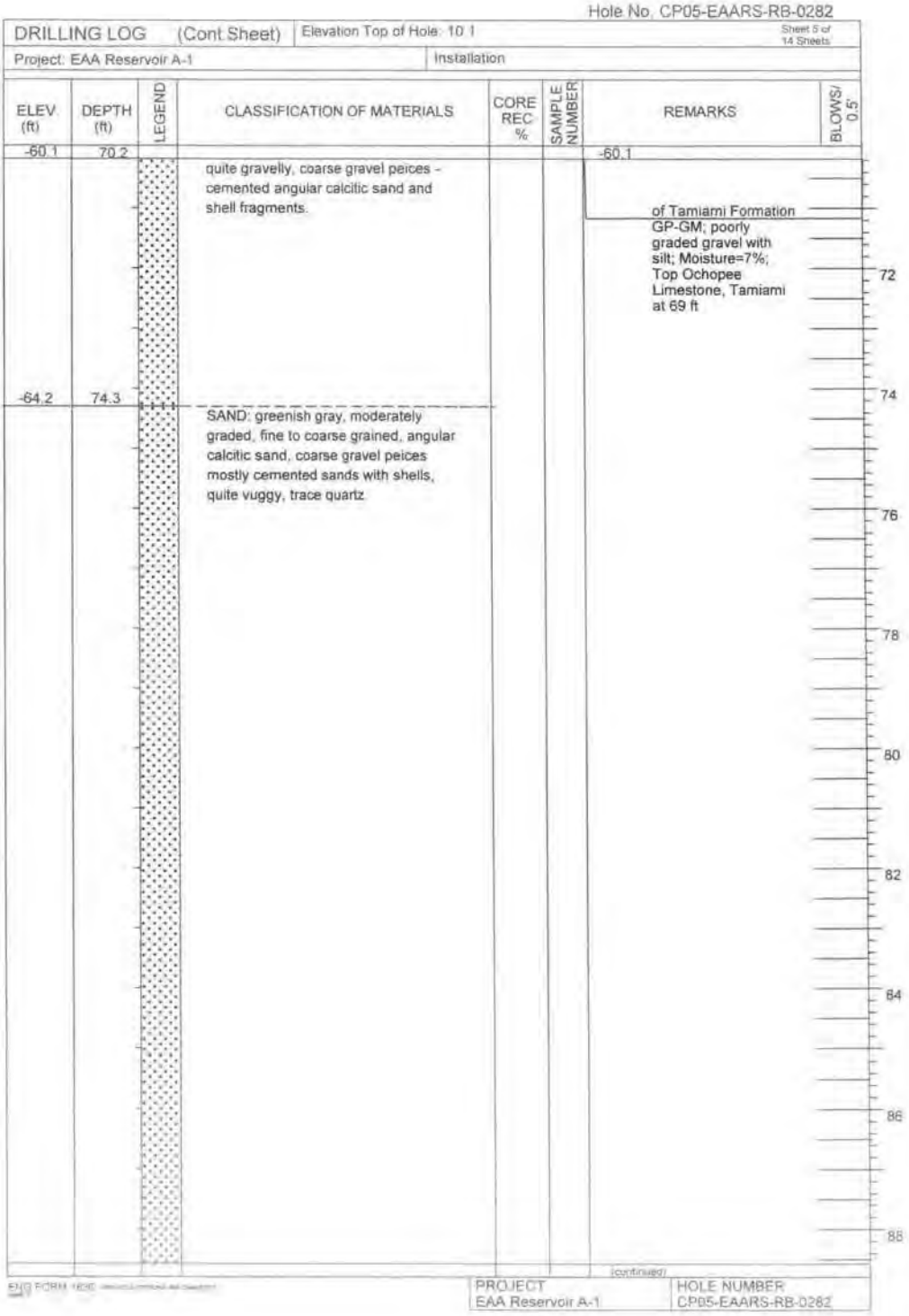
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-41.7	51.8					-41.7	
							52
							54
						-44.9	
						SP-SM; poorly graded sand with silt and gravel; Moisture=10%; Mostly fine quartz sand	56
			Grades to light gray, fine to medium grained, rounded quartz, pieces of moderately hard stone with shell, trace phosphate.				58
							60
							62
			Grades to tan brown, moderately graded fine to coarse grained, predominantly angular calcitic sand , minor portion of rounded to subrounded quartz.				64
			Grades to light gray, well graded, fine to medium grained, with equal parts of subangular calcitic sand and rounded quartz, with trace phosphate and few peices of coarse gravel.				66
							68
-58.9	69.0					-58.9	
			Grades to poorly graded, fine to coarse grained, predominantly angular calcitic sand, small portion of rounded quartz.			-58.9 Ochopee Limestone	70

(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0282



Hole No. CP05-EAARS-RB-0282

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.1 | Sheet 5 of 14 Sheets

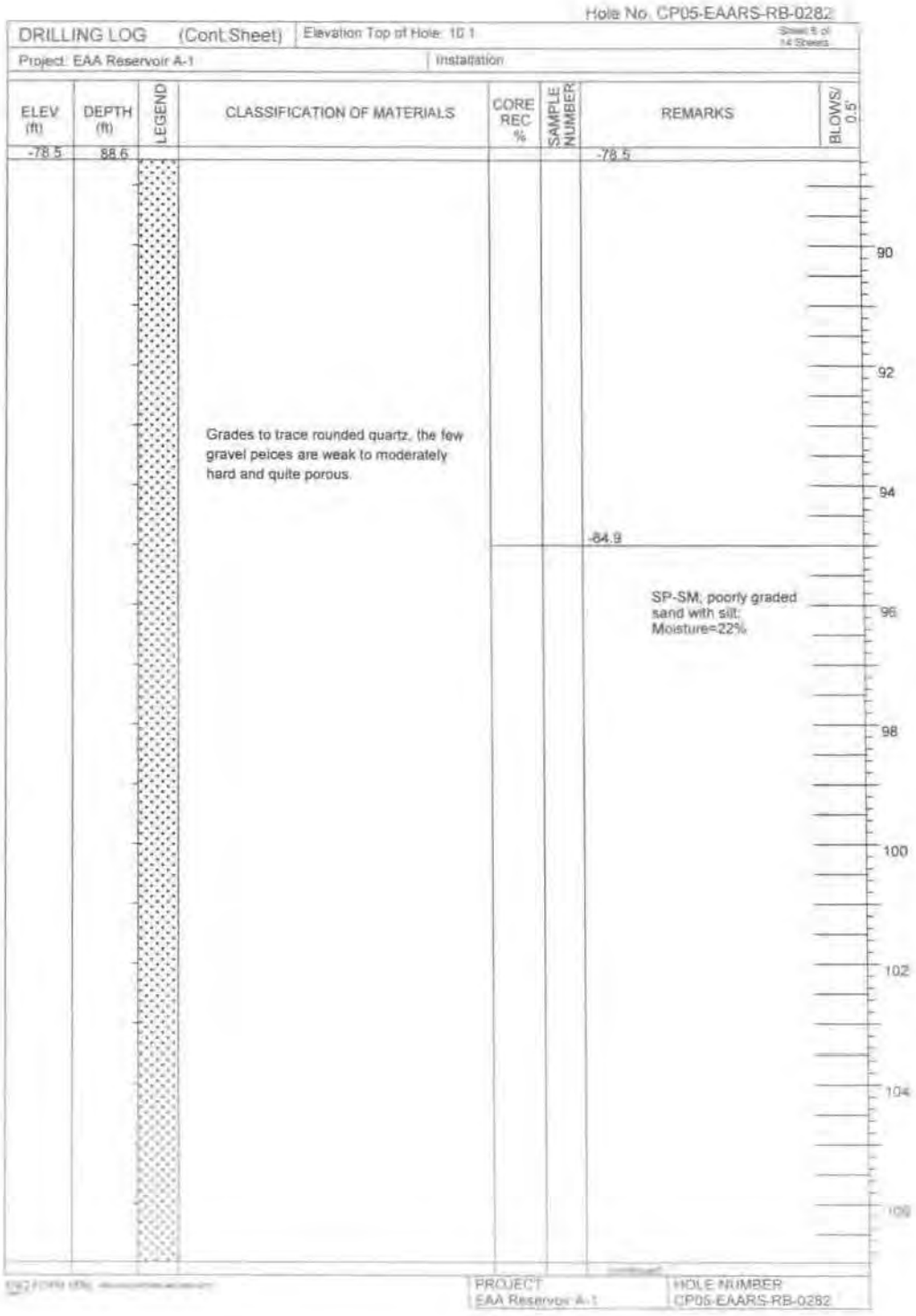
Project: EAA Reservoir A-1 | Installation

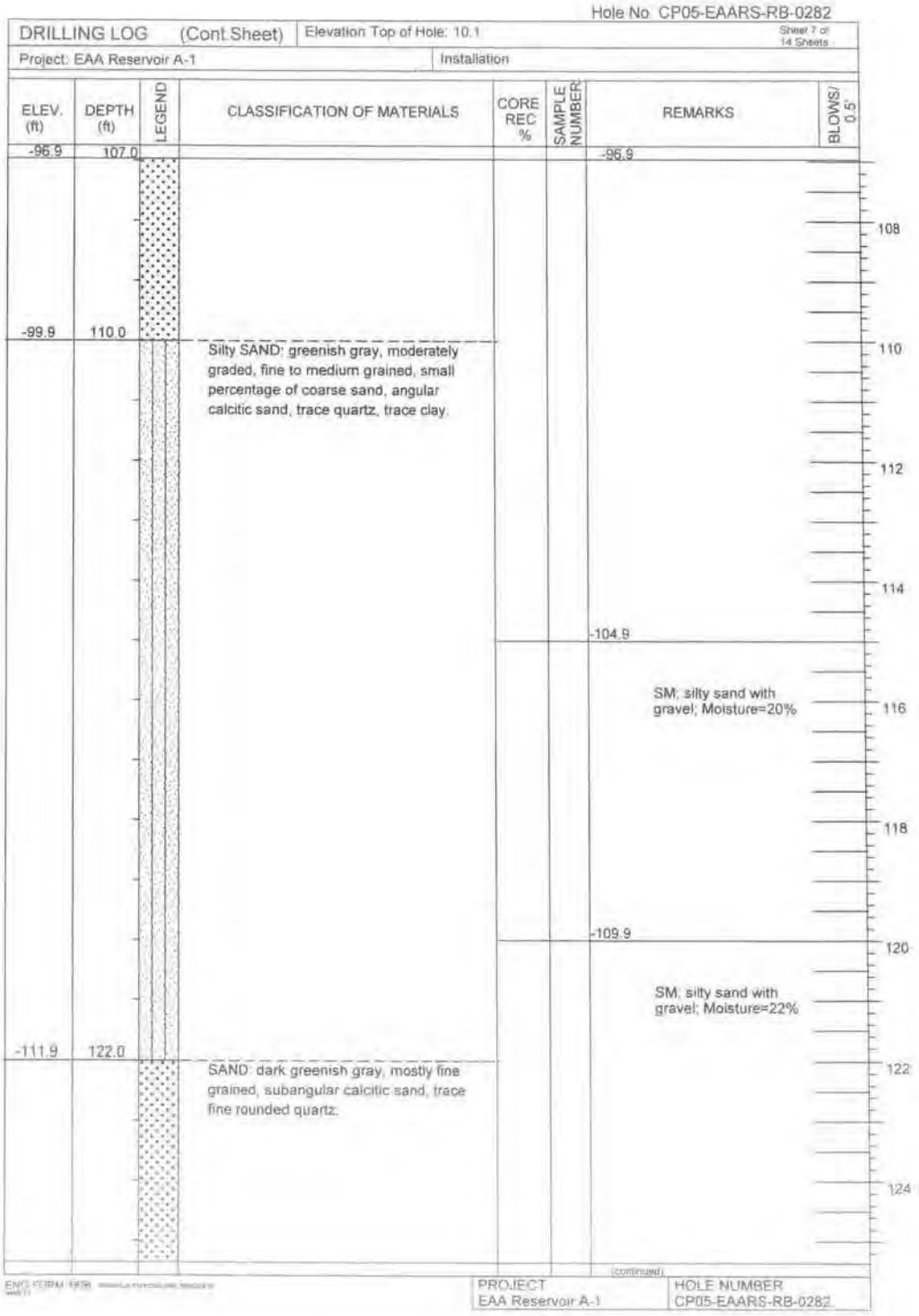
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-60.1	70.2		quite gravelly, coarse gravel peices - cemented angular calcitic sand and shell fragments.			-60.1 of Tamiami Formation GP-GM; poorly graded gravel with silt; Moisture=7%; Top Ochopee Limestone, Tamiami at 69 ft	
-64.2	74.3		SAND: greenish gray, moderately graded, fine to coarse grained, angular calcitic sand, coarse gravel peices mostly cemented sands with shells, quite vuggy, trace quartz				

72 74 76 78 80 82 84 86 88

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0282


Hole No. CP05-EAARS-RB-0282
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.1
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-78.5
88.6
-78.5
Grades to trace rounded quartz, the few gravel peices are weak to moderately hard and quite porous.
-84.9
SP-SM; poorly graded sand with silt; Moisture=22%
90
92
94
96
98
100
102
104
106
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0282


Hole No. CP05-EAARS-RB-0282
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.1
Sheet 7 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-96.9
107.0
-99.9
110.0
Silty SAND: greenish gray, moderately graded, fine to medium grained, small percentage of coarse sand, angular calcitic sand, trace quartz, trace clay.
-104.9
SM: silty sand with gravel; Moisture=20%
-109.9
SM: silty sand with gravel; Moisture=22%
-111.9
122.0
SAND: dark greenish gray, mostly fine grained, subangular calcitic sand, trace fine rounded quartz.
108
110
112
114
116
118
120
122
124
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0282

Hole No. CP05-EAARS-RB-0282

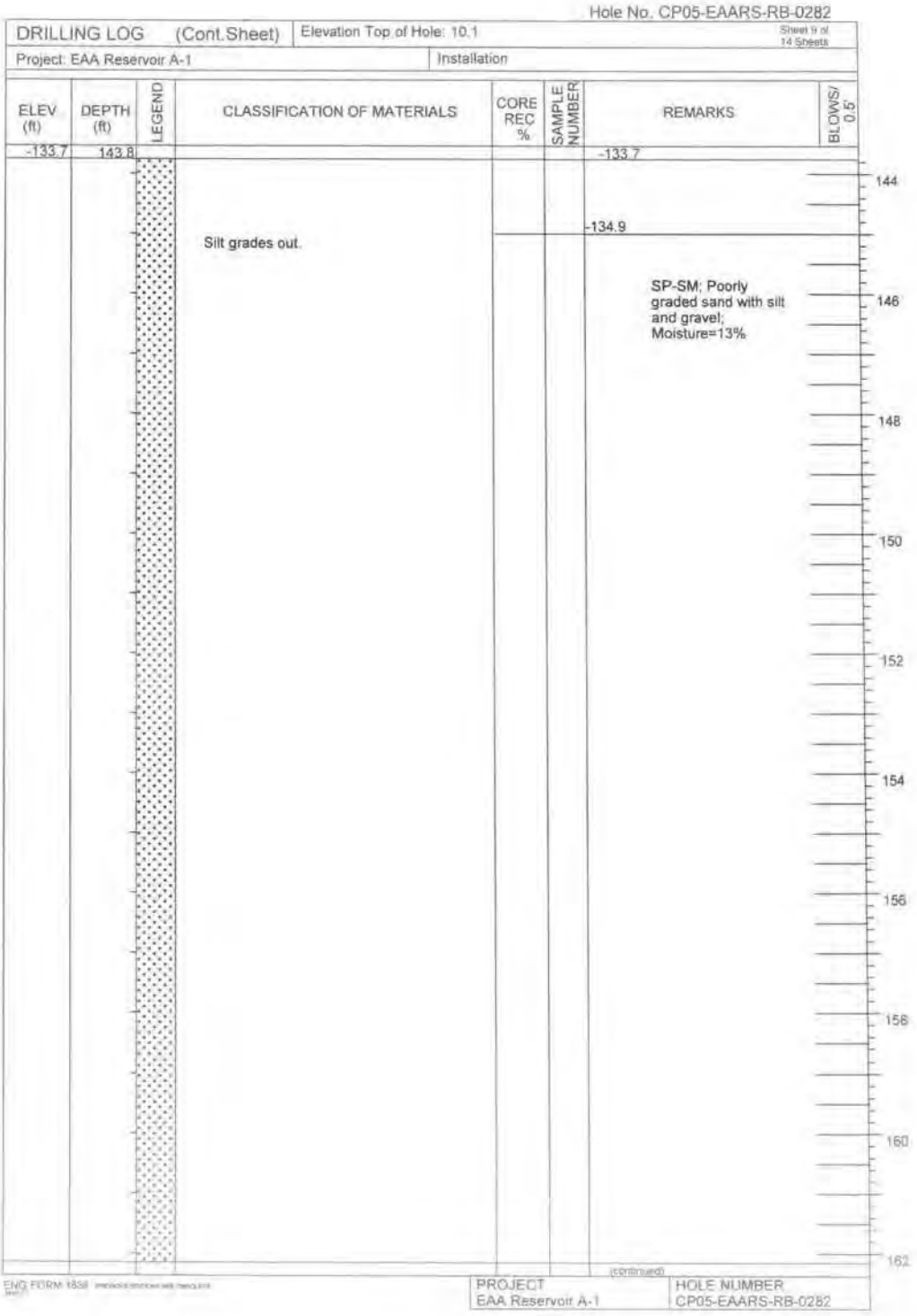
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 4 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-115.3	125.4					-115.3	
			Grades to greenish gray to tan brown, well graded, some medium grained sand to fine gravel.			-119.9 SM; silty sand; Moisture=21%	
			Grades to greenish gray, moderately graded, fine to coarse grained, angular calcitic sand, small percentage of rounded quartz, some silt, a few peices of fine to coarse gravel - mostly bedded calcitic sand and shells, trace phosphate.			-124.9 SM; silty sand with gravel; Moisture=21%	

126 128 130 132 134 136 138 140 142

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0282



Hole No. CP05-EAARS-RB-0282

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 9 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

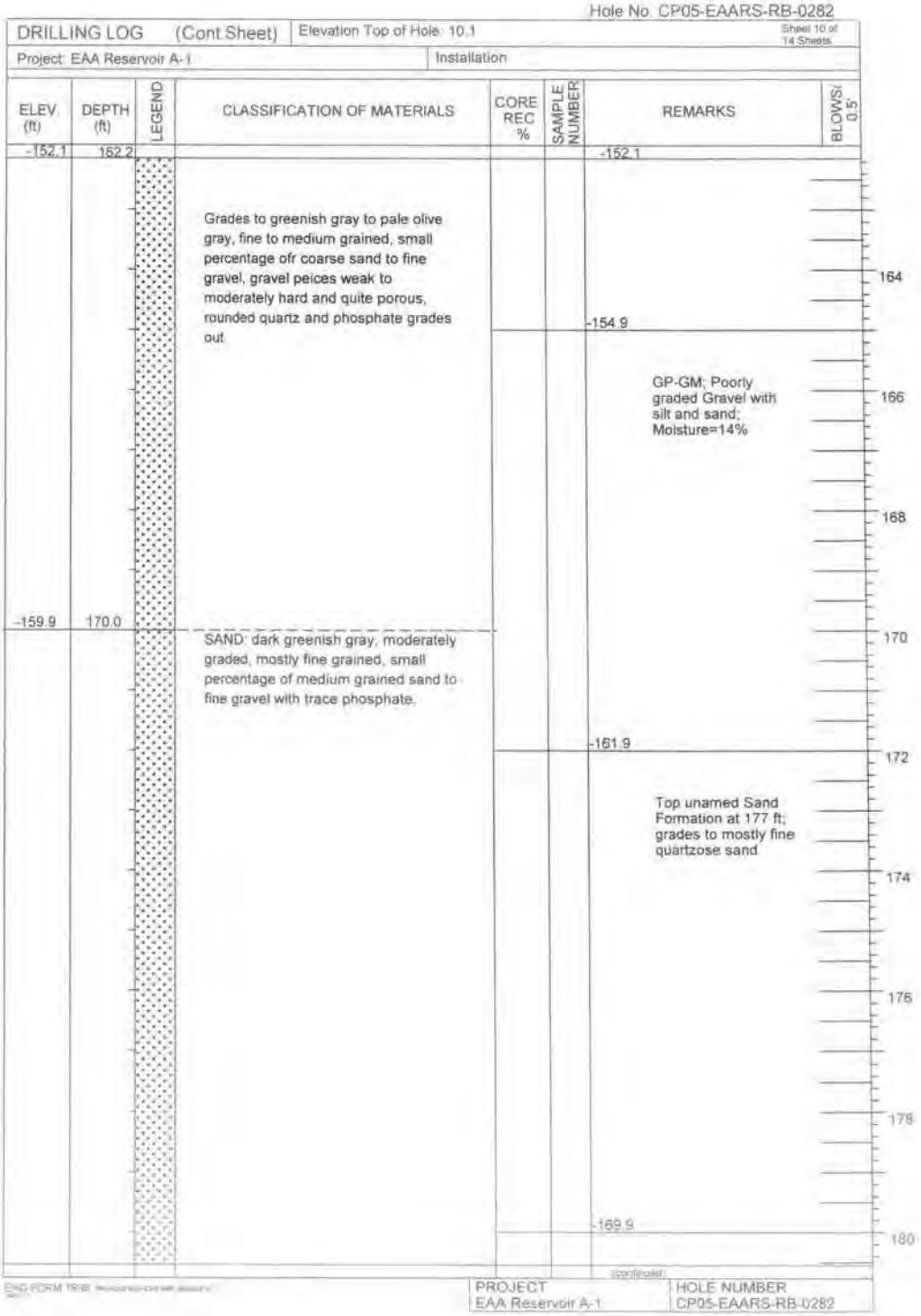
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-133.7	143.8					-133.7	
			Silt grades out.			-134.9 SP-SM; Poorly graded sand with silt and gravel; Moisture=13%	

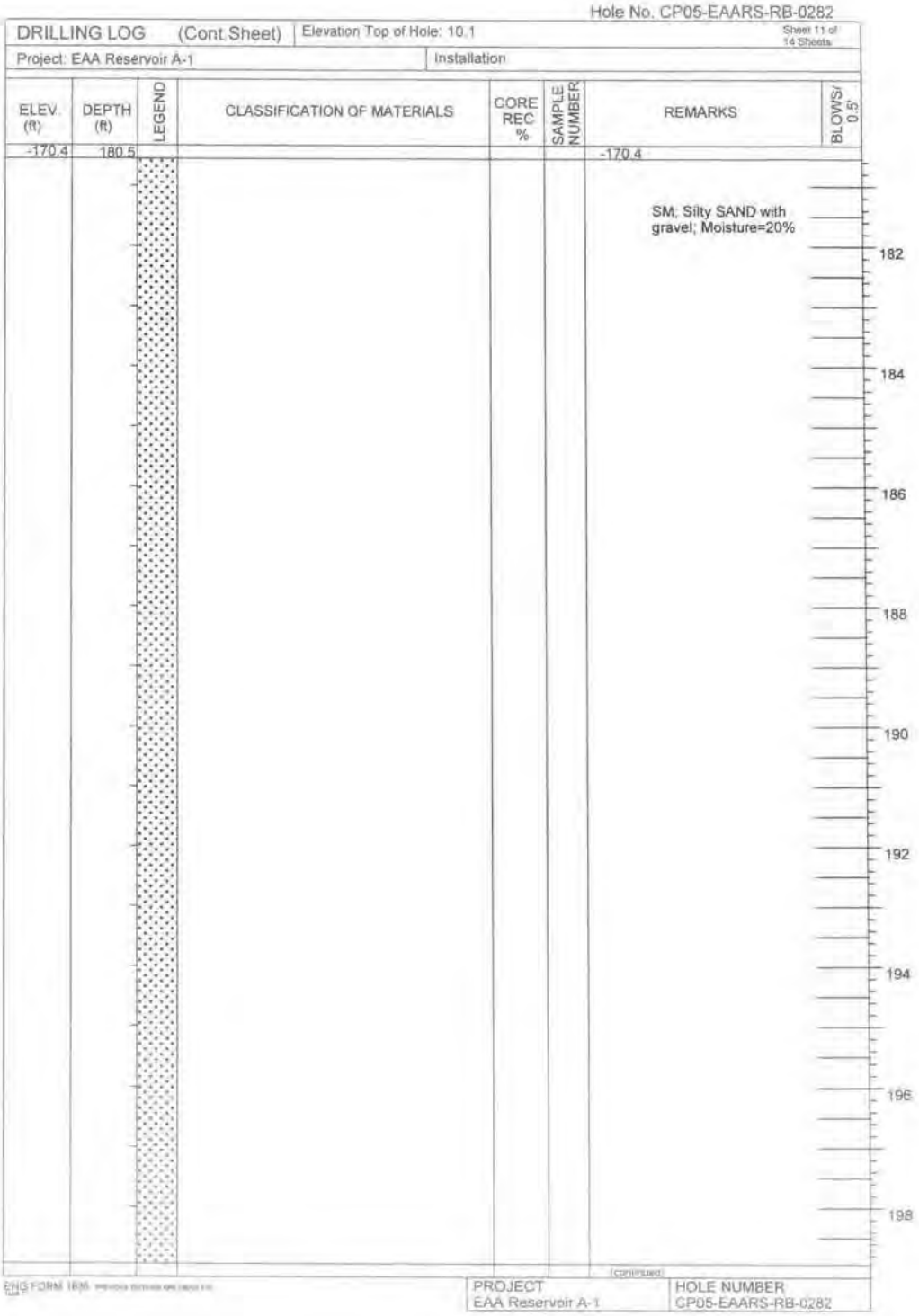
144 146 148 150 152 154 156 158 160 162

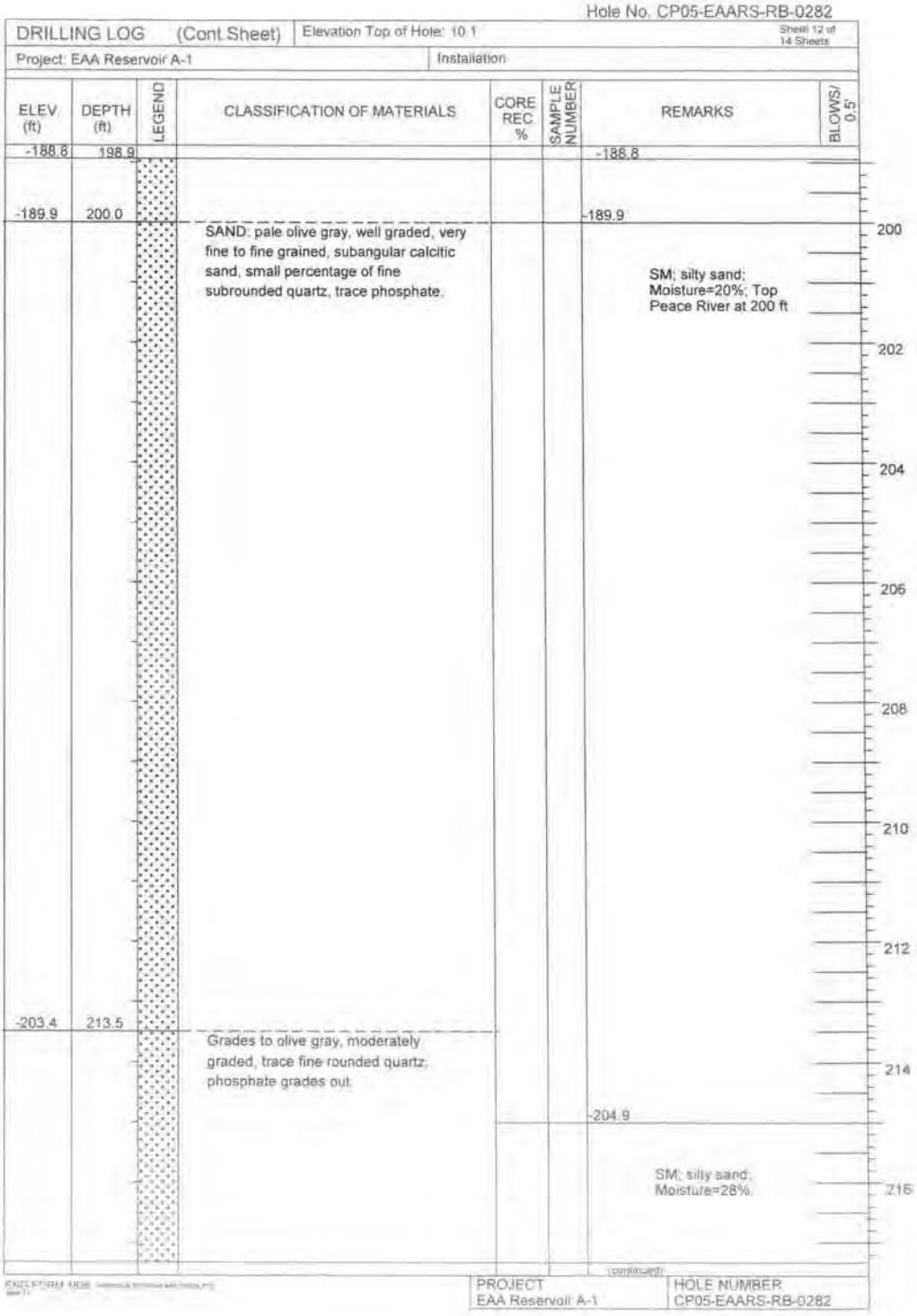
(continued)

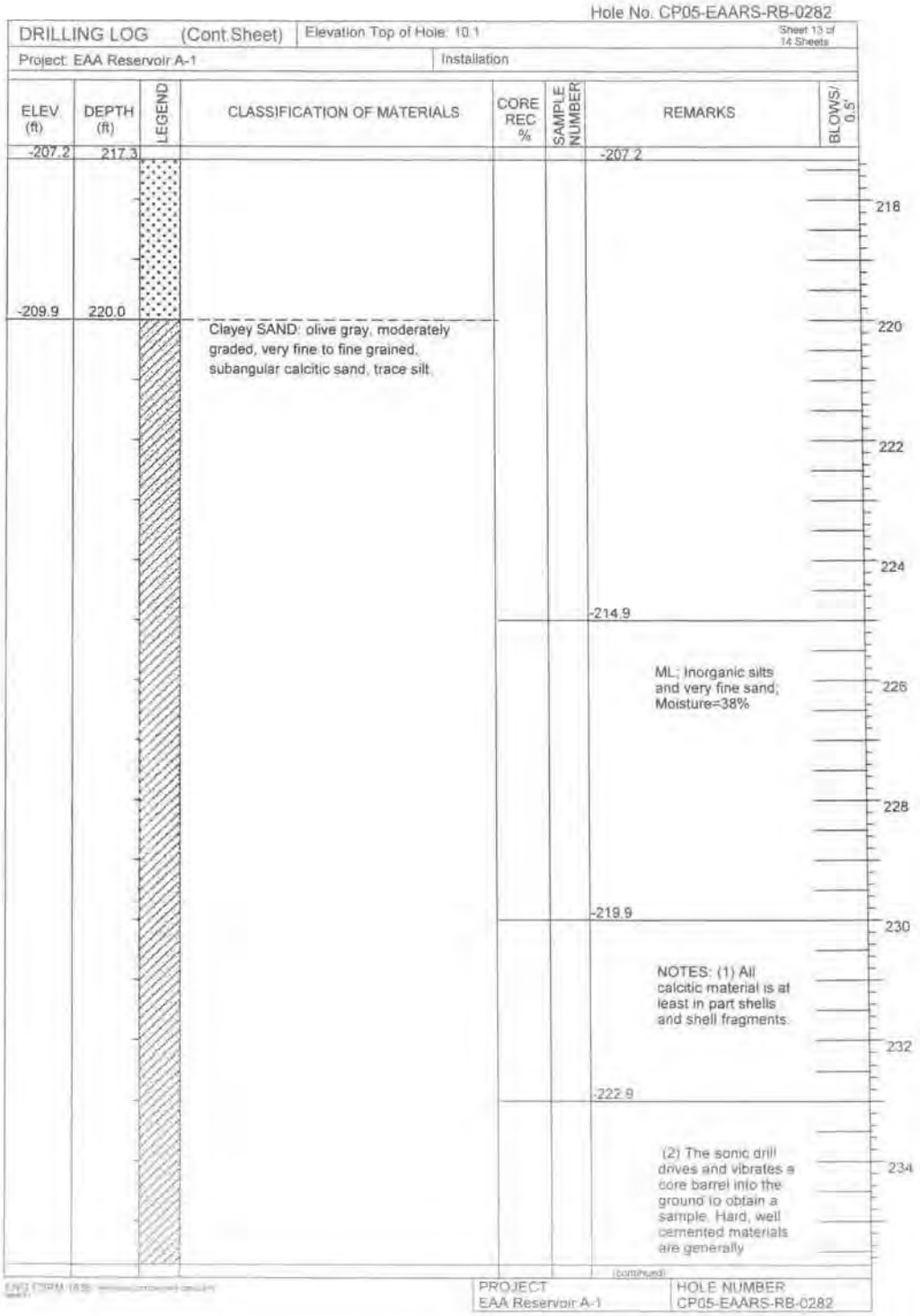
ENG FORM 1836

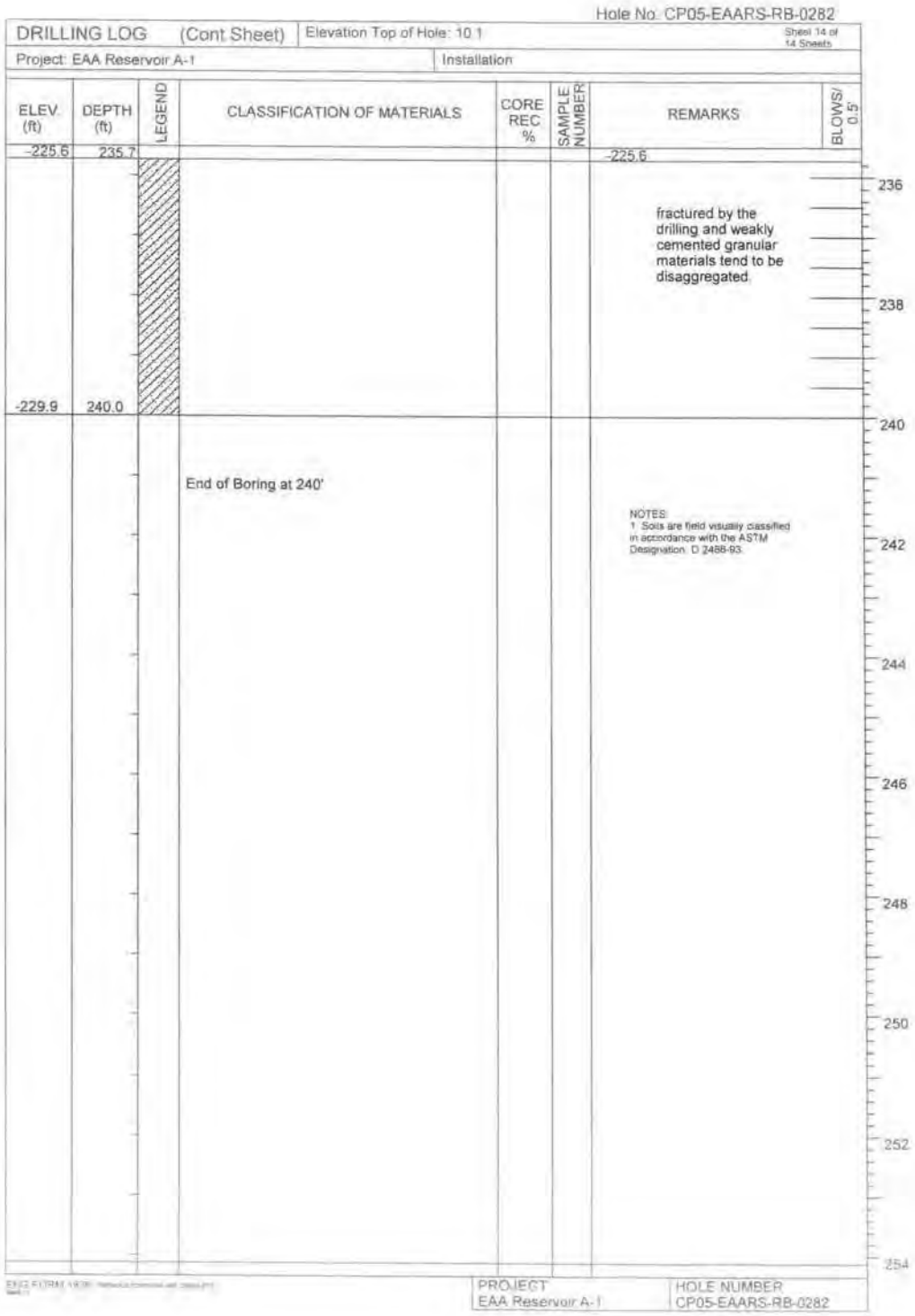
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0282


Hole No. CP05-EAARS-RB-0282
DRILLING LOG (Cont Sheet)
Elevation Top of Hole 10.1
Sheet 10 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-152.1
162.2
Grades to greenish gray to pale olive gray, fine to medium grained, small percentage ofr coarse sand to fine gravel, gravel peices weak to moderately hard and quite porous, rounded quartz and phosphate grades out
-154.9
GP-GM; Poorly graded Gravel with silt and sand; Molsture=14%
-159.9
170.0
SAND: dark greenish gray, moderately graded, mostly fine grained, small percentage of medium grained sand to fine gravel with trace phosphate.
-161.9
Top unamed Sand Formation at 177 ft; grades to mostly fine quartzose sand
-169.9
164
166
168
170
172
174
176
178
180
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0282


Hole No. CP05-EAARS-RB-0282
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.1
Sheet 11 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-170.4
180.5
-170.4
SM; Silty SAND with gravel; Moisture=20%
182
184
186
188
190
192
194
196
198
(CONTINUED)
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0282


Hole No. CP05-EAARS-RB-0282
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.1
Sheet 12 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-188.8
198.9
-189.9
200.0
SAND: pale olive gray, well graded, very fine to fine grained, subangular calcitic sand, small percentage of fine subrounded quartz, trace phosphate.
SM; silty sand; Moisture=20%; Top Peace River at 200 ft
200
202
204
206
208
210
212
214
216
-203.4
213.5
Grades to olive gray, moderately graded, trace fine rounded quartz, phosphate grades out.
-204.9
SM; silty sand; Moisture=28%.
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0282


Hole No. CP05-EAARS-RB-0282
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.1
Sheet 13 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-207.2
217.3
-209.9
220.0
Clayey SAND: olive gray, moderately graded, very fine to fine grained, subangular calcitic sand, trace silt
-207.2
-214.9
ML; Inorganic silts and very fine sand; Moisture=38%
-219.9
NOTES: (1) All calcitic material is at least in part shells and shell fragments.
-222.9
(2) The sonic drill drives and vibrates a core barrel into the ground to obtain a sample. Hard, well cemented materials are generally
218
220
222
224
226
228
230
232
234
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0282



Hole No. CP05-EAARS-RB-0282

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.1 | Sheet 14 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-225.6	235.7					-225.6	
						fractured by the drilling and weakly cemented granular materials tend to be disaggregated.	
-229.9	240.0		End of Boring at 240'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.	

236 238 240 242 244 246 248 250 252 254

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0282

Hole No. CP05-EAARS-RB-0283

DRILLING LOG	Division	Installation	Sheet 1 of 13 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 5 inch	
2. Location: N750067.1, E773030.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse (sub-contracted to Prosonic)		12. Manufacturer's Designation for Drill: SRO-109	
4. Hole No: CP05-EAARS-RB-0283		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Fred Kruas		14. Total Number of Core Boxes: 22	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/12/2005 Completed 8/14/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.9 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 220 ft		19. Inspector: N. Holst	

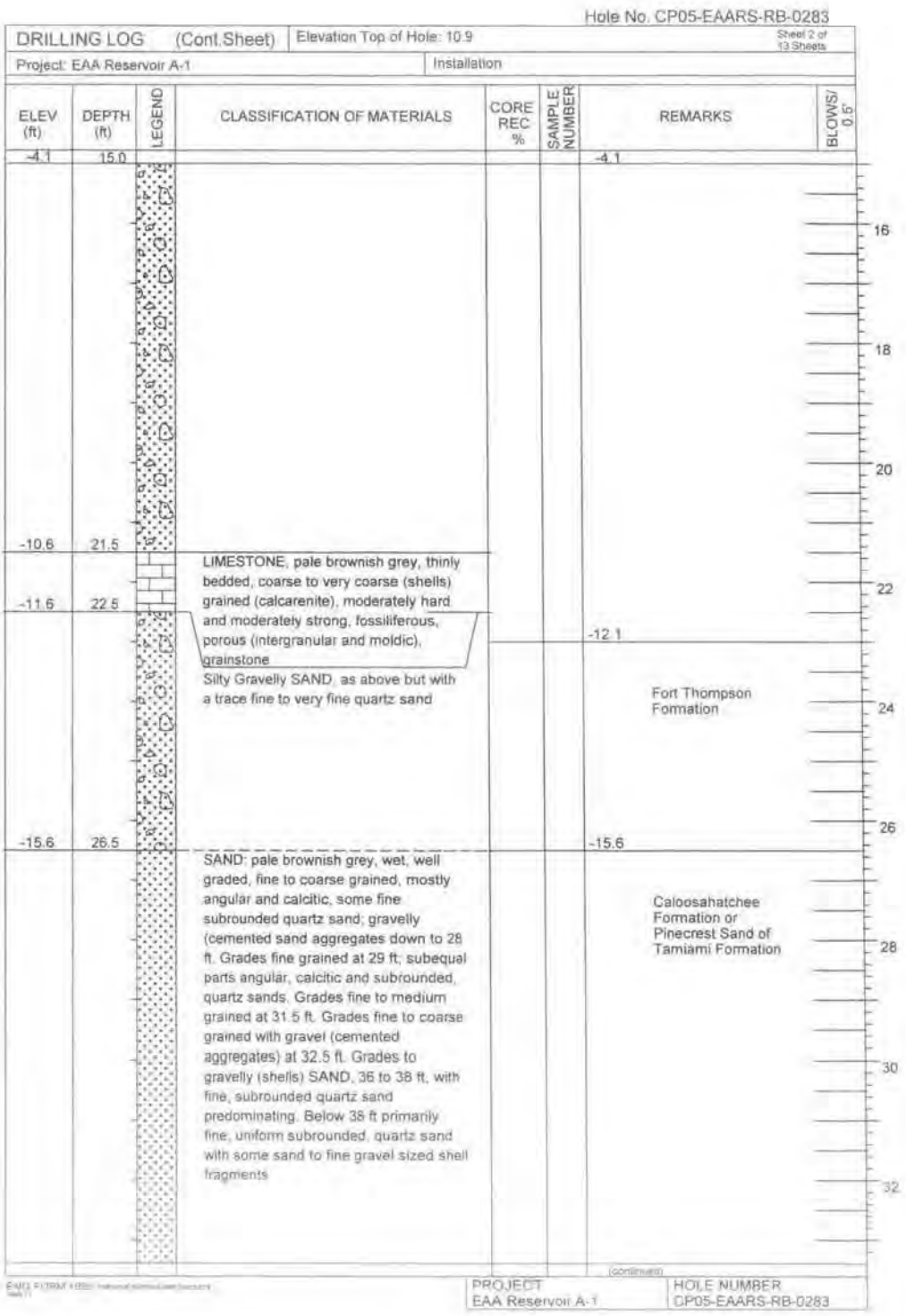
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.9	0.0		Sandy GRAVEL, light to dark brown, well graded, fine to coarse grained, dry (fill)			10.9 26 23'49"N 80 38'35"W	
8.4	2.5		Silty Gravelly SAND with cobbles, pale brownish grey, well graded, fine to coarse grained, moist, angular, calcitic, thin cemented nodules and layers common			7.9 Fort Thompson Formation	
						5.9 CL-ML; Sandy silty clay with gravel; Moisture=10%	
			Grades wet at 10 ft			0.9 CL-ML; Sandy silty clay with gravel; Moisture=23%	

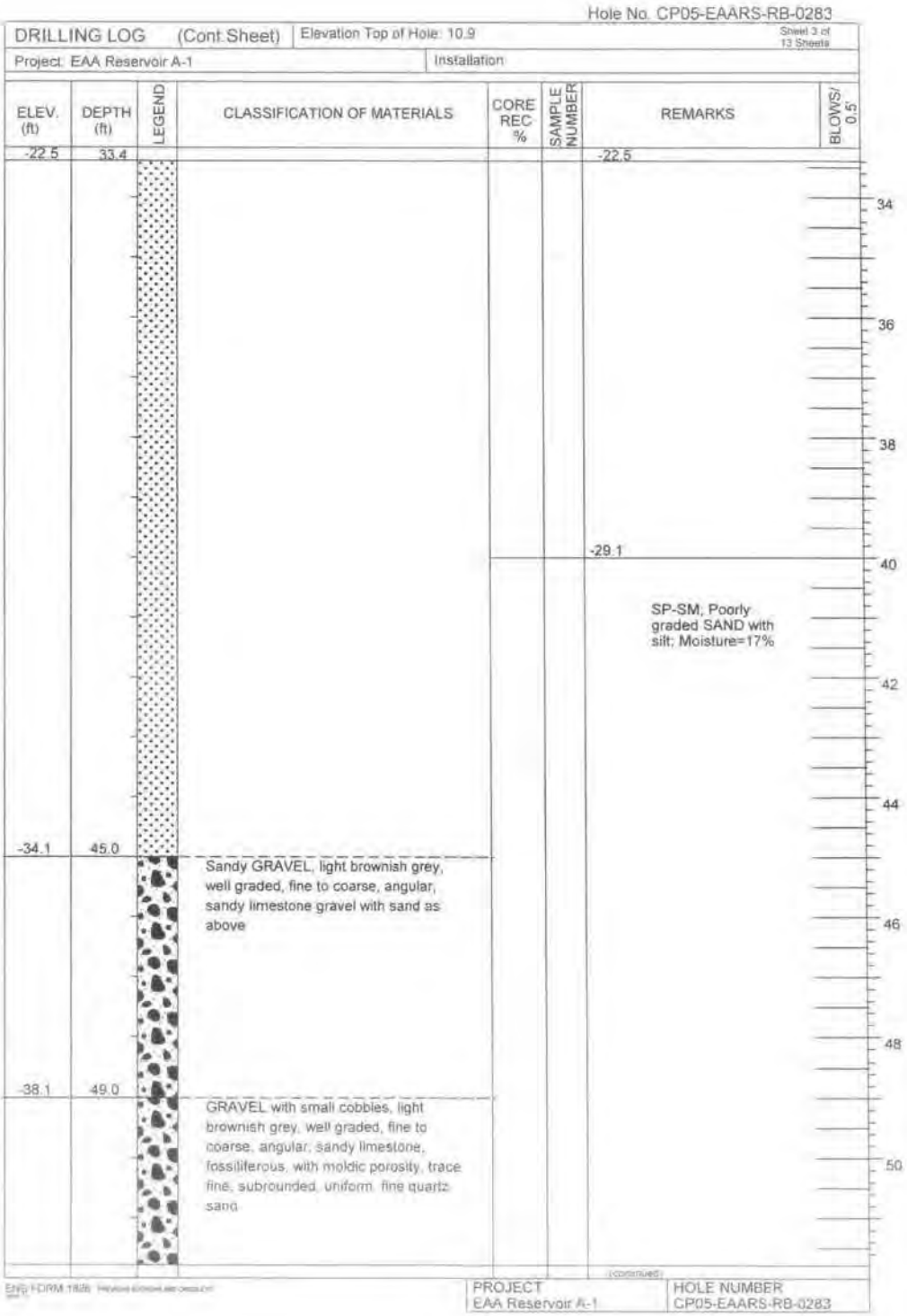
0 2 4 6 8 10 12 14

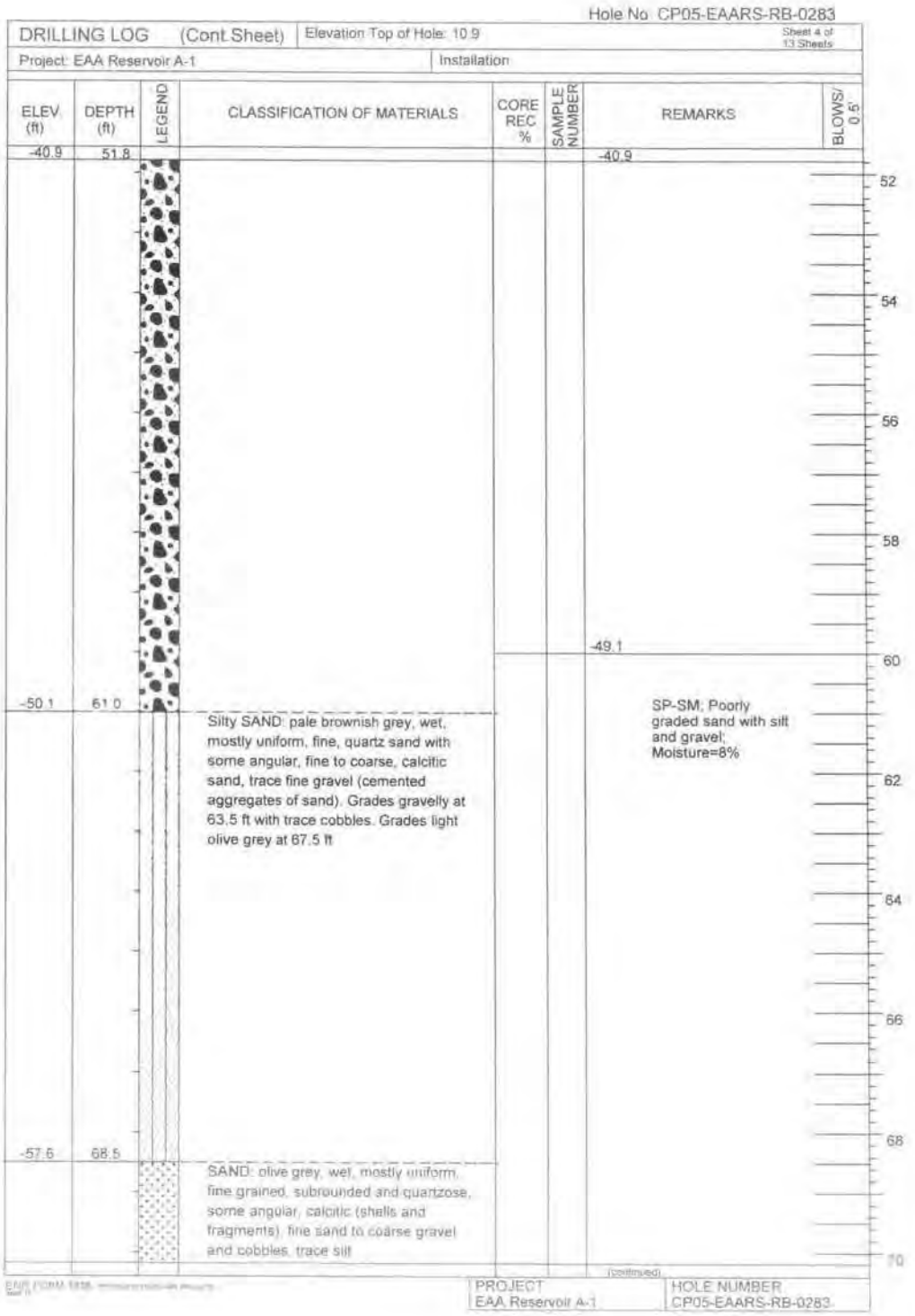
(continued)

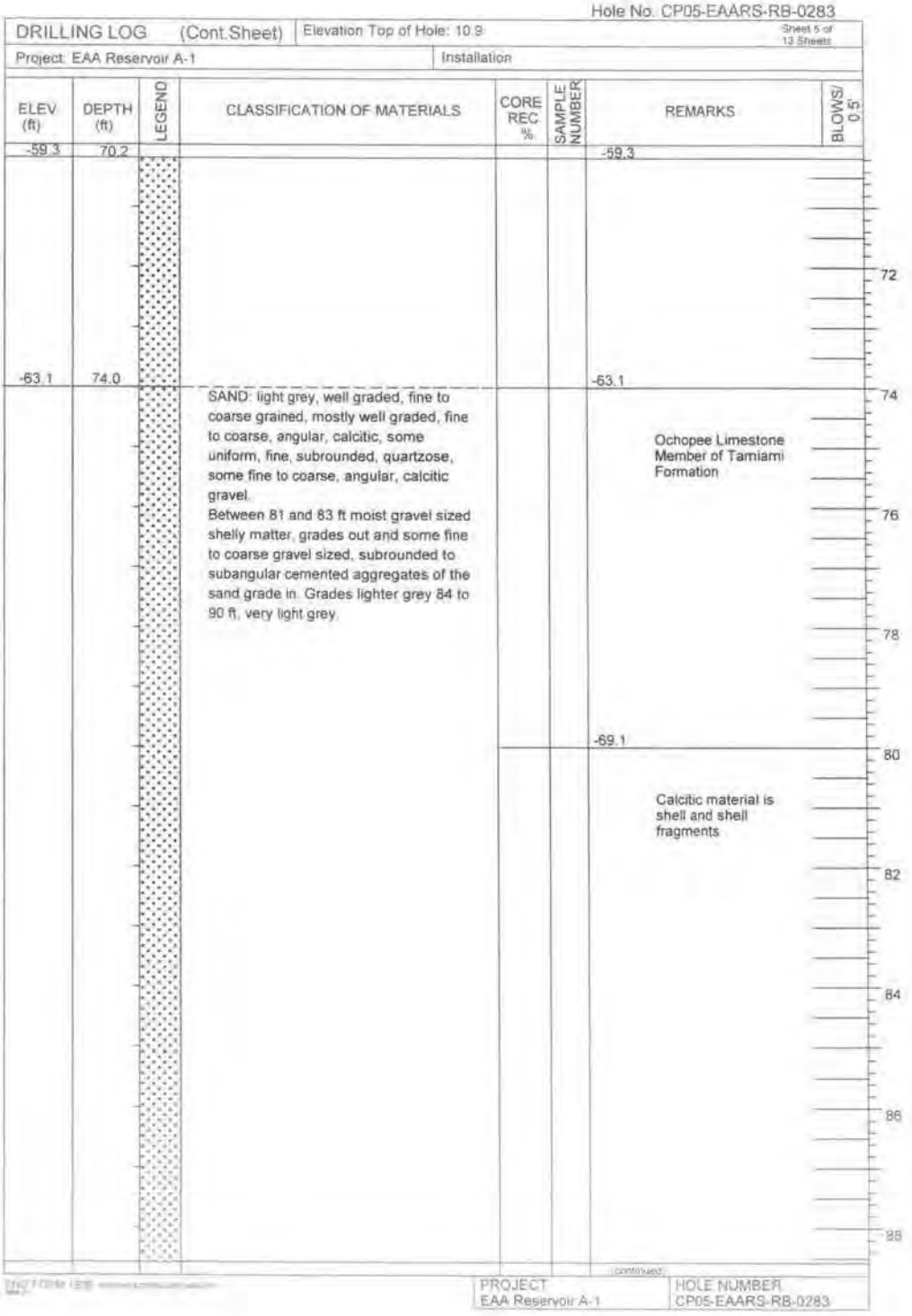
ENG FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.9
Sheet 2 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-4.1
15.0
-4.1
-10.6
21.5
LIMESTONE, pale brownish grey, thinly bedded, coarse to very coarse (shells) grained (calcarenite), moderately hard and moderately strong, fossiliferous, porous (intergranular and moldic), grainstone
-11.6
22.5
Silty Gravelly SAND, as above but with a trace fine to very fine quartz sand
-12.1
Fort Thompson Formation
-15.6
26.5
-15.6
SAND: pale brownish grey, wet, well graded, fine to coarse grained, mostly angular and calcitic, some fine subrounded quartz sand; gravelly (cemented sand aggregates down to 28 ft. Grades fine grained at 29 ft; subequal parts angular, calcitic and subrounded, quartz sands. Grades fine to medium grained at 31.5 ft. Grades fine to coarse grained with gravel (cemented aggregates) at 32.5 ft. Grades to gravelly (shells) SAND, 36 to 38 ft, with fine, subrounded quartz sand predominating. Below 38 ft primarily fine, uniform subrounded, quartz sand with some sand to fine gravel sized shell fragments
Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation
16
18
20
22
24
26
28
30
32
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.9
Sheet 3 of 13 Sheets
Project: EAA Reservoir A-1
Installation:
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-22.5
33.4
-22.5
-29.1
SP-SM; Poorly graded SAND with silt; Moisture=17%
-34.1
45.0
Sandy GRAVEL, light brownish grey, well graded, fine to coarse, angular, sandy limestone gravel with sand as above
-38.1
49.0
GRAVEL with small cobbles, light brownish grey, well graded, fine to coarse, angular; sandy limestone, fossiliferous, with moldic porosity, trace fine, subrounded, uniform, fine quartz sand
34
36
38
40
42
44
46
48
50
(continued)
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.9
Sheet 4 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-40.9
51.8
-40.9
-49.1
-50.1
61.0
Silty SAND: pale brownish grey, wet, mostly uniform, fine, quartz sand with some angular, fine to coarse, calcitic sand, trace fine gravel (cemented aggregates of sand). Grades gravelly at 63.5 ft with trace cobbles. Grades light olive grey at 67.5 ft
SP-SM; Poorly graded sand with silt and gravel; Moisture=8%
-57.6
68.5
SAND: olive grey, wet, mostly uniform, fine grained, subrounded and quartzose, some angular, calcitic (shells and fragments), fine sand to coarse gravel and cobbles, trace silt
52
54
56
58
60
62
64
66
68
70
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283



Hole No. CP05-EAARS-RB-0283

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 5 of 13 Sheets

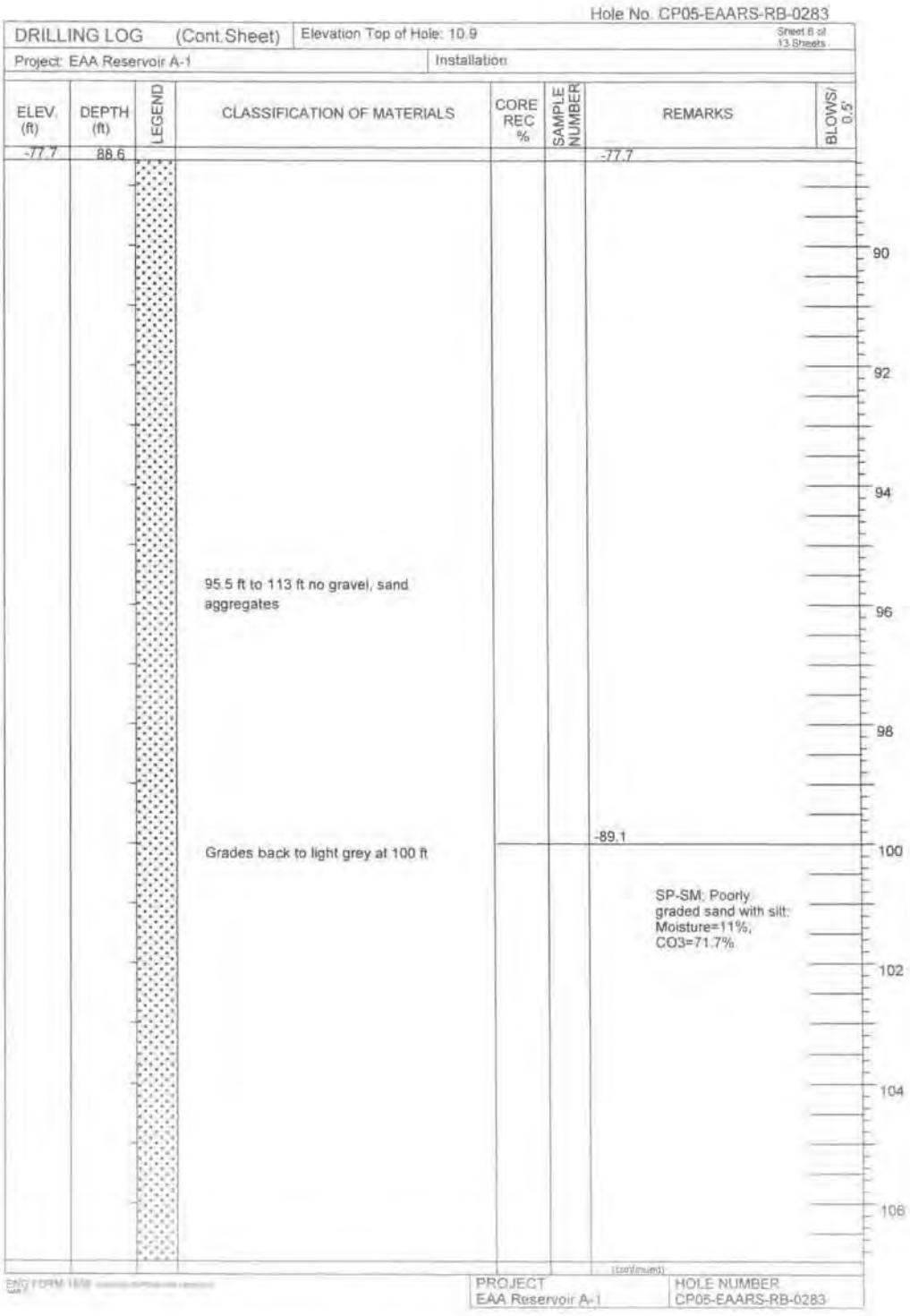
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.3	70.2					-59.3	
-63.1	74.0		SAND: light grey, well graded, fine to coarse grained, mostly well graded, fine to coarse, angular, calcitic, some uniform, fine, subrounded, quartzose, some fine to coarse, angular, calcitic gravel. Between 81 and 83 ft moist gravel sized shelly matter, grades out and some fine to coarse gravel sized, subrounded to subangular cemented aggregates of the sand grade in. Grades lighter grey 84 to 90 ft, very light grey.			-63.1 Ochopee Limestone Member of Tamiami Formation -69.1 Calcitic material is shell and shell fragments	

72 74 76 78 80 82 84 86 88

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.9
Sheet 8 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-77.7
88.6
-77.7
95.5 ft to 113 ft no gravel, sand aggregates
-89.1
Grades back to light grey at 100 ft
SP-SM: Poorly graded sand with silt; Moisture=11%; CO3=71.7%
90
92
94
96
98
100
102
104
106
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283

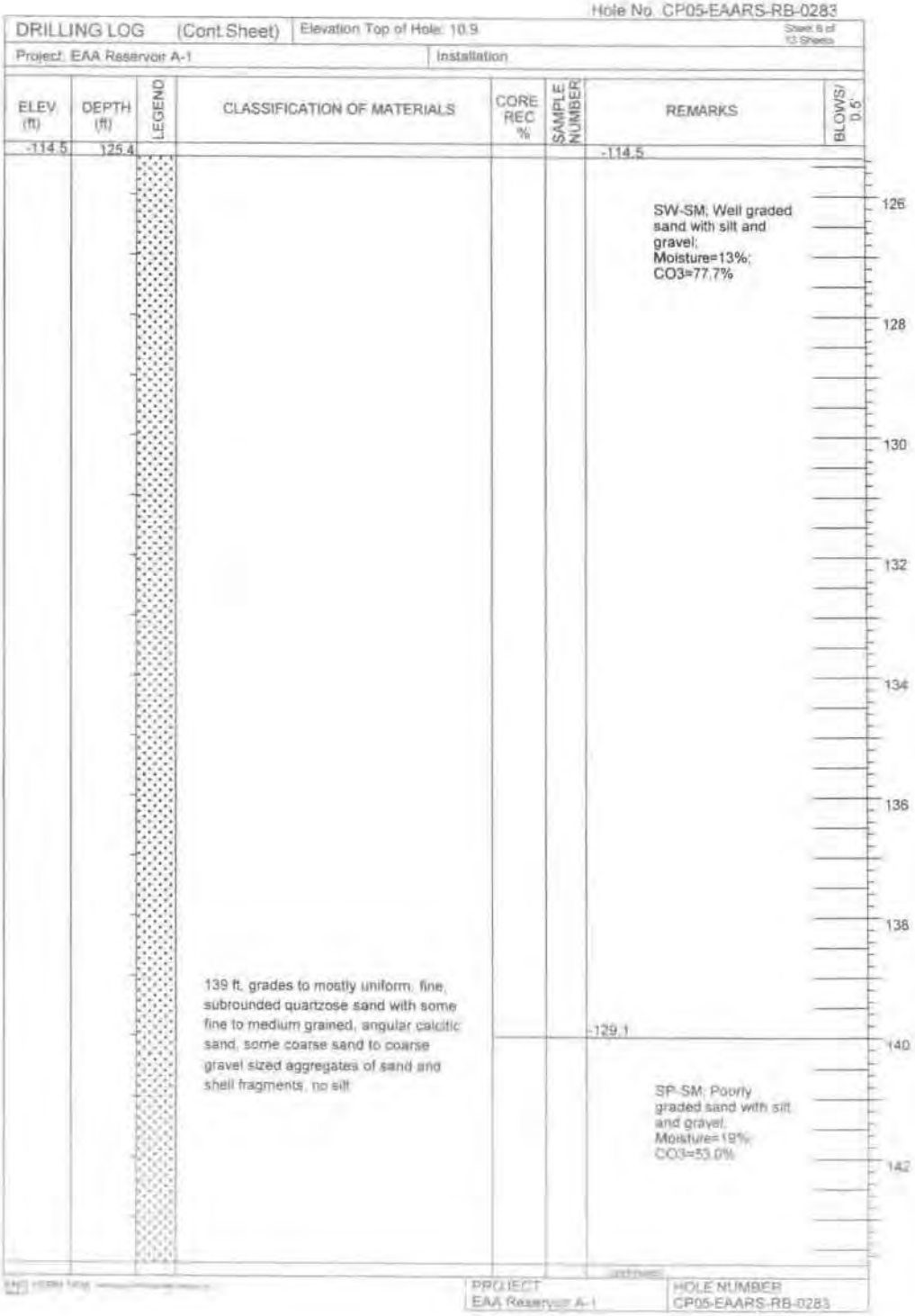
Hole No. CP05-EAARS-RB-0283

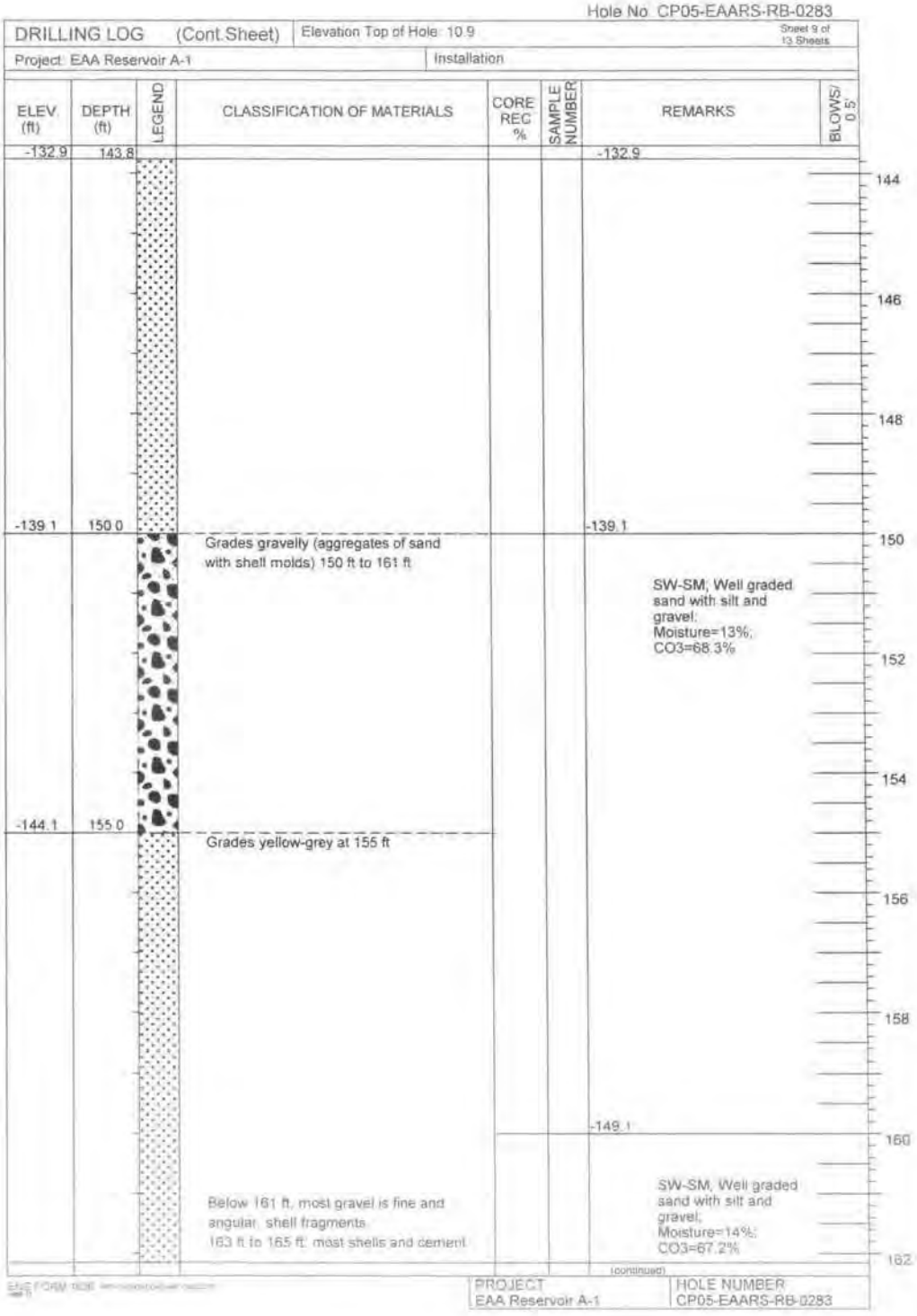
DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.9 | Sheet 7 of 13 Sheets

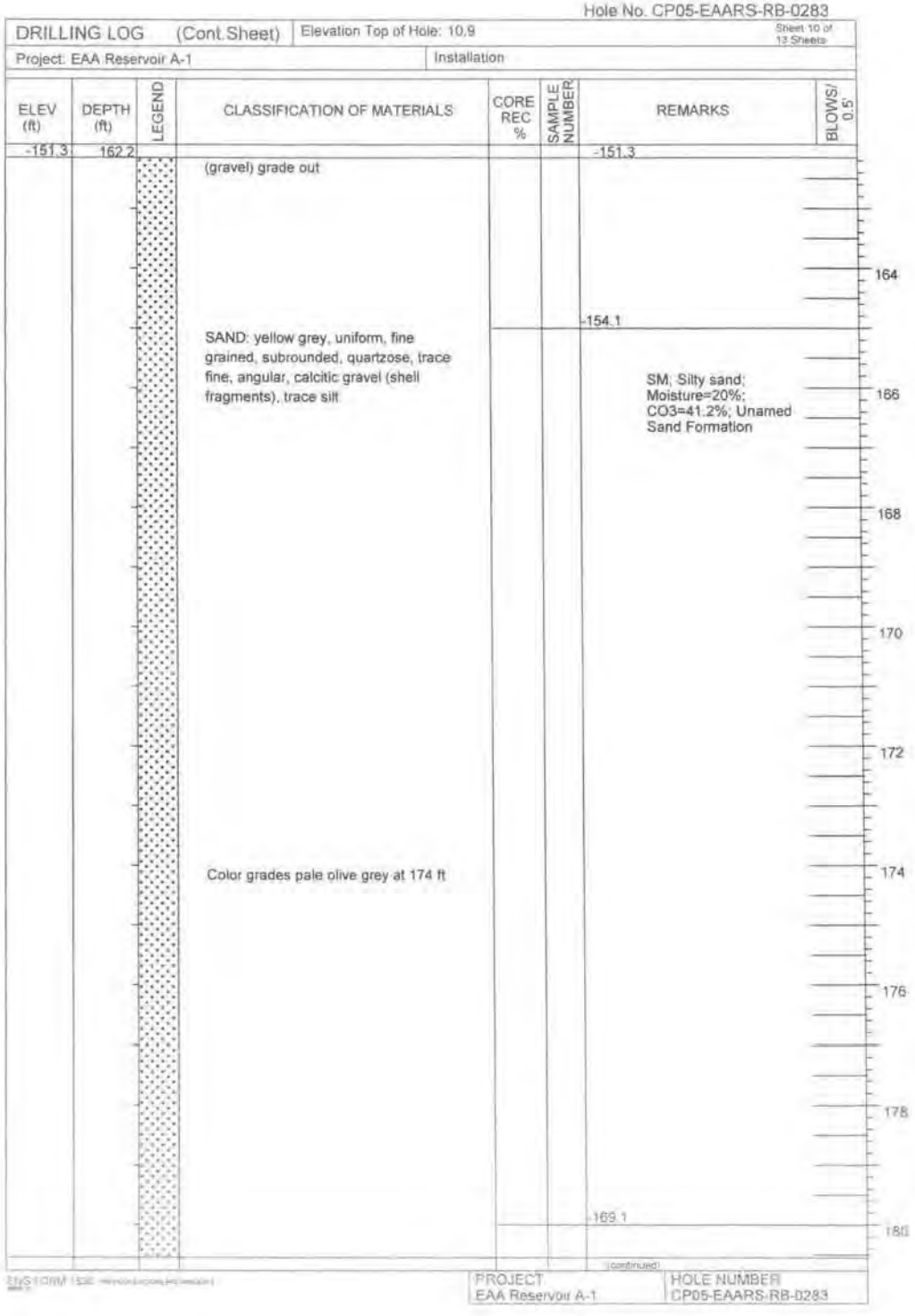
Project: EAA Reservoir A-1 | Installation

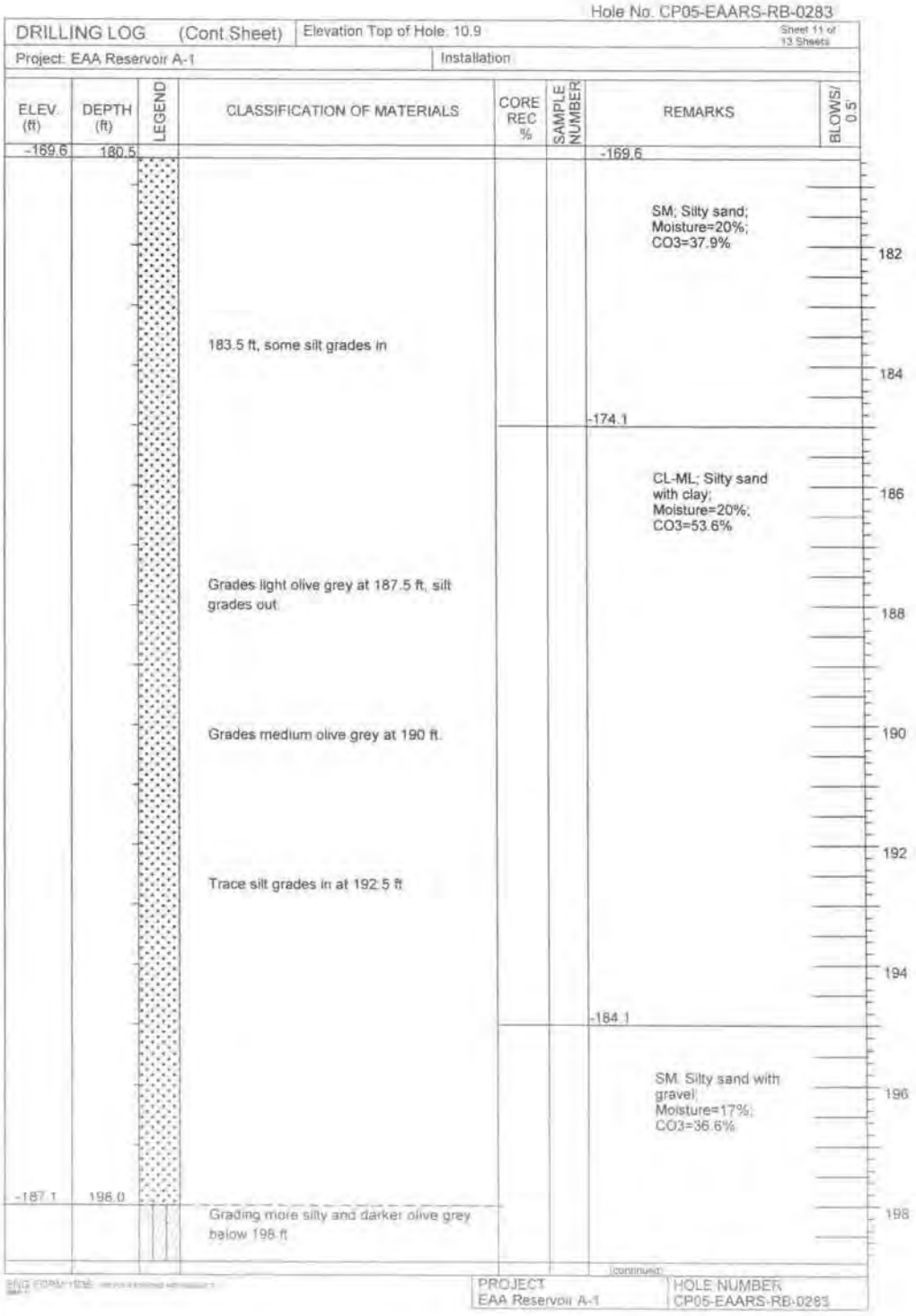
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-96.1	107.0					-96.1	
							108
						-99.1	
							110
						SM; Silty sand with gravel; Moisture=18%; CO3=75.5%	
							112
			At 113 ft gravel, larger shell fragments and sand aggregates grade back in				
							114
						-104.1	
			Grades to some gravel 115 ft to 117 ft				
						SW-SM; Well graded sand with silt and gravel; Moisture=16%; CO3=75.9%	116
							118
			120 ft to 121 ft grades light brownish grey with a trace silt. Some gravel (cemented sand aggregates grades in, mostly coarse (poorly graded), calcitic sand				120
							122
							124
						-114.1	

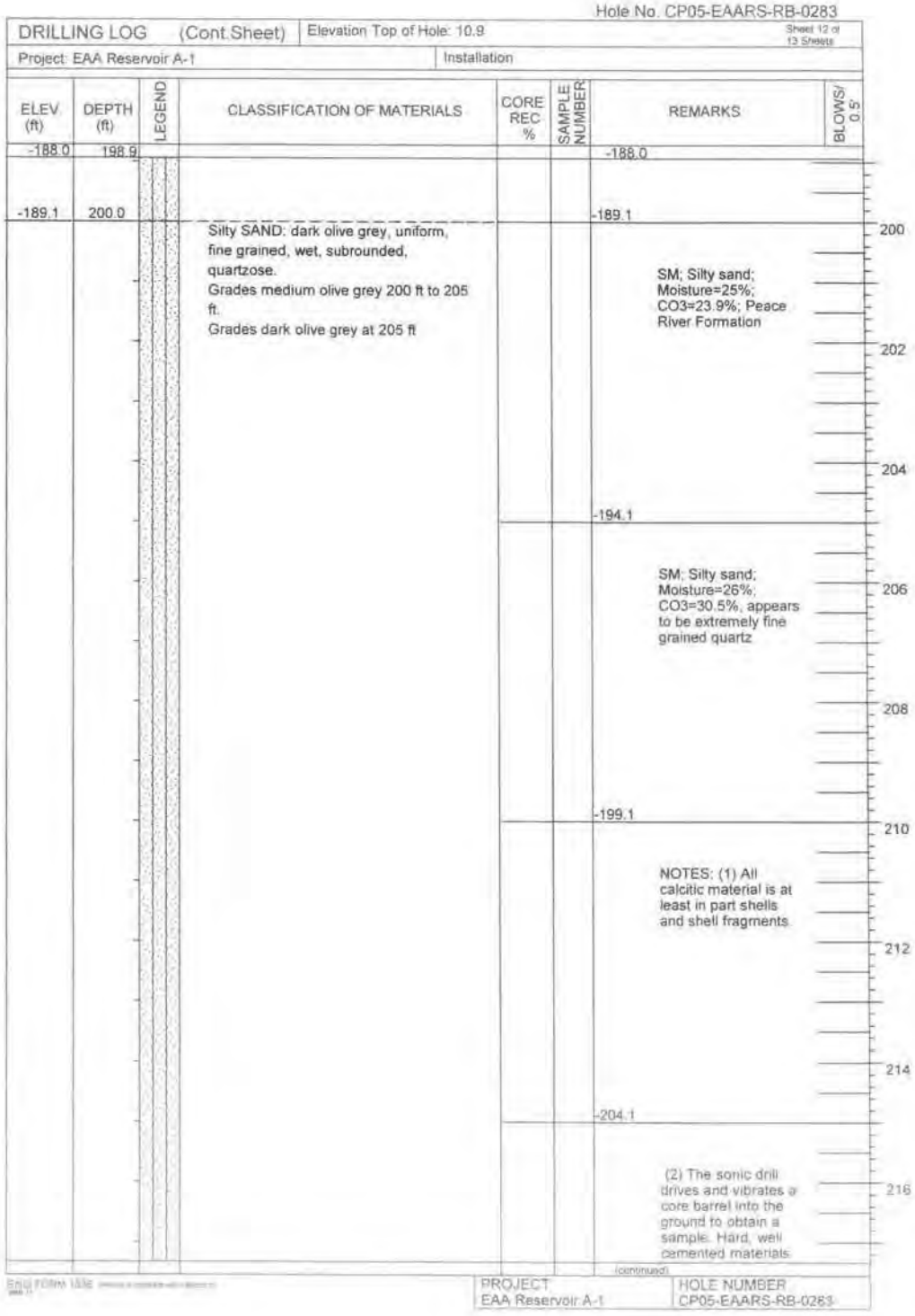
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0283

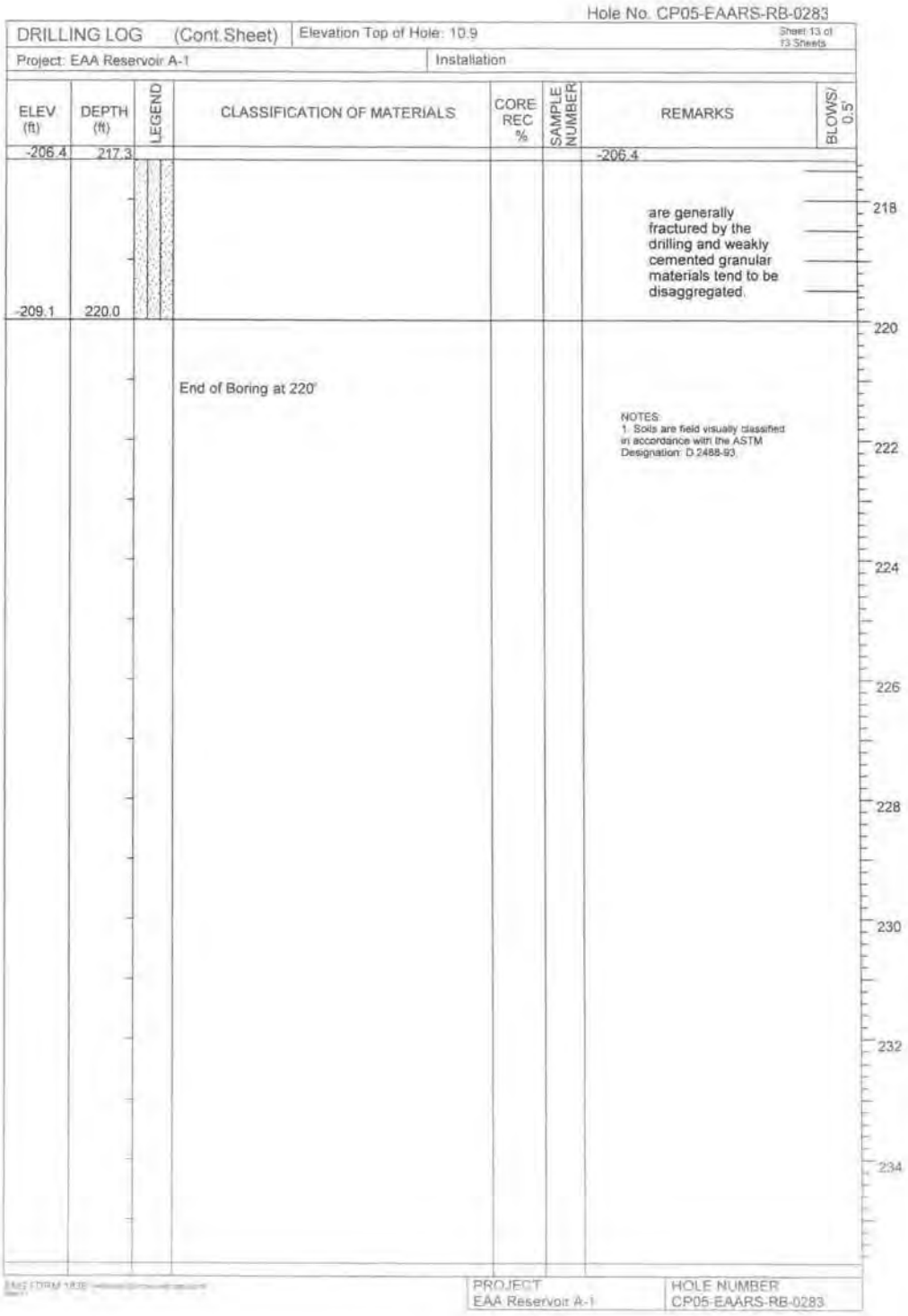

Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.9
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-114.5
125.4
-114.5
SW-SM; Well graded sand with silt and gravel; Moisture=13%; CO3=77.7%
126
128
130
132
134
136
138
139 ft, grades to mostly uniform, fine, subrounded quartzose sand with some fine to medium grained, angular calcitic sand, some coarse sand to coarse gravel sized aggregates of sand and shell fragments, no silt
-129.1
140
SP-SM; Poorly graded sand with silt and gravel; Moisture=18%; CO3=53.0%
142
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.9
Sheet 9 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-132.9
143.8
-139.1
150.0
Grades gravelly (aggregates of sand with shell molds) 150 ft to 161 ft
SW-SM; Well graded sand with silt and gravel; Moisture=13%; CO3=68.3%
-144.1
155.0
Grades yellow-grey at 155 ft
-149.1
Below 161 ft, most gravel is fine and angular, shell fragments
163 ft to 165 ft, most shells and cement
SW-SM, Well graded sand with silt and gravel; Moisture=14%; CO3=67.2%
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283
144
146
148
150
152
154
156
158
160
162


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.9
Sheet 10 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-151.3
162.2
(gravel) grade out
-151.3
164
-154.1
SAND: yellow grey, uniform, fine grained, subrounded, quartzose, trace fine, angular, calcitic gravel (shell fragments), trace silt
SM; Silty sand; Moisture=20%; CO3=41.2%; Unamed Sand Formation
166
168
170
172
Color grades pale olive grey at 174 ft
174
176
178
-169.1
180
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.9
Sheet 11 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-169.6
180.5
-169.6
SM; Silty sand; Moisture=20%; CO3=37.9%
182
183.5 ft, some silt grades in
184
-174.1
CL-ML; Silty sand with clay; Moisture=20%; CO3=53.6%
186
Grades light olive grey at 187.5 ft, silt grades out
188
Grades medium olive grey at 190 ft.
190
192
Trace silt grades in at 192.5 ft
194
-184.1
SM; Silty sand with gravel; Moisture=17%; CO3=36.6%
196
-187.1
196.0
Grading more silty and darker olive grey below 198 ft
198
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283


Hole No. CP05-EAARS-RB-0283
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.9
Sheet 12 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-188.0
198.9
-189.1
200.0
Silty SAND: dark olive grey, uniform, fine grained, wet, subrounded, quartzose.
Grades medium olive grey 200 ft to 205 ft.
Grades dark olive grey at 205 ft
-188.0
-189.1
SM; Silty sand; Moisture=25%; CO3=23.9%; Peace River Formation
-194.1
SM; Silty sand; Moisture=26%; CO3=30.5%, appears to be extremely fine grained quartz
-199.1
NOTES: (1) All calcitic material is at least in part shells and shell fragments.
-204.1
(2) The sonic drill drives and vibrates a core barrel into the ground to obtain a sample. Hard, well cemented materials.
200
202
204
206
208
210
212
214
216
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0283



Hole No. CP05-EAARS-RB-0283

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 13 of 13 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-206.4	217.3					-206.4	
						are generally fractured by the drilling and weakly cemented granular materials tend to be disaggregated.	
-209.1	220.0		End of Boring at 220'				

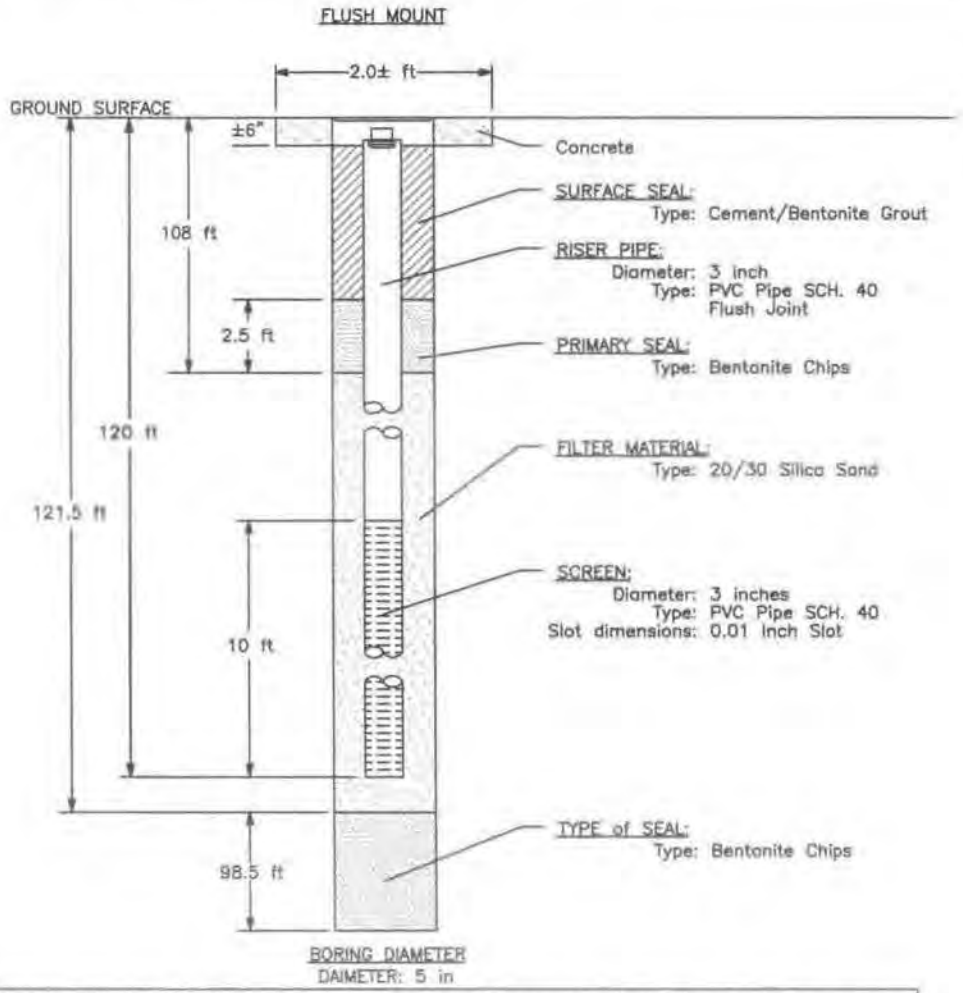
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

218
220
222
224
226
228
230
232
234

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0283

Hole No. CP05-EAARS-TW-0283

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 750072, E 773031		9. Manufacture's Designation for Drill: SRO-109
3. Drilling Agency: Prosonic		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0283		11. Date Hole: Started 8-14-05 Completed 8-14-05
5. Name of Driller: Fred Kruass		12. Elevation Top of Riser: ±10'
6. Depth of Piezometer: 25 ft		13. Inspector: JP
7. Size and type of bit: 6" bit, Rotary Method		



INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

NOTES: Typical 25 foot Piezometer Installation

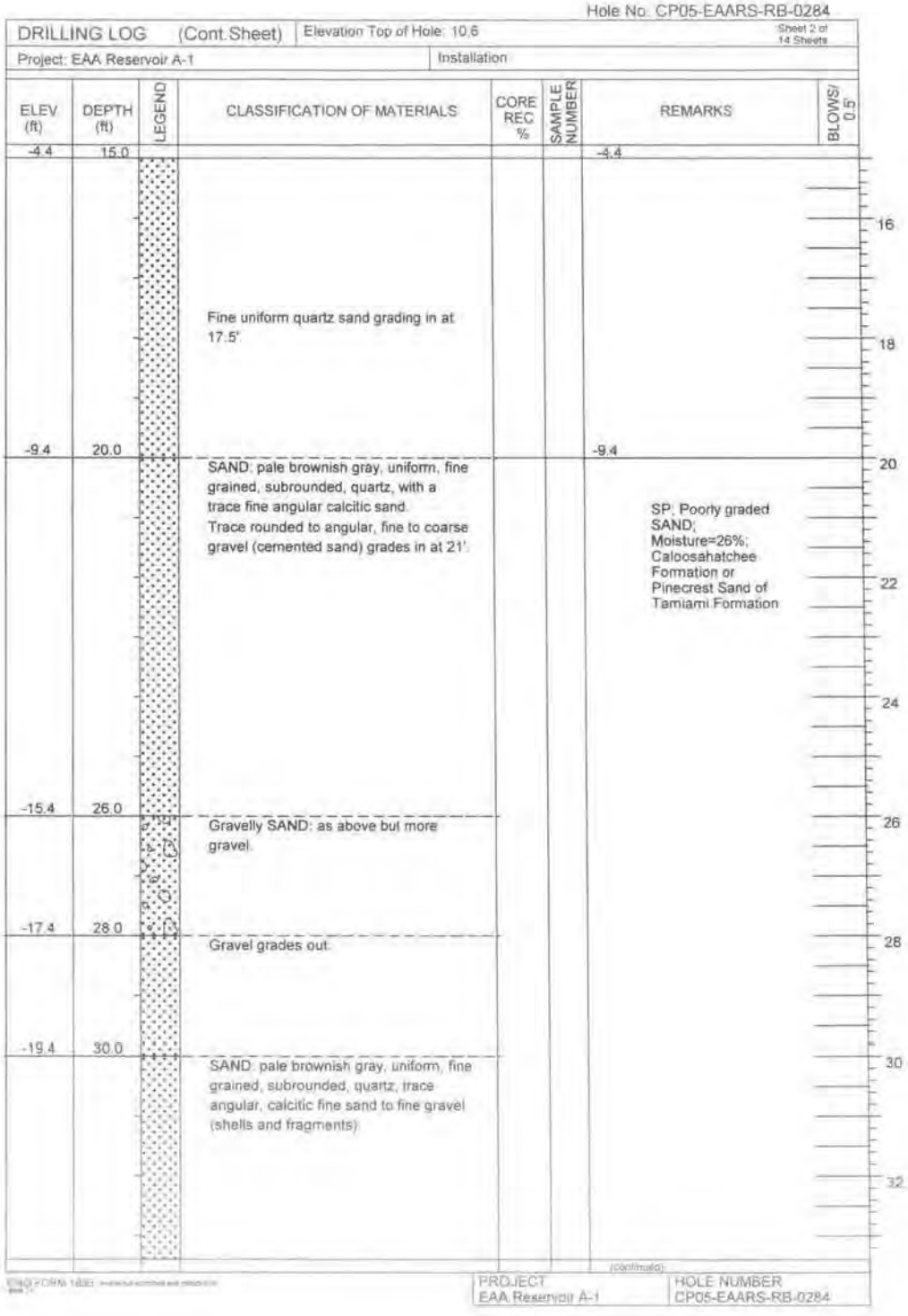
Hole No. CP05-EAARS-RB-0284

DRILLING LOG	Division:	Installation:	Sheet 1 of 14 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 5 inch	
2. Location: N764450.8, E758066.4 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse (sub-contracted to Prosonic)		12. Manufacturer's Designation for Drill: SRO-109	
4. Hole No: CP05-EAARS-RB-0284		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Fred Kruas		14. Total Number of Core Boxes: 23	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/9/2005 Completed 8/11/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 240 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.6	0.0						
10.1	0.5		ROADFILL				
			PEAT: brownish black, fine grained, non-plastic, organic silt				
5.6	5.0					5.6	
			Gravelly CLAY and Silty GRAVEL (Marl): gray, low plasticity Clay with subrounded limestone gravel to angular limestone with silt with depth. Lower part is weathered caprock.			Fort Thompson Formation	
4.1	6.5						
3.6	7.0		LIMESTONE (Caprock): tan, fine to coarse grained, thinly bedded, fossiliferous, hard and strong.				
			SAND: pale brownish gray, well graded, fine to coarse grained, angular, calcitic, some fine to coarse angular limestone gravel, trace to some silt, trace tabular cobbles (limestone layers to 2" thick.)			0.5	
						SM: silty sand with gravel; Moisture=18%	

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-RB-0284



Hole No. CP05-EAARS-RB-0284

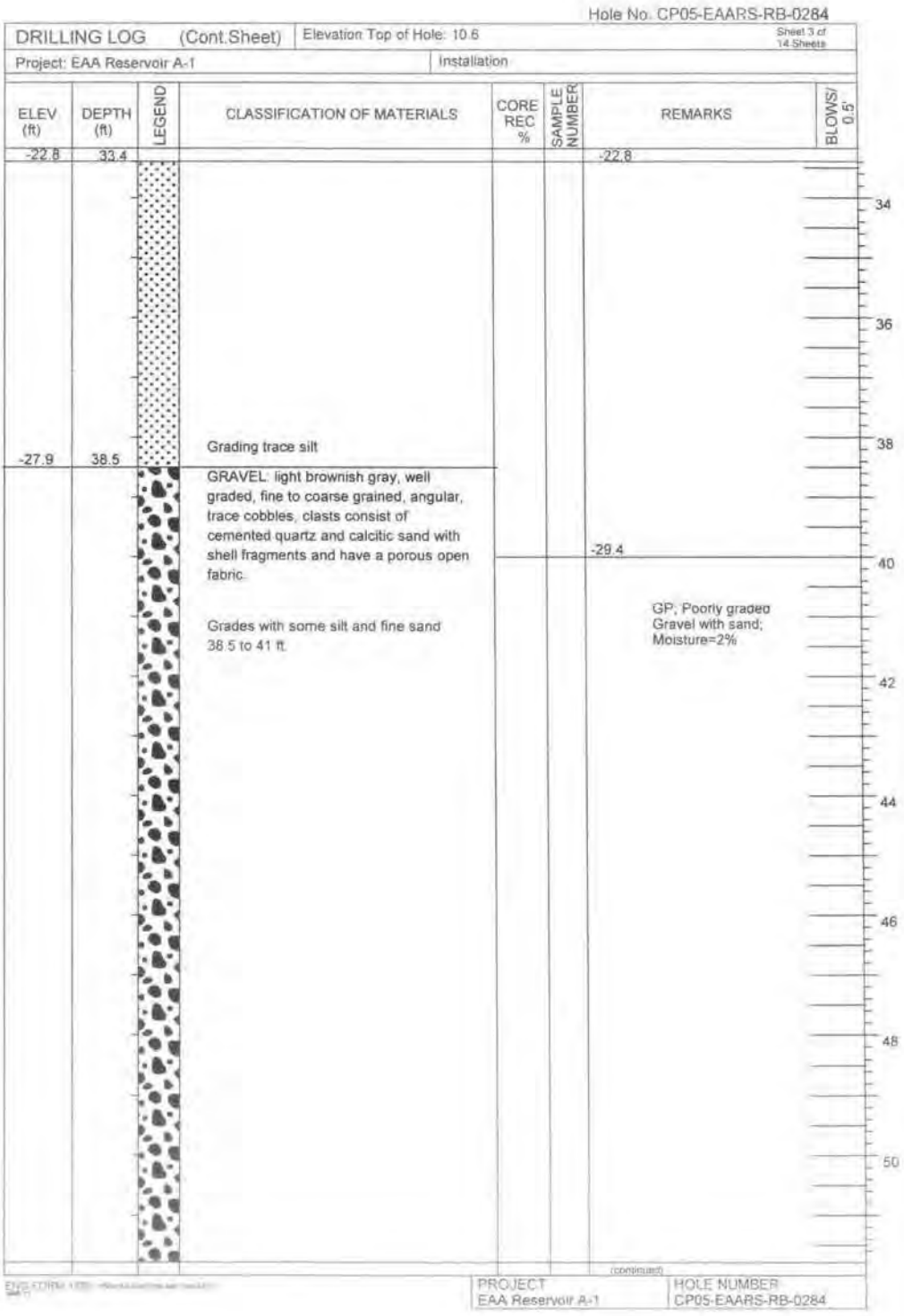
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 2 of 14 Sheets

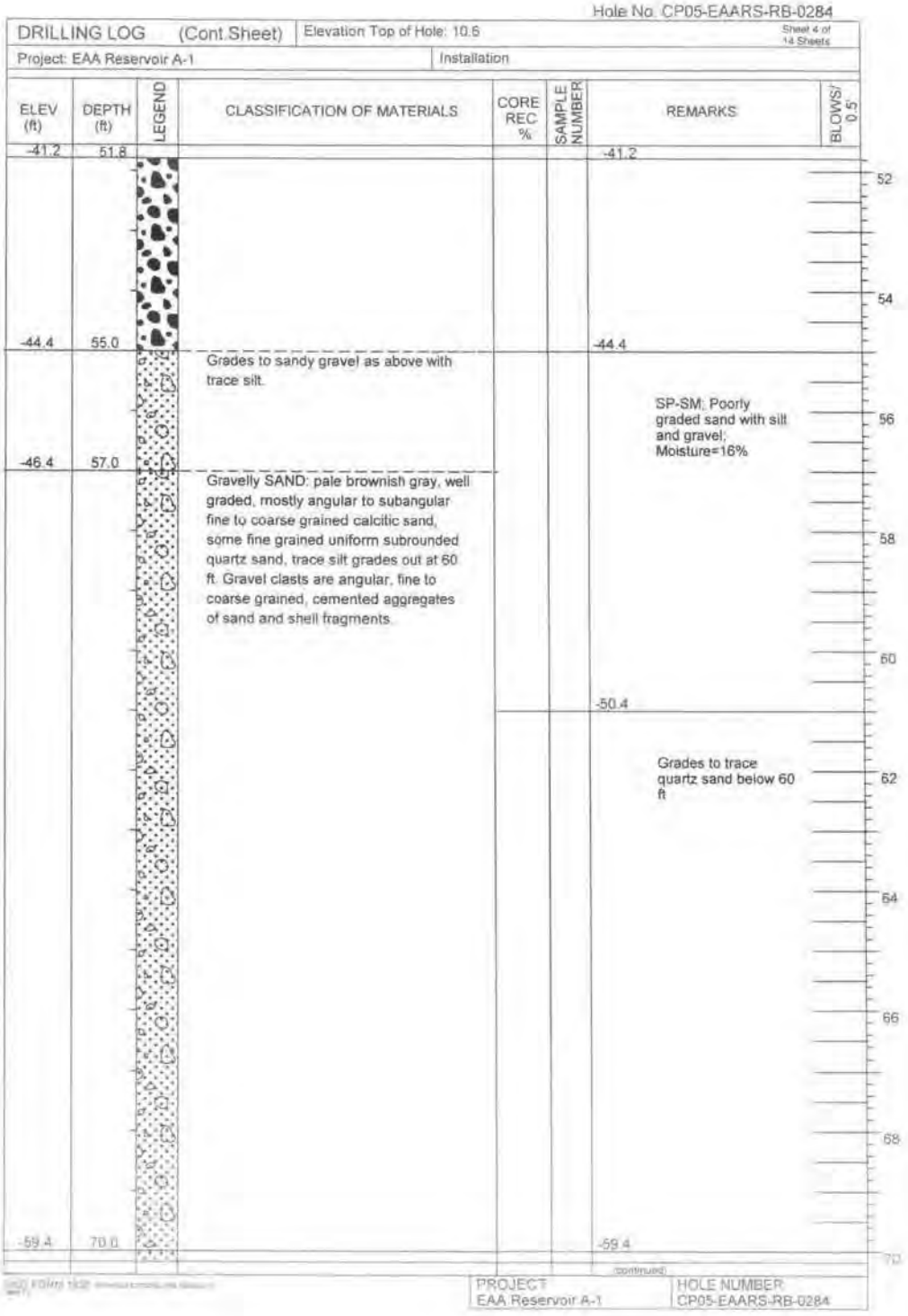
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.4	15.0					-4.4	
			Fine uniform quartz sand grading in at 17.5'				
-9.4	20.0		SAND: pale brownish gray, uniform, fine grained, subrounded, quartz, with a trace fine angular calcitic sand. Trace rounded to angular, fine to coarse gravel (cemented sand) grades in at 21'.			-9.4 SP; Poorly graded SAND; Moisture=26%; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
-15.4	26.0		Gravelly SAND: as above but more gravel.				
-17.4	28.0		Gravel grades out.				
-19.4	30.0		SAND: pale brownish gray, uniform, fine grained, subrounded, quartz, trace angular, calcitic fine sand to fine gravel (shells and fragments)				

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0284


Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 3 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-22.8
33.4
-22.8
Grading trace silt
-27.9
38.5
GRAVEL: light brownish gray, well graded, fine to coarse grained, angular, trace cobbles, clasts consist of cemented quartz and calcitic sand with shell fragments and have a porous open fabric.
Grades with some silt and fine sand 38.5 to 41 ft.
-29.4
GP; Poorly graded Gravel with sand; Moisture=2%
34
36
38
40
42
44
46
48
50
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284


Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 4 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-41.2
51.8
-41.2
-44.4
55.0
-44.4
Grades to sandy gravel as above with trace silt.
SP-SM; Poorly graded sand with silt and gravel; Moisture=16%
-46.4
57.0
Gravelly SAND: pale brownish gray, well graded, mostly angular to subangular fine to coarse grained calcitic sand, some fine grained uniform subrounded quartz sand, trace silt grades out at 60 ft. Gravel clasts are angular, fine to coarse grained, cemented aggregates of sand and shell fragments.
-50.4
Grades to trace quartz sand below 60 ft
-59.4
70.0
-59.4
52
54
56
58
60
62
64
66
68
70
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284

Hole No. CP05-EAARS-RB-0284

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 5 of 14 Sheets

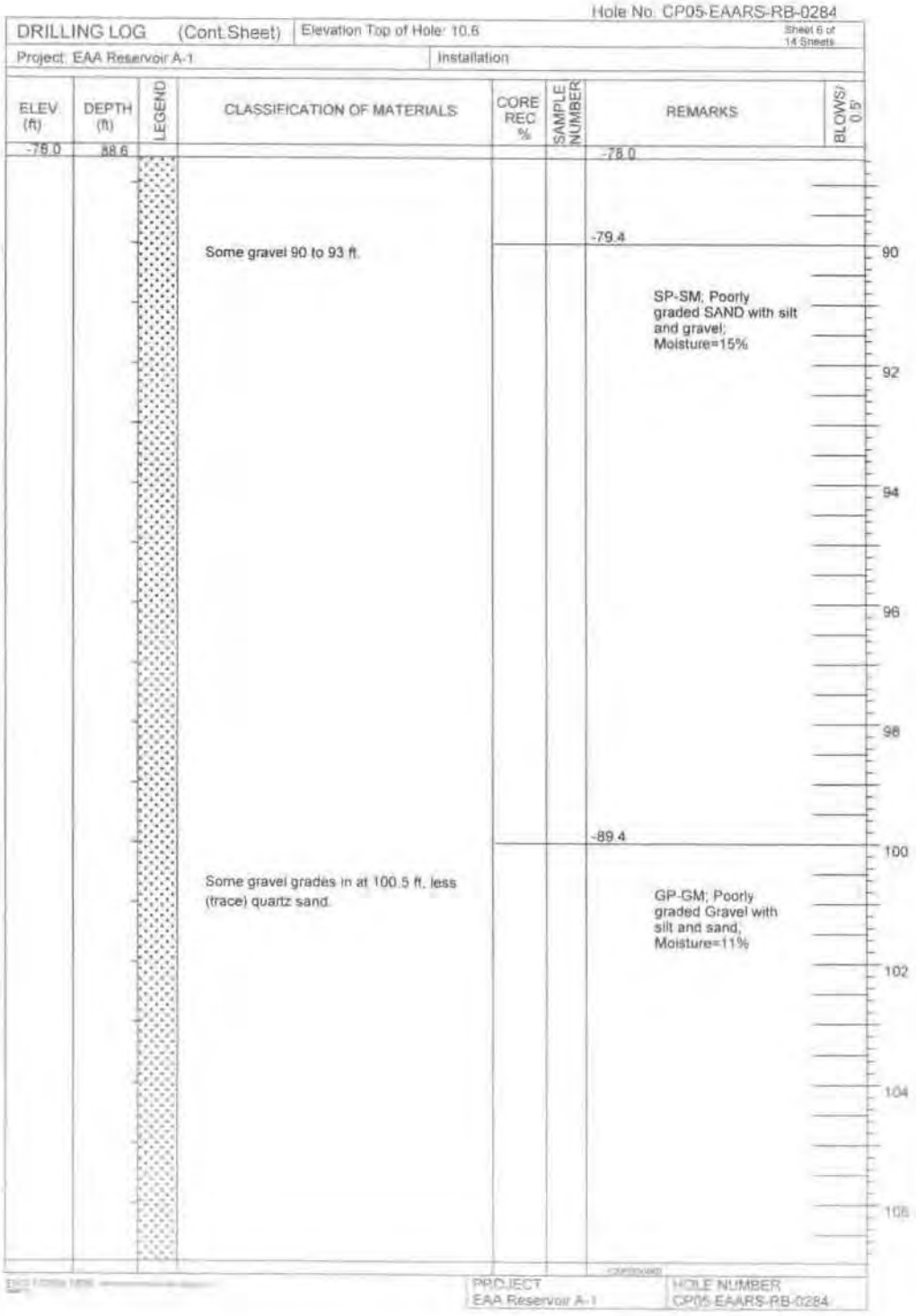
Project: EAA Reservoir A-1 | Installation

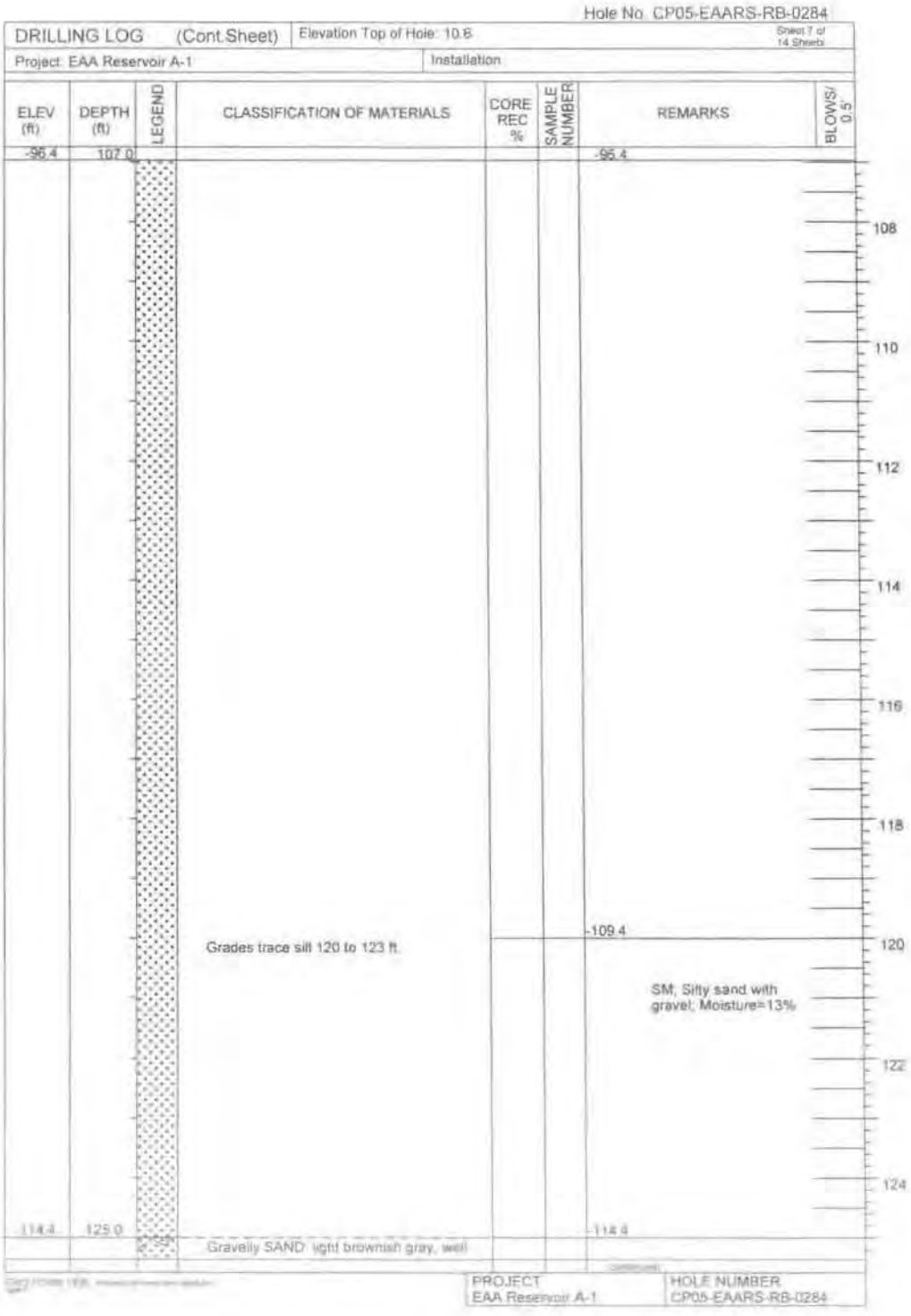
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.6	70.2		SAND (Ochopee Limestone member Tamiami): pale brownish gray, well graded, fine to coarse grained, angular to subrounded, calcitic with some gravel as above. Most coarse sand grains are aggregates of finer sand			-59.6 SP-SM; Poorly graded SAND with silt and sand; Moisture=9%; Most coarse sand grains are also aggregates of finer sands	
			Grades medium gray with some quartz sand and trace gravel.			-64.4 Top Ochopee Limestone Member Tamiami at 70 ft	

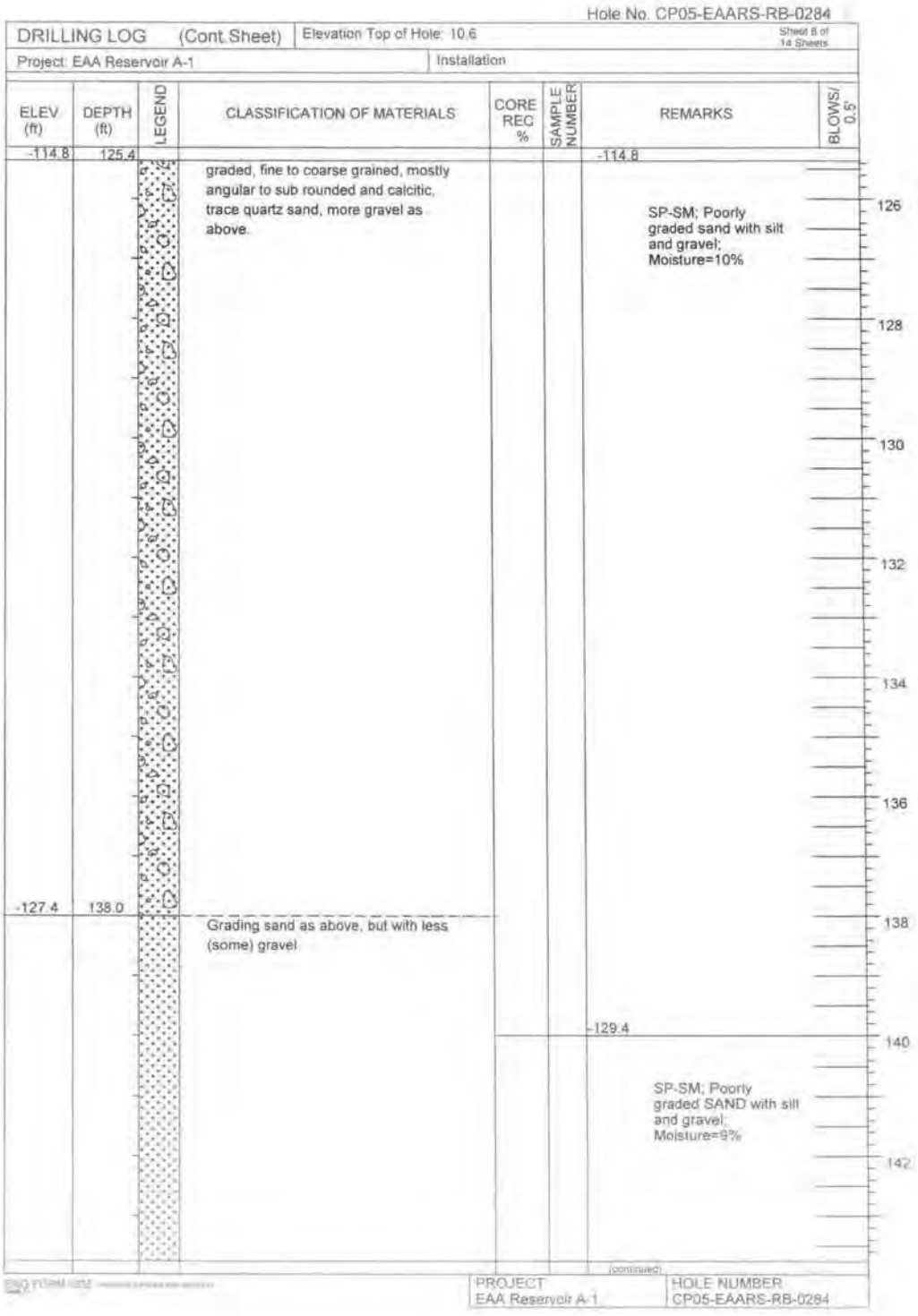
72 74 76 78 80 82 84 86 88

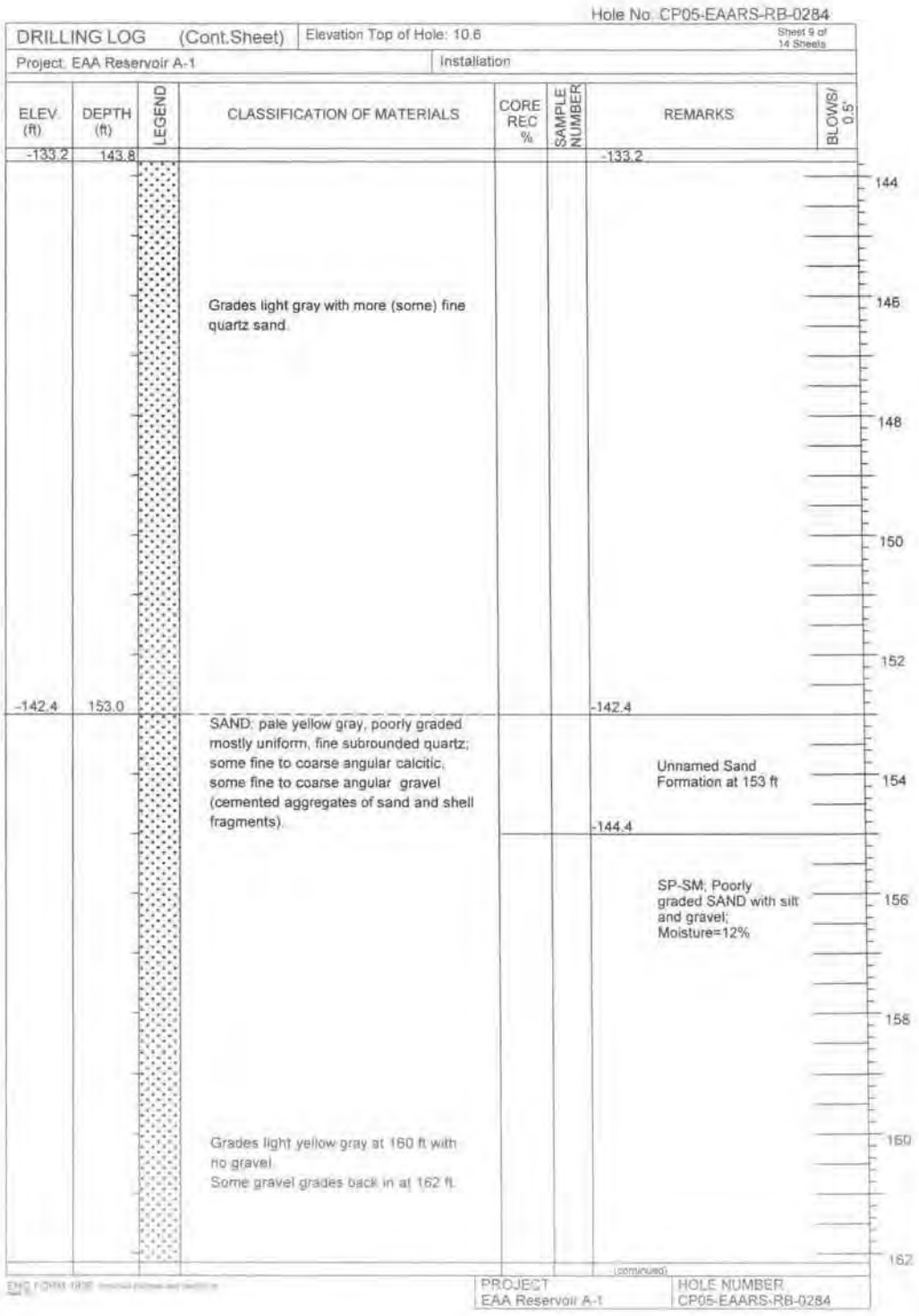
(continued)

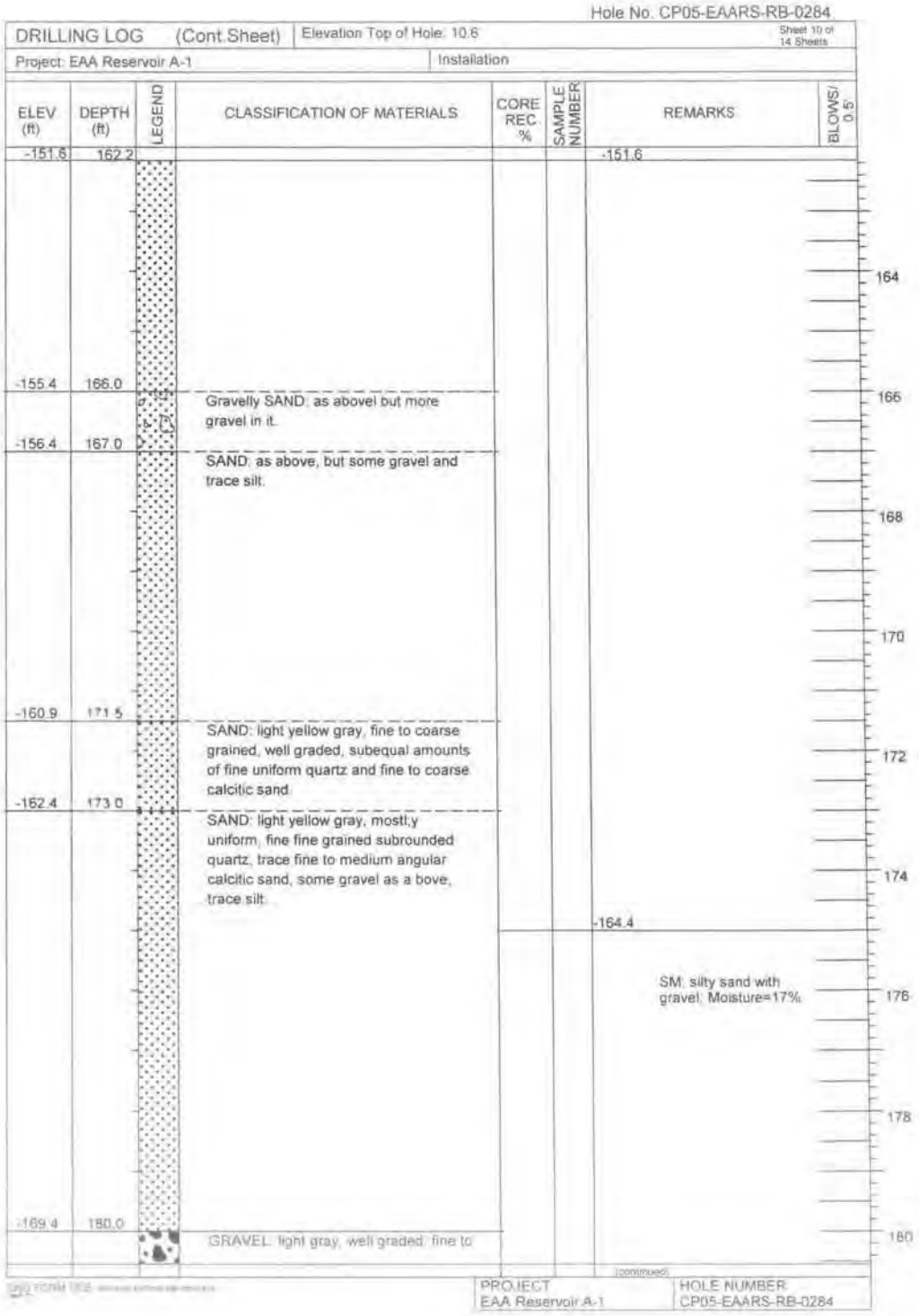
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0284

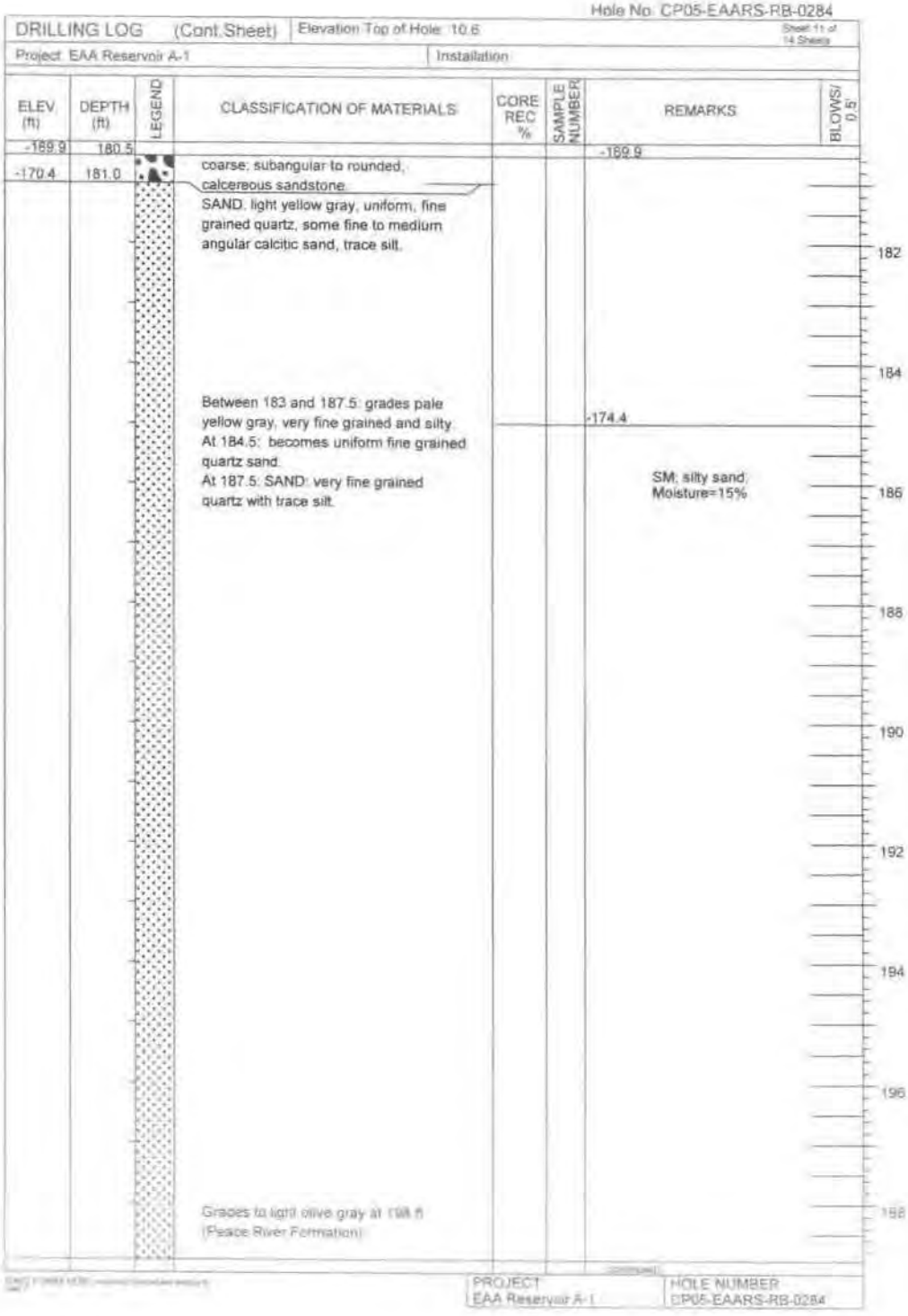

Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.6
Sheet 6 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-78.0
88.6
-79.4
Some gravel 90 to 93 ft.
SP-SM; Poorly graded SAND with silt and gravel; Moisture=15%
-89.4
Some gravel grades in at 100.5 ft, less (trace) quartz sand.
GP-GM; Poorly graded Gravel with silt and sand; Moisture=11%
90
92
94
96
98
100
102
104
106
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284

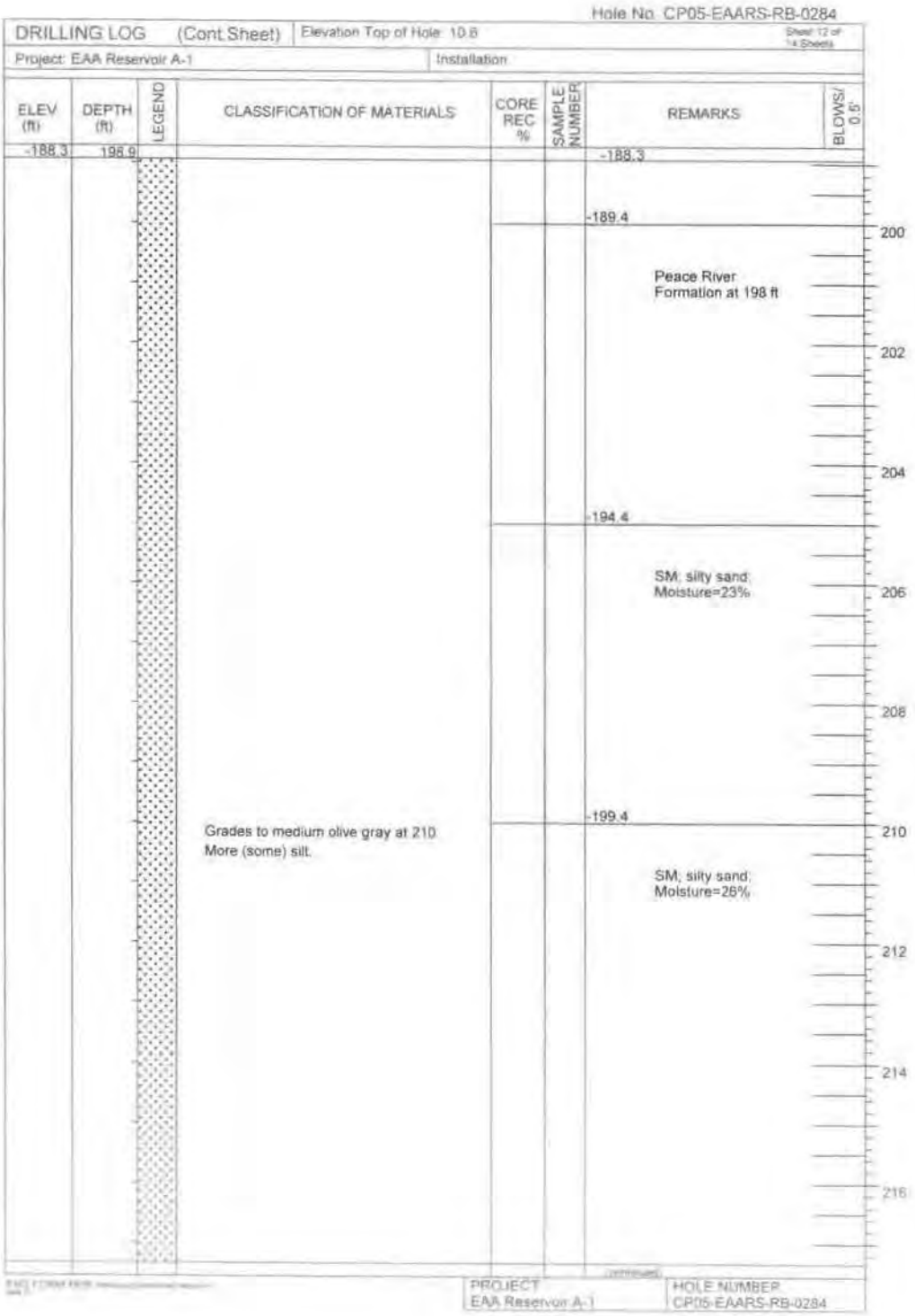

Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 7 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-96.4
107.0
-96.4
108
110
112
114
116
118
-109.4
120
Grades trace silt 120 to 123 ft.
SM; Silty sand with gravel; Moisture=13%
122
124
114.4
125.0
-114.4
Gravelly SAND: light brownish gray, well
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284

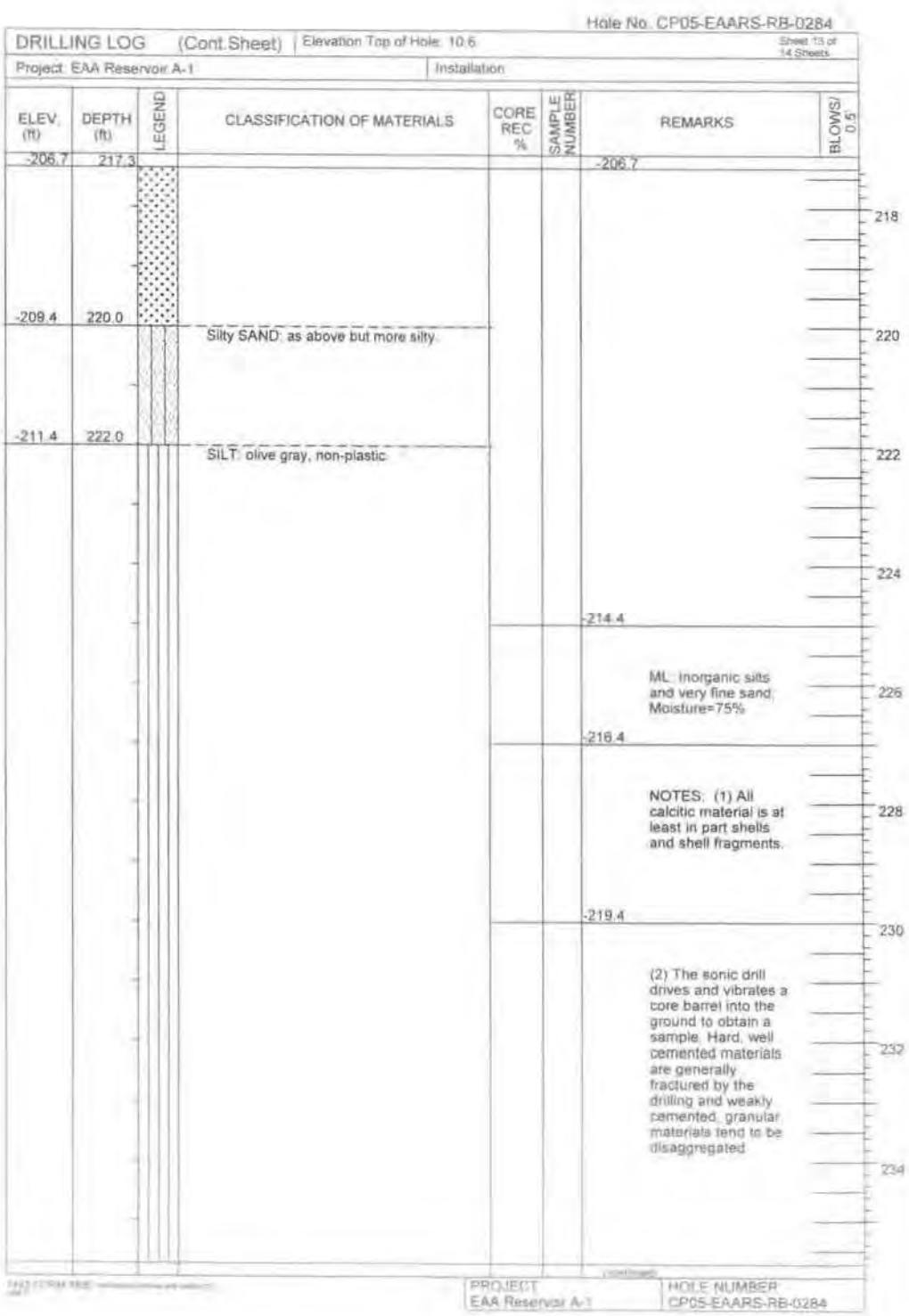

Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 8 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-114.8
125.4
graded, fine to coarse grained, mostly angular to sub rounded and calcitic, trace quartz sand, more gravel as above.
-114.8
SP-SM; Poorly graded sand with silt and gravel; Moisture=10%
126
128
130
132
134
136
-127.4
138.0
Grading sand as above, but with less (some) gravel
138
-129.4
140
SP-SM; Poorly graded SAND with silt and gravel; Moisture=9%
142
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284

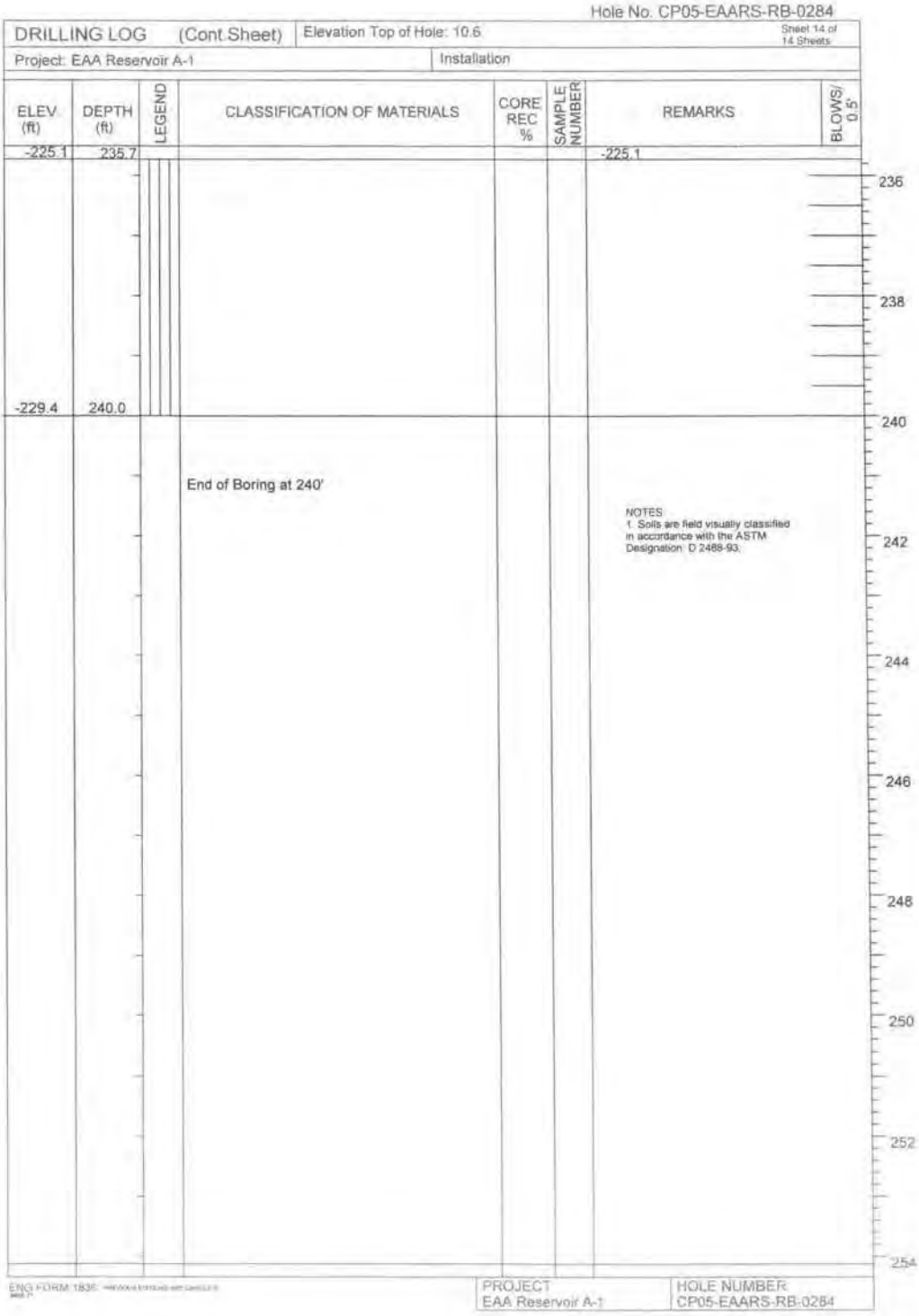

Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 9 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-133.2
143.8
-133.2
Grades light gray with more (some) fine quartz sand.
-142.4
153.0
-142.4
SAND: pale yellow gray, poorly graded mostly uniform, fine subrounded quartz; some fine to coarse angular calcitic, some fine to coarse angular gravel (cemented aggregates of sand and shell fragments).
Unnamed Sand Formation at 153 ft
-144.4
SP-SM; Poorly graded SAND with silt and gravel; Moisture=12%
Grades light yellow gray at 160 ft with no gravel.
Some gravel grades back in at 162 ft.
144
146
148
150
152
154
156
158
160
162
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284


Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 10 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC. %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-151.6
162.2
-155.4
166.0
Gravelly SAND: as abovel but more gravel in it.
-156.4
167.0
SAND: as above, but some gravel and trace silt.
-160.9
171.5
SAND: light yellow gray, fine to coarse grained, well graded, subequal amounts of fine uniform quartz and fine to coarse calcitic sand.
-162.4
173.0
SAND: light yellow gray, mostly uniform, fine fine grained subrounded quartz, trace fine to medium angular calcitic sand, some gravel as a bove, trace silt.
-164.4
SM: silty sand with gravel; Moisture=17%
-169.4
180.0
GRAVEL: light gray, well graded: fine to
164
166
168
170
172
174
176
178
180
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284


Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 11 of 14 Sheets
Project: EAA Reservoir A-1
Installation:
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-169.9
180.5
-170.4
181.0
coarse; subangular to rounded, calcereous sandstone.
SAND: light yellow gray, uniform, fine grained quartz, some fine to medium angular calcitic sand, trace silt.
Between 183 and 187.5: grades pale yellow gray, very fine grained and silty.
At 184.5: becomes uniform fine grained quartz sand.
At 187.5: SAND: very fine grained quartz with trace silt.
-174.4
SM: silty sand; Moisture=15%
Grades to light olive gray at 198 ft
(Peace River Formation)
182
184
186
188
190
192
194
196
198
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284


Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.8
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-188.3
198.9
-188.3
-189.4
Peace River Formation at 198 ft
-194.4
SM; silty sand; Moisture=23%
-199.4
Grades to medium olive gray at 210 More (some) silt.
SM; silty sand; Moisture=26%
200
202
204
206
208
210
212
214
216
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284

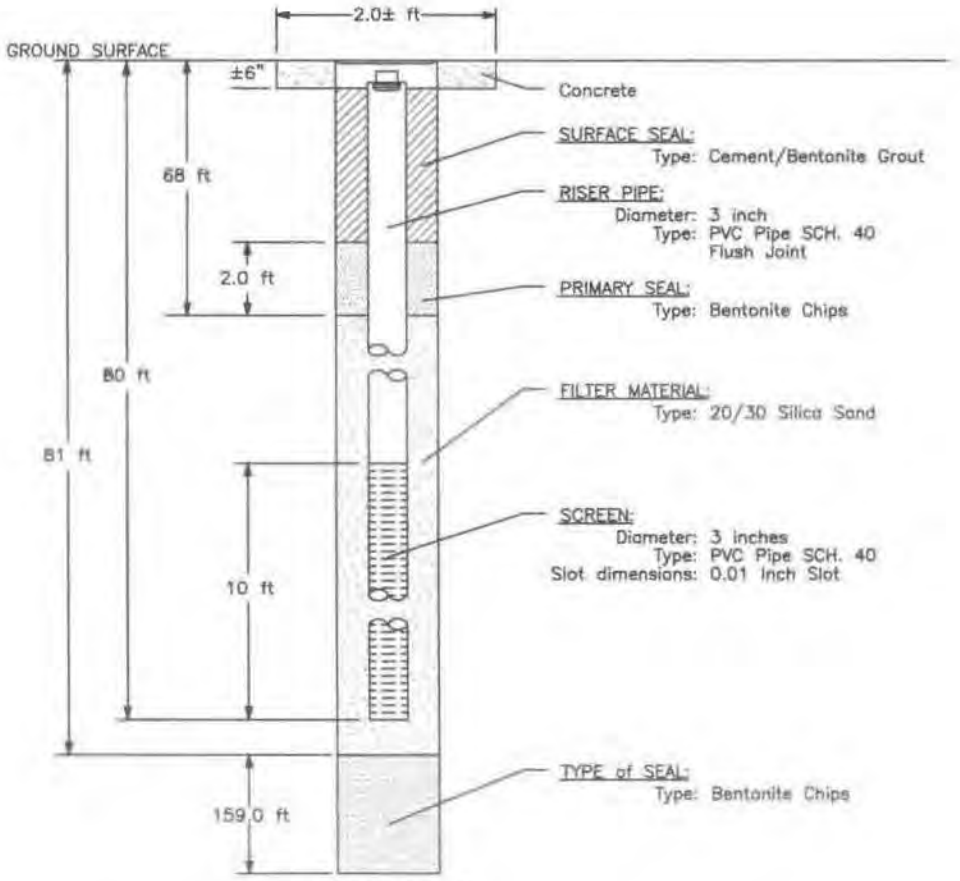

Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 13 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-206.7
217.3
-209.4
220.0
Silty SAND: as above but more silty.
-211.4
222.0
SILT: olive gray, non-plastic
-214.4
ML: inorganic silts and very fine sand; Moisture=75%
-216.4
NOTES: (1) All calcitic material is at least in part shells and shell fragments.
-219.4
(2) The sonic drill drives and vibrates a core barrel into the ground to obtain a sample. Hard, well cemented materials are generally fractured by the drilling and weakly cemented, granular materials tend to be disaggregated.
218
220
222
224
226
228
230
232
234
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284


Hole No. CP05-EAARS-RB-0284
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 10.6
Sheet 14 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-225.1
235.7
-225.1
-229.4
240.0
End of Boring at 240'
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
236
238
240
242
244
246
248
250
252
254
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0284

Hole No. CP05-EAARS-TW-0284

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 764456, E 758050		9. Manufacture's Designation for Drill: SRO-109
3. Drilling Agency: Prosonic		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0284		11. Date Hole: Started 8-11-05 Completed 8-11-05
5. Name of Driller: Fred Kruass		12. Elevation Top of Riser: ±10'
6. Depth of Piezometer: 25 ft		13. Inspector: JP
7. Size and type of bit: 5" bit, Rotary Method		

FLUSH MOUNT



BORING DIAMETER
DAIMETER: 5 in

INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

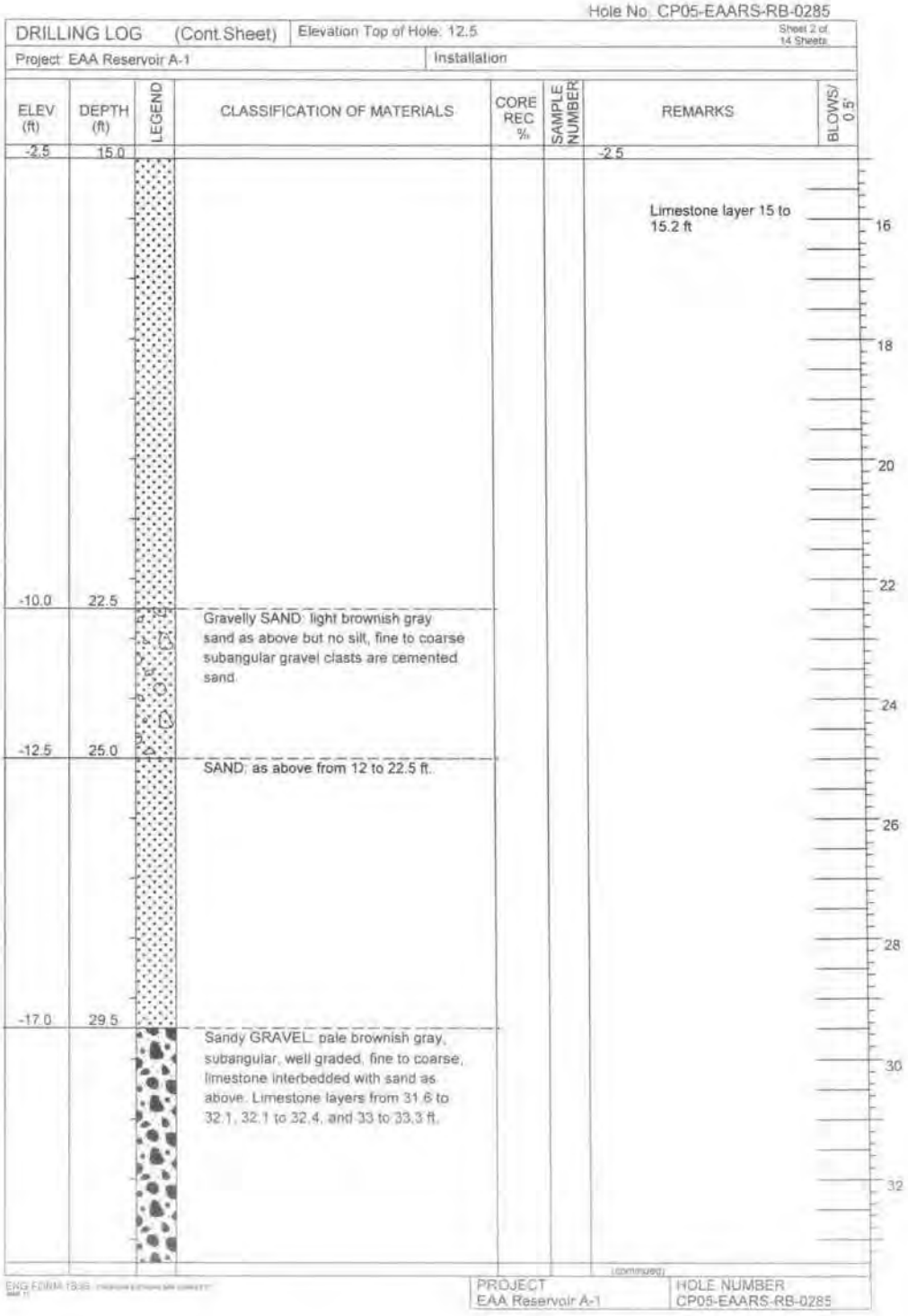
NOTES: Typical 25 foot Piezometer Installation

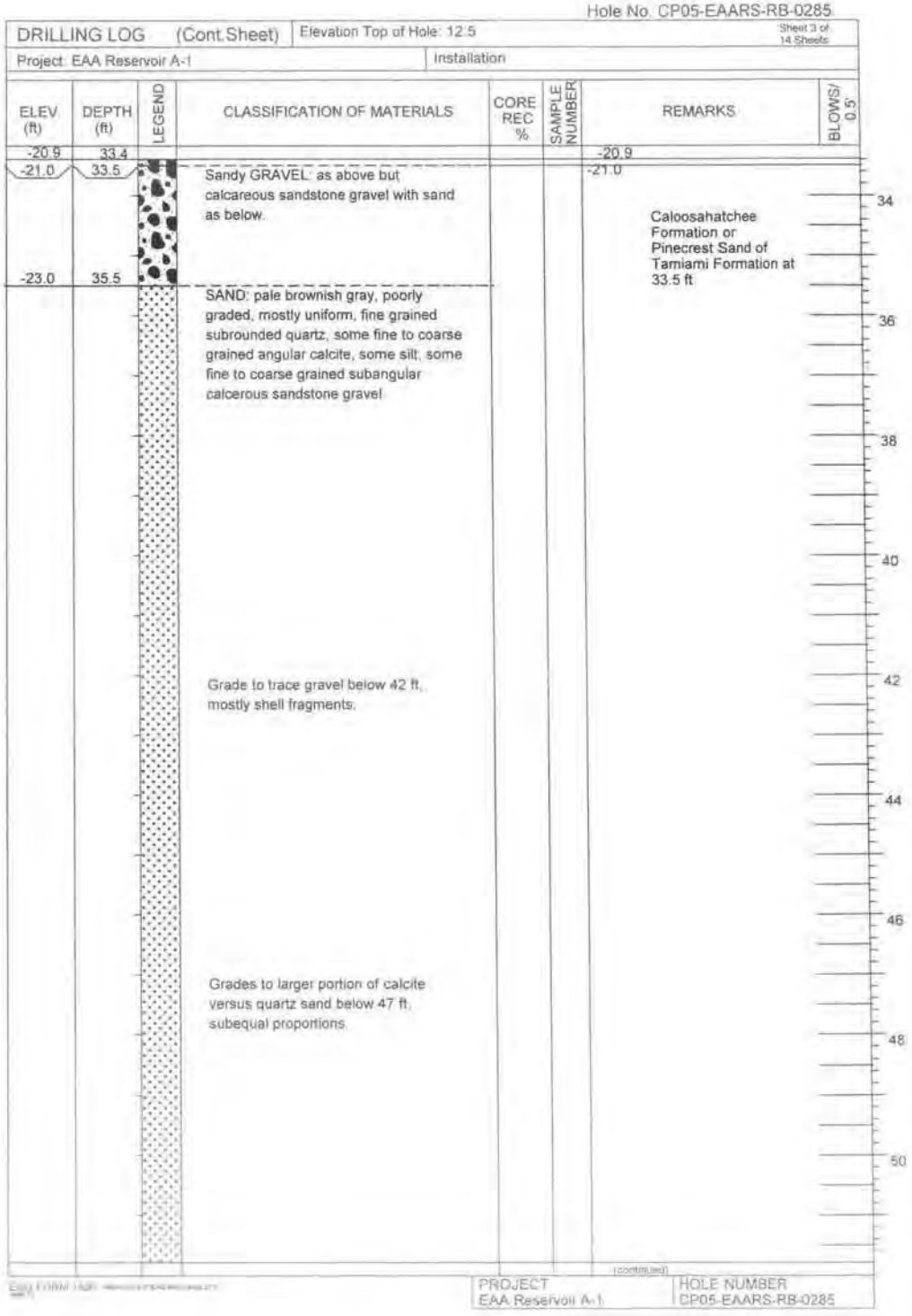
Hole No. CP05-EAARS-RB-0285

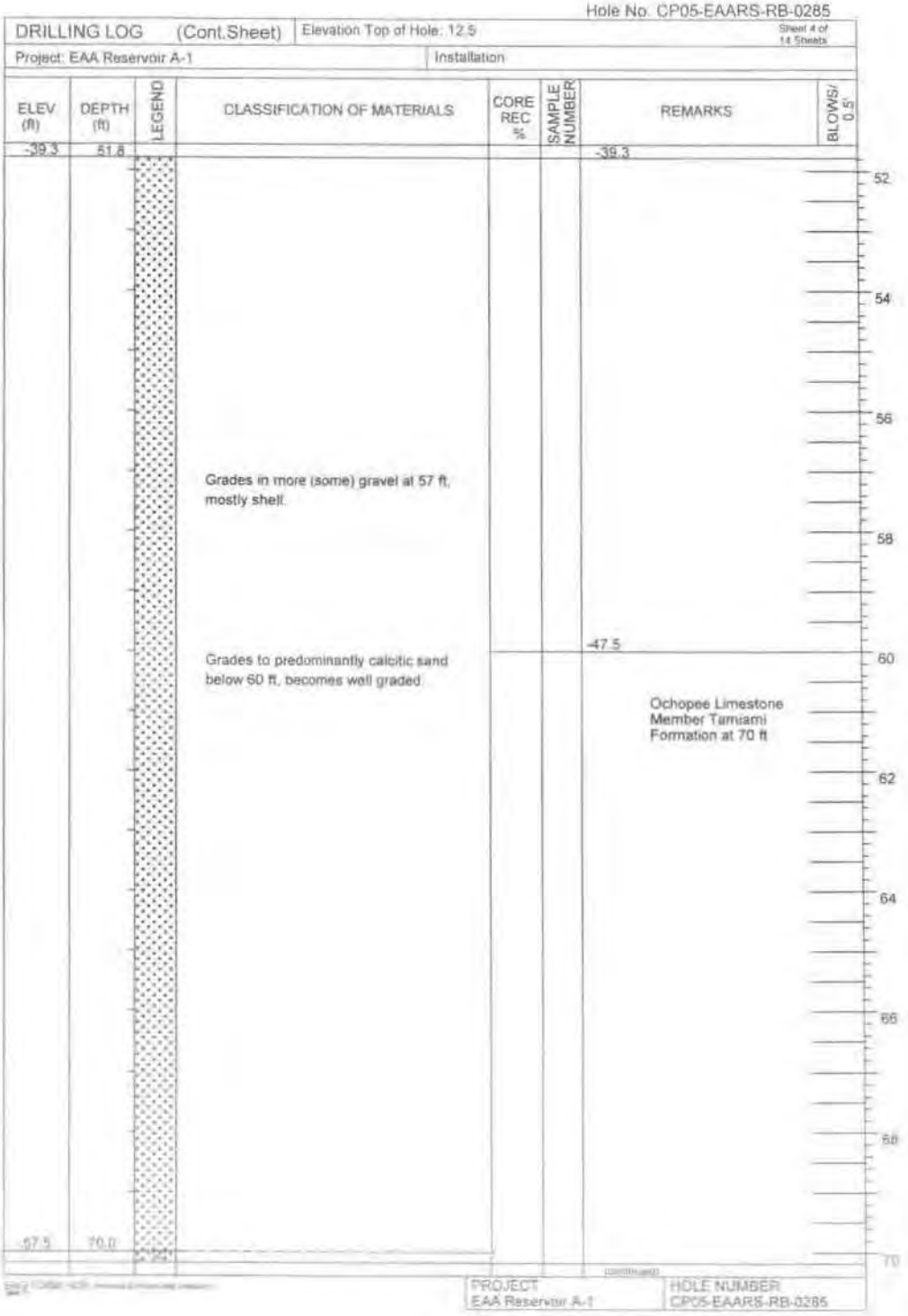
DRILLING LOG	Division:	Installation:	Sheet 1 of 14 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 5 inch	
2. Location: N781917.3, E766194.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse (sub-contracted to Prosonic)		12. Manufacturer's Designation for Drill: SRO-109	
4. Hole No: CP05-EAARS-RB-0285		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Fred Kruas		14. Total Number of Core Boxes: 29	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/26/2005 Completed 7/28/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 12.5 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 250 ft		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.5	0.0						
			ROADFILL (GRAVEL): tan, well graded, fine to coarse, angular, some sand, cobbles and boulders, trace silt.				
9.5	3.0						
			PEAT				
7.5	5.0						
			GRAVEL				
6.5	6.0						
			LIMESTONE (caprock): tan to light brown and gray, thinly bedded, fine to coarse grained, vuggy, strong and hard to porous, soft and weak.				
1.5	11.0						
			Silty SAND: as below but more silt				
0.5	12.0						
			SAND: pale brownish gray, well graded, fine to coarse grained, angular, calcitic, some fine gravel (cemented sand and shells), trace to some silt. Limestone layer from 15' to 15.2'				
						12.5 (continued)	

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 2 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-2.5
15.0
-2.5
Limestone layer 15 to 15.2 ft
-10.0
22.5
Gravelly SAND: light brownish gray sand as above but no silt, fine to coarse subangular gravel clasts are cemented sand.
-12.5
25.0
SAND: as above from 12 to 22.5 ft.
-17.0
29.5
Sandy GRAVEL: pale brownish gray, subangular, well graded, fine to coarse, limestone interbedded with sand as above. Limestone layers from 31.6 to 32.1, 32.1 to 32.4, and 33 to 33.3 ft.
16
18
20
22
24
26
28
30
32
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 3 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-20.9
33.4
-21.0
33.5
Sandy GRAVEL: as above but calcareous sandstone gravel with sand as below.
-20.9
-21.0
Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation at 33.5 ft
-23.0
35.5
SAND: pale brownish gray, poorly graded, mostly uniform, fine grained subrounded quartz, some fine to coarse grained angular calcite, some silt, some fine to coarse grained subangular calcerous sandstone gravel
Grade to trace gravel below 42 ft, mostly shell fragments.
Grades to larger portion of calcite versus quartz sand below 47 ft, subequal proportions.
34
36
38
40
42
44
46
48
50
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 4 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-39.3
51.8
-39.3
Grades in more (some) gravel at 57 ft, mostly shell.
-47.5
Grades to predominantly calcitic sand below 60 ft, becomes well graded
Ochopee Limestone Member Tamiami Formation at 70 ft
-57.5
70.0
52
54
56
58
60
62
64
66
68
70
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285

Hole No. CP05-EAARS-RB-0285

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 12.5 | Sheet 5 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-57.7	70.2					-57.7	
			Gravelly SAND (Ochopee Limestone member, Tamiami Formation); pale brownish gray, well graded, fine to coarse grained, angular, calcitic sand with a trace fine quartz sand, some silt. Gravel (fine to coarse) consists of shell and porous cemented angular frameworks of shell and sand.				
-67.5	80.0		SAND: as above but grades light brownish gray, no silt and only trace fine gravel shells.			-67.5 At 80 ft grades light brownish grey; gravel clasts; loose porosity	
-69.5	82.0		Gravelly SAND: as above but gravel grades back in. Gravel clasts lose porosity.				
-71.0	83.5		SAND: as above with less (some) gravel. Grades fine to medium grained with proportion of quartz sand increasing and predominating below 85 ft.				
-75.5	88.0		Sandy GRAVEL: pale brownish gray, well graded, fine to coarse grained.				

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0285

72 74 76 78 80 82 84 86 88

Hole No. CP05-EAARS-RB-0285

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.5 | Sheet 6 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

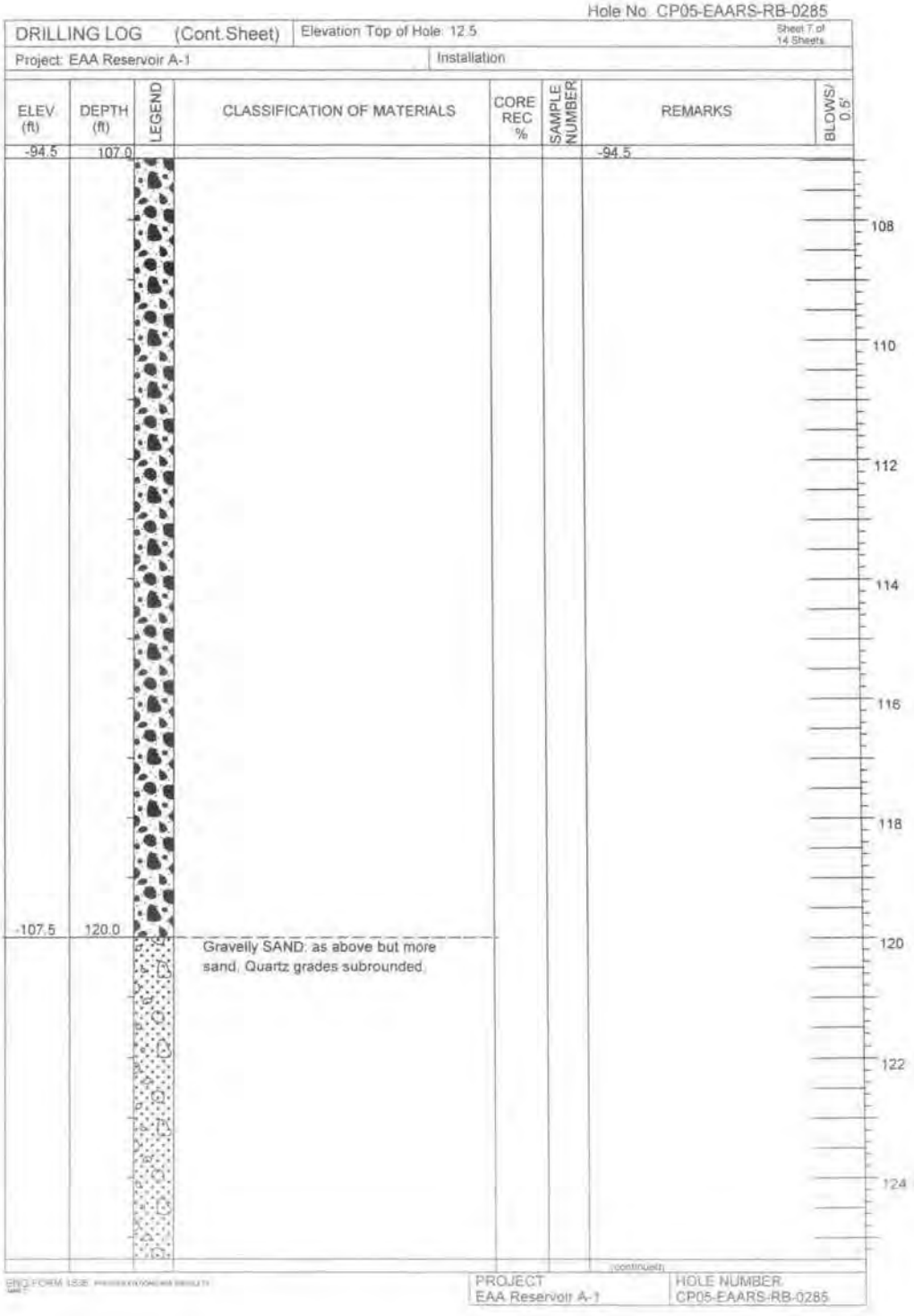
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-76.1	88.6					-76.1	
			angular and tabular, cemented aggregates of sand, shell and shell fragments subequal amonts of quartz and calcitic sand, trace silt.				
			Below 90 ft, fine quartz predominates in the sand fraction.				

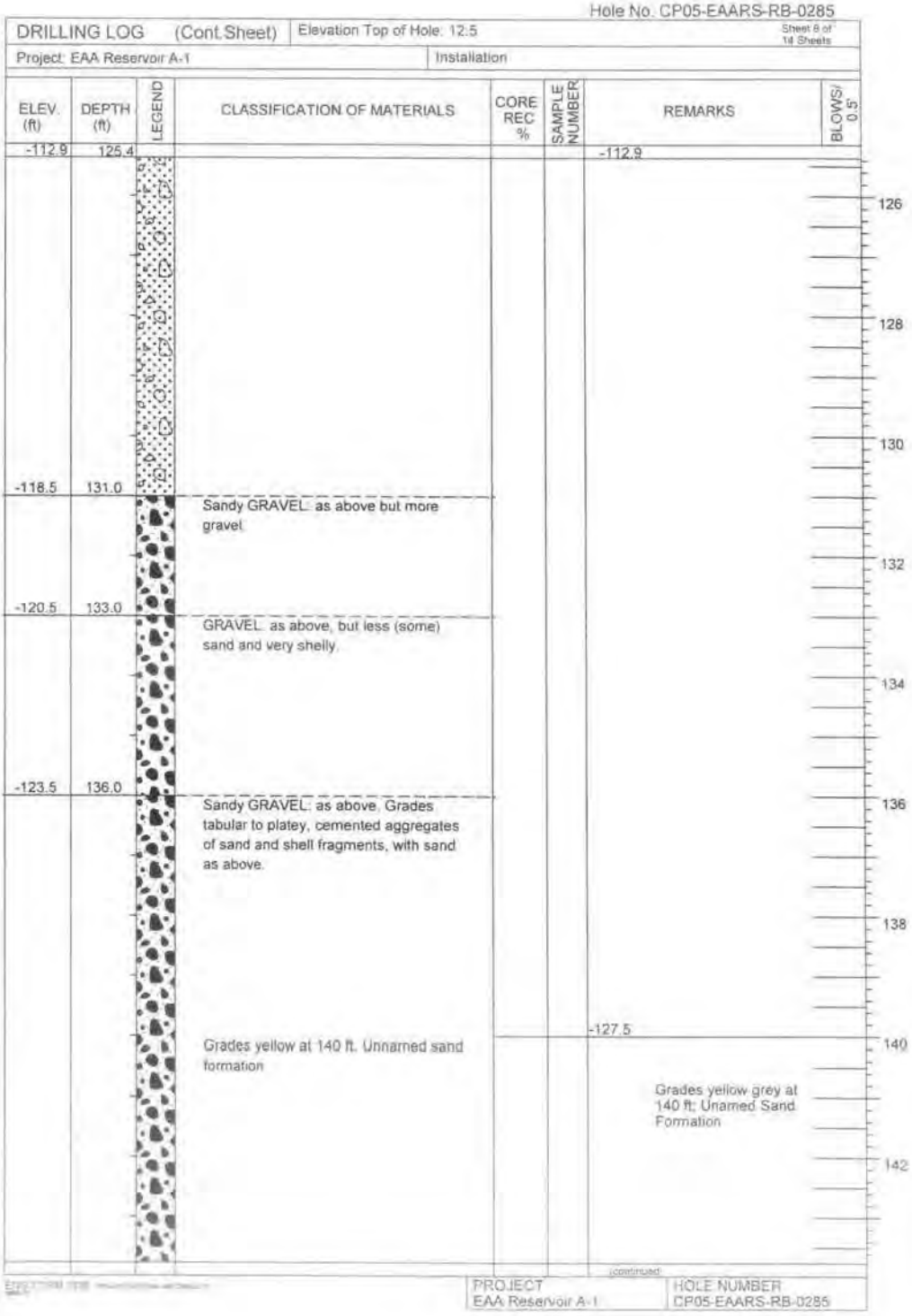
90 92 94 96 98 100 102 104 106

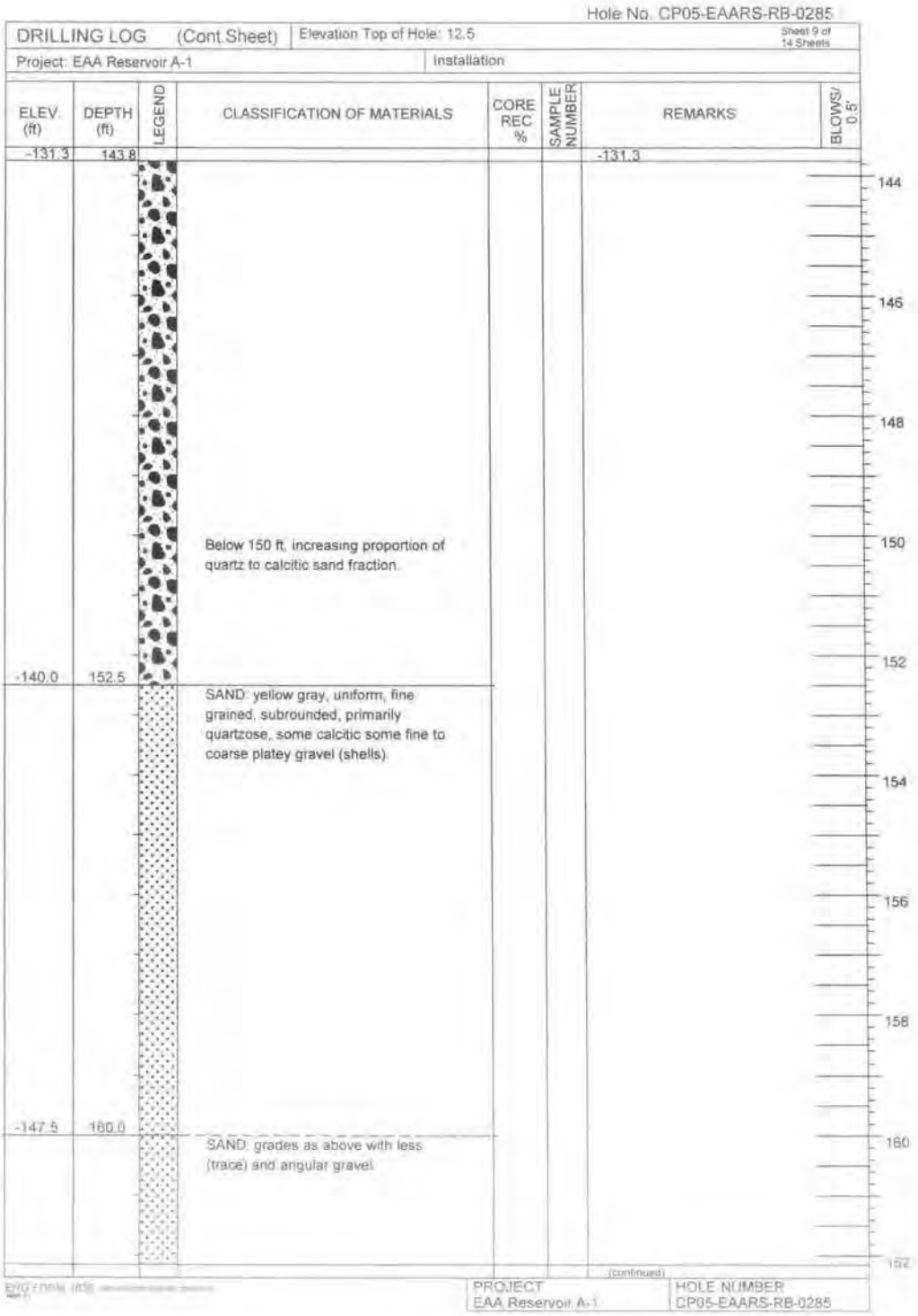
(continued)

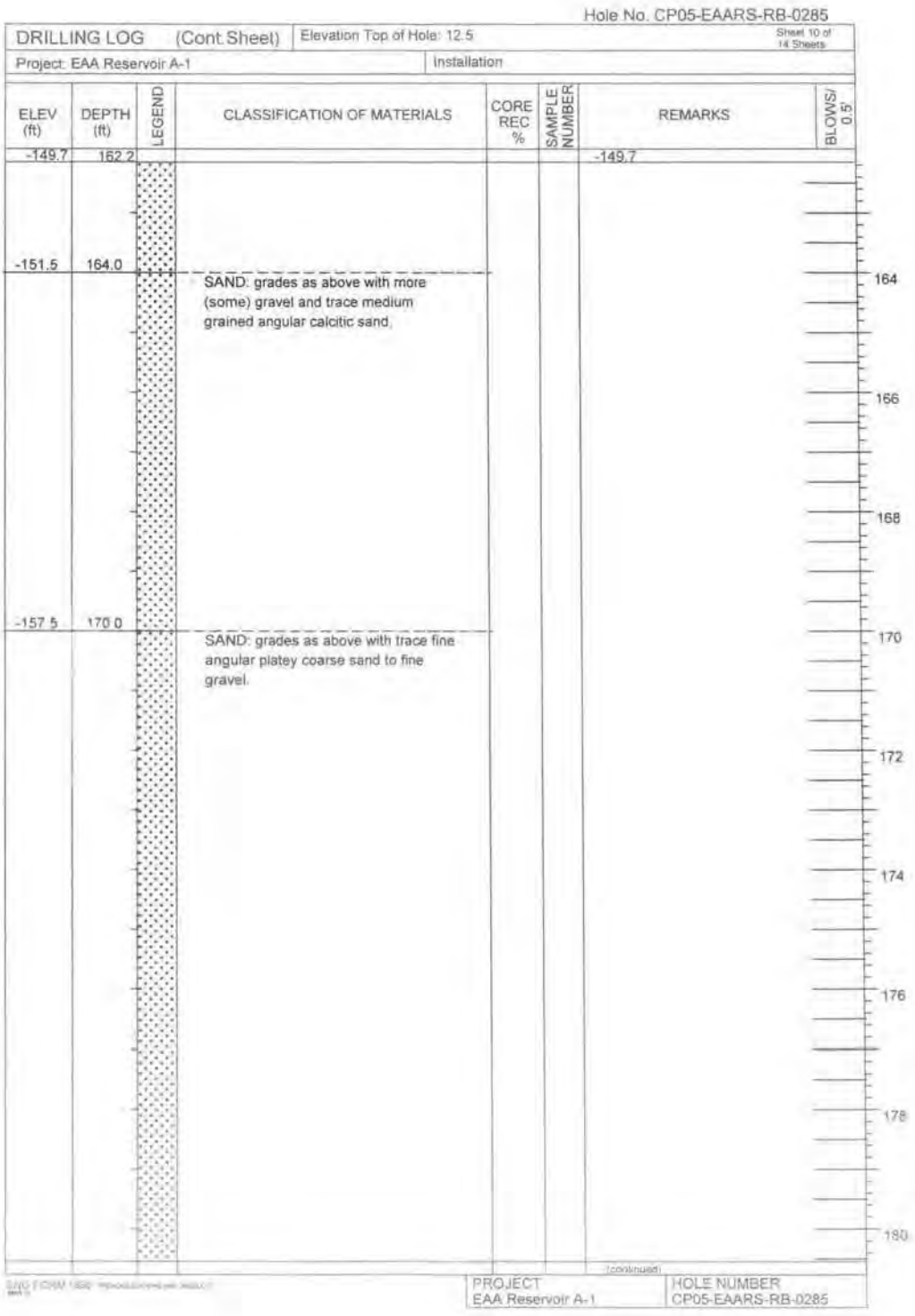
FORM 193

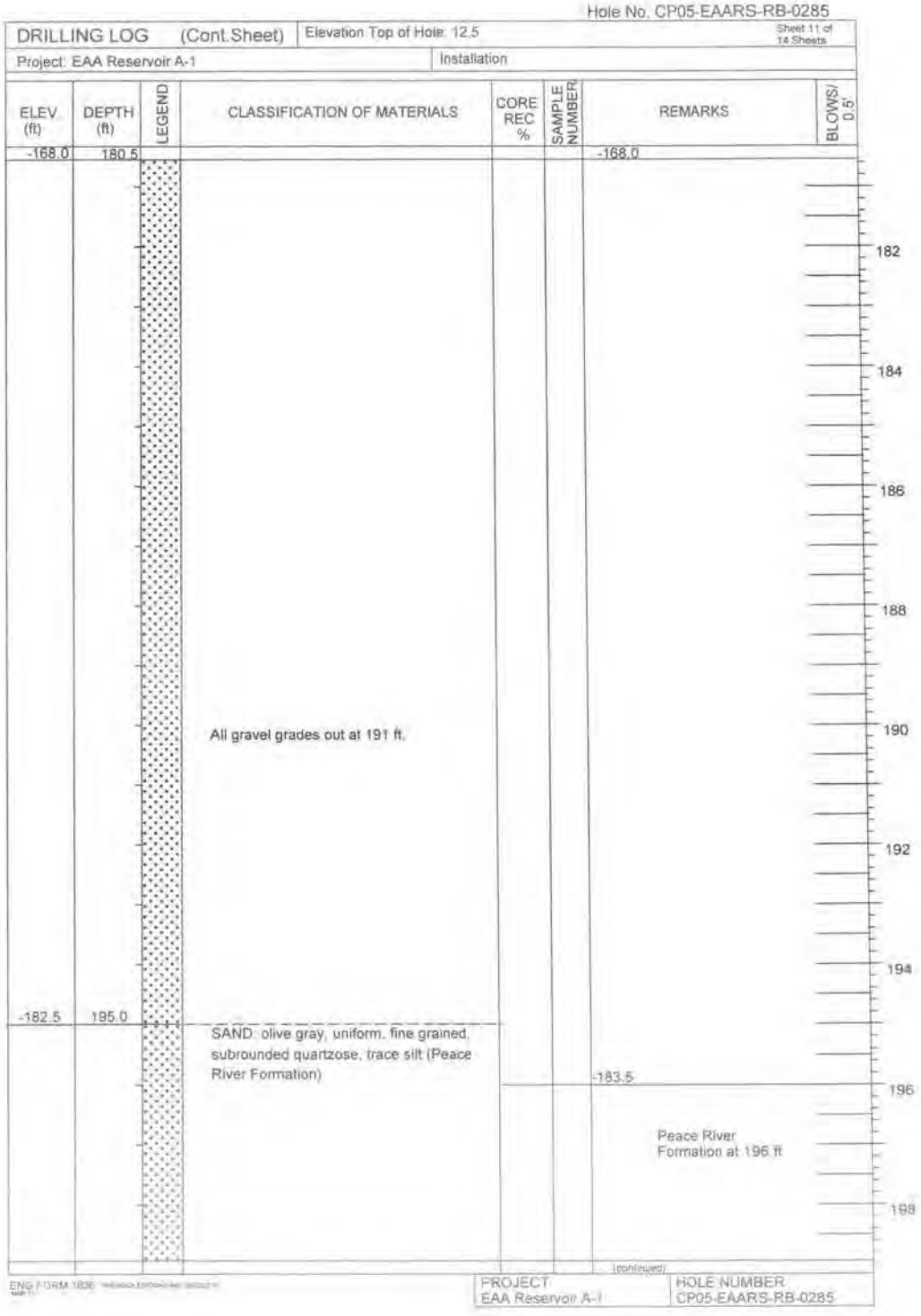
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0285

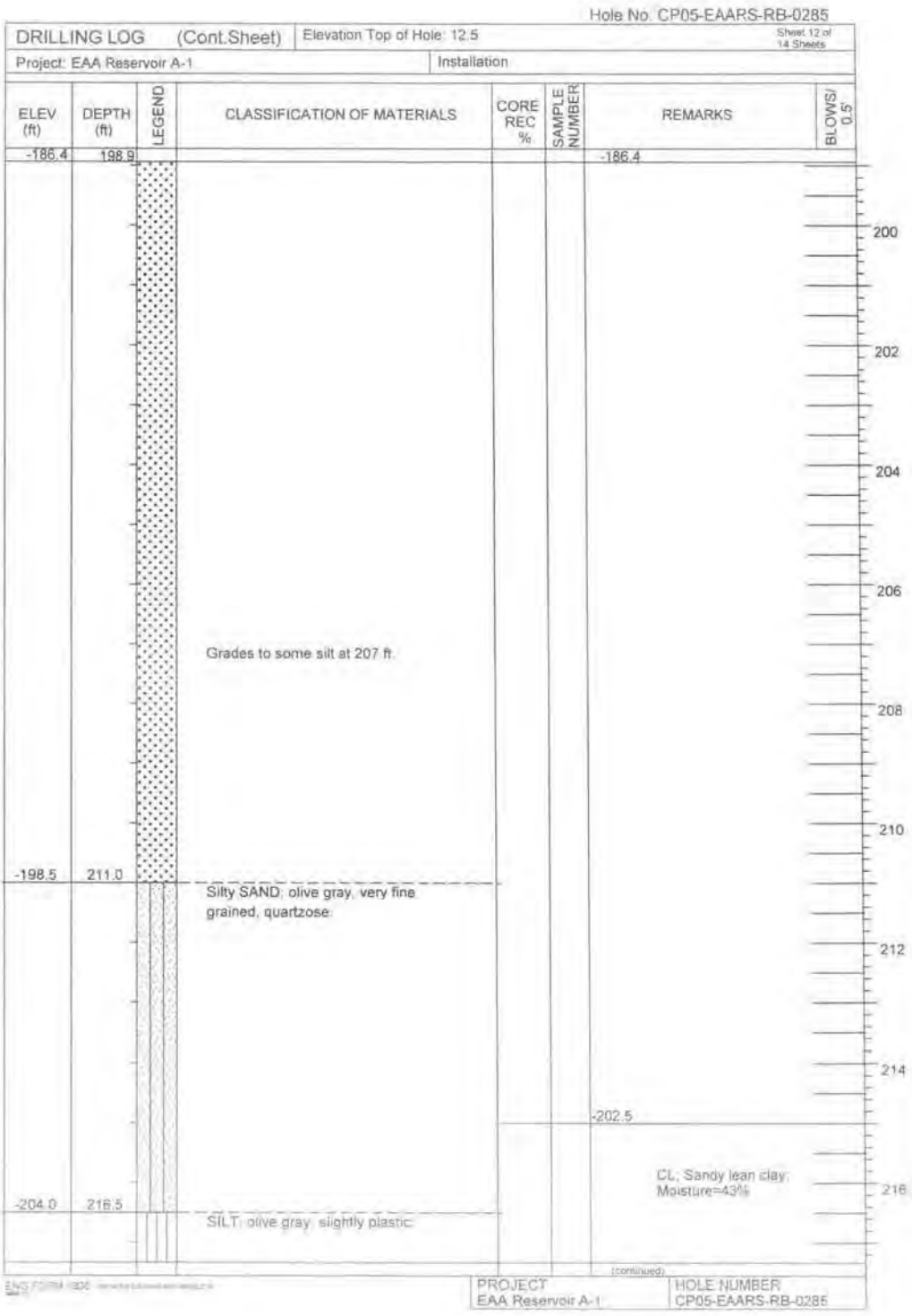

Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 7 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-94.5
107.0
-94.5
-107.5
120.0
Gravelly SAND: as above but more sand. Quartz grades subrounded.
108
110
112
114
116
118
120
122
124
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285

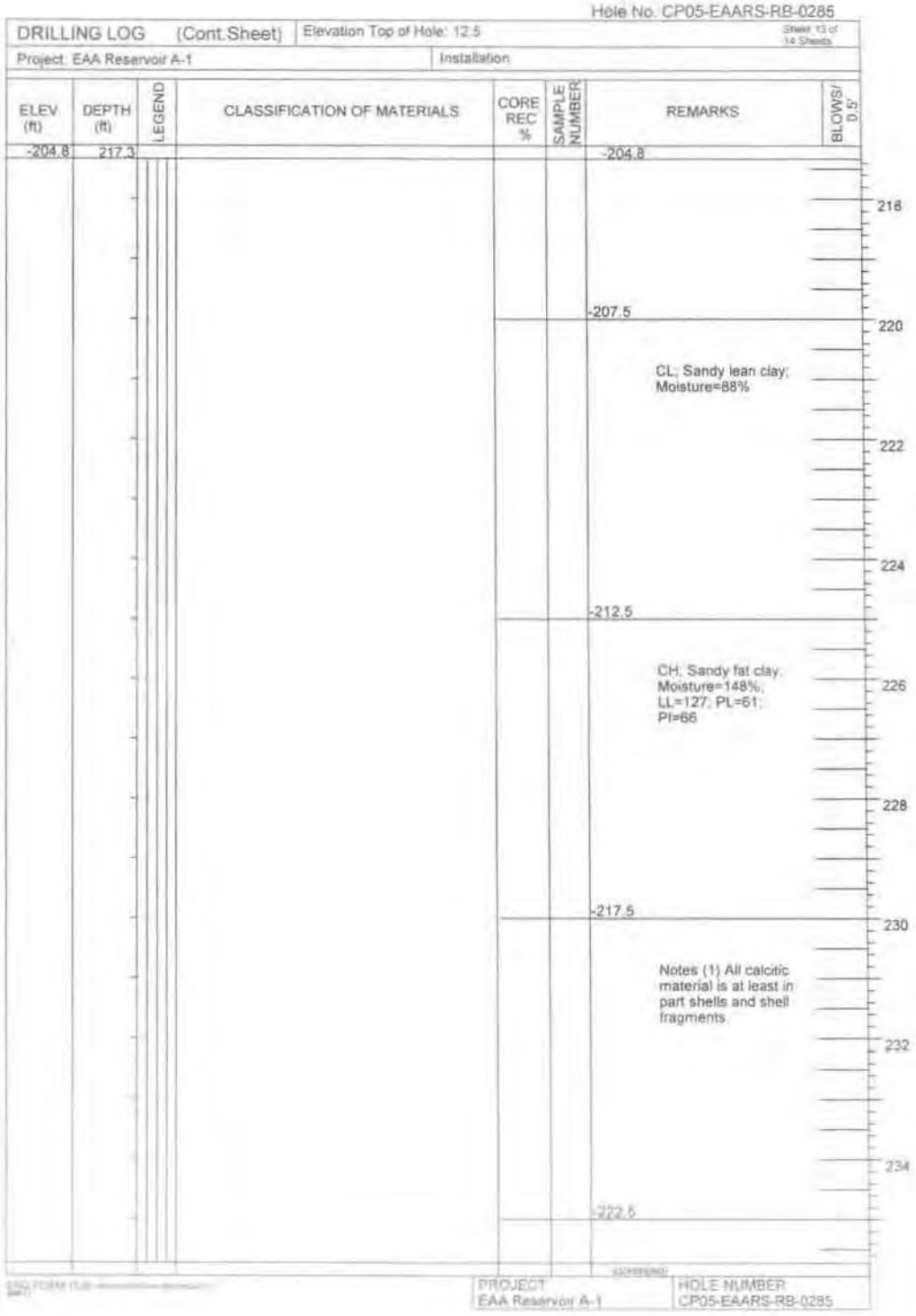

Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 8 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-112.9
125.4
-112.9
126
128
130
-118.5
131.0
Sandy GRAVEL: as above but more gravel
132
-120.5
133.0
GRAVEL: as above, but less (some) sand and very shelly.
134
-123.5
136.0
Sandy GRAVEL: as above. Grades tabular to platey, cemented aggregates of sand and shell fragments, with sand as above.
136
138
-127.5
Grades yellow at 140 ft. Unnamed sand formation
140
Grades yellow grey at 140 ft; Unamed Sand Formation
142
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 9 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-131.3
143.8
-131.3
Below 150 ft, increasing proportion of quartz to calcitic sand fraction.
-140.0
152.5
SAND: yellow gray, uniform, fine grained, subrounded, primarily quartzose, some calcitic some fine to coarse platey gravel (shells).
-147.5
160.0
SAND: grades as above with less (trace) and angular gravel.
144
146
148
150
152
154
156
158
160
162
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 12.5
Sheet 10 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-149.7
162.2
-149.7
-151.5
164.0
SAND: grades as above with more (some) gravel and trace medium grained angular calcitic sand.
-157.5
170.0
SAND: grades as above with trace fine angular platey coarse sand to fine gravel.
164
166
168
170
172
174
176
178
180
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 11 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-168.0
180.5
-168.0
All gravel grades out at 191 ft.
-182.5
195.0
SAND: olive gray, uniform, fine grained, subrounded quartzose, trace silt (Peace River Formation)
-183.5
Peace River Formation at 196 ft
182
184
186
188
190
192
194
196
198
(continued)
ENG FORM 1836
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 12 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-186.4
198.9
-186.4
Grades to some silt at 207 ft.
-198.5
211.0
Silty SAND; olive gray, very fine grained, quartzose
-202.5
CL; Sandy lean clay; Moisture=43%
-204.0
216.5
SILT; olive gray, slightly plastic
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285
200
202
204
206
208
210
212
214
216


Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 12.5
Sheet 13 of 14 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-204.8
217.3
-204.8
-207.5
CL; Sandy lean clay; Moisture=88%
-212.5
CH; Sandy fat clay; Moisture=148%; LL=127; PL=61; PI=66
-217.5
Notes (1) All calcitic material is at least in part shells and shell fragments.
-222.5
218
220
222
224
226
228
230
232
234
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285

Hole No. CP05-EAARS-RB-0285

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.5 | Sheet 14 of 14 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-223.2	235.7					-223.2	
						(2) The sonic drill drives and vibrates a core barrel into the ground to obtain a sample. Hard, well cemented materials are generally fractured by the drilling and weakly cemented, granular materials tend to be disaggregated	
-237.5	250.0		End of Boring at 250'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93	

236 238 240 242 244 246 248 250 252 254

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0285

Hole No. CP05-EAARS-RB-0286

DRILLING LOG	Division:	Installation:	Sheet 1 of 13 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 5 inch	
2. Location: N764302, E768597.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse (sub-contracted to Prosonic)		12. Manufacturer's Designation for Drill: SRO-109	
4. Hole No: CP05-EAARS-RB-0286		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Fred Kruas		14. Total Number of Core Boxes: 21	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/1/2005 Completed 8/8/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.1 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 220 ft		19. Inspector: N. Holst	

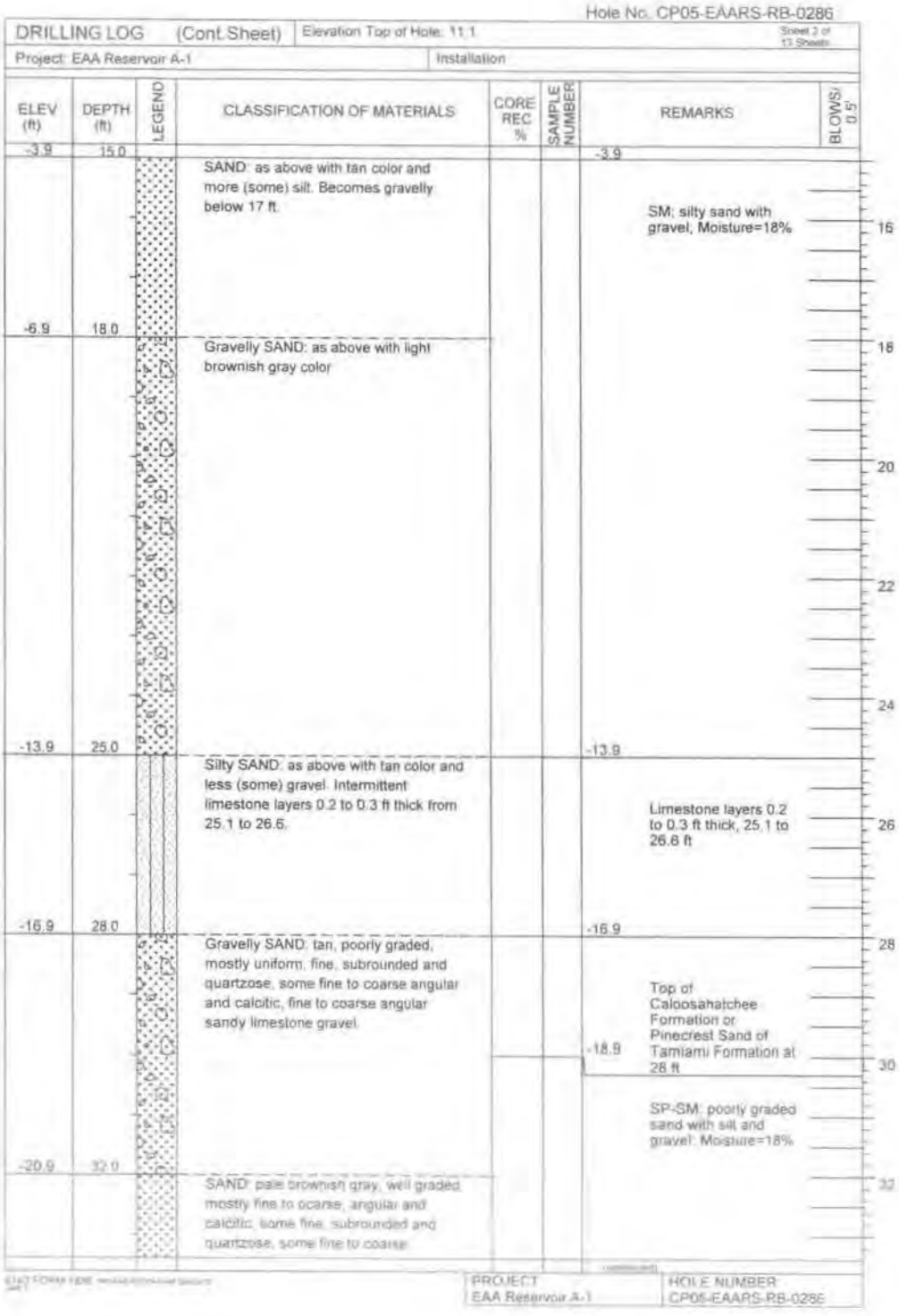
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.1	0.0		SAND (Road Fill): pale brownish gray, well graded, fine to coarse grained, angular, calcitic, some fine to coarse gravel, few cobbles.				
8.1	3.0		SAND: as above with dark gray color and organic contents (Peat)				
7.3	3.8		SAND: as above from 0 to 3 ft.			6.1	
						SM; silty sand with gravel; Moisture=14%	
1.1	10.0		Sample missing (placed in bucket for Proctor testing)				
-2.4	13.5		SAND: pale brownish gray, well graded, fine to coarse, angular, calcitic, with trace silt.				
-3.9	15.0					-3.9	

(continued)

ENG FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-RB-0286

490



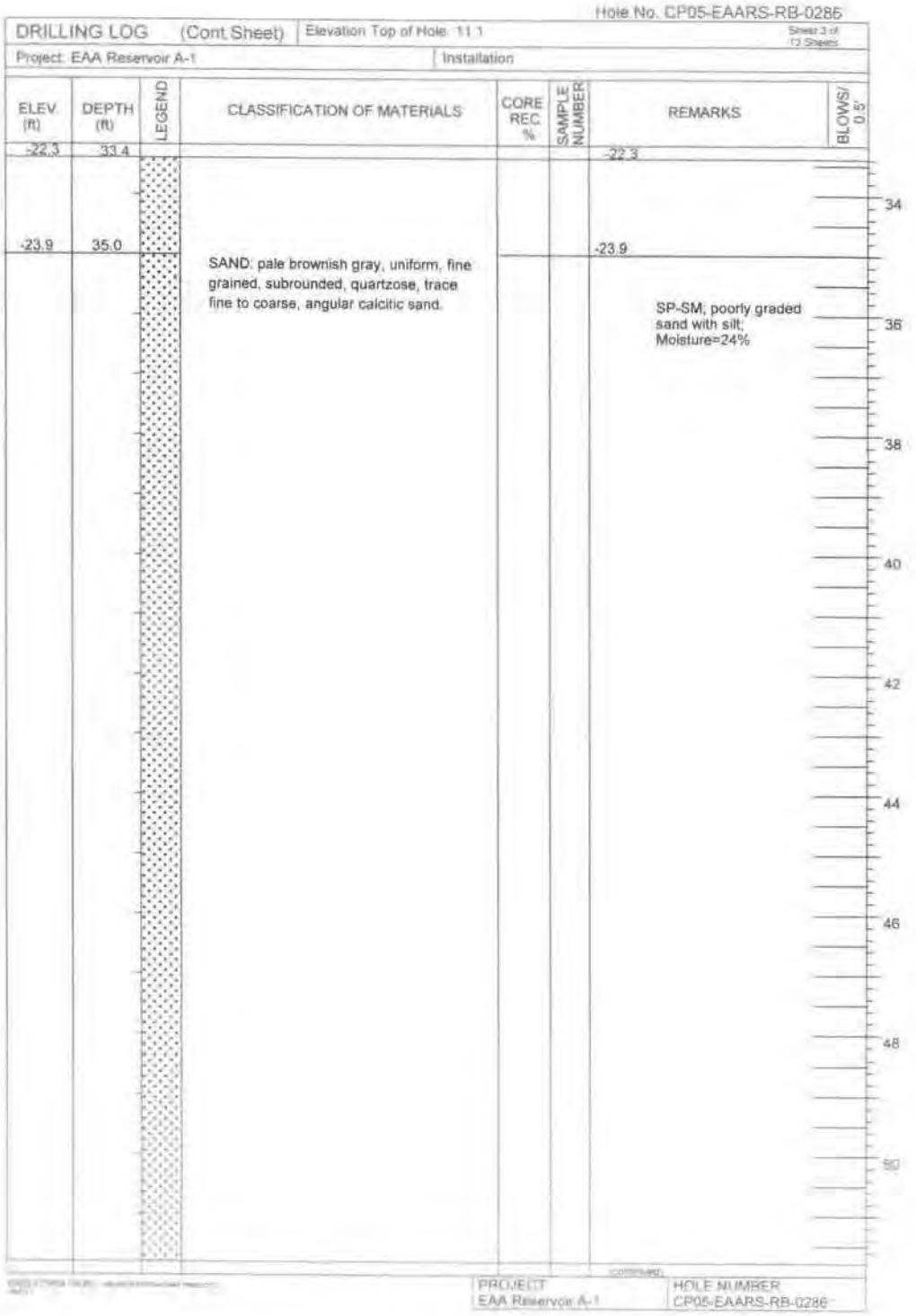
Hole No. CP05-EAARS-RB-0286

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.1 | Sheet 2 of 13 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.9	15.0		SAND: as above with tan color and more (some) silt. Becomes gravelly below 17 ft.			-3.9 SM: silty sand with gravel; Moisture=18%	16
-6.9	18.0		Gravelly SAND: as above with light brownish gray color				18
							20
							22
							24
-13.9	25.0		Silty SAND: as above with tan color and less (some) gravel. Intermittent limestone layers 0.2 to 0.3 ft thick from 25.1 to 26.6.			-13.9 Limestone layers 0.2 to 0.3 ft thick, 25.1 to 26.6 ft	26
-16.9	28.0		Gravelly SAND: tan, poorly graded, mostly uniform, fine, subrounded and quartzose, some fine to coarse angular and calcitic, fine to coarse angular sandy limestone gravel.			-16.9 Top of Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation at 28 ft -18.9	28 30
-20.9	32.0		SAND: pale brownish gray, well graded, mostly fine to coarse, angular and calcitic, some fine, subrounded and quartzose, some fine to coarse			SP-SM: poorly graded sand with silt and gravel; Moisture=18%	32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0286



Hole No. CP05-EAARS-RB-0286

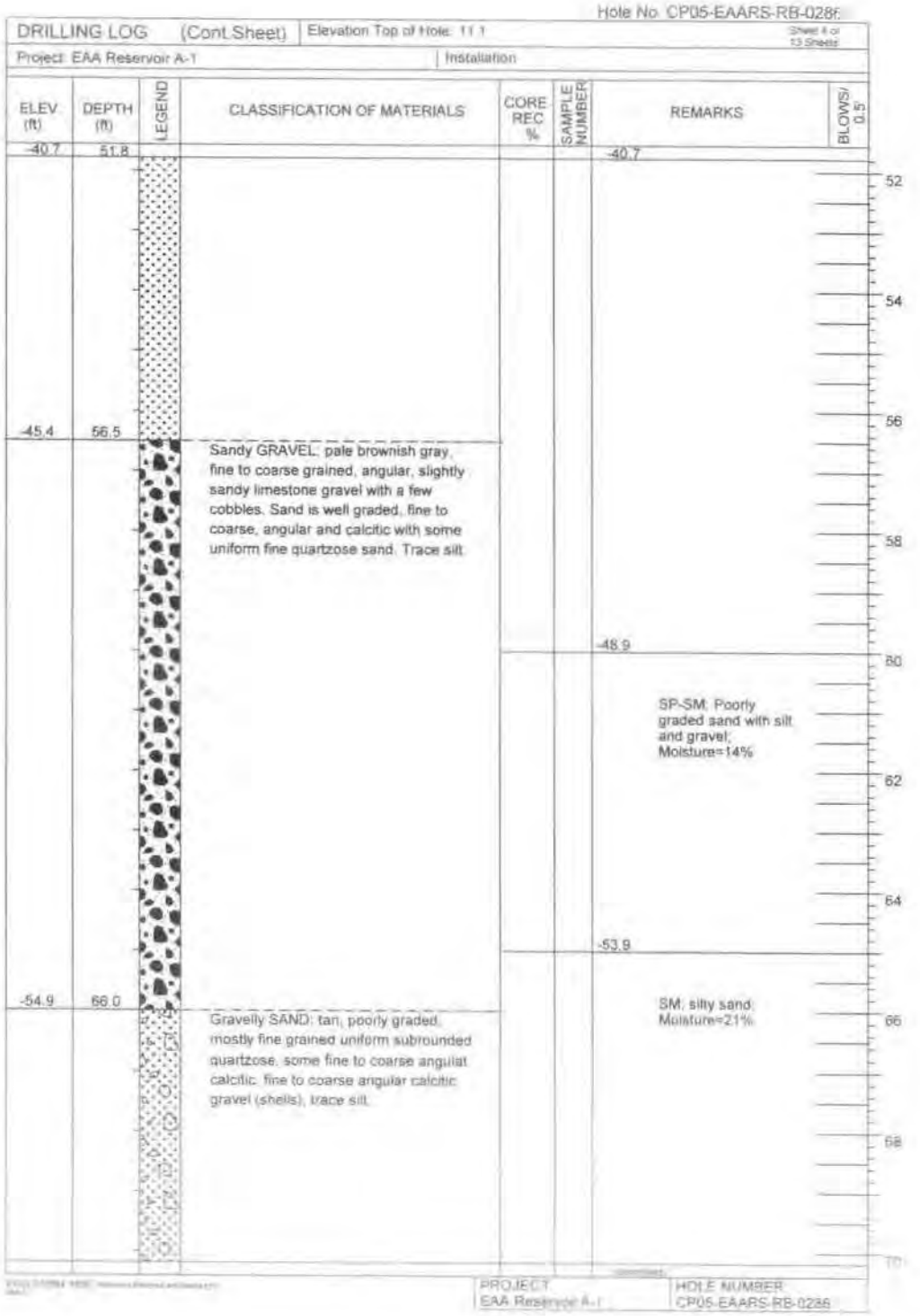
DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 111 | Sheet 3 of 13 Sheets

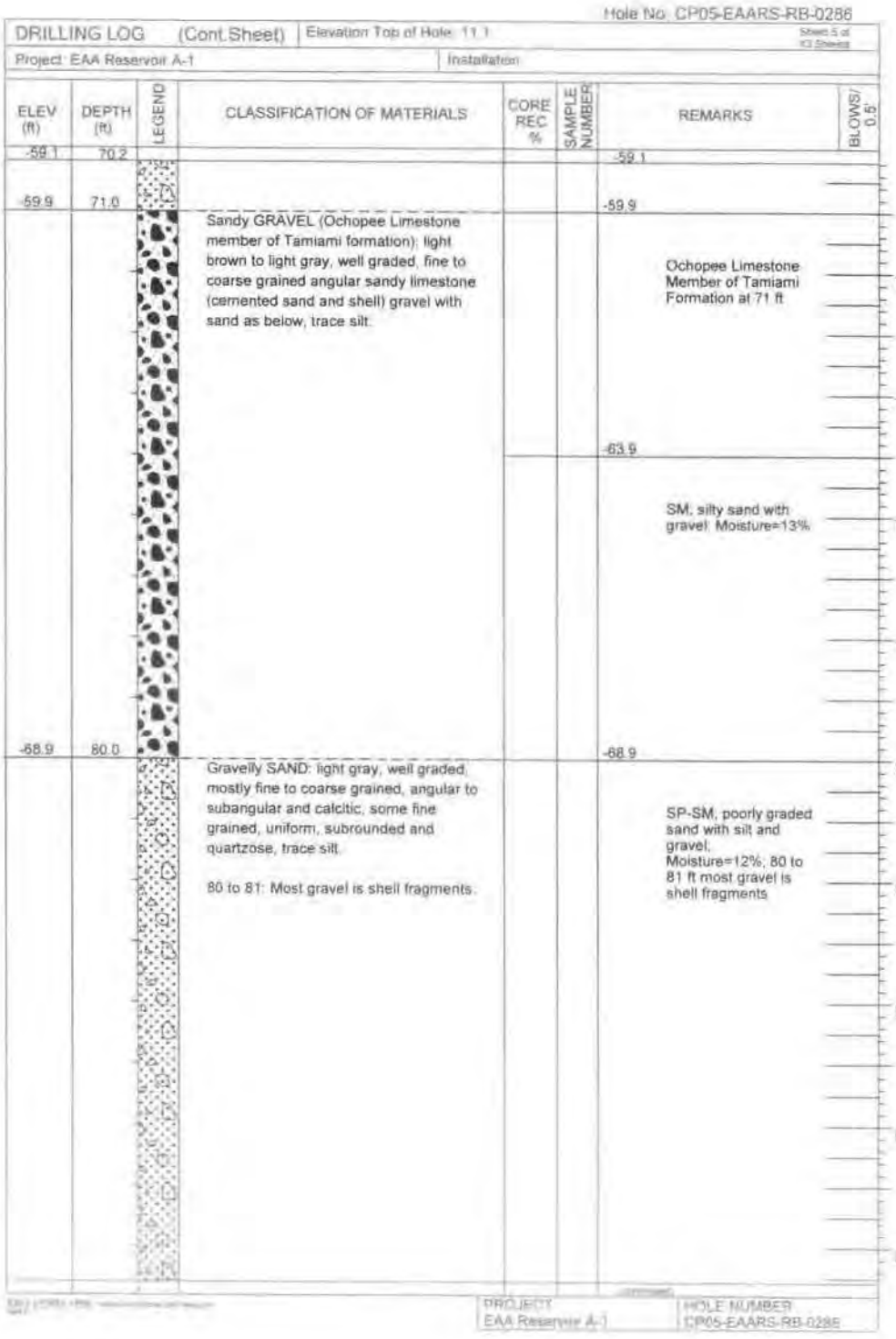
Project: EAA Reservoir A-1 | Installation

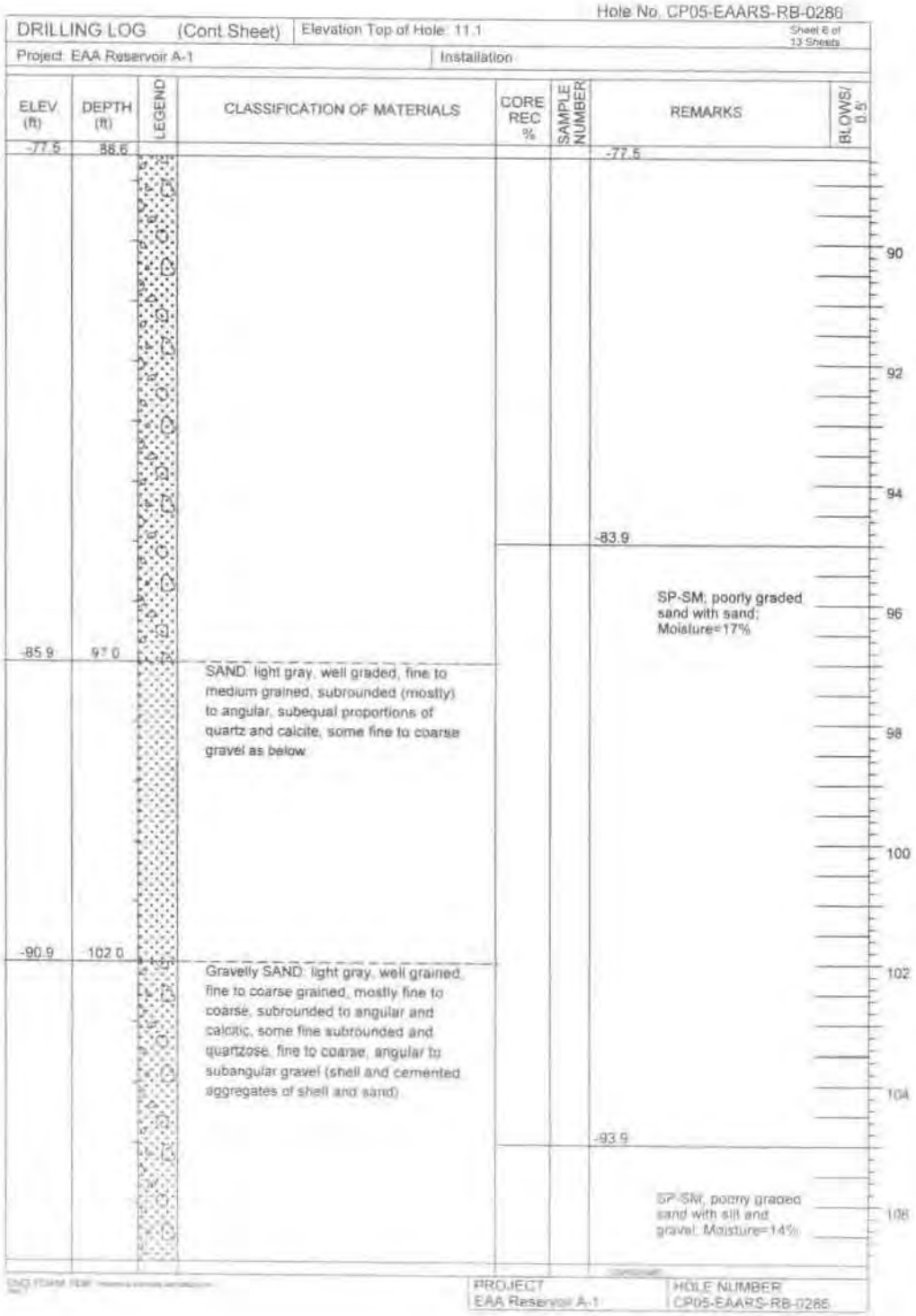
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.3	33.4					-22.3	
-23.9	35.0		SAND: pale brownish gray, uniform, fine grained, subrounded, quartzose, trace fine to coarse, angular calcitic sand.			-23.9 SP-SM; poorly graded sand with silt; Moisture=24%	

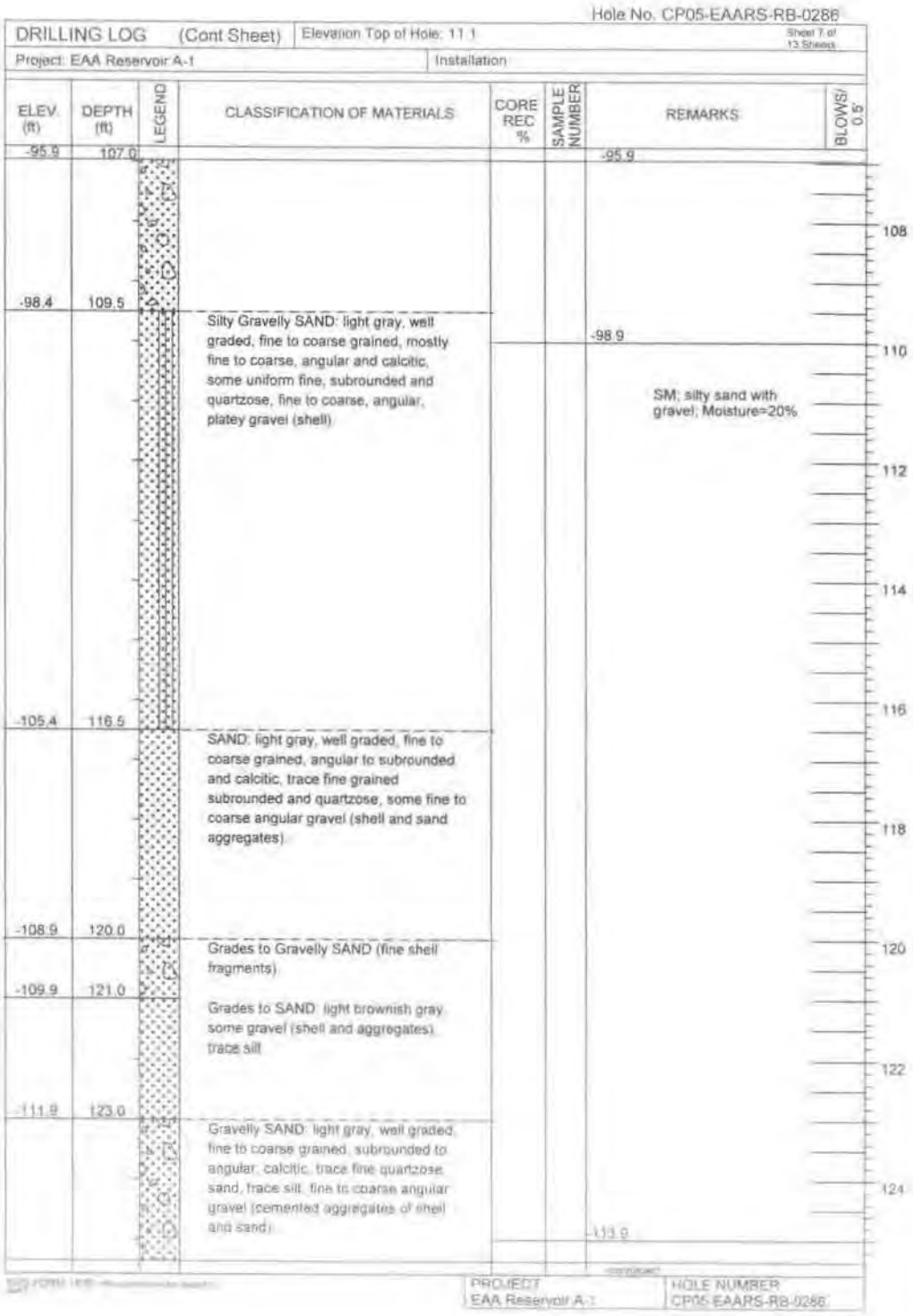
34 36 38 40 42 44 46 48 50

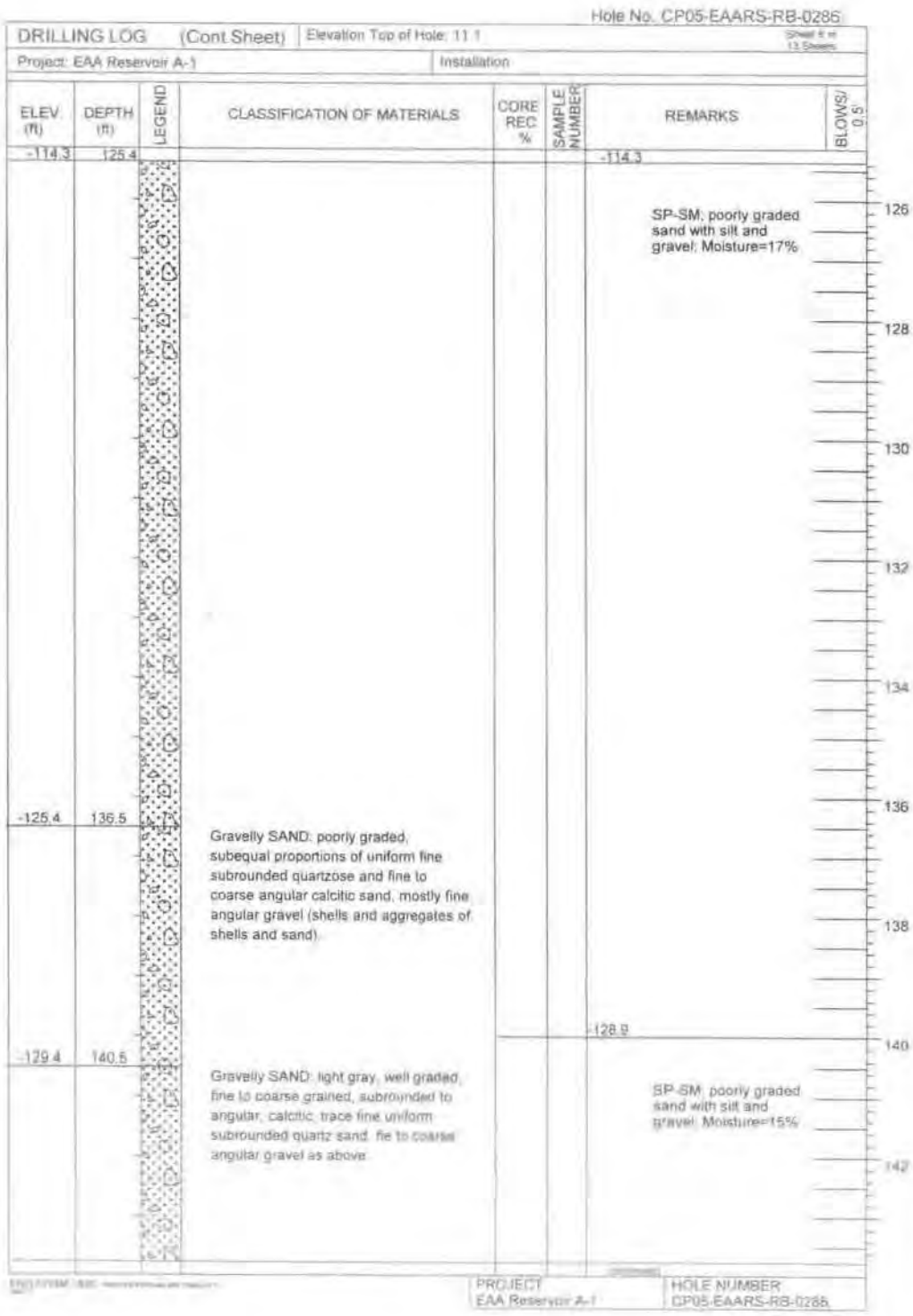
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0286

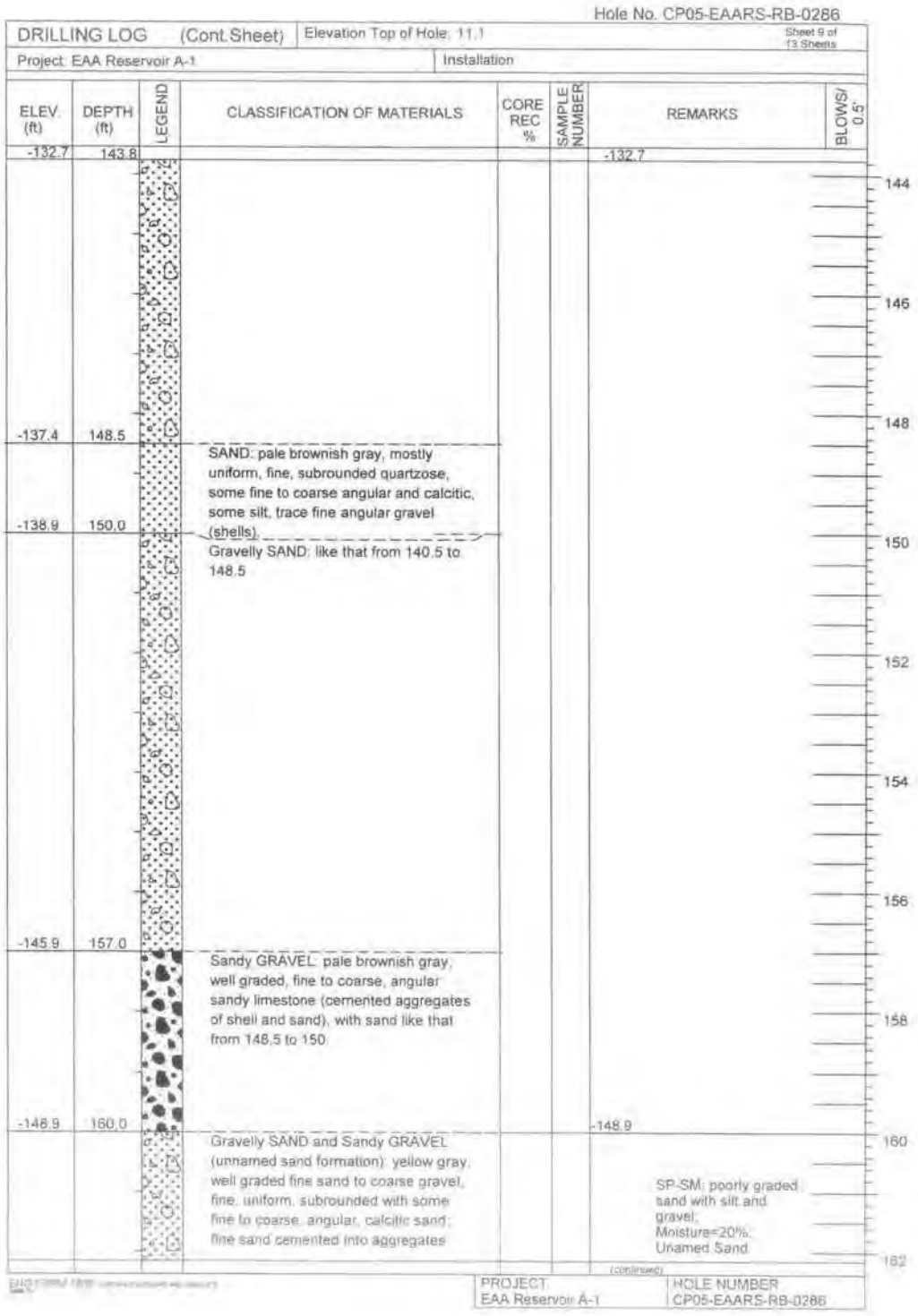

Hole No. CP05-EAARS-RB-028f
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.1
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-40.7
51.8
-45.4
56.5
Sandy GRAVEL: pale brownish gray, fine to coarse grained, angular, slightly sandy limestone gravel with a few cobbles. Sand is well graded, fine to coarse, angular and calcitic with some uniform fine quartzose sand. Trace silt.
-48.9
SP-SM: Poorly graded sand with silt and gravel; Moisture=14%
-53.9
-54.9
66.0
Gravelly SAND: tan, poorly graded, mostly fine grained uniform subrounded quartzose, some fine to coarse angular calcitic, fine to coarse angular calcitic gravel (shells), trace silt.
SM: silty sand; Moisture=21%
52
54
56
58
60
62
64
66
68
70
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-028f

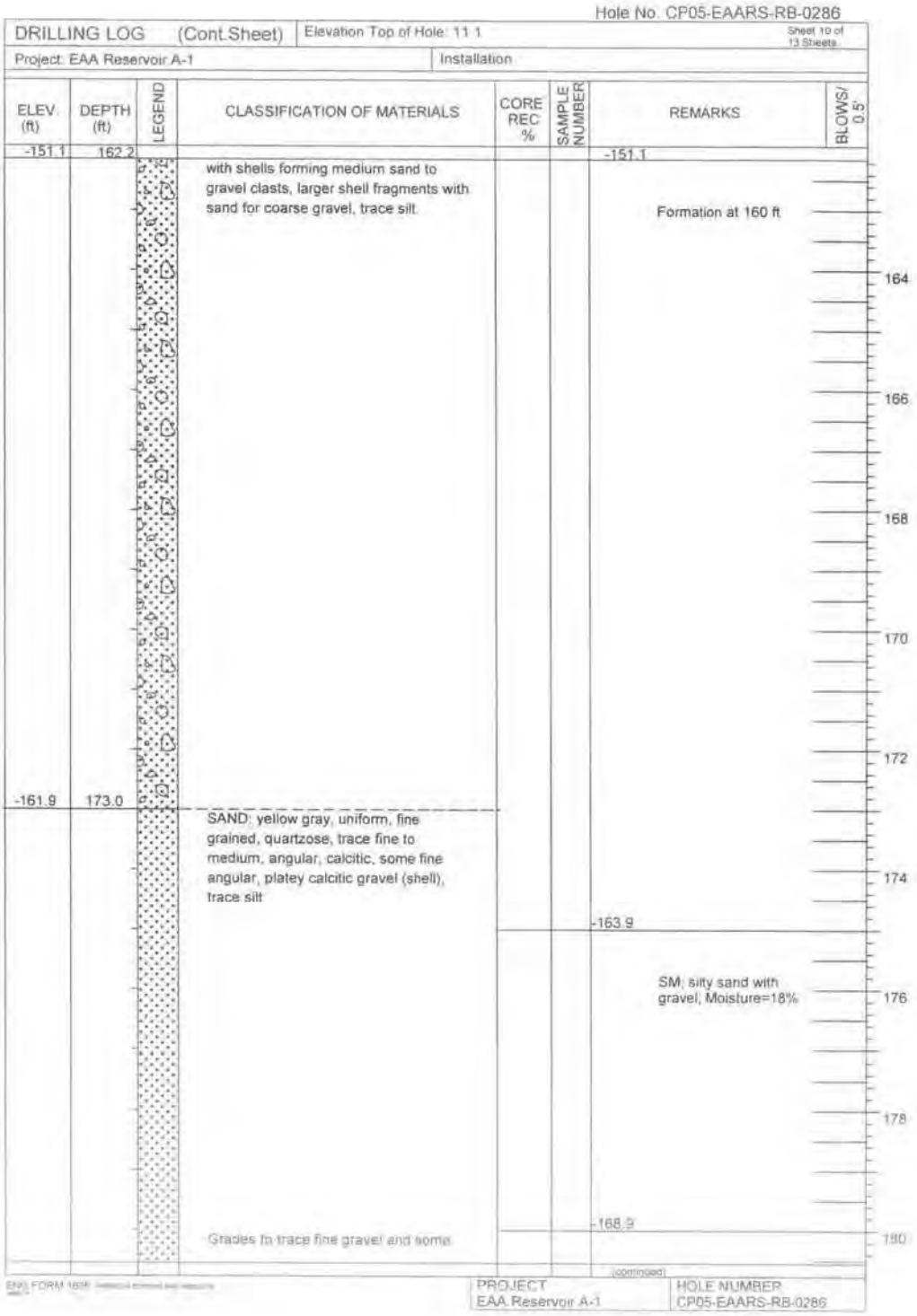

Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.1
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-59.1
70.2
-59.9
71.0
Sandy GRAVEL (Ochopee Limestone member of Tamiami formation): light brown to light gray, well graded, fine to coarse grained angular sandy limestone (cemented sand and shell) gravel with sand as below, trace silt.
Ochopee Limestone Member of Tamiami Formation at 71 ft
-63.9
SM: silty sand with gravel: Moisture=13%
-68.9
80.0
Gravelly SAND: light gray, well graded, mostly fine to coarse grained, angular to subangular and calcitic, some fine grained, uniform, subrounded and quartzose, trace silt.
80 to 81: Most gravel is shell fragments.
SP-SM, poorly graded sand with silt and gravel; Moisture=12%; 80 to 81 ft most gravel is shell fragments
72
74
76
78
80
82
84
86
88
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286

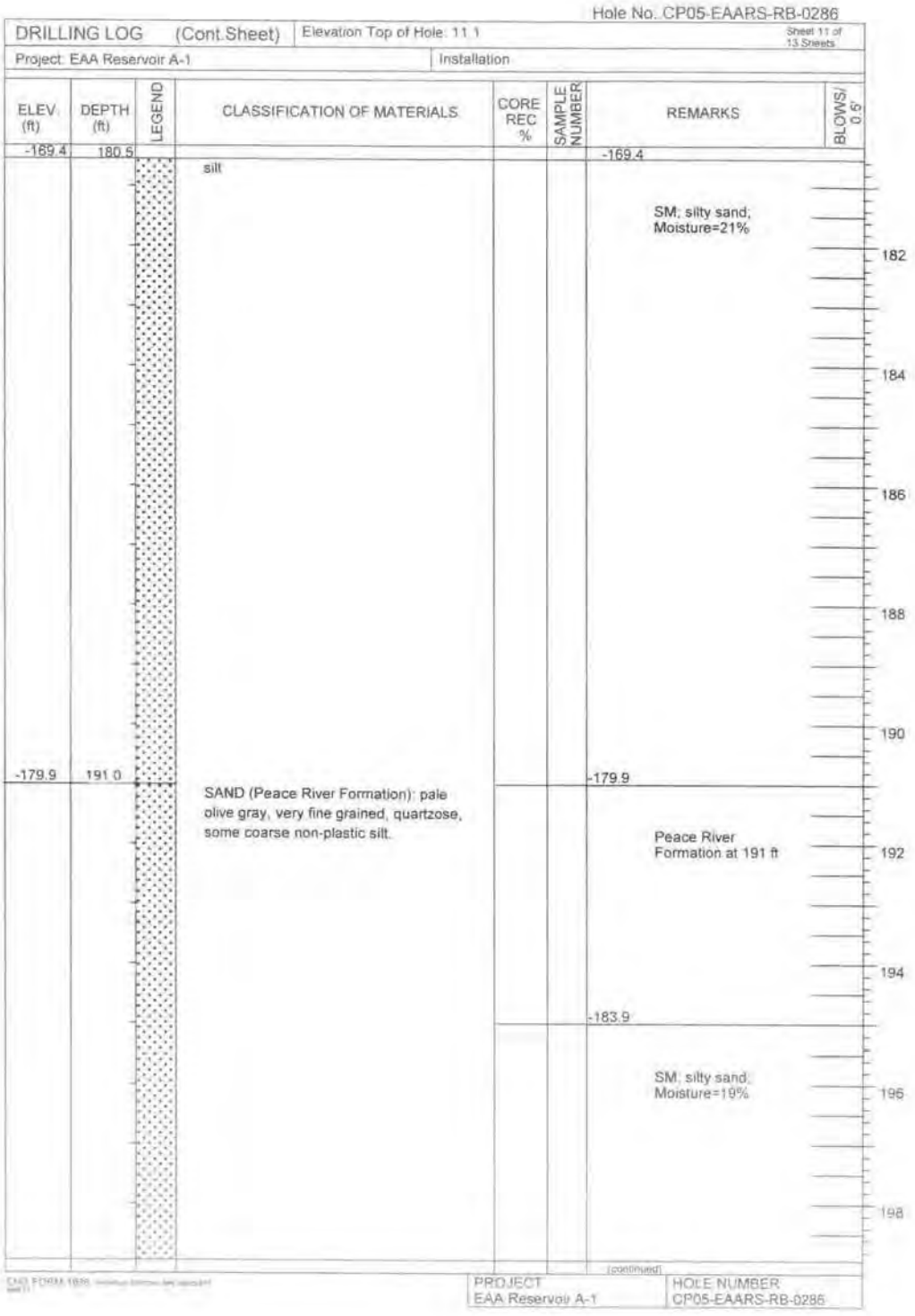

Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 11.1
Sheet 6 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-77.5
88.6
-77.5
90
92
94
-83.9
SP-SM; poorly graded sand with sand; Moisture=17%
96
-85.9
97.0
SAND: light gray, well graded, fine to medium grained, subrounded (mostly) to angular, subequal proportions of quartz and calcite, some fine to coarse gravel as below
98
100
-90.9
102.0
Gravelly SAND: light gray, well grained, fine to coarse grained, mostly fine to coarse, subrounded to angular and calcitic, some fine subrounded and quartzose, fine to coarse, angular to subangular gravel (shell and cemented aggregates of shell and sand)
102
104
-93.9
SP-SM; poorly graded sand with silt and gravel; Moisture=14%
106
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286

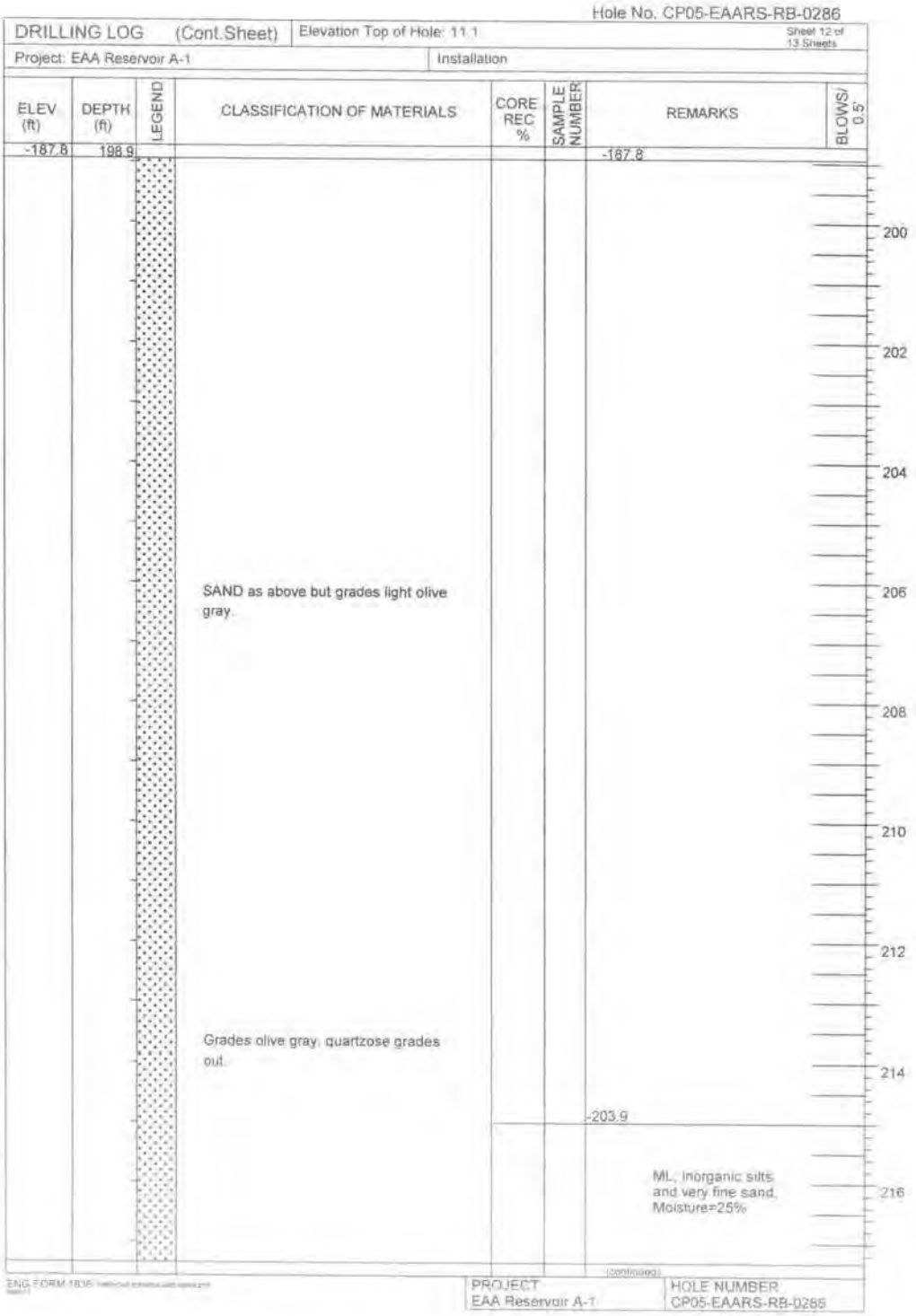

Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 11.1
Sheet 7 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-95.9
107.0
-98.4
109.5
Silty Gravelly SAND: light gray, well graded, fine to coarse grained, mostly fine to coarse, angular and calcitic, some uniform fine, subrounded and quartzose, fine to coarse, angular, platey gravel (shell)
-98.9
SM; silty sand with gravel; Moisture=20%
-105.4
116.5
SAND: light gray, well graded, fine to coarse grained, angular to subrounded and calcitic, trace fine grained subrounded and quartzose, some fine to coarse angular gravel (shell and sand aggregates)
-108.9
120.0
Grades to Gravelly SAND (fine shell fragments)
-109.9
121.0
Grades to SAND: light brownish gray, some gravel (shell and aggregates), trace silt
-111.9
123.0
Gravelly SAND: light gray, well graded, fine to coarse grained, subrounded to angular, calcitic, trace fine quartzose sand, trace silt, fine to coarse angular gravel (cemented aggregates of shell and sand)
-113.9
108
110
112
114
116
118
120
122
124
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286

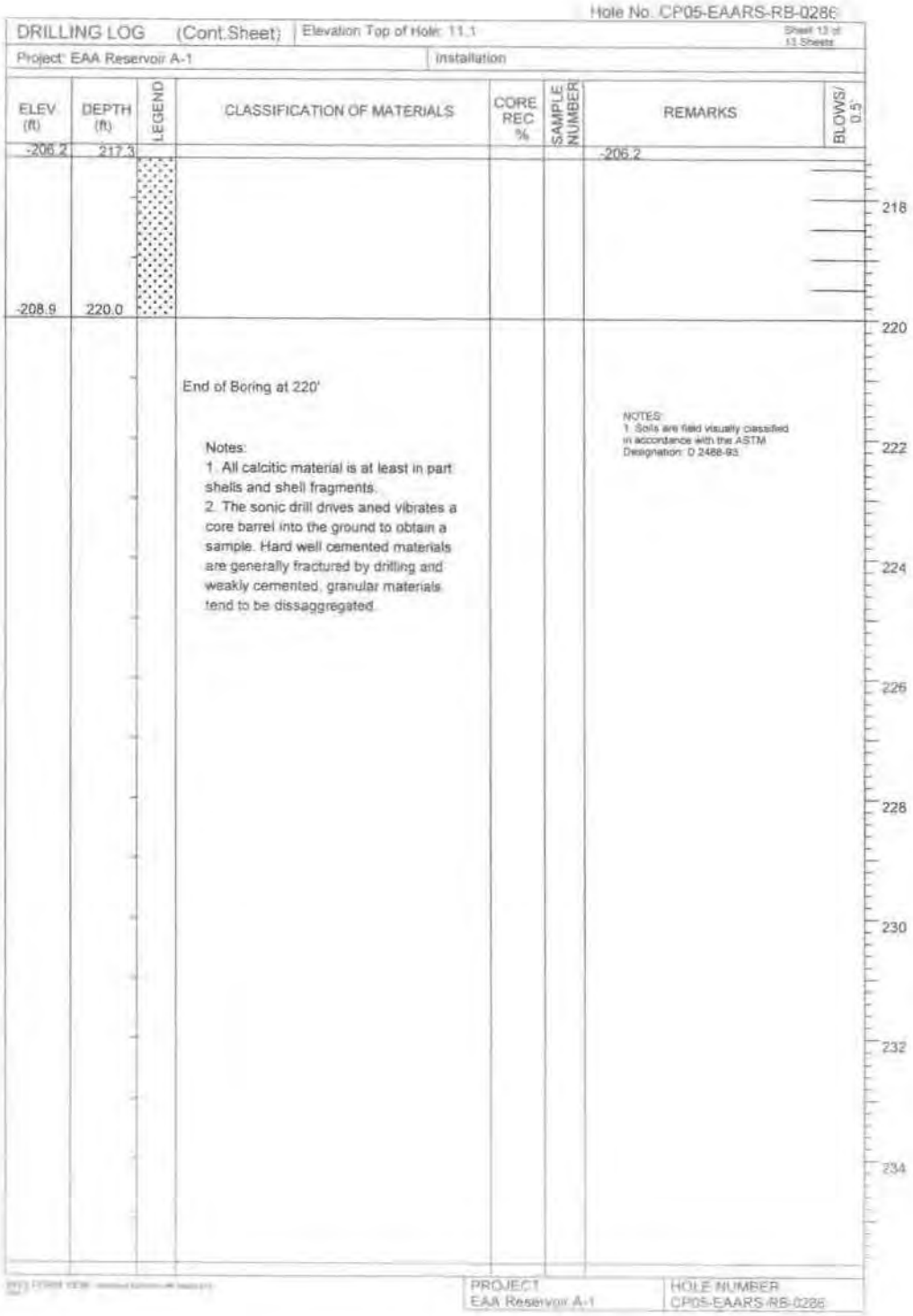

Hole No. CP05-EAARS-RB-0285
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 11.1
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-114.3
125.4
-114.3
SP-SM: poorly graded sand with silt and gravel; Moisture=17%
126
128
130
132
134
136
138
140
142
-125.4
136.5
Gravelly SAND: poorly graded, subequal proportions of uniform fine subrounded quartzose and fine to coarse angular calcitic sand, mostly fine angular gravel (shells and aggregates of shells and sand).
-128.9
-129.4
140.5
Gravelly SAND: light gray, well graded, fine to coarse grained, subrounded to angular, calcitic, trace fine uniform subrounded quartz sand, fie to coarse angular gravel as above.
SP-SM: poorly graded sand with silt and gravel; Moisture=15%
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0285


Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.1
Sheet 9 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-132.7
143.8
-132.7
-137.4
148.5
SAND: pale brownish gray, mostly uniform, fine, subrounded quartzose, some fine to coarse angular and calcitic, some silt, trace fine angular gravel (shells).
-138.9
150.0
Gravelly SAND: like that from 140.5 to 148.5
-145.9
157.0
Sandy GRAVEL: pale brownish gray, well graded, fine to coarse, angular sandy limestone (cemented aggregates of shell and sand), with sand like that from 148.5 to 150.
-148.9
160.0
-148.9
Gravelly SAND and Sandy GRAVEL (unnamed sand formation): yellow gray, well graded fine sand to coarse gravel, fine, uniform, subrounded with some fine to coarse, angular, calcitic sand; fine sand cemented into aggregates
SP-SM: poorly graded sand with silt and gravel; Moisture=20%; Unamed Sand
144
146
148
150
152
154
156
158
160
162
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286


Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.1
Sheet 10 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-151.1
162.2
with shells forming medium sand to gravel clasts, larger shell fragments with sand for coarse gravel, trace silt
-151.1
Formation at 160 ft
164
166
168
170
172
-161.9
173.0
SAND: yellow gray, uniform, fine grained, quartzose, trace fine to medium, angular, calcitic, some fine angular, platey calcitic gravel (shell), trace silt
174
-163.9
SM; silty sand with gravel; Moisture=18%
176
178
-168.9
Grades to trace fine gravel and some
180
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286


Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.1
Sheet 11 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-169.4
180.5
silt
-169.4
SM; silty sand; Moisture=21%
182
184
186
188
190
-179.9
191.0
SAND (Peace River Formation): pale olive gray, very fine grained, quartzose, some coarse non-plastic silt.
-179.9
Peace River Formation at 191 ft
192
194
-183.9
SM; silty sand; Moisture=19%
196
198
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286


Hole No. CP05-EAARS-RB-0286
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.1
Sheet 12 of 13 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-187.8
198.9
-187.8
SAND as above but grades light olive gray.
Grades olive gray, quartzose grades out.
-203.9
ML, inorganic silts and very fine sand, Moisture=25%
200
202
204
206
208
210
212
214
216
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-RB-0286



Hole No. CP05-EAARS-RB-0286

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.1 | Sheet 13 of 13 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-206.2	217.3					-206.2	
-208.9	220.0		End of Boring at 220'				

Notes:
1. All calcitic material is at least in part shells and shell fragments.
2. The sonic drill drives aned vibrates a core barrel into the ground to obtain a sample. Hard well cemented materials are generally fractured by drilling and weakly cemented, granular materials tend to be dissaggregated.

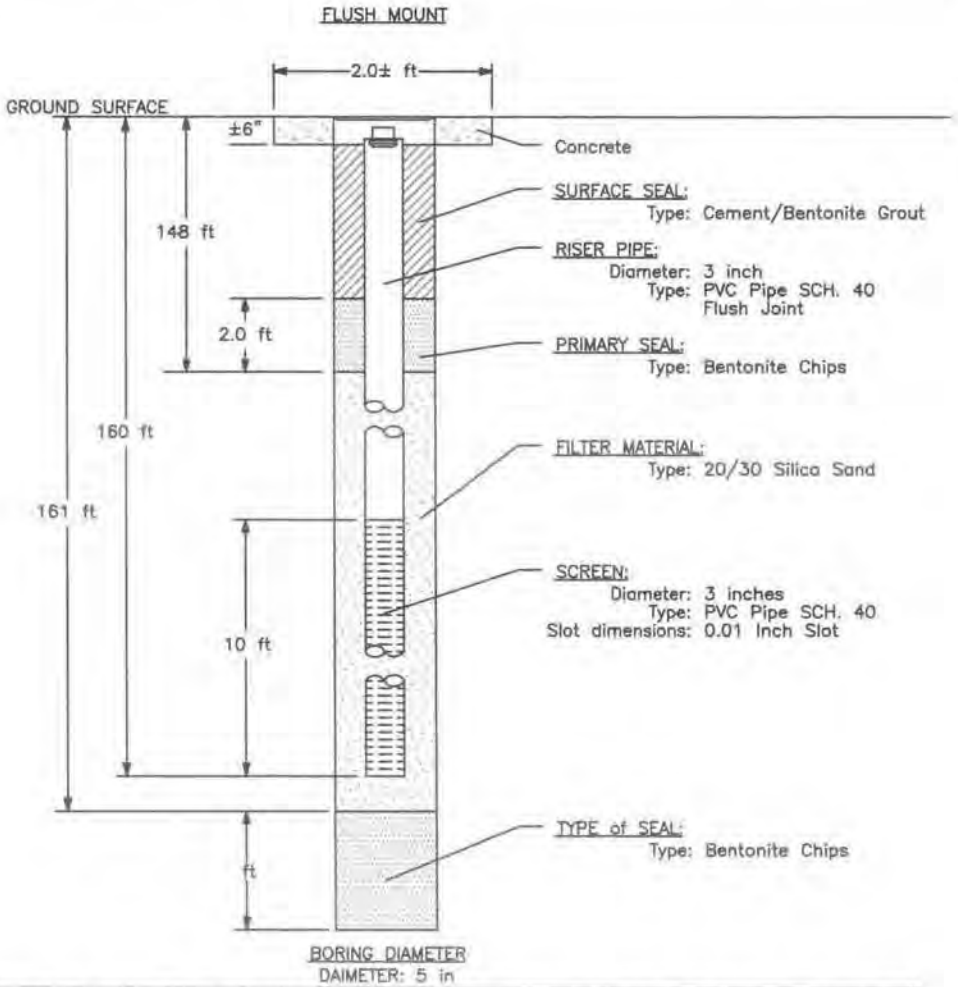
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

218
220
222
224
226
228
230
232
234

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-RB-0286

Hole No. CP05-EAARS-TW-0286

PIEZOMETER LOG	Division:	Installation:
1. Project EAA Reservoir A-1		8. Datum of Elevation Shown: NAD83
2. Location N 764359, E 768550		9. Manufacture's Designation for Drill: SRO-109
3. Drilling Agency: Prosonic		10. Elevation Groundwater:
4. Hole No. CP05-EAARS-TW-0286		11. Date Hole: Started 8-2-05 Completed 8-2-05
5. Name of Driller: Fred Kruass		12. Elevation Top of Riser: ±10'
6. Depth of Piezometer: 161 ft		13. Inspector: JP
7. Size and type of bit: 6" bit, Rotary Method		



INSTALLATION METHOD: The boring was advanced to the required depth. The piezometer screen and riser were lowered to the bottom of the hole, and the sand pack was tremied into the hole to about 1 foot above the top of the screen. About 2 feet of fine sand was tremied on top, and cement/bentonite grout was tremied in to fill the rest of the hole. The riser was cut off about 1.5± feet above the ground surface, and the protective casing suspended over the riser into the ground until it set.

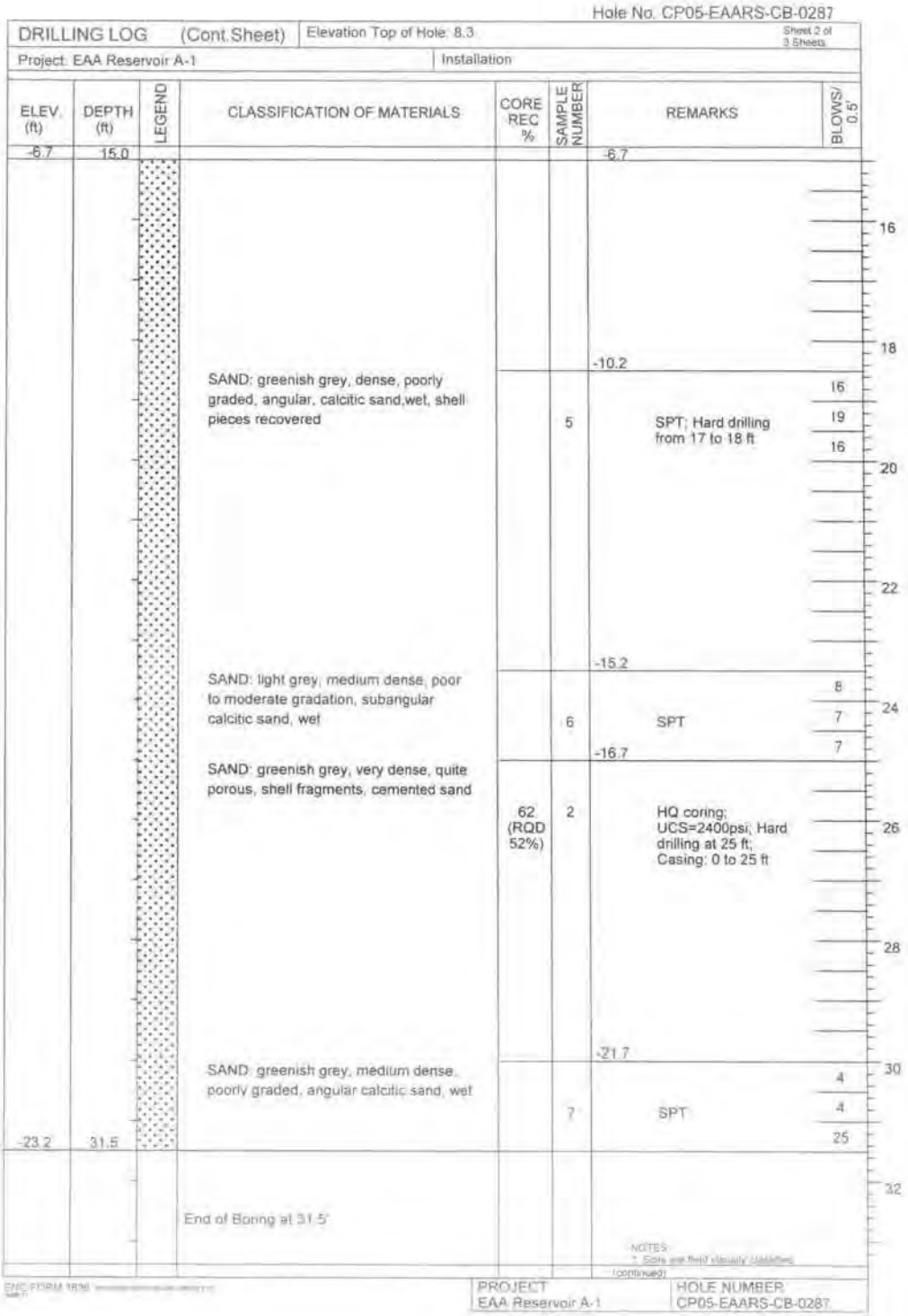
NOTES: Typical 25 foot Piezometer Installation

Hole No. CP05-EAARS-CB-0287

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N783418.8, E760201 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0287		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/20/2005 Completed 7/20/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 31.5 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.3	0.0					8.3	3
7.3	1.0		PEAT: black, very loose, wet to dry, highly organic, limestone chips recovered on sample bottom		1	7.3 SPT	50/3"
			LIMESTONE: brownish white to white, very hard, quite porous, shell fragments, dry	36 (RQD 18%)	1	HQ coring; UCS=1105psi	
2.3	6.0					2.3	
			SAND: pale white, very dense, poorly graded, subangular calcitic sand, wet		2	SPT	7 21 33
						-0.2	
			SAND: white, very loose, poorly graded, subrounded calcitic sand, wet, fine sand present, trace silt, shell pieces recovered		3	SPT, quite silty	2 1 1
						-5.2	
			Same as above, but loose and less silty, no shells		4	SPT	4 5 9

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0287



Hole No. CP05-EAARS-CB-0287

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.3 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.7	15.0					-6.7	
			SAND: greenish grey, dense, poorly graded, angular, calcitic sand,wet, shell pieces recovered		5	SPT; Hard drilling from 17 to 18 ft	16 19 16
						-10.2	
			SAND: light grey, medium dense, poor to moderate gradation, subangular calcitic sand, wet		6	SPT	8 7 7
						-15.2	
			SAND: greenish grey, very dense, quite porous, shell fragments, cemented sand	62 (RQD 52%)	2	HQ coring; UCS=2400psi; Hard drilling at 25 ft; Casing: 0 to 25 ft	
						-21.7	
			SAND: greenish grey, medium dense, poorly graded, angular calcitic sand, wet		7	SPT	4 4 25
-23.2	31.5						
			End of Boring at 31.5'				

NOTES:
1. Soils are field visually classified.
(continued)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0287

Hole No. CP05-EAARS-CB-0287

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.3 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-25.1	33.4					-25.1	

in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836

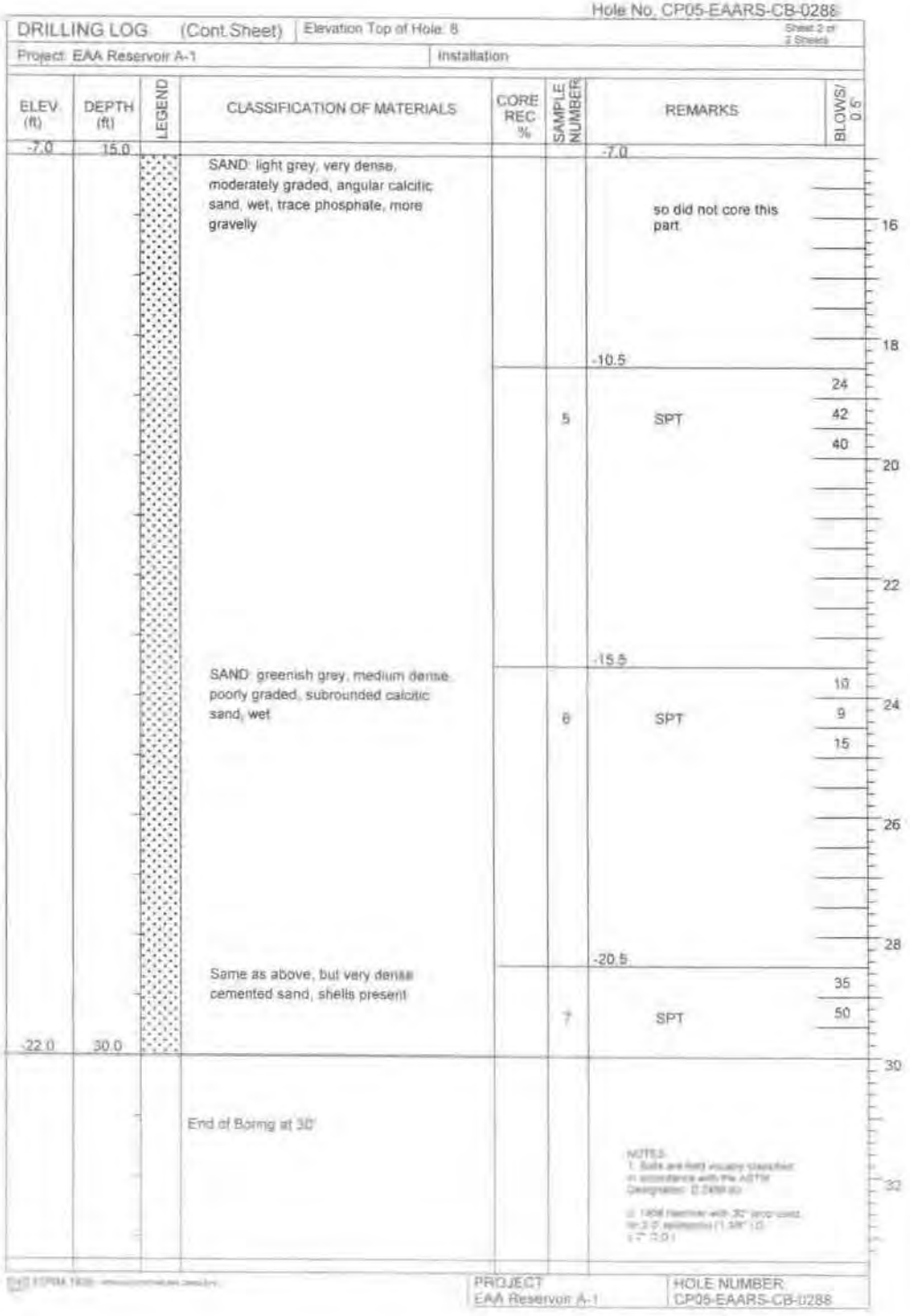
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0287

Hole No. CP05-EAARS-CB-0288

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N782018.1, E762205.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0288		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/19/2005 Completed 7/19/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30 ft		19. Inspector: A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0					8.0	3
			PEAT: black loose, clayey, mostly organic, dry to wet				50/5"
7.0	1.0				1	7.0 SPT, Limestone chips recovered	
			LIMESTONE: pale white, very hard, quite porous, dry	52 (RQD 38%)	1	HQ coring; UCS=650psi	
2.0	6.0					2.0	10
			SAND: light grey, medium dense, poorly graded, subangular calcitic sand, wet		2	SPT	5
							6
						-0.5	2
			SAND: pale white, loosely dense, poor to moderate gradation, angular calcitic sand, wet		3	SPT	3
							7
-5.5	13.5					-6.5	50/5"
			Chips of limestone recovered		4	SPT: spoon bouncing for a few blows. Dr drilling found no rock	
-7.0	15.0						

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0288



Hole No. CP05-EAARS-CB-0288

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.0	15.0		SAND: light grey, very dense, moderately graded, angular calcitic sand, wet, trace phosphate, more gravelly			-7.0 so did not core this part	
						-10.5	
					5	SPT	24 42 40
			SAND: greenish grey, medium dense, poorly graded, subrounded calcitic sand, wet			-15.5	
					6	SPT	10 9 15
			Same as above, but very dense cemented sand, shells present			-20.5	
					7	SPT	35 50
-22.0	30.0						
			End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-90.
2. 1408 Hammer with 30" drop used for 2.0" splitspoon (1.38" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0288

508

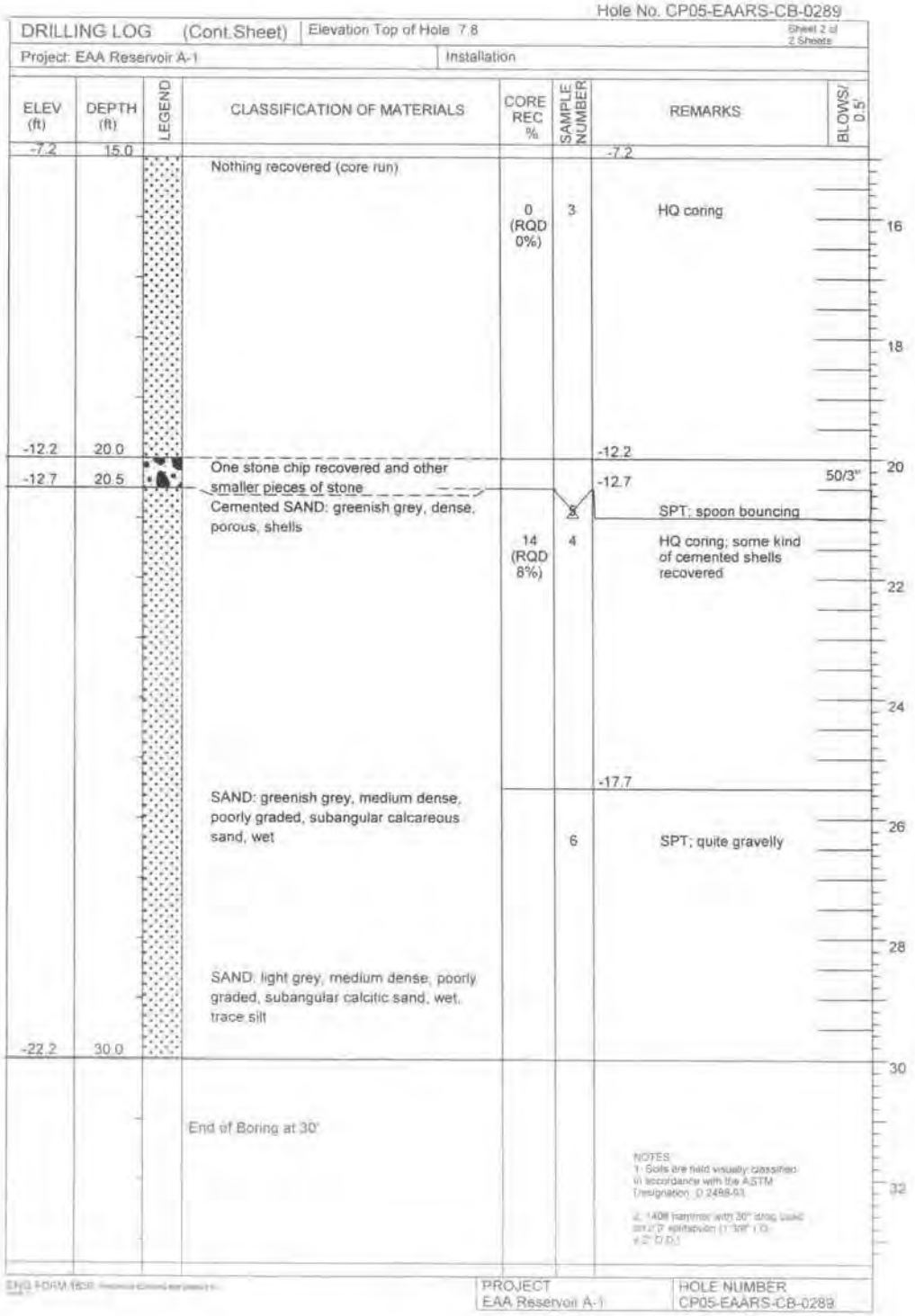
Hole No. CP05-EAARS-CB-0289

DRILLING LOG	Division	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N783462.3, E764334.1 – NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0289		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/21/2005 Completed 7/21/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 7.8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.8	0.0						
7.3	0.5		PEAT: black, loose, mostly organic, dry			7.8 / 7.3	8
			LIMESTONE: brownish white to pale white, hard, quite porous, dry, shells, cemented sand recovered between the top brownish limestone and the bottom pale white limestone layers	42 (RQD 6%)	1	SPT, few limestonw chips recovered; spoon bouncing HQ coring	50/2"
2.3	5.5					2.3	
1.8	6.0		SAND: light grey, very dense, poorly graded subangular calcareous sand, wet			1.8	50/5"
			LIMESTONE: white, very hard, quite porous, dry	38 (RQD 26%)	2	HQ coring; 5 ft casing; spoon bouncing; couple of limestone chips recovered	
-2.7	10.5					-2.7	
			SAND: white, medium dense, poorly graded, subangular calcitic sand, wet		3	SPT	42 / 3 / 8
-5.7	13.5					-5.7	
			SAND: greenish grey, very dense, poorly graded, subangular calcitic sand, wet, quite gravelly		4	SPT	40 / 50/3"
-7.2	15.0					-7.2	

END FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0289



Hole No. CP05-EAARS-CB-0289

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole 7.8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.2	15.0		Nothing recovered (core run)	0 (RQD 0%)	3	-7.2 HQ coring	
-12.2	20.0					-12.2	
-12.7	20.5		One stone chip recovered and other smaller pieces of stone			-12.7	50/3"
			Cemented SAND: greenish grey, dense, porous, shells		5	SPT; spoon bouncing	
				14 (RQD 8%)	4	HQ coring; some kind of cemented shells recovered	
						-17.7	
			SAND: greenish grey, medium dense, poorly graded, subangular calcareous sand, wet		6	SPT; quite gravelly	
			SAND: light grey, medium dense, poorly graded, subangular calcitic sand, wet, trace silt				
-22.2	30.0						
			End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation D 2488-93.

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0289

Hole No. CP05-EAARS-CB-0290

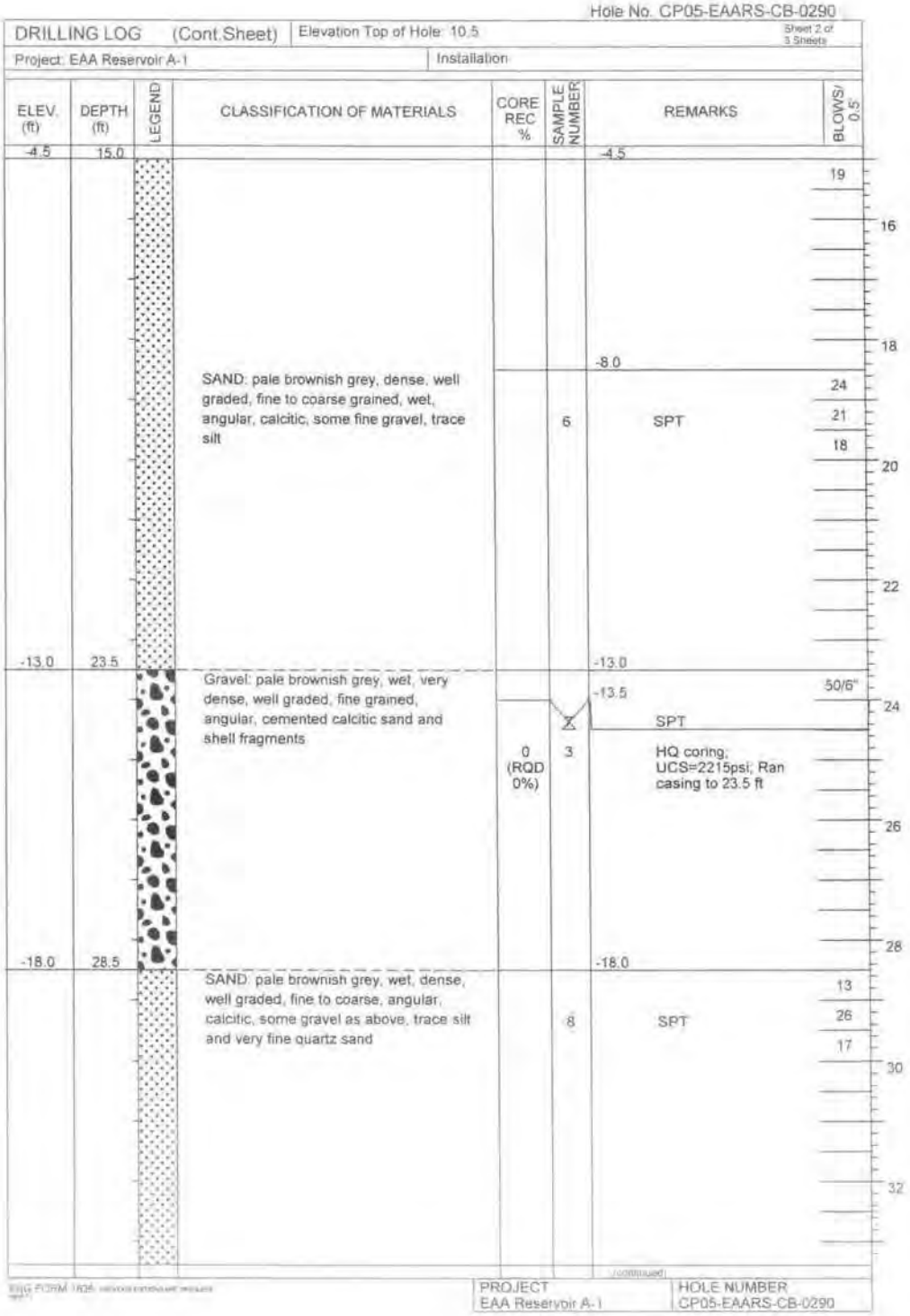
DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N782438.7, E768971.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0290		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/10/2005 Completed 8/10/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.5 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 40.5 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.5	0.0					10.5	5
			PEAT: brownish black, loose, fine grained, moist, organic with angular limestone gravel		1	SPT; All calcitic material noted below is at least partly shell fragments; Fill to 3.2 ft; Hit something questionable at 4 ft, moved the hole approx 2 ft east	3 4
						9.0	5
					2		4
7.5	3.0					7.5 SPT; Spun in 10 ft of 4" casing	3
			LIMESTONE: chips recovered, caprock, tan to light brown, thinly bedded, fine to coarse grained, fossiliferous, vuggy, moderately hard, moderately strong to weak and porous		3	6.5 SPT	50/5"
				60 (RQD 24%)	1	HQ coring	
						1.5	
						1.3	50/2"
				54 (RQD 24%)	4 2	SPT HQ coring; UCS=874psi	
-1.0	11.5						
			SAND: pale brown, medium dense, well graded, fine to medium grained, moist, angular, calcitic with some gravel			-2.5	7
					5	SPT	10

(continued)

ENG FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0290


Hole No. CP05-EAARS-CB-0290
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.5
Sheet 2 of 3 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-4.5
15.0
-4.5
19
16
18
-8.0
SAND: pale brownish grey, dense, well graded, fine to coarse grained, wet, angular, calcitic, some fine gravel, trace silt
24
21
18
6
SPT
20
22
-13.0
23.5
-13.0
Gravel: pale brownish grey, wet, very dense, well graded, fine grained, angular, cemented calcitic sand and shell fragments
-13.5
50/6"
24
SPT
0 (RQD 0%)
3
HQ coring; UCS=2215psi; Ran casing to 23.5 ft
26
28
-18.0
28.5
-18.0
SAND: pale brownish grey, wet, dense, well graded, fine to coarse, angular, calcitic, some gravel as above, trace silt and very fine quartz sand
13
26
17
8
SPT
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0290

Hole No. CP05-EAARS-CB-0290

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.5 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.9	33.4					-22.9	
-23.0	33.5		Sandy GRAVEL: pale brownish grey, wet, very dense, well graded, fine grained, angular, limestone, with sand as above			-23.0 -23.5	43 50/1"
				28 (RQD 14%)	4	SPT; Ran in casing to 34.5 ft HQ coring; Soft from 34 to 36 ft; then hard	
-25.5	36.0		LIMESTONE: tan to brownish grey and light brown, fine to coarse grained, thinly bedded, fossiliferous, vuggy, moderately hard and moderately strong, ranges from wackestone to porous grainstone (coquina)				
-28.5	39.0					-28.5	
			SAND: pale brownish grey, wet, loose, well graded, fine to coarse grained, angular, calcitic		10	SPT	3 4 4
-30.0	40.5						
			End of Boring at 40.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 7889 | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0290

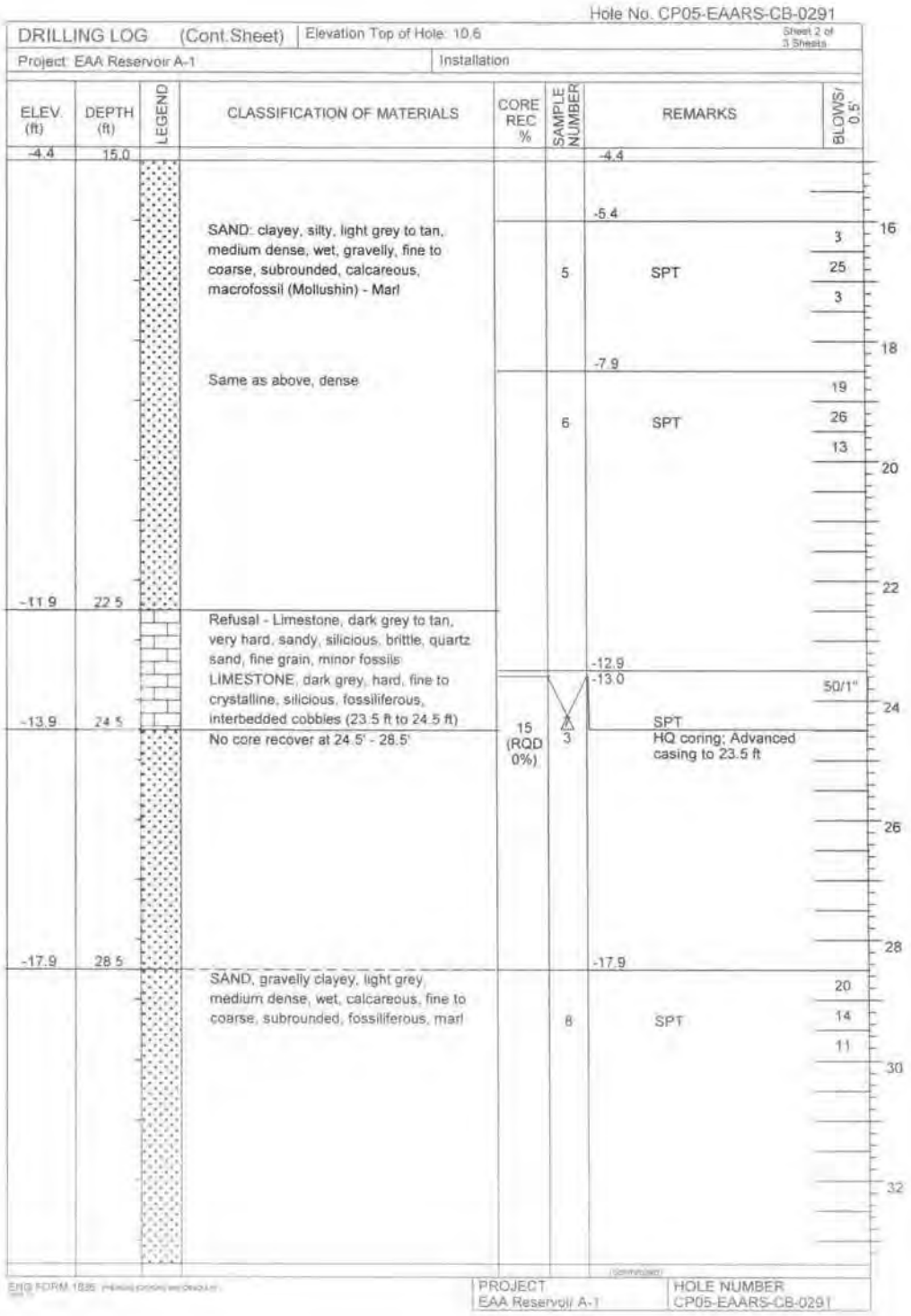
Hole No. CP05-EAARS-CB-0291

DRILLING LOG	Division	Installation	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N780906.2, E770045.4 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0291		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/11/2005 Completed 8/12/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 42.5 ft		19. Inspector: C. Brown	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.6	0.0		Silt, organic, black, soft, moist		1	10.6 SPT 9.1	3, 2, 2
			Same as above with Limestone cobble		2	SPT 7.6	4, 4, 4
			Silt, organic, black, firm, wet		3	SPT 6.1	3, 3, 3
5.1	5.5				4	SPT 4.6	1, 23, 14
4.6	6.0		SAND: gravelly, silty, dense, fine to coarse subangular, wet				
			LIMESTONE: grey, hard, fractured, fossiliferous, fine grained	60 (RQD 9%)	1	HQ coring 2.6	
			LIMESTONE: light grey, moderately hard, sandy, fine grained, subrounded, fossiliferous, grades more sandy			Approximately 80% drill fluid loss at 8 ft; set casing to 8.5 ft	
-0.4	11.0					-0.4	
			SAND: silty with inter-bedded Limestone, dense, fine to coarse, fossiliferous, poorly cemented - V. poor recovery	5 (RQD 0%)	2	HQ coring	

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0291



Hole No. CP05-EAARS-CB-0291

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.4	15.0					-4.4	
			SAND: clayey, silty, light grey to tan, medium dense, wet, gravelly, fine to coarse, subrounded, calcareous, macrofossil (Mollushin) - Marl		5	-5.4 SPT	3, 25, 3
			Same as above, dense		6	-7.9 SPT	19, 26, 13
-11.9	22.5		Refusal - Limestone, dark grey to tan, very hard, sandy, silicious, brittle, quartz sand, fine grain, minor fossils			-12.9	
			LIMESTONE, dark grey, hard, fine to crystalline, silicious, fossiliferous, interbedded cobbles (23.5 ft to 24.5 ft)			-13.0	50/1"
-13.9	24.5		No core recover at 24.5' - 28.5'	15 (RQD 0%)	7 3	SPT HQ coring; Advanced casing to 23.5 ft	
-17.9	28.5		SAND, gravelly clayey, light grey, medium dense, wet, calcareous, fine to coarse, subrounded, fossiliferous, marl		8	-17.9 SPT	20, 14, 11

16 18 20 22 24 26 28 30 32

ENG FORM 1835 (previous editions are obsolete)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0291

Hole No. CP05-EAARS-CB-0291

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.8	33.4					-22.8	
			SAND: gravelly, silty, light grey, very dense, wet, fine to coarse, subangular, calcareous with fine shell fragments - Marl (advanced casing to 34)		9	-22.9 SPT, Advanced casing to 34 ft	37 22 50/4"
-25.4	36.0					-25.4	
			LIMESTONE: grey, hard, sandy, fine to medium, subangular, fossiliferous	65 (RQD 17%)	4	HQ coring	
-29.4	40.0		LIMESTONE: grey to dark grey, moderately hard, coquindid, highly fossiliferous, high secondary porosity			-29.4	
			SAND: grey to tan, dense, fine to coarse, subrounded, silicious (quartz) with minor shell fragments			-30.4	
-31.9	42.5				10	SPT	29 26 22
			End of Boring at 42.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.5" splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

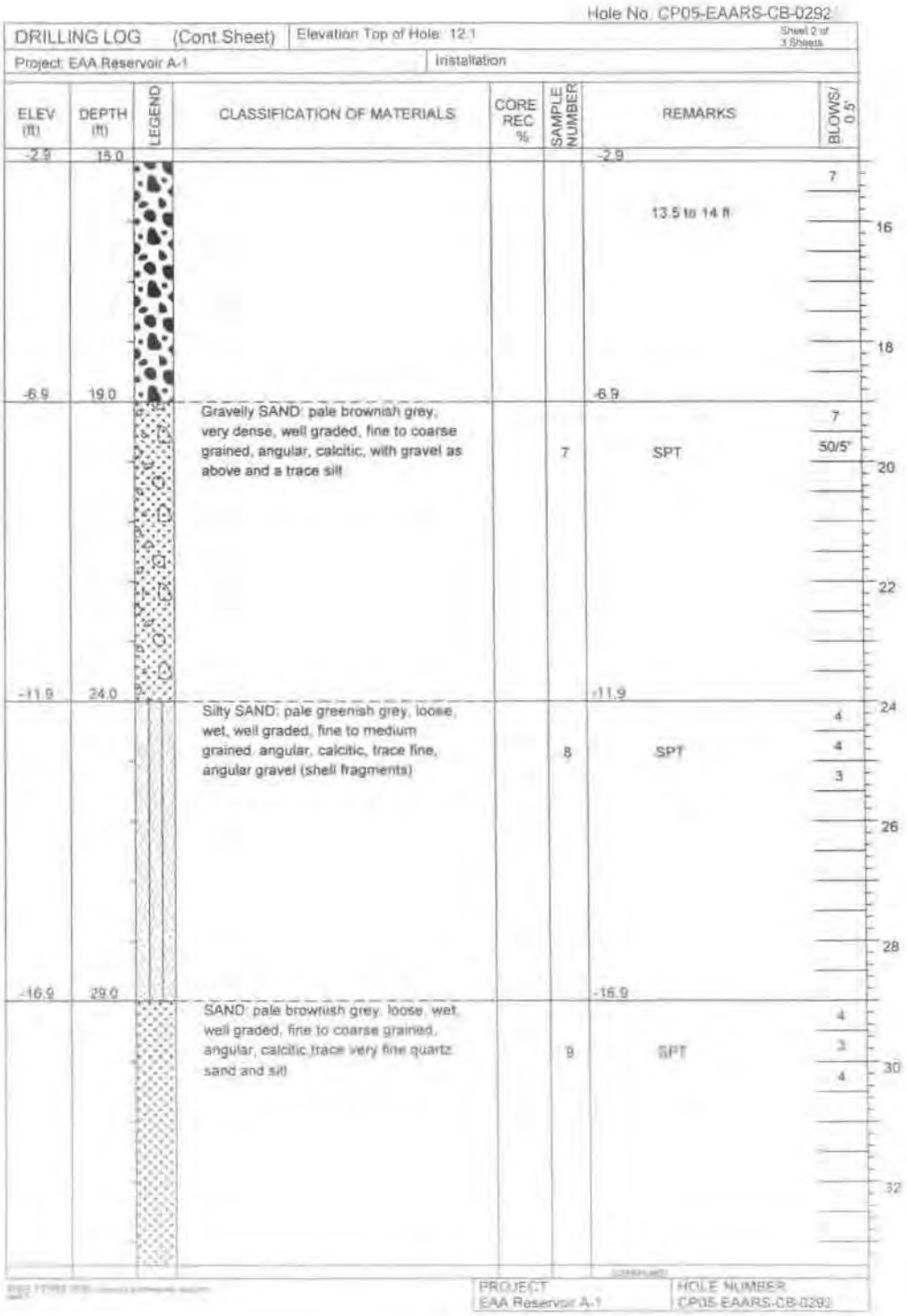
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0291

Hole No: CP05-EAARS-CB-0292

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N779232.1, E771249.9 – NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0292		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 8/11/2005 Completed 8/12/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 12.1 (ft)	
9. Depth of hole: 42.5 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: N. Holst	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.1	0.0		Gravelly SAND and PEAT: tan, dry, fill, loose, well graded, fine to coarse, with angular limestone, gravel and some peat, grading to Sandy GRAVEL		1	12.1 SPT; Automati hammer; All calcitic material is at least in part shell fragments 10.1	9, 6, 7
					2	SPT 8.1	3, 3, 1
					3	SPT 6.1	50/3"
5.6	6.5		Grades wet		4	5.1 SPT	12, 50/4"
			LIMESTONE: tan to light brownish grey, fine to coarse grained, fossiliferous, vuggy, hard and strong to soft, weak and porous	56 (RQD 19%)	1	HQ coring; Spun 4" casing to 7 ft	
2.1	10.0		Last two feet of coring is soft			0.1	
0.1	12.0		Gravelly SAND: pale brownish grey, medium dense, moist, well graded, medium to coarse grained, angular calcitic		5	SPT; Spun casing to 12 ft -1.9	3, 2, 5
-1.9	14.0		GRAVEL: pale brownish grey, medium dense, well graded, fine grained, wet, angular, calcitic		6	SPT; Hard drilling	30, 11

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0292



Hole No. CP05-EAARS-CB-0292

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 12.1 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.9	15.0					-2.9	
						13.5 to 14 ft	7
-6.9	19.0					-6.9	16, 18
			Gravelly SAND: pale brownish grey, very dense, well graded, fine to coarse grained, angular, calcitic, with gravel as above and a trace silt		7	SPT	7, 50/5"
-11.9	24.0					-11.9	20, 22
			Silty SAND: pale greenish grey, loose, wet, well graded, fine to medium grained, angular, calcitic, trace fine, angular gravel (shell fragments)		8	SPT	4, 4, 3
-16.9	29.0					-16.9	24, 26, 28
			SAND: pale brownish grey, loose, wet, well graded, fine to coarse grained, angular, calcitic trace very fine quartz sand and silt		9	SPT	4, 3, 4
							30, 32

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0292

Hole No. CP05-EAARS-CB-0292

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.1 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.3	33.4					-21.3	
-21.9	34.0		Silty SAND: pale greenish grey, loose, wet, well graded, fine to coarse grained, angular, calcitic		10	SPT	5 3 4
-26.9	39.0		GRAVEL: pale brownish grey, very dense, wet, well graded, fine grained, angular, calcitic		11	-26.9 SPT	50/1"
-28.9	41.0		SAND: pale greenish grey, very dense, wet, uniform, fine grained, subrounded, quartzose with some fine to coarse, angular, calcitic sand, trace fine gravel		12	-28.9 SPT; Caloosahatchee Formation	32 23 28
-30.4	42.5		End of Boring at 42.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0292

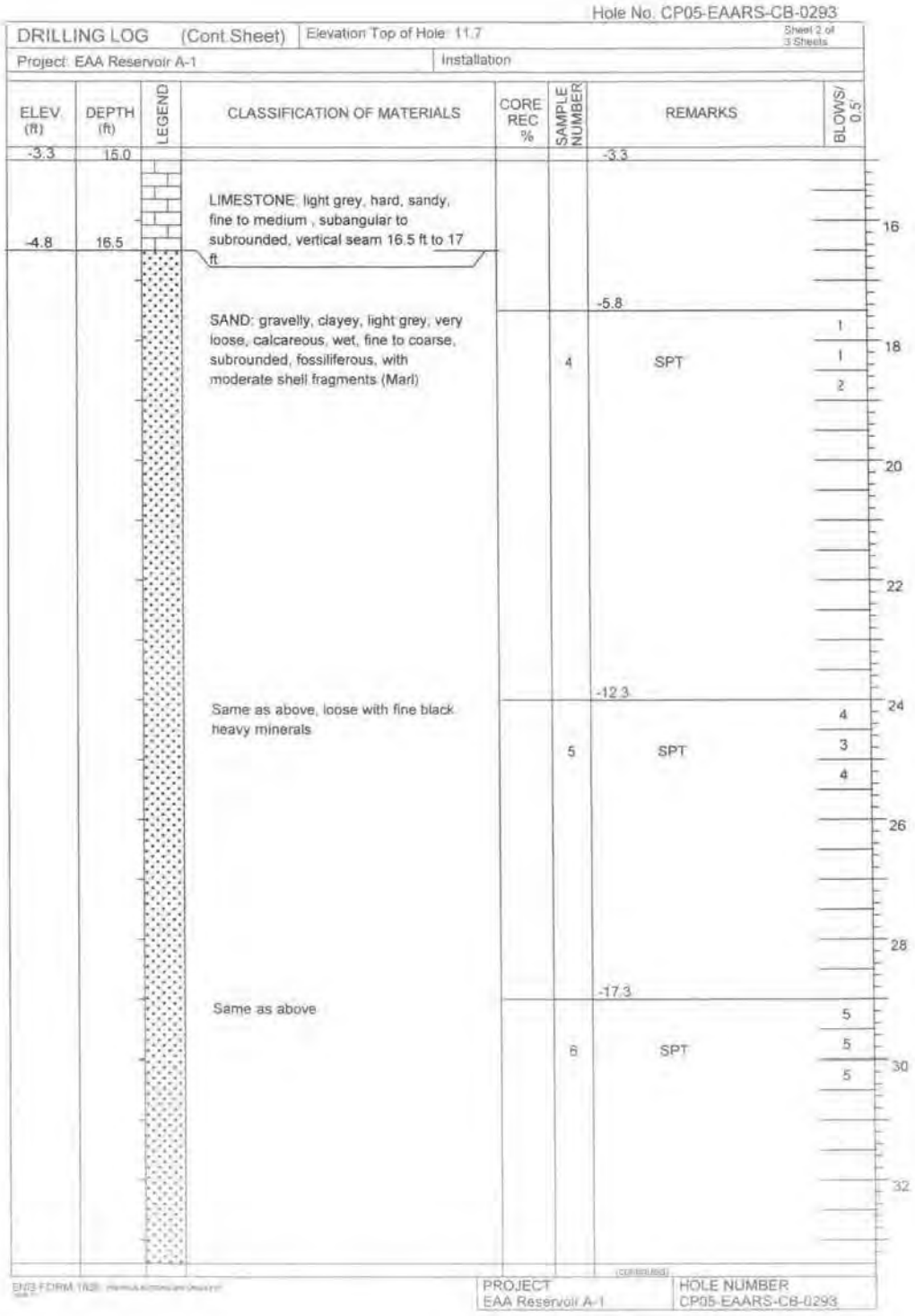
Hole No. CP05-EAARS-CB-0293

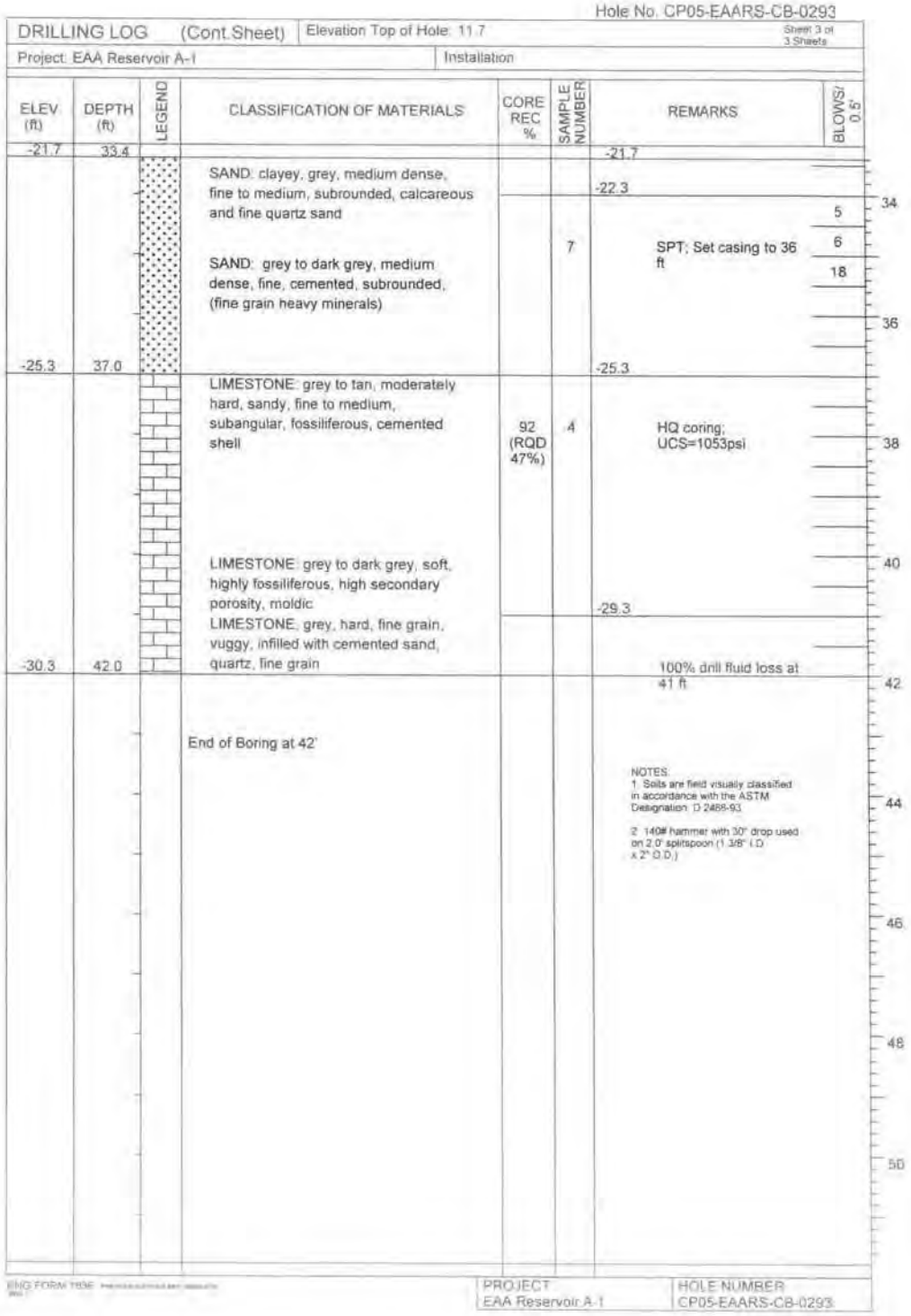
DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N777644.3, E772351.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0293		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/10/2005 Completed 8/11/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 42 ft		19. Inspector: C. Brown	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.7	0.0						
			SILT: organics, black, firm, moist		1	11.7 SPT 9.7	2 3 3
			SILT: organics, black, firm, moist with interbedded limestone gravel		2	SPT 7.7	5 2 3
7.2	4.5				3	SPT 5.7	2 8 13
6.2	5.5		Refusal - SAND: gravelly, silty, very dense, fine to coarse, subangular, wet				
			LIMESTONE: light grey, hard, sandy, fine, subangular	80 (RQD 35%)	1	HQ coring, Set casing to 6 ft 3.2	
			LIMESTONE: grey to light brown, hard, sandy, fine, subangular fractured fossiliferous, silicious seams				
			LIMESTONE: grey to light brown, moderately hard to soft, sandy, fine to medium, subangular to subrounded, poorly cemented, fossiliferous, porous	92 (RQD 55%)	2	HQ coring -1.8	
			LIMESTONE: light grey, hard, sandy, fine, subangular	30 (RQD 10%)	3	HQ coring	

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0293


Hole No. CP05-EAARS-CB-0293
DRILLING LOG (Cont Sheet)
Elevation Top of Hole: 11.7
Sheet 2 of 3 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-3.3
15.0
-3.3
LIMESTONE: light grey, hard, sandy, fine to medium , subangular to subrounded, vertical seam 16.5 ft to 17 ft
-4.8
16.5
16
-5.8
SAND: gravelly, clayey, light grey, very loose, calcareous, wet, fine to coarse, subrounded, fossiliferous, with moderate shell fragments (Marl)
4
SPT
1
1
2
18
20
22
-12.3
Same as above, loose with fine black heavy minerals
5
SPT
4
3
4
24
26
28
-17.3
Same as above
6
SPT
5
5
5
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0293



Hole No. CP05-EAARS-CB-0293

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.7 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.7	33.4					-21.7	
			SAND: clayey, grey, medium dense, fine to medium, subrounded, calcareous and fine quartz sand			-22.3	5
			SAND: grey to dark grey, medium dense, fine, cemented, subrounded, (fine grain heavy minerals)		7	SPT; Set casing to 36 ft	6 18
-25.3	37.0					-25.3	
			LIMESTONE: grey to tan, moderately hard, sandy, fine to medium, subangular, fossiliferous, cemented shell	92 (RQD 47%)	4	HQ coring; UCS=1053psi	
			LIMESTONE: grey to dark grey, soft, highly fossiliferous, high secondary porosity, moldic			-29.3	
-30.3	42.0		LIMESTONE: grey, hard, fine grain, vuggy, infilled with cemented sand, quartz, fine grain			100% drill fluid loss at 41 ft	
			End of Boring at 42'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0" splitspoon (1 3/8" I.D. x 2" O.D.)

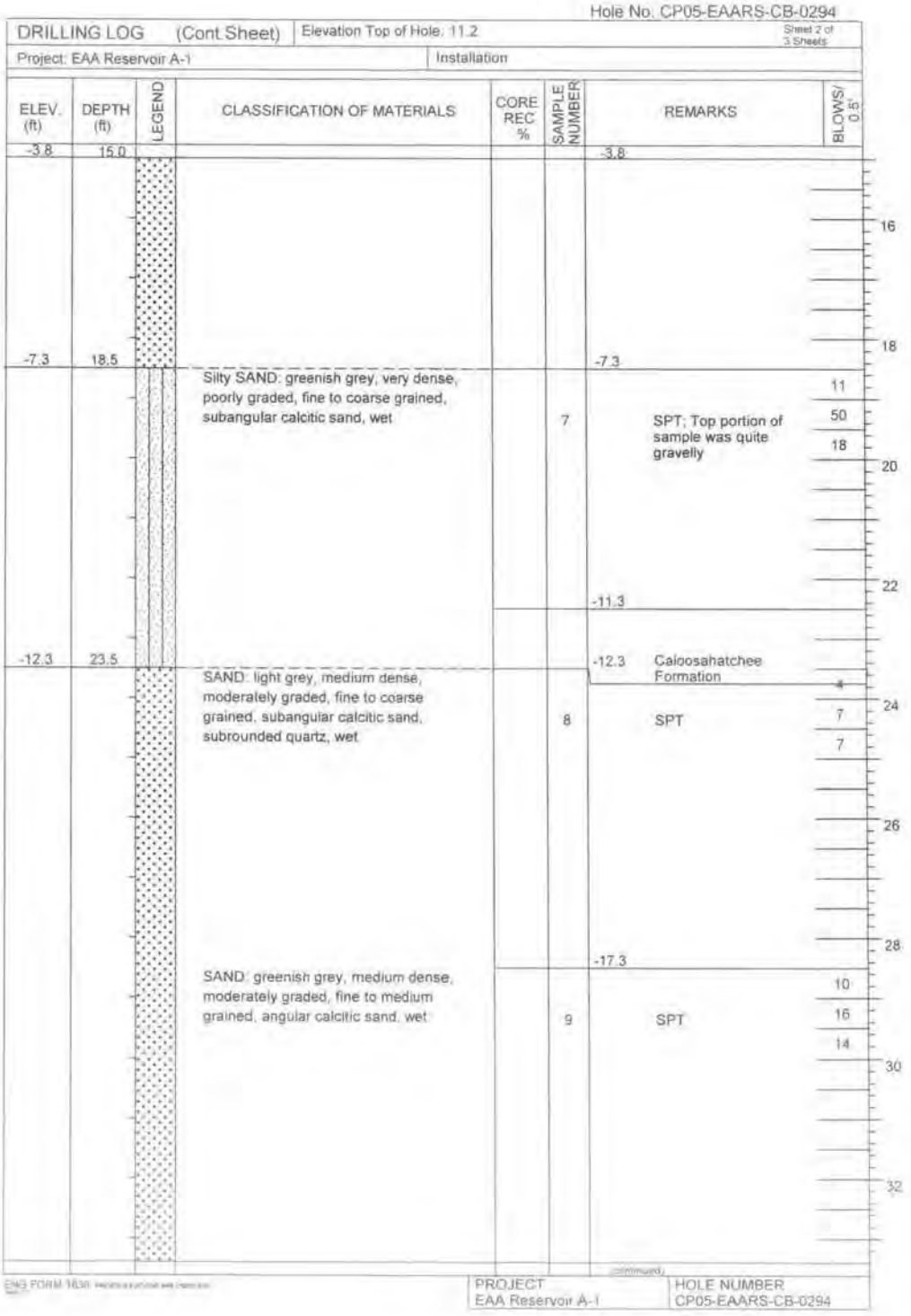
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0293

Hole No. CP05-EAARS-CB-0294

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776017.5, E773486.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No. CP05-EAARS-CB-0294		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/10/2005 Completed 8/10/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.2 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 40 ft		19. Inspector: A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5"
11.2	0.0		PEAT: black, medium dense, poorly graded, fine grain, dry, mostly organic		1	11.2 SPT 9.7	4, 6, 20
			Same as above - one limestone chip recovered, except dense		2	SPT 8.2	12, 18, 22
7.5	3.8		Top part Peat. Bottom part of sample gravelly coarse sand, subangular, poorly graded, dry, light grey		3	SPT 6.7	3, 2, 1
5.7	5.5		Bottom part of sample gravelly coarse sand, subangular, poorly graded, dry, light grey. Few pieces of limestone recovered		4	SPT, spoon bouncing 5.2	1, 3, 50/5"
				54 (RQD 8%)	1	HQ coring	
0.2	11.0		LIMESTONE: pale white, hard fine gained, quite porous, shell present			0.2	
			SAND: greenish grey, very dense, moderately graded, fine to coarse grained, subangular, calcitic sand, wet, platty limestone flakes recovered, cemented sand		5	SPT, Around 6" of hard layer of cemented sand -1.3	33, 40, 50/4"
			SAND: pale white, medium dense, poorly graded, fine grained, wet, small chips of limestone recovered		6	SPT	3, 8, 7

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0294



Hole No. CP05-EAARS-CB-0294

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.2 | Sheet 2 of 3 Sheets

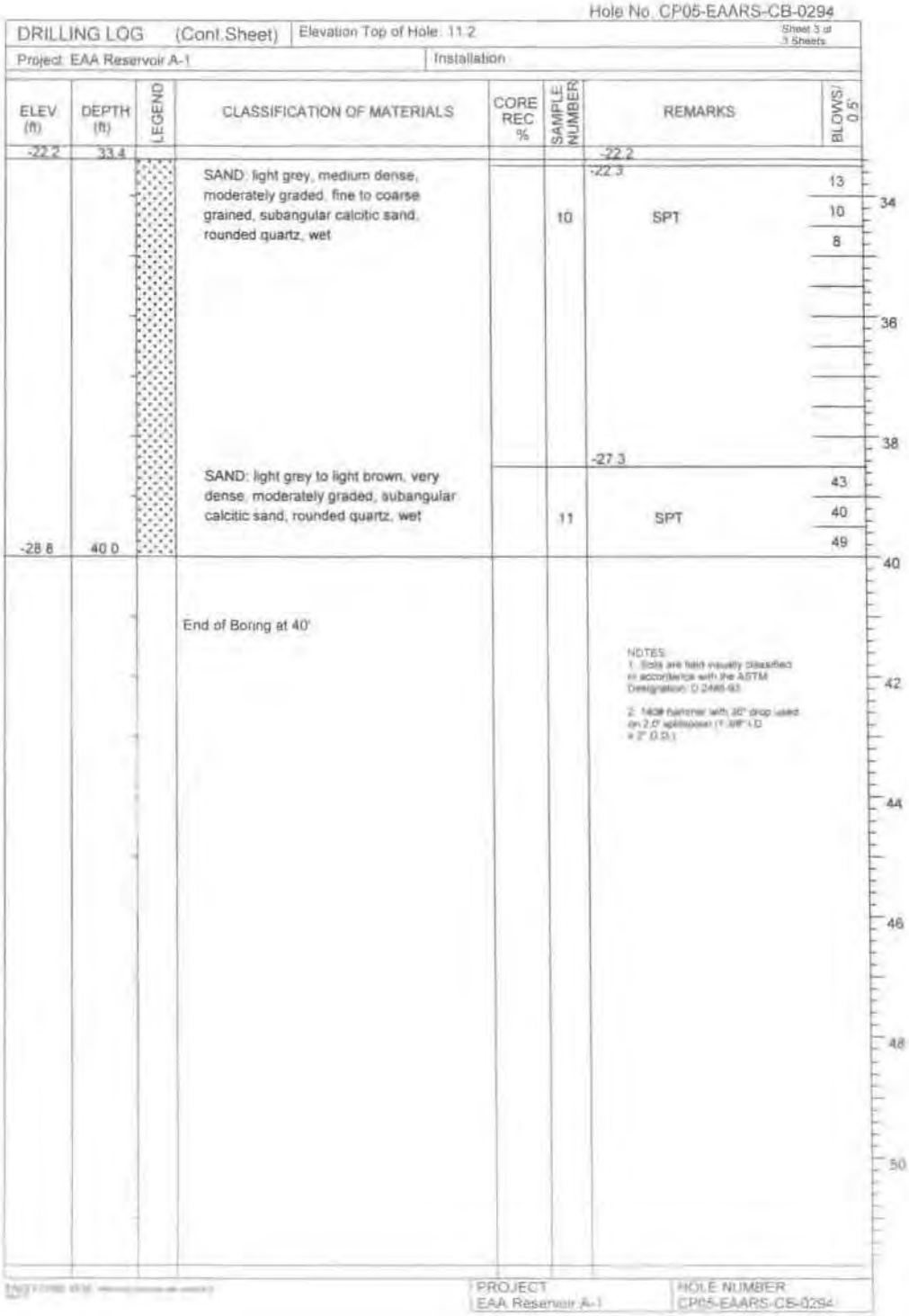
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.8	15.0					-3.8	
-7.3	18.5		Silty SAND: greenish grey, very dense, poorly graded, fine to coarse grained, subangular calcitic sand, wet		7	-7.3 SPT; Top portion of sample was quite gravelly	11 50 18
						-11.3	
-12.3	23.5		SAND: light grey, medium dense, moderately graded, fine to coarse grained, subangular calcitic sand, subrounded quartz, wet		8	-12.3 Caloosahatchee Formation SPT	4 7 7
						-17.3	
			SAND: greenish grey, medium dense, moderately graded, fine to medium grained, angular calcitic sand, wet		9	SPT	10 16 14

16 18 20 22 24 26 28 30 32

ENG FORM 1836 (continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0294



Hole No. CP05-EAARS-CB-0294

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.2 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.2	33.4					-22.2	
			SAND: light grey, medium dense, moderately graded, fine to coarse grained, subangular calcitic sand, rounded quartz, wet		10	-22.3 SPT	13 10 8
						-27.3	
-28.8	40.0		SAND: light grey to light brown, very dense, moderately graded, subangular calcitic sand, rounded quartz, wet		11	SPT	43 40 49
			End of Boring at 40'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" split spoon (1 3/8" I.D. x 2" O.D.)

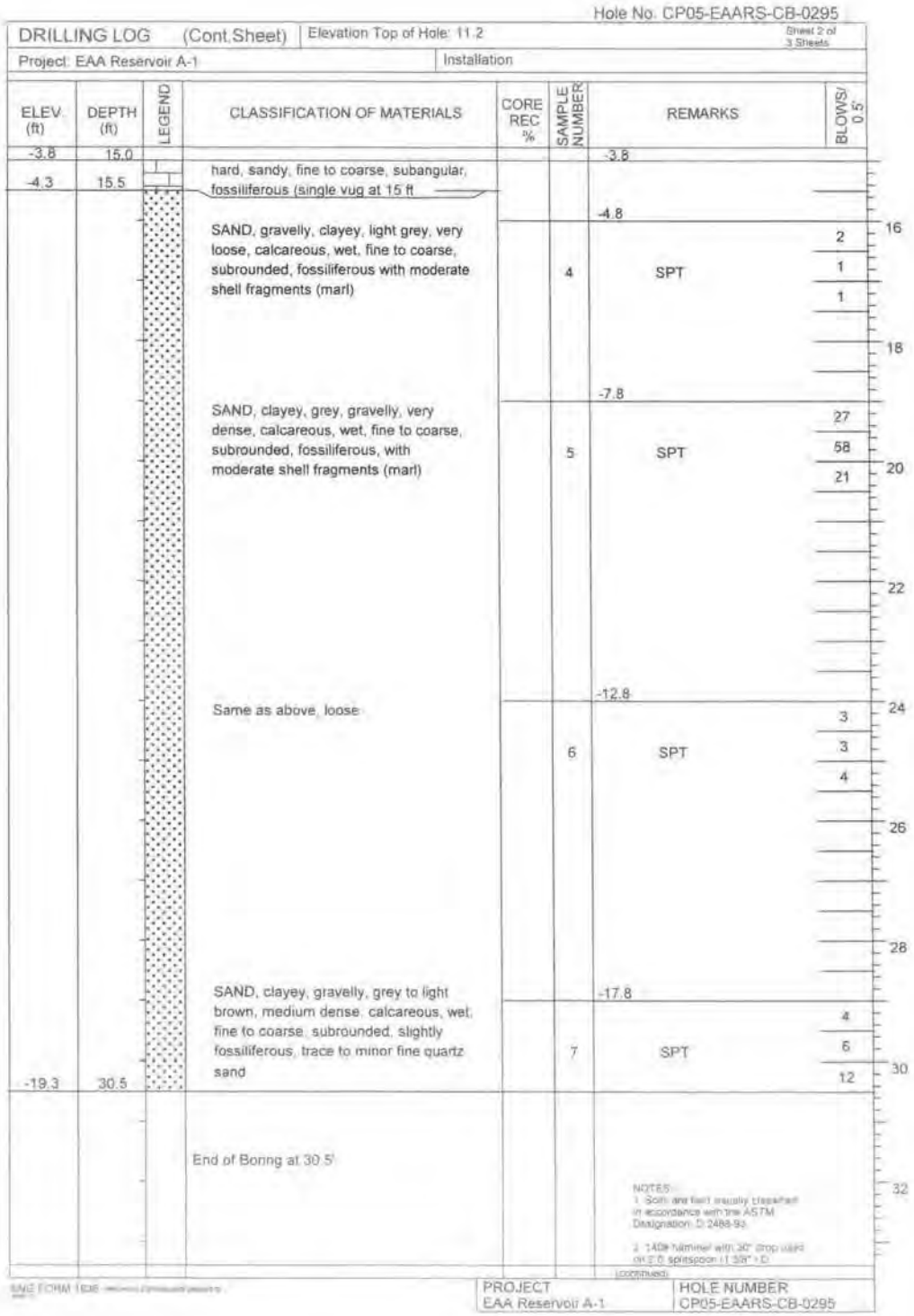
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0294

Hole No. CP05-EAARS-CB-0295

DRILLING LOG	Division	Installation	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774364.1, E774663.4 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0295		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/9/2005 Completed 8/9/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.2 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30.5 ft		19. Inspector: C. Brown	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.2	0.0						
			Silt, organics, black, firm, moist		1	11.2 SPT, Automatic hammer	3, 3, 3
			Silt, organics, black, soft, moist, with interbedded limestone gravel		2	9.2 SPT	1, 2, 2
5.7	5.5				3	6.7 SPT	1, 10, 50/3"
5.2	6.0		Refusal - SAND, gravelly, silty, very dense, fine to coarse, subangular, wet			5.2	
			LIMESTONE: light grey, hard, fine to crystalline, slightly silicious, vertical seams at 7.5 ft	80 (RQD 40%)	1	HQ coring: Set casing to 6 ft	
2.7	8.5					3.2	
			LIMESTONE: grey, soft, sandy, fine to coarse, subangular to subrounded, fossiliferous, grades softer, and poorly cemented with depth			Approx 25% drill fluid loss at 8 ft	
						0.2	
				60 (RQD 23%)	2	HQ coring	
-2.3	13.5						
			No recovery - sand or gravel lense				
-3.3	14.5						
			LIMESTONE: light grey, moderately				

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0295



Hole No. CP05-EAARS-CB-0295

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.2 | Sheet 2 of 3 Sheets

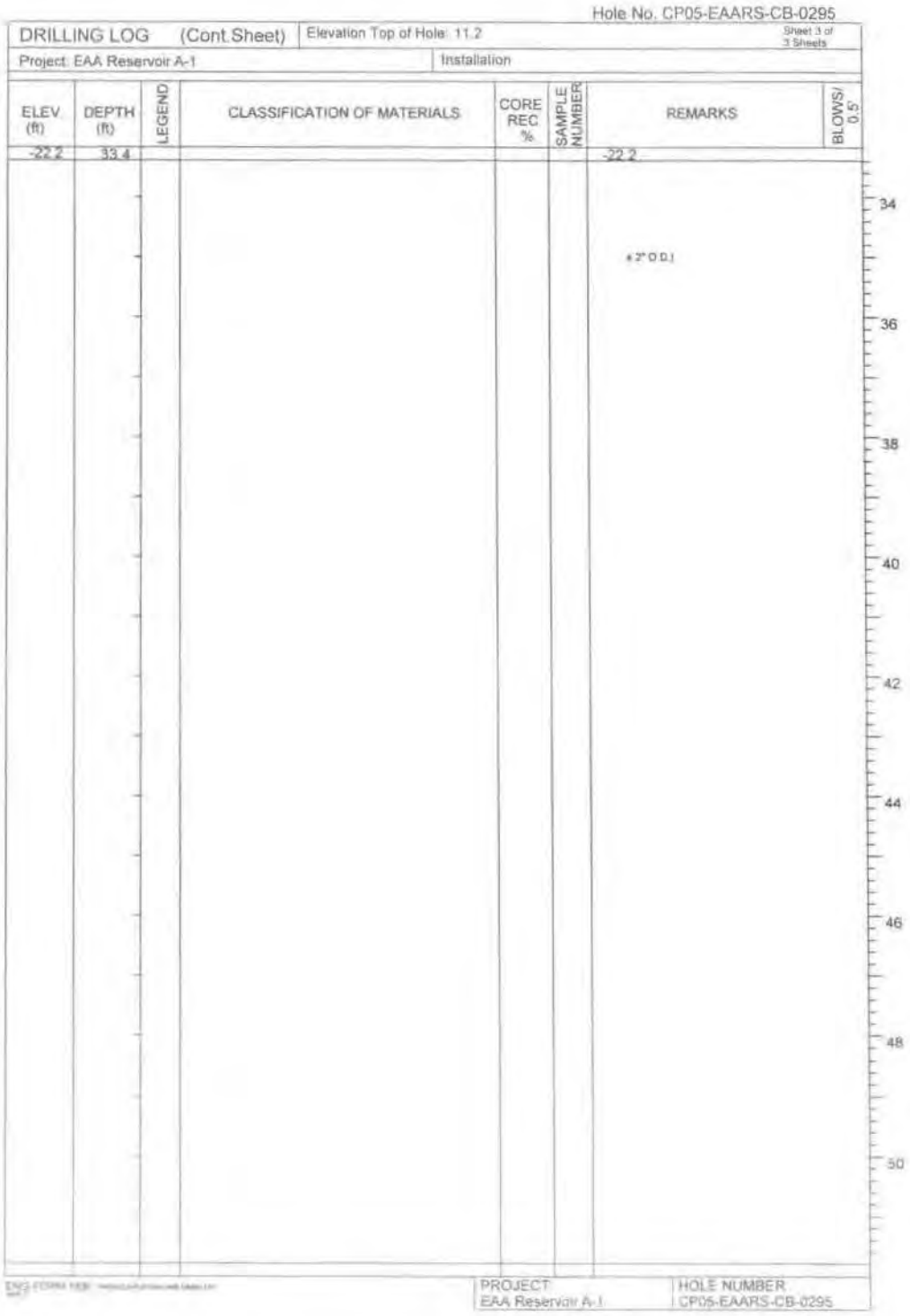
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.8	15.0					-3.8	
-4.3	15.5		hard, sandy, fine to coarse, subangular, fossiliferous (single vug at 15 ft				
						-4.8	
			SAND, gravelly, clayey, light grey, very loose, calcareous, wet, fine to coarse, subrounded, fossiliferous with moderate shell fragments (marl)		4	SPT	2 1 1
						-7.8	
			SAND, clayey, grey, gravelly, very dense, calcareous, wet, fine to coarse, subrounded, fossiliferous, with moderate shell fragments (marl)		5	SPT	27 58 21
						-12.8	
			Same as above, loose		6	SPT	3 3 4
						-17.8	
-19.3	30.5		SAND, clayey, gravelly, grey to light brown, medium dense, calcareous, wet, fine to coarse, subrounded, slightly fossiliferous, trace to minor fine quartz sand		7	SPT	4 6 12
			End of Boring at 30.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0" spiltspoon (1 3/8" I.D.

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0295



Hole No. CP05-EAARS-CB-0295

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.2 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC. %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.2	33.4					-22.2	

34
36
38
40
42
44
46
48
50

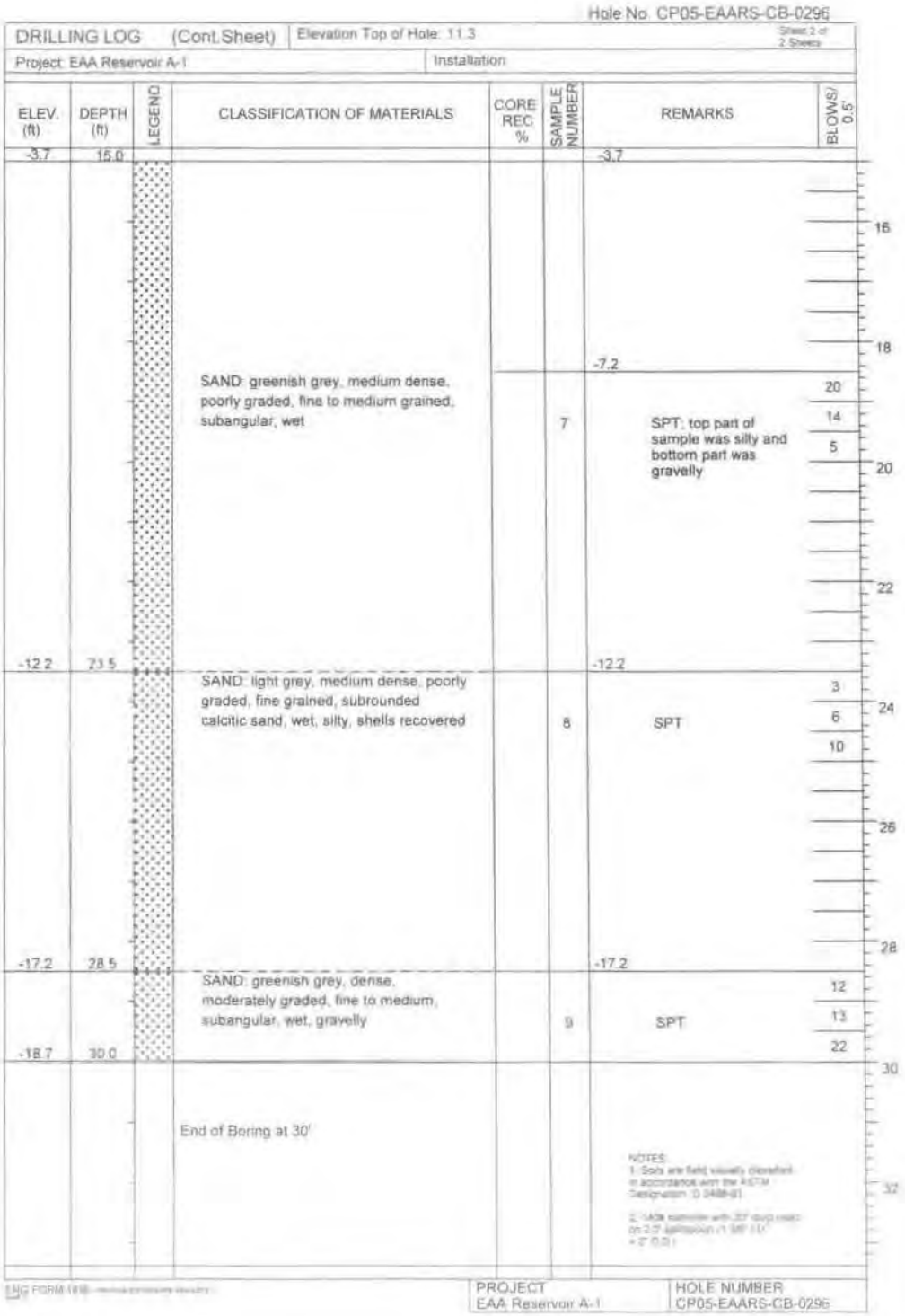
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0295

Hole No. CP05-EAARS-CB-0296

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N773015.7, E775589.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0296		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/28/2005 Completed 7/28/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30 ft		19. Inspector: A.M. Noronha	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.3	0.0		PEAT: black, medium dense, poorly graded, fine grained, dry, mostly organic		1	11.3 SPT 9.8	3, 4, 7
			Same as above, but wet		2	SPT 8.3	4, 4, 8
			Same as above		3	SPT 6.8	9, 8, 13
			Same as above		4	SPT 5.3	4, 16, 7
			Same as above and limestone chips recovered		5	4.3 SPT, casing 0 to 5 ft	12, 50/4"
4.5	6.8		LIMESTONE: white hard, fine grained, quite porous, shelly	42 (ROD 8%)	1	HQ coring: core 7 to 12 ft 1.3	
						Casing: 5 to 10 ft -0.2	
0.2	11.5		SAND: light grey, dense, moderately graded, fine to coarse grained, subangular, wet			-0.7	
					6	SPT: quite gravelly	2, 6, 26

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0296



Hole No. CP05-EAARS-CB-0296

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.7	15.0					-3.7	
			SAND: greenish grey, medium dense, poorly graded, fine to medium grained, subangular, wet		7	-7.2 SPT: top part of sample was silty and bottom part was gravelly	20 14 5
-12.2	23.5		SAND: light grey, medium dense, poorly graded, fine grained, subrounded calcitic sand, wet, silty, shells recovered		8	-12.2 SPT	3 6 10
-17.2	28.5		SAND: greenish grey, dense, moderately graded, fine to medium, subangular, wet, gravelly		9	-17.2 SPT	12 13 22
-18.7	30.0		End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation D 2488-93.
2. 140# hammer with 30" drop used on 2.5" splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0296

Hole No. CP05-EAARS-CB-0297

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N771853.3, E776111.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0297		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/9/2005 Completed 8/9/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30.5 ft		19. Inspector: C. Brown	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.3	0.0		SAND: gravelly, silty, light grey, medium dense, fine to medium, subangular to sub rounded, moist		1	10.3 SPT; Automatic Hammer 8.3	16, 15, 2
7.8	2.5		Organic, dark brown, silty, fibrous, sandy, soft, wet		2	SPT 6.3	2, 2, 1
6.3	4.0		Refusal - LIMESTONE, gravel, grey, hard, subangular LIMESTONE, grey, hard, fine to crystalline, fossiliferous LIMESTONE, grey to light grey, very hard, fine to crysalline, silicious, fossiliferous LIMESTONE, grey, hard, sandy, fine to medium, subangular to subrounded, fossiliferous, grades softer	80 (RQD 50%	3 1	5.8 SPT; Set casing to 4 ft HQ coring 0.8	50
-2.7	13.0		LIMESTONE, light brown, soft sandy, poorly cemented, fine to coarse, fossiliferous (macro fossils) LIMESTONE, light grey, hard, fine, subangular, highly fossiliferous	66 (RQD 31%)	2	HQ coring -2.7	
-4.2	14.5		No recovery - sandy			-4.2	
			SAND: light grey, silty, slightly gravelly				3

(continued)

ENG FORM 1836

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0297

Hole No. CP05-EAARS-CB-0297

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.3 | Sheet 2 of 3 Sheets

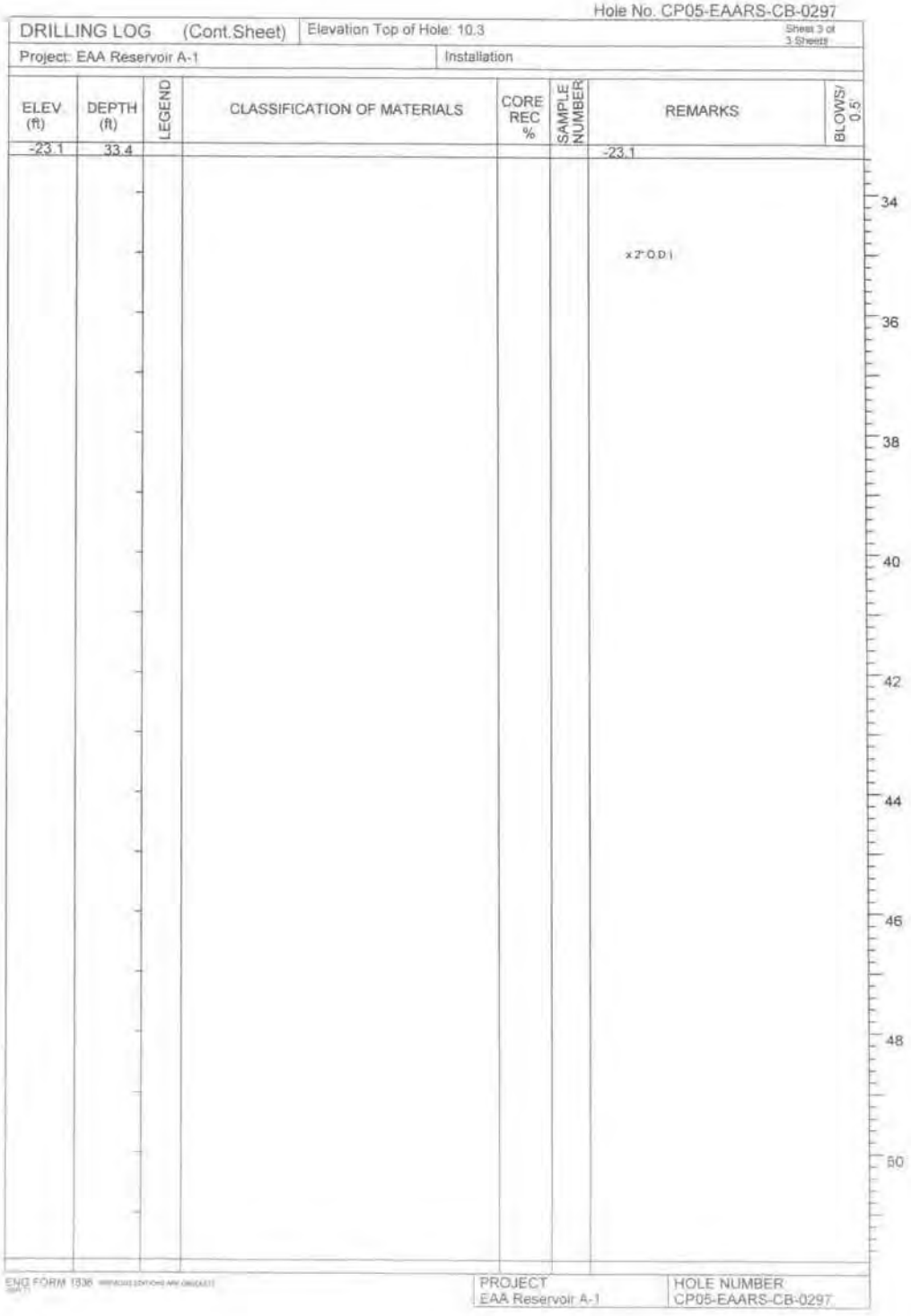
Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.7	15.0		medium dense, wet, fine to coarse, subangular, fossiliferous - fine shell fragments		4	-4.7 SPT	7, 4
			SAND, clayey silty, light grey, medium dense, wet, fine to coarse, subrounded, calcareous, fossiliferous (marl) - slightly gravelly		5	-8.7 SPT	7, 7, 9
			SAND, clayey, gravelly, light brown, medium dense, calcareous, wet, fine to coarse, subrounded, slightly fossiliferous, trace fine quartz sand		6	-13.7 SPT	5, 27, 14
-20.2	30.5		SAND, silty, slightly clayey, grey to light brown, medium dense, fine to medium, subrounded quartz (sand), minor fine heavy minerals (29.0 to 29.5 ft - LIMESTONE gravel lense)		7	-18.7 SPT, 29 to 29.5 ft Limestone gravel lense	95, 20, 4
			End of Boring at 30.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93
2. 140# hammer with 30" drop used on 2.0 spillspoon (1.38" I.D.)

(continued)

ENG FORM 1836 | PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0297



Hole No. CP05-EAARS-CB-0297

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.3 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.1	33.4					-23.1	

x 2" O.D.I

34
36
38
40
42
44
46
48
50

ENG FORM 1836

PROJECT: EAA Reservoir A-1

HOLE NUMBER: CP05-EAARS-CB-0297

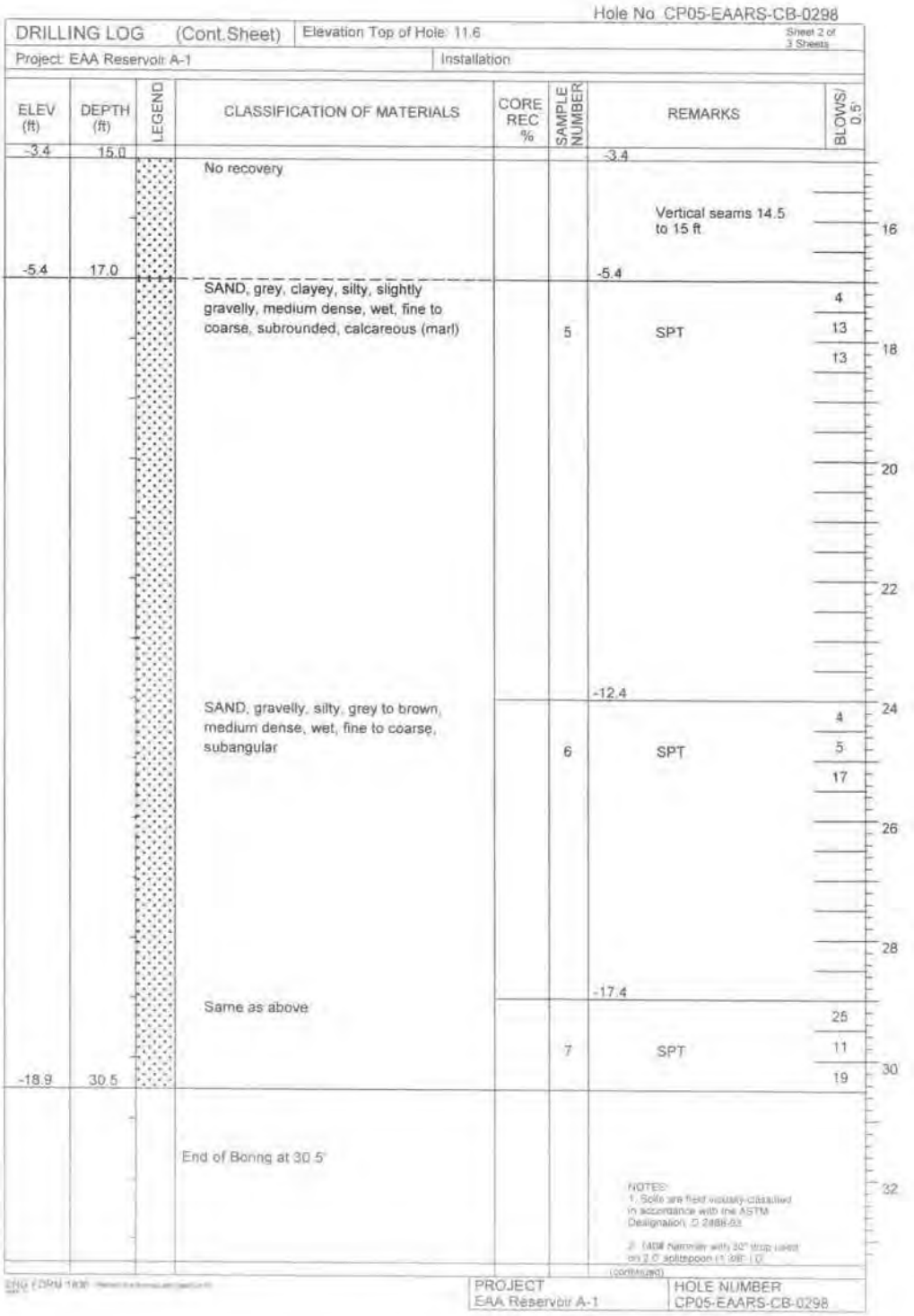
Hole No. CP05-EAARS-CB-0298

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N769839.7, E777981 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No. CP05-EAARS-CB-0298	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/5/2005 Completed 8/8/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: C. Brown

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.6	0.0						
			SAND, Silty, gravelly, dark brown to black, loose, moist, fine to coarse, subangular		1	11.6 SPT, Automatic hammer	3, 3, 4
			SAND, gravelly, silty, grey, loose, wet, fine to coarse, subangular		2	9.6 SPT	4, 6, 4
7.6	4.0		SAND, gravelly, grey, very dense, wet, fine to coarse, subangular to angular		3	7.6 SPT	13, 24, 50
6.1	5.5		LIMESTONE: grey, hard, sandy, subangular, silicious	100 (RQD 38%)	1	6.1 HQ coring	
5.1	6.5		CLAY, gravelly, sandy, dark grey, calcareous, fine to coarse, subrounded, fossiliferous (marl)			5.1	
4.1	7.5		Refusal - LIMESTONE, grey to tan, gravelly, slightly sandy, wet, hard, angular, fine grain to crystalline, platy			4.1	50/3"
				74 (RQD 46%)	2	3.6 SPT, Advanced casing to 7.5 ft HQ coring	
			LIMESTONE, grey to light brown, moderately hard, sandy, fine grain, fossiliferous, subangular with interbedded sand lense (9.5 to10.0 ft)				
						-1.4	
			Same as above, vertical seams (14.5 to 15.0 ft)	28 (RQD 15%)	3	HQ coring	
						-2.9	
-3.4	15.0					(continued)	

ENG FORM 1836	PROJECT	HOLE NUMBER
	EAA Reservoir A-1	CP05-EAARS-CB-0298



Hole No. CP05-EAARS-CB-0298

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

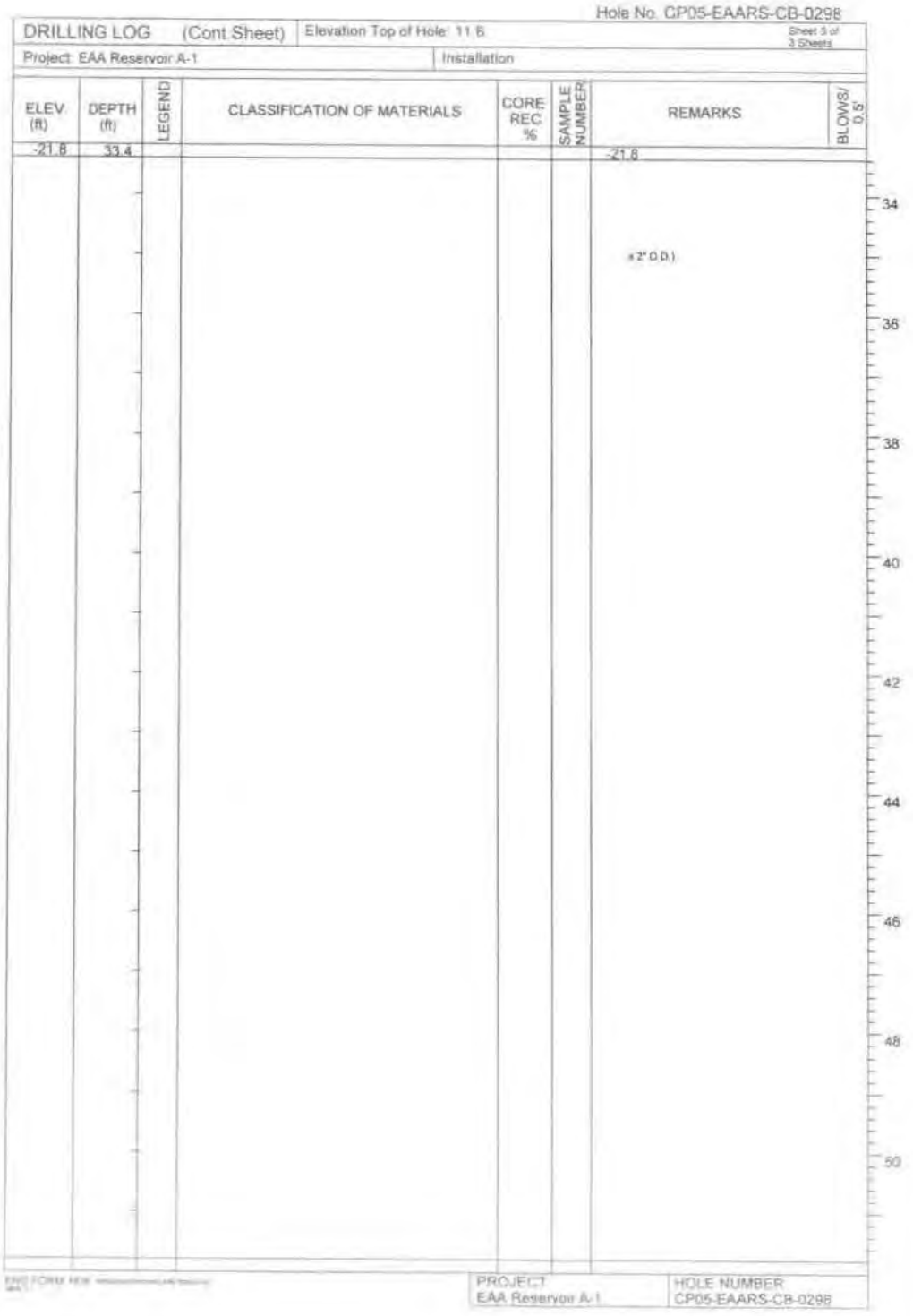
ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.4	15.0					-3.4	
			No recovery			Vertical seams 14.5 to 15 ft	16
-5.4	17.0					-5.4	
			SAND, grey, clayey, silty, slightly gravelly, medium dense, wet, fine to coarse, subrounded, calcareous (marl)		5	SPT	4 13 13
							18
							20
							22
						-12.4	
			SAND, gravelly, silty, grey to brown, medium dense, wet, fine to coarse, subangular		6	SPT	4 5 17
							24
							26
							28
						-17.4	
			Same as above		7	SPT	25 11 19
-18.9	30.5						30
			End of Boring at 30.5'				32

NOTES:
1. Soils are field visually-classified in accordance with the ASTM Designation D 2488-93.
2. [illegible] with 30" drop used on 2.0" splitspoon (1.38" I.D.

(continued)

ENG FORM [illegible]

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0298



Hole No. CP05-EAARS-CB-0298

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 11.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.8	33.4					-21.8	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

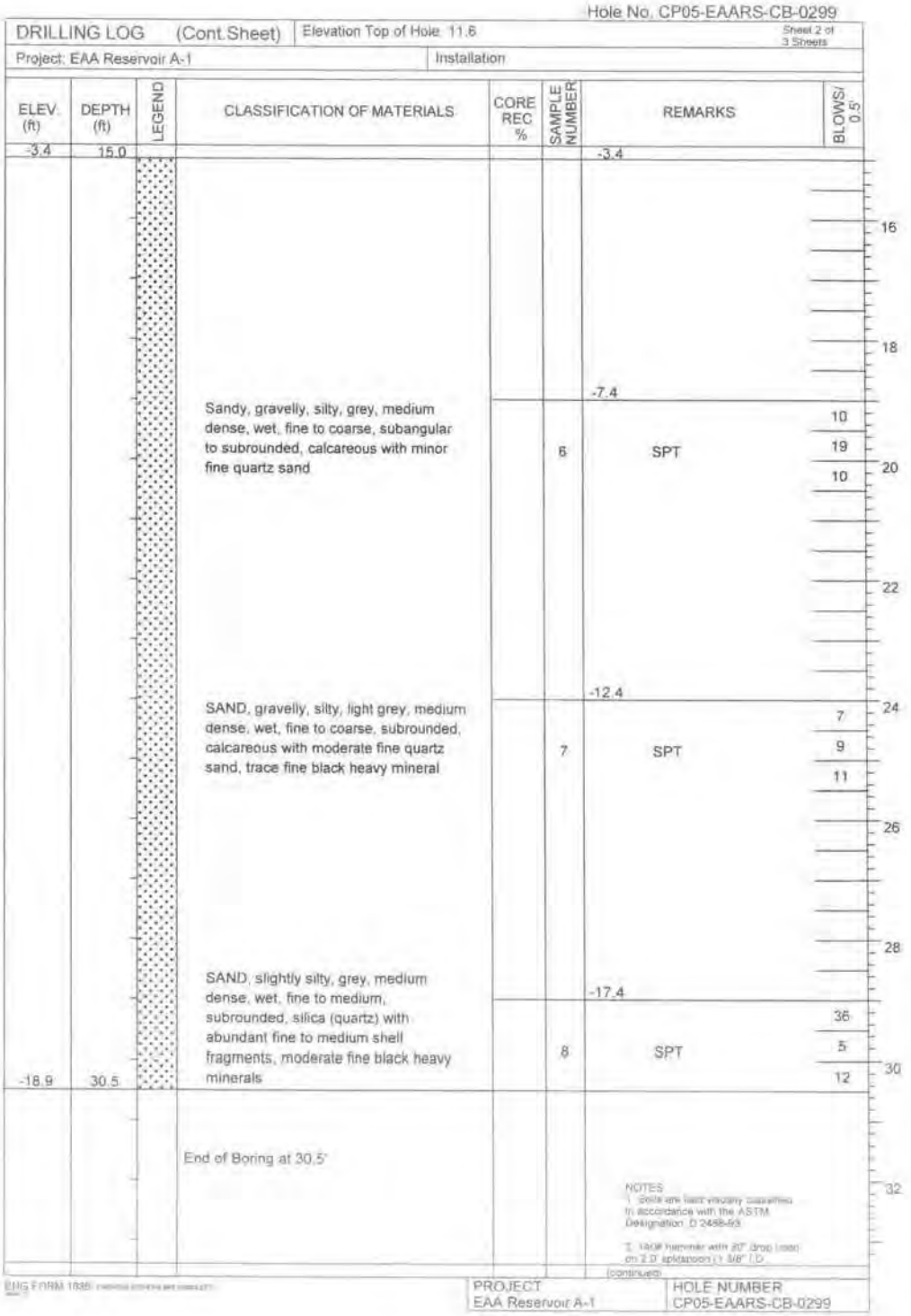
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0298

Hole No. CP05-EAARS-CB-0299

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N768147.7, E779025.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0299		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/5/2005 Completed 8/5/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30.5 ft		19. Inspector: C. Brown	

ELEV (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.6	0.0						
11.1	0.5		Silty, organic, dark brown to black			11.6	3
			SAND, gravelly, slightly silty, grey, medium dense, fine to coarse, moist, subrounded with shell fragments		1	SPT, Automatic hammer	8
							10
						9.6	
			same as above				7
					2	SPT	7
							6
						7.6	
			same as above, wet				4
					3	SPT	15
							12
						5.6	
			SAND, clayey, silty, gravelly, dark grey, very dense, fine to coarse, wet, subangular to angular				3
					4	SPT	3
							14
3.8	7.8					3.6	
			LIMESTONE, light grey, moderately hard to soft, sandy, fine to coarse, subrounded to subangular, fossiliferous, (macro fossils), grades softer with depth	62 (RQD 13%)	1	HQ coring. Top of rock at 7.8 ft. Set casing to 8 ft.	
-0.4	12.0					-1.4	
			Sandy, gravelly, silty, light grey, medium dense, wet, fine to coarse, subangular, calcareous		5	SPT	11
							3
							7

PROJECT: EAA Reservoir A-1 HOLE NUMBER: CP05-EAARS-CB-0299



Hole No. CP05-EAARS-CB-0299

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole 11.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.4	15.0					-3.4	
			Sandy, gravelly, silty, grey, medium dense, wet, fine to coarse, subangular to subrounded, calcareous with minor fine quartz sand		6	-7.4 SPT	10 19 10
			SAND, gravelly, silty, light grey, medium dense, wet, fine to coarse, subrounded, calcareous with moderate fine quartz sand, trace fine black heavy mineral		7	-12.4 SPT	7 9 11
-18.9	30.5		SAND, slightly silty, grey, medium dense, wet, fine to medium, subrounded, silica (quartz) with abundant fine to medium shell fragments, moderate fine black heavy minerals		8	-17.4 SPT	36 5 12
			End of Boring at 30.5'				

16 18 20 22 24 26 28 30 32

NOTES
1. Soils are field visually classified in accordance with the ASTM Designation D 2488-93
2. 140# hammer with 30" drop (used on 2.0' splitspoon (1 3/8" I.D.

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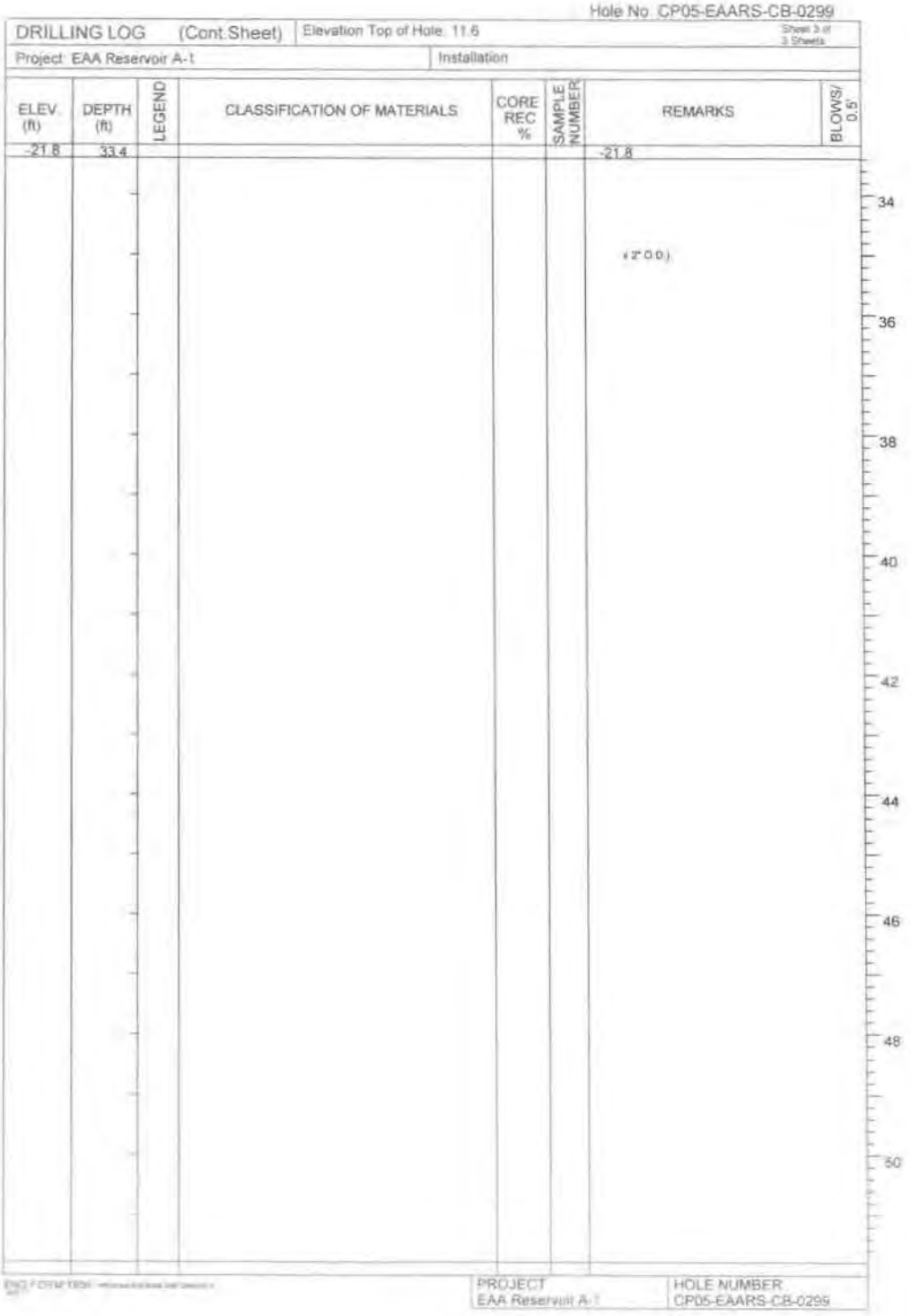
ENG FORM 1836

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0299

538



Hole No. CP05-EAARS-CB-0299

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.8	33.4					-21.8	

34
36
38
40
42
44
46
48
50

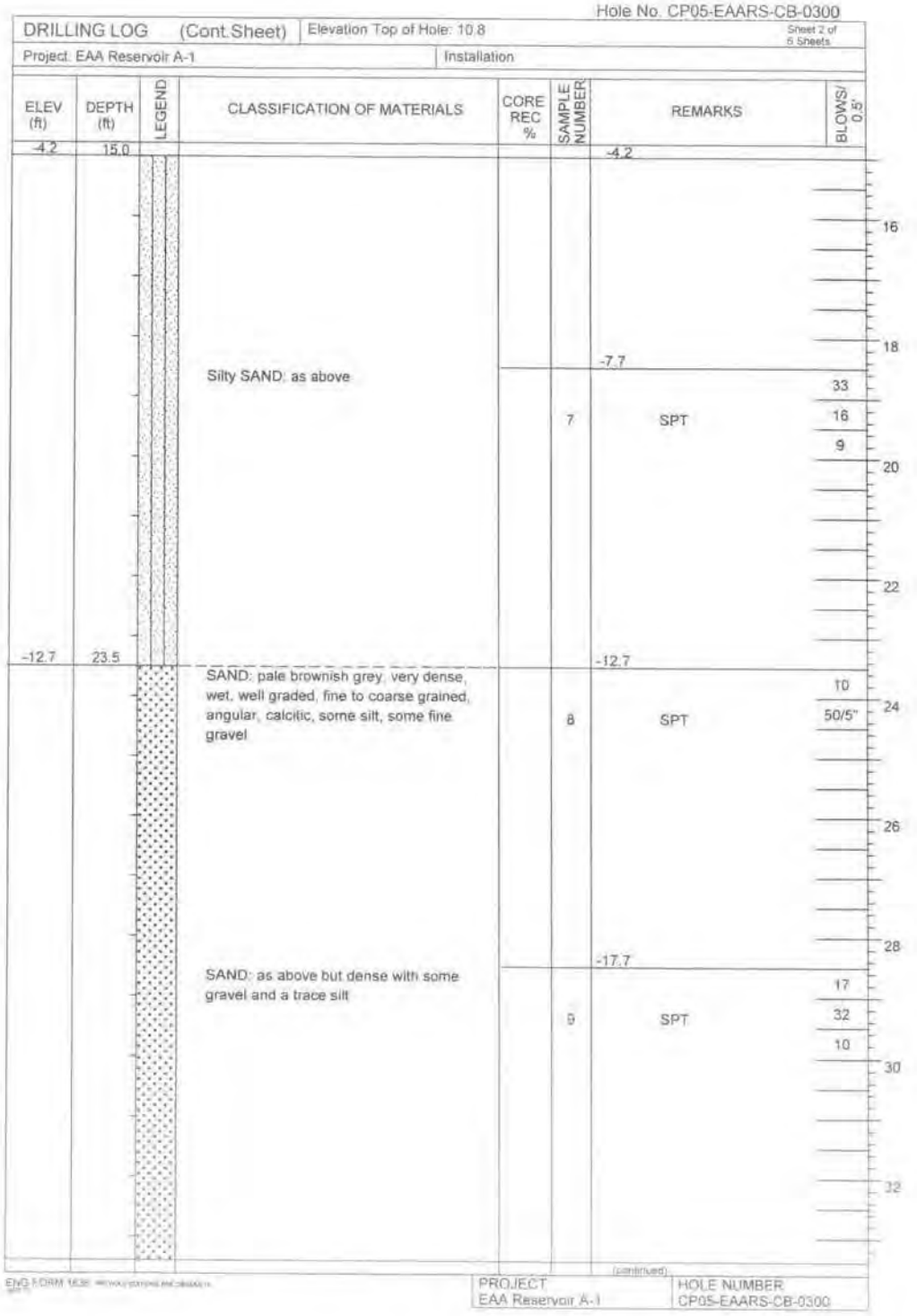
PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0299

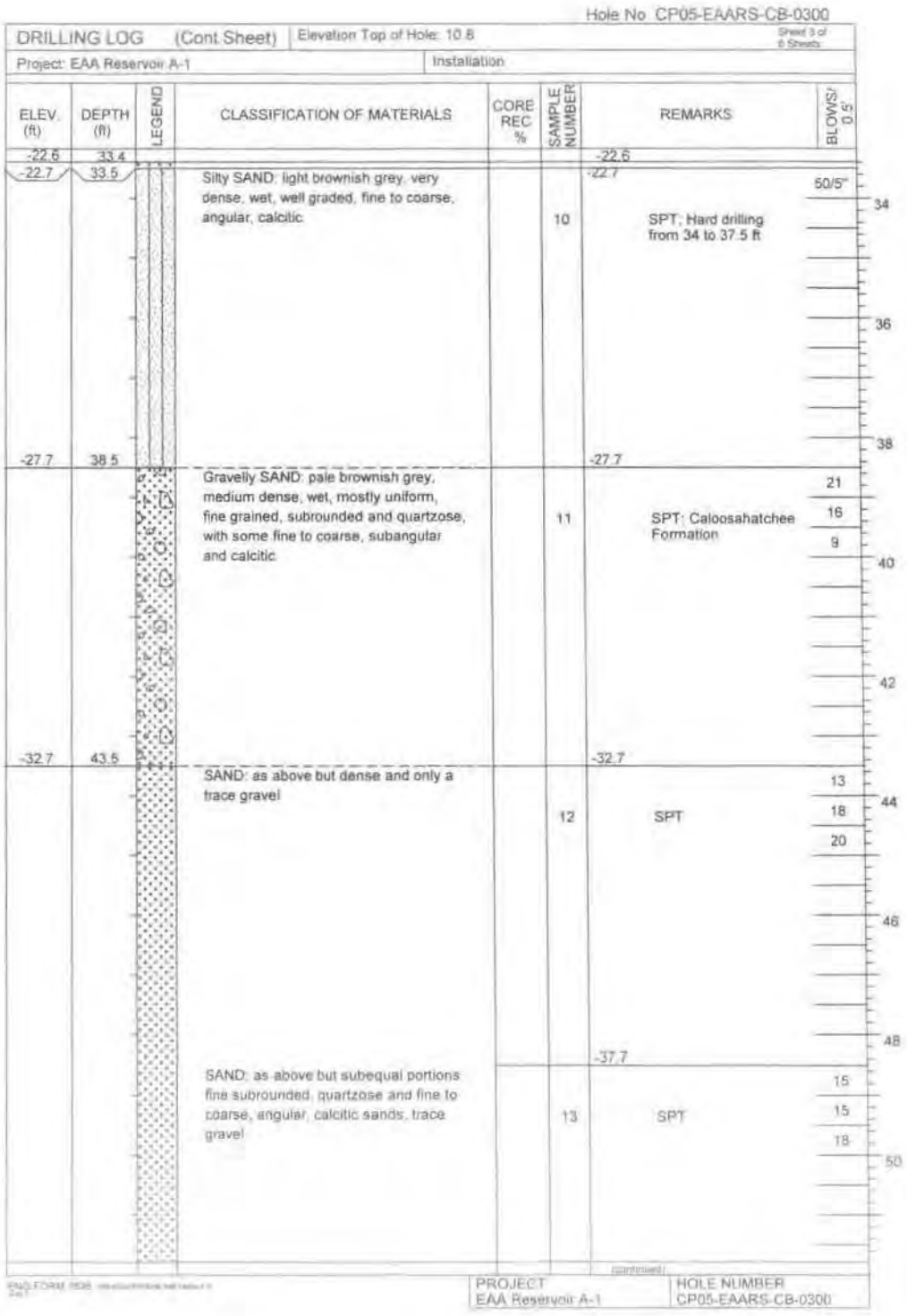
Hole No. CP05-EAARS-CB-0300

DRILLING LOG	Division:	Installation:	Sheet 1 of 5 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N766340.5, E780295.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0300		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 8/4/2005 Completed 8/4/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 10.8 (ft)	
9. Depth of hole: 100 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: N. Hoist	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.8	0.0						
			PEAT: brownish black, loose, fine grained, dry, organic, with many roots			10.8	3
					1	SPT; Fill	3
						9.3	3
							3
					2	SPT	3
			same as above, but wet			7.8	2
							3
					3	SPT	4
						6.3	4
							7
					4	SPT	12
5.1	5.8					4.8	50/3"
			LIMESTONE: caprock, tan, thinly bedded, fine to coarse grained, fossiliferous, vuggy, strong and hard to soft and weak and porous, locally stained light brown	62 (RQD 24%)	1	HQ coring; Mudstone to grainstone	
0.1	10.7					-0.2	
			SAND: pale brownish grey, loose, wet, well graded, fine to coarse, angular, calcitic, some silt				7
					5	SPT	5
							2
-2.7	13.5					-2.7	
			Silty SAND: as above but more silt and trace fine gravel				4
					6	SPT	4
							2

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0300


Hole No. CP05-EAARS-CB-0300
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.8
Sheet 2 of 6 Sheets
Project: EAA Reservoir A-1
Installation
ELEV (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-4.2
15.0
-4.2
16
18
-7.7
Silty SAND: as above
33
7
SPT
16
9
20
22
-12.7
23.5
-12.7
SAND: pale brownish grey, very dense, wet, well graded, fine to coarse grained, angular, calcitic, some silt, some fine gravel
10
8
SPT
50/5"
24
26
28
-17.7
SAND: as above but dense with some gravel and a trace silt
17
9
SPT
32
10
30
32
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0300



Hole No. CP05-EAARS-CB-0300

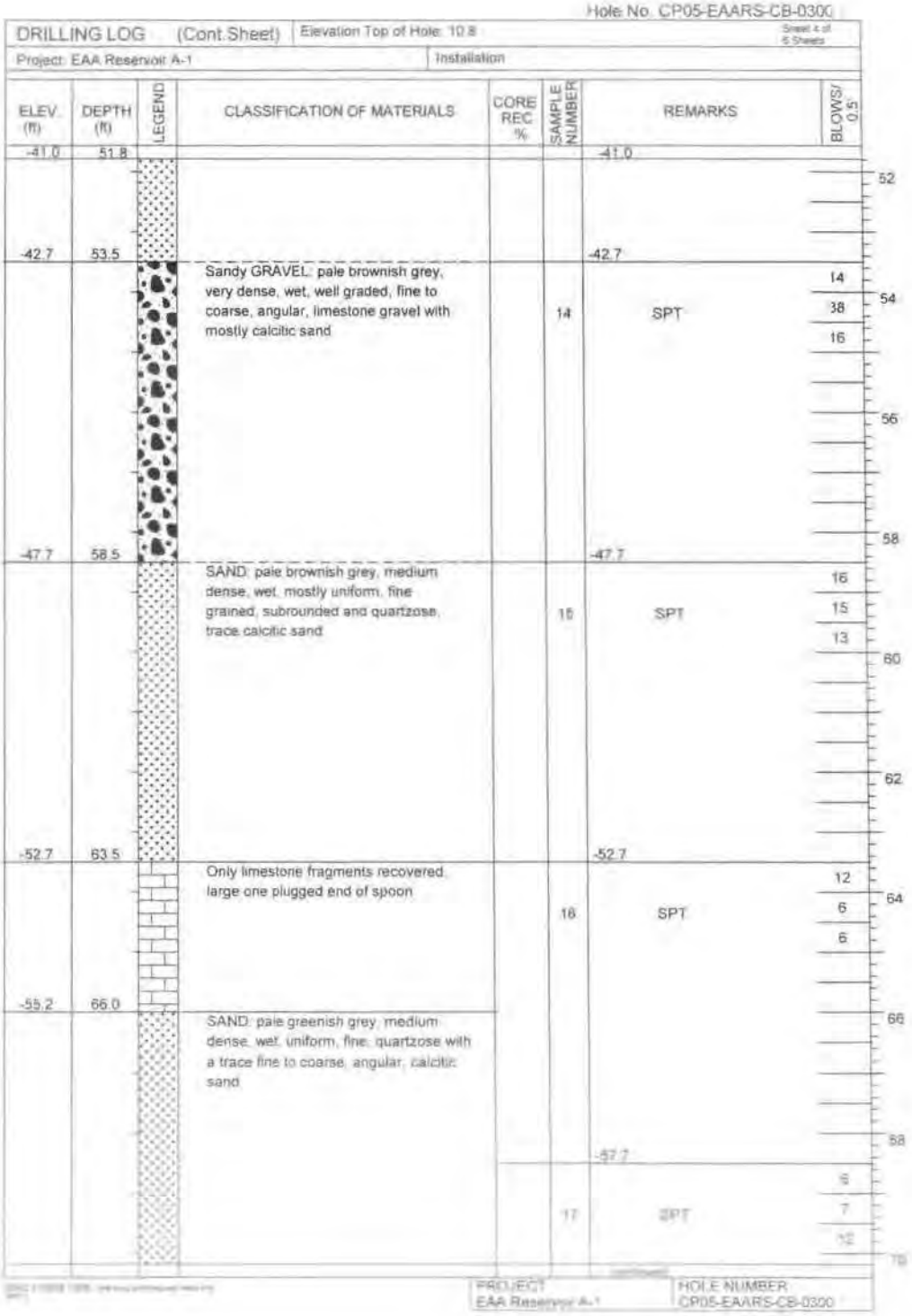
DRILLING LOG (Cont. Sheet) | Elevation Top of Hole: 10.8 | Sheet 3 of 6 Sheets

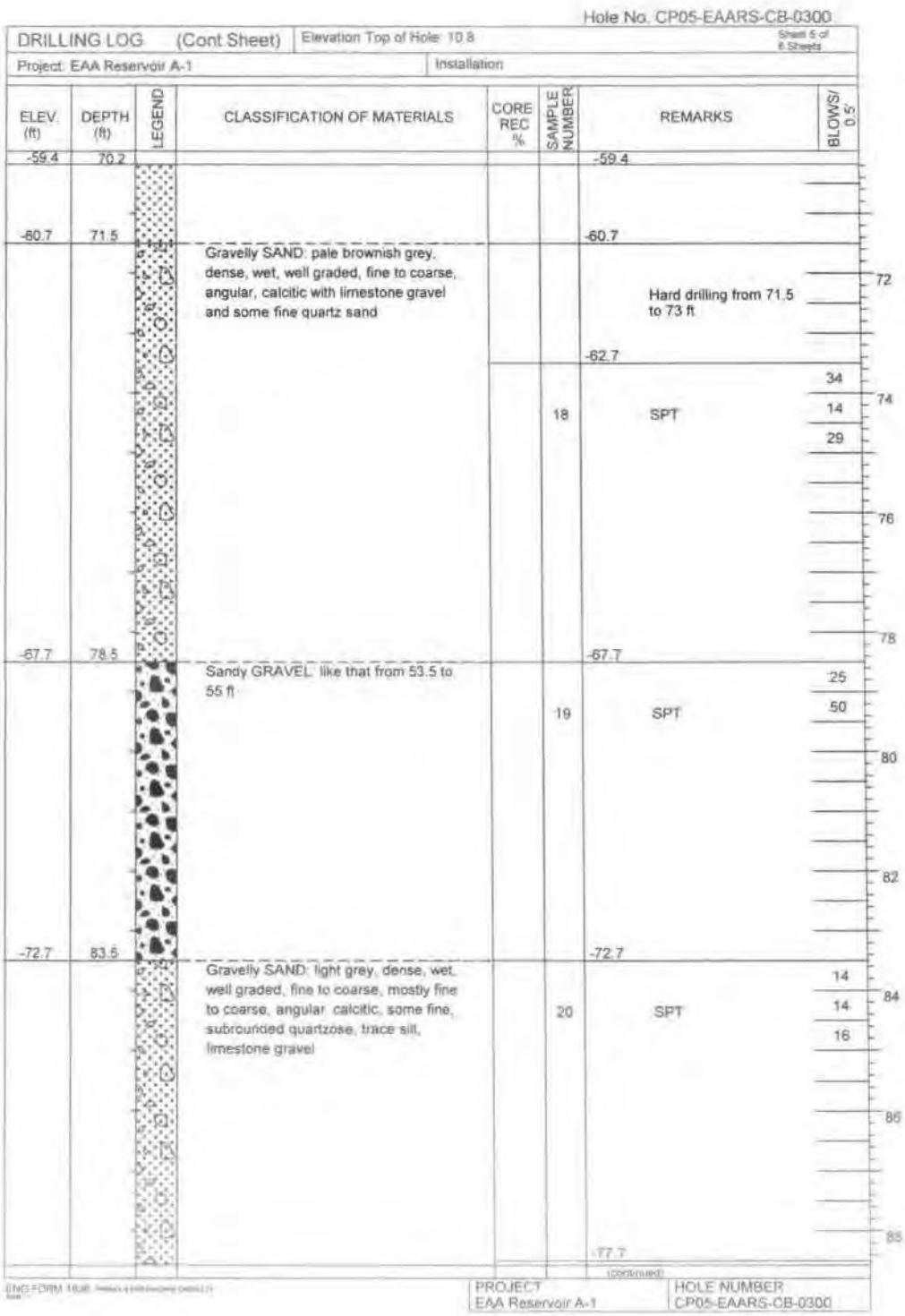
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.6	33.4					-22.6	
-22.7	33.5		Silty SAND: light brownish grey, very dense, wet, well graded, fine to coarse, angular, calcitic		10	-22.7 SPT; Hard drilling from 34 to 37.5 ft	50/5"
-27.7	38.5		Gravelly SAND: pale brownish grey, medium dense, wet, mostly uniform, fine grained, subrounded and quartzose, with some fine to coarse, subangular and calcitic		11	-27.7 SPT: Caloosahatchee Formation	21 16 9
-32.7	43.5		SAND: as above but dense and only a trace gravel		12	-32.7 SPT	13 18 20
			SAND: as above but subequal portions fine subrounded, quartzose and fine to coarse, angular, calcitic sands, trace gravel		13	-37.7 SPT	15 15 18

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0300


Hole No. CP05-EAARS-CB-0300
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.8
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-41.0
51.8
-42.7
53.5
Sandy GRAVEL: pale brownish grey, very dense, wet, well graded, fine to coarse, angular, limestone gravel with mostly calcitic sand
14
SPT
14
38
16
-47.7
58.5
SAND: pale brownish grey, medium dense, wet, mostly uniform, fine grained, subrounded and quartzose, trace calcitic sand
15
SPT
16
15
13
-52.7
63.5
Only limestone fragments recovered, large one plugged end of spoon
16
SPT
12
6
6
-55.2
66.0
SAND: pale greenish grey, medium dense, wet, uniform, fine, quartzose with a trace fine to coarse, angular, calcitic sand
17
SPT
6
7
12
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0300



Hole No. CP05-EAARS-CB-0300

DRILLING LOG (Cont Sheet) | Elevation Top of Hole: 10.8 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-59.4	70.2					-59.4	
-60.7	71.5		Gravelly SAND: pale brownish grey, dense, wet, well graded, fine to coarse, angular, calcitic with limestone gravel and some fine quartz sand			-60.7 Hard drilling from 71.5 to 73 ft	72
					18	-62.7 SPT	34 14 29
-67.7	78.5		Sandy GRAVEL like that from 53.5 to 55 ft		19	-67.7 SPT	25 50
-72.7	83.5		Gravelly SAND: light grey, dense, wet, well graded, fine to coarse, mostly fine to coarse, angular calcitic, some fine, subrounded quartzose, trace silt, limestone gravel		20	-72.7 SPT	14 14 16
						-77.7 (continued)	

74 76 78 80 82 84 86 88

ENG FORM 1836

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0300

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 301-320

Hole No. CP05-EAARS-CB-0301

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N764973.7, E781256.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0301	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/4/2005 Completed 8/4/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: C. Brown

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.7	0.0						
11.2	0.5		Silty, organic, black			11.7	7
			SAND, gravelly, silty, grey, well graded, fine to coarse, loose, moist, subangular to angular		1	SPT	4
							4
						9.7	
			Same as above, medium dense, wet		2	SPT	8
							8
							6
						7.7	
			Same as above		3	SPT	10
							4
							10
						5.7	
			Same as above, (limestone, green-grey, hard, fine grain at tip)		4	SPT	8
							7
4.6	7.1						50/1"
			LIMESTONE, grey to green, fine grain to crystalline, hard, minor porosity, fossiliferous, silicious				
						3.7	
				95 (RQD 85%)	1	HQ coring; partial loss of drilling fluid circulation at 7 ft	
			LIMESTONE, grey, hard, fine grain, highly fossiliferous and porous in lenses, silicious, grades softer				
						-0.3	
			LIMESTONE, grey to green, fine grain to crystalline, hard, fossiliferous, (maybe dolomitic)	34 (RQD 10%)	2	HQ coring	

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0301

Hole No. CP05-EAARS-CB-0301

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.7 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.3	15.0					-3.3	
-5.3	17.0		LIMESTONE, light grey, moderately hard, sandy, fine to medium, slightly fossiliferous, porous in lenses, grades softer			-5.3	16
			SAND, gravelly, silty to clayey, grey, medium dense, fine to coarse, calcareous with moderate macro fossils, subangular - wet		5	SPT	3 5 12
-12.3	24.0					-12.3	18 20 22
			SAND, gravelly, slightly silty, grey, dense, wet, fine to coarse, subangular to subrounded, calcareous, with fine quartz sand, some shell fragments		6	SPT	5 8 13
-17.3	29.0					-17.3	24 26 28
			SAND, gravelly, silty, clayey, light grey, medium dense, wet, fine to coarse, subangular to subrounded, calcareous, (marl) with fine shell fragments		7	SPT	15 11 5
-18.8	30.5						30
			End of Boring at 30.5'				32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0301

Hole No. CP05-EAARS-CB-0301

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 11.7	Sheet 3 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.7	33.4					-21.7	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1

HOLE NUMBER CP05-EAARS-CB-0301

Hole No. CP05-EAARS-CB-0302

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N763912, E781642 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0302	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/3/2005 Completed 8/3/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 12.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: C. Brown

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.5	0.0						
12.0	0.5		Asphalt Pavement			12.0	0
			SAND: gravelly, silty, grey, dense, well graded, dry, fine to coarse, angular to subangular (FILL)		1	SPT; Automatic hammer	24 27 24
						10.5	
			Same as above, moist		2	SPT	14 23 25
						8.5	2
			Same as above - medium dense, wet		3	SPT	13 16 10
6.5	6.0					6.5	4
6.0	6.5		Refusal cuttings			6.5	6
			LIMESTONE: grey to light tan, hard, brittle, fine grained to crystalline, silicious, fossiliferous, vertical seams	46 (RQD 28%)	1	SPT Set casing to 6 ft	50/1"
						1.5	8
			LIMESTONE: light grey, hard, brittle, crystalline to microcrystalline, silicious	48 (RQD 25%)	2	HQ coring; 100% drill fuid loss at 9 ft; Advanced casing to 11 ft	10 12
			LIMESTONE, grey to light tan, hard, fine grain to crystalline, fossiliferous, slightly silicious				14
-2.5	15.0						

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0302

Hole No. CP05-EAARS-CB-0302

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.5 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.5	15.0					-2.5	
						-3.5	
			SAND: gravelly, slighty silt, light grey, very loose, well-graded, fine to coarse, wet, calcareous, angular to subangular with shell fragments		5	SPT; Advanced casing to 16 ft	5 2 1
						-6.5	
			SAND: gravelly, silty, slight clayey, grey, calcareous, medium dense, wet, subangular with abundant shell fragments		6	SPT	5 10 10
-11.5	24.0					-11.5	
			SAND: slight silty, light brown to grey, fine to coarse, dense, wet, carbonate, with some silica (Quartz sand), partial cemented, subrounded, trace of fine black heavy minerals		7	SPT	5 6 34
-16.5	29.0					-16.5	
			SAND: silty, grey, fine to medium, dense, wet, subrounded, with trace of fine black heavy minerals		8	SPT	10 18 21
-18.0	30.5						
			End of Boring at 30.5'				

16 18 20 22 24 26 28 30 32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0302

Hole No. CP05-EAARS-CB-0302

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 12.5	Sheet 3 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-20.9	33.4					-20.9	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE
MAR 71

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0302

Hole No. CP05-EAARS-CB-0303

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N761607.6, E783513.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0303	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/3/2005 Completed 8/3/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: C. Brown

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.8	0.0						
			SAND: gravelly, silty, grey, medium dense, well graded, fine to course, day, angular, to subangular		1	11.8 SPT 9.8	12, 14, 10
			Same as above, moist - fill		2	SPT 7.8	8, 11, 9
			Refusal at 5', top of caprock		3	6.8 SPT	6, 12
6.8	5.0		LIMESTONE. gray, hard, fossiliferous, porous, fine grain	85 (RQD 78%)	1	HQ coring; set casing to 5 ft	50/0"
			LIMESTONE, grey, hard to very hard, silicious, fine to crystalline				
			LIMESTONE, grey, hard to moderately hard, vuggy, sandy, fine to coarse, subangular, highly fossiliferous and vuggy in lenses			1.8	
			LIMESTONE, light grey, hard, sandy, fine to crystallne, subangular, slightly silicious	65 (RQD 52%)	2	HQ coring; UCS=8389psi	
			LIMESTONE, grey, moderately hard, sandy, fossiliferous, porous, grades softer with depth with macro-fossils			-3.2	

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0303

Hole No. CP05-EAARS-CB-0303

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.8 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.2	15.0					-3.2	
-4.7	16.5		LIMESTONE, grey to light grey, hard brittle, fine to crystalline, fossiliferous, silicious, vertical seams	37 (RQD 28%)	3	HQ coring	16
			SAND: gravelly, silty, light grey, dense, wet, well graded, fine to coarse, subangular to angular, calcareous, abundant shell fragments interbedded calcareous clay lenses - Marl			-6.2	18
						-7.2	
					4	SPT	4 31 17
							20
							22
-11.2	23.0						
			SAND: silty, light grey, medium dense, wet, fine to medium, wet, subangular, with shell fragments and traces of black fine heavy minerals			-12.2	24
					5	SPT	3 4 8
							26
							28
						-17.2	
			Same as above, loose with tin lenses of grey to brown, limestone, fine grain, (HARD), silicious		6	SPT	10 5 3
-18.7	30.5						30
			End of Boring at 30.5'				32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0303

Hole No. CP05-EAARS-CB-0303

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 11.8	Sheet 3 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.6	33.4					-21.6	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0303

Hole No. CP05-EAARS-CB-0304

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N758275.1, E785955.4 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0304	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/2/2005 Completed 8/2/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 34.5 ft	19. Inspector: C. Brown

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.7	0.0						
			Silt, organic, black, moist		1	10.7 SPT; Automatic hammer	1, 1, 3
			Same as above, firm, moist		2	8.7 SPT	2, 3, 2
					3	6.7 SPT	1, 2, 8
5.2	5.5						
4.7	6.0		SAND: gravelly, light grey, fine to coarse, subangular, wet. silt, organic, black, wet			4.7	
4.2	6.5		SILT, organic, black, wet		4	SPT 2.7	3, 26, 14
			LIMESTONE: grey, gravel, weathered, hard, (Marl) fine to coarse, subangular, wet				
			LIMESTONE: grey, hard, fine grain, silicious, slightly vuggy	67 (RQD 24%)	1	HQ coring 1.2	
				60 (RQD 43%)	2	HQ coring; UCS=3195psi	
			LIMESTONE, grey, moderately hard, sandy, fine to coarse grain, fossiliferous (shell fragments) with interbedded calcareous clay lenses			-3.8	

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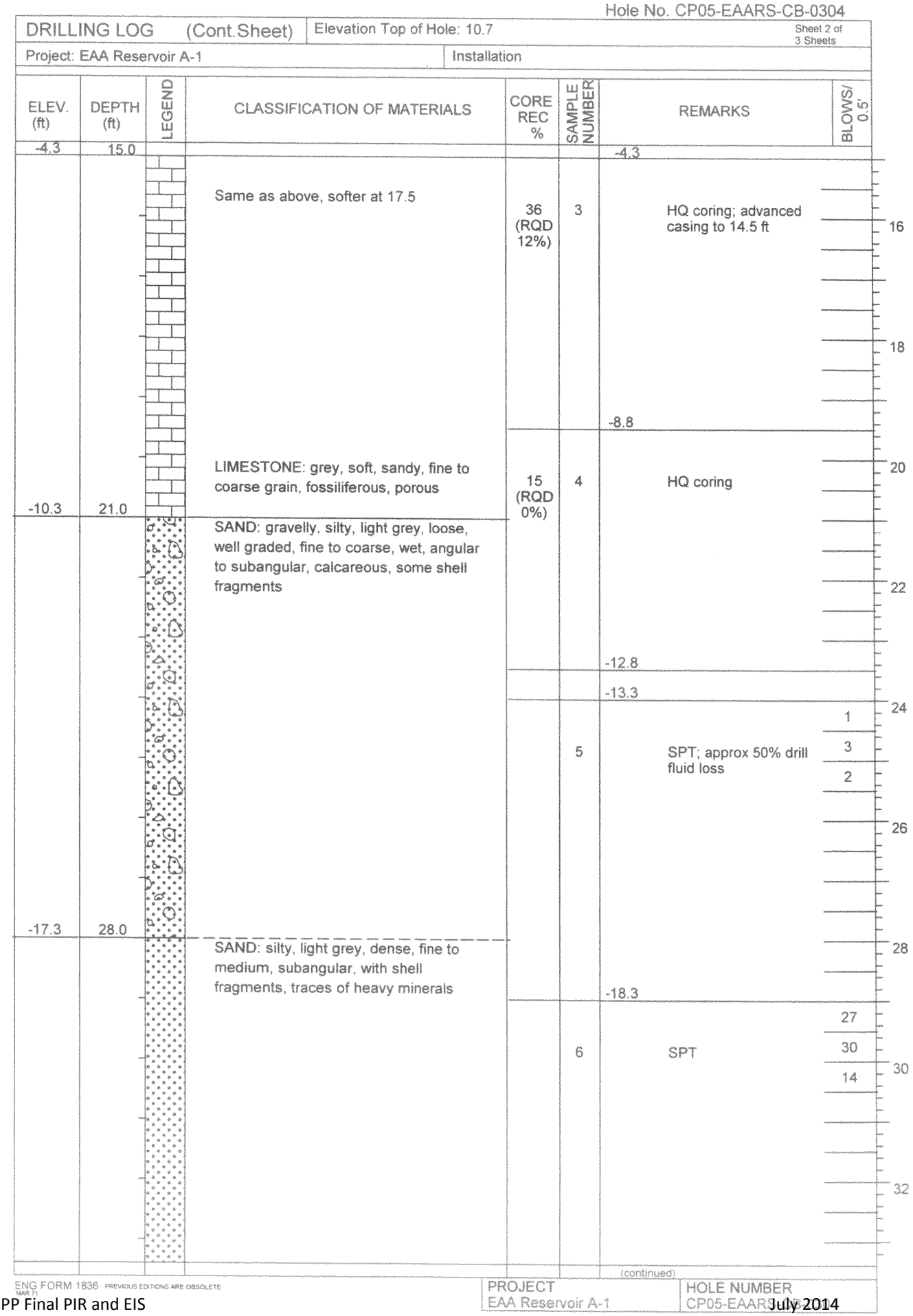
ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0304



Hole No. CP05-EAARS-CB-0304

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.3	15.0					-4.3	
			Same as above, softer at 17.5	36 (RQD 12%)	3	HQ coring; advanced casing to 14.5 ft	16, 18
						-8.8	
			LIMESTONE: grey, soft, sandy, fine to coarse grain, fossiliferous, porous	15 (RQD 0%)	4	HQ coring	20, 22
-10.3	21.0		SAND: gravelly, silty, light grey, loose, well graded, fine to coarse, wet, angular to subangular, calcareous, some shell fragments			-12.8	
						-13.3	
					5	SPT; approx 50% drill fluid loss	1, 3, 2, 24, 26
-17.3	28.0		SAND: silty, light grey, dense, fine to medium, subangular, with shell fragments, traces of heavy minerals			-18.3	
					6	SPT	27, 30, 14, 30, 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0304

Hole No. CP05-EAARS-CB-0304

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.7	33.4					-22.7	
-23.8	34.5		Refusal - No Recovery			-23.3	50/0.5"
					7	SPT	
			End of Boring at 34.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0304

Hole No. CP05-EAARS-CB-0305

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N778651.2, E757998.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0305	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/16/2005 Completed 8/16/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.7	0.0						
8.4	0.3		Rock First 4" rock, then 1.0 ft of peat followed by around 2.5' of limestone	22 (RQD 0%)	1	8.7 HQ coring; Bottom half of sample recovered had weathered limestone pieces	
7.4	1.3		Peat				
			LIMESTONE: pale white, hard, fine grained, quite porous, shells present				
4.9	3.8					3.7	
				8 (RQD 0%)	2	HQ coring; Hard coring from 8 to 9 ft	
0.7	8.0						
			LIMESTONE: brownish white, hard, fine grained, quite porous				
-0.3	9.0						
			No recovery				
-1.3	10.0						
			End of Boring at 10'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0305

Hole No. CP05-EAARS-CB-0306

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N755049.5, E788243.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0306	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/1/2005 Completed 8/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 12.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: C. Brown

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.5	0.0						
12.3	0.3		SILT: organic, dark brown			12.5	3
			SAND: gravelly, silty, grey, medium dense, well graded, fine to coarse, subangular, subrounded, dry, trace shell fragments		1	SPT; automatic hammer	7 14
						10.5	
			SAND: gravelly, silty, grey, dense, well graded, fine to coarse, subangular, platy chert (cobble), moist		2	SPT	15 21 24
						8.5	
			SAND: gravelly, grey, loose, well graded, fine to coarse, subangular, moist, (Black organic silt at 5.5')		3	SPT	8 6 4
6.5	6.0					6.5	
			LIMESTONE: grey to light tan, hard, fossiliferous, vuggy, fine grained	98 (RQD 82%)	1	HQ coring	
			Same as above, grades Sandy, moderately hard with calcareous clay in lenses			4.2	
				93 (RQD 63%)	2	HQ coring; UCS=8080psi	
			LIMESTONE: light grey to brown, very fine grain to crystalline, fossiliferous, silicious			1.5	
				64 (RQD 27%)	3	HQ coring; Set casing to 11 ft	
			LIMESTONE: grey, very sandy, highly fossiliferous, poorly cemented, grades softer to calcareous Sandy Clay - Marl			-1.3	
-2.5	15.0			39	4	HQ coring	

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0306

Hole No. CP05-EAARS-CB-0306

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.5 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.5	15.0					-2.5	
			SAND: lense - No recovery	(RQD 28%)			16
-4.5	17.0					-4.5	
			SAND: gravelly, light grey, dense, well graded, wet, fine to coarse, angular to subangular, calcareous, trace to some shell fragments		4	SPT	7 26 7
							18
							20
							22
-10.5	23.0					-10.5	
			SAND: silty, light grey, medium dense, fine to medium, wet, subrounded to subangular, calcareous, trace to some gravel		5	SPT	12 10 11
							24
							26
							28
-16.5	29.0					-16.5	
			SAND: slighty silty, grey, medium dense, fine to medium, angular to subangular, silicious (quartzose) some shell fragments		6	SPT	4 24 18
-18.0	30.5						30
			End of Boring at 30.5'				32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0306

Hole No. CP05-EAARS-CB-0306

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 12.5	Sheet 3 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-20.9	33.4					-20.9	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0306

Hole No. CP05-EAARS-CB-0307

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N753807.6, E789116.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0307		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 7/29/2005 Completed 7/29/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 11.8 (ft)	
9. Depth of hole: 30.5 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: J. Petrie	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.8	0.0						
			PEAT, black, firm to stiff SILT		1	11.8 SPT 9.8	1 2 3
			PEAT, black, firm SILT		2	SPT 7.8	2 2 3
			PEAT, black, soft to firm CLAY		3	SPT 6.3	2 2 50/1"
6.3	5.5		light creamy grey to grey mottled, medium bedded, moderately strong to strong, fine grained LIMESTONE with trace of shells and irregualr voids (coarse sand, fine gravel size)	90 RQD 68%)	1	HQ coring; 3 pieces > 0.4 ft long	
			light creamy grey occasional yellowish brown mottled, medium bedded, strong fine grained LIMESTONE with trace fine to medium sized voids, shelly horizon at base Creamy grey to light grey, moderately strong to strong, fine grained LIMESTONE with laminations (silty) and shelly horizons			1.3	
			Creamy white, medium bedded moderately strong to strong fine grained shelly LIMESTONE	78 (RQD 42%)	2	HQ coring; 3 pieces > 0.4 ft long	
			Creamy grey, medium bedded, moderately strong to strong fine grained LIMESTONE Creamy grey, soft to firm silts, sandy gravel, shelly fragments Creamy grey, medium bedded, moderately strong to strong, fine grained LIMESTONE with some fine			(continued)	

0 2 4 6 8 10 12 14

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0307

Hole No. CP05-EAARS-CB-0307

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.8 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.2	15.0					-3.2	
-3.7	15.5		sand, occasionally coarse sand sized voids			-3.7	
			Gravelly SAND: creamy grey, loose, fine to coarse, well graded, subangular with cemented (fine gravel size) sand and shells			-4.2	
					4	SPT	13 2 5
-7.2	19.0					-7.2	
			Silty SAND: light grey, loose, fine to coarse, subangular, occasional gravel (fine size) of cemented sand		5	SPT	1 2 2
						-12.2	
			Silty SAND: light greenish grey, loose, fine to coarse, subangular with fine gravel sized shell fragments		6	SPT	1 3 3
-17.2	29.0					-17.2	
			SAND: light brown, medium dense, fine to coarse, subangular, mostly shells		7	SPT	11 8 9
-18.7	30.5						
			End of Boring at 30.5'				

16 18 20 22 24 26 28 30 32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0307

Hole No. CP05-EAARS-CB-0307

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 11.8	Sheet 3 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.6	33.4					-21.6	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0307

Hole No. CP05-EAARS-CB-0308

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N751544.6, E790701.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0308	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/28/2005 Completed 7/28/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: J. Petrie

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.7	0.0						
			PEAT: black, sandy silt, firm, with subangular fine gravel.		1	11.7 SPT 9.7	2, 4, 4
			Grades firm to stiff, gravel grades out.		2	SPT 7.7	3, 4, 2
7.5	4.2				3	SPT 5.7	5, 8, 30
5.7	6.0		Gravelly SAND: Creamy gray, medium dense, well graded, fine to coarse, subangular, fine gravel size peices of limestone.				
			LIMESTONE: light creamy gray with greenish gray mottling, moderately strong to strong, medium bedded, fine grained with trace shells and voids (coarse sand and fine gravel size).	45 (RQD 30%)	1	5.5 HQ coring; 2 pieces > 0.4 ft long 1.7	50/3"
			Grades to light creamy brown			1.5	6
			Grades to light creamy gray	46 (RQD 8%)	2	HQ coring; 1 piece > 0.4 ft long -3.3	50/3"

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0308

Hole No. CP05-EAARS-CB-0308

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.7 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.3	15.0					-3.3	
-4.8	16.5		Silty SAND: light gray to light greenish brown, fine to coarse, loose, subangular, trace gravel with shells.				16
							18
						-7.3	
					6	SPT	3 1 4
							20
							22
						-12.3	
			Gravel grades out, light greenish brown mottling grades out.		7	SPT	4 2 2
							24
							26
			Grades occasional subangular to subrounded fine gravel aggregates of hard cemented sand.				28
						-17.3	
-17.7	29.4						11
-18.2	29.9		CLAY: gray brown, firm with some shell fragments.		8	SPT	2
-18.8	30.5		Silty SAND with some gravel and shell fragments.				11
							30
			End of Boring at 30.5'				
							32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0308

Hole No. CP05-EAARS-CB-0308

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.7 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.7	33.4					-21.7	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0308

Hole No. CP05-EAARS-CB-0309

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750755, E790531.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0309		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/20/2005 Completed 7/20/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.3	0.0						
9.8	1.5		Gravelly SAND: tan to light brown, dry, dense, well graded, road fill		1	11.3 SPT; Note: all calcitic material noted below is at least partly shell fragments 9.8	24, 16, 21
6.3	5.0		PEAT		2	SPT 8.3	5, 2, 2
					3	SPT 6.8	2, 2, 3
1.3	10.0		LIMESTONE: caprock, tan to light brown, fine grained, thinly bedded, fossiliferous, vuggy, hard and strong to soft, weak, porous	58 (RQD 32%)	4	6.3 SPT	50/5"
					1	HQ coring; UCS=5200psi; 4" casing to 5 ft 1.3	
0.6	10.7		Gravelly SAND: pale brownish grey		5	0.3 SPT; hard drilling 10 to 11 ft; Spun in 5 more feet of casing	32, 50/2"
			LIMESTONE: tan, fine grained, thinly bedded, fossiliferous, vuggy to porous, moderately hard, moderately strong, high core loss is probably poorly cemented sand	22 (RQD 0%)	2	HQ coring	

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0309

Hole No. CP05-EAARS-CB-0309

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.7	15.0					-3.7	
-4.7	16.0					-4.7	
			SAND: pale brownish grey, wet, loose, well graded, fine to coarse grained, angular,calcitic		6	SPT	10 5 2
			Trace silt and fine gravel at 18.5 ft and medium dense		7	SPT	14 4 8
			SAND: as above but pale greenish grey, loose, and trace fine, subrounded, quartzose sand		8	SPT; Caloosahatchee Formation	5 5 4
-17.2	28 5					-17.2	
-18.7	30.0		Sandy GRAVEL: pale greenish grey, wet, dense, poorly graded, fine grained, angular, calcareous with sand as above		9	SPT	21 18 16
			End of Boring at 30'				

16 18 20 22 24 26 28 30 32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0309

Hole No. CP05-EAARS-CB-0310

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750243.3, E788786.4 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0310	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/20/2005 Completed 7/20/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			Gravelly SAND: tan, dry, dense, angular, well graded, fine to coarse grained, calcitic limestone gravel		1	10.0 SPT; All calcitic material noted below is at least partly shell fragments	44 24 18
					2	8.5 SPT	31 15 6
7.0	3.0					7.0	
			Grades to Sandy GRAVEL at 3 ft		3	SPT	9 9 35
5.5	4.5					5.5	
			LIMESTONE: caprock, tan to light brown, fine grained, thinly bedded, fossiliferous, vuggy, hard and strong to soft, weak, porous	50 (RQD 0%)	1	5.3 SPT HQ coring; Hard drilling from 0 to 4.5 ft; Spoon bouncing	50/3"
						1.5	
0.5	9.5			100 (RQD 0%)	2	0.5 HQ coring	
			SAND: pale grey, wet, very dense, well graded, fine to coarse grained, angular, calcitic, some limestone gravel, with limestone layers up to 0.7 ft thick	20 (RQD 14%)	3	0.0 SPT; Soft from 9.5 to 10 ft HQ coring; UCS=2710psi; Spun in 10 ft of 4" casing	6 50/1"
						-5.0	

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0310

Hole No. CP05-EAARS-CB-0310

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	
					6	SPT; Intermittent hard drilling	6 8 4
						-8.5	
			SAND: paly grey, wet, medium dense, well graded, fine to coarse grained, angular, calcitic, trace fine gravel, some silt, trace very fine, subrounded quartzose sand		7	SPT	10 10 8
-13.5	23.5					-13.5	
			Gravelly SAND: light grey, wet, very dense, poorly graded, fine to coarse sandy limestone gravel with sand as above, but no quartzose sand and trace silt		8	SPT; Intermittent hard drilling	29 18 50/1"
						-18.5	
			Gravelly SAND: grades light brownish grey		9	SPT	26 29 47
-20.0	30.0					-20.0	
			Sandy LIMESTONE: tan to medium, fine to coarse grained, thinly bedded,very vuggy, very fossiliferous, moderately hard and moderately strong to soft, weak and porous	24 (RQD 56%)		HQ coring; UCS=5920psi; Spun in 20 ft more casing	

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0310

Hole No. CP05-EAARS-CB-0310

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
-25.0	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0310

Hole No. CP05-EAARS-CB-0311

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750237.4, E786933.7 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0311	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/22/2005 Completed 7/22/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.9	0.0						
			Sandy GRAVEL and Gravelly SAND: tan, gray and light brown, dry, well graded, fine to coarse, angular, calcitic with angular, fine to coarse limestone gravel, also cobbles and boulders		1	9.9 SPT; All calcitic material noted below is at least partly shell fragments; Road fill	50/4"
						8.4	8
					2	SPT; Hard drilling from 2.1 to 3.5 ft	3
						6.9	50/3"
						6.4 SPT	50/3"
				28 (RQD 0%)	1	HQ coring; Spoon bouncing	
4.4	5.5						
			LIMESTONE: caprock, tan to light brown, fine grained, thinly bedded, fossiliferous, vuggy, hard and strong to soft, weak and porous				
1.4	8.5					1.4	
			Sandy GRAVEL: as above Pale white, hard, fine grained, quite porous				18
					4	0.7 SPT	50/3"
				14 (RQD 10%)	2	HQ coring; 4" casing to 8.5 ft; Hard at 5.7 ft; last 0.3 ft soft	
						-3.6	
-4.1	14.0		Fine Sandy Gravel. Casing set at 13.5 ' for Core Run #3			-4.1	50/5"
			Fractured Limestone, tan, brown dolomite limestone to soft tan vuggy		3	SPT	
-5.1	15.0			10		HQ coring; 1st 0.5 to	

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0311

Hole No. CP05-EAARS-CB-0311

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.1	15.0					-5.1	
			limestone Light tan, fine sand/gravel with small cement shell/sand fragments	(RQD 0%)		1 foot cored slow, then faster; sandy returns	16 18
						-8.6	
					6	SPT	5 5 10 20
			22' Small hard layers 4" - 6"				22
-13.6	23 5					-13.6	
			23.5' 50/0" Cemented sand/shell. Casing set to 23.5'	72 (RQD 18.4%)	7 4	-13.6 SPT HQ coring	50/0" 24
-17.1	27 0						26
			Very hard cemented sand/gravel and shells. Darker after 26'				28
						-18.6	
			50/0" Hard		8	SPT	50/0"
-20.1	30.0						30
			End of Boring at 30'				32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0311

Hole No. CP05-EAARS-CB-0312

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750228, E785146.2 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0312	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/26/2005 Completed 7/26/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 12.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 36.5 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.4	0.0						
			Sandy GRAVEL: tan to light brown, dry dense to very dense, well graded, fine to coarse, limestone with well graded, angular fine to coarse, calcitic sand, cobbles and boulders		1	12.4 SPT; All calcitic material noted below is at least partly shell fragments; Road fill	19, 37, 25, 23
					2	10.9 SPT; Grades to gravelly sand	19, 19
					3	9.4 SPT; wet at 3 ft; Peat at bottom of SPT 3	22, 26, 4
7.9	4.5					7.9	
			LIMESTONE: caprock, tan to light brown, thinly bedded, fine grained, fossiliferous, vuggy, hard and strong to soft, weak and porous	38 (RQD 0%)	1	HQ coring; cased to 4.5 ft	
						3.9	
				8 (RQD 0%)	2	3.9 SPT HQ coring; ran casing to 8.5 ft	50/0"
0.9	11.5					0.9	
			Sandy GRAVEL: as above (0 to 5 ft) but pale brownish grey, wet, poorly graded, fine to coarse grained, angular limestone with fine to coarse, angular, calcitic sand			soft drilling at 11.5 ft	
						-1.1	
					5	SPT; Intermittent hard drilling to 18.5 ft; then soft drilling to	1, 28, 50/5"

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0312

Hole No. CP05-EAARS-CB-0312

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.6	15.0					-2.6	
						23.5 ft	16
-6.1	18.5					-6.1	18
			SAND: pale brownish grey, wet, well graded, fine to coarse grained, angular, calcitic, some silt, trace very fine, subrounded, quartz sand		6	SPT	5 3 3
-11.1	23.5					-11.1	20
			LIMESTONE: tan to light brownish grey, thinly bedded, medium to coarse grained, fossiliferous, vuggy and porous, moderately strong to soft, weak and friable	40 (RQD 0%)	3	-11.3 SPT HQ coring; ran in casing to 28.5 ft	50/2"
							22
							24
							26
						-16.1	28
				66 (RQD 14%)	4	HQ coring	30
-19.1	31.5						
			Solution voids infilled with younger material. Last 4 ft of Run 4 slow drilling. Grades sandy(quartz) with layers of coquina in th last (35) run.				32

(continued)

AUG 1936 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0312

Hole No. CP05-EAARS-CB-0312

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.0	33.4					-21.0	
				33 (RQD 0%)	5	-21.1 HQ coring; ran in casing to 33.5 ft; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
-24.1	36.5		End of Boring at 36.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0312

Hole No. CP05-EAARS-CB-0313

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750184.9, E782576 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0313	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/27/2005 Completed 7/27/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.5	0.0					11.5	10
			Gravelly SAND: tan to light brown, wet, dense, angular, well graded, fine to coarse grained, calcitic with limestone gravel, cobbles and boulders at 1 ft. Circulation turned black briefly.		1	10.5 SPT; All calcitic material noted below is at least partly shell fragments; Road fill	16
							50/3"
				26 (RQD 0%)	1	HQ coring; Ranges from wackestone to grainstone, some coquina; 4" casing to 5 ft	
7.5	4.0						
			LIMESTONE: caprock, tan to light brown, fine to coarse grained, thinly bedded, fossiliferous, vuggy, strong and hard to soft, weak, and porous			5.5	
				24 (RQD 0%)	2	5.5 SPT HQ coring	50/0"
2.5	9.0						
			Silty SAND: greyish white, wet, very dense, well graded, fine to coarse grained, angular, calcitic			0.5	
					3	SPT	3
							1
							50/5"
-2.0	13.5					-2.0	
			Grades pale brownish grey with less (trace) silt		4	SPT; grades pale brownish grey with less (trace) silt	3
			SAND: as above but light brownish grey				27
							8

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0313

Hole No. CP05-EAARS-CB-0313

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.5 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.5	15.0					-3.5	
			with some clay (plastic fines)				16
						-7.0	18
			SAND: pale brownish grey, wet, very dense, well graded, fine to coarse grained, mostly angular and calcitic, trace very fine quartz sand, some silt, some fine gravel		5	SPT; Intermittent hard drilling to 23.5 ft	9 29 28
							20
							22
-12.0	23.5					-12.0	
			Sandy LIMESTONE/Calcareous SAND: light to medium grey, fine to coarse grained, very vuggy, porous, fossiliferous, thinly to medium bedded, moderately hard and moderately strong		6	SPT; Caloosahatchee Formation	20 28 50/2"
						-13.5	24
				68 (RQD 52%)	3	HQ coring	
							26
							28
-18.5	30.0						
			End of Boring at 30'				30
							32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG 1836 1996 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0313

Hole No. CP05-EAARS-CB-0314

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750202.1, E781140 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0314	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/15/2005 Completed 8/16/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.9	0.0					10.9	38
			Gravelly SAND: light brownish grey, well graded, fine to coarse, angular, calcitic with limestone gravel, cobble and boulders		1	SPT; All calcitic material noted below is at least partly shell fragments; Bore hole on boulders, moved 3 ft; Fill	
						9.4	18
					2	SPT	5
						7.9	8
							5
6.9	4.0				3	6.9 SPT	20
			LIMESTONE: caprock, tan to light brown, fine to coarse grained, thinly bedded, vuggy and fossiliferous, strong and hard to soft, weak and porous	22 (RQD 0%)	1	HQ coring	50/1"
						5.4	
						Lost all circulation at 5.5 ft	
						2.4	
1.4	9.5			12 (RQD 0%)	2	HQ coring; Installed 4" casing to 8.5 ft	
			SILT: pale greenish grey, stiff, moist, non-plastic, trace sand, some gravel				
						-2.6	
					4	SPT; Advanced casing to 13.5 ft	8
							6
							7

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0314

Hole No. CP05-EAARS-CB-0314

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 10.9	Sheet 2 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.1	15.0					-4.1	
-7.6	18.5		Sandy GRAVEL: pale greenish, very dense, wet, well graded, fine to coarse, angular, shell and limestone, with angular calcitic sand and a trace silt		5	-7.6 SPT; Hard drilling 19 to 23.5 ft	23 35 30
-12.6	23.5		Gravelly SAND: pale brownish grey, very dense, wet, well graded, fine to coarse, angular, calcitic with gravel as above		6	-12.6 SPT	18 32 50/5"
-14.1	25.0		25.0 to 31.5 ft, LIMESTONE: light brownish grey to medium grey, coarse grained, medium bedded, vuggy, porous, fossiliferous, moderately hard and moderately strong to soft, weak and friable, calcarenite grainstone, trace quartz sand	60 (RQD 48%)	3	-14.1 HQ coring; UCS=2979psi; Advanced casing to 25 ft; core for testing:25.5 to 26.1 ft, 26.1 to 27 ft and 27 to 27.8 ft	
-20.6	31.5			96 (RQD 64%)	4	-19.1 HQ coring; UCS=4916psi; Core for testing:30.5 to 30.9 ft, 32.4 to 32.9 ft, 32.9 to 34.1 ft; Advanced casing to 30 ft	
			31.5 to 35.0 ft, Sandy LIMESTONE: light brownish to medium grey, fine to coarse grained,thinly to medium bedded, fossiliferous, vuggy to porous, moderately strong and moderately hard to soft and weak, porosity in			-20.6 Caloosahatchee Formation or Pinecrest Sand of	

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0314

Hole No. CP05-EAARS-CB-0314

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.5	33.4					-22.5	
-24.1	35.0		intergranular and moldic			Tamiami Formation at 31.5 ft	
			End of Boring at 35'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

34 36 38 40 42 44 46 48 50

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0314

Hole No. CP05-EAARS-CB-0315

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750186.2, E779486.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0315		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/23/2005 Completed 8/23/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35.5 ft		19. Inspector: B. Levesque	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.6	0.0						
			GRAVEL: light brown, dense, fine to coarse grained, dry, andgular to subangular, little fine to coarse sand, subangular, calcitic, little silt		1	11.6 SPT 10.1	23, 48, 16
8.9	2.7				2	SPT 8.6	8, 8, 5
8.1	3.5		PEAT: black, soft, moist, medium dense				
6.6	5.0		GRAVEL: brown to black, moist, fine to coarse grained, subangular, little fine to coarse sand, subangular, calcitic, little to some silt, trace organic		3	SPT 6.6	2, 50/3"
1.6	10.0		LIMESTONE: fine grained, hard, slightly vuggy, strong, fossiliferous, brown to grey, thin bedded LIMESTONE: brown to grey brown, fine to coarse grained, weak to moderately strong, thinly bedded, vuggy		1	HQ coring 1.6	
			SAND: grey to white, fine to coarse grain, calcitic, some fine gravel, little silt, moist, moderately dense		4	SPT -2.4	25, 9, 8
			same as above		5	SPT	7, 9

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0315

Hole No. CP05-EAARS-CB-0315

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.4	15.0					-3.4	8
							16
						-6.4	18
			SAND: white, fine to medium grain, calcitic, loose, little to some silt			-7.4 Approx strata change at 18 ft	2
					6	SPT	3
							1 20
							22
						-12.4	
-12.9	24.5		same as above, trace quartz sand (fine sand)			-12.9	17 24
			spoon refusal below this depth - maybe cemented sand and limestone			SPT	50
						Change at 24.5 ft	26
-15.4	27.0						28
						-17.4	
-17.9	29.5		no recovery in spoon		8	SPT	25/0" 30
							32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0315

Hole No. CP05-EAARS-CB-0315

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.8	33.4					-21.8	
-22.4	34.0					-22.4	
-23.9	35.5		GRAVEL: white to grey, angular, little fine to coarse sand, trace silt		9	SPT	7 50
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0315

Hole No. CP05-EAARS-CB-0316

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750172.7, E777661 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0316	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/23/2005 Completed 8/23/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.6	0.0						
			GRAVEL: light brown, medium dense, well graded, fine to coarse grained, sub angular, some to little sand, little silt		1	10.6 SPT 9.1	21, 14, 13
			GRAVEL: grey brown black, fine to coarse grain, little fine sand, organic (peat), little silt		2	SPT 7.6	3, 4, 4
					3	SPT	4, 7, 50/3"
6.1	4.5		LIMESTONE: grey to brown			5.6	
				38 (RQD 30%)	1	HQ coring; Casing down to 5 ft	
0.6	10.0					0.6	
			SAND: white, fine to medium grained, calcitic, subrounded to sub angular, some to little silt, moderately dense, wet		4	SPT	6, 7, 4
						-3.4	
			SAND: white, fine to medium grained, calcitic, subrounded, some silt, fossilliferous (shell), trace gravel		5	SPT	0, 2

(continued)

ENG 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0316

Hole No. CP05-EAARS-CB-0316

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.4	15.0					-4.4	
			SAND: white, weakly cemented, fine to medium grained, subrounded to subangular, little to some silt, some fine grained gravel, angular to subangular			-8.4	4 16 18
-9.9	20.5				6	SPT; Drove casing to 20 ft -9.9	6 13 50 20
			LIMESTONE: grey to white, medium to coarse grained, cemented sand, thinly bedded, vuggy, fossiliferous, weak, porous, friable	56 (RQD 28%)	2	HQ coring	22
			LIMESTONE: white, fine to medium graded cemented sand, thin bedded, vuggy, fossiliferous			-14.4	24
			LIMESTONE: white, fine grained, thinly to medium bedded, vuggy, fossiliferous, hard, strong	76 (RQD 49%)	3	HQ coring	26 28
			Similar to above			-19.4	30
				65 (RQD 15%)	4	HQ coring	32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0316

Hole No. CP05-EAARS-CB-0316

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.8	33.4					-22.8	
-24.9	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0316

Hole No. CP05-EAARS-CB-0317

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750154.8, E775119.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0317		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 8/22/2005 Completed 8/22/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 12.1 (ft)	
9. Depth of hole: 35.5 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: B. Levesque	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.1	0.0						
			GRAVEL: light brown, medium dense, well graded, fine to coarse grained, sub angular, little to some fine sand, little silt (Fill)		1	12.1 SPT; slight organic odour 10.1	13, 15, 10
			GRAVEL: light brown to black-grey, medium dense, fine to coarse grained, subangular, little fine to coarse sand, trace organic (peat)		2	SPT 8.6	4, 10, 14
			GRAVEL: tan, dense, fine to medium grained, shells		3	SPT	36, 37, 50
6.6	5.5					6.6	
			LIMESTONE: pink-brown, coarse-grained, thinnly bedded, vuggy, soft, weak, friable	70 (RQD 8%)	1	HQ coring 5.1	
			LIMESTONE: fine to coarse cemented sand, thinly bedded, soft, weak, friable	60 (RQD 50%)	2	HQ coring	
			LIMESTONE: white, fine grained, thinly bedded, fossiliferouss				
0.1	12.0					0.1	
			SAND: white, medium dense, subrounded, moist, calcitic, fine to medium, some to little silt			-1.9	
					4	SPT; ML; Inorganic	34, 13

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0317

Hole No. CP05-EAARS-CB-0317

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 12.1	Sheet 2 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.9	15.0					-2.9	
						silts and very fine sand; Moisture=23%	5
-5.9	18.0		GRAVEL: light grey, dense, lightly weathered, subangular, little fine to medium sand, little silt			-5.9	
						-6.9 Spoon alternating hard/soft	13
					5	SPT	33
							22
-10.9	23.0		SAND: brown to grey, medium dense, moist, subrounded, porous, bedded, fine to medium			-10.9	
						-11.9 Possible strata change at 23 ft	11
-12.4	24.5		GRAVEL: white, very dense, subangular, little to some silt, little fine to medium sand, quartz bearing			-12.5	
					6	SPT	34
						Possible strata change at 24.6 ft	20
						-13.9	
						26 ft drilling becomes less difficult	
						-16.9	
					7	SPT	50/5"
-19.9	32.0		SAND: white, loose, wet, subrounded, quartz bearing, fine to medium, with silt			-19.9	
						Possible strata change at 32 ft	

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0317

Hole No. CP05-EAARS-CB-0317

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.1 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.3	33.4					-21.3	
						-21.9	
					8	SPT; SP-SM; poorly graded sand with silt; Moisture=25%	4 4 4
-23.4	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0317

Hole No. CP05-EAARS-CB-0318

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

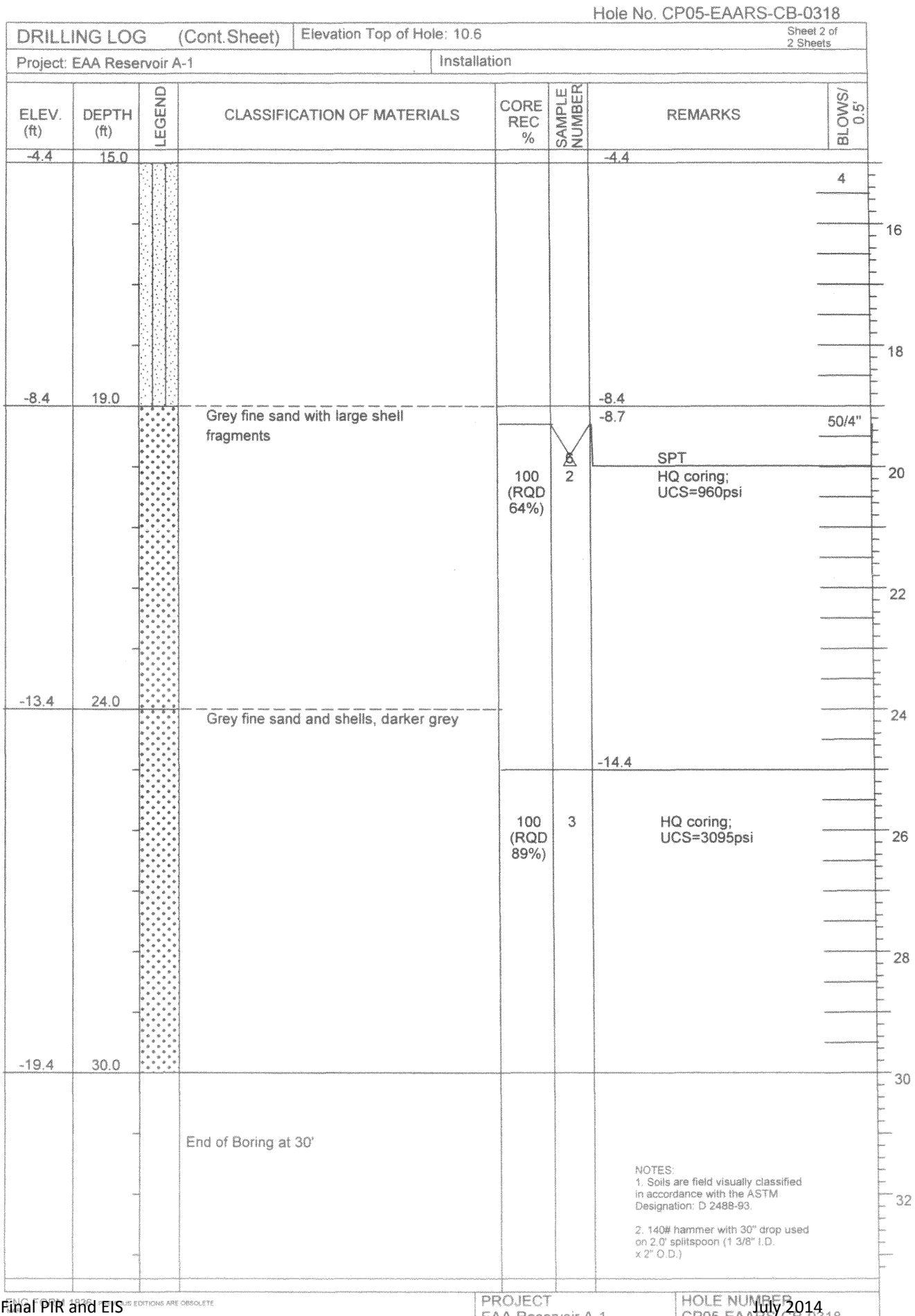
1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750133.1, E771124.2 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0318	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/18/2005 Completed 8/18/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.6	0.0						
			Road fill material (broke Limestone)		1	10.6 SPT	26 28 18
8.6	2.0					8.6	
			Peat (muck layer)		2	SPT	3 2 3
						6.6	
6.1	4.5				3	5.6 SPT	12 50/5"
			Dark grey with Limestone fragments and some Clay (Marl)	51 (RQD 32%)	1	HQ coring	
			Hard Limestone				
0.6	10.0					0.6	
			Light grey, coarse sand with cemented sand and shell fragments		4	SPT	2 6 29
-3.4	14.0					-3.4	
			Grey, fine sand and silt		5	SPT	3 7

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0318


Hole No. CP05-EAARS-CB-0318
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 10.6
Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-4.4
15.0
-4.4
4
16
18
-8.4
19.0
-8.4
Grey fine sand with large shell fragments
-8.7
50/4"
SPT
HQ coring;
UCS=960psi
100 (RQD 64%)
2
20
22
-13.4
24.0
Grey fine sand and shells, darker grey
24
-14.4
100 (RQD 89%)
3
HQ coring;
UCS=3095psi
26
28
-19.4
30.0
30
End of Boring at 30'
32
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)
PREVIOUS EDITIONS ARE OBSOLETE
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0318

Hole No. CP05-EAARS-CB-0319

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750098.3, E767140.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0319	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/18/2005 Completed 8/18/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.1 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30.5 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.1	0.0						
			Road fill material		1	10.1 SPT 8.1	10 12 9
					2	SPT 6.6	25 15 50/2"
7.1	3.0		Hard LIMESTONE - some soft limestone layers	45 (RQD 22%)	1	HQ coring 1.6	
				48 (RQD 0%)	2	HQ coring -3.4	
-1.9	12.0		Grey soft SAND / shell with shell fragments, silt		3	SPT	6 4 4

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0319

Hole No. CP05-EAARS-CB-0319

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.9	15.0					-4.9	
-6.9	17.0		Hard - no recovery			-8.9	
					4	SPT	50/1"
-11.4	21.5		Dark grey SAND with large black shell fragments			-13.9	
					5	SPT	4 4 4
			Grey fine SAND - cemented with shell fragments			-18.9	
					6	SPT	4 4 7
-20.4	30.5		End of Boring at 30.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0319

Hole No. CP05-EAARS-CB-0319

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.1 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.3	33.4					-23.3	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0319

Hole No. CP05-EAARS-CB-0320

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750089, E764793 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0320	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/17/2005 Completed 8/17/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.8	0.0						
			Road fill material		1	11.8 SPT	19
							21
10.3	1.5						18
			soft road fill, Peat (muck layer)			9.8	
					2	SPT	8
							10
						7.8	2
							3
6.8	5.0				3	6.8 SPT	50/4"
			LIMESTONE - caprock	45 (RQD 17%)	1	HQ coring	
						1.8	
					2	HQ coring	
-2.2	14.0					-2.2	
			Soft grey limestone and shell fragments some fine sand		4	-3.2 SPT	4
							4

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0320

Hole No. CP05-EAARS-CB-0320

DRILLING LOG (Cont. Sheet) | Elevation Top of Hole: 11.8 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.2	15.0					-3.2	
				90 (RQD 38%)	3	HQ coring; UCS=1481psi	50/1"
-8.2	20.0					-8.2	
			Grey cemented SAND with shells and shell fragments		5	SPT	4 15 12
						-12.2	
			Grey cemented SAND with some shell fragments		6	SPT; grey cemented sand in small skew segments	48 48 36
						-15.2	
						Change at 27 ft	
						-17.2	
			Soft fine grey SAND only		7	SPT	5 7 9
-18.7	30.5						
			End of Boring at 30.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG. FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0320

Hole No. CP05-EAARS-CB-0320

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.8 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.6	33.4					-21.6	

x 2" O.D.)

34
36
38
40
42
44
46
48
50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0320

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 321-340

Hole No. CP05-EAARS-CB-0321

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750076.6, E763011.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0321		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/16/2005 Completed 8/16/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.4 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35.5 ft		19. Inspector: P. Petrey	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.4	0.0						
			Road fill material			11.4	8
					1	SPT	9
							9
						9.4	
					2	SPT	50/2"
						7.4	
					3	SPT	34
							50/1"
5.9	5.5					5.9	
			LIMESTONE: caprock	8 (RQD 8%)	1	HQ coring	
						0.9	
-0.1	11.5						
			Grey cement SAND with shells			-2.6	
					4	SPT	4 48
						(continued)	

0 2 4 6 8 10 12 14

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0321

Hole No. CP05-EAARS-CB-0321

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.6	15.0					-3.6	20
			Grey cemented SAND, fragments of shells and rock (chert)		5	SPT	11, 45, 50/5"
						-12.6	
			Grey SAND/shell, some shell fragments, some cemented sands		6	SPT	7, 5, 4
						-17.6	
					7	SPT	7, 5, 4

16 18 20 22 24 26 28 30 32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0321

Hole No. CP05-EAARS-CB-0321

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 11.4	Sheet 3 of 3 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.0	33.4					-22.0	
			Grey fine SAND with cemented sands			-22.6	
					8	SPT	3
							3
-24.1	35.5						4
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0321

Hole No. CP05-EAARS-CB-0322

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750065.2, E761081.7 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0322	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/15/2005 Completed 8/15/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 12.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: E. Requejo

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.9	0.0						
			SAND: top fill, medium to fine grained, sand, dark gray color, with traces of limestone		1	12.9 SPT 10.9	21 18 17
					2	SPT	30 19 15
8.9	4.0					8.9	
			Muck: dark black color, very light, organic		3	SPT; Less compacted	6 4 10
6.9	6.0					6.9	
			SAND: light brown, slightly silty, fine grained, with some limestone fragments and traces of shell calcitic		4	SPT; water table encountered at 6 ft; Lost circulation	6 5 12
4.9	8.0					4.9	
			Core recovered 2'4"	36 (RQD 17%)	1	HQ coring	
-0.1	13.0					-0.1	
			SAND: pale gray, coarse grained sand, angular, with cemented sand, and traces of shell		5	SPT	3 3 2

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0322

Hole No. CP05-EAARS-CB-0322

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.1	15.0					-2.1	
-3.6	16.5		Hard layer			-3.6	
-5.1	18.0		Core: 18 ft to 23 ft			No circulation -5.1	
			Hard		2	HQ coring	
			Soft				
			Moderately hard				
			soft				
-10.1	23.0		soft			-10.1	
			Gray and gray brown sand and cemented sand, some small shells		6	SPT	11 7 8
						-16.1	
			Gray fine sand		7	SPT; soft	4 3 4

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0322

Hole No. CP05-EAARS-CB-0322

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-20.5	33.4					-20.5	
						-21.1	
			Grey fine sand with large pieces of cemented sand				5
					8	SPT	7
-22.6	35.5						9
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0322

Hole No. CP05-EAARS-CB-0323

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N749972.4, E759265.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0323		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/27/2005 Completed 7/27/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.5 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35 ft		19. Inspector: J. Petrie	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.5	0.0						
			Sandy GRAVEL: light creamy white with light brown and black mottling, fine and occasionally coarse, dense, subangular, dry (FILL)		1	11.5 SPT	13, 26, 14
10.0	1.5		Silty SAND: light creamy gray, fine to coarse, well graded, subangular to subrounded, dry, medium dense (Fill)			9.5	
					2	SPT	14, 12, 6
8.0	3.5						
7.5	4.0		PEAT			7.5	
			LIMESTONE: Creamy white with yellowish brown stains, moderately strong to strong, medium bedded, fine grained, with some shells and irregular shaped voids (burrows, roots).	60 (RQD 38%)	1	HQ coring; 6" peat above rock at 4 ft	
			LIMESTONE: Creamy white with yellowish brown stains, moderately strong to strong, medium bedded, fine grained, with some shells and irregular shaped voids (burrows, roots).			2.5	
			Grades light gray and thinly bedded	28 (RQD 20%)	2	HQ coring	
			Grades light creamy brown, medium bedded.				
-2.5	14.0					-2.5	
			Silty SAND: light gray, fine to coarse grained, subangular, wet, shelly, medium dense, with some subangular		3	SPT	8, 5

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0323

Hole No. CP05-EAARS-CB-0323

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.5 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.5	15.0					-3.5	
			fine gravel that are aggregates of cemented hard sand.				5
						-4.5	
				74 (RQD 40%)	3	HQ coring	
-6.2	17.7		LIMESTONE: light gray with light yellowish brown mottling, moderately strong to strong, medium bedded, shelly, with large shell fragments (coarse gravel size).				
-9.5	21.0					-9.5	
			SANDSTONE: light gray, moderately strong to strong, fine to medium grained, with cemented shell fragments in sand.	40 (RQD 0%)	4	HQ coring	
						-12.3	
			Grades greenish graywith occasional voids (fine gravel size).	8 (RQD 0%)	5	HQ coring	
-17.0	28.5					-17.0	
			SAND: light gray, fine to medium grained, subangular, medium dense, wet, some subangular to subrounded fine gravel aggregates of hard cemented sand, mainly quartz, occasional black minerals and shells.		4	SPT	4 5 5
			Grades to dark gray and cemented sand grades fine grained.				

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0323

Hole No. CP05-EAARS-CB-0323

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.5 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.9	33.4					-21.9	
						-22.5	
					5	SPT	5 4 6
-24.0	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0323

Hole No. CP05-EAARS-CB-0324

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N751804.4, E758607.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0324	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/26/2005 Completed 7/27/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: J. Petrie

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.7	0.0						
			Silty SAND: light gray with creamy gray and black mottling, fine to coarse grained, well graded, subangular, dense, with fine and coarse gravel, dry (FILL)		1	10.7 SPT	15 43 50/2"
8.7	2.0					8.7	
			Sandy GRAVEL: creamy gray, fine to coarse grained, well graded, dense, sand is fine to coarse grained, with some silt and shell fragments (fill).		2	SPT	6 24 13
6.7	4.0					6.7	
6.0	4.8		GRAVEL: light brown, fine to coarse grained, angular, dense, some silty sand.		3	6.0 SPT	8 50/4"
			LIMESTONE: creamy white with tan mottling, moderately strong to strong, medium bedded, fine grained, with some shells and irregular shaped voids.	70 (RQD 44%)	1	HQ coring	
			Grades some coarse sand sized voids.				
			Grades gray, very shelly, thinly bedded, moderately strong Grades light creamy gray with tan mottling, medium bedded with thin partings of silty/sandy material.				
						0.9	
			Grades to thinly bedded. Thin partings grade out.	10 (RQD 0%)	2	HQ coring	
						-4.1	
-4.3	15.0					-4.3	

(continued)

0 2 4 6 8 10 12 14

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0324

Hole No. CP05-EAARS-CB-0324

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.3	15.0					-4.3	
-5.3	16.0		GRAVEL: light gray, fine gravel fragments of cemented sand, fine to coarse, very dense.		4	-5.3 SPT	1 / 50/3"
-9.2	19.9		LIMESTONE: light gray to gray, moderately strong to strong, fine grained, shelly, medium bedded, with some irregular voids (creamy gray color).	82 (RQD 56%)	3	HQ coring	
-11.1	21.8		LIMESTONE: light brownish gray with tan and light gray mottling, moderately strong to strong, medium bedded, fine grained, honeycombed aggregates of fine gravel sized cemented peices in yellow brown matrix, trace shells. LIMESTONE: light gray, moderately strong to strong, medium bedded.			-10.3	
-16.8	27.5			32 (RQD 8%)	4	HQ coring	
-21.8	32.5		Sandy GRAVEL: light gray, loose, fine subangular, cemented sand.			-15.3	
			SAND: light greenish gray, fine to coarse, well graded, loose.		5	-18.3 SPT	3 / 3 / 3

16 18 20 22 24 26 28 30 32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0324

Hole No. CP05-EAARS-CB-0324

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.7	33.4					-22.7	
						-23.3	
					6	SPT	1 3 2
-24.8	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG. FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0324

Hole No. CP05-EAARS-CB-0325

DRILLING LOG	Division:	Installation:	Sheet 1 of 6 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N753486, E758570.4 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0325		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/20/2005 Completed 7/22/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 12.8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 100 ft		19. Inspector: J. Petrie	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.8	0.0						
			Silty SAND, brown and creamy white, medium dense, fine to coarse, well graded, dry with gravel and cobble size light creamy grey angular / subangular limestone (fill)		1	12.8 SPT 10.8	7, 37, 28
			Silty SAND, light creamy grey, medium dense, well graded fine to coarse, dry , with angular fine and coarse gravel size limestone fragments (fill)		2	SPT 8.8	3, 7, 8
8.8	4.0		PEAT, dark brown to black, soft, damp becoming organic clayey SILT		3	SPT 7.1	4, 2, 3
7.1	5.8		0.8' light creamy grey with dark grey inclusions, thinly to medium bedded, moderately strong to strong, fine grained LIMESTONE with some irregular inclusions of dark grey limestone, occasional vugs 0.8' to 2.2' light grey occasional yellowish brown staining, medium bedded, moderately strong to strong, fine grained LIMESTONE with trace shells 2.2' to 3.4' light grey, medium bedded, moderately strong to strong, fine grained LIMESTONE with some vugs 3.4' to 4.8' as above but with more vugs of medium sand size	96 (RQD 36%)	1	HQ coring 2.1	
2.1	10.8		Silty SAND, light grey to white, loose, fine to coarse, well graded, wet, some angular, subangular gravel size cemented sand, trace shell fragments			0.8 12 to 13 ft cemented -1.2	
					4	SPT; occasional	6, 6

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0325

Hole No. CP05-EAARS-CB-0325

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.8 | Sheet 2 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.2	15.0					-2.2	
						gravelly drilling 6" thick	2
-6.2	19.0					-6.2	16 18
			Gravelly SAND, light brown and light creamy grey, medium dense, fine to coarse, well graded with some cemented fine gravel cemented sand, organic smell, shell fragments		5	SPT	39 19 50/2"
						-7.7	20
						Hard drilling 10" band	22
-11.2	24.0					-11.2	
			Sandy GRAVEL, light grey, loose, fine, some coarse, subangular, cemented, shell fragments		6	SPT; 6" to 9" thick harder strata from 18 to 24 ft	11 4 4
-16.2	29.0					-16.2	24 26 28
			SAND, light grey, medium dense, fine to medium, well graded, wet, subangular subrounded, shelly, some quartz		7	SPT	4 5 6
							30 32

(continued)

OLD EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0325

Hole No. CP05-EAARS-CB-0325

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 12.8	Sheet 3 of 6 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-20.6	33.4					-20.6	
			SAND, light grey, loose, well graded, fine and medium, subangular to subrounded, wet, quartz, sone shelly fragments		8	-21.2 SPT	4 4 4
-26.2	39.0		Gravelly SAND, light grey, loose, well graded, fine to medium, subangular to subrounded, wet, fine and coarse, hard cemented sand, gravel (subangular), grey colored, quite sandy		9	-26.2 SPT	4 4 5
						-29.2 gravelly drilling	
-31.2	44.0		GRAVEL, grey, medium dense, well graded, fine, occasional coarse, subangular, hard cemented sand (fine to medium), some sand and shell fragments		10	-31.2 SPT	7 5 11
-36.2	49.0		Sandy GRAVEL, light grey, medium dense, well graded, fine to coarse, subangular, hard cemented gravel of fine to medium sand		11	-36.2 SPT; gravelly drilling, no flush return	8 8 12

34 36 38 40 42 44 46 48 50

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0325

Hole No. CP05-EAARS-CB-0325

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 12.8	Sheet 4 of 6 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-39.0	51.8					-39.0	
			As above		12	-41.2 SPT	12, 36, 26
			As above		13	-46.2 SPT	6, 7, 4
-51.2	64.0		SAND, light grey, medium dense, well graded, fine to coarse, subangular to subrounded, wet, quartz, trace shells and black mineral		14	-51.2 SPT	9, 8, 10
			As above, with shell fragments, weakly cemented, fine gravel size, shells / quartz (50/50)		15	-56.2 SPT	9, 13

52 54 56 58 60 62 64 66 68 70

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0325

Hole No. CP05-EAARS-CB-0325

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.8 | Sheet 5 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-57.4	70.2					-57.4	11
							72
						-61.2	
			SAND, light greenish grey, medium dense, well graded, fine to medium, subangular to subrounded with angular shell fragments (fine gravel size), mainly quartz, some shells and black subrounded fine to medium size mineral		16	SPT	10 12 11
							74 76 78
						-66.2	
			SAND, light creamy grey, medium dense, well graded, fine to coarse, subangular with angular shell fragments, mainly shelly grains, some quartz, fine gravel sized hard cemented fine to medium sand		17	SPT	11 10 11
							80 82
						-71.2	
			As above		18	SPT	14 20 16
							84 86 88

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0325

Hole No. CP05-EAARS-CB-0325

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.8 | Sheet 6 of 6 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-75.8	88.6					-75.8	
						-76.2	
			As above		19	SPT	14 10 13
						-81.2	
			SAND, grey, medium dense, well graded, fine to coarse, subangular to subrounded (quartz / shell, 50/50)		20	SPT	13 15 21
-86.2	99.0					-86.2	
			Gravelly SAND, grey, medium dense, well graded, fine to coarse, subangular to subrounded (quartz / shell, 50/50)		21	SPT	16 11 12
-87.7	100.5						
			End of Boring at 100.5'				

90 92 94 96 98 100 102 104 106

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0325

Hole No. CP05-EAARS-CB-0326

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N755746.4, E758530.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0326		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/22/2005 Completed 7/25/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 11.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35.5 ft		19. Inspector: J. Petrie	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.6	0.0						
			Silty SAND and GRAVEL: light brown, fine to coarse sand, well graded, fine gravel, angular to subangular, medium dense, dry (FILL).		1	11.6 SPT 9.6	9, 4, 10
					2	SPT	5, 9, 5
			Grades creamy gray and yellow brown		3	SPT; GP; Poorly graded Gravel with sand; Moisture=5%	7, 11, 8
5.6	6.0					5.6	
			LIMESTONE: light gray with some yellow brown staining, medium bedded, fine grained, moderately strong to strong, with trace of shell fragments and fine to medium sand, some medium sized voids.			5.1 SPT	50/5"
				48 (RQD 34%)	1	HQ coring; Lost circulation 6.5 to 7.5 ft	
			Grades to creamy gray			0.1	
			Grades to gray, thinly bedded, with thin bands of tan color.	36 (RQD 0%)	2	HQ coring	
-2.4	14.0					-2.4	
			SAND: Creamy white, fine to coarse grained, well graded, subangular, medium dense, wet, mainly shelly		5	SPT; SP-SM; Poorly	13, 13
-3.4	15.0					(continued)	

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0326

Hole No. CP05-EAARS-CB-0326

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.4	15.0					-3.4	
			fragments. Silty SAND: as above, fine to medium grained, loose.			graded sand with silt and gravel; Moisture=23%	4
						-5.9	16
-6.4	18.0		LIMESTONE: light gray with gray mottling, moderately strong to strong, medium to thickly bedded, fine grained, shelly, with some corals and occasional thin laminations of fine limestone.	80 (RQD 52%)	3	HQ coring	18
							20
						-10.9	22
			Grades to cream tan mottling, weak, medium bedded, with some coarse sand to fine gravel sized vugs.	36 (RQD 0%)	4	HQ coring	24
							26
						-15.9	
-16.4	28.0					-16.4	28
			SAND: light gray, medium dense, fine to coarse grained, well graded, subangular to subrounded, with some gravel sized cemented sand (fines to medium with some shells and shelly fragments, with quartz and black minerals.		6	SPT	23 19 10
						-18.4	30
						Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	32
-20.9	32.5		GRAVEL: light gray, loose, fine and some coarse, well graded, angular to				

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0326

Hole No. CP05-EAARS-CB-0326

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.8	33.4					-21.8	
			subangular peices of hard cemented sand (subequal proportions of quartz and shells) and shell fragments.			-22.4	
					7	SPT	3 4 3
-23.9	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0326

Hole No. CP05-EAARS-CB-0327

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N759759.6, E758445.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0327		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 7/25/2005 Completed 7/26/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.9 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35.5 ft		19. Inspector: J. Petrie	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.9	0.0						
			Sandy GRAVEL: light gray with yellowish brown and black mottling, medium dense, fine and occasionally coarsegrained, subangular tyo angular, dry. Sand is fine to coarse grained (Fill).		1	10.9 SPT	13, 16, 12
9.4	1.5		Gravel fragments of creamy grey limestone			8.9	
					2	SPT	50/5"
6.9	4.0		LIMESTONE: light creamy gray with some yellowish brown staining, medium bedded, moderately strong to strong, fine grained, voids filled with black peat and fine gravel to 5.8. Grades empty voids (coarse sand sized) and occasional fissures.	78 (RQD 56%)	1	6.9 HQ coring	
			Grades gray and shelly	26 (RQD 0%)	2	1.9 HQ coring	
-1.1	12.0		Silty SAND: light creamy gray, loose, fine to coarse grained, well graded, subangular, wet, some hard cemented fine to coarse sand as fine gravel, shell fragments.			-1.1	
						-3.1	
					3	SPT	2, 4

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836, 1 DEC 68 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0327

Hole No. CP05-EAARS-CB-0327

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.1	15.0					-4.1	3
-7.1	18.0					-7.1	16
			LIMESTONE: light gray with creamy gray and light brown mottling, medium bedded, moderately strong to strong, shelly with some coarse sand sized vugs.	78 (RQD 28%)	3	HQ coring	18
			Grades light brown.			-12.1	20
			Grades light creamy gray, with some triangular shaped vugs (coarse sand to fine gravel size). Grades to very shelly with many vugs.	44 (RQD 16%)	4	HQ coring	22
-17.1	28.0					-17.1	24
			SAND: light gray, loose, fine to coarse grained, well graded, subangular, some fine gravel sized angular hard cemented sand (fine to coarse) with subequal parts of quartz and shell.			-18.1	26
					4	SPT	28
						-21.1	3 4 5
			Grades fine to medium grained.			Gravelly drilling	30
						(continued)	32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0327

Hole No. CP05-EAARS-CB-0327

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.5	33.4					-22.5	
						-23.1	
					5	SPT	4
							6
-24.6	35.5						8
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0327

Hole No. CP05-EAARS-CB-0328

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N765178.1, E758078.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0328	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/11/2005 Completed 8/11/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.9	0.0						
			PEAT: black, loose, poorly graded, fine grained, dry, mostly organic		1	9.9 SPT 8.4	2 3 3
			Same as above, except dry to wet and dense		2	SPT; 2 limestone chips recovered 6.9	5 26 21
			Same as above, except wet, medium dense		3	SPT 5.4	11 8 8
			Same as above, quite gravelly		4	SPT 3.9	5 10 13
3.9	6.0		SAND: greenish grey, medium dense, moderately graded, fine to coarse grained, angular		5	SPT; one small limestone piece recovered 1.9	6 11 15
			SAND: light grey, dense, moderately graded, fine to medium grained, angular, wet, shelly		6	SPT -0.1	10 19 14
			SAND: white, very loose, poorly graded, fine calcitic sand, subangular, wet		7	SPT -3.6	3 2 2
-3.6	13.5		Gravelly SAND: greenish grey, dense, moderately graded, fine to coarse grained, subangular calcitic sand, wet, shelly		8	SPT	30 16 21

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0328

Hole No. CP05-EAARS-CB-0328

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.1	15.0					-5.1	
-8.6	18.5		SAND: greenish grey, dense, moderately graded, fine to coarse grained, subangular calcitic sand, subrounded quartz, cemented sand, wet, trace shell fragments		9	SPT	16 33 8
						-13.6	
			SAND: greenish grey, dense, poorly graded, fine to medium grained, subangular, calcitic sand, subrounded quartz, wet		10	SPT	6 19 23
						-18.6	
			Same as above - except dense fragments of shells present		11	SPT	7 11 17

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0328

Hole No. CP05-EAARS-CB-0328

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.5	33.4					-23.5	
			SAND: greenish grey, medium dense, moderately graded, subangular calcetic sand, rounded quartz, wet		12	-23.6 SPT	5 8 8 (34)
-25.1	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0328

Hole No. CP05-EAARS-CB-0329

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N766153.8, E758070.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0329	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/10/2005 Completed 8/11/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.9	0.0						
			PEAT: black, very loose, poorly graded, fine grained, dry, mostly organic		1	9.9 SPT	3 2 2
7.9	2.0		Same as above			8.4	
			LIMESTONE: light brown to pale white, hard, fine grained, quite porous, shells present	46 (RQD 12%)	1	7.9 SPT; spoon bouncing HQ coring; UCS=1867psi	50/5"
2.9	7.0					2.9	
			SAND: light grey, medium dense, moderately graded, fine to medium grained, subangular calcitic sand, wet		3	SPT	11 7 6
			Same as above, except dense			1.4	
					4	SPT; SM; Silty sand with gravel; Moisture=17%	4 25 17
						-3.6	
			SAND: light grey, medium dense, moderately graded, fine to medium grained, angular calcitic sand, wet, shell fragments present		5	SPT; SM; Silty sand; Moisture=22%	15 18 17

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0329

Hole No. CP05-EAARS-CB-0329

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.1	15.0					-5.1	
			SAND: light grey, dense, moderately graded, fine to coarse grained, subangular calcitic sand, wet		6	SPT; SP-SM; Poorly graded sand with silt and gravel; Moisture=13%	10 26 17
						-8.6	
						-12.6	
			SAND: greenish grey, medium dense, poorly graded, fine to medium grained, subangular calcitic sand, rounded quartz		7	-13.6 Caloosahatchee Formation at 22.5 ft SPT; SP-SM; Poorly graded sand with silt; Moisture=6%	5 7 10
						-18.6	
			Same as above		8	SPT	5 7 10

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0329

Hole No. CP05-EAARS-CB-0329

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.5	33.4					-23.5	
			SAND: greenish grey, medium dense, moderately graded, fine to coarse grained, subangular calcitic sand, rounded quartz, cemented sand wet		9	-23.6 SPT; SP-SM; Poorly graded fine sand with silt and gravel; Moisture=8%	6 5 6
-25.1	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0329

Hole No. CP05-EAARS-CB-0330

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N767986.5, E758277.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0330	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Travis Williams	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/27/2005 Completed 7/27/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.3	0.0						
			PEAT: black, very loose, poorly graded, fine grained, dry, mostly organic			8.3	2
7.3	1.0				1	7.3 SPT	50/4"
			LIMESTONE: white, hard, fine grained, porous, shelly	54 (RQD 7%)	1	HQ coring	
3.3	5.0					3.3	
						2.3 Caprock ends at 5 ft	
			SAND: greenish grey, medium dense, poorly graded, fine to medium grained, sub angular, wet		2	SPT	8 12 16
						-0.2	
			SAND: light grey, very ense, moderately graded, fine to coarse grained, angular, wet		3	SPT; shells present; advanced 10 ft of casing	10 42 50/3"
-1.5	9.8					-1.7	
			Chips of limestone and pieces of cemented sand with shells recovered	12 (RQD 0%)	2	HQ coring	
-6.7	15.0					-6.7	

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0330

Hole No. CP05-EAARS-CB-0330

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.7	15.0					-6.7	
			SAND: light grey, loose, poorly graded, fine grained, subangular, calcitic sand, wet		4	SPT; shells present	2 3 5
-10.2	18.5					-10.2	
-10.7	19.0		Pieces of stone and shells recovered			-10.7	50/4"
			Cemented SAND: greenish grey, hard, poorly graded, medium grained, shelly	34 (RQD 0%)	3	SPT; advanced casing from 10 ft to 20 ft; spoon bouncing Few limestone chips recovered	
						-15.7	
			SAND: greenish grey, medium dense, moderately graded, medium to coarse grained, subangular, wet		6	SPT	2 3 12
						-20.2	
			SAND: greenish grey, dense, poorly graded, fine grained, subrounded, wet		7	SPT	7 12 21
-21.7	30.0						
			End of Boring at 30'				

16 18 20 22 24 26 28 30 32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0330

Hole No. CP05-EAARS-CB-0331

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N770127.1, E758453.9 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0331		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 7/27/2005 Completed 7/27/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 9.3 (ft)	
9. Depth of hole: 30 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.3	0.0						
			PEAT: black, very loose, poorly graded, fine grained, dry			9.3	1
			bottom 0.3' of peat, wet		1	SPT	2
						7.8	2
7.5	1.8						14
			SAND: brownish grey, very dense, poorly graded, medium grained, subangular, wet		2	6.8 SPT	50/5"
			Part LIMESTONE: white, hard, fine grained, quite porous				
			Part Cemented SAND: greenish grey, hard, fine to medium grained, shelly porous	70 (RQD 15%)	1	HQ coring; Layered core sample recovered	
1.8	7.5					1.8	
1.3	8.0		SAND: greenish grey, very dense, poorly graded, medium grained, angular, wet			1.3	50/3"
						SPT	
			LIMESTONE: white, hard, fine to medium grained, porous, shelly	6 (RQD 0%)	2	HQ coring	
0.0	9.3					-0.2	
			SAND: light grey, dense, poorly graded, fine to medium grained, wet, quite silty, shells present			Caprock ends at around 9.5 ft; advanced 5 ft of casing	
						-3.7	35
					4	SPT; quite silty, shells present	20
							20

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0331

Hole No. CP05-EAARS-CB-0331

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.7	15.0					-5.7	
			SAND: greenish grey, dense, poorly graded, medium grained, subangular, wet		5	SPT	8 13 21
						-9.2	
			Same as above		6	SPT; hard drilling from 25.5 to 26 ft	10 24 13
						-14.2	
			SAND: greenish grey, dense, poorly graded, medium to coarse grained, subangular, wet		7	SPT	45 20 15
-20.7	30.0					-19.2	
			End of Boring at 30'				

16 18 20 22 24 26 28 30 32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0331

Hole No. CP05-EAARS-CB-0332

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N775270.8, E757918.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0332	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Travis Williams	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/26/2005 Completed 7/26/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.5	0.0						
			PEAT: black, loose, poorly graded, fine grained, dry, mostly organic		1	9.5 SPT	2 3 3
8.0	1.5					8.0	
			SAND: brownish grey, very dense, poorly graded, fine grained, angular, dry		2	SPT; limestone chips recovered	10 18 50/3"
6.8	2.8					6.5	
			LIMESTONE: greenish grey to pale white, very hard, fine grained, shelly	36 (RQD 0%)	1	HQ coring	
1.8	7.8					1.5	
			SAND: pale white, dense, fine to medium well graded, subangular, wet		3	SPT; caprock ends at around 7.75 ft	3 15 26
-4.0	13.5					-4.0	
			SAND: light grey, very dense, fine to medium grained size, well graded, subangular calcitic sand, wet, silty		4	SPT; casing down to 15 ft	7 10 50/5"
-5.5	15.0					-5.5	

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0332

Hole No. CP05-EAARS-CB-0332

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.5 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.5	15.0					-5.5	
			Cemented SAND: greenish grey, very dense, moderately graded, medium to coarse grained, shelly	24 (RQD 0%)	2	3 pieces of limestone chips recovered	16 18
						-10.5	
			SAND: light brown, medium dense, moderately graded, medium to coarse grain size, subangular, wet, quite gravelly		5	SPT; hard drilling at 23 ft; advanced casing till 25 ft	2 3 9 20 22
						-14.0	
			SAND: greenish grey, medium hard, moderately graded, fine to coarse grained, moderately cemented, shelly, very porous	48 (RQD 12%)	3		24 26 28
						-19.0	
			SAND: greenish grey, loose, poorly graded, fine to medium grained size, subangular, wet, quite gravelly		6	SPT	2 4 5
-20.5	30.0						30
			End of Boring at 30'				32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0332

Hole No. CP05-EAARS-CB-0333

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N777626.2, E757886.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0333	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Travis Williams	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 7/26/2005 Completed 7/26/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.6	0.0						
			PEAT: black, very loose, poorly graded, fine grained, dry, mostly organic			9.6	1
					1	SPT	2
						8.1	2
			Same as above - except loose, dry to wet				3
					2	SPT	3
						6.6	3
6.4	3.2		One piece of limestone recovered and some peat			6.1	50/2"
			LIMESTONE: light brown to white, hard, fine grained, shelly, porous			SPT	
				20 (RQD 0%)	1	HQ coring	
2.1	7.5					2.1	
			SAND: pale white, medium dense, moderately graded, fine to medium grains, wet, silty and gravelly, subangular			1.1 Caprock ended at around 7.5 ft	2
					4	SPT; SM; Silty sand with gravel; Moisture=24%	2
							28
-3.9	13.5					-3.9	
			SAND: white, loose, poorly graded, fine grained, subrounded, calcitic sand, wet, silty		5	SPT	5
							5
							5

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0333

Hole No. CP05-EAARS-CB-0333

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.6 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.4	15.0					-5.4	
-8.9	18.5		SAND: light grey, medium dense, poorly graded, medium grained, subangular, wet		6	SPT	9 12 9
						-12.4	
			SAND: light grey, hard, moderately graded, fine to medium grained, cemented, shelly, porous	10 (RQD 6%)	2	HQ coring; Hard drilling at 22 ft; advanced 20 ft of casing	
						-17.4	
			SAND: light grey, medium dense, poorly graded, fine to coarse, subangular, wet		7	SPT; Top half gravelly, bottom half silty, separated by stone chips	4 8 10
						-18.9	
			SAND: light grey,medium dense, poorly graded, fine grained, subrounded, calcitic sand, wet		8	SPT	20 14 12
-20.4	30.0						
			End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0333

Hole No. CP05-EAARS-CB-0334

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N754292.8, E763213.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0334		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Travis Williams		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/2/2005 Completed 9/2/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.8	0.0						0
			PEAT: Not sampled				
6.6	2.3					6.6	2
			LIMESTONE: tan to light brown, fine to coarse grained, thinly bedded, vuggy, hard and strong to moderately hard and moderately strong, fossiliferous.	20 (RQD 0%)	1	HQ coring; Intermittent hard and soft drilling to 4.75 ft	
4.1	4.8						4
			SAND: pale brownish gray, well graded, fine to coarse, angular, calcitic, some fine gravel (shells and limestone).				6
						1.6	
						1.3	
					1	SPT	47 42 8
-2.2	11.0					-2.2	8 10
			Silty SAND: as above but silty, loose and with a trace of fine gravel.		2	SPT; Very soft drilling to 11 ft; spoon bouncing at 12 ft	7 2 50/5" 12
-4.7	13.5					-4.7	
			SAND: as above but very dense and only a trace of silt and fine gravel.		3	SPT; Hard drilling 13.5 to 16.5 ft	25 50/2" 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0334

Hole No. CP05-EAARS-CB-0334

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.2	15.0					-6.2	
-9.7	18.5		Gravelly SAND: as above but very dense with fine angular limestone gravel and a trace silt.		4	-9.7	26 33 26
-11.7	20.5		SAND (Caloosahatchee Formation): pale brownish gray, medium dense, uniform, fine grained, subrounded, quartzose, trace fine to coarse, angular calcitic sand.			Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation -14.7	
					5	SPT; Soft below 23.5 ft -19.7	4 5 6
-21.2	30.0		Grades as above with some fine angular limestone gravel.		6		5 5 5
			End of Boring at 30'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0334

Hole No. CP05-EAARS-CB-0335

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N752370.8, E769865.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0335	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/31/2005 Completed 8/31/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 5.9 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.4	0.0						
7.5	0.9		PEAT: 0 ft to 0.9 ft, not sampled			7.4	
4.0	4.4		LIMESTONE: caprock, tan to light brown, fine to coarse grained, thinly bedded, vuggy; Fossiliferous, ranges from hard to strong (wackestone and packstone to moderately hard, moderately strong and porous grainstone)	40 (RQD 0%)	1	HQ coring; soft at 4.4 ft	
2.5	5.9		End of Boring at 5.9'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

0 2 4 6 8 10 12 14

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0335

Hole No. CP05-EAARS-CB-0336

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N752408.8, E777773.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0336	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/30/2005 Completed 8/30/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.7	0.0						
6.8	0.9		PEAT to 0.9 ft: not sampled			6.8	
2.8	4.9		LIMESTONE: tan to light brown and grey, fine to coarse grained, vuggy, fossiliferous, hard and strong, angular to rounded pieces	30 (RQD 0%)	1	HQ coring; mostly fine to coarse gravel; soft at 4.9 ft	
						1.7	
			SAND: pale brown, medium dense, well graded, fine to coarse, angular, moist, calcitic, some fine gravel, gravelly (shells and limestone)		1	SPT	5 6 12
						-0.8	
			SAND: pale brownish grey, well graded, fine to coarse, angular, calcitic, wet, silty in the upper half of sample		2	SPT	2 16 11
-5.8	13.5					-5.8	
			Silty SAND: pale brownish grey, medium dense, well graded, fine to medium grained, angular, calcitic, wet, trace fine, angular gravel (shells)		3	SPT	4 4 7

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0336

Hole No. CP05-EAARS-CB-0336

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.7 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.3	15.0					-7.3	
-10.8	18.5		SAND: light brownish grey, very dense, well graded, fine to coarse, moist, angular, calcitic, trace fine gravel (shell)		4	-10.8 SPT; Intermittent hard drilling below 19 ft	15 29 50/2"
-15.8	23.5		no recovery		5	-15.8 SPT	50/0"
						-20.8	
-22.3	30.0		no recovery		6	SPT	50/0"
			End of Boring at 30'				

16 18 20 22 24 26 28 30 32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0336

Hole No. CP05-EAARS-CB-0337

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N752253.4, E784339.2 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0337	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/17/2005 Completed 8/17/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.6	0.0						
			PEAT: black, moist, fine grained, organic		1	8.6 SPT; All calcitic material noted below is at least in part shell fragments	4, 7, 50/5"
7.1	1.5					7.1	
			LIMESTONE: light to medium grey and light brown, fine to coarse grained, thinly bedded, fossiliferous, vuggy, hard and strong, caprock	52 (RQD 0%)	1	HQ coring; Ranges from calcilutite to calcarenite; softer 5 to 7.5 ft, then hard 7.5 to 9.5 ft, then soft again below 9.5 ft	
			LIMESTONE: pale brownish grey, thinly bedded, fossiliferous, some very fine grained (calcilutite), slightly vuggy to dense, hard and strong, mostly medium to medium to coarse (calcarenite) porous, moderately hard and moderately strong	26 (RQD 0%)	2	2.1 1.9 SPT HQ coring	50/3"
-3.4	12.0					-2.9	9
			SAND: pale brownish grey, very dense, well graded, fine to coarse grained, angular, wet, calcitic, with some gravel (angular limestone chips and shells), trace silt		3	SPT -4.9	50/4"
					4	SPT	50/3"

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE Page 1/2

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0337

Hole No. CP05-EAARS-CB-0337

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.4	15.0					-6.4	
-9.9	18.5		Grades to Gravelly SAND: more gravel		5	SPT	25 33 40
-14.9	23.5		SAND: pale brownish grey, very dense, well graded, fine to coarse grained, angular, wet, calcitic, with a trace fine gravel and trace very fine quartz sand		6	SPT; Intermittent hard drilling from 21 to 23 ft	15 12 50/2"
-19.9	28.5		Only chips of Sandy LIMESTONE recovered		7	SPT; Intermittent hard drilling from 28.5 to 33.5 ft	50/2"
-23.9	32.5		SAND: pale brownish grey, very dense, poorly graded, mostly uniform, fine			-23.9	5 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0337

Hole No. CP05-EAARS-CB-0337

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.8	33.4					-24.8	
-26.4	35.0		grained, subrounded and quartzose, some fine to medium grained, angular and calcitic, trace fine gravel		8	SPT; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	50/4" 34
			End of Boring at 35'				36

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

38 40 42 44 46 48 50

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PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0337

Hole No. CP05-EAARS-CB-0338

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N754257.9, E760698.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0338	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/1/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 7.5 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.9	0.0						
			PEAT: not sampled				
6.4	2.5					6.4	
			LIMESTONE: tan to light brown and grey, thinly bedded, fine to coarse grained, vuggy, Fossiliferous, hard and strong to moderately hard, moderately strong and porous	46 (RQD 8%)	1	HQ coring; Intermittent soft drilling from 3.5 to 4.5 ft, soft at 5.5 ft	
3.4	5.5						
			No recovery				
1.4	7.5						
			End of Boring at 7.5'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

0 2 4 6 8 10 12 14

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0338

Hole No. CP05-EAARS-CB-0339

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N754349.7, E769822.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0339		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/1/2005 Completed 9/1/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.1 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 6.3 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.1	0.0						
6.8	1.3		Did not sample. Just drilled down to caprock.			6.8	
3.1	5.0		LIMESTONE: caprock, tan to light brown, thinly bedded, fine to coarse grained, vuggy, fossiliferous, hard and strong, ranges mudstone to pachstone	18 (RQD 7%)	1	HQ coring; soft from 2.3 ft to 3.9 ft	
1.8	6.3		No recovery for this depth interval				
			End of Boring at 6.3'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

0 2 4 6 8 10 12 14

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0339

Hole No. CP05-EAARS-CB-0340

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N754381.6, E777736 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0340		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/30/2005 Completed 8/30/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 7.3 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 30 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.3	0.0						
			1.1 ft of PEAT: not sampled				
6.2	1.1					6.2	
			LIMESTONE: tan to light brown, thinly bedded, fine to coarse grained, fossiliferous, vuggy to porous, moderately hard and moderately strong	24 (RQD 0%)	1	HQ coring; soft from 1.6 to 2.1 ft and 4.1 to 5.1 ft	
1.3	6.0					1.3	
			Sandy GRAVEL: tan, poorly graded, fine grained, subangular, limestone with angular, fine to coarse, calcitic sand, trace silt, medium dense, wet		1	SPT	4, 6, 8
-3.2	10.5					-3.2	
			SAND: pale brownish grey, medium, dense, well graded, fine to coarse, angular, calcitic, some fine gravel (shells), trace silt, wet		2	SPT	15, 9, 9
-6.2	13.5					-6.2	
			Silty SAND: as above but silty with trace gravel (shells)		3	SPT	4, 6, 8

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0340

Hole No. CP05-EAARS-CB-0340

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.7	15.0					-7.7	
-11.2	18.5		Silty SAND: as above but very dense, some gravel (limestone)		4	-11.2 SPT; hard layers below 17.5 ft, intermittent	8 50/5"
-16.2	23.5		Sandy GRAVEL: pale brownish grey, well graded, fine to coarse, very dense, subangular, limestone, with calcitic, angular sand, some silt		5	-16.2 SPT	28 47 12
-21.2	28.5		SAND: pale brownish grey, medium dense, wet, uniform, fine, subrounded, quartzose, some calcitic, angular, fine sand to fine gravel, trace silt		6	-21.2 SPT; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	31 16 7
-22.7	30.0		End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0340

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 341-360

Hole No. CP05-EAARS-CB-0341

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N754254.6, E784321.7 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0341	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/17/2005 Completed 8/18/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 36.5 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.9	0.0						
			PEAT: brownish black, fine, loose, moist, non-plastic, organic		1	8.9 SPT	2 2 6
7.4	1.5					7.4	
			LIMESTONE: tan to light grey and light brown, very fine to coarse grained, thinly bedded, fossiliferous, ranges from very fine (calcilutite), dense but vuggy, strong and hard to medium and coarse grained (Calcarenite), porous, moderately hard and moderately strong.	46 (RQD 14%)	2 1	7.4 SPT HQ coring	50/2"
2.4	6.5					2.4	
			1.2 ft of tan, vuggy, hard, and strong calcilutite recovered in Run # 2.	24 (RQD 18%)	2	HQ coring; Ranges from mudstone to grainstone	
-2.6	11.5					-2.6	
			0.3 in of the same recovered at the top of Run # 3.	6 (RQD 0%)	3	HQ coring; Soft drilling from 9 to 11.2 ft; soft drilling from 11.8 to 23 ft	

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0341

Hole No. CP05-EAARS-CB-0341

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.1	15.0					-6.1	
-7.6	16.5		No core recovery	0 (RQD 0%)	4	HQ coring	
-12.6	21.5		Calcarinite and shells: Light brownish grey, fine to coarse grained, porous, moderately hard and moderately strong to soft and weak grain stone recovered in Run # 5.	26 (RQD 0%)	5	HQ coring; Short sections of firm drilling at middle and end of run # 5	
-17.6	26.5		Calcarinite and shells: light brownish grey to light and medium grey, porous, moderately hard and moderately strong to soft, weak and friable grain stone with a trace of quartz sand, also hard and strong pack stone with some fine quartz sand with apparent solution voids infilled with the grainstone in Run # 6.	42 (RQD 8%)	6	HQ coring; Intermittent firm drilling in run # 6	
-22.6	31.5		Light to medium grained, shelly, dense, hard and strong to porous, moderately hard and moderately hard packstone recovered in Run # 7. For most part, core is only half cylinder (possible solution cavity?).	40 (RQD 0%)	7	HQ coring; Complete circulation loss in run # 7; 4" casing down to 30 ft	

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0341

Hole No. CP05-EAARS-CB-0341

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.5	33.4					-24.5	
			Note: Fossil include pelecypod, gastropod and coral.				
-27.6	36.5						
			End of Boring at 36.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0341

Hole No. CP05-EAARS-CB-0342

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N754260.6, E784321.2 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0342	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/18/2005 Completed 8/19/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.4	0.0						
			Peat: black, loose, fine grained, non-plastic, moist, organic		1	11.4 SPT; All calcitic material noted below is at least in part shell fragments.	4 3 3
9.4	2.0					9.9	50/6"
			LIMESTONE: tan to brownish grey and light brown, fine to coarse grained, thinly to medium bedded, vuggy, fossiliferous, strong and hard	46 (RQD 22%)	1	9.4 SPT HQ coring; Caprock from 2 to 8 ft; soft from 4 to 4.9 ft; Core pieces for testing: 2.3 to 4 ft and 4 to 4.4 ft	0 2 4 6
5.2	6.2						
			Only uniform fine, angular, limestone gravel: looks like drill cuttings			4.4	50/2"
2.9	8.5				3	SPT 2.9	8
			SAND: pale brownish grey, loose, wet, well graded, fine to coarse, angular, calcitic, some silt, trace gravel		4	SPT	3 3 2
						0.4	10
			Grades to some gravel		5	SPT	10 4 3
-2.1	13.5					-2.1	12
			Grades to Gravelly SAND (as above) with some silt, medium dense		6	SPT	3 7 18
						(continued)	14

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE (MAR 71)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0342

Hole No. CP05-EAARS-CB-0342

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.6	15.0					-3.6	
-4.6	16.0					-4.6	
			Grades to SAND: as above but no gravel, trace silt, medium dense		7	SPT	19 10 7
-7.1	18.5					-7.1	
			Grades to Silty SAND (as above) but pale greenish grey, loose, and silty		8	SPT	6 4 4
-9.6	21.0					-9.6	
			Grades to Gravelly SAND: like that at 13.5 but very dense, pale brownish grey		9	SPT	50/6"
						-12.1	
			Gravelly SAND as above, but a race very fine, subrounded quartz		10	SPT	24 50/5"
-14.6	26.0					-14.6	
			SAND (as above), with some gravel and silt, trace very fine quartz		11	SPT	15 12 50
						-17.1	
			No recovery		12	SPT; Hard drilling from 28.5 to 31 ft	50/0"
-19.6	31.0					-19.6	
			Sandy GRAVEL: pale brownish grey, very dense, well graded, fine to coarse, angular, limestone (trace very fine quartz sand with sand as above		13	SPT; Hard drilling from 31 to 33. 5 ft	22 39 50/2"

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0342

Hole No. CP05-EAARS-CB-0342

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.0	33.4					-22.0	
						-22.1	
					14	SPT	50/2"
-23.6	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0342

Hole No. CP05-EAARS-CB-0343

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N753259.7, E786969.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0343	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/16/2005 Completed 8/16/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.6	0.0						
			Peat: brownish black, loose, fine grained, non-plastic, organic, moist		1	8.6 SPT 7.1	4 2 2
					2	SPT 5.6	2 2 2
5.1	3.5		Wet at 3 ft		3	4.6 SPT	3 50/3"
			LIMESTONE: caprock, tan to light brown, mostly fine grained, vuggy, and fossiliferous, thinly bedded, strong and hard	32 (RQD 0%)	1	HQ coring -0.4	
1.1	7.5		SAND: pale brownish gray, loose, well graded, fine to coarse, angular, calcitic, trace gravel, some silt			-4.9	
					4	SPT	4 2 4

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0343

Hole No. CP05-EAARS-CB-0343

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.4	15.0					-6.4	
			Grades pale greenish grey with trace silt		5	SPT	7 8 6
						-9.9	
			Grades pale brownish grey with some very fine, subrounded, quartz sand, trace silt		6	SPT	10 11 21
						-14.9	
			Grades very dense		7	SPT; Hard drilling from 29 to 32 ft	50/5"
						(continued)	

16 18 20 22 24 26 28 30 32

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0343

Hole No. CP05-EAARS-CB-0343

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.8	33.4					-24.8	
-24.9	33.5		Sandy GRAVEL: pale greenish grey, very dense, gap graded, fine to coarse, subangular, sandy limestone, with angular, calcitic sand		8	-24.9 SPT	15 50/3"
-26.4	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0343

Hole No. CP05-EAARS-CB-0344

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N758906.8, E761991.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0344	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/7/2005 Completed 9/7/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 5.8 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.4	0.0						
7.6	0.8		PEAT: Not Sampled			7.6	
3.2	5.2		LIMESTONE: tan to light brown and gray, fine to coarse grained, thinly bedded, fossiliferous, vuggy to porous, hard and strong to moderately hard to moderately strong.	34 (RQD 0%)	1	HQ coring; Loosing water in caprock; Very hard to 3 ft, soft at 5.2 ft	
2.6	5.8		No recovery				
			End of Boring at 5.8'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0344

Hole No. CP05-EAARS-CB-0345

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N759006.3, E768486.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0345		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/7/2005 Completed 9/7/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.5 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35.5 ft		19. Inspector: K. Jones	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.5	0.0						
			ROADFILL: Not sampled.				
8.0	2.5						
			PEAT: Not sampled.				
6.5	4.0					6.5	
			LIMESTONE: pale yellowish brown to tan, granular, very hard to medium soft, dense, fractured with fractures filled with calcerous silt becoming weathered and softer at bottom.	70 (RQD 20%)	1	HQ coring	
			A 1 ft void in the core from 6.0 to 7.0				
						1.5	
				10 (RQD 0%)	2	HQ coring; only recovered bottom 6" of core	
			Grades to tan, soft, granular, calcareous, silty, with some cemented shell.				
-3.5	14.0					-3.5	
			Sandy GRAVEL: gray to tan, medium dense, calcareous, subangular, fine to coarse grained, well graded, some gray		1	SPT	4 4

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0345

Hole No. CP05-EAARS-CB-0345

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.5 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.5	15.0					-4.5	
			silt.				7
							16
-7.0	17.5		Gravelly SAND: grades as above.				
							18
						-8.5	
							2
					2	SPT	2
							12
							20
							22
						-13.5	
			A layer of Limeston from 24 to 24.75.				50/1"
					3	SPT	24
							26
-16.5	27.0						
			Sandy GRAVEL (Caloosahatchee Formation): gray to tan, very dense, siliceous, calcereous, subangular, well graded, some silt.			-17.0	
						-18.5 Top of Caloosahatchee Formation	28
							14
					4	SPT; cemented quartz sand	25
							27
							30
-22.0	32.5						
			SAND: gray, dense, uniform consistency, subangular, trace of black				32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0345

Hole No. CP05-EAARS-CB-0345

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.5 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.9	33.4					-22.9	
			phosphorite and tan calcerous sand.			-23.5	
					5	SPT	9
							14
-25.0	35.5						15
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0345

Hole No. CP05-EAARS-CB-0346

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N758929.4, E773763.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0346		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/8/2005 Completed 9/8/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 11.5 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			ROADFILL: Limestone gravel and cobbles recovered.	12 (RQD 0%)	1	10.0 HQ coring; Hard 0.1 to 0.6 ft; soft to 4.3 ft; then hard from 4.3 to 4.6 ft; hard from 4.8 to 7.3 ft; soft from 7.3 to 9.1 ft; hard from 9.1 to 9.6 ft and then soft	
5.4	4.6					5.0	
			LIMESTONE (Caprock): tan to light brown, fine to coarse grained, thinly bedded, fossiliferous, vuggy, hard and strong.	40 (RQD 24%)	2	HQ coring; UCS=5010psi; core samples for testing: 5.0 to 5.6 ft and 5.9 to 6.5 ft	
0.4	9.6					0.0	
			SAND: pale brownish gray, medium dense, well graded, fine to coarse grained, angular, calcitic, some fine angular Limsestone gravel, trace silt.		1	SPT; SP-SM; poorly graded sand with silt and gravel; Moisture=10%	7 6 6
-1.5	11.5		End of Boring at 11.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0346

Hole No. CP05-EAARS-CB-0347

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N759062.5, E780380.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0347		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/8/2005 Completed 9/8/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 7.7 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 12.5 ft		19. Inspector: N. Holst	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.7	0.0						
			PEAT: Not sampled				
5.7	2.0					5.7	
			LIMESTONE (Caprock): tan to light brown, thinly bedded, fine to coarse grained, fossiliferous, vuggy, strong and hard to porous, soft and weak.	88 (RQD 43%)	1	HQ coring; soft from 3.2 to 3.5 ft and 3.6 to 5.8 ft; Intermittent hard drilling from 5.8 to 8.5 ft; then soft below 8.5 ft	
						1.7	
				42 (RQD 10%)	2	HQ coring; Core samples for testing: 2.4 to 3 f, 3.0 to 3.7 ft and 6.0 to 6.5 ft	
-0.8	8.5						
			Gravelly SAND: pale brownish gray, well graded, fine to coarse grained, loose, wet, angular, calcitic, fine subrounded gravel.				
						-3.3	
					1	SPT	2 2 2
-4.8	12.5						
			End of Boring at 12.5'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0347

Hole No. CP05-EAARS-CB-0347

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.7 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.3	15.0					-7.3	

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0347

Hole No. CP05-EAARS-CB-0348

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N761552.5, E761984.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0348	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/7/2005 Completed 9/7/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 8.5 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.4	0.0						
			PEAT: Not sampled.			7.4	
7.3	1.1						
			LIMESTONE (Caprock)	40 (RQD 0%)	1	HQ coring; soft from 2.1 to 3.8 ft and at 4.6 ft	
3.8	4.6						
			SAND: pale brownish gray, dense, well graded, fine to coarse grained, angular, calcitic, moist, with some fine angular, limestone gravel.			2.4	
						1.4	
					1	SPT	26 23 25
-0.1	8.5						
			End of Boring at 8.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0348

Hole No. CP05-EAARS-CB-0349

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N761596.4, E768469.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0349		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 9/7/2005 Completed 9/7/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 10 (ft)	
9. Depth of hole: 35.5 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: K. Jones	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.0	0.0						
			ROADFILL: Not sampled.				
6.0	4.0					6.0	
			LIMESTONE (Caprock): dark brown to gray, hard and brittle to medium soft, weathered, and porous.	40 (RQD 22%)	1	HQ coring	
2.5	7.5					1.0	
			Gravelly SAND: gray to tan, calcereous, very loose, well graded, subangular, some tan calcereous silt.		1	SPT; very soft at 7.5 ft during coring	5 2 1
-3.0	13.0					-4.0	
			Sandy SILT: gray, stiff, calcereous, well graded, interbedded with gray tan shells and shell fragments.		2	SPT	5 4

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0349

Hole No. CP05-EAARS-CB-0349

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.0	15.0					-5.0	9
							16
-8.5	18.5		LIMESTONE: dark brown, very hard, brittle, silicified, fossiliferous, sandy.			-9.0	18
					3	SPT; this is only a limestone stringer becoming softer	50/3"
-12.5	22.5		SAND: gray, dense, calcereous, well graded.			-14.0	20
							22
-15.0	25.0		LIMESTONE: dark gray, hard, brittle, moldic, angular, fossiliferous.		4	SPT	13
							24
							24
							50/2"
							26
						-18.5	28
			LIMESTONE (Caloosahatchee Formation): dark gray, hard, sandy (quartz), fossiliferous, some gray quartz sand.			-19.0	
-20.0	30.0				5	Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation SPT	50/4"
			SAND: gray, loose, uniform consistency, subangular quartz, some tan shell fragments.				30
							32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0349

Hole No. CP05-EAARS-CB-0349

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.4	33.4					-23.4	
						-24.0	
					6	SPT	6 6 5
-25.5	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0349

Hole No. CP05-EAARS-CB-0350

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N761606.5, E773832.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0350	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/13/2005 Completed 9/13/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12.5 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.7	0.0		PEAT: Not sampled.				
6.2	2.5		Silty SAND: greenish gray, soft, fine grained, angular calcitic sand.			6.2	
5.2	3.5		LIMESTONE (Caprock): tan brown to light gray, hard, fine to medium grained, shelly.	34 (RQD 12%)	1	HQ coring; 0.6 ft piece of Silty SAND recovered; 1.1 ft of limestone piece recovered	
						1.2	
-0.3	9.0		Grades white and porous.	8 (RQD 8%)	2	HQ coring; one piece of 0.4 ft	
			No recovery				
-3.8	12.5		End of Boring at 12.5'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

(continued)

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0350

Hole No. CP05-EAARS-CB-0350

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.3	15.0					-6.3	

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1

HOLE NUMBER: CP05-EAARS-CB-0350

Hole No. CP05-EAARS-CB-0351

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N761648.4, E779503.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0351	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/12/2005 Completed 9/12/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.9	0.0						
			PEAT: Not sampled.				
5.9	2.0					5.9	
			LIMESTONE (Caprock): light gray, hard, fine to medium grained, porous.	20 (RQD 0%)	1	HQ coring	
						0.9	
-0.1	8.0			22 (RQD 8%)	2	HQ coring; one piece of 0.4 ft recovered	
			Grades to moderately hard, vuggy, fossiliferous, shelly.				
			Alternate layers of cemented sand, not much limestone.				
-4.1	12.0						
			End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0351

Hole No. CP05-EAARS-CB-0351

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.9 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.1	15.0					-7.1	
						x 2" O.D.)	

16
18
20
22
24
26
28
30
32

PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0351

Hole No. CP05-EAARS-CB-0352

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N759734.9, E781678.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0352		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 8/25/2005 Completed 8/25/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 11 (ft)	
9. Depth of hole: 35 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: B. Levesque	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.0	0.0						
			GRAVEL: brown to grey, medium dense, dry, fine to coarse graded, subangular to subrounded, some fine to medium sand, subangular to subrounded, little silt, trace organics		1	11.0 SPT 9.0	15, 16, 4
9.0	2.0		PEAT: black, very loose, fibrous, moist, little to trace fine to medium sand, little silt		2	SPT 7.0	
					3	SPT 5.5	9, 12, 50/4"
5.5	5.5		LIMESTONE: white to grey, fine grained to whackestone, hard and strong, slightly porous, slightly vuggy to vuggy, thinly bedded, fossiliferous	56 (RQD 35%)	1	HQ coring 0.5	
0.5	10.5		SAND: white, calcitic, fine to medium grained, little to some fine to coarse gravel, subangular and subrounded, little silt, very loose, moist, poorly graded		4	SPT; broke through the cap at 10.5 ft -3.0	7, 1, 2
			SAND: white, calcitic, fine to medium grained, little silt, fossiliferous, very loose		5	SPT	2, 2

(continued)

EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0352

Hole No. CP05-EAARS-CB-0352

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.0	15.0					-4.0	2 16 18
			same as above, silty, dense		6	-8.0 SPT	3 5 4 20 22
			same as above, medium dense state		7	-13.0 SPT; slightly hard drilling at 23 ft	5 10 7 24 26 28
					8	-18.0 SPT	7 7 8 30 32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0352

Hole No. CP05-EAARS-CB-0352

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.4	33.4					-22.4	
						-23.0	
			SAND: white to grey, fine to coarse, calcitic, trace fine to medium quartz, trace fine gravel, little silt				64/4"
-24.0	35.0				9	SPT	10/0"
			End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0352

Hole No. CP05-EAARS-CB-0353

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N766803.5, E760673.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0353	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/1/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.6	0.0						
			PEAT: black, loose, poorly graded, fine grained, dry		1	9.6 SPT 8.1	2, 3, 3
			same as above - except wet		2	SPT; couple of limestone chips at sample bottom 6.6	3, 50/5"
7.1	2.5		LIMESTONE: tan brown, hard, fine to coarse grained, quite porous, shelly	56 (RQD 34%)	1	HQ coring; 2 pieces each of 0.45 ft and 0.4 ft 2.1	
3.6	6.0		SAND: greenish grey, loose, moderately graded, fine to medium grained, wet, subangular, calcetic sand		3	SPT -3.9	8, 7, 3
			SAND: light grey, very dense, moderately graded, fine to medium grained, sub angular, calcetic sand, wet		4	SPT; 3" of hard layer	3, 38, 50/4"

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0353

Hole No. CP05-EAARS-CB-0353

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.6 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.4	15.0					-5.4	
			same as above - except dense, quite silty		5	SPT	28 31 6
-8.9						-8.9	
-13.9	23.5		Gravelly SAND: olive grey, dense, poorly graded, fine to coarse grained, sub angular calcetic sand, wet, trace phosphate		6	SPT	10 17 18
-16.4	26.0		SAND: olive grey, poorly graded, very fine to fine grained, rounded quartz, wet			Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
-18.9						-18.9	
-20.4	30.0				7	SPT	10 17 18
			End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0353

Hole No. CP05-EAARS-CB-0354

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N766938.9, E765962.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0354	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/1/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 9 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.8	0.0						
			Rotary wash from 0.0 ft to 2.5 ft. Not sampled.				
6.3	2.5					6.3	
			LIMESTONE: tan brown to white, hard, vuggy, shelly, fine to medium grained	30 (RQD 10%)	1	HQ coring; one piece 0.5 ft long	
3.3	5.5						
			SAND: light grey, very dense, poorly graded fine to coarse grained, wet, shelly			1.3	
					1	SPT	7 44 13
-0.2	9.0						
			End of Boring at 9'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

OBSOLETE EDITIONS ARE OBSOLETE MAR 71

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0354

Hole No. CP05-EAARS-CB-0355

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N766734.9, E771197 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0355	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/31/2005 Completed 8/31/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.7	0.0						
			Peat: dark brown to black, loose, poorly graded, fine grained, moist		1	8.7 SPT 7.2	3 2 4
			same as above - black color		2	SPT 5.7	3 7 14
5.2	3.5				3	SPT; couple of limestone chips recovered 4.2	12 50/0"
			Gravelly SAND: olive grey, very dense, poorly graded, fine to coarse grained, wet	32 (RQD 12%)	1	HQ coring; Caprock 2.5 ft; 1 piece of 0.6 ft 0.2	
2.7	6.0						
			LIMESTONE: tan brown to white, hard, fine to medium grained, shelly, a little porous				
			No recovery		4	SPT -4.8	7 2 1
-4.8	13.5						
			SAND: light grey, medium dense, moderately graded, fine to medium grained, sub angular calcetic sand, wet, shells present, silty, trace phosphate		5	SPT	17 14 11

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0355

Hole No. CP05-EAARS-CB-0355

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.7 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.3	15.0					-6.3	
			same as above - except very dense		6	SPT	23 31 24
-14.8	23.5					-14.8	
			few shells and stone pieces recovered		7	SPT; less than a foot of hard layer	50/5"
-15.8	24.5		SAND: light grey, medium dense, moderately graded, fine to medium grained, sub angular calcetic sand, rounded quartz, wet, shells present, silty, trace phosphate			-17.8	
						Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
						-19.8	
-21.3	30.0				8	SPT	12 12 14
			End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0355

Hole No. CP05-EAARS-CB-0356

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N766664.2, E776454.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0356	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/2/2005 Completed 9/2/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 13.5 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.3	0.0						
			Not sampled				
7.3	1.0					7.3	
			LIMESTONE: light grey, hard, fine to medium grained, porous, shelly	94 (RQD 42%)	1	HQ coring; 1 piece each of 0.9 ft, 0.35 ft, 0.5 ft and 0.35 ft	
3.3	5.0						
			Cemented SAND: greenish grey, very dense, poorly graded, fine to coarse grained, sub angular calcetic sand, wet			2.3	
						1.8	11
1.3	7.0				1	1.3 SPT	50/3"
			LIMESTONE: light grey, hard, fine to medium grained, quite porous		2	SPT	
-0.2	8.5			30 (RQD 15%)		HQ coring; 1 piece of 0.35 ft and 0.4 ft	
			SAND: light grey, loose, moderately graded, fine to medium grained, sub angular calcetic sand, wet			-3.7	
							3
					3	SPT	2
-5.2	13.5						5
			End of Boring at 13.5'				

0 2 4 6 8 10 12 14

(continued)

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0356

Hole No. CP05-EAARS-CB-0356

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.7	15.0					-6.7	

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0356

Hole No. CP05-EAARS-CB-0357

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N769494.6, E760664.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0357		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 9/1/2005 Completed 9/1/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 8.4 (ft)	
9. Depth of hole: 8 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.4	0.0						
			Rotary wash drilling from 0.0 ft to 1.5 ft. Not sampled.				
6.9	1.5					6.9	
			LIMESTONE: tan brown to pale white, moderately hard, fine to coarse grained, vuggy, shelly	35 (RQD 8%)	1	HQ coring; 1 piece of 0.4 ft; Caprock - 4 ft	
2.9	5.5						
			SAND: greenish grey, medium dense, poorly graded, fine to coarse grained, angular calcetic sand, wet, lots of shells, quite gravelly			1.9	
					1	SPT	3 6 14
0.4	8.0						
			End of Boring at 8'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0357

Hole No. CP05-EAARS-CB-0358

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N769579.6, E765913.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0358	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/1/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.2 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 14.5 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.2	0.0						
			Rotary wash drilling from 0.0 ft to 2.0 ft. Not sampled.				
7.2	2.0					7.2	
			LIMESTONE: light grey to tan brown, hard, fine to coarse grained, quite porous, shells present. Staggered limestone and cemented sand layers	64 (RQD 45%)	1	HQ coring; 1 piece each of 0.4 ft, 0.4 ft, 0.35 ft, 0.45 ft and 0.65 ft	
2.2	7.0					2.2	
			SAND: light grey, very dense, poorly graded, fine to coarse grained, sub angular calcetic sand, limestone chips, wet		1	SPT; spoon bouncing	7 50/1"
1.2	8.0		LIMESTONE: pale white, hard, fine to medium grained, porous			0.7	
				30 (RQD 22%)	2	HQ coring; UCS=2500psi; 1 piece each of 0.6 ft and 0.5 ft	
-3.8	13.0					-3.8	
			SAND: light grey to greenish grey, very dense, moderately graded, fine to coarse grained, wet		2	SPT; SM; silty sand with gravel; Moisture=21%	8 44 16
-5.3	14.5						

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0358

Hole No. CP05-EAARS-CB-0358

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.2 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.8	15.0					-5.8	
			End of Boring at 14.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0358

Hole No. CP05-EAARS-CB-0359

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N769432.1, E770696.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0359	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/24/2005 Completed 8/24/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.8	0.0						
			PEAT: black, medium dense, fine grained, moist, organic		1	7.8 SPT	1 6 6
6.3	1.5		Gravelly SAND mixed with peat, wet, limestone chips recovered		2	6.3 SPT	12 36 36
4.3	3.5		a few limestone chips recovered	36 (RQD 10%)	3 1	4.3 SPT HQ coring; 1 piece of 0.5 ft	50/2"
0.8	7.0		LIMESTONE: grey to pale white, hard, fine to medium grained, quite porous, shelly			-0.7	
			SAND: light grey, medium dense, moderately graded, fine to coarse grained, angular calcetic sand, wet, trace silty, shells present		4	SPT	3 3 14
			same as above		5	-5.7 SPT	14 10 12

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0359

Hole No. CP05-EAARS-CB-0359

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.8 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.2	15.0					-7.2	
			SAND: light grey, dense, moderately graded, fine to medium grained, sub angular calcetic sand, wet, silty, trace phosphate		6	SPT; couple of limestone chips recovered	10 17 16
						-10.7	
			same as above		7	SPT; flaky chips of stone recovered	20 20 10
						-15.7	
-18.7	26.5		Gravelly SAND: greenish grey, dense, moderately graded, fine to coarse grained, sub angular calcetic sand, rounded quartz, wet			Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
						-18.7	
					8	SPT	20 20 25
						-20.7	

16 18 20 22 24 26 28 30 32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0359

Hole No. CP05-EAARS-CB-0359

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.8 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-25.6	33.4					-25.6	
			SAND: greenish grey, medium dense, moderately graded, fine to coarse grained, sub angular calcetic sand, rounded quartz, wet		9	-25.7 SPT; 2 chips of limestone recovered	13 7 5
-26.7	34.5						
-27.2	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0359

Hole No. CP05-EAARS-CB-0360

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N774647.1, E768471.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0360	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/12/2005 Completed 9/12/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.2 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.2	0.0						
			ROADFILL: Not sampled.				
8.2	2.0						
			PEAT: Not sampled.				
6.7	3.5					6.7	
			LIMESTONE (Caprock): tan, very hard, microcrystalline, dense.	35 (RQD 9%)	1	HQ coring	
			Grades to light to dark brown, fractured, fossiliferous, medium hard, porous, soft voids are filled with silt.				
2.7	7.5					2.7	
			Sandy GRAVEL: tan, very dense, calcereous, well sorted, subangular, calcitic shell hash.			1.7 Become soft at 7.5 ft	
					1	SPT; GP-GM; Poorly graded gravel with silt and sand; Moisture=26%	15 21 30
-2.3	12.5						
			CLAY: cream color, Some silt and sand, firm, calcereous, with trace fine gravel.			-3.3	
					2	SPT; SM; silty sand with gravel; Moisture=31%	2 3 4

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0360

Hole No. CP05-EAARS-CB-0360

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.2 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.8	15.0					-4.8	
-7.3	17.5		Silty SAND: tan, loose, calcereous.			-8.3	
					3	SPT; SM; silty sand ; Moisture=24%	6 5 5
						-11.3	
-12.3	22.5		Sandy GRAVEL (Caloosahatchee Formation): Tan to gray, dense, calcereous, some fine grained quartz sand.			Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation -13.3	
					4	SPT; SM; Silty sand with gravel; Moisture=22%	6 12 21
-17.3	27.5		LIMESTONE: brown to dark gray, moderately hard, sandy, fossiliferous.			-18.3	
-19.8	30.0		Sandy GRAVEL: tan to gray, dense, well sorted, quartz sand with calcereous cement.		5	SPT	50/2"

16 18 20 22 24 26 28 30 32

(continued)

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0360

Hole No. CP05-EAARS-CB-0360

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.2 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.2	33.4					-23.2	
						-23.3	20
					6	SPT	16
							20
-24.8	35.0						
			End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0360

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 361-380

Hole No. CP05-EAARS-CB-0361

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N778258.4, E768445.3 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0361	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/23/2005 Completed 8/23/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector:

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.5	0.0						
			PEAT: black, loose, poorly graded, fine grained, organic, dry		1	8.5 SPT 7.0	2 2 50
7.2	1.3		small pieces of limestone caprock	50 (RQD 16%)	1	HQ coring	
			LIMESTONE: light grey to pale white, hard, fine to medium grained, quite porous				
2.0	6.5		SAND: greenish grey, very dense, moderately graded, fine to coarse grained, sub angular calcetic sand, cemented, wet		2	2.0 SPT 0.0	27 27 50
			SAND: light brown, medium dense, moderately graded, fine to medium grained, sub angular calcetic sand, wet		3	SPT -5.0	2 5 6
			SAND: light grey, loose, well graded, fine to coarse grained, sub angular calcetic sand, wet, shells present, quite silty		4	SPT	2 6 2

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0361

Hole No. CP05-EAARS-CB-0361

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.5	15.0					-6.5	
			same as above		5	SPT	5 4 6
						-10.0	
			SAND: greenish grey, medium dense, moderately graded, fine to medium grained, sub angular calcetic sand, wet, shelly		6	SPT	8 9 7
						-15.0	
			same as above - except dense		7	SPT	2 5 33
						-20.0	

16 18 20 22 24 26 28 30 32

(continued)

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0361

Hole No. CP05-EAARS-CB-0361

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.5 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.9	33.4					-24.9	
			small chips of cemented sand with shells recovered			-25.0	50
					8	SPT	
-26.5	35.0						
			End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0361

Hole No. CP05-EAARS-CB-0362

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N781742.1, E760429 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0362	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/8/2005 Completed 9/8/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.8	0.0						
			PEAT: black, very loose, poorly graded, fine to medium grained, moist, mostly organic.		1	8.8 SPT 7.3	2 2 2
6.8	2.0		LIMESTONE (Caprock): tan brown, hard, fine to medium grained, shells present.		2	SPT 5.8	1 50/1"
4.8	4.0		SAND: Light gray, medium dense, moderately graded, fineto coarse grained, subangular calcitic sand, wet.	12 (RQD 0%)	1	HQ coring; Caprock - 1.5 ft 1.3	
					3	SPT -4.7	12 11 10
-4.7	13.5		SAND (Caloosahatchee Formation): light gray, loose, moderately graded, fine to medium grained, subangular calcitic sand, wet, quite silty,		4	SPT -6.2	6 6 4

(continued)

0 2 4 6 8 10 12 14

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0362

Hole No. CP05-EAARS-CB-0362

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.2	15.0		subrounded quartz.			-6.2 Caloosahatchee Formation	16
			Grades to greenish gray and dense, with trace phosphate.			-9.7	18
					5	SPT	15 16 10 — 20
			Grades to medium dense, poorly graded, fine to coarse grained, rounded quartz, shells present.			-14.7	22
					6	SPT	9 7 6 — 24
-19.7	28.5					-19.7	26 28
-21.2	30.0		LIMESTONE		7	SPT; Spoon bouncing	50/3" — 30
			End of Boring at 30'				32

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0362

Hole No. CP05-EAARS-CB-0363

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N777276.3, E771077.2 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0363	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/7/2005 Completed 9/7/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 13 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.4	0.0						
			Not Sampled				
6.4	3.0					6.4	
			LIMESTONE (Caprock): light gray to white, hard, fine to medium grained, quite porous, shelly.	68 (RQD 34%)	1	HQ coring; 1 piece each of 0.9 ft, 0.35 ft and 0.45 ft; Caprock - 5.5 ft	
						1.4	
0.2	9.2		Grades to white, shells grade out.	14 (RQD 9%)	2	HQ coring; 1 piece of 0.45 ft	
			No recovery				
-3.6	13.0						
			End of Boring at 13'				

NOTES:
1. Soils are field visually classified

(continued)

PREVIOUS EDITIONS ARE OBSOLETE MAR 71

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0363

Hole No. CP05-EAARS-CB-0363

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.4 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.6	15.0					-5.6	

in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0363

Hole No. CP05-EAARS-CB-0364

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N774274.5, E771159.4 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0364	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/7/2005 Completed 9/7/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 14 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.4	0.0						
			Not sampled.				
6.9	1.5					6.9	
			LIMESTONE (Caprock): tan brown to pale white, hard, fine to medium grained, shelly.	42 (RQD 8%)	1	HQ coring; 1 piece of 0.4 ft	
4.4	4.0						
			SAND: light gray, very dense, moderately graded, fine to medium grained sub angular calcitic sand, wet, some silt, shells present.				
						1.9	
1.2	7.3				1	SPT	50 50/3"
			LIMESTONE: white, moderately hard, fine to medium grained, vuggy, shells present.			0.4	
				42 (RQD 21%)	2	HQ coring; 1 piece each of 0.5 ft and 0.55 ft	
-1.6	10.0						
			SAND: greenish gray, medium dense, moderately graded, fine to medium grained subangular calcitic sand, wet, with some limestone peices.				
						-4.1	
					2	SPT	10 8 8
-5.6	14.0						

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0364

Hole No. CP05-EAARS-CB-0364

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.4 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.6	15.0					-6.6	
			End of Boring at 14'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0364

Hole No. CP05-EAARS-CB-0365

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776581.1, E765893.5 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0365		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/23/2005 Completed 8/23/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 12.4 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
12.4	0.0						
			SAND: light to tan brown, dense, moderately graded, fine to medium grained, sub angular calcetic sand, dry		1	12.4 SPT; SM; silty sand with gravel; Moisture=10% 10.9	17, 26, 20
			SAND: light grey, dense, poorly graded, fine to coarse grained, sub angular calceetic sand, dry to wet		2	SPT; SM; silty sand with gravel; Moisture=13%	17, 21, 21
8.9	3.5					8.9	
			PEAT: black, fine grained, organic, dry		3	SPT; SP-SM; poorly graded sand with silt and gravel; Moisture=88% 7.4	3, 2, 6
7.9	4.5						
			Gravelly SAND: greenish grey, cemented				21
			Gravelly SAND: greenish grey, very dense, moderately graded, fine to coarse grained, sub angular, cemented, wet		4	SPT; SP-SM; Poorly graded sand with silt and gravel; Moisture=13% 5.9	27, 50/3"
5.9	6.5						
			LIMESTONE: kight grey to white, very hard, fine to medium grained	68 (RQD 50%)	1	HQ coring; UCS=1500psi; 1 piece each of 1.1 ft, 0.8 ft and 0.5 ft; Very hard coring; 5 ft took 70 minutes	
0.9	11.5					0.9	
			SAND: light grey, medium dense, moderately graded, fine to coarse grained, sub angular calcetic sand, wet, silt present		5	SPT; SM; silty sand with gravel; Moisture=29%	5, 3, 22

(continued)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0365

Hole No. CP05-EAARS-CB-0365

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-2.6	15.0					-2.6	
			SAND: same as above, shells present		6	SPT; SM; silty sand; Moisture=23%	15 12 10
						-11.1	
			SAND: greenish grey, medium dense, poorly graded, fine to medium grained, sub angular calcetic sand, wet, silty, shelly		7	SPT; silty sand; Moisture=23%	7 10 12
						-16.1	
			SAND: light grey, medium dense, moderately graded, fine to medium grained, sub angular calcetic sand, rounded quartz, wet, silty, trace phosphate		8	SPT; SM; silty sand; Moisture=21%; Caloosahatchee Formation	7 11 9

16 18 20 22 24 26 28 30 32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0365

Hole No. CP05-EAARS-CB-0365

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 12.4 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.0	33.4					-21.0	
-21.1	33.5		Gravelly SAND: greenish grey, very dense, moderately graded, fine to coarse grained, sub angular calcetic sand, rounded quartz, cemented, wet		9	-21.1 SPT; SP-SM; poorly graded sand with silt and gravel; Moisture=13%	10 28 50/5"
-22.6	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0365

Hole No. CP05-EAARS-CB-0366

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N752271.1, E760713.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0366	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/1/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 14 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.4	0.0						
			PEAT: not sampled				
5.4	4.0					5.4	
			LIMESTONE: caprock, tan to light brown, thinly bedded, fine to coarse grained, vuggy to porous, fossiliferous, hard and strong to moderately hard and strong	52 (RQD 26%)	1	HQ coring; Soft from 5.5 ft to 7.5 ft, then firm	
3.9	5.5		LIMESTONE: pale to light brownish grey, fine to coarse grained, thinly bedded, porous, fossiliferous, moderately hard, and moderately strong			0.4	
-0.1	9.5		soft below 9.5 ft. No recovery.	10 (RQD 9%)	2	HQ coring; soft below 9.5 ft	
-4.6	14.0						

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0366

Hole No. CP05-EAARS-CB-0366

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.4 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.6	15.0		End of Boring at 14'			-5.6	

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0366

Hole No. CP05-EAARS-CB-0367

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N752287.5, E763220.4 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0367	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/7/2005 Completed 9/7/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.1 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.1	0.0						
			PEAT: Not sampled.				
6.1	2.0					6.1	
			LIMESTONE (Caprock): tan, fine to coarse grained, thinly bedded, vuggy to porous, fossiliferous, hard and strong to moderately hard and moderately strong.	22 (RQD 7%)	1	HQ coring; soft below 4.2 ft	
3.9	4.2						
			Sandy GRAVEL: pale brownish gray, very dense, well graded, fine grained, angular limestone.				
1.1	7.0					1.1	
			LIMESTONE: tan to light gray, fine to coarse grained, thinly bedded, fossiliferous mostly soft and weak. (First 0.2 ft is hard.)	22 (RQD 0%)	2	HQ coring; hard at 7 ft; spoon bouncing; many loose shells in the core	
-0.2	8.3						
			Sandy GRAVEL: As above, but with trace silt.				
						-3.9	
						-5.4	
							50/3"
					1	SPT	

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0367

Hole No. CP05-EAARS-CB-0367

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8.1 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.9	15.0					-6.9	
-9.4	17.5		Gravelly SAND: pale brown to gray, medium dense, uniform, fine grained, subrounded, quartzose, trace fine to coarse angular calcitic sand, with sandy limestone gravel.			-10.4	
					2	SPT	11 13 12
-14.4	22.5		SAND: pale brownish gray, medium dense uniform, fine grained, subrounded, moist, quartzose, trace fine to medium angular calcitic sand.			-15.4	
					3	SPT	9 9 10
			Grades as above, but with some fine angular calcereous sandstone gravel.			-20.4	
					4	SPT	1 14 13
-21.9	30.0						
			End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0367

Hole No. CP05-EAARS-CB-0368

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N753662.4, E767510 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0368		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 9/1/2005 Completed 9/1/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 8 (ft)	
9. Depth of hole: 30 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: N. Holst	

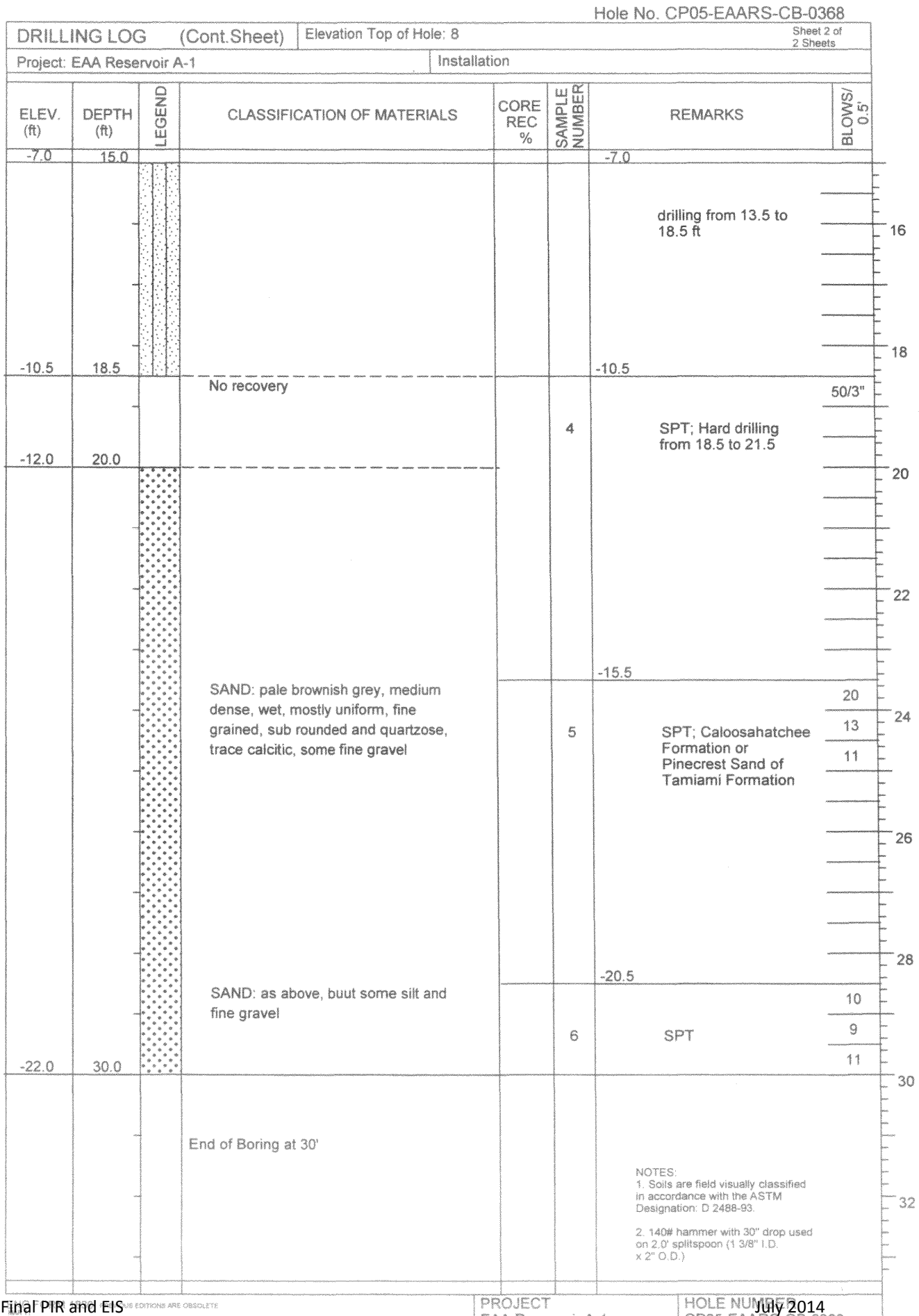
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						
7.8	0.3		PEAT			7.8	
			LIMESTONE: caprock, pale brownish grey to light brown, thinly bedded, fine to coarse grained, vuggy, fossiliferous, hard and strong, weakly cemented sand below	36 (RQD 10%)	1	HQ coring; Good core piece for testing 0.25 to 0.75 ft; Soft drilling at 1.25 ft	
2.8	5.3					2.8	
			Gravelly SAND: pale brownish grey, dense, well graded, fine to coarse, angular, calcitic, trace silt		1	SPT	5 16 18
-0.5	8.5					-0.5	
			Only LIMESTONE chips recovered		2	SPT; Hard drilling from 8.3 to 8.7 ft	50/2"
-2.0	10.0						
			Silty SAND: pale brownish grey, very dense to loose, well graded, fine to coarse, wet, angular, calcitic, trace fine gravel				
						-5.5	
					3	SPT; Hard drilling from 12.5 to 13.0 ft; Intermittent hard	2 3 50/2"

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0368


Hole No. CP05-EAARS-CB-0368
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 8
Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-7.0
15.0
-7.0
drilling from 13.5 to 18.5 ft
-10.5
18.5
-10.5
No recovery
4
SPT; Hard drilling from 18.5 to 21.5
50/3"
-12.0
20.0
-15.5
SAND: pale brownish grey, medium dense, wet, mostly uniform, fine grained, sub rounded and quartzose, trace calcitic, some fine gravel
5
SPT; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation
20
13
11
-20.5
SAND: as above, buut some silt and fine gravel
6
SPT
10
9
11
-22.0
30.0
End of Boring at 30'
NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)
16
18
20
22
24
26
28
30
32
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0368

Hole No. CP05-EAARS-CB-0369

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N753677, E772160.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0369	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/31/2005 Completed 8/31/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 30 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						0
			PEAT: not sampled				
6.0	2.0					6.0	
			LIMESTONE: caprock: tan to light brown, fine to coarse grained, fossiliferous, vuggy, hard and strong, very closely fractured	28 (RQD 0%)	1	HQ coring; Soft from 3.5 to 4.5 ft; Packstone, soft at 6 ft	2
2.0	6 0						4
			Sandy GRAVEL: tan, loose, wet, subangular, weakly cemented limestone, poorly graded, fine to coarse			1.0	6
					1	SPT	5
							4
							5
-3.0	11.0					-3.0	8
			Silty SAND: pale greenish grey, very dense, well graded, fine to coarse, angular, calcitic, some fine gravel (shells)		2	SPT	28
							13
							50/5"
-5.5	13.5					-5.5	12
			SAND: pale greenish grey, loose, well graded, fine to medium grained, subangular, calcitic, some silt		3	SPT	7
							5
							3
							14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0369

Hole No. CP05-EAARS-CB-0369

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.0	15.0					-7.0	
-10.5	18.5		GRAVEL: tan, very dense, poorly graded, fine, subangular, limestone, some calcitic sand		4	SPT; Hard drilling from 20 to 23.5 ft	50/4"
-15.5	23.5		Gravelly SAND: pale brownish grey, very dense, well graded, fine to coarse, angular, calcitic, wet, with limestone gravel		5	SPT; Intermittent hard drilling from 23.5 to 28.5 ft	47 50/4"
-20.5	28.5		SAND: pale greenish grey, medium dense, mostly uniform, fine grained and quartzose, some fine to medium, angular, calcitic, trace sandy limestone gravel		6	SPT; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	18 11 17
-22.0	30.0		End of Boring at 30'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0369

Hole No. CP05-EAARS-CB-0370

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N753743.1, E775375.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0370	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/30/2005 Completed 8/30/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10.6 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.9	0.0						
			PEAT: not sampled				
7.0	0.9					6.9	
			LIMESTONE: tan to light brown, fine to coarse grained, thinly bedded, fossiliferous, vuggy to porous, hard and strong to moderately hard and moderately strong, most recovery in gravel sized rounded to angular	7 (RQD 0%)	1	HQ coring; Soft from 1.5 to 4.4 ft	
						2.4	
				24 (RQD 10%)	2	HQ coring; Soft at 8 ft	
-0.1	8.0						
			soft at 8 ft. No recovery.				
-2.7	10.6						
			End of Boring at 10.6'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0370

Hole No. CP05-EAARS-CB-0371

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N753716.1, E780372.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0371	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/23/2005 Completed 8/23/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.8	0.0						
			PEAT			7.8	4
					1	SPT	2
6.6	1.3					6.5	50/4"
			LIMESTONE: caprock: tan to light brown, grades from strong, hard, vuggy mudstone and wackestone to soft, weak, porous grainstone	42 (RQD 12%)	1	HQ coring; Core piece for testing:3.9 to 4.5 ft; Becomes soft from 4.7 to 5 ft	
			Had to redrill core run to remove debris			1.5	
0.8	7.0					0.8	
			Silty SAND: pale brownish grey, medium dense, wet, well graded, fine to coarse grained, angular, calcitic, with some fine angular, limestone gravel Grades loose with no gravel		2	SPT	6 9 13
						-0.7	
					3	SPT	2 1 7
-5.7	13.5					-5.7	
					4	SPT	6 9 10

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0371

Hole No. CP05-EAARS-CB-0371

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.8 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.2	15.0					-7.2	
			SAND: pale brownish grey, medium dense, well graded, fine to coarse, wet, angular, calcitic, trace very fine quartz sand		5	SPT	15 11 12
-15.7	23.5					-15.7	
			SAND: as above but medium dense, no gravel and some silt		6	SPT; Hard drilling from 21 to 27.5 ft	50/1"
-20.7	28.5					-20.7	
			Gravelly SAND: pale brownish grey, loose, well graded, fine to coarse, mostly angular and calcitic, some fine to medium subrounded quartz, angular limestone gravel		7	SPT	9 2 4
						-22.2	
						Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	

16 18 20 22 24 26 28 30 32

(continued)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0371

Hole No. CP05-EAARS-CB-0371

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.8 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-25.6	33.4					-25.6	
-25.7	33.5		SAND: light brownish grey, medium dense, moist, mostly uniform, fine grained, subrounded and quartzose, some calcitic, angular, fine to coarse sand and fine gravel at 33.5 ft		8	-25.7 SPT	6 8 8
-27.2	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0371

Hole No. CP05-EAARS-CB-0372

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N757932.6, E776407.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0372	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/30/2005 Completed 8/30/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.0	0.0						
			SAND: light brown, moderately dense, fine to medium gradation, some coarse to fine gravel, angular to subangular		1	11.0 SPT	7, 7, 7
9.0	2.0					9.0	
			PEAT: black, moist, fibrous, trace fine to medium calcitic sand, shells		2	SPT	4, 2, 1
7.0	4.0					7.3	
			LIMESTONE: white to light tan-grey, fine to medium graded, non porous to slightly porous, fossiliferous, slightly vuggy, hard, moderately strong to strong	65 (RQD45%)	3 1	7.0 SPT HQ coring; UCS=3570psi	50/0"
2.0	9.0					2.0	
			SAND: white, fine to medium gradation, subangular, shelly, little silt		4	1.0 SPT	3, 5
			LIMESTONE: white, fine to coarse grained, fractured, porous to slightly porous, slightly vuggy, hard, weak, thinly bedded	20 (RQD 0%)	1	HQ coring; UCS=1570psi; Broke through about 13.5 ft	50/2"
-3.0	14.0					-3.0	
			SAND: light grey to tan, medium graded, some shells, trace fine sand, calcitic, angular to subangular, loose,		5	-3.5 SPT	3, 6

(continued)

OBSOLETE PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0372

Hole No. CP05-EAARS-CB-0372

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.0	15.0					-4.0	
			moist			ML; Inorganic silts and very fine sand; Moisture=19%	4
							16
							18
						-8.0	
			SAND: tan-grey to white, calcitic, fine to medium grained, little silt, little fine to coarse gravel, subangular		6	SPT	6
							2
							4
							20
							22
						-13.0	
			No recovery. Very hard drilling, spoon refusal - probably limestone		7	SPT; white and white grey fragments of limestone in drilling mud	25/0"
							24
							26
							28
						-18.0	
			No recovery. Possibly similar to above		8	SPT	25/0"
							30
							32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0372

Hole No. CP05-EAARS-CB-0372

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.4	33.4					-22.4	
						-23.0	
			SAND: white, medium dense, calcitic, fine to medium gradation, little silt, little fine gravel, angular to subangular, little fine quartz sand, subangular to subrounded		9	SPT; drill advanced with less difficulty till 33.5 ft	28 12 10
-24.5	35.5						
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG 2 OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0372

Hole No. CP05-EAARS-CB-0373

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N758092.4, E771124.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0373	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/30/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.7	0.0						
			SAND: grey-brown, fine to medium gradation, moderately dense, calcitic, little fine to coarse gravel, angular to subangular, little silt, organic (peat, silt) (FILL)		1	11.7 SPT	7 11 7
9.7	2.0					9.7	
			PEAT: black, moist, loose, fibrous, fine to coarse calcitic sand, shell fragments		2	SPT	7 2 3
7.7	4.0					7.7	
7.2	4.5		GRAVEL: light tan, coarse grained, little trace silt, fine sand, calcitic, angular, dense		3	7.2 SPT	4 50/4"
			LIMESTONE: grey to white, very vuggy to vuggy, finr to coarse to fine to medium gravel, porous, slightly porous, moderately strong and hard, fossiliferous	80 (RQD 54%)	1	HQ coring; UCS=1000psi	
						2.2	
			LIMESTONE: white, fine to coarse grained, vuggy and porous, weak to moderately strong, friable, moderately hard, fossiliferous	26 (RQD 17%)	2	HQ coring; UCS=4430psi; bottom of caprock at 14.5 ft	
-2.8	14.5					-2.8	
			SAND: white, moderately dense, fine to				6

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0373

Hole No. CP05-EAARS-CB-0373

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.7 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.3	15.0					-3.3	
			medium grained, trace to little coarse sand, trace gravel, little to some silt, subangularm, moist, calcitic		4	SPT	11 7 16 18
						-7.3	
			Same as above		5	SPT; SM; silty sand with gravel; Moisture=25%	4 3 3 20 22
						-12.3	
			SAND: grey to white, fine to coarse grained, calcitic, little to trace quartz fine grained sand, some fine to coarse calcitic gravel, little silt, angular to subangular/subrounded		6	SPT; Intermittent hard and soft drilling from 18 to 28 ft	50/4" 24 26 28
						-17.3	
			same as above		7	SPT; SM; silty sand with gravel; Moisture=22%	50/3" 30 32

(continued)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0373

Hole No. CP05-EAARS-CB-0373

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.7 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-21.7	33.4					-21.7	
						-22.3	
			SAND: white, fine grained, calcitic and quartz, little silt, trace fine gravel, odor (sulphides), medium dense		8	SPT; SP; poorly graded sand; Moisture=26%; Drill bit chattering from 30 to 34 ft; then relatively easy drilling	11 8 8
-23.8	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0373

Hole No. CP05-EAARS-CB-0374

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N758239.4, E765844.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0374	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/1/2005 Completed 9/1/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.4	0.0						
			SAND: brown grey, fine to medium gradation, little silt, little fine to coarse gravel, subangular, dry, medium dense (FILL)		1	11.4 SPT 9.4	8, 7, 14
			same as above		2	SPT 7.4	11, 6, 5
5.9	5.5		SAND: grey brown, fine to medium gradation, little gravel, clay in seams, shells, moderately dense, moist		3	SPT 5.9	3, 14, 30
			LIMESTONE: light tan-grey with rust staining, hard, moderately strong, fine to coarse grained, fossiliferous, slightly porous	53 (RQD 26%)	1	HQ coring 0.9	
			LIMESTONE: grey to white, medium to coarse grained, fossiliferous, very vuggy, moderately hard to soft, moderately strong to weak, very porous to porous	10 (RQD 0%)	2	HQ coring; weakly cemented sand and gravel	

0 2 4 6 8 10 12 14

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0374

Hole No. CP05-EAARS-CB-0374

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.6	15.0					-3.6	
-4.1	15.5					-4.1	
			SAND: white to grey, calcitic, fine to coarse grained, little silt, little to some fine grade, subangular to subrounded, loose		4	SPT	3 5 4
						-7.6	
			SAND: grey to white, calcitic, fine to coarse grained, little fine gravel, little fine quartz sand, dense, subrounded to subangular		5	SPT	20 18 18
						-12.6	
					6	SPT	25/0"
						-17.6	
			SAND: grey to white, calcitic, fine to medium graded, trace fine gravel, little fine quartz sand, subangular to subrounded, little shells, little to trace silt, loose, moist and wet, loose to medium dense		7	SPT; much easier drilling below 27 ft	16 5 5

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0374

Hole No. CP05-EAARS-CB-0374

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.0	33.4					-22.0	
			Same as above			-22.6	
					8	SPT	3 5 7
-24.1	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0374

Hole No. CP05-EAARS-CB-0375

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N762103.3, E763178.5 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0375	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/6/2005 Completed 9/6/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.2 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: N. Holst

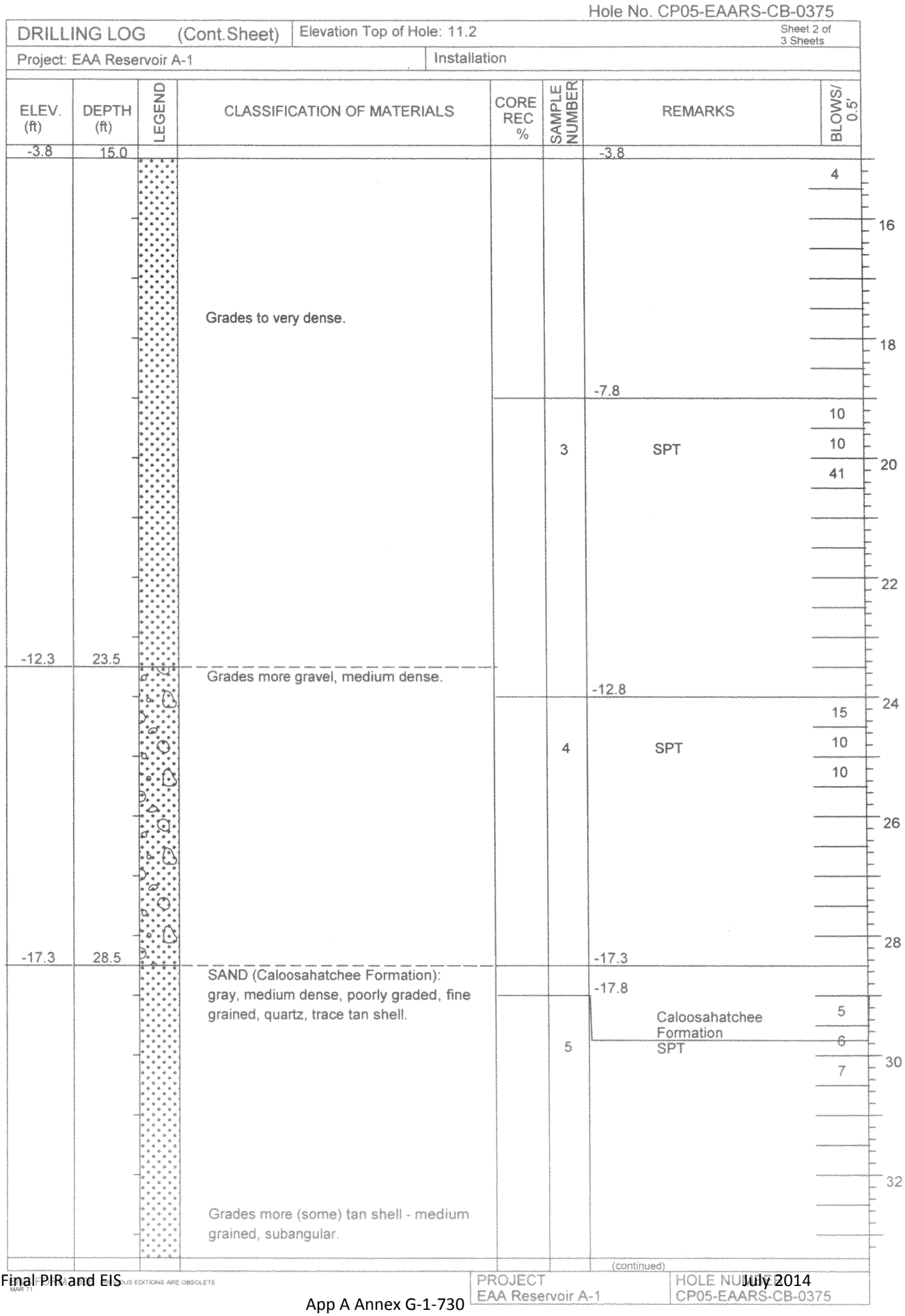
ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.2	0.0						
			ROADFILL: Not sampled.				
7.7	3.5						
			PEAT: Not sampled.				
6.7	4.5					6.7	
			LIMESTONE (Caprock): tan to light gray, granular, grading hard to medium soft from top to bottom of the layer, fractured, moldic, vuggy, some fractures filled with calcereous sand.	58 (RQD 28%)	1	HQ coring	
2.7	8.5					1.7	
			SAND: light gray, loose, fineto coarse grained, well graded, angular, trace of limestone gravel.		1	SPT	13, 5, 3
			Grades more (some) calcereous gravel.			-2.8	
					2	SPT	5, 6

0 2 4 6 8 10 12 14

(continued)

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0375


Hole No. CP05-EAARS-CB-0375
DRILLING LOG (Cont.Sheet)
Elevation Top of Hole: 11.2
Sheet 2 of 3 Sheets
Project: EAA Reservoir A-1
Installation
ELEV. (ft)
DEPTH (ft)
LEGEND
CLASSIFICATION OF MATERIALS
CORE REC %
SAMPLE NUMBER
REMARKS
BLOWS/ 0.5'
-3.8
15.0
Grades to very dense.
-7.8
3
SPT
4
10
10
41
-12.3
23.5
Grades more gravel, medium dense.
-12.8
4
SPT
15
10
10
-17.3
28.5
SAND (Caloosahatchee Formation): gray, medium dense, poorly graded, fine grained, quartz, trace tan shell.
-17.8
5
Caloosahatchee Formation
SPT
5
6
7
Grades more (some) tan shell - medium grained, subangular.
16
18
20
22
24
26
28
30
32
(continued)
PROJECT
EAA Reservoir A-1
HOLE NUMBER
CP05-EAARS-CB-0375

Hole No. CP05-EAARS-CB-0375

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.2 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.2	33.4					-22.2	
						-22.8	
					6	SPT	8
							8
-24.3	35.5						8
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0375

Hole No. CP05-EAARS-CB-0376

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N758795.1, E760203.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0376	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/2/2005 Completed 9/2/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.5	0.0						
			Black to light		1	7.5 SPT	8, 8, 5
6.0	1.5					5.5	
			SAND: grey-white, calcitic, fine to medium grained, subangular to subrounded, little to trace fine gravel, trace to little silt, clay, medium dense, moist		2	SPT	14, 7, 7
3.0	4.5					3.5	
			LIMESTONE: white, medium to coarse grained, porous, moderately hard, moderately strong, thinly bonded, vuggy, fossileferous	73 (RQD 73%)	1	3.0 SPT; refusal at 4.5 ft- top of caprock HQ coring	4, 50/4"
-1.5	9.0					-2.0	
			SAND: white, fine to medium grained, little fine gravel, calcitic, shelly, subangular to subrounded, moist, medium dense		4	SPT	2, 4, 7
						-6.5	
			Same as above, except trace fine quartz sand, very dense		5	SPT; Hard drilling, bit	16, 50/6"

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0376

Hole No. CP05-EAARS-CB-0376

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.5 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.5	15.0					-7.5	
						chattering from 16 ft to 22 ft	16
							18
						-11.5	
			Same as above		6	SPT	50/6"
							20
-14.5	22.0						
			GRAVEL: grey, fine to coarse gradation, calcitic, angular to subangular, little fine to medium sand, little silt, trace fine quartz, sand at the top of the spoon				22
						-16.5	
					7	SPT	23
							33
							15
							24
							26
-19.5	27.0					-19.5	
			SAND: light grey to brown, fine graded, quartzetic, little to trace shells, trace silt, medium to dense, moist			Strata change at 27 ft	28
						-21.5	
					8	SPT	4
							7
							12
							30
							32

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0376

Hole No. CP05-EAARS-CB-0376

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.5 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-25.9	33.4					-25.9	
						-26.5	
					9	SPT	8 13 10
-28.0	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0376

Hole No. CP05-EAARS-CB-0377

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N756371, E773911.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0377	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/6/2005 Completed 9/6/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.4	0.0						
			ROADFILL: Not sampled.				
7.9	3.5						
			PEAT: Not sampled				
5.9	5.5					5.9	
			LIMESTONE (Caprock): tan to light orange, hard, fractured, dense, granular, vuggy, fractures filled with gray silt, becomes softer with increasing depth.	60 (RQD 40%)	1	HQ coring; UCS=3880psi	
						0.9	
			Grades tan to gray, hard, less fractured and vuggy.	40 (RQD 20%)	2	HQ coring; UCS=2250psi	
-3.1	14.5						
			Gravelly SAND: gray, medium dense.				

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0377

Hole No. CP05-EAARS-CB-0377

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.6	15.0					-3.6	
			well graded, angular, calcereous, some shell and silt.			-4.1	
					1	SPT; SM; silty sand with gravel; Moisture=18%	4 1 23
-7.1	18.5		SAND: same as above but grades light gray and loose. Gravel grades out.			-7.6	
					2	SPT; SM; silty sand; Moisture=26%	6 3 3
-11.1	22.5		Grades same as Gravelly Sand above, but with less (trace) silt.			-12.6	
					3	SPT; SM; silty sand with gravel; Moisture=19%	44 16 12
-16.1	27.5		Grades same as Sand above, but gray and very dense.			-17.6	
					4	SPT; SM; silty sand; Moisture=15%	21 17 50/0"
-21.1	32.5		Sandy GRAVEL (Caloosahatchee Formation): gray to dark gray, very			-21.1	

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0377

Hole No. CP05-EAARS-CB-0377

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.4 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.0	33.4					-22.0	
			dense, well graded, angular, calcereous, some shell and quartz sand.			-22.6 Caloosahatchee Formation	50/6"
					5	SPT	
-24.1	35.5						
			End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0377

Hole No. CP05-EAARS-CB-0378

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N758504.9, E760564.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0378	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/9/2005 Completed 9/9/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12.5 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.9	0.0						
			FILL: Not sampled.				0
							2
7.4	3.5						
			PEAT: Not sampled.				4
4.9	6.0					4.9	
			LIMESTONE (Caprock): brown to gray, medium hard, fractured, fossiliferous, crystalline.	64 (RQD 35%)	1	HQ coring; soft coring at 9.5 ft	6
			Grades light brown, medium soft, oolitic, granular.				8
1.4	9.5						
			Gravelly SAND: gray to tan, very loose, well graded, calcereous, subangular, with some silt.				10
						-0.1	
					1	SPT	1 1 1
-1.6	12.5						12
			End of Boring at 12.5'				14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0378

Hole No. CP05-EAARS-CB-0378

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.9 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.1	15.0					-4.1	

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0378

Hole No. CP05-EAARS-CB-0379

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N769312.2, E775409.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0379		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/7/2005 Completed 9/7/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 13.5 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						
6.5	1.5		Not Sampled.			6.5	
			LIMESTONE (Caprock): light gray to pale white, hard, fine to medium grained, quite porous, shelly.	16 (RQD 0%)	1	HQ coring	
						1.5	
					1	SPT	18 50/1"
			Grades moderately hard. Intermittant cemented sand layers.			0.0	
-1.5	9.5			54 (RQD 8%)	2	HQ coring; Caprock has cemented sand layers; One piece - 0.4 ft	
			SAND: greenish gray, medium dense, poorly graded, medium to coarse grained angular calcitic sand, wet.			-4.0	
					2	SPT	4 6 21
-5.5	13.5						
			End of Boring at 13.5'				

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0379

Hole No. CP05-EAARS-CB-0379

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 8	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.0	15.0					-7.0	

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836, [illegible] EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0379

Hole No. CP05-EAARS-CB-0380

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750090.8, E763879.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0380	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/17/2005 Completed 8/17/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.6	0.0						
			Road fill material		1	11.6 SPT 9.6	7 3 6
9.6	2.0						
			Peat (muck layer)		2	SPT	2 2 2
7.6	4.0					7.6	
			Broken Limestone - Top caprock		3	SPT 6.1	2 11 8
				88 (RQD 20%)	1	HQ coring; 5.5 ft-top of caprock	
3.6	8.0						
			Soft 8 to 10 ft				
1.6	10.0					1.6	
			Hit hard layer again, 10 ft to 12 ft	88 (RQD 50%)	2	HQ coring	
-0.4	12.0						
			End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836, [illegible] EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0380

Hole No. CP05-EAARS-CB-0380

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 11.6	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.4	15.0					-3.4	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0380

APPENDIX 2
SUPPLEMENTAL BORINGS AND PIEZOMETER INSTALLATION LOGS: 381-419

Hole No. CP05-EAARS-CB-0381

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N773961, E760078.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0381	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/11/2005 Completed 8/11/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.5	0.0						
			LIMESTONE: light brown to white, hard, fine to medium grained, quite porous, shelly	38 (RQD 0%)	1	7.5	
2.5	5.0					2.5	
			Cemented SAND: light grey, fine to medium grained, shells present	1 (RQD 0%)	2		
-2.5	10.0						
			End of Boring at 10'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0381

Hole No. CP05-EAARS-CB-0382

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750597.1, E783999.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0382	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/24/2005 Completed 8/24/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 15 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						
			GRAVEL: tan gray, dense, fine to coarse grained, dense, subangular, trace silt, trace fine to coarse sand, well graded, subangular to subrounded.		1	8.0 SPT	20 28 23
6.5	1.5		PEAT: black, fibrous, moist, trace fine to medium calcitic sand.			6.0	
					2	SPT	6 5 3
4.5	3.5		GRAVEL: Grades as Gravel above, but angular to subangular.			4.0	
					3	SPT	10 16 30
2.5	5.5		GRAVEL (Caprock): grades as above.			2.5	
				5 (RQD 0%)	1	HQ coring; 5.5 ft- top of Caprock	
0.0	8.0		LIMESTONE: tan white to white, soft to moderately hard, fine to medium grained, slightly porous, fossiliferous, weathered.			-2.0	
				30 (RQD 26%)	2	HQ coring; broke through at 15 ft, softer soil below caprock	
-7.0	15.0						

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0382

Hole No. CP05-EAARS-CB-0382

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.0	15.0					-7.0	
			End of Boring at 15'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0382

Hole No. CP05-EAARS-CB-0383

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N773629.4, E757955 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0383	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/16/2005 Completed 8/16/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.1 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 11.5 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.1	0.0						
			Peat, black, organic				
7.6	1.5					7.6	
			LIMESTONE: pale white to light grey, hard, fine grained, porous, shelly	38 (RQD 20%)	1	HQ coring; easy coring all the way	
2.6	6.5					2.6	
			No recovery	0 (RQD 0%)	2	HQ coring	
-2.4	11.5						
			End of Boring at 11.5'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0383

Hole No. CP05-EAARS-CB-0384

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N757724.6, E783603.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0384		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/13/2005 Completed 9/13/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 7.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 12 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.6	0.0						
			PEAT: Not sampled.				
5.6	2.0					5.6	
			LIMESTONE (Caprock): light gray, hard, fine to medium grained, quite porous, fossiliferous, shelly.	24 (RQD 10%)	1	HQ coring; 1 piece - 0.5 ft	
						0.6	
-0.9	8.5			24 (RQD 0%)	2	HQ coring	
			No recovery				
-4.4	12.0						
			End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836, [illegible] EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0384

Hole No. CP05-EAARS-CB-0384

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 7.6 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.4	15.0					-7.4	
						x 2" O.D.)	

16 18 20 22 24 26 28 30 32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0384

Hole No. CP05-EAARS-CB-0385

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N764205.7, E772656.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0385		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/13/2005 Completed 9/13/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 7.9 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 12 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.9	0.0						
			PEAT: Not sampled.				
5.9	2.0					5.9	
			LIMESTONE (Caprock): white to light gray, hard, fine to medium grained, moderately porous, shell fragments.	16 (RQD 0%)	1	HQ coring	
1.9	6.0						
			Only one small piece of limestone recovered			0.9	
				2 (RQD 0%)	2	HQ coring	
-4.1	12.0						
			End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0385

Hole No. CP05-EAARS-CB-0385

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 7.9	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.1	15.0					-7.1	
						x 2" O.D.)	

16
18
20
22
24
26
28
30
32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0385

Hole No. CP05-EAARS-CB-0386

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N764152.1, E761782.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0386	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/8/2005 Completed 9/8/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 6.1 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.4	0.0						
7.3	1.1		PEAT: not sampled.			7.3	
5.4	3.0		LIMESTONE (Caprock): tan to light brown and gray, thinly bedded, fine to coarse grained, fossiliferous, vuggy to porous, hard and strong to moderately hard and moderately strong.	36 (RQD 7%)	1	HQ coring; soft from 2.2 to 2.6 ft, soft at 3 ft; core sample for testing from 1.3 to 1.8 ft	
2.3	6.1		No recovery				
			End of Boring at 6.1'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0386

Hole No. CP05-EAARS-CB-0387

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N772246.4, E775085.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0387	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/24/2005 Completed 8/29/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 16.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
16.3	0.0						
			Rotary wash. Not sampled.				
14.3	2.0					14.3	
			LIMESTONE: light brown to pale white, hard, fine to medium grained, quite porous	28 (RQD 8%)	1	HQ coring; very hard coring from 2 to 7.5 ft	
						9.3	
8.8	7.5						
			Few pieces of coral and a couple of pieces of limestone recovered	12 (RQD 0%)	2	HQ coring; hard coring from 9.5 to 10.5 ft	
6.8	9.5						
5.8	10.5						
			No recovery				
4.3	12.0						
			End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836, [illegible] EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0387

Hole No. CP05-EAARS-CB-0387

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 16.3	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
1.3	15.0					1.3	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0387

Hole No. CP05-EAARS-CB-0388

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N773937.1, E759316.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0388	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/12/2005 Completed 8/12/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.6 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.6	0.0						
			LIMESTONE: greenish grey to pale whit, hard, fine to medium grained, quite porous, shells present Little Peat recovered	38 (RQD 13%)	1	7.6 HQ Coring; UCS=2119psi; around 8" of hard coring	
2.6	5.0					2.6	
			Cemented SAND: pale white, dense, fine to coarse grained, subangular	24 (RQD 14%)	2	HQ Coring; 7.5 to 9.5 ft hard coring	
-2.4	10.0						
			End of Boring at 10'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0388

Hole No. CP05-EAARS-CB-0389

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N783425.5, E761054.2 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0389		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/8/2005 Completed 9/8/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 13 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						
			Not Sampled				0
5.0	3.0					5.0	2
			LIMESTONE (Caprock): white, hard, fine to medium grained, quite porous, shells present.	42 (RQD 28%)	1	HQ coring; 1 piece each of 0.85 ft and 0.55 ft recovered	4
2.9	5.1						
			No recovery			0.0	6
				0 (RQD 0%)	2	HQ coring; very easy coring	8
							10
-5.0	13.0						12
			End of Boring at 13'				14

NOTES:
1. Soils are field visually classified

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0389

Hole No. CP05-EAARS-CB-0389

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 8	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.0	15.0					-7.0	

in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0389

Hole No. CP05-EAARS-CB-0390

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N782077.2, E757968.8 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0390		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/8/2005 Completed 9/8/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 8.2 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 10.5 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.2	0.0						
7.7	0.5		Not sampled			7.7	
			LIMESTONE (Caprock): hard to moderately hard, fine to medium grained, shelly.	68 (RQD 20%)	1	HQ coring; 1 piece each of 0.65 ft and 0.35 ft recovered; caprock - 5.5 ft	
			At 5.5 ft, grades as above with fine to coarse grained, and vuggy.			2.7	
2.2	6.0		No recovery	12 (RQD 0%)	2	HQ coring	
-2.3	10.5		End of Boring at 10.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0390

Hole No. CP05-EAARS-CB-0391

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750104.5, E768244.7 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0391	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/19/2005 Completed 8/19/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.5	0.0						
			Road fill material			10.5	24
					1	SPT	16
							18
						8.5	
			Grey / black road fill material				12
					2	SPT	6
							12
6.5	4.0					6.5	
			Peat/sand/silt				4
					3	SPT	3
5.0	5.5					5.0	50/5"
			Caprock: LIMESTONE				
				40 (RQD 20%)	1	HQ coring; 5.5 ft of caprock	
3.0	7.5						
						0.0	
			Light brown soft sand, shell, silt				5
					4	SPT; hard at 12 ft	12
-1.5	12.0						36
			End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

EARLIER EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0391

Hole No. CP05-EAARS-CB-0391

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 10.5	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.5	15.0					-4.5	

x 2" O.D.)

16
18
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24
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ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0391

Hole No. CP05-EAARS-CB-0392

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N774439.9, E759698.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0392	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/12/2005 Completed 8/12/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						
			LIMESTONE: light grey, hard, fine grained, porous, shelly	48 (RQD 30%)	1	8.0 HQ Coring; UCS=1805psi; hard coring from 0 to 4.5 ft	
3.5	4.5		No recovery			3.0	
				0 (RQD 0%)	2		
-2.0	10.0		End of Boring at 10'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0392

Hole No. CP05-EAARS-CB-0393

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N773687.1, E761788.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0393	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/16/2005 Completed 8/16/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 7.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.4	0.0						
7.1	0.3		0.3' of grey cemented sand recovered			7.4	
			0.8' of limestone, pale white, moderately hard, highly porous, fine to medium grained, shelly Caprock mostly moderately hard porous limestone	40 (RQD 22%)	1	HQ coring	
						2.4	
			Few Limestone chips				
1.4	6.0			6 (RQD 0%)	2	HQ coring	
			One piece of cemented sand with shells				
-2.6	10.0						
			End of Boring at 10'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0393

Hole No. CP05-EAARS-CB-0394

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N776821.9, E772809.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-45B	
4. Hole No: CP05-EAARS-CB-0394		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Ralph Smith		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/8/2005 Completed 9/8/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 9.9 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 12 ft		19. Inspector: A.M. Noronha	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.9	0.0						
			Not Sampled				0
7.9	2.0					7.9	
			LIMESTONE (Caprock): gray to white, hard, vuggy, shelly, fossiliferous, fine to medium grained.	50 (RQD 15%)	1	HQ coring; one piece of 0.75 ft recovered	2
							4
							6
						2.9	
0.9	9.0			38 (RQD 15%)	2	HQ coring; one piece of 0.75 ft recovered; caprock around 7 ft thick	8
			No recovery				10
-2.1	12.0						
			End of Boring at 12'				12
						NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.	14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0394

Hole No. CP05-EAARS-CB-0394

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 9.9	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.1	15.0					-5.1	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0394

Hole No. CP05-EAARS-CB-0395

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N763476.7, E781637.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0395	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/29/2005 Completed 8/29/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.2 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 40 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.2	0.0						
			GRAVEL (FILL): brown gray, fine to coarse grained, subangular to subrounded, trace fine to medium grained sand, trace silt.		1	11.2 SPT	12, 9, 3
9.7	1.5		PEAT: black, very loose, moist, trace fine to medium grained sand, trace gravel.		2	9.2 SPT	1, 2, 2
					3	7.2 SPT	2, 2, 9
6.2	5.0		SAND: brown, medium dense, some silt, trace fine to coarse gravel, trace organics (Peat fibers).		4	5.2 SPT; probable change between 7.5 and 8.0 ft	2, 8, 3
3.2	8.0		LIMESTONE (Caprock): white, fine to coarse grained, porous, vuggy, moderately hard and moderately brittle to friable and weak, intermittant cemented sands.	36 (RQD 20%)	1	3.2 HQ coring	
				18 (RQD 13%)	2	-1.8 HQ coring; broke through at 18 ft	

0 2 4 6 8 10 12 14

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ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0395

Hole No. CP05-EAARS-CB-0395

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.2 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-3.8	15.0					-3.8	
-6.8	18.0					-6.8	16
			SAND: white, medium dense, fine to coarse grained, calcitic, angular to subangular, trace to some silt, trace fine gravel.			-8.8	18
					5	SPT	3, 10, 8 — 20, 22
-11.8	23.0		SAND: white, dense, fine to medium grained calcitic sand, angular to subangular, trace to some fine quartz sand, trace silt, trace fine gravel. Sand getting progressively denser with depth.			-12.8	
					6	SPT; possible change at 23 ft; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	2, 7, 27 — 24, 26
						-15.8	
						sands and gravel, seems to be getting harder with depth	28
-18.8	30.0					-18.8	
			LIMESTONE: gray brown, fine to coarse grained, hard, weak to moderately strong, fossiliferous, porous.	29 (RQD 13%)	3	HQ coring; whackstone in the upper 3.5 ft of sample run	30, 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0395

Hole No. CP05-EAARS-CB-0395

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 11.2 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.2	33.4					-22.2	
			Grades as above with light gray to tan white color.	40 (RQD 24%)	4	-23.8 HQ coring	
-25.8	37.0		No recovery				
-28.8	40.0		End of Boring at 40'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0395

Hole No. CP05-EAARS-CB-0396

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N770099.6, E777060.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0396	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/29/2005 Completed 8/30/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.9	0.0						
			Rotary wash drilling. Not sampled.				0
							2
6.9	3.0					6.9	
			LIMESTONE: white to light grey, hard, fine to medium grained, shelly, vuggy	80 (RQD 28%)	1	HQ coring; 2 pieces of 4.5" and 1 piece of 5" recovered	4
							6
2.7	7.3						
			Cemented sand				
1.9	8.0					1.9	
			Not sampled				8
						8 to 25 ft - rotary wash drilling; no hard layer encountered. Not sampled.	10
							12
			Not sampled				14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0396

Hole No. CP05-EAARS-CB-0396

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-5.1	15.0					-5.1	
			Not sampled				
			Not sampled				
-15.1	25.0		Few pieces of cemented sand: olive grey, hard, fine to coarse grained, shelly One small limestone chip recovered	11 (RQD 0%)	2	HQ coring	
						-20.1	
			Cemented SAND with shells, olive grey, moderately hard, fine to coarse grained, rounded quartz present	26 (RQD 10%)	3	HQ coring; 1 piece of 0.5 ft recovered; Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation at 30 ft	

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0396

Hole No. CP05-EAARS-CB-0396

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9.9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-23.5	33.4					-23.5	
-25.1	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0396

Hole No. CP05-EAARS-CB-0397

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N757685.2, E774781.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-45B
4. Hole No: CP05-EAARS-CB-0397	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/13/2005 Completed 9/13/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 8 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
8.0	0.0						
			PEAT: Not sampled.			8.0 2 ft of peat	
6.0	2.0					6.0	
			LIMESTONE (Caprock): tan brown to white, hard, fine grained, slightly porous, shelly, fossiliferous.	24 (RQD 8%)	1	HQ coring; 1 piece of 0.4 ft recovered	
			Intermittant cemented sand seams.				
			Grades weak to moderately hard, fine to medium grained and vuggy at 7.0.			1.0	
0.5	7.5						
			No recovery	6 (RQD 0%)	2	HQ coring; caprock was around 5 ft thick with intermediate layers of softer cemented sands	
-4.0	12.0						
			End of Boring at 12'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0397

Hole No. CP05-EAARS-CB-0397

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 8	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-7.0	15.0					-7.0	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0397

Hole No. CP05-EAARS-CB-0398

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750736.6, E791146 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0398	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/24/2005 Completed 8/24/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 17 ft	19. Inspector: B. Levesque

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.3	0.0						
			GRAVEL: brown, fine to coarse gravel, angular, dry, little fine to medium sand, little silt, subangular to subrounded		1	10.3 SPT 8.8	12 38 22
8.3	2.0		PEAT: black, fibrous, moist, soft, trace fine to medium calcitic sand, subangular to subrounded		2	SPT 6.8	4 2 1
5.3	5.0				3	SPT 5.3	50/2"
			LIMESTONE: grey to white, fine to coarse grained, fossiliferous, moderately strong, hard to weak and friable, thinly bedded	25 (RQD 0%)	1	HQ coring 3.3	
			LIMESTONE: tan grey, fine to medium grained, fossiliferous, moderately strong, hard to weak, friable, porous to slightly porous, thinly bedded	60 (RQD 45%)	2	HQ coring; UCS=2100psi -1.7	
-2.2	12.5		LIMESTONE: fine grained, vuggy, porous to slightly porous, moderately strong, slightly friable to hard No recovery	29 (RQD 19%)	3	HQ coring; UCS=1040psi	

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0398

Hole No. CP05-EAARS-CB-0398

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.7	15.0					-4.7	
-6.7	17.0		End of Boring at 17'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0398

Hole No. CP05-EAARS-CB-0399

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750087.5, E758686.4 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0399		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
7. Thickness of Burden: N/A		16. Date Hole Started 9/12/2005 Completed 9/12/2005	
8. Thickness of cap rock: N/A		17. Elevation Top of Hole: 13.7 (ft)	
9. Depth of hole: 13 ft		18. Total Core Recovery for hole: N/A	
		19. Inspector: P. Petrey	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
13.7	0.0						
			ROADFILL: Not sampled.			13.7 Wash / drilled down to top of caprock	0
							2
							4
7.7	6.0					7.7	
			LIMESTONE (Caprock)	67 (RQD 19%)	1	HQ coring	6
						4.7	8
			LIMESTONE: Broken peices recovered from coring between 9.0 and 13.0.	31 (RQD 13%)	2	HQ coring; very soft from 11 to 12 ft	10
2.7	11.0						
			Softer material (sand) from 11.0 to 12.0				12
1.7	12.0						
0.7	13.0						
			End of Boring at 13'				14

NOTES:
1. Soils are field visually classified

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0399

Hole No. CP05-EAARS-CB-0399

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.7 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-1.3	15.0					-1.3	

in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0399

Hole No. CP05-EAARS-CB-0400

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N764134.7, E758499.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0400	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/8/2005 Completed 9/8/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35.5 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.7	0.0						
			ROADFILL: Not sampled.				
7.7	3.0						
			PEAT: Not sampled.				
6.7	4.0					6.7	
			LIMESTONE (Caprock): olive brown, hard, vuggy, fossiliferous, with shells, fractured, angular and granular.	40 (RQD 0%)	1	HQ coring; soft coring from 6.5 to 8 ft; hard from 8 to 9 ft	
4.2	6.5						
			LIMESTONE: olive brown, medium soft, oolitic, granular, fractured.				
2.7	8.0						
			Grades to medium hard.				
1.7	9.0					1.7	
			Grades to tan gray, medium soft, with shell hash.	45 (RQD 16%)	2	1.7 SPT HQ coring; cavities are probably filled with fine sediment	50/1"
-3.3	14.0						
			Grades to dark brown, fossiliferous, vuggy, fractured, voids filled with silty sediments, shell hash grades out.			-4.3	

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ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0400

Hole No. CP05-EAARS-CB-0400

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.3	15.0					-4.3	
-5.3	16.0		Grades tan, oolitic.	80 (RQD 25%)	3	HQ coring	16
-7.3	18.0		Grades dark gray to brown, medium soft to medium hard, very fossiliferous, with shell hash, some quartz sand.			-7.3	18
						Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
						-9.3	20
-11.3	22 0		SAND: gray, fine grained, uniform, trace shell fragments	20 (RQD 0%)	4	HQ coring; retreived sand from the core barrel	22
-13.3	24 0		LIMESTONE: as from 18.0 to 22.0			-14.3	24
-16.8	27 5		SAND: gray, medium dense, uniform, fine grained, subangular, interbedded with thin layers of tan sandy and soft limestone.			-18.3	26
					2	SPT	5 6 5 30
			Grades loose with subangular quartz at 34 ft.				32

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ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0400

Hole No. CP05-EAARS-CB-0400

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.7 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.7	33.4					-22.7	
						-23.3	
					3	SPT	4 4 3
-24.8	35.5		End of Boring at 35.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0400

Hole No. CP05-EAARS-CB-0401

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N779797.4, E757729 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0401	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/18/2005 Completed 8/18/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 10.7 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 10 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.7	0.0						
9.7	1.0		1 foot of Sand				
5.7	5.0		4 feet of Peat, black, organic			5.7	
3.7	7.0		No recovery	10 (RQD 0%)	1	HQ coring; hard coring from 7 to 8.5 ft	
2.2	8.5		LIMESTONE: grey, hard, fine grained, quite porous				
0.7	10.0		No recovery				
			End of Boring at 10'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0401

Hole No. CP05-EAARS-CB-0402

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N750727.4, E791134.6 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0402		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 8/24/2005 Completed 8/24/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 15 ft		19. Inspector: B. Levesque	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.8	0.0						
			GRAVEL: brown, fine to coarse graded, subangular, little fine to coarse sand, subrounded to subangular, little silt		1	10.8 SPT 9.3	16, 13, 23
9.3	1.5						
			PEAT: black, organic, fibrous, soft, moist, trace fine to medium calcitic sand, subrounded		2	SPT 7.8	4, 2, 2
7.8	3.0						
			GRAVEL: brown to white, coarse graded, shelly, subangular to angular, little fine to medium sand, subangular to subrounded, trace silt		3	SPT 6.3	4, 11, 12
					4	5.5 SPT	5, 50/4"
5.5	5.3						
			LIMESTONE: grey to white tan, fine to coarse grained, fossiliferous, whackstone, hard, non porous to slightly porous, thinly bedded	44 (RQD 32%)	1	HQ coring; top of rock at 5.3 ft	
			LIMESTONE: cemented sands, fine to coarse grained, weak, fibrous, friable				
			LIMESTONE: tan to white, fine to medium grained, moderately hard, strong, slightly vuggy, slightly porous			0.8	
0.8	10.0						
			Very little recovery, believed to be very weak limestone and/or cemented sands and gravel	10 (RQD 0%)	2	HQ coring	
			No recovery				
-4.2	15.0						

(continued)

EAC FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0402

Hole No. CP05-EAARS-CB-0402

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.2	15.0					-4.2	
			End of Boring at 15'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

16 18 20 22 24 26 28 30 32

EAIC FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0402

Hole No. CP05-EAARS-CB-0403

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N761498.5, E760588.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0403	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/9/2005 Completed 9/9/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 11.1 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 11.5 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
11.1	0.0						
			FILL: Not sampled.				
7.1	4.0						
			PEAT: Not sampled.				
6.1	5.0					6.1	
			LIMESTONE (Caprock): tan to light brown, crystalline, fractured, vuggy.	55 (RQD 25%)	1	HQ coring; coring became softer at 8.5 ft	
			Grades medium soft, sandy, granular.				
			Grades medium hard.				
1.1	10.0					1.1	
			Gravelly SAND: gray, dense, well graded, subangular, calcereous, with oolitic shell hash.		1	SPT	3 13 28
-0.4	11.5						
			End of Boring at 11.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

0 2 4 6 8 10 12 14

DA FORM 1836, JUN 1999 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0403

Hole No. CP05-EAARS-CB-0404

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N776147.9, E757911 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0404	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/16/2005 Completed 8/16/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9.2 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 11.5 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.2	0.0						
7.7	1.5		Peat: black, organic			7.7	
2.7	6.5		LIMESTONE: pale white, hard, fine grained, quite porous, shells in sample	42 (RQD 28%)	1	HQ coring 2.7	
-2.3	11.5		Two pieces of limestone recovered, same as above No recovery	6 (RQD 0%)	2	HQ coring	
			End of Boring at 11.5'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836, [illegible] EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0404

Hole No. CP05-EAARS-CB-0405

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N774996.3, E773717.1 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: Diedrich D-50	
4. Hole No: CP05-EAARS-CB-0405		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Erik Bluemke		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/13/2005 Completed 9/13/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 10.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 35 ft		19. Inspector: K. Jones	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
10.6	0.0		ROADFILL: Not sampled.				
8.6	2.0		PEAT: Not sampled.				
6.6	4.0		LIMESTONE (Caprock): tan gray, crystalline, dense, soft areas filled with gray silty clay, granular, fossiliferous, heavily fractured.	45 (RQD 13%)	1	6.6 HQ coring; soft coring at 8 ft	
2.6	8.0						
1.6	9.0		LIMESTONE: brown, medium hard, granular, fossiliferous, vuggy, fractured. Grades tan, hard, dense, crystalline and fractured at 11.0.	34 (RQD 9%)	2	1.6 1.2 HQ coring; soft coring at 12 ft	50/5"
-1.4	12.0		Sandy SILT: light gray, firm, calcereous, well graded, some shell fragments and calcereous oolitic gravel.			-3.4	9
					2		4

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0405

Hole No. CP05-EAARS-CB-0405

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-4.4	15.0					-4.4	
			Grades as above with light gray to tan color and stiff.				4
							16
							18
						-7.9	
					3		13
							7
							7
							20
-11.9	22.5						
			Sandy GRAVEL: dark gray with tan mottling, calcereous, granular, some light gray sandy silt as above.				22
						-12.9	
					4		15
							35
						-14.4	20
				10 (RQD 0%)	3	HQ coring	24
							26
-16.9	27.5						
			LIMESTONE: tan brown to gray, sandy, granular, only broken fragments recoverd, fines washed away.				28
-19.4	30.0					-19.4	
			No recovery from the core - fines washed away.	0 (RQD 0%)	4	HQ coring; soft coring throughout run # 4	30
							32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0405

Hole No. CP05-EAARS-CB-0405

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 10.6 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-22.8	33.4					-22.8	
-24.4	35.0		End of Boring at 35'			NOTES: 1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93. 2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)	

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0405

Hole No. CP05-EAARS-CB-0406

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N778276.9, E765846.2 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0406	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Ralph Smith	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/18/2005 Completed 8/19/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 35 ft	19. Inspector: A.M. Noronha

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
9.0	0.0						
			Road fill material. Not sampled.	46 (RQD 30%)	1	9.0 HQ coring; hard coring from 2.5 to 5 ft; recovered 1 piece each of 0.6 ft, 0.35 ft and 0.55 ft	
6.5	2.5						
			LIMESTONE: greenish grey, moderately hard to hard, fine to medium grained, porous, shelly				
			LIMESTONE: pale white, hard, fine grained, quite porous	52 (RQD 35%)	2	4.0 HQ coring; very hard coring from 5 to 10 ft; recovered 1 piece each of 0.8 ft, 0.5 ft and 0.45 ft; caprock - 7.5 ft thick	
-1.0	10.0					-1.0	
			SAND: light grey, very loose, fine to medium grained, angular calcitic sand, wet, few small chips of limestone recovered		1	SPT	10 3 1
						-4.5	
			SAND: light grey, very dense, fine to coarse grained, poorly graded, subangular calcitic sand, wet, quite silty		2	SPT; around 8" of hard layer	50/5"

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0406

Hole No. CP05-EAARS-CB-0406

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9 | Sheet 2 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-6.0	15.0					-6.0	
-9.5	18.5		Gravelly SAND: light grey, very dense, moderately graded, fine to coarse grained, subangular, wet		3	SPT; spoon bouncing	50/4"
-14.5	23.5		SAND: light brown, very dense, moderately graded, fine to coarse grained, subangular, wet		4	SPT; SM; silty sand with gravel; Moisture=26%; shells present	28 27 24
			As above, but greenish grey color rounded quartz sand			-16.0	
						Caloosahatchee Formation or Pinecrest Sand of Tamiami Formation	
			Same as above - greenish grey		5	-19.5 SPT	41 18 50/2"

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0406

Hole No. CP05-EAARS-CB-0406

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 9 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-24.4	33.4					-24.4	
			SAND: greenish grey, medium dense, moderately graded, fine to coarse grained, subangular calcitic sand, rounded quartz, wet		6	-24.5 SPT; SP-SM; poorly graded sand with silt and gravel; Moisture=26%; Hard drilling from 30 to 32.5 ft	27 8 9
-26.0	35.0		End of Boring at 35'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0406

Hole No. CP05-EAARS-CB-0407

DRILLING LOG	Division:	Installation:	Sheet 1 of 3 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N756369.5, E786640.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0407	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 8/29/2005 Completed 8/29/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 13.1 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 38.5 ft	19. Inspector: N. Holst

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
13.1	0.0						
			Drilled through road fill and peat without sampling				
7.6	5.5					7.6	
			LIMESTONE: tan to light brown and light grey, thinly bedded, fossiliferous, fine to coarse grained, hard, strong and vuggy to soft, weak and porous	50 (RQD 18%)	1	HQ coring; soft drilling from 8 to 9.4 ft; no good core for testing	
			Soft drilling 8.0 ft to 9.4 ft. No good core for testing.			2.6	
1.1	12.0					Intermittent hard drilling from 10.5 to 16 ft	
			Intermittent hard drilling to 16 ft				
			Not Sampled				

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0407

Hole No. CP05-EAARS-CB-0407

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.1 | Sheet 2 of 3 Sheets

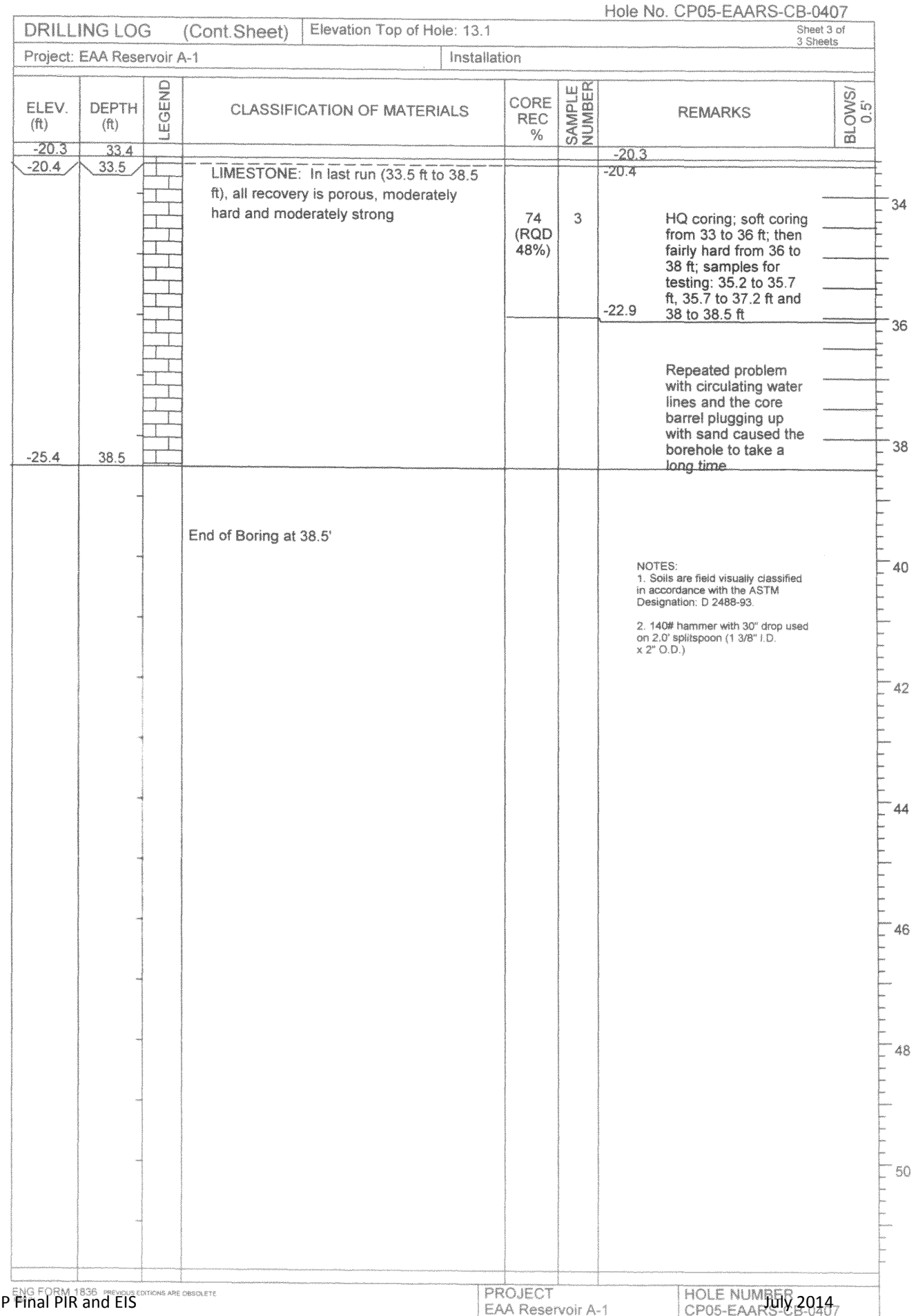
Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-1.9	15.0					-1.9	
-2.9	16.0		Easy drilling down to 28.5 ft where we started coring. Then intermittent hard coring to 31.0 ft. Then mostly hard coring from 31.0 ft to 33.0 ft			-2.9 Easy drilling from 16 to 28.5 ft; Not sampled	
-15.4	28.5		LIMESTONE: as above but very little is fine grained, hard and strong. Most recovery is moderately hard and moderately strong, porous.	28 (RQD 14%)	2	-15.4 HQ coring; intermittent hard coring to 31 ft; mostly hard coring from 31 to 33 ft; sample for testing 32.3 to 33 ft	

16 18 20 22 24 26 28 30 32

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0407



Hole No. CP05-EAARS-CB-0407

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 13.1 | Sheet 3 of 3 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-20.3	33.4					-20.3	
-20.4	33.5		LIMESTONE: In last run (33.5 ft to 38.5 ft), all recovery is porous, moderately hard and moderately strong	74 (RQD 48%)	3	-20.4 HQ coring; soft coring from 33 to 36 ft; then fairly hard from 36 to 38 ft; samples for testing: 35.2 to 35.7 ft, 35.7 to 37.2 ft and 38 to 38.5 ft -22.9 Repeated problem with circulating water lines and the core barrel plugging up with sand caused the borehole to take a long time	
-25.4	38.5		End of Boring at 38.5'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

34 36 38 40 42 44 46 48 50

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0407

Hole No. CP05-EAARS-CB-0408

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N753566.5, E758489.8 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0408	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/13/2005 Completed 9/13/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 22 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 16 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
22.0	0.0						
			Levee road material Crushed rock / sand with some peat		1	22.0 SPT 20.0	30 26 12
20.0	2.0		Dark grey to grey sand with rock fragments		2	SPT 18.0	12 12 9
18.0	4.0		Broken rock and peat and some fine sand		3	SPT 16.0	6 40 50/2"
			Same as above		4	SPT 14.0	4 6 10
			Crushed limestone and sand; light grey		5	SPT 12.0	8 9 13
			same as above		6	SPT 10.0	15 15 15
			Rock		7	SPT 8.0	10 20 50/0"
			Rock with large rock fragments		8	SPT	49 50/2"

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0408

Hole No. CP05-EAARS-CB-0408

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 22 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.0	15.0					7.0	
6.0	16.0		End of Boring at 16'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0408

Hole No. CP05-EAARS-CB-0409

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N757151, E758420.7 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0409		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/13/2005 Completed 9/13/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 21.8 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 16 ft		19. Inspector: P. Petrey	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
21.8	0.0						
			Top of west side levee road. Building material; broken rock and sand		1	21.8 SPT 19.8	22, 29, 27
			Crushed rock and shell with some peat		2	SPT 17.8	13, 21, 15
			Crushed rock wih shell fragments; sand and drilling mud		3	SPT 15.8	7, 9, 15
			Finer crushed rocks; sand; silt with some dark peat and light brown		4	SPT 13.8	13, 18, 22
			Light grey with large rock fragments and sand		5	SPT 11.8	35, 15, 29
			Small rock fragments and peat mix with dark grey		6	SPT 9.8	7, 9, 10
			Grey rock fragments; sand		7	SPT 7.8	6, 5, 5
7.8	14.0		Peat with sand; small rock fragments		8	SPT; caprock	3, 3

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0409

Hole No. CP05-EAARS-CB-0409

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 21.8 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
6.8	15.0					6.8	
							4
5.8	16.0					encountered at 15.3 ft	
			End of Boring at 16'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0409

Hole No. CP05-EAARS-CB-0410

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N760726.5, E758352.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0410	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/12/2005 Completed 9/12/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 22.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 16 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
22.3	0.0						
			Levee road; rock; shell; sand; silt; dark grey		1	22.3 SPT 20.3	19 15 27
			same as above		2	SPT 18.8	15 14 19
					3	SPT 16.3	41 50/4"
16.3	6.0						
			Crushed cemented sand; shells; grey light brown		4	SPT 14.3	17 15 23
			Crushed shell with sands; light grey		5	SPT 12.3	8 8 20
			Crushed shell with sand; silt; grey		6	SPT 10.3	20 11 7
					7	SPT 8.3	5 11 18
					8	7.3 SPT	5 29

(continued)

OLD EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0410

Hole No. CP05-EAARS-CB-0410

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 22.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
7.3	15.0					7.3	
							50/3"
6.3	16.0					Caprock at 15.3'	
			End of Boring at 16'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0410

Hole No. CP05-EAARS-CB-0411

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N749946.9, E762685.4 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0411	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/13/2005 Completed 9/13/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 18.4 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
18.4	0.0						
			Top of south levee road; large broken rock		1	18.4 SPT 16.4	26 23 21
			Grey rock fragments; sand		2	SPT 14.4	22 17 28
			Light grey rock fragments with shell fragments; sand; some silt		3	SPT 12.4	29 17 50
			same as above; with large rock fragments		4	SPT 10.4	16 14 15
			same as above		5	SPT 8.4	18 50/6"
			Dark grey rock fragments with sand; silt; peat Caprock at 10.5 ft; Soil at 12 ft.		6	SPT 6.9	2 50/1"
6.4	12.0						50/0"
			End of Boring at 12'		7	SPT	

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

OBSOLETE EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0411

Hole No. CP05-EAARS-CB-0411

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 18.4 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
3.4	15.0					3.4	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0411

Hole No. CP05-EAARS-CB-0412

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N749972.9, E766641.9 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0412	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/14/2005 Completed 9/14/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 18.1 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 12 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
18.1	0.0						
			Levee road; building material Grey fine sand with rock fragments		1	18.1 SPT 16.1	22 18 11
			Grey fine sand with rock fragments		2	SPT 14.1	15 10 7
			Rock fragments; sand; peat		3	SPT 12.1	9 5 12
12.1	6.0		Grey-tan fien sand with small rock fragments		4	SPT 10.1	20 23 30
10.1	8.0		Tan/ brown/ grey rock fragments with fine sand		5	SPT 8.1	12 28 31
8.1	10.0		Peat		6	SPT; caprock encountered at 12 ft	12 10 6
6.1	12.0		End of Boring at 12'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

OBSOLETE PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: EAA Reservoir A-1 | HOLE NUMBER: CP05-EAARS-CB-0412

Hole No. CP05-EAARS-CB-0412

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 18.1 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
3.1	15.0					3.1	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0412

Hole No. CP05-EAARS-CB-0413

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit: 3" bit, Rotary Method	
2. Location: N749995, E770595.3 - NAD 1983		11. Datum for Elevation Shown: NAVD 1988	
3. Drilling Agency: Nodarse & Associates, Inc.		12. Manufacturer's Designation for Drill: CME-55	
4. Hole No: CP05-EAARS-CB-0413		13. Total Number of Overburden Samples Taken: N/A	
5. Name of Driller: Robert DeAngelis		14. Total Number of Core Boxes: 1	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water: Not measured	
		16. Date Hole Started 9/14/2005 Completed 9/14/2005	
7. Thickness of Burden: N/A		17. Elevation Top of Hole: 18.6 (ft)	
8. Thickness of cap rock: N/A		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 12 ft		19. Inspector: P. Petrey	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
18.6	0.0						
			Grey fine sand; limestone fragments; silt		1	18.6 SPT 16.6	40 49 49
			Same as above		2	SPT 14.6	9 6 4
			Light grey; tan limestone fragments; sand; silt		3	SPT 12.6	10 13 16
12.6	6.0						
			same as above; with larger rock fragments		4	SPT 10.6	13 18 14
			Crushed limestone; sand; peat		5	SPT 8.6	13 12 8
8.6	10.0						
			Peat		6	SPT; caprock at 11'10"	3 4 3
6.6	12.0						
			End of Boring at 12'				

0 2 4 6 8 10 12 14

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.
2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D.

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0413

Hole No. CP05-EAARS-CB-0413

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 18.6	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
3.6	15.0					3.6	

x 2" O.D.)

16
18
20
22
24
26
28
30
32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0413

Hole No. CP05-EAARS-CB-0414

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750031.1, E774559.1 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0414	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/14/2005 Completed 9/14/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 18.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 13 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
18.3	0.0						
			Limerock road base		1	18.3 SPT; road base 16.3	50/2"
16.3	2.0						
			Sandy gravel: grey-tan; as above; some dark grey silty clay		2	SPT; road base 14.3	23, 38, 14
			As above; mottled		3	SPT; road base 12.3	25, 28, 12
			Gravely sand: grey-tan; mottled; trace of dark grey silty clay		4	SPT; road base 10.3	26, 12, 13
			Sandy gravel: tan-brown; hard; boulder		5	SPT; boulder at 8.5 ft 8.3	34, 50/3"
7.8	10.5						
			Peat; dark brown-black		6	SPT 6.3	8, 4, 12
6.3	12.0						
5.8	12.5		Clay; grey; silty; sandy; stiff; calcareous				10
5.3	13.0				7	SPT; hit caprock at 12.5 ft	50/3"
			End of Boring at 13'				

NOTES:
1. Soils are field visually classified

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0414

Hole No. CP05-EAARS-CB-0414

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 18.3 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
3.3	15.0					3.3	

in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0414

Hole No. CP05-EAARS-CB-0415

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750058.6, E778518.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0415	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/14/2005 Completed 9/14/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 18.3 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 14 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
18.3	0.0						
			Sandy Gravel; grey to tan; mottled; limerock (road base)		1	18.3 SPT; road base 16.3	50/3"
			Same as above		2	SPT; road base 14.3	30, 30, 18
14.3	4.0		Dark grey peat		3	SPT; road base 12.3	20, 28, 14
13.3	5.0		Limerock road base with a trace of dark grey peat; same as above; Hit a boulder at 7.5'		4	SPT 10.3	37, 13, 50/5"
10.3	8.0		Sandy Gravel: road base; tan to grey; no peat		5	SPT; road base without peat 8.3	28, 50/0"
8.3	10.0		Peat; dark grey to black		6	SPT; 3 ft of peat 6.3	4, 20, 13
6.3	12.0		Same as above; Mixture of peat and sandy gravel		7	SPT; caprock at 13.5 ft	7, 16, 50/2"
4.8	13.5		Limestone: dark brown; hard; dense; fractured				
4.3	14.0						

(continued)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0415

Hole No. CP05-EAARS-CB-0415

DRILLING LOG (Cont.Sheet)	Elevation Top of Hole: 18.3	Sheet 2 of 2 Sheets
Project: EAA Reservoir A-1	Installation	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
3.3	15.0		End of Boring at 14'			3.3	

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0415

Hole No. CP05-EAARS-CB-0416

DRILLING LOG	Division:	Installation:	Sheet 1 of 2 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750086.6, E782465.6 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: CME-55
4. Hole No: CP05-EAARS-CB-0416	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Robert DeAngelis	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/14/2005 Completed 9/14/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 18.5 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 17 ft	19. Inspector: P. Petrey

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
18.5	0.0						
			Fine grey rock fragments; sand; silt		1	18.5 SPT 16.5	33, 43, 41
			same as above; a little lighter grey		2	SPT 14.5	17, 12, 13
			Rock fragments and peat		3	SPT 12.5	8, 10, 13
			Light grey crushed limestone; sand; silt		4	SPT 10.5	15, 18, 17
			Crushed limestone; peat with fine sand		5	SPT 8.5	14, 5, 15
8.5	10.0		Grey fine sand with rock fragments		6	SPT 6.5	11, 4, 50/2"
6.5	12.0		Core run	62 (RQD 49%)	1	HQ coring; coring caprock	

0 2 4 6 8 10 12 14

(continued)

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0416

Hole No. CP05-EAARS-CB-0416

DRILLING LOG (Cont.Sheet) | Elevation Top of Hole: 18.5 | Sheet 2 of 2 Sheets

Project: EAA Reservoir A-1 | Installation

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
3.5	15.0					3.5	
1.5	17.0		End of Boring at 17'				

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

16 18 20 22 24 26 28 30 32

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 | HOLE NUMBER CP05-EAARS-CB-0416

Hole No. CP05-EAARS-CB-0417

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets

1. Project: EAA Reservoir A-1	10. Size and type of bit: 3" bit, Rotary Method
2. Location: N750127.7, E786154.4 - NAD 1983	11. Datum for Elevation Shown: NAVD 1988
3. Drilling Agency: Nodarse & Associates, Inc.	12. Manufacturer's Designation for Drill: Diedrich D-50
4. Hole No: CP05-EAARS-CB-0417	13. Total Number of Overburden Samples Taken: N/A
5. Name of Driller: Erik Bluemke	14. Total Number of Core Boxes: 1
6. Direction of Hole ☒ Vertical ☐ Inclined	15. Elevation Ground Water: Not measured
	16. Date Hole Started 9/13/2005 Completed 9/13/2005
7. Thickness of Burden: N/A	17. Elevation Top of Hole: 16.9 (ft)
8. Thickness of cap rock: N/A	18. Total Core Recovery for hole: N/A
9. Depth of hole: 11.5 ft	19. Inspector: K. Jones

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
16.9	0.0						
16.4	0.5		Limerock base			16.9	50/2"
					1	SPT; road base	
			Sandy gravel: lime rock base; grey to tan mottled			14.9	
					2	SPT; road base	19
							50/2"
			Sandy gravel: lime rock base; grey to tan mottled; dense; fill			12.9	
					3	SPT; road base	26
							21
			Same as above			10.9	18
					4	SPT; road base	20
							43
8.9	8.0					8.9	28
			Limerock; boulder; brown; hard		5	SPT; road base; Probably a Limestone boulder	50/2"
6.9	10.0					6.9	
			Peat; dark brown; silty; clayey		6	SPT; 1 ft of peat; Hit caprock at 11.5'	9
5.4	11.5						10
			End of Boring at 11.5'				50/0"

NOTES:
1. Soils are field visually classified in accordance with the ASTM Designation: D 2488-93.

2. 140# hammer with 30" drop used on 2.0' splitspoon (1 3/8" I.D. x 2" O.D.)

ENG FORM 1836, PREVIOUS EDITIONS ARE OBSOLETE

PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0417

Hole No. CP05-EAARS-CB-0418

DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit:	
2. Location: N, E -		11. Datum for Elevation Shown:	
3. Drilling Agency:		12. Manufacturer's Designation for Drill:	
4. Hole No: CP05-EAARS-CB-0418		13. Total Number of Overburden Samples Taken:	
5. Name of Driller:		14. Total Number of Core Boxes:	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water:	
		16. Date Hole Started Completed	
7. Thickness of Burden:		17. Elevation Top of Hole: (ft)	
8. Thickness of cap rock:		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 0 ft		19. Inspector:	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0					Boring not drilled because it was inaccessible.	

0 2 4 6 8 10 12 14

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT EAA Reservoir A-1 HOLE NUMBER CP05-EAARS-CB-0418

Hole No. CP05-EAARS-CB-0419

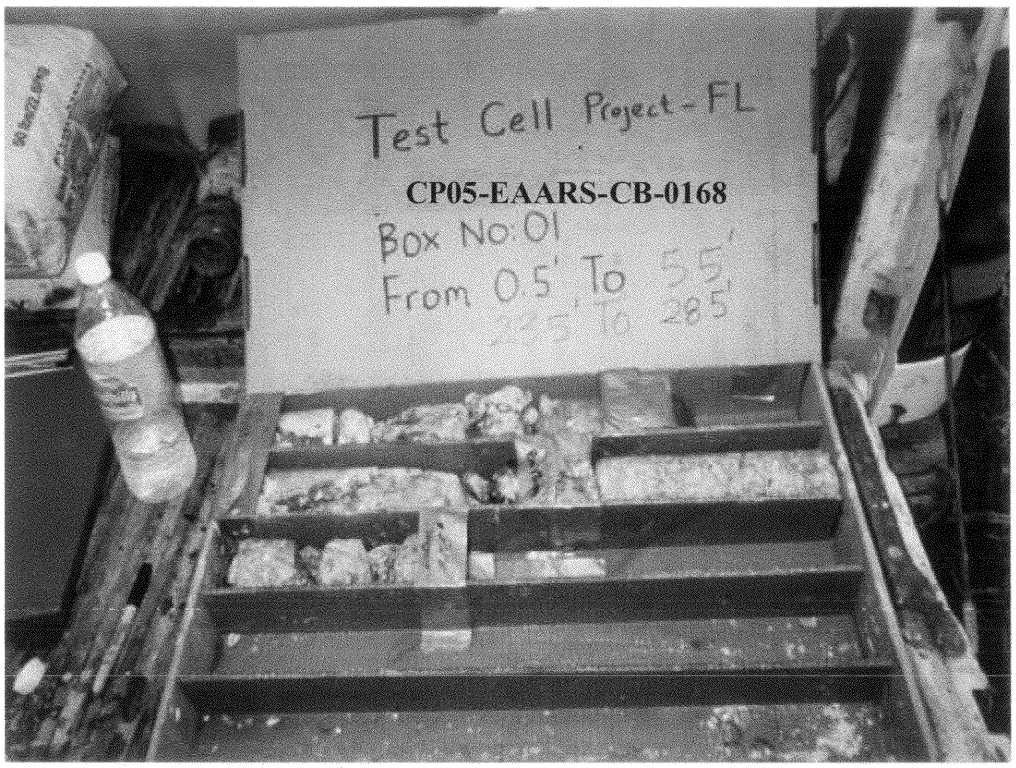
DRILLING LOG	Division:	Installation:	Sheet 1 of 1 Sheets
1. Project: EAA Reservoir A-1		10. Size and type of bit:	
2. Location: N, E -		11. Datum for Elevation Shown:	
3. Drilling Agency:		12. Manufacturer's Designation for Drill:	
4. Hole No: CP05-EAARS-CB-0419		13. Total Number of Overburden Samples Taken:	
5. Name of Driller:		14. Total Number of Core Boxes:	
6. Direction of Hole ☒ Vertical ☐ Inclined		15. Elevation Ground Water:	
		16. Date Hole Started Completed	
7. Thickness of Burden:		17. Elevation Top of Hole: (ft)	
8. Thickness of cap rock:		18. Total Core Recovery for hole: N/A	
9. Depth of hole: 0 ft		19. Inspector:	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
	0.0					Boring not drilled because it was inaccessible.	

0 2 4 6 8 10 12 14

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

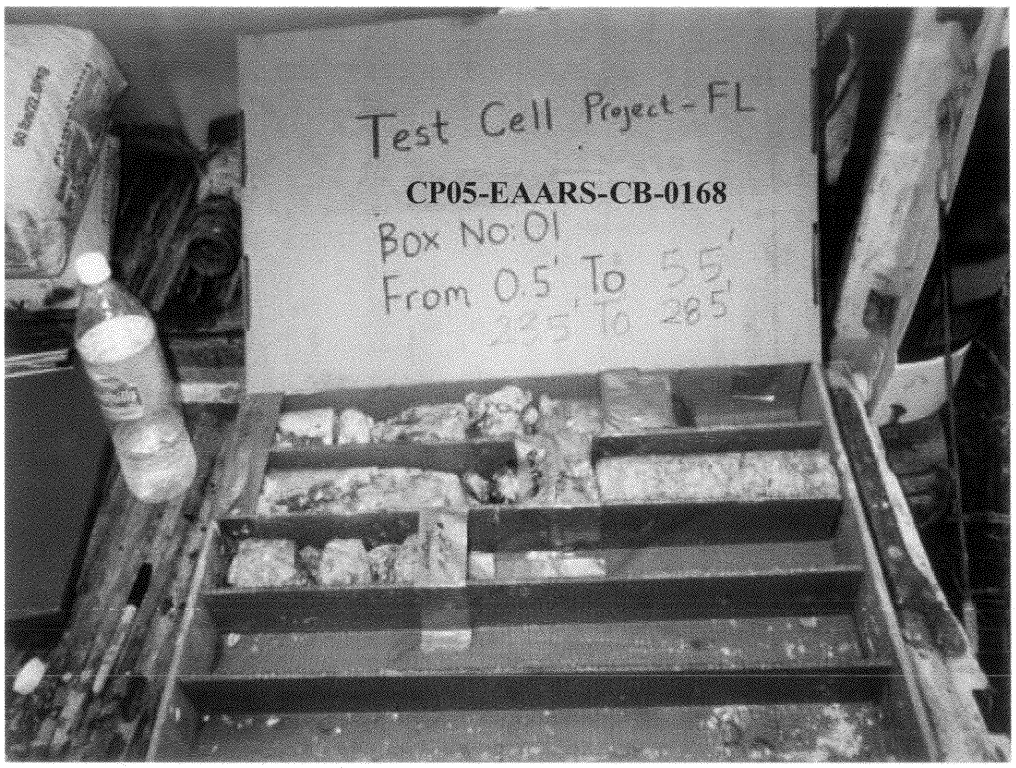
PROJECT	HOLE NUMBER
EAA Reservoir A-1	CP05-EAARS-CB-0419



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0168	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	**50.00**	**22.00**
23.50 to 28.50	**27.00**	**15.00**

APPENDIX 3

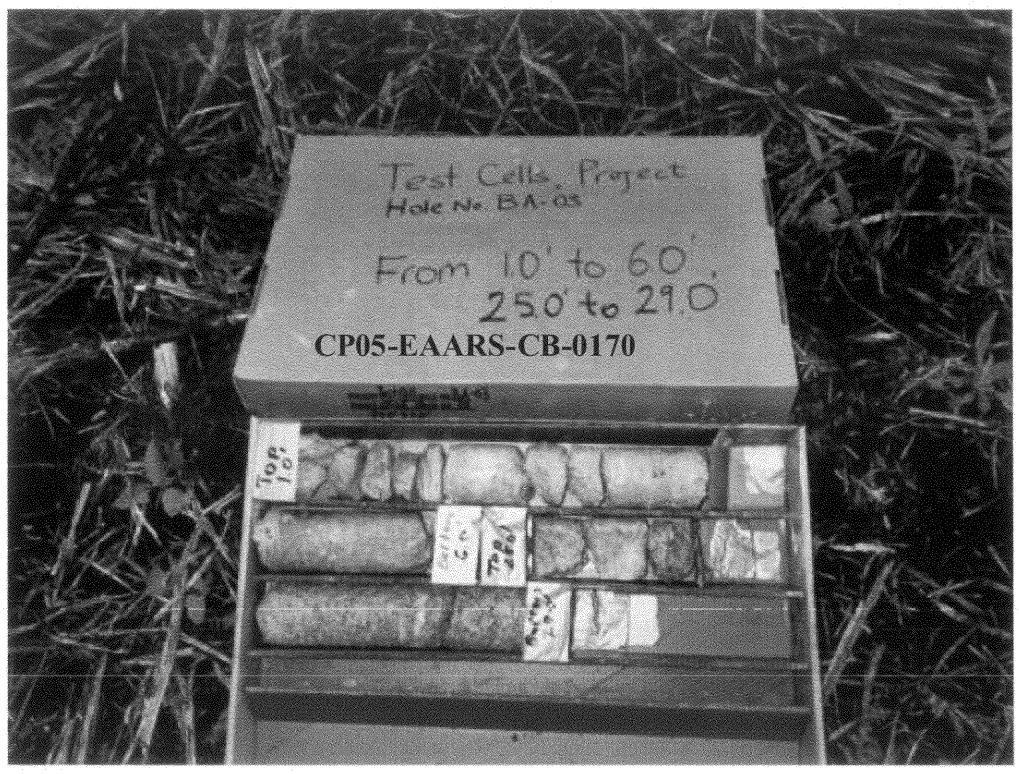
APPENDIX 3
ROCK CORES AND OTHER PHOTOGRAPHS: 168-187



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0168	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	**50.00**	**22.00**
23.50 to 28.50	**27.00**	**15.00**



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0169	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
1.50 to 6.50	48.00	42.00



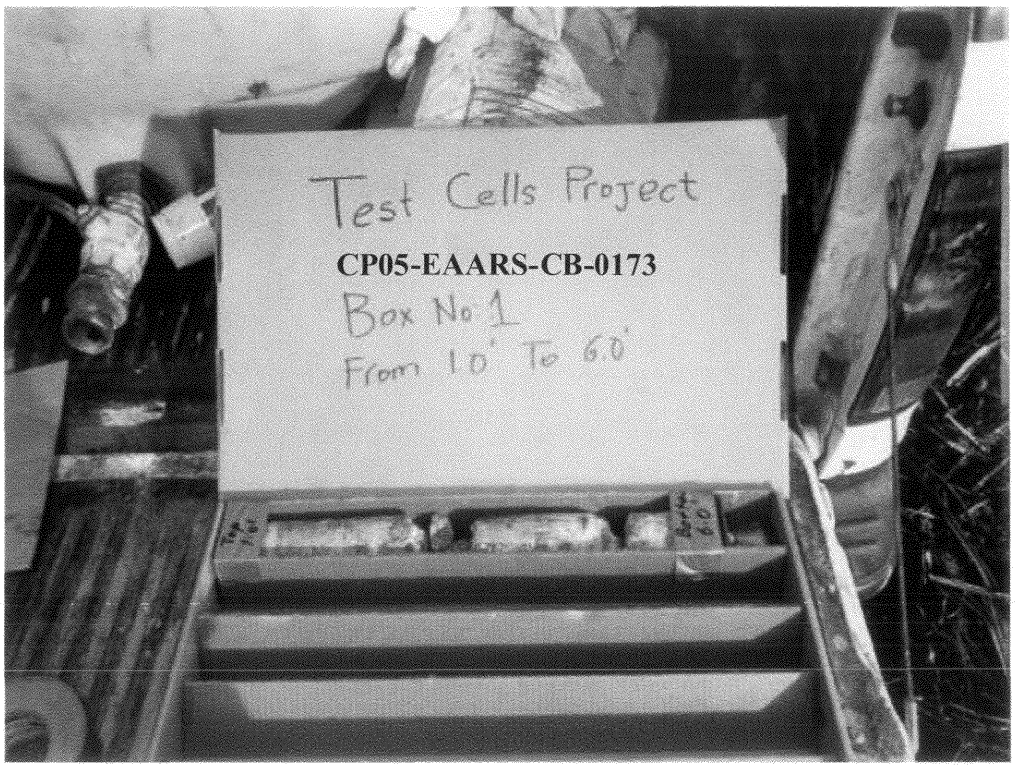
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0170	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
1.00 to 6.00	**50.00**	**28.00**
25.00 to 29.00	**78.00**	**46.00**



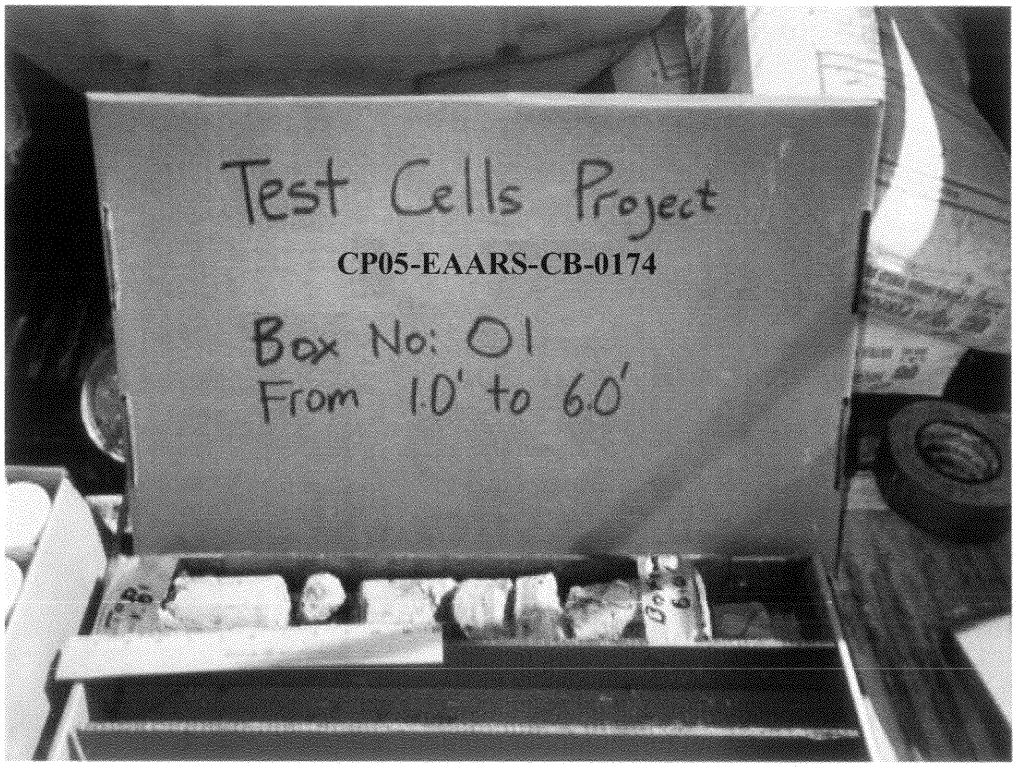
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0171	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
1.00 to 6.00	53.00	31.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0172	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
1.00 to 6.00	56.00	42.00



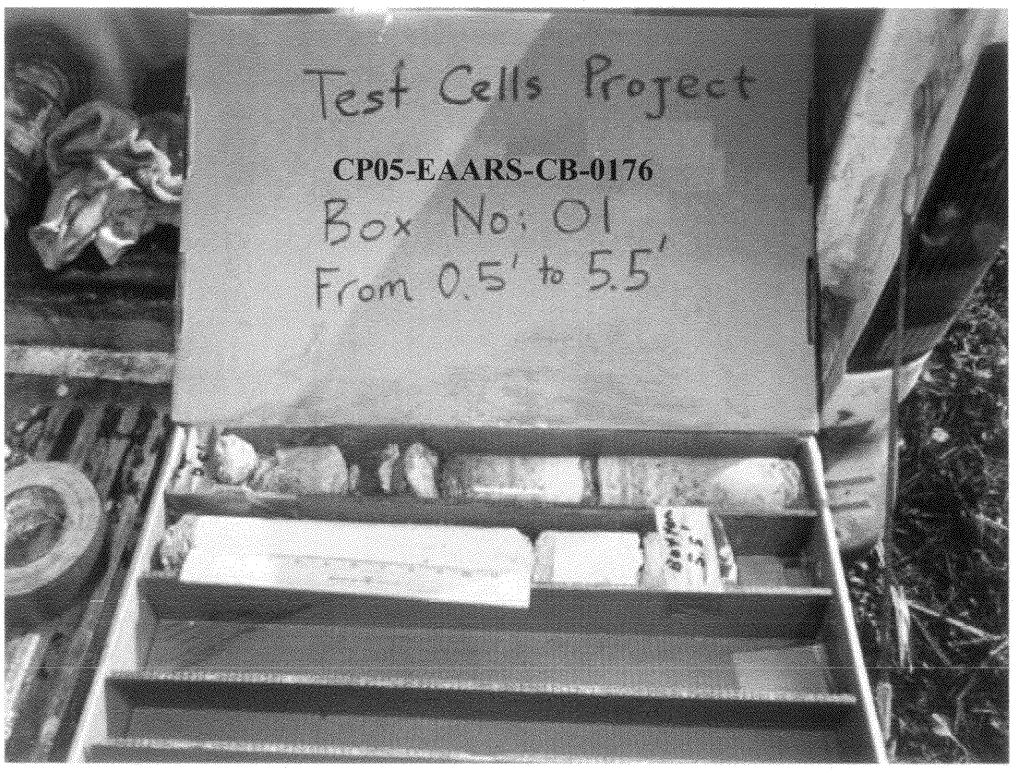
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0173	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
1.00 to 6.00	**35.00**	**22.00**



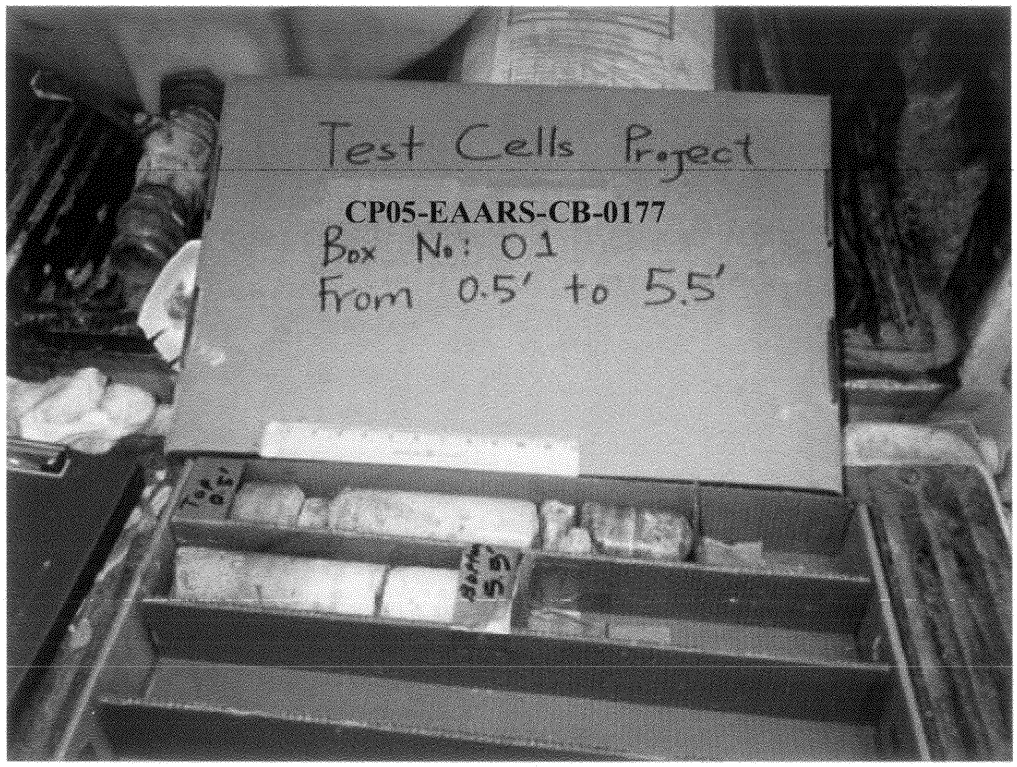
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0174	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
1.00 to 6.00	32.00	7.00



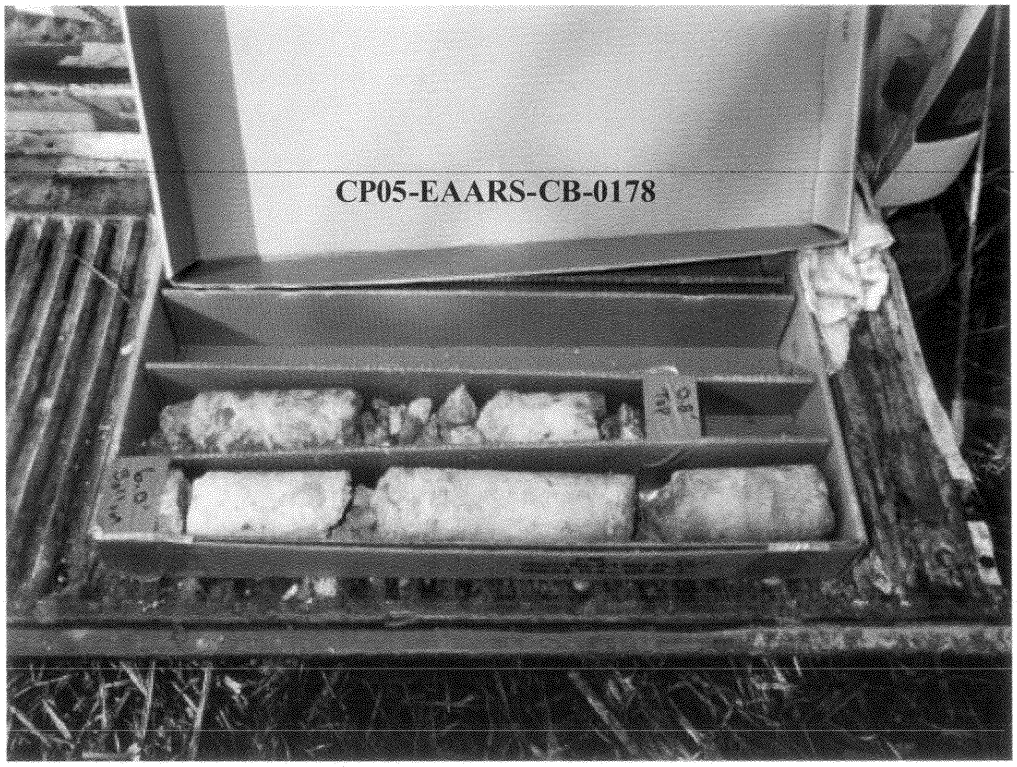
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0175	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	**67.00**	**52.00**



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0176	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	**70.00**	**52.00**



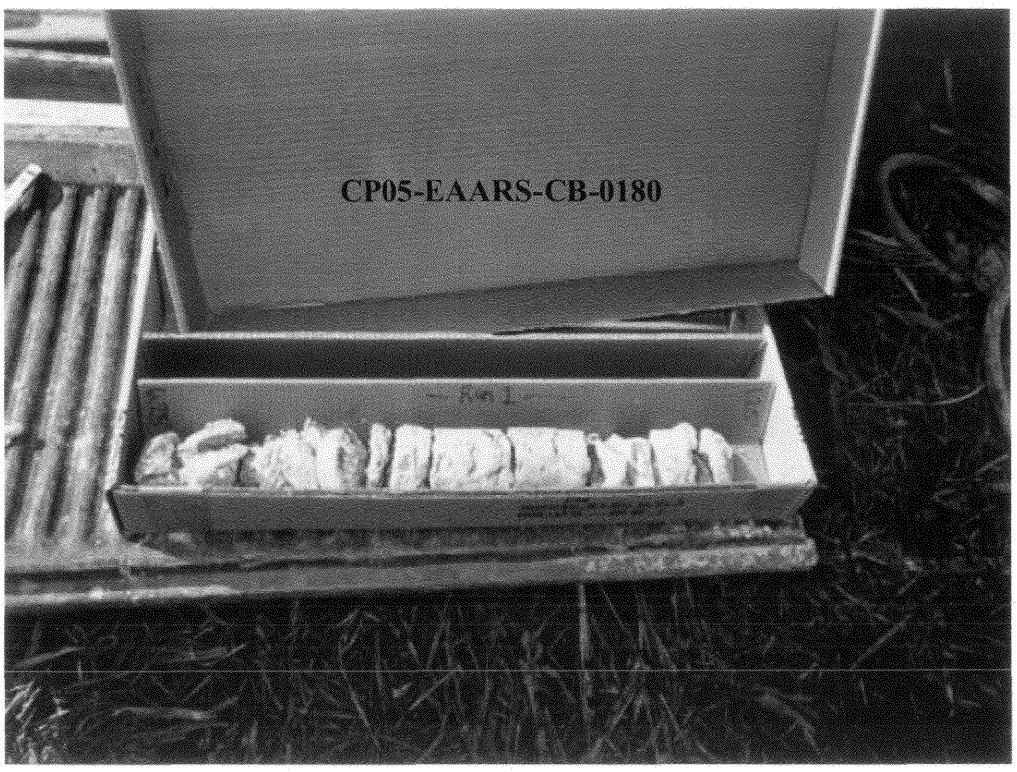
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0177	
Location	North West of Test Cells	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	**48.00**	**30.00**



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0178	
Location	North West Corner of Test Cell-1	
Depth (feet)	Percentage Recovery	RQD
1.00 to 6.00	56.00	48.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0179	
Location	North East Corner of Test Cell-1	
Depth (feet)	Percentage Recovery	RQD
2.00 to 7.00	42.00	21.00



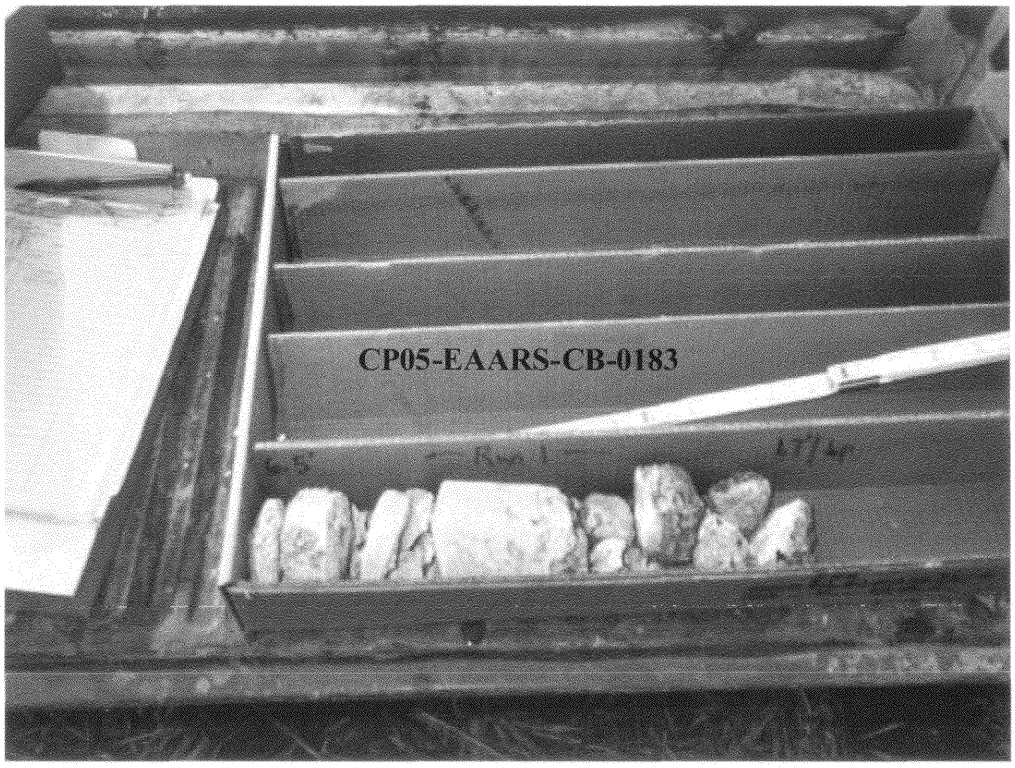
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0180	
Location	South West Corner of Test Cell-1	
Depth (feet)	Percentage Recovery	RQD
1.50 to 6.50	34.00	0



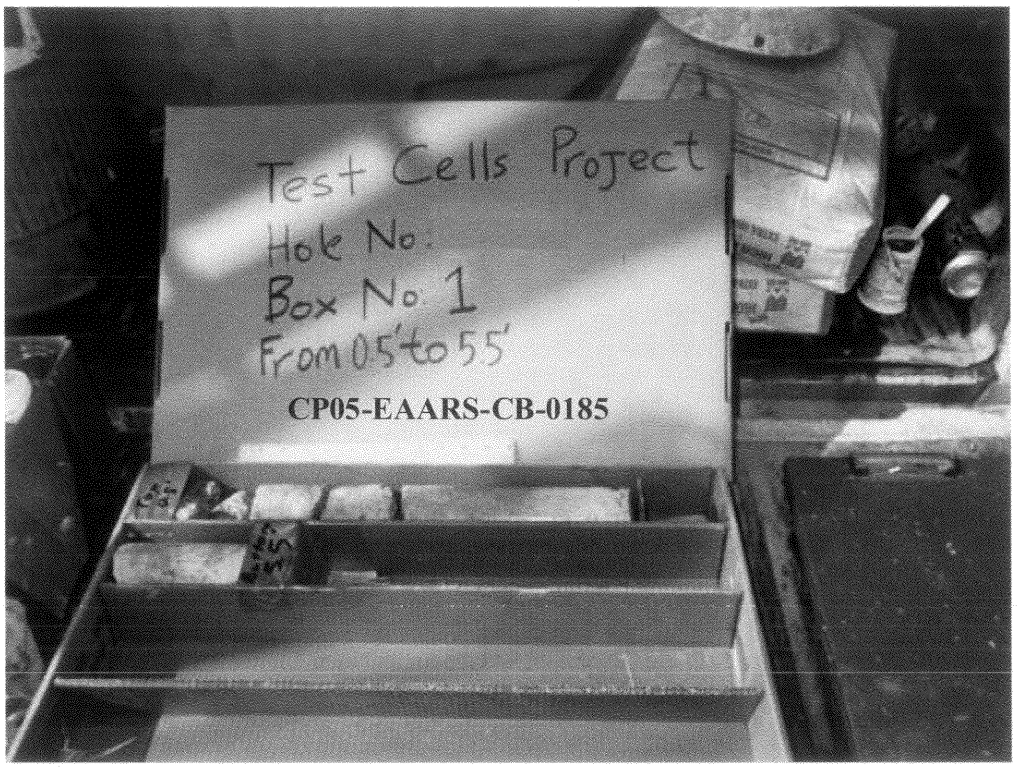
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0181	
Location	South East Corner of Test Cell-1	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	48.00	28.00



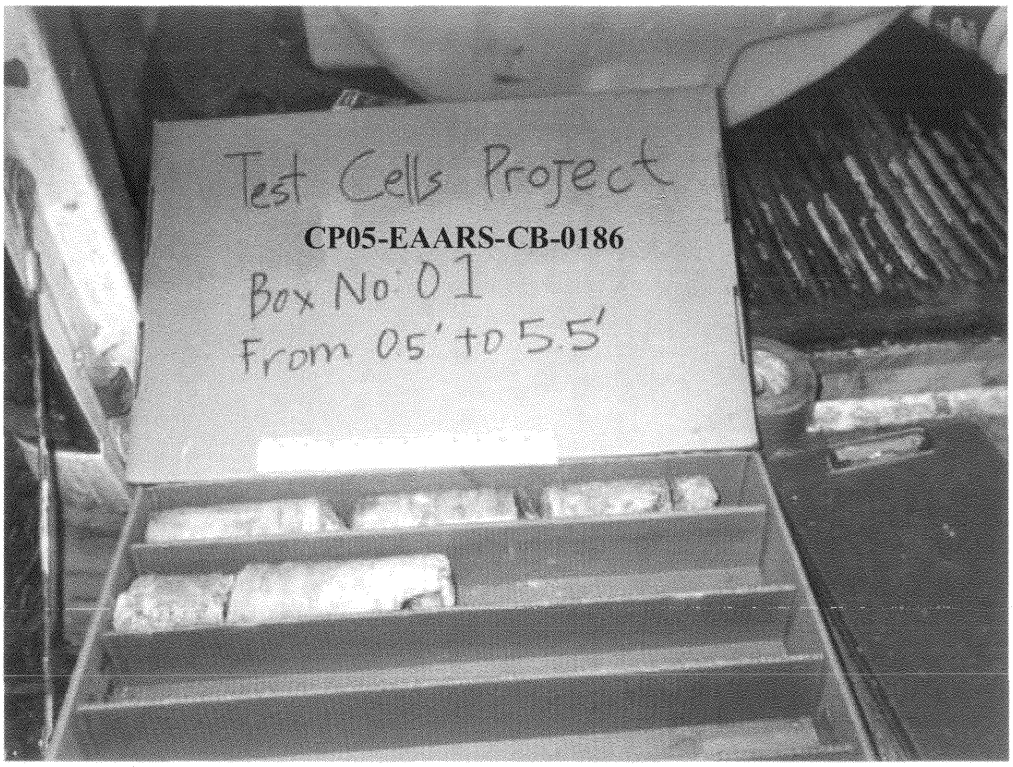
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0182	
Location	Center of Test Cell-1	
Depth (feet)	Percentage Recovery	RQD
0.50 to 4.00	72.00	40.00
4.00 to 7.00	33.00	28.00



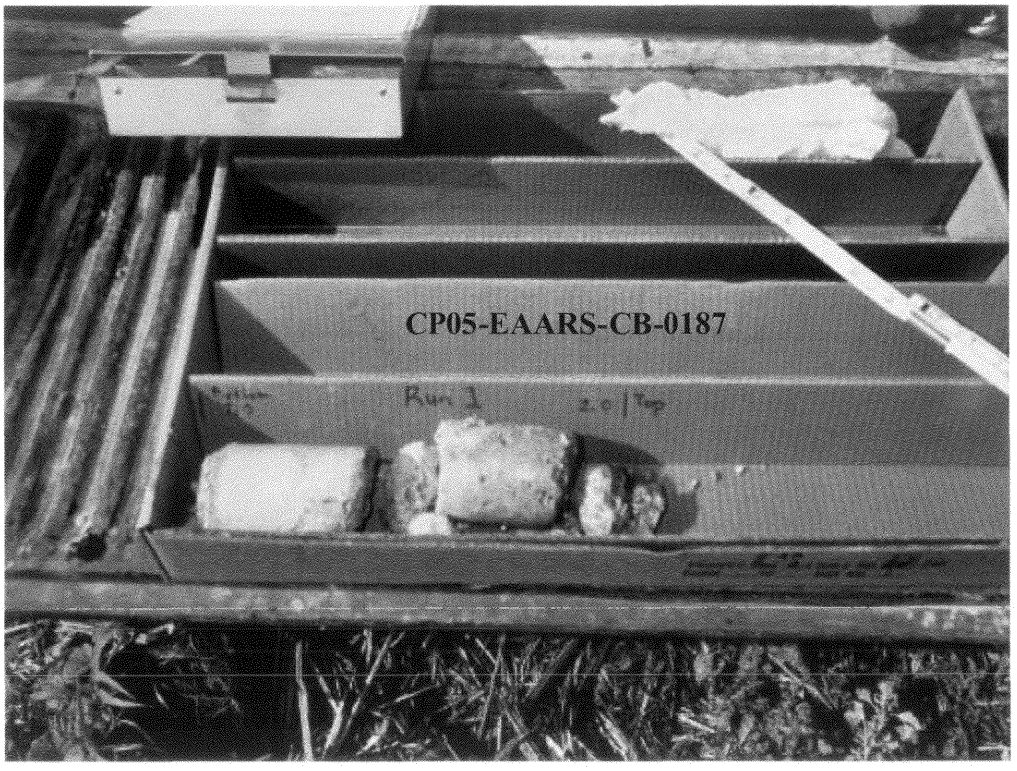
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0183	
Location	North West Corner of Test Cell-2	
Depth (feet)	Percentage Recovery	RQD
1.50 to 6.50	18.00	10.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0185	
Location	South West Corner of Test Cell-2	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	43.00	27.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0186	
Location	South East Corner of Test Cell-2	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	**56.00**	**50.00**

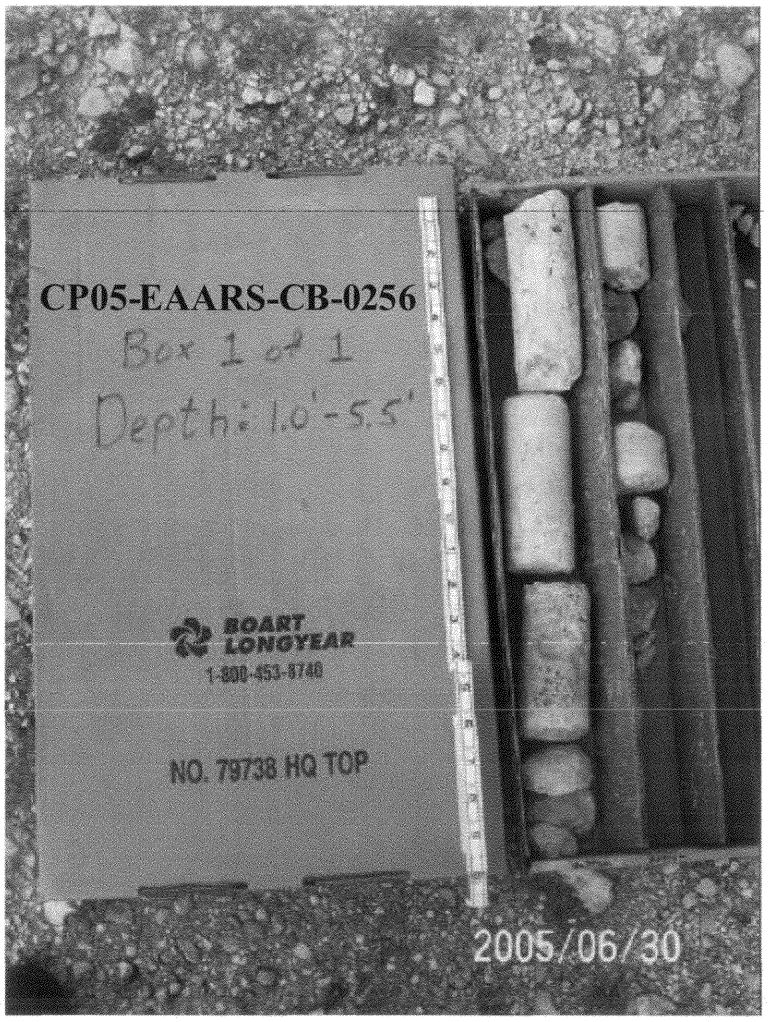


Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0187	
Location	Center of Test Cell-2	
Depth (feet)	Percentage Recovery	RQD
0.50 to 5.50	16.00	14.00

APPENDIX 3
ROCK CORES AND OTHER PHOTOGRAPHS: 255-300



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0255	
Location	North Edge	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	22.00	16.00



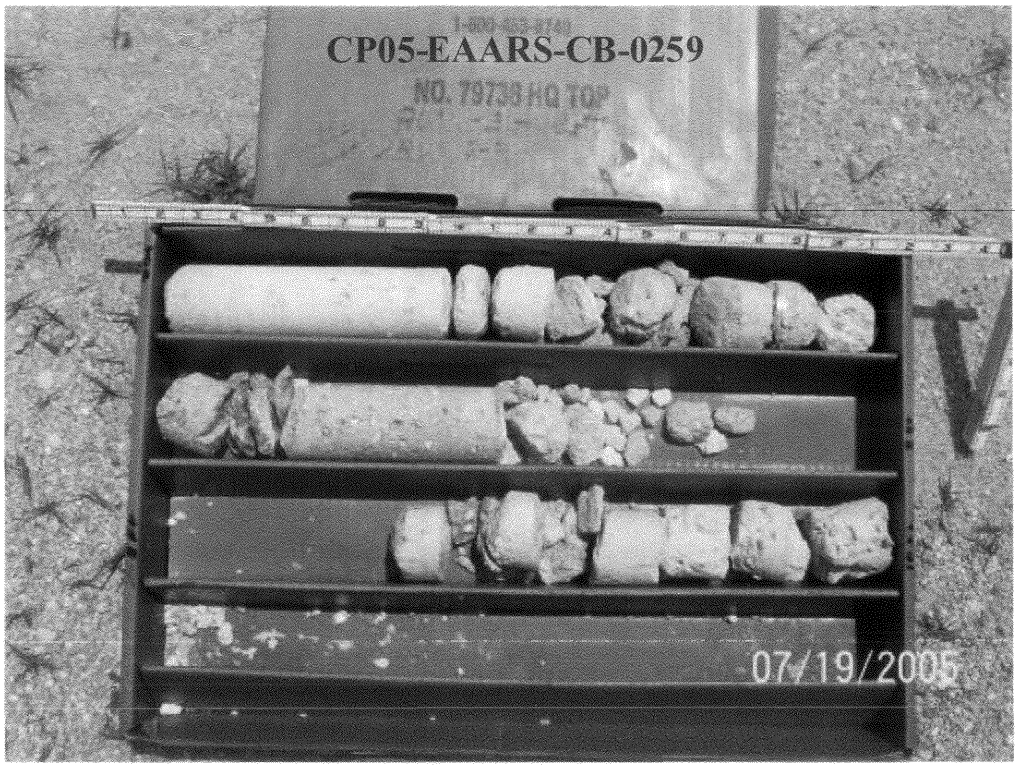
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0256	
Location	North Edge	
Depth (feet)	Percentage Recovery	RQD
1.00 to 5.50	61.11	35.11



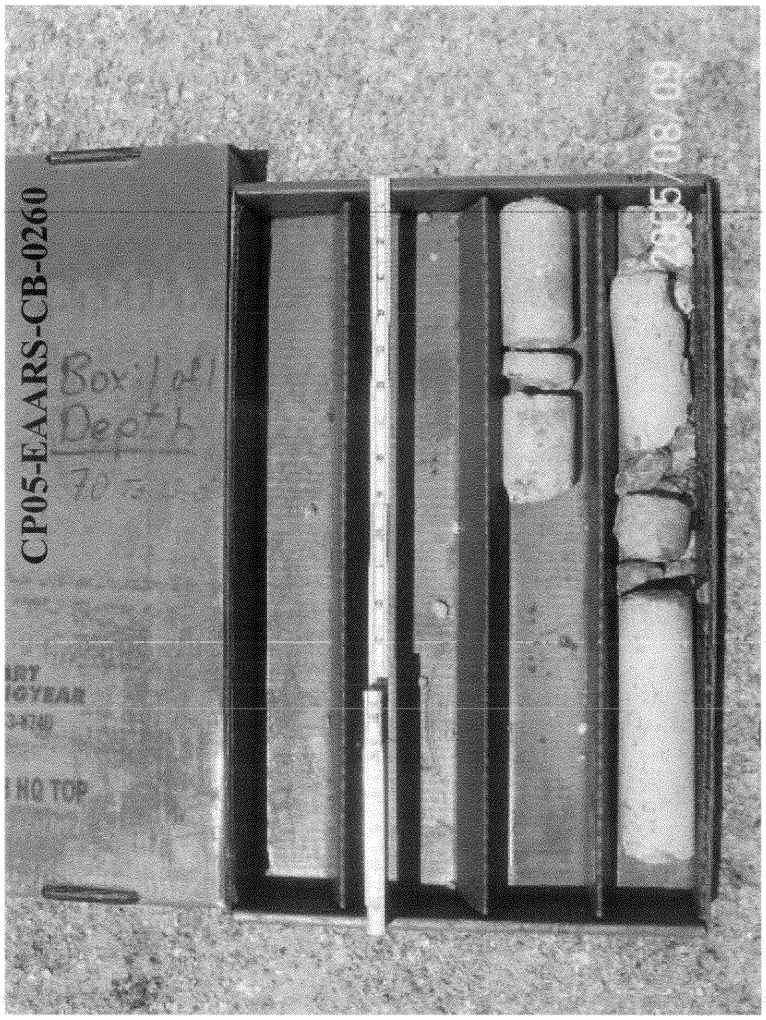
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0257	
Location	North East Corner	
Depth (feet)	**Percentage Recovery**	**RQD**
4.75 to 9.75	76.00	48.00
9.75 to 11.75	100.00	92.00



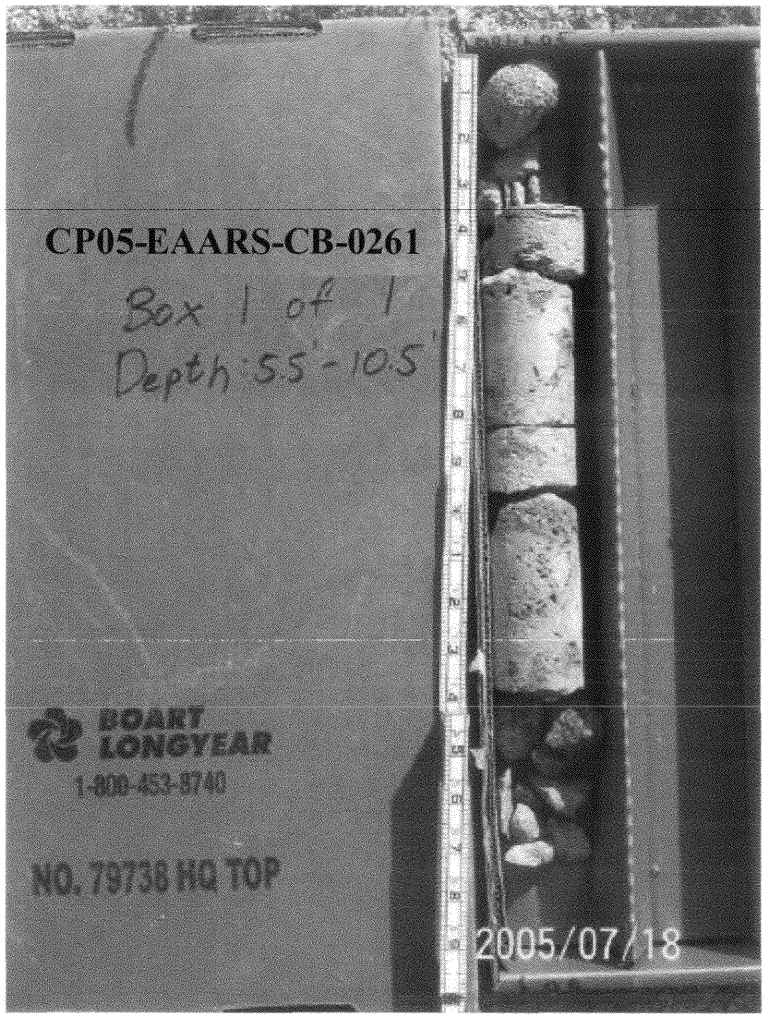
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0258	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 9.50	54.00	22.00



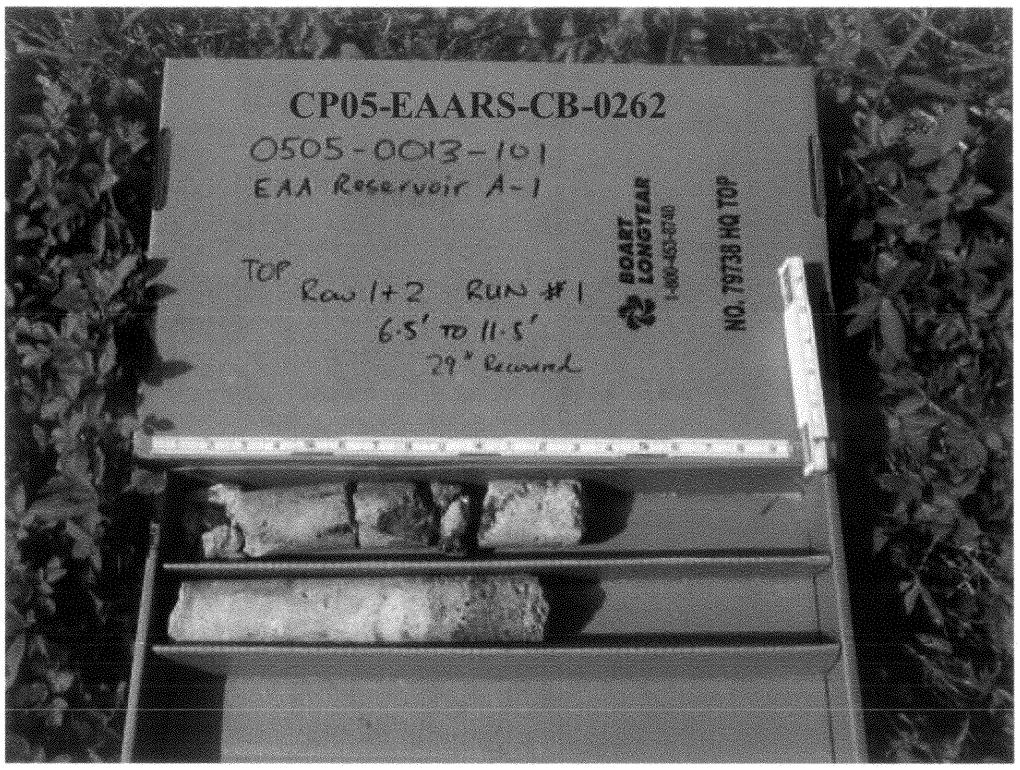
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0259	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
3.00 to 8.00	56.00	24.00
8.00 to 10.00	55.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0260	
Location	East Side	
Depth (feet)	Percentage Recovery	RQD
7.00 to 12.00	48.00	22.00



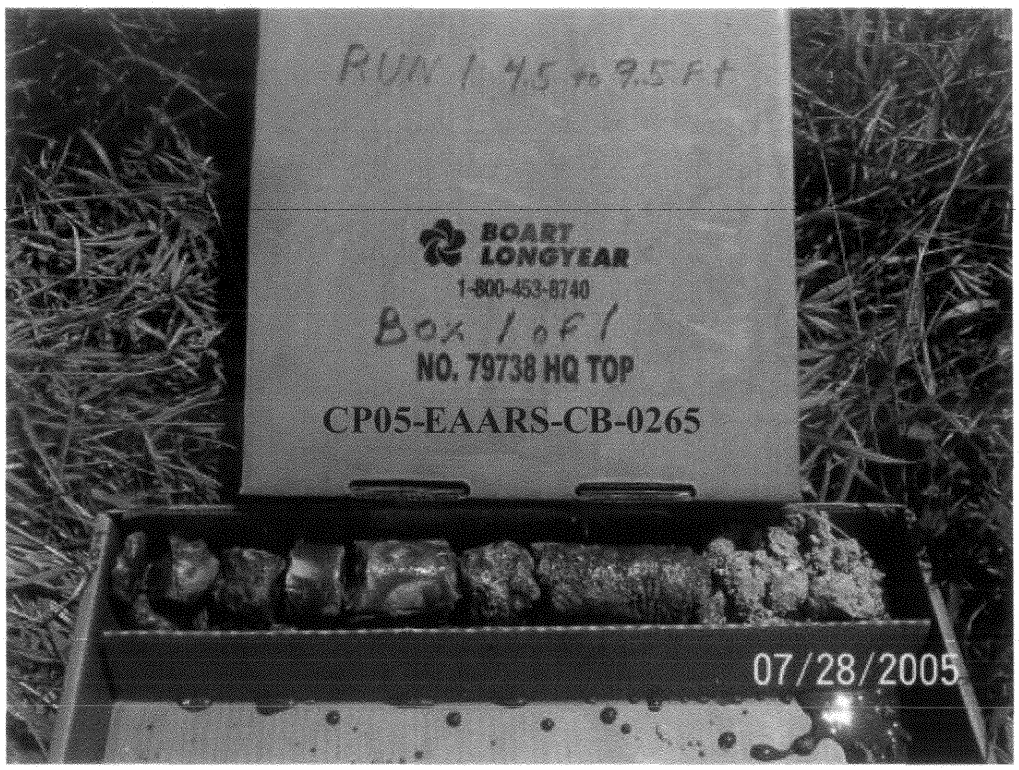
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0261	
Location	East Side	
Depth (feet)	Percentage Recovery	RQD
5.50 to 10.50	32.00	14.00



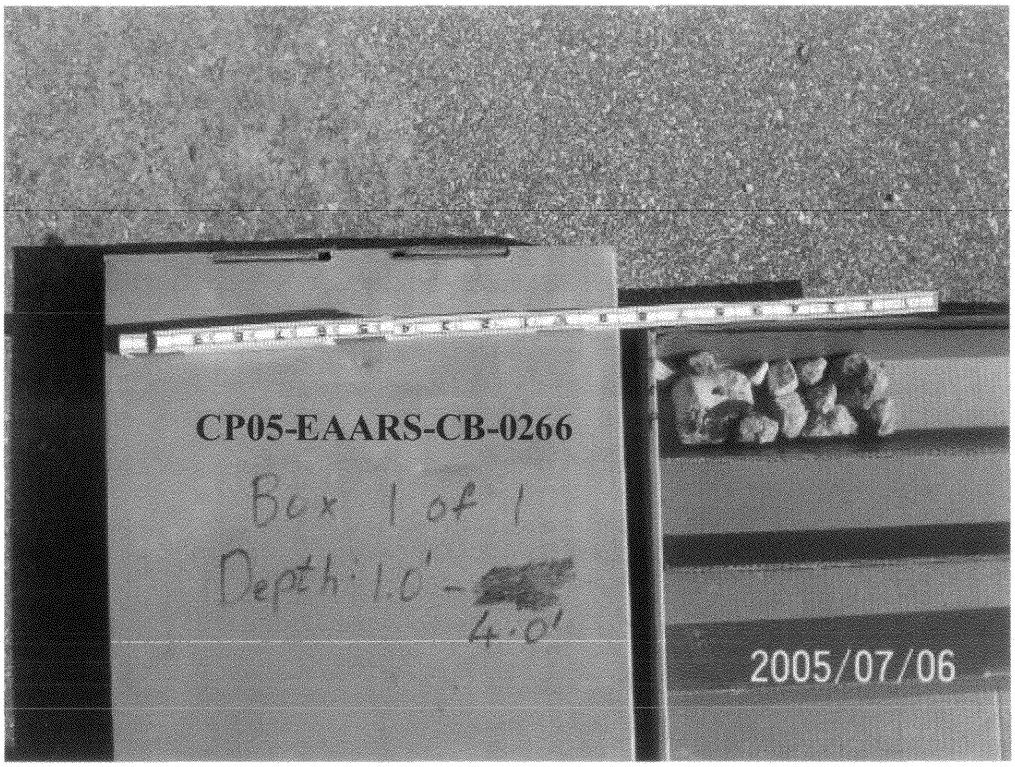
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0262	
Location	East Side	
Depth (feet)	Percentage Recovery	RQD
6.50 to 11.50	48.00	30.00



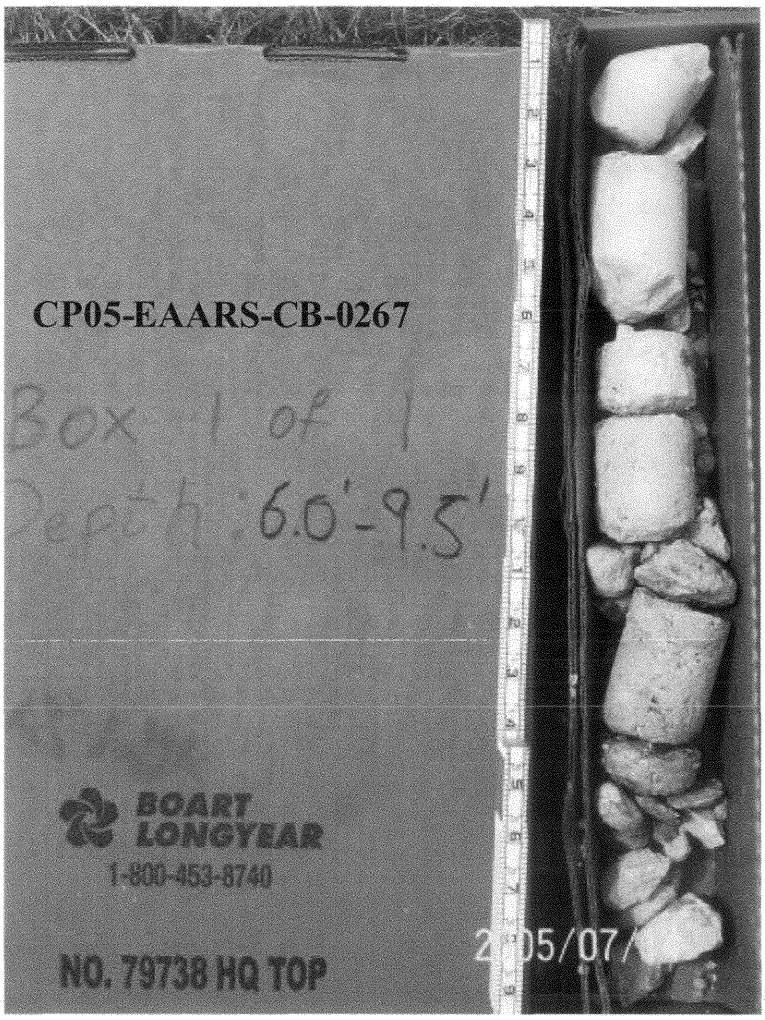
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0264	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
6.50 to 11.50	67.00	40.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0265	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 9.50	44.00	0



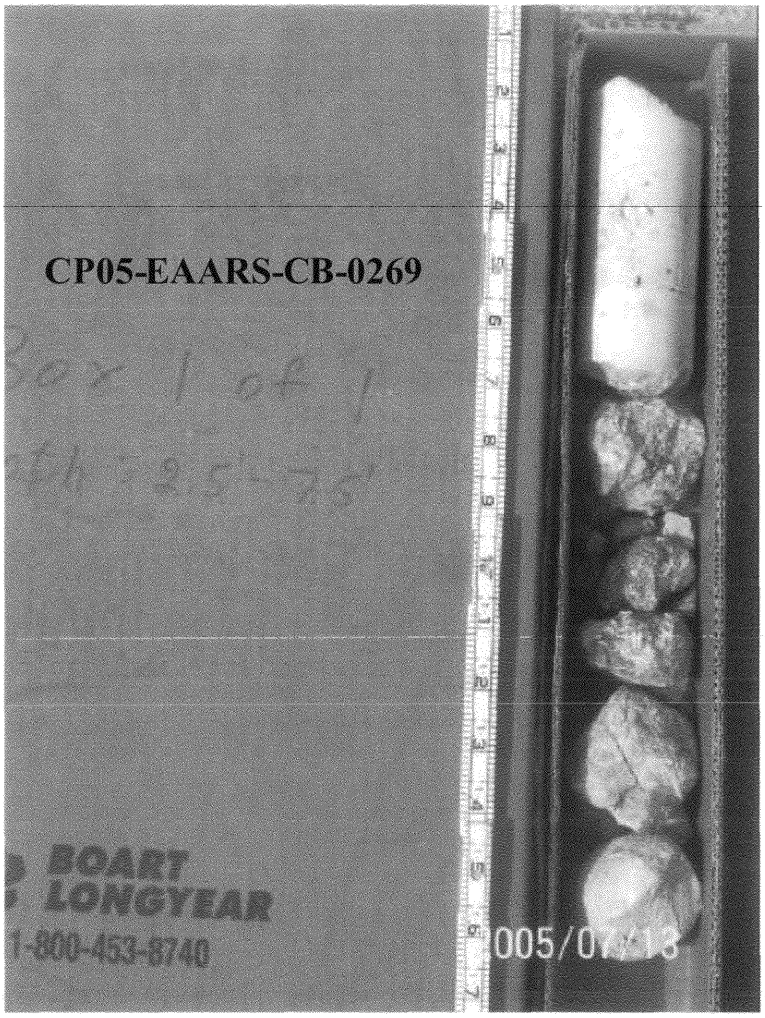
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0266	
Location	South East Corner	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 4.00	16.70	0



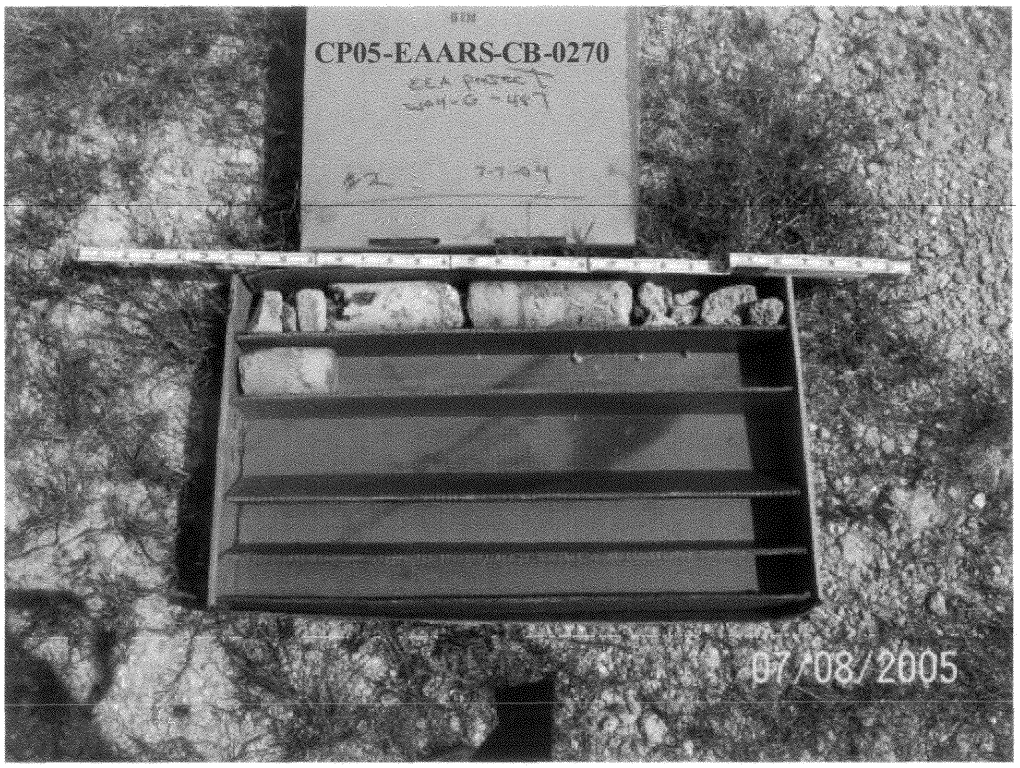
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0267	
Location	South East Section	
Depth (feet)	Percentage Recovery	RQD
6.00 to 9.50	54.29	28.57



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0268	
Location	South East Section	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 7.00	50.00	12.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0269	
Location	South East Section	
Depth (feet)	**Percentage Recovery**	**RQD**
2.50 to 7.50	28.00	10.00



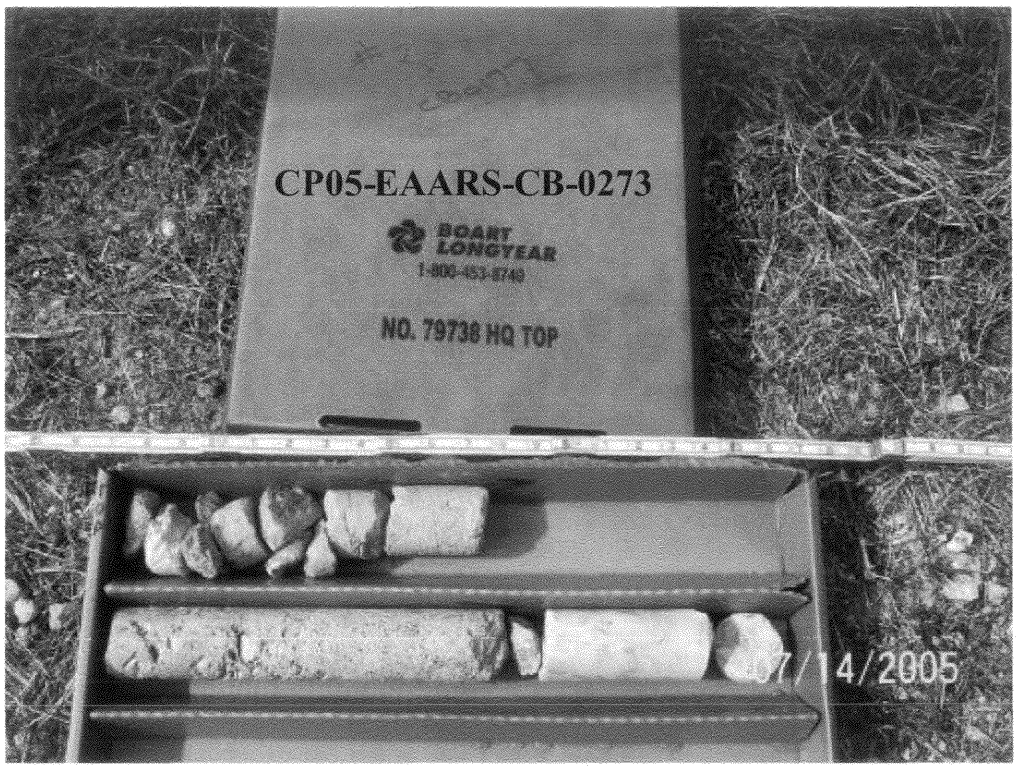
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0270	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
3.50 to 8.50	26.00	22.00



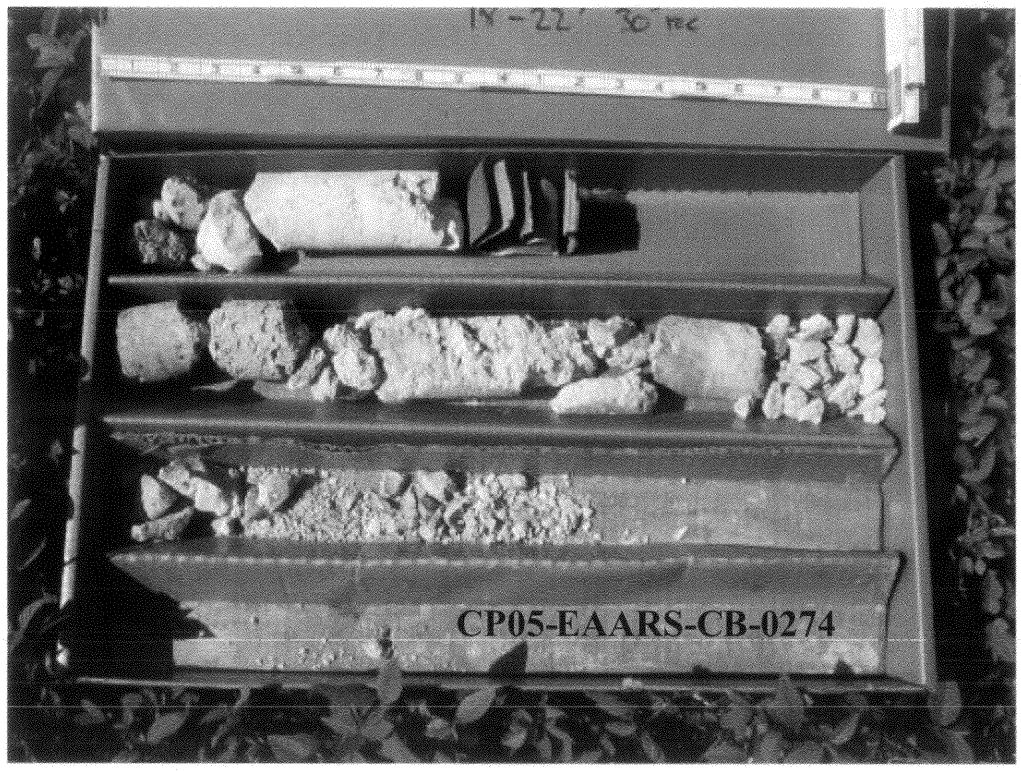
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0271	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
3.50 to 6.50	48.00	45.00
6.50 to 10.50	25.00	9.00



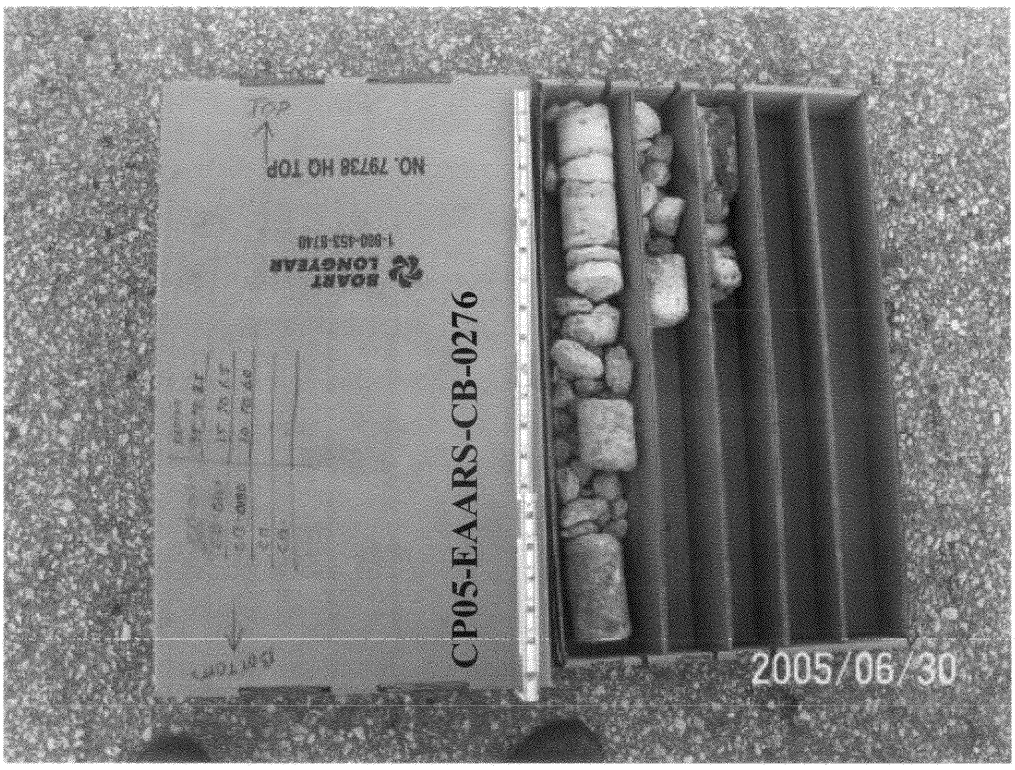
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0272	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
0.00 to 5.00	46.00	14.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0273	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 9.50	54.00	30.00



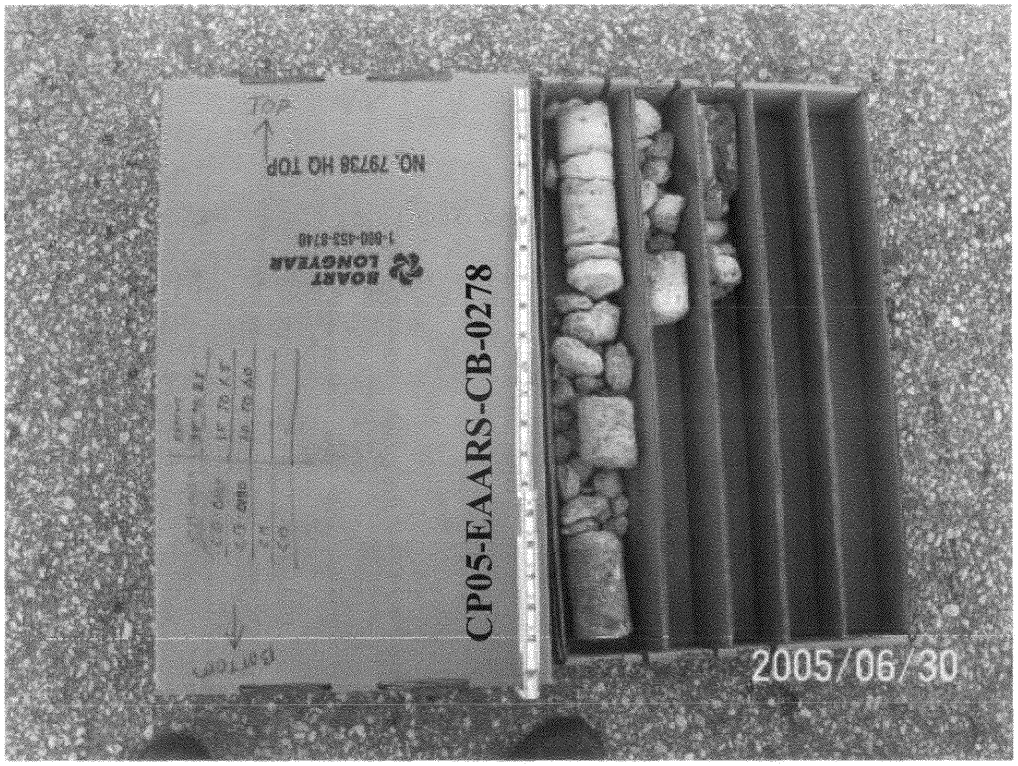
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0274	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
9.25 to 12.00	32.73	14.55
18.00 to 22.00	62.50	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0276	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 4.50	21.43	13.10



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0277	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	13.33	0



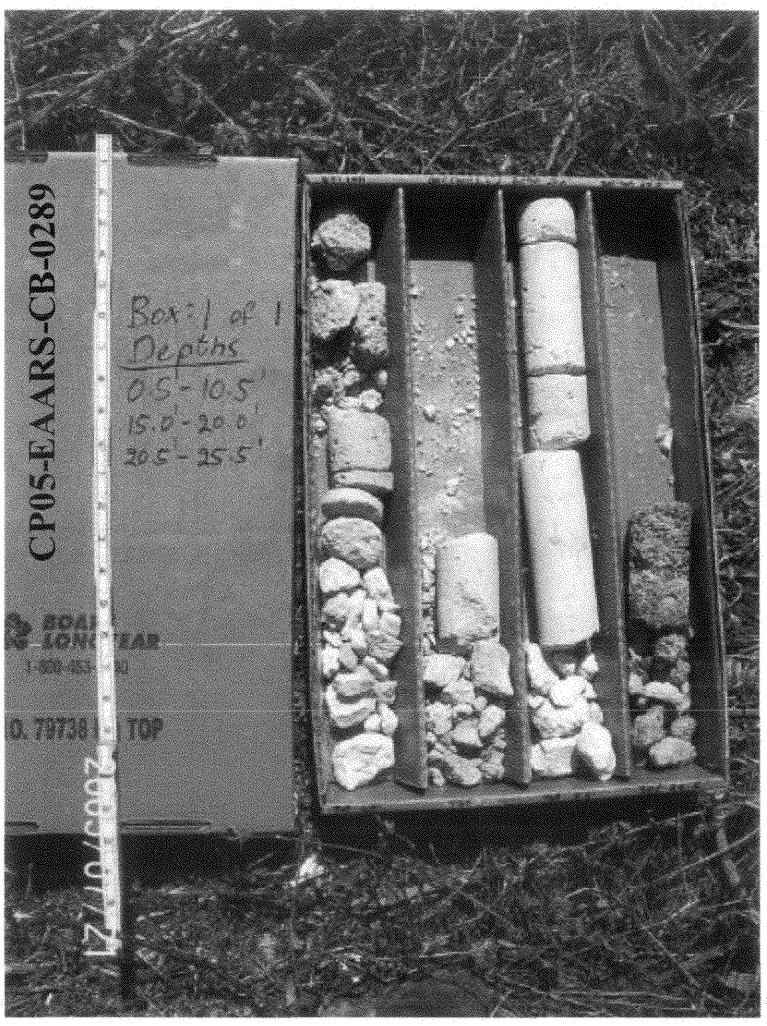
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0278	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
3.50 to 8.50	40.83	7.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0287	
Location	North Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	36.00	18.00
25.00 to 30.00	62.00	52.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0288	
Location	North Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	52.00	38.00



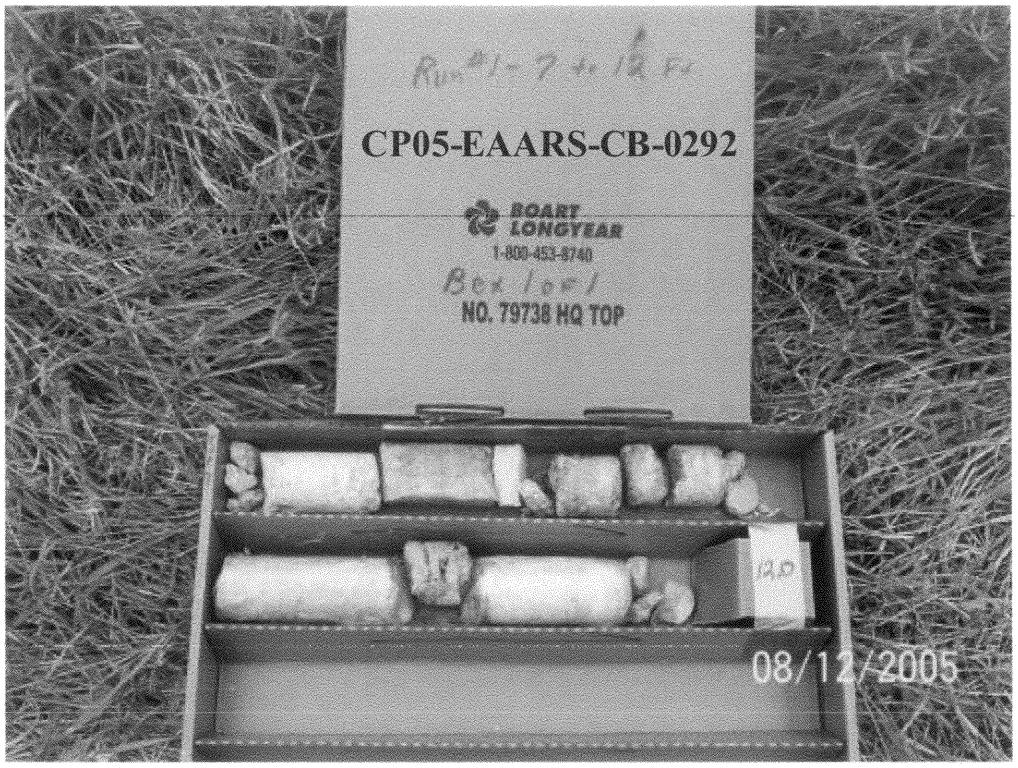
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0289	
Location	North Side	
Depth (feet)	**Percentage Recovery**	**RQD**
0.50 to 5.50	42.00	6.00
5.50 to 10.50	38.00	26.00
15.00 to 20.00	0	0
20.50 to 25.50	14.00	8.00



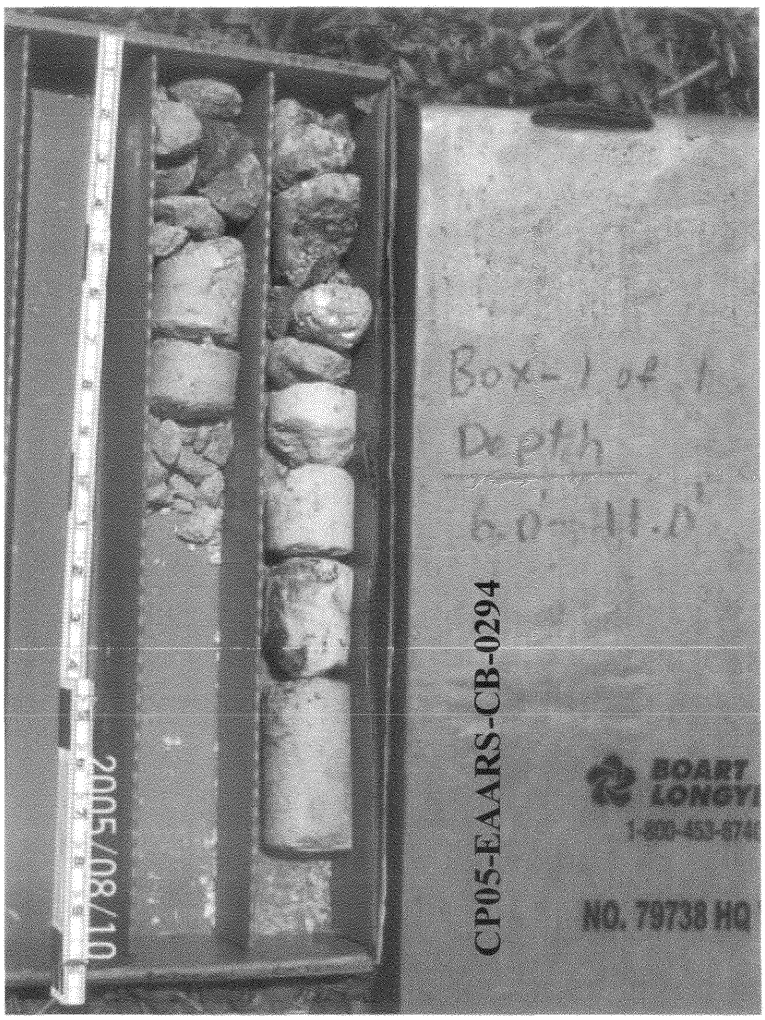
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0290 (Box 1 of 2)	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	60.00	24.00
9.00 to 14.00	54.00	24.00
23.50 to 28.50	0	0
34.00 to 39.00	28.00	14.00



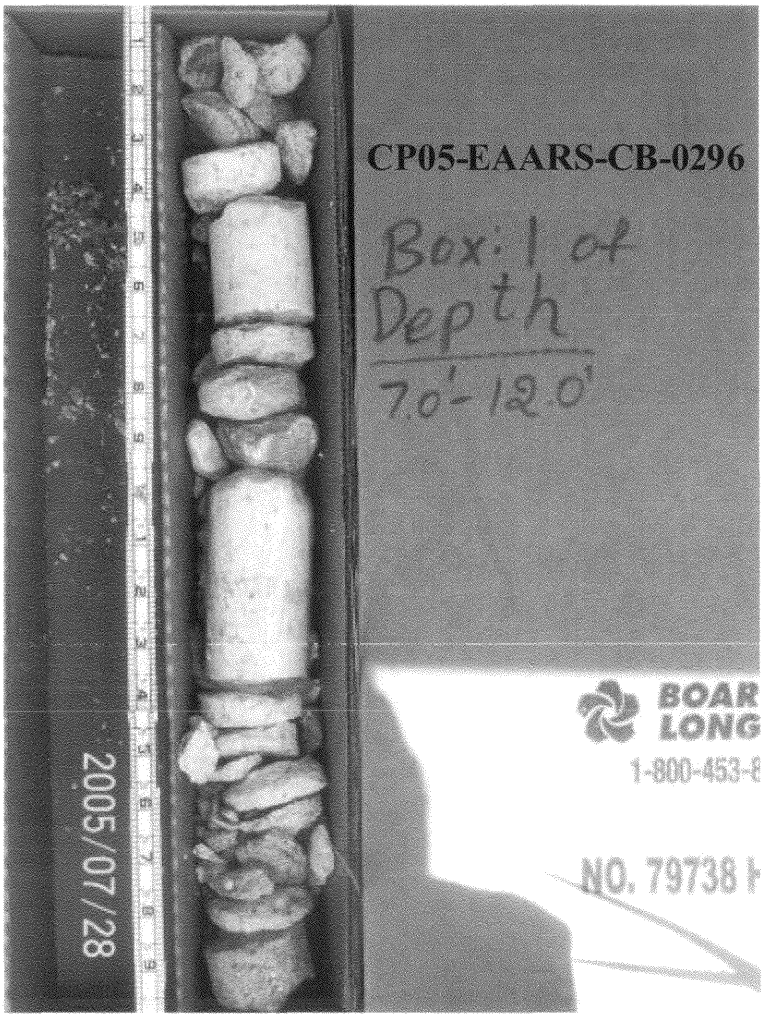
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0290 (Box 2 of 2)	
Location	East Side	
Depth (feet)	Percentage Recovery	RQD
4.00 to 9.00	60.00	24.00
9.00 to 14.00	54.00	24.00
23.50 to 28.50	0	0
34.00 to 39.00	28.00	14.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0292	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
7.00 to 12.00	56.00	19.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0294	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
6.00 to 11.00	54.00	8.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0296	
Location	East Side	
Depth (feet)	Percentage Recovery	RQD
7.00 to 12.00	42.00	8.00

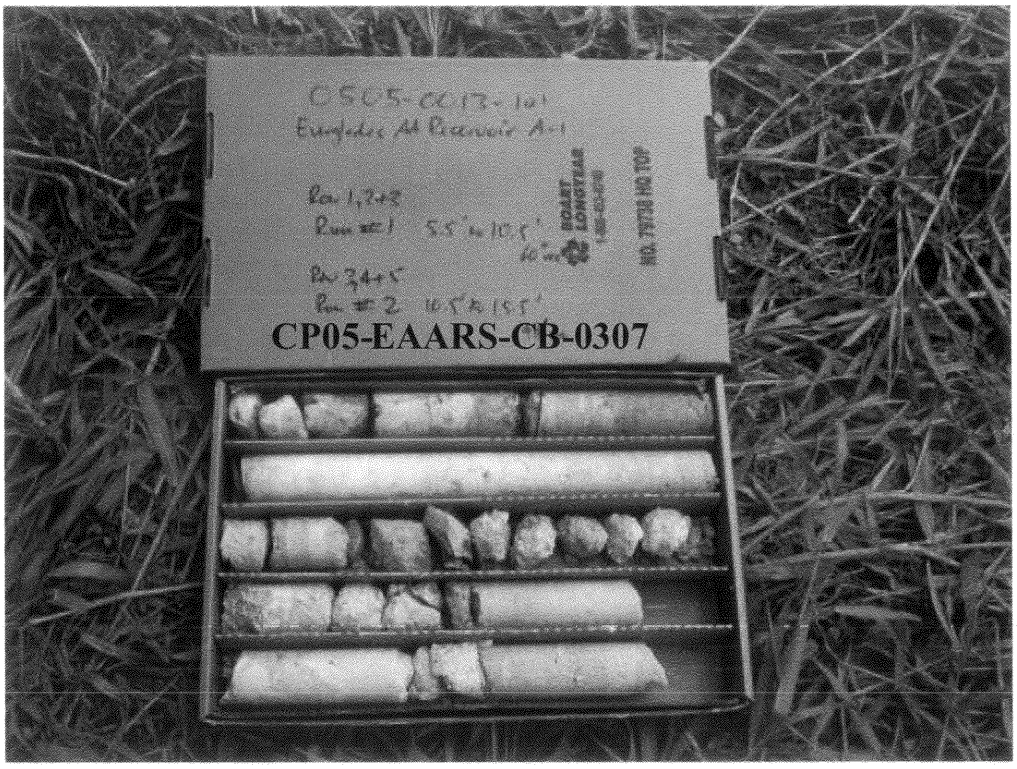


Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0300	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
6.00 to 11.00	62.00	24.00

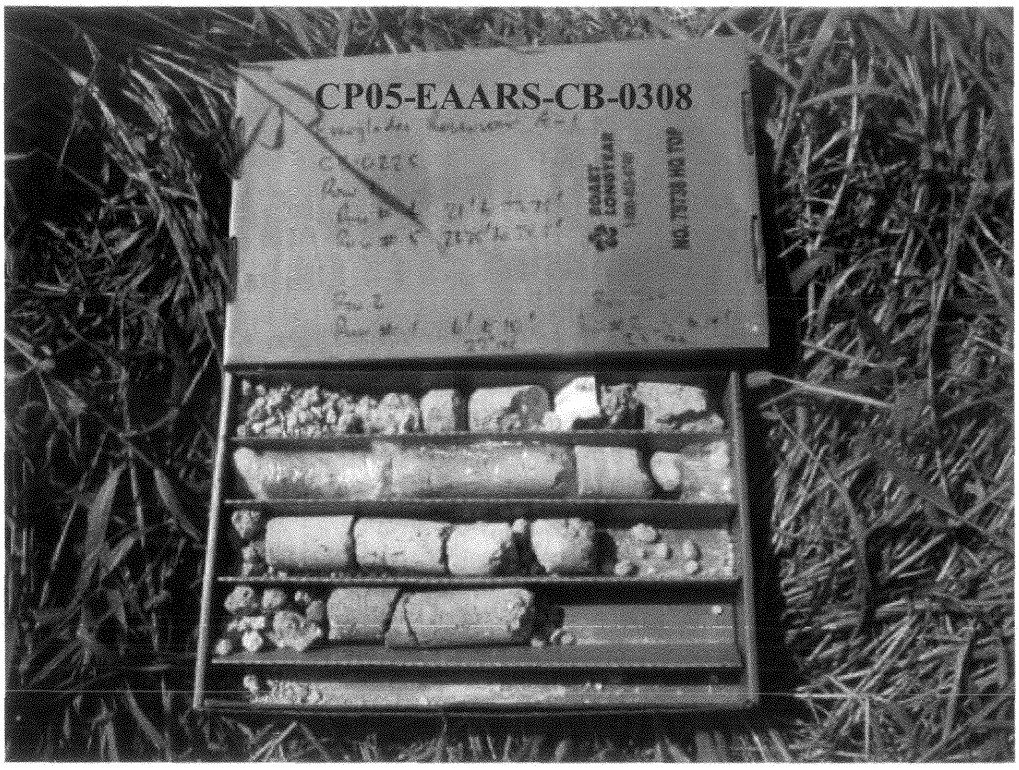
APPENDIX 3
ROCK CORES AND OTHER PHOTOGRAPHS: 301-340



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0305	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
0.00 to 5.00	22.00	0
5.00 to 10.00	8.00	0



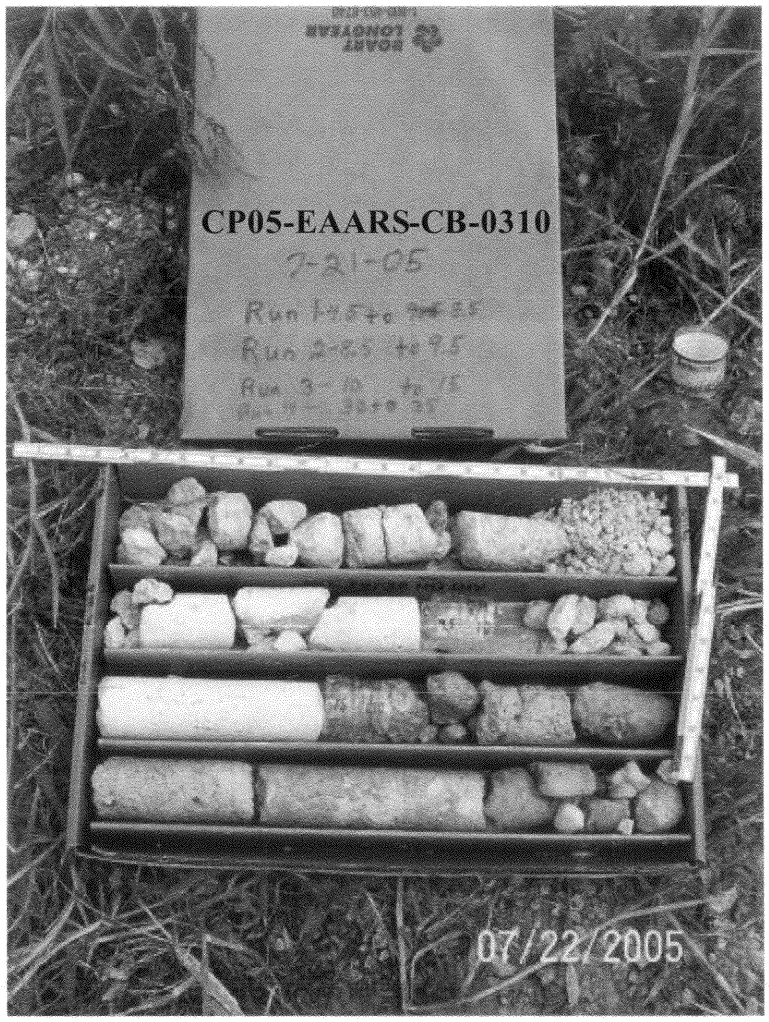
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0307	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.50 to 10.50	90.00	68.00
10.50 to 15.50	78.00	42.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0308	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
6.00 to 10.00	45.00	30.00
10.75 to 15.00	46.00	8.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0309	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.00 to 10.00	58.00	32.00
11.00 to 16.00	22.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0310	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 8.50	50.00	0
8.50 to 10.00	100.00	0
10.00 to 15.00	20.00	14.00
30.00 to 35.00	56.00	24.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0312 (Box 1 of 2)	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 8.50	98.00	0
8.50 to 13.50	8.0	0
23.5 to 28.5	40.00	0
30.00 to 33.50	66.00	14.00
33.50 to 38.50	33.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0312 (Box 2 of 2)	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 8.50	98.00	0
8.50 to 13.50	8.0	0
23.5 to 28.5	40.00	0
30.00 to 33.50	66.00	14.00
33.50 to 38.50	33.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0313	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	26.00	0
6.00 to 11.00	24.00	0
25.00 to 30.00	68.00	52.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0314 (Box 1 of 2)	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 8.50	22.00	0
8.50 to 13.50	12.00	0
25.00 to 30.00	60.00	48.00
30.00 to 35.00	96.00	64.00



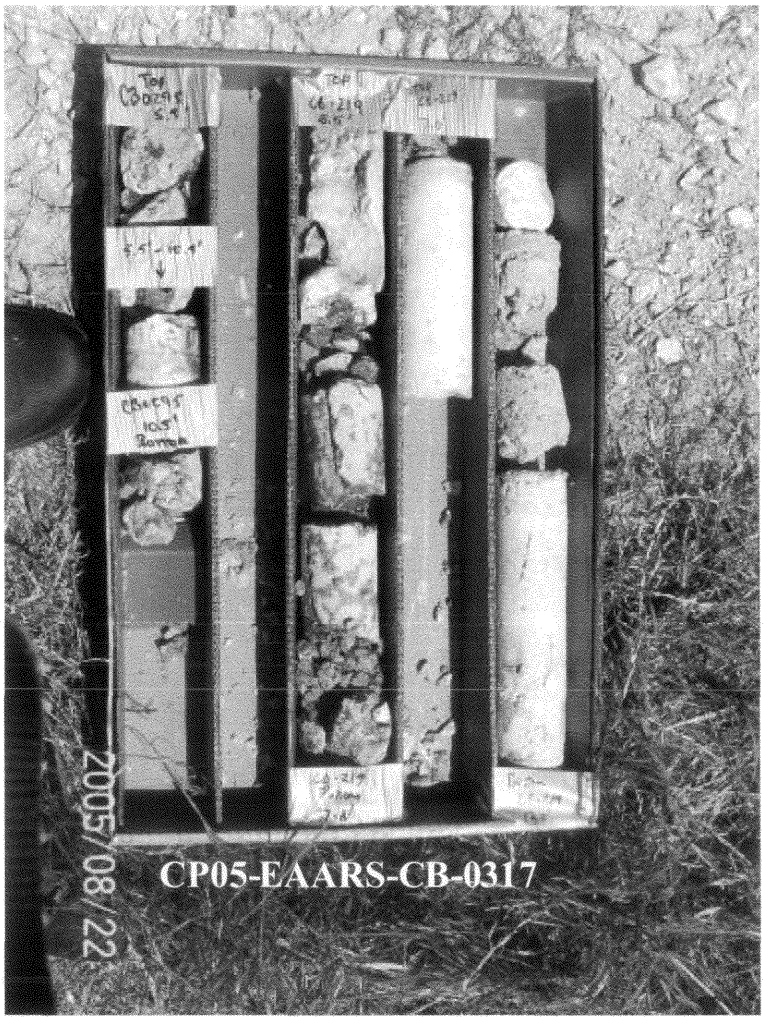
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0314 (Box 2 of 2)	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 8.50	22.00	0
8.50 to 13.50	12.00	0
25.00 to 30.00	60.00	48.00
30.00 to 35.00	96.00	64.00



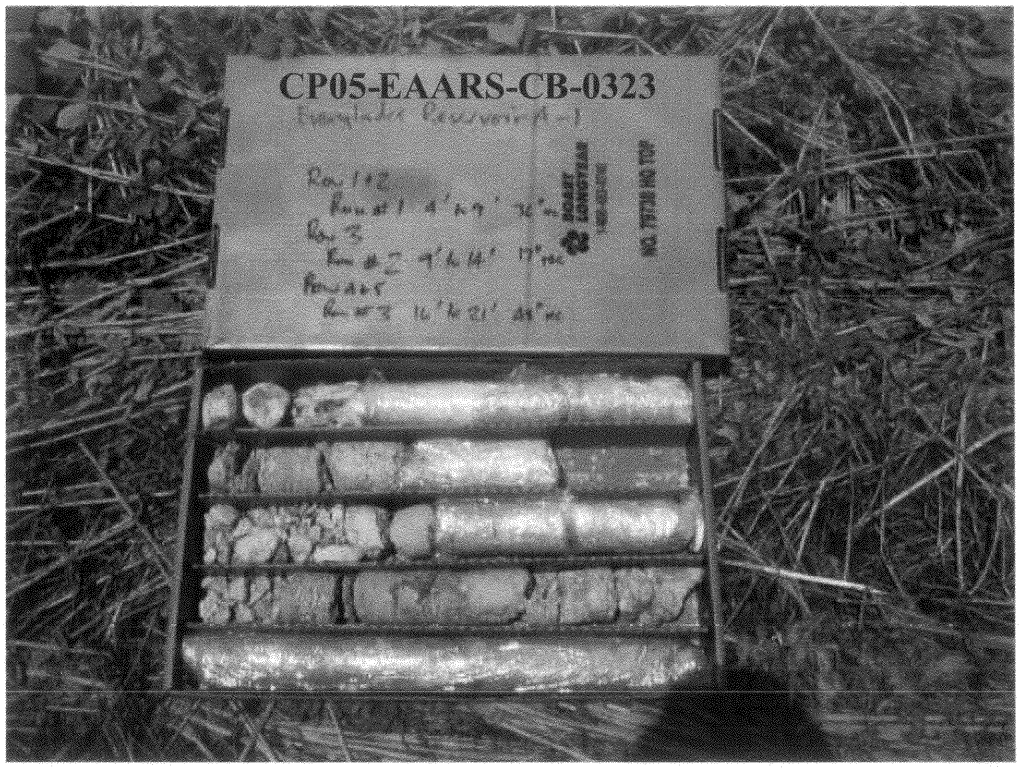
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0315	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.00 to 10.00	Not recorded	Not recorded



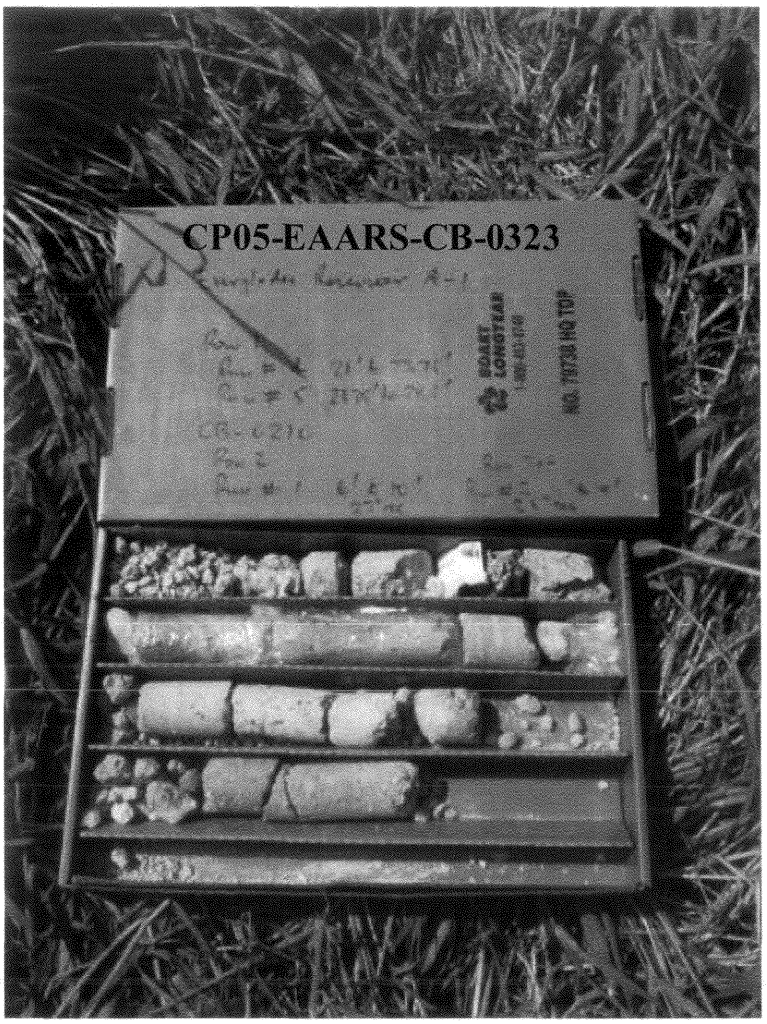
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0316	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.00 to 10.00	38.00	30.00
20.50 to 25.50	56.00	27.50
25.50 to 30.50	76.00	49.00
30.50 to 35.50	65.00	45.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0317	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.50 to 7.00	70.00	8.30
7.00 to 12.00	60.00	50.00



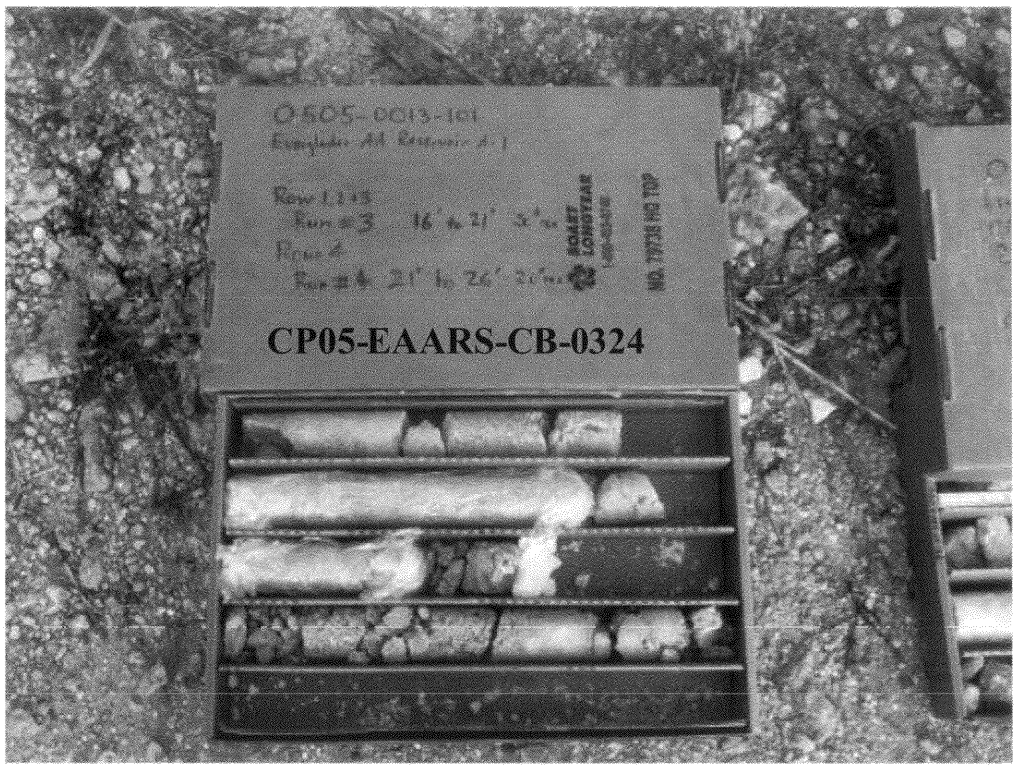
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0323 (Box 1 of 2)	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	60.00	38.00
9.00 to 14.00	28.00	20.00
16.00 to 21.00	74.00	40.00



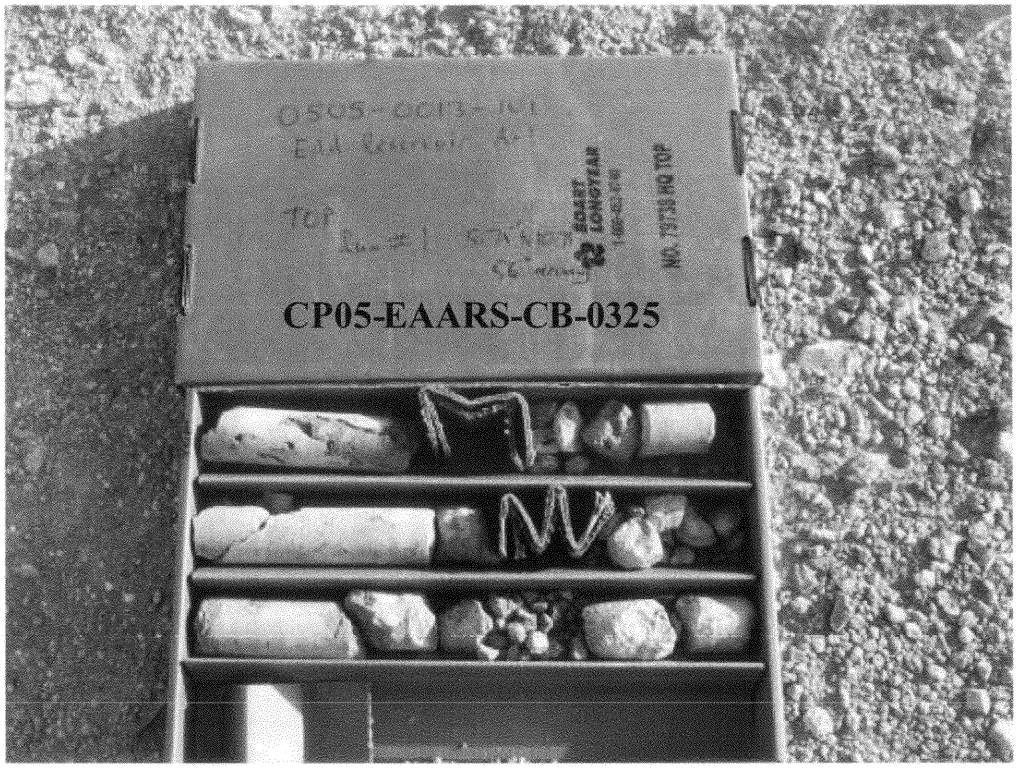
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0323 (Box 2 of 2)	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
21.00 to 23.75	40.00	0
23.75 to 28.5	8.00	0



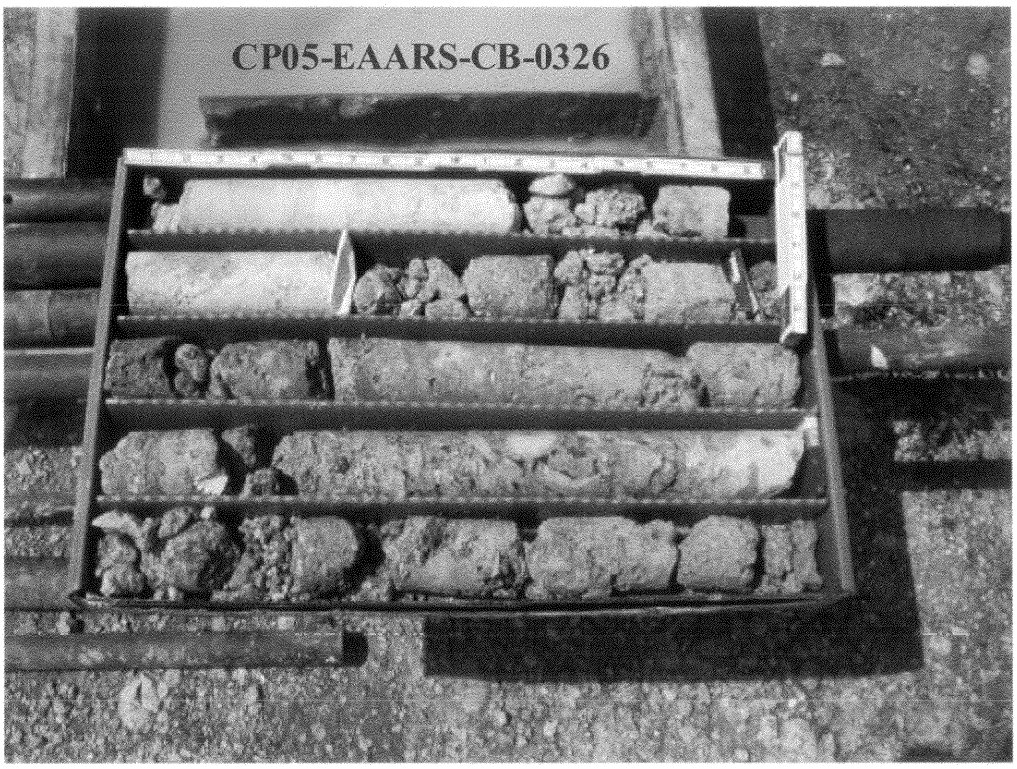
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0324 (Box 1 of 2)	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.75 to 9.75	70.00	44.00
9.75 to 14.75	10.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0324 (Box 2 of 2)	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
16.00 to 21.00	82.00	56.00
21.00 to 26.00	32.00	8.00



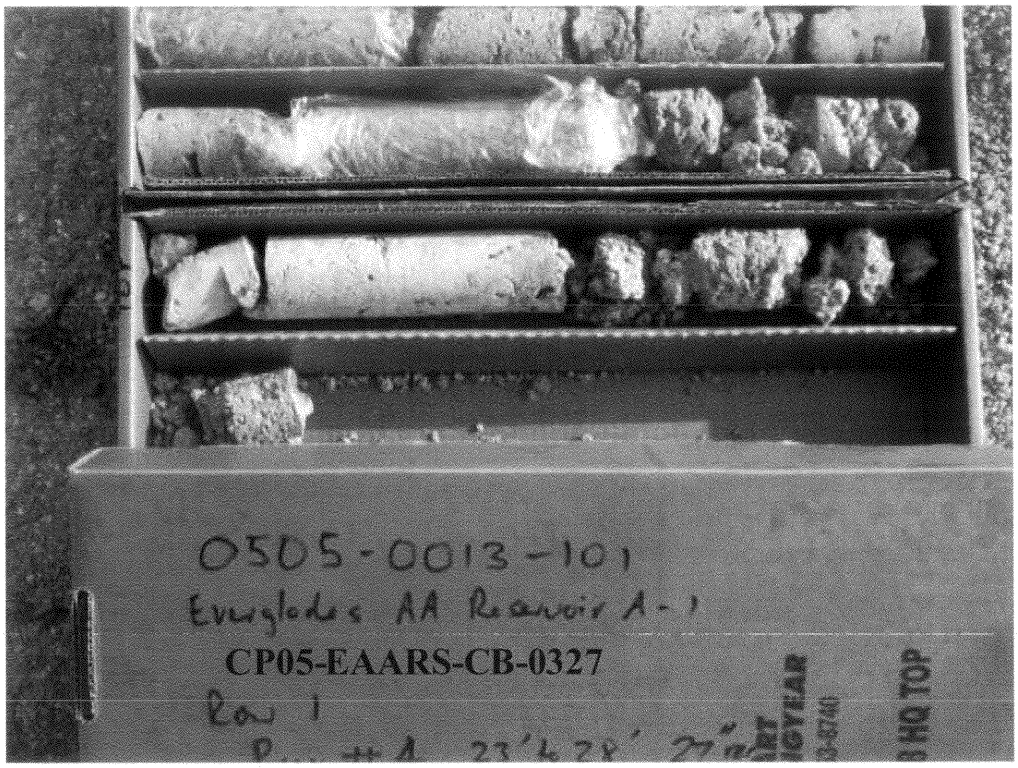
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0325	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.75 to 10.75	96.00	36.00



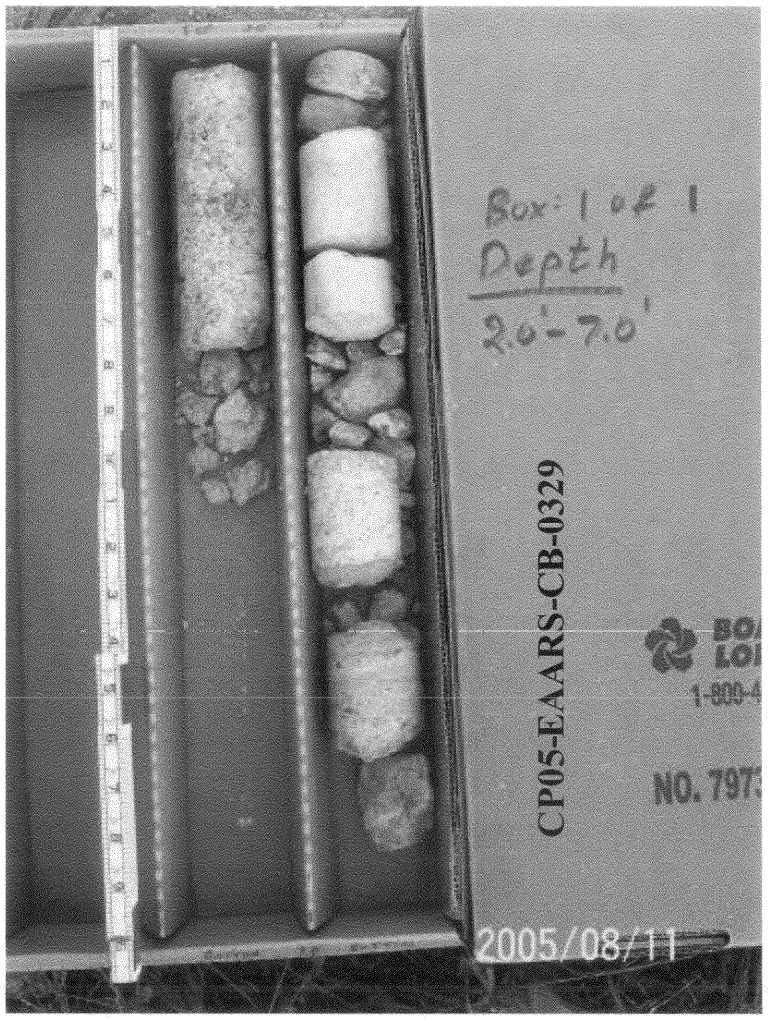
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0326	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
6.50 to 11.50	48.00	34.00
11.50 to 14.00	36.00	0
17.50 to 22.50	80.00	52.00
22.50 to 27.50	36.00	0



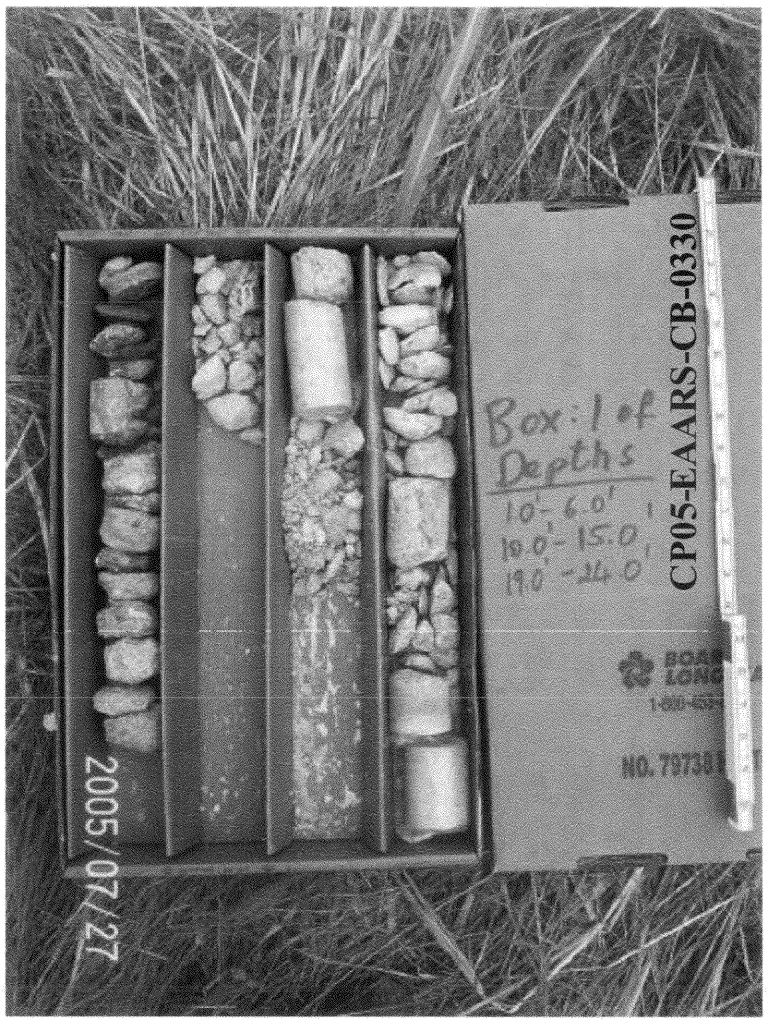
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0327 (Box 1 of 2)	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	78.00	56.00
9.00 to 12.00	26.00	0
18.00 to 23.00	78.00	28.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0327 (Box 2 of 2)	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
23.00 to 28.00	44.00	16.00



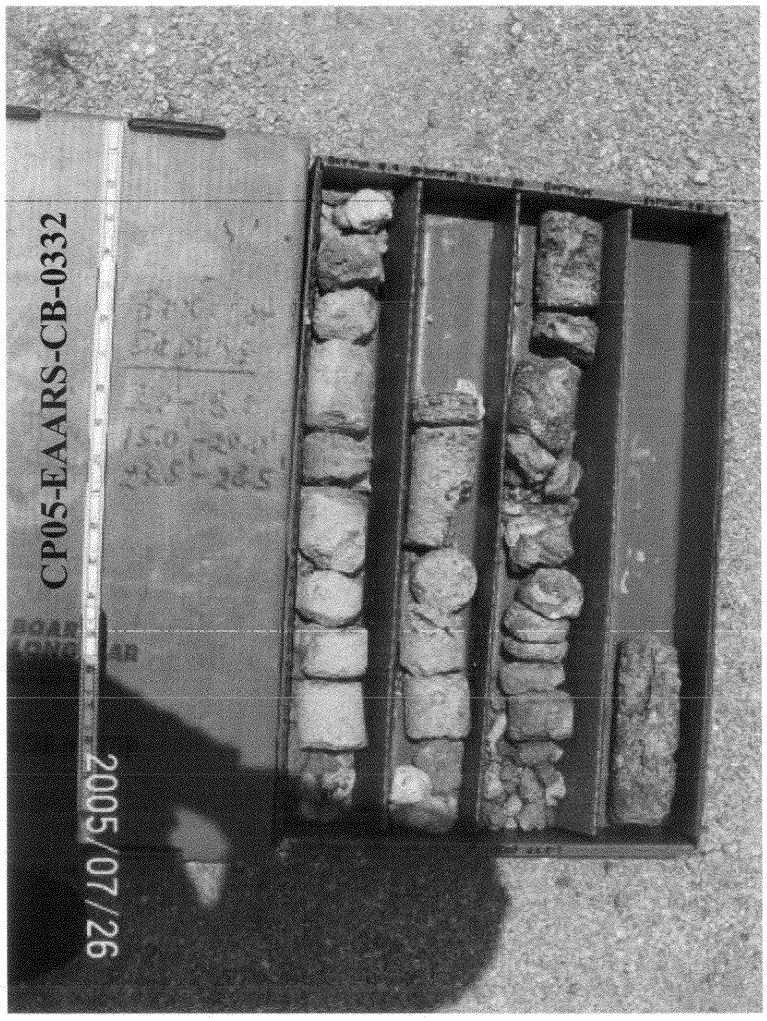
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0329	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 7.00	46.00	12.00



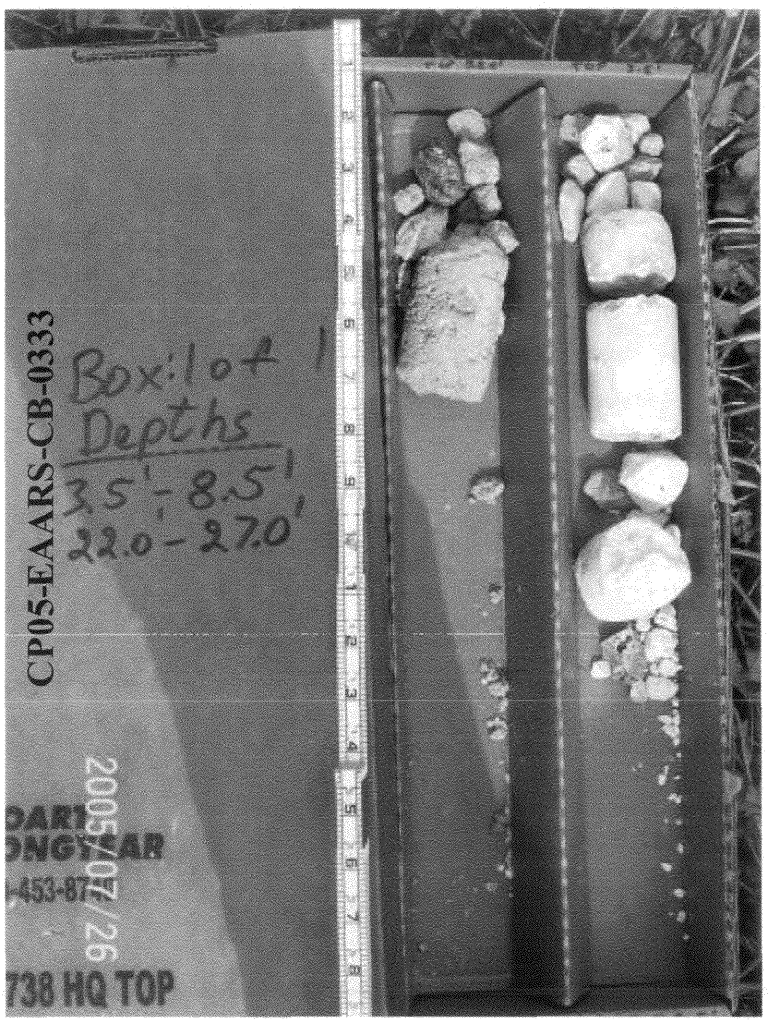
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0330	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	54.00	7.00
10.00 to 15.00	12.00	0
19.00 to 24.00	34.00	0



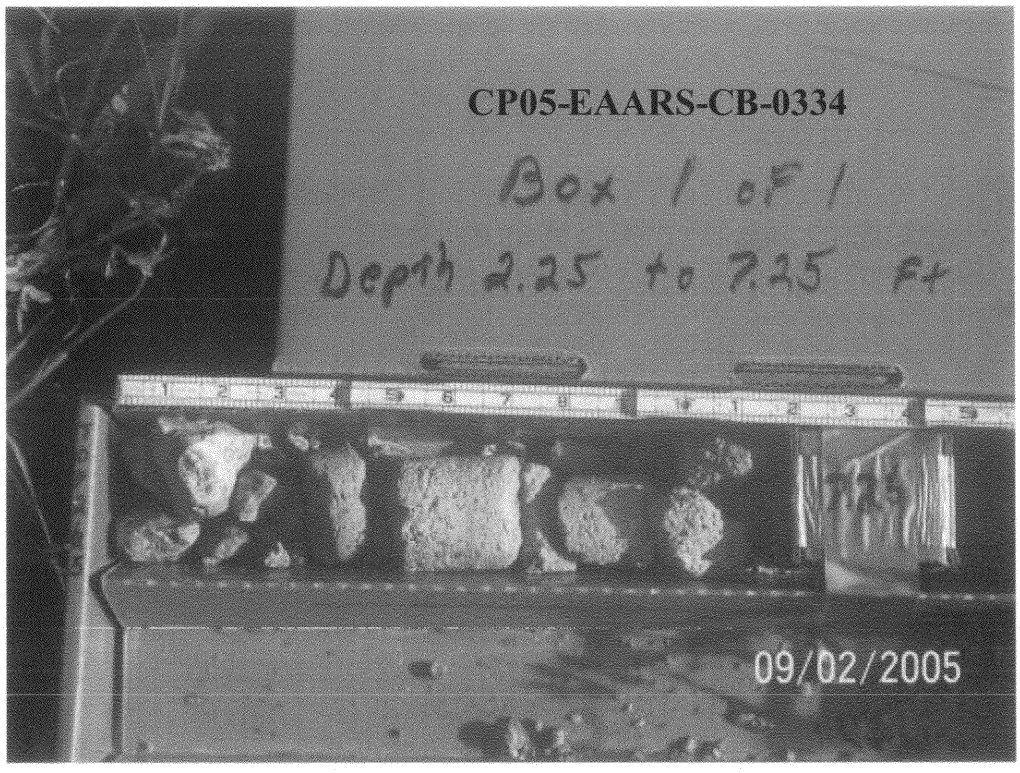
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0331	
Location	West Side	
Depth (feet)	**Percentage Recovery**	**RQD**
2.50 to 7.50	70.00	15.00
8.00 to 13.00	6.00	0



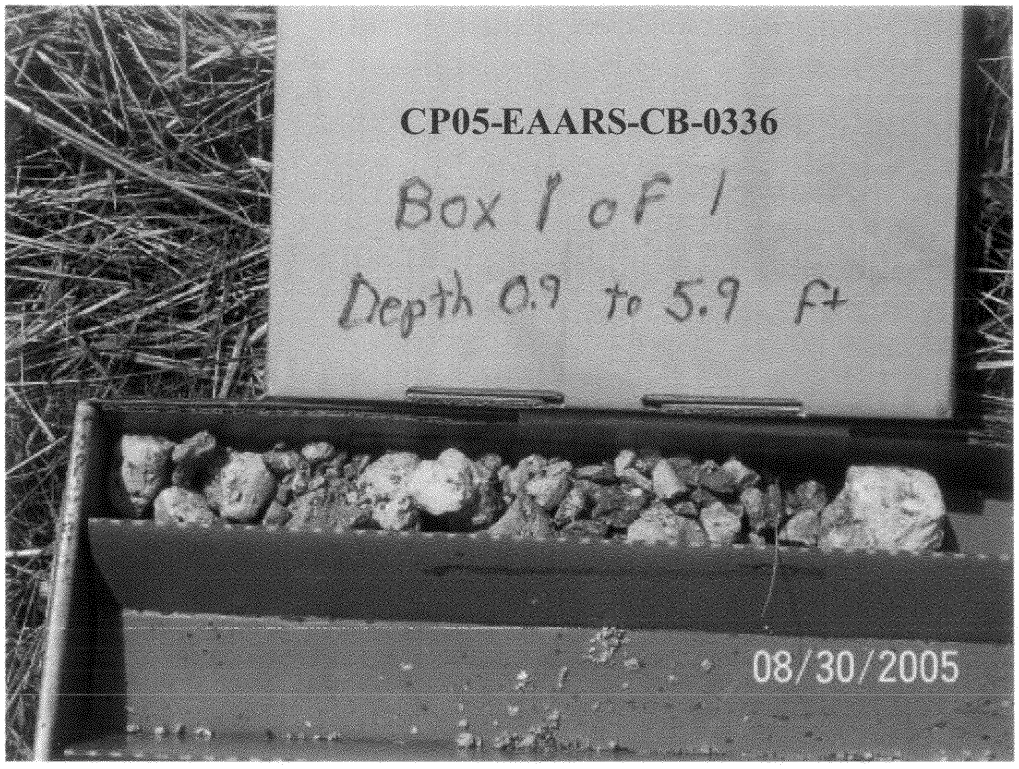
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0332	
Location	North West Section	
Depth (feet)	**Percentage Recovery**	**RQD**
3.00 to 8.00	36.00	0
15.00 to 20.00	24.00	0
23.50 to 28.50	48.00	12.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0333	
Location	North West Section	
Depth (feet)	**Percentage Recovery**	**RQD**
3.50 to 8.50	20.00	0
22.00 to 27.00	10.00	6.00



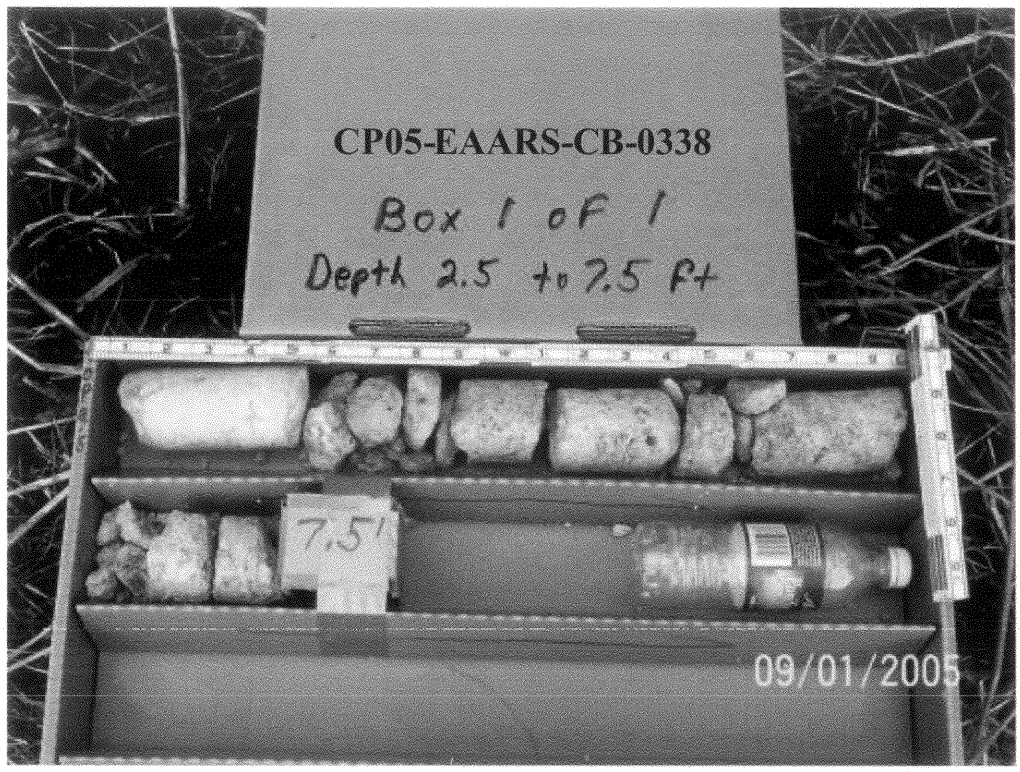
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0334	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
2.25 to 7.25	20.00	0



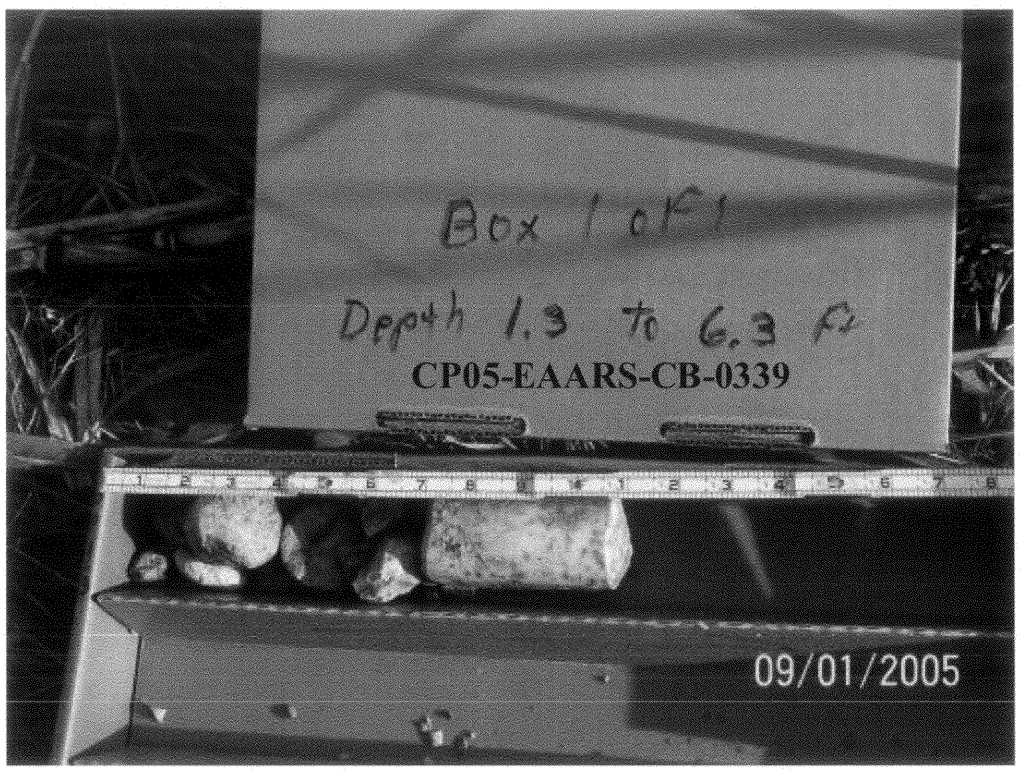
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0336	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	30.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0337	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	52.00	0
6.50 to 11.50	26.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0338	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
2.50 to 7.50	46.00	8.00

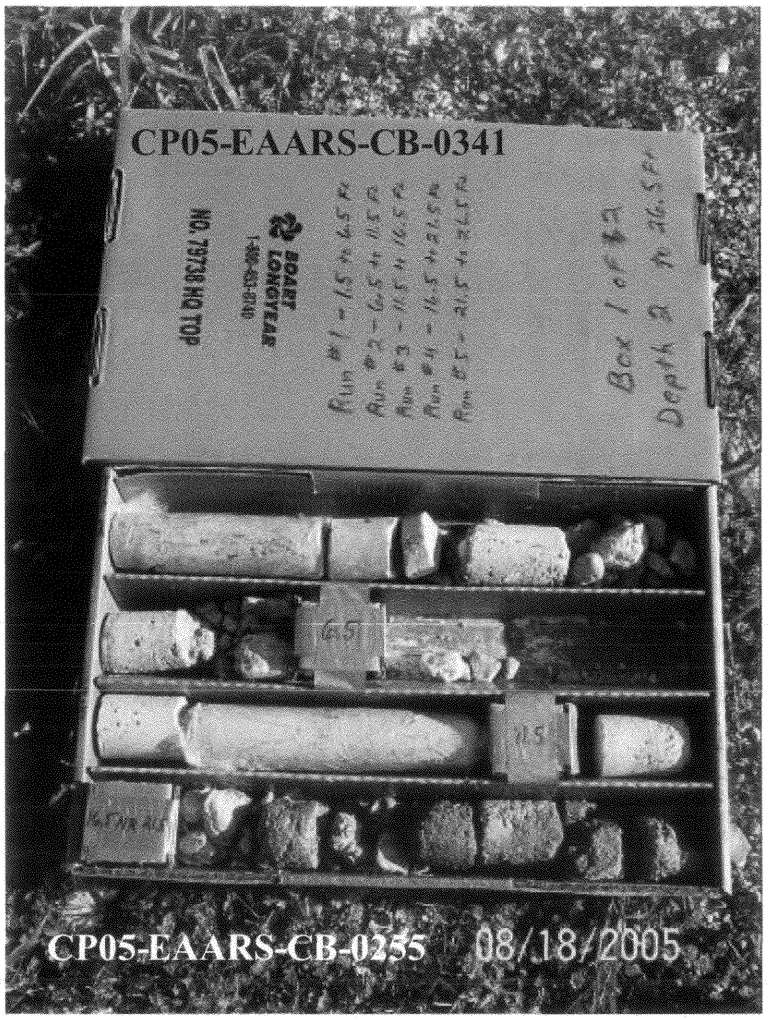


Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0339	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.30 to 6.30	18.00	7.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0340	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	24.00	0

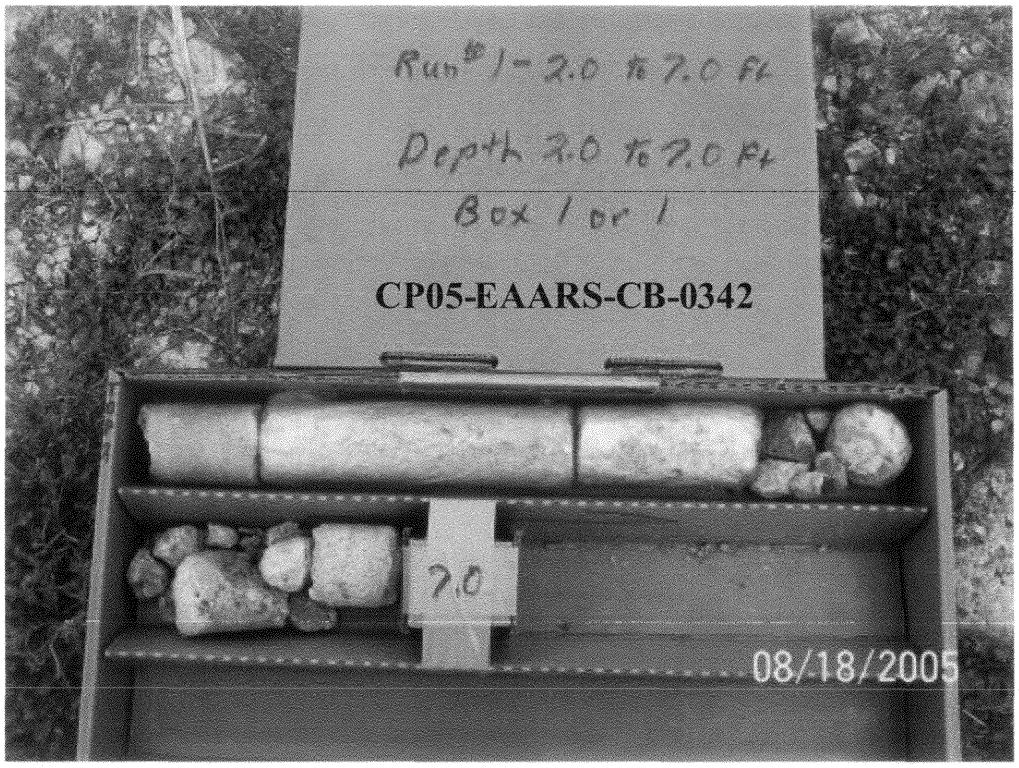
APPENDIX 3
ROCK CORES AND OTHER PHOTOGRAPHS: 341-380



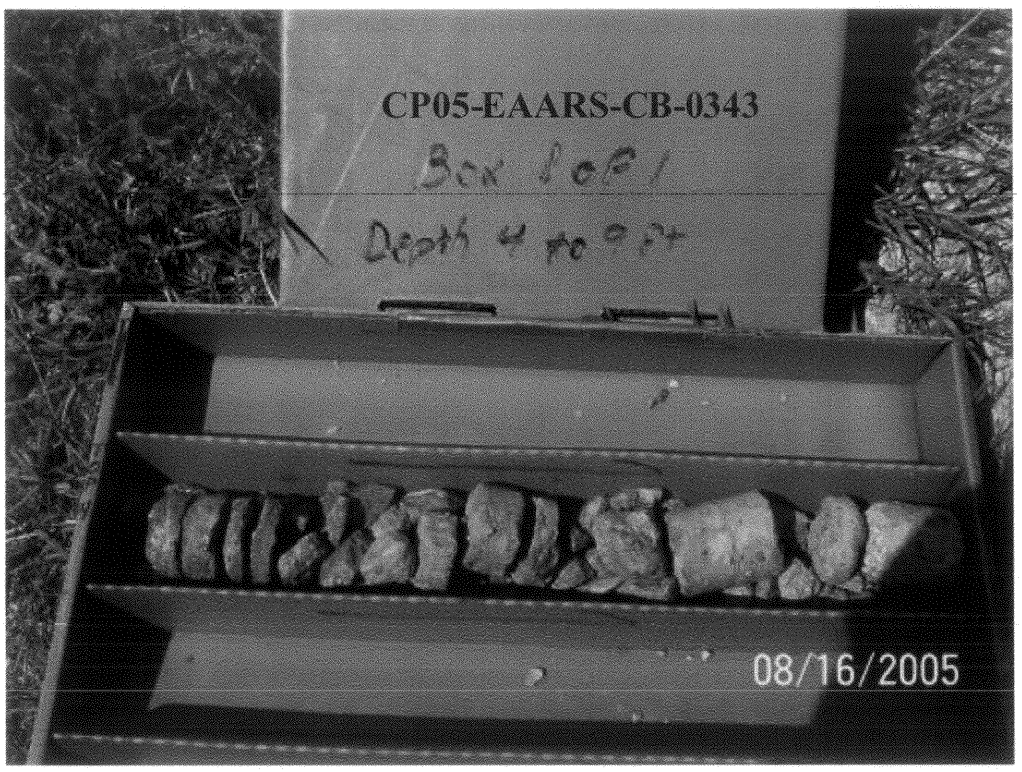
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0341 (Box 1 of 2)	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	46.00	14.00
6.50 to 11.50	24.00	18.00
11.50 to 16.50	6.00	0
16.50 to 21.50	0	0
21.50 to 26.50	26.00	0
26.50 to 31.50	42.00	8.00
31.50 to 36.50	40.00	0



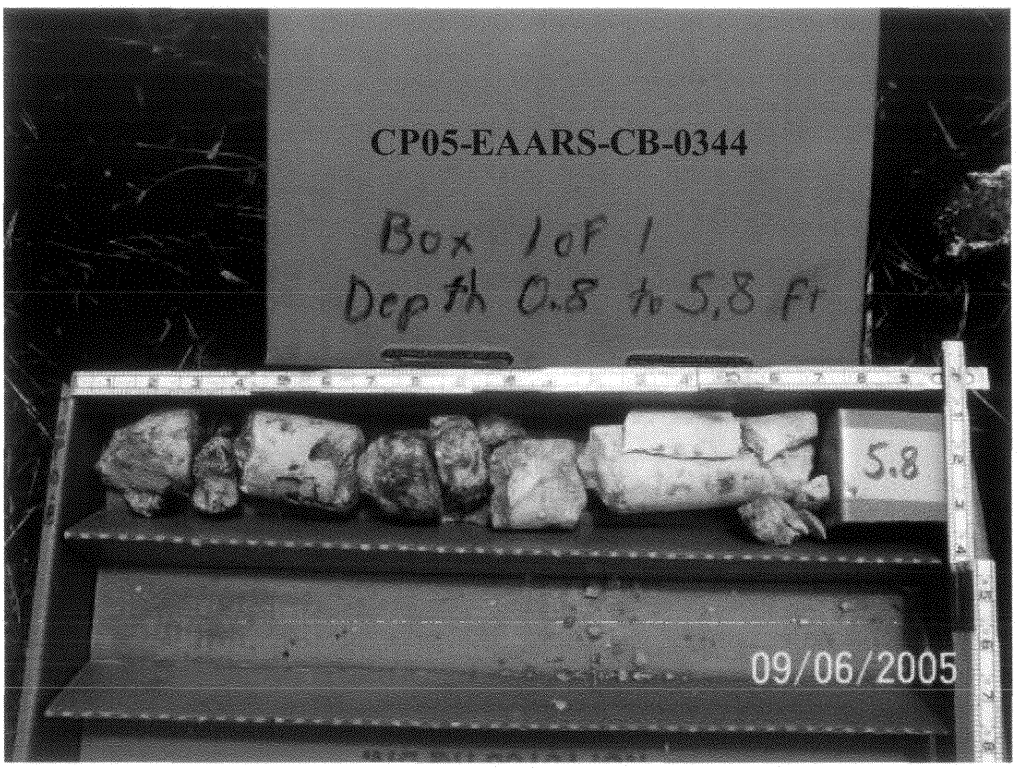
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0341 (Box 2 of 2)	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	46.00	14.00
6.50 to 11.50	24.00	18.00
11.50 to 16.50	6.00	0
16.50 to 21.50	0	0
21.50 to 26.50	26.00	0
26.50 to 31.50	42.00	8.00
31.50 to 36.50	40.00	0



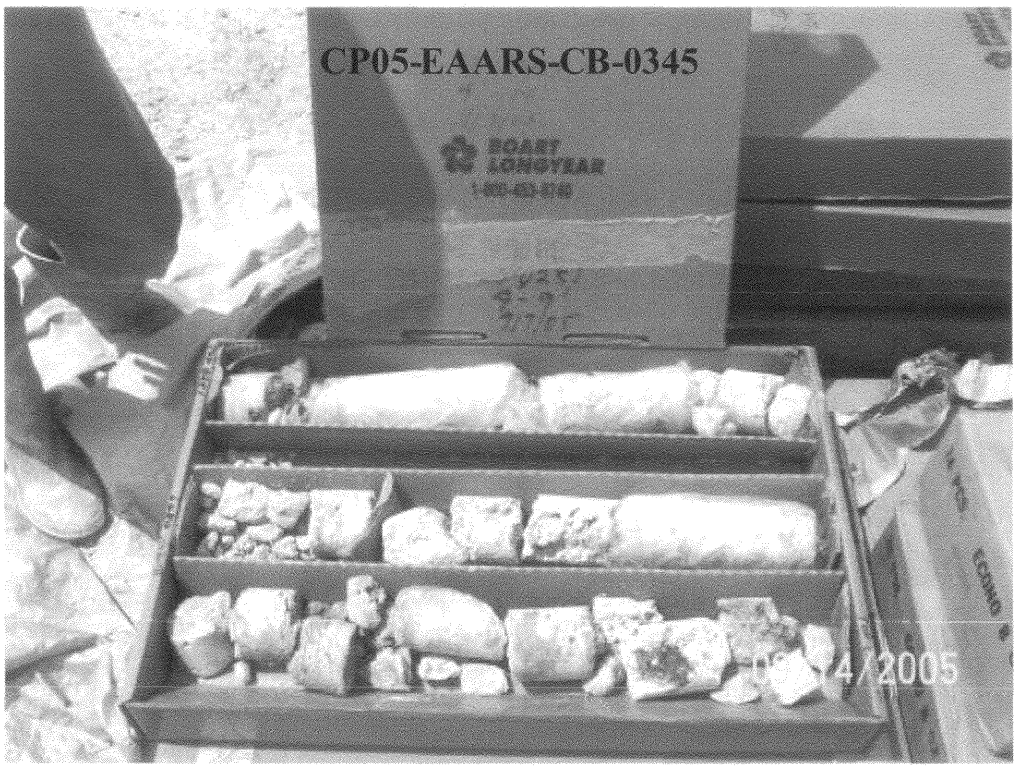
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0342	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 7.00	46.00	22.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0343	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	32.00	0



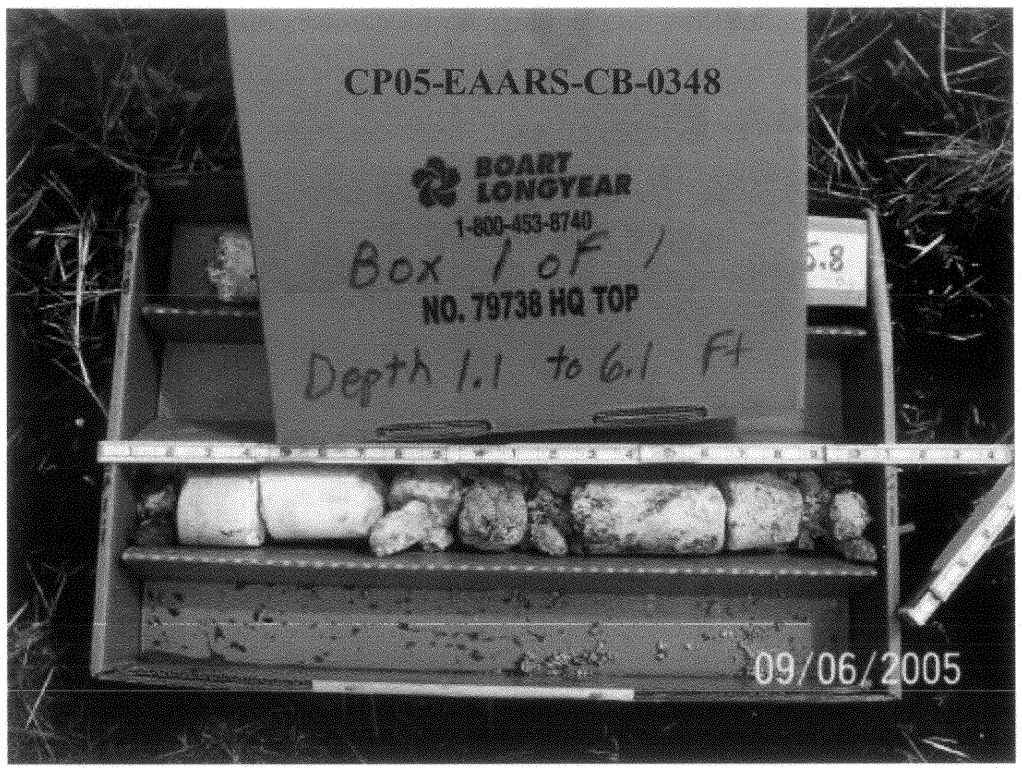
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0344	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
0.80 to 5.80	34.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0345	
Location	Central Farm Road	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	70.00	20.00
9.00 to 14.00	10.00	0



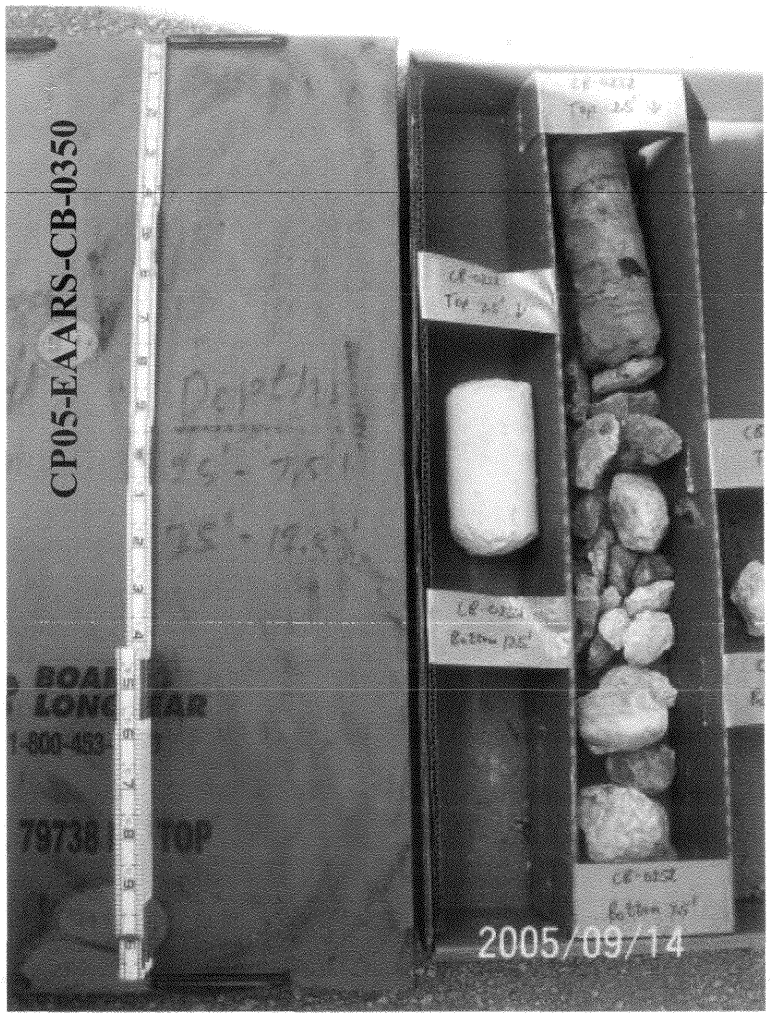
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0347	
Location	East Section Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 6.00	87.50	42.50
6.00 to 11.00	42.00	10.00



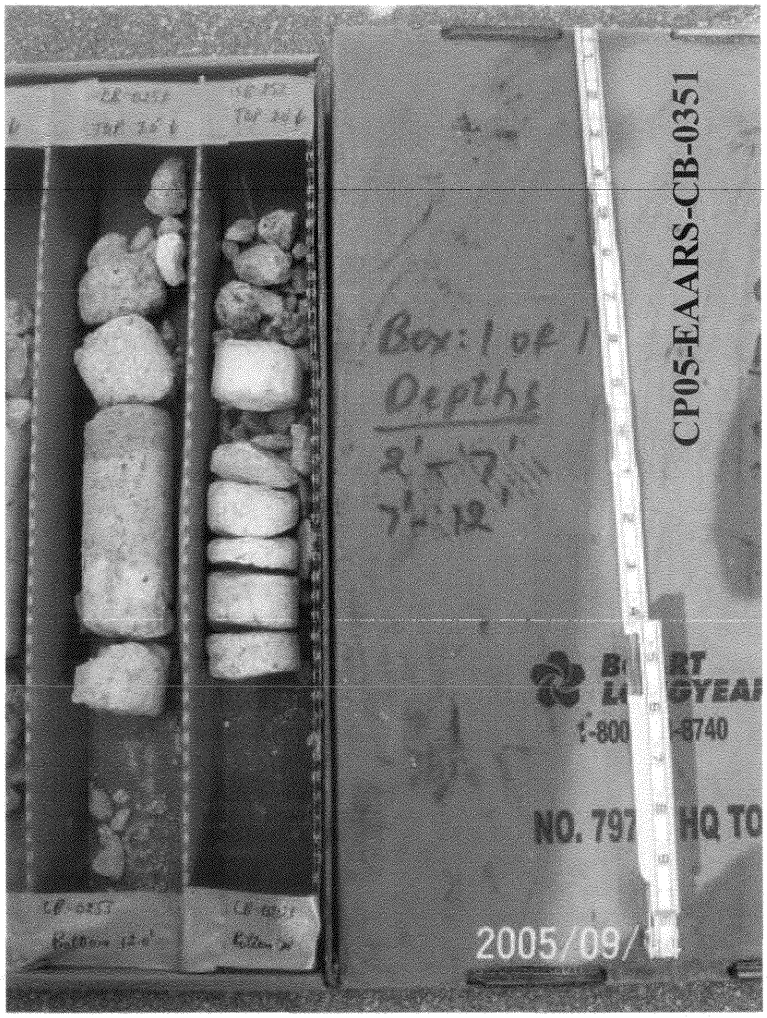
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0348	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	40.00	0



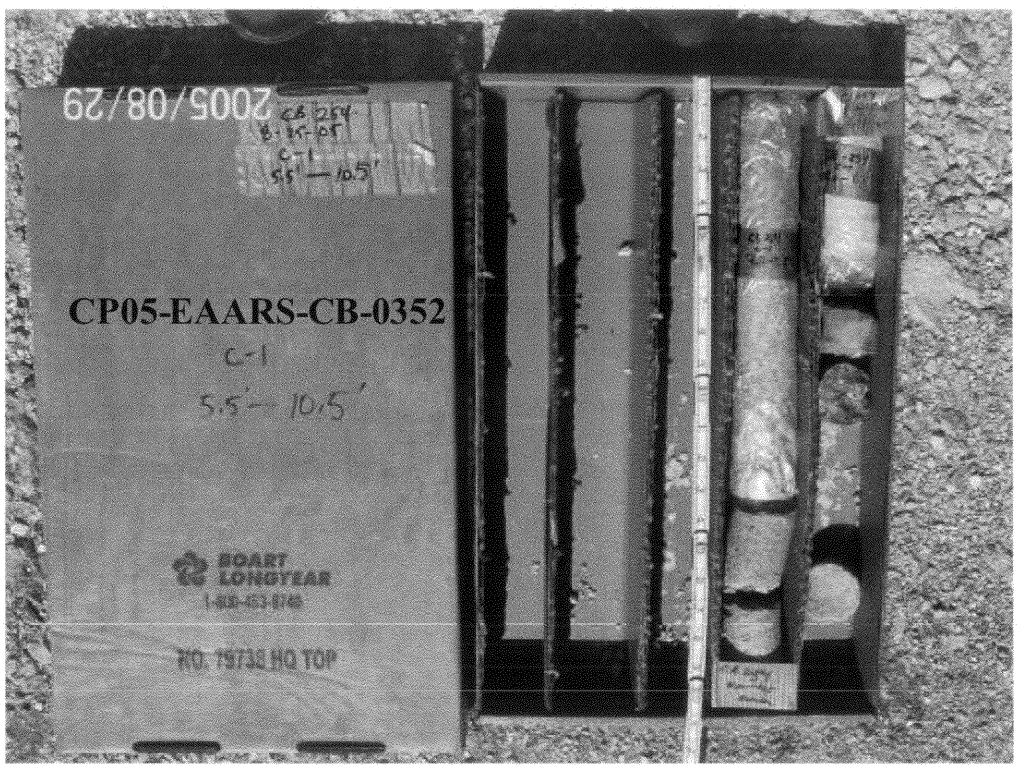
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0349	
Location	Central Farm Road	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	40.00	22.00



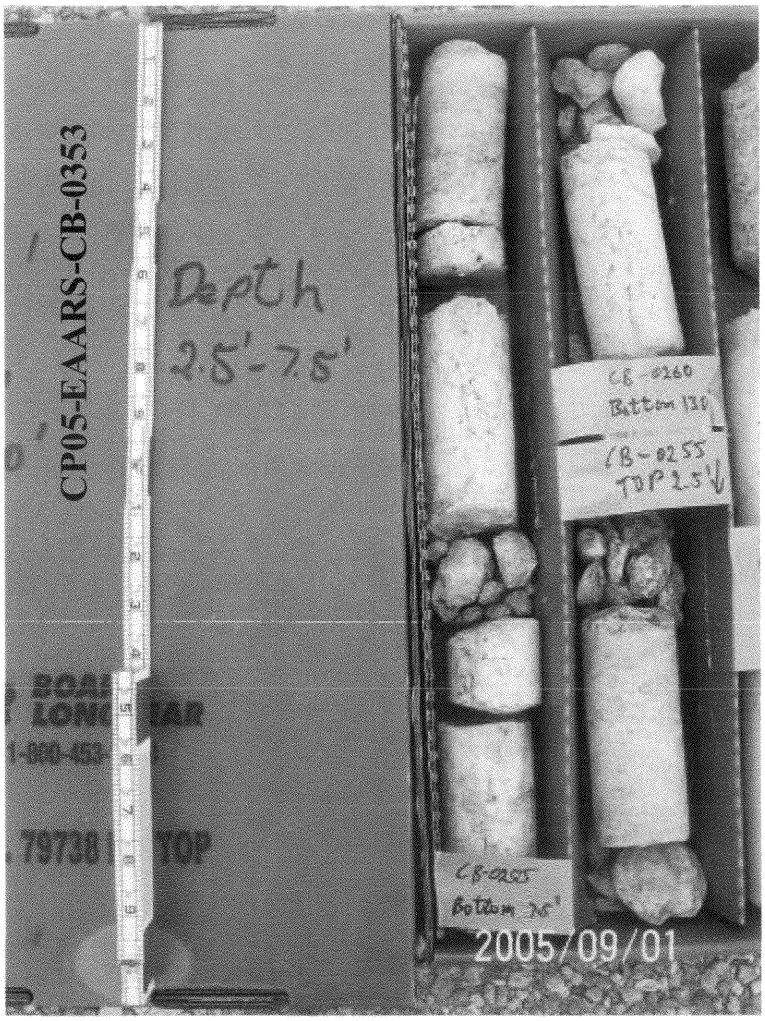
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0350	
Location	Central Area	
Depth (feet)	**Percentage Recovery**	**RQD**
2.50 to 7.50	34.00	12.00
7.50 to 12.50	8.00	8.00



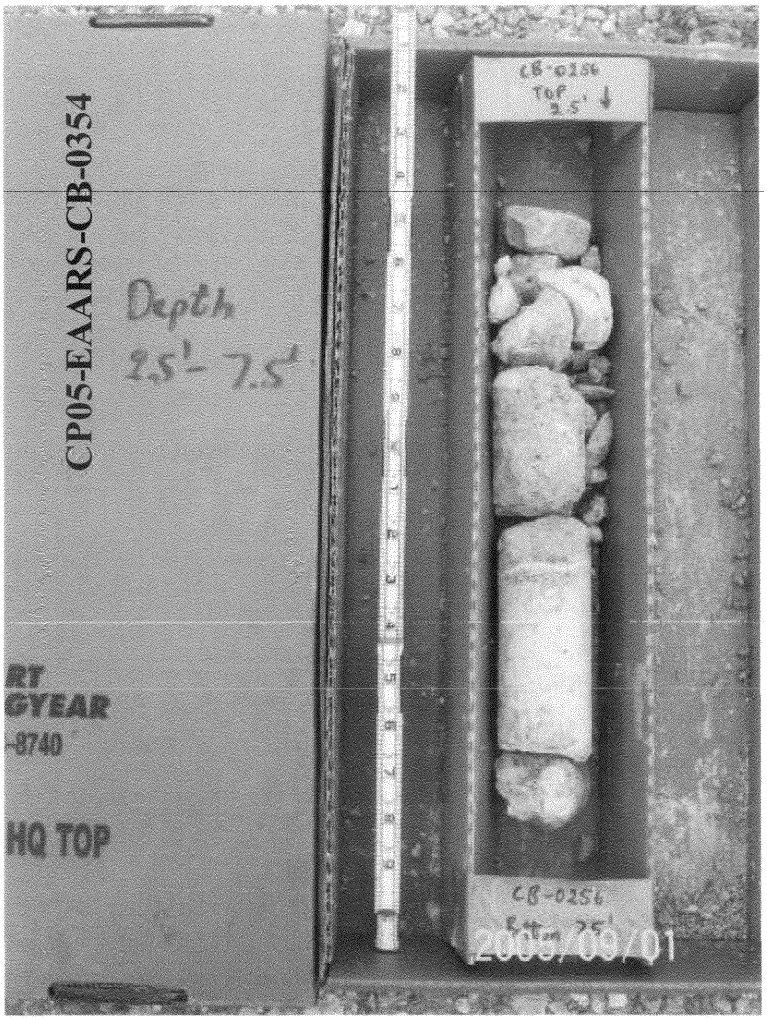
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0351	
Location	East-Central Area	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 7.00	20.00	0
7.00 to 12.00	22.00	8.00



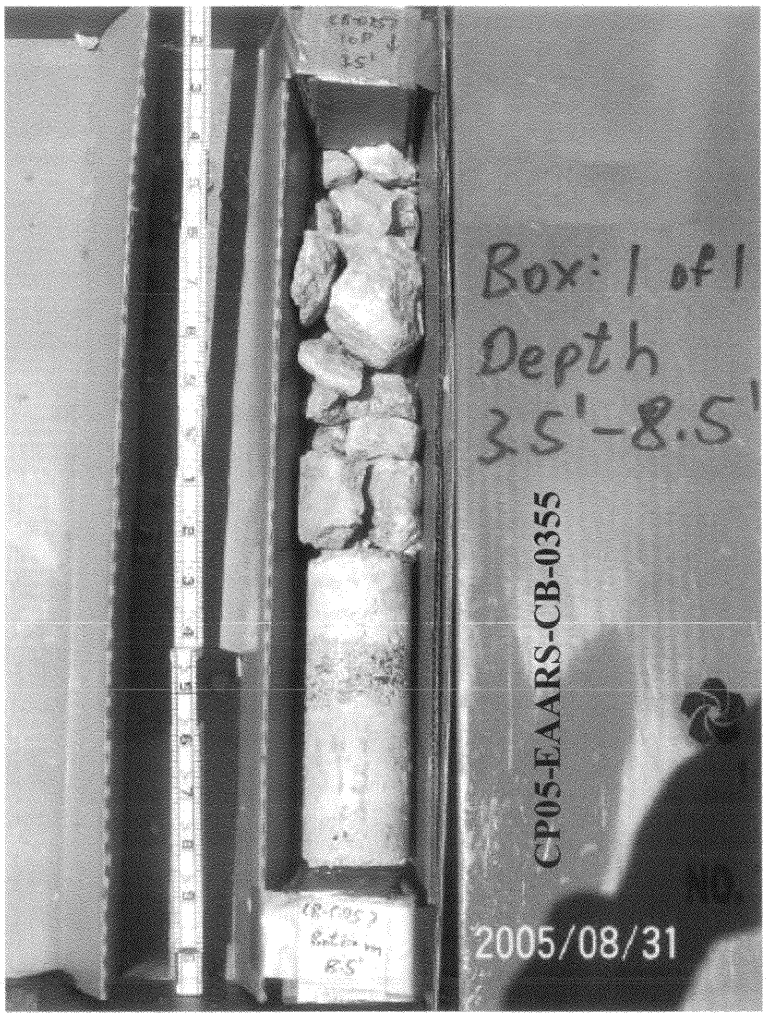
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0352	
Location	North-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
5.50 to 10.50	56.00	35.00



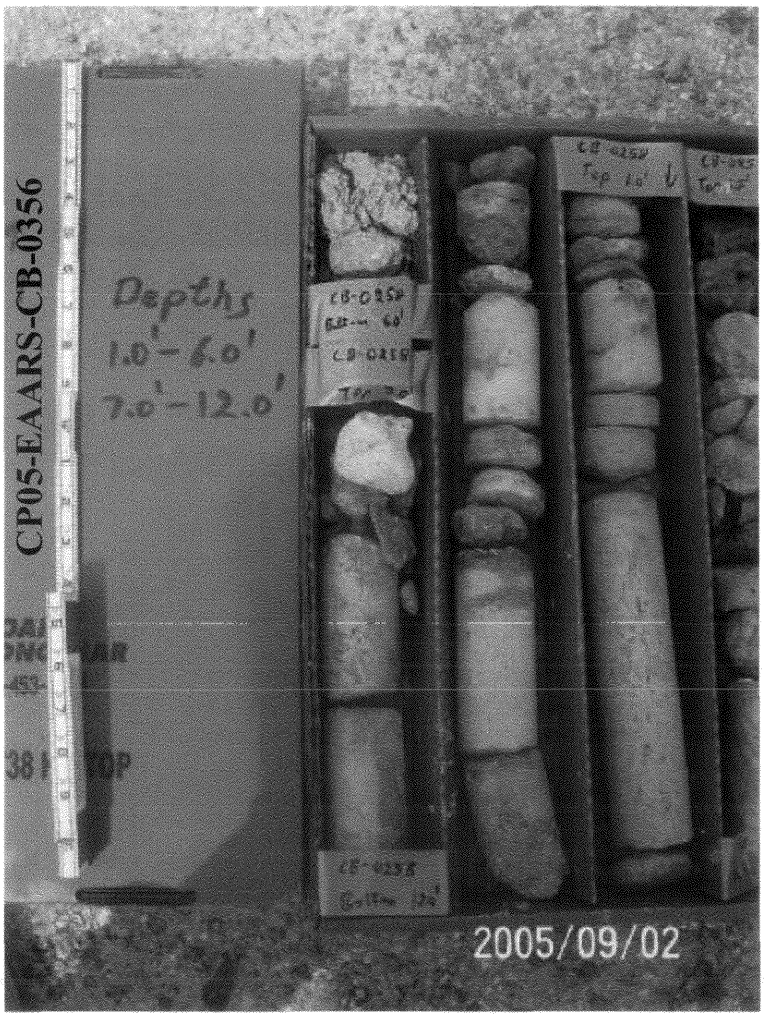
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0353	
Location	West Side	
Depth (feet)	Percentage Recovery	RQD
2.50 to 7.50	56.00	34.00



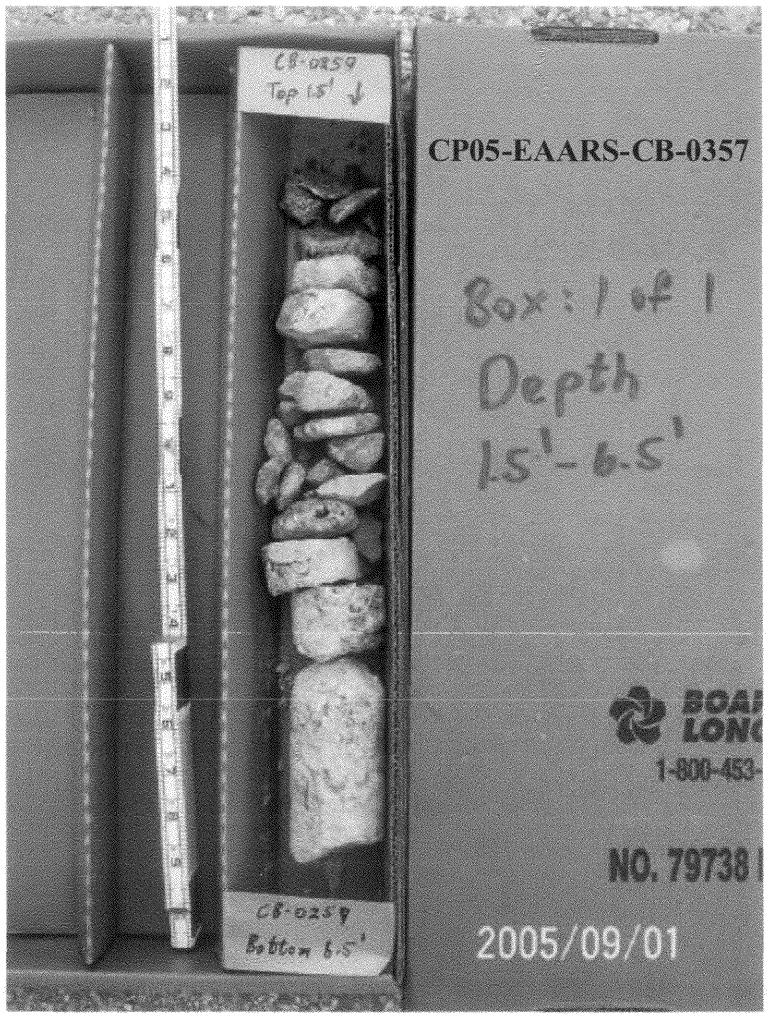
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0354	
Location	West-Central Area	
Depth (feet)	**Percentage Recovery**	**RQD**
2.50 to 7.50	30.00	10.00



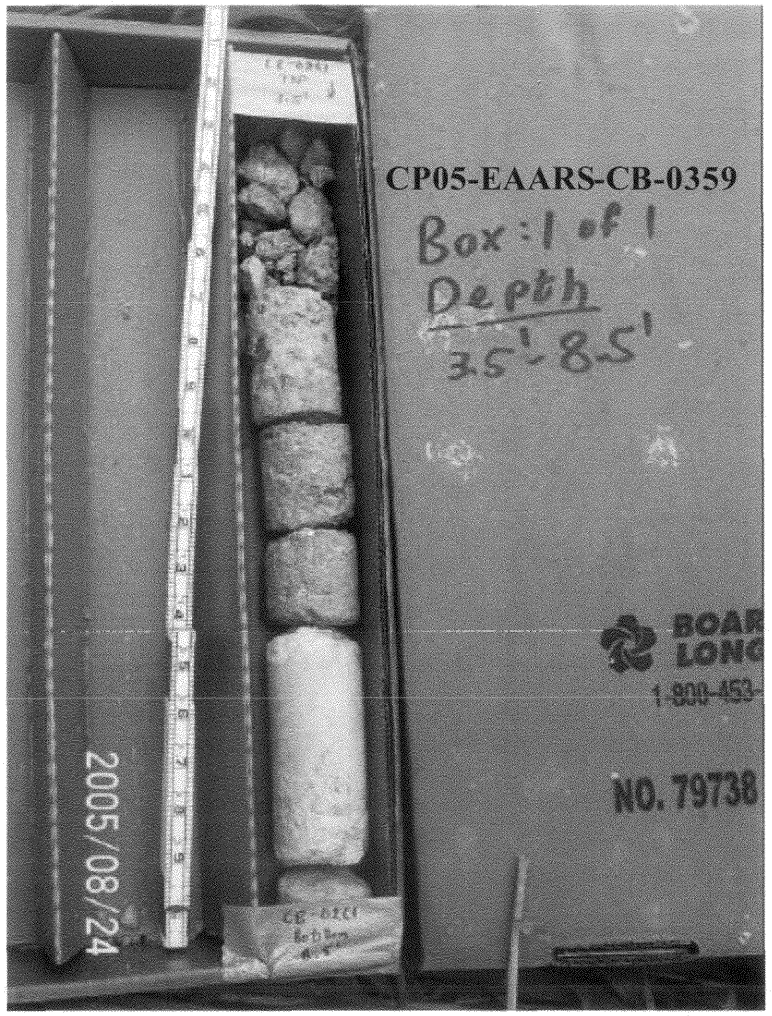
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0355	
Location	Central Region	
Depth (feet)	**Percentage Recovery**	**RQD**
3.50 to 8.50	32.00	12.00



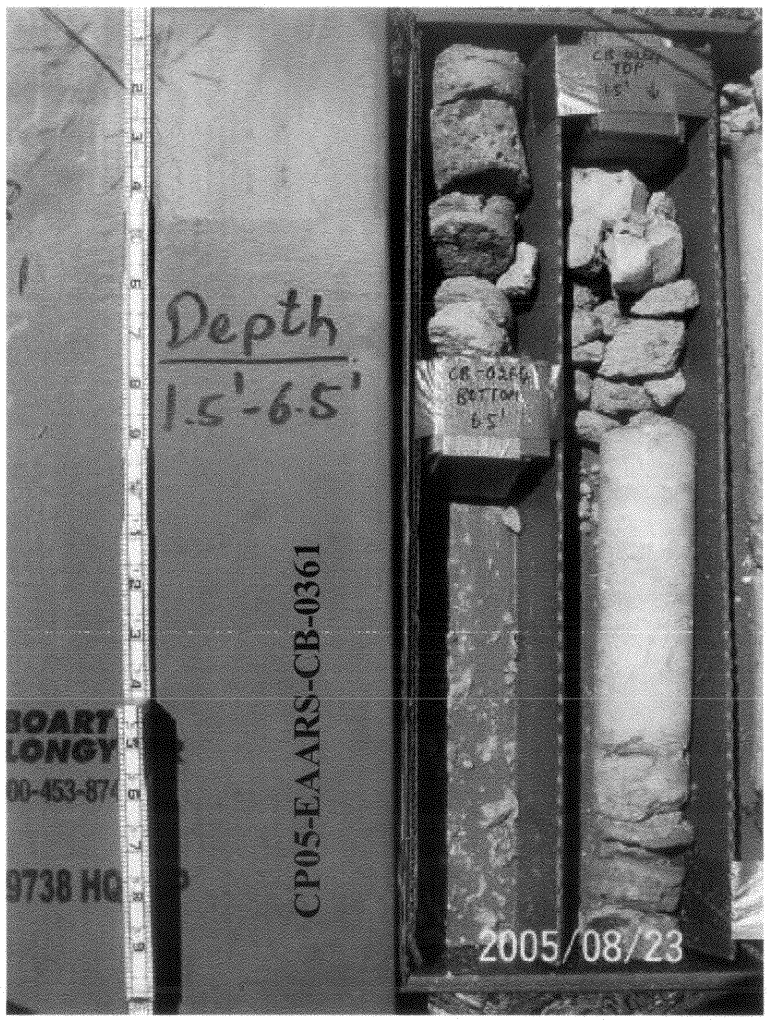
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0356	
Location	Central Region	
Depth (feet)	**Percentage Recovery**	**RQD**
1.00 to 6.00	94.00	42.00
7.00 to 12.00	30.00	15.00



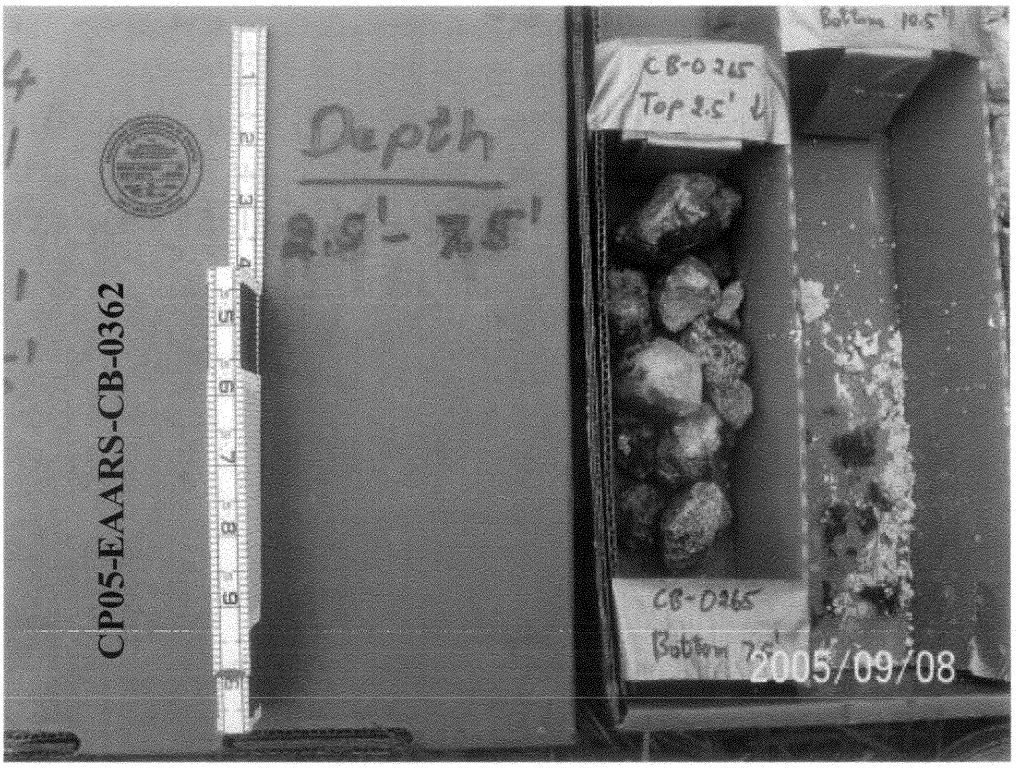
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0357	
Location	East-Central Region	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	35.00	8.00



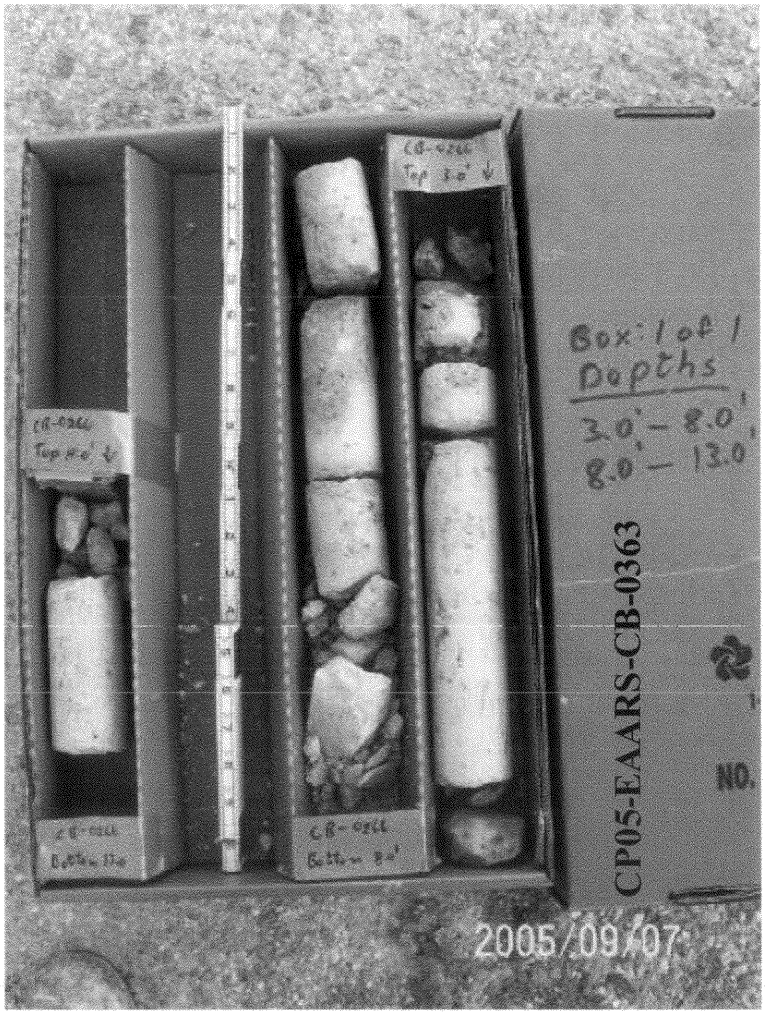
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0359	
Location	Central Region	
Depth (feet)	**Percentage Recovery**	**RQD**
3.50 to 8.50	36.00	10.00



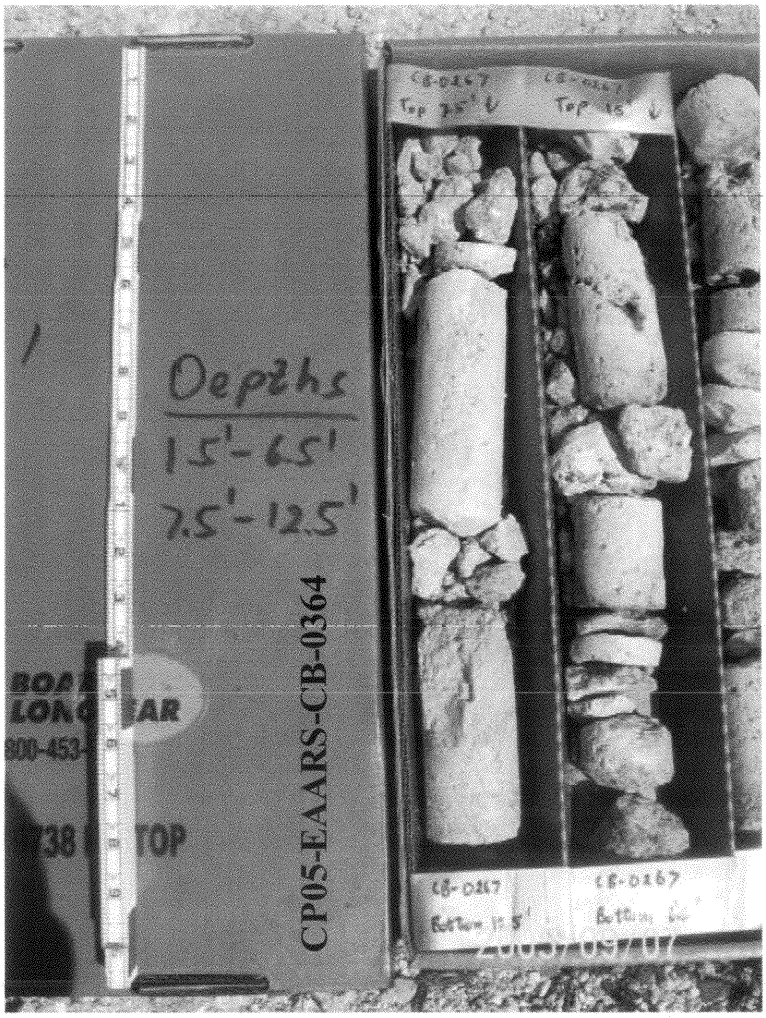
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0361	
Location	North Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	50.00	16.00



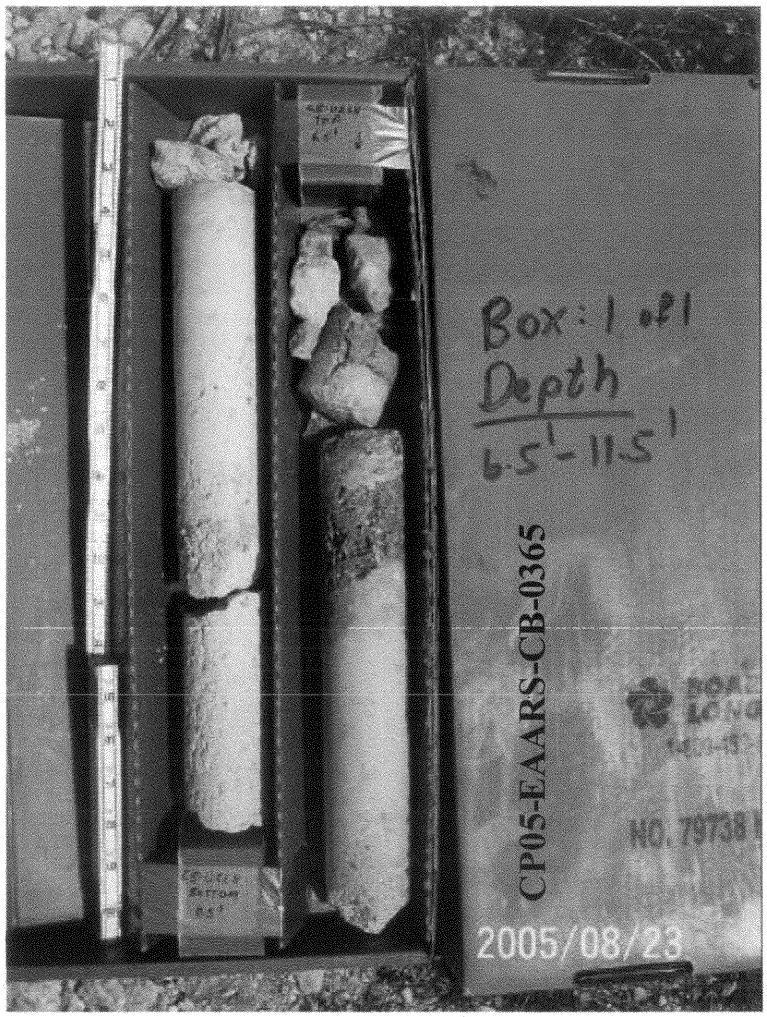
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0362	
Location	North Section	
Depth (feet)	**Percentage Recovery**	**RQD**
2.50 to 7.50	12.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0363	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
3.00 to 8.00	68.00	34.00
8.00 to 13.00	14.00	9.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0364	
Location	East Side	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	42.00	8.00
7.50 to 12.50	42.00	21.00



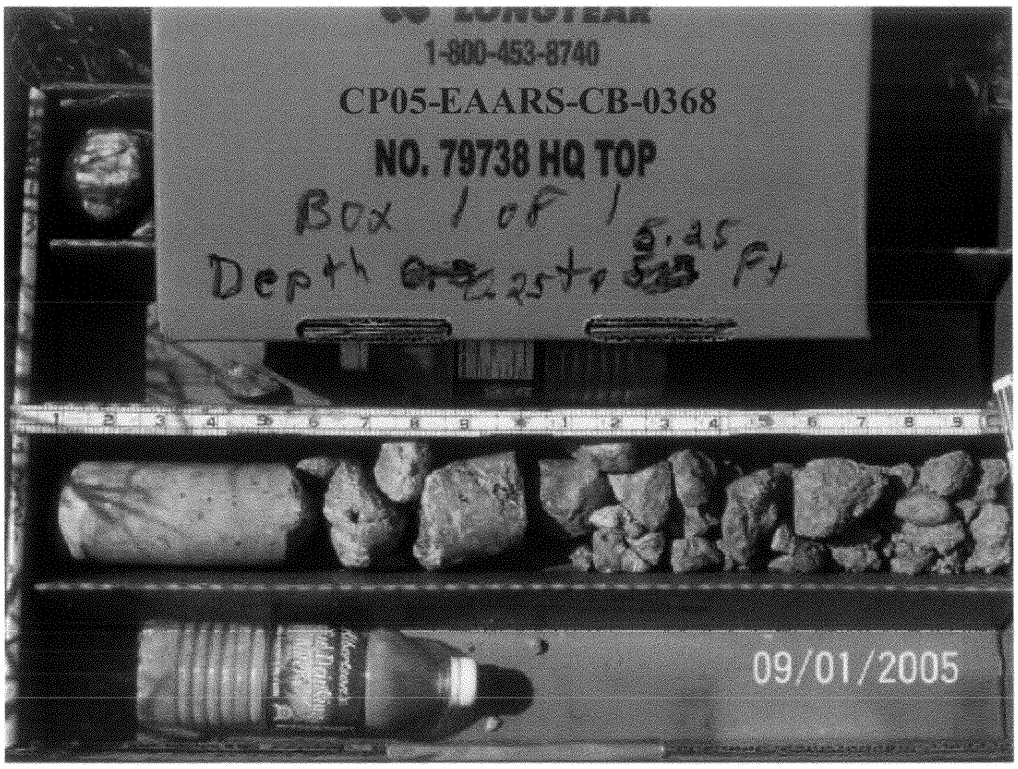
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0365	
Location	North-Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
6.50 to 11.50	68.00	50.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0366	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	52.00	26.00
9.00 to 14.00	10.00	9.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0367	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 7.00	22.00	7.00
7.00 to 12.00	22.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0368	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
0.25 to 5.25	36.00	10.00



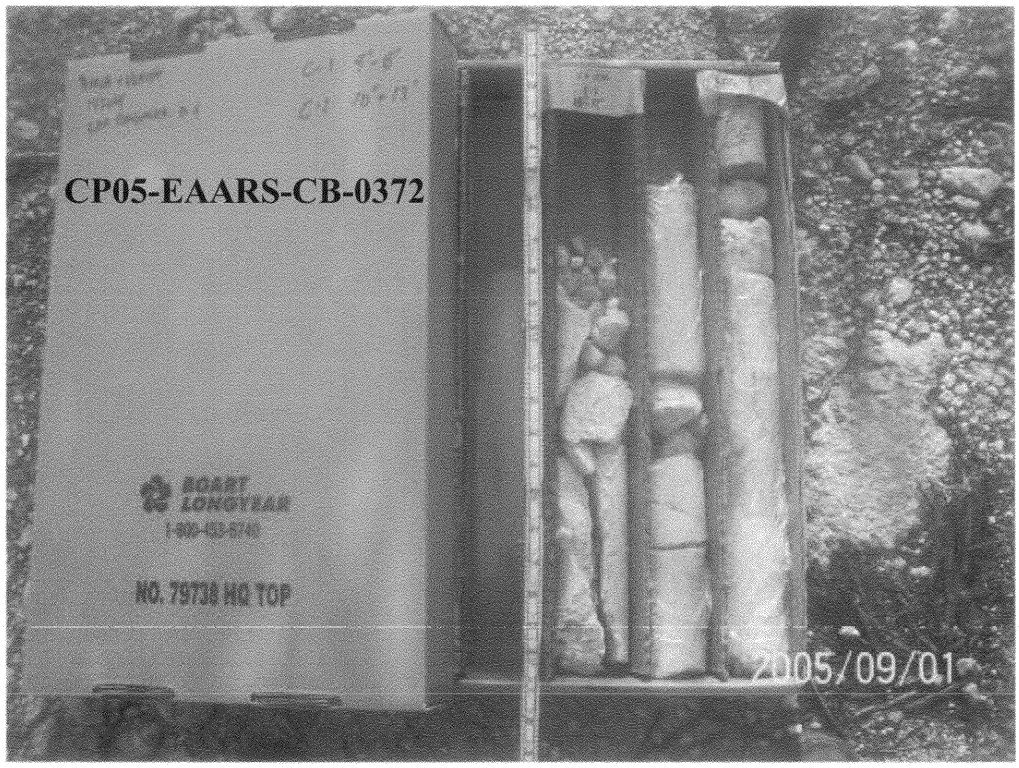
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0369	
Location	South-West Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
2.00 to 7.00	28.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0370	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
0.90 to 5.50	7.00	0
5.50 to 10.50	24.00	10.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0371	
Location	South-East Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	42.00	12.00



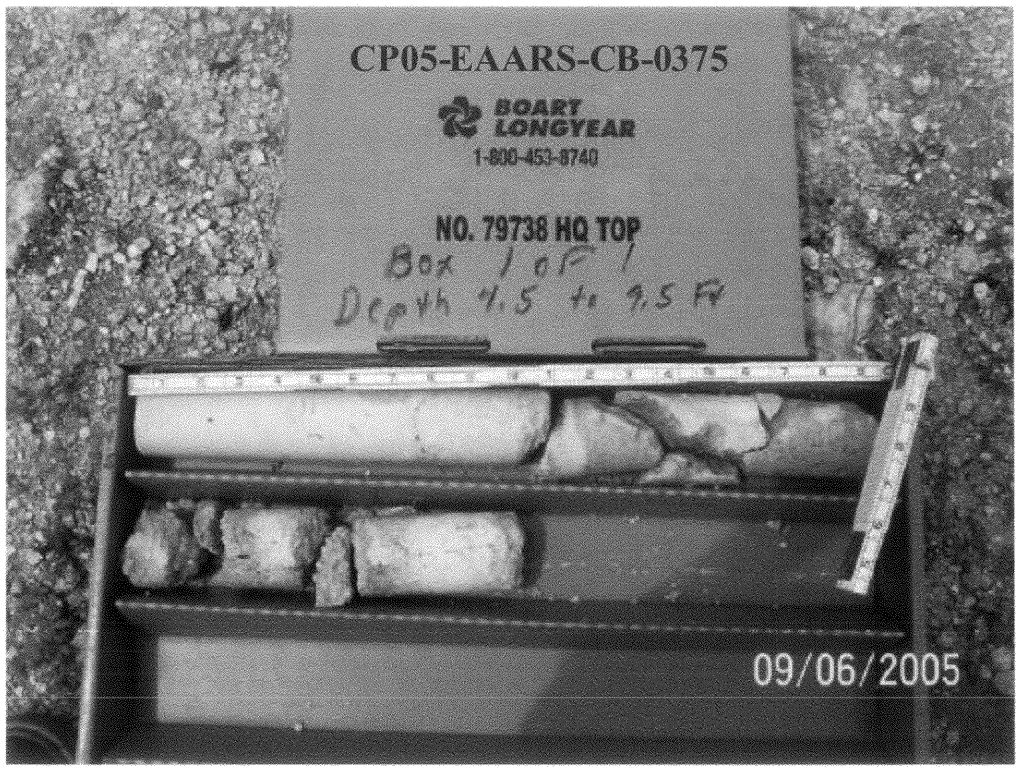
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0372	
Location	Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
4.00 to 9.00	65.00	45.00
10.00 to 14.00	20.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0373	
Location	Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 9.50	80.00	54.00
9.50 to 14.50	26.00	17.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0374	
Location	Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
5.50 to 10.50	53.00	26.00
10.50 to 15.50	10.00	0



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0375	
Location	West Section Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 9.50	58.00	28.00



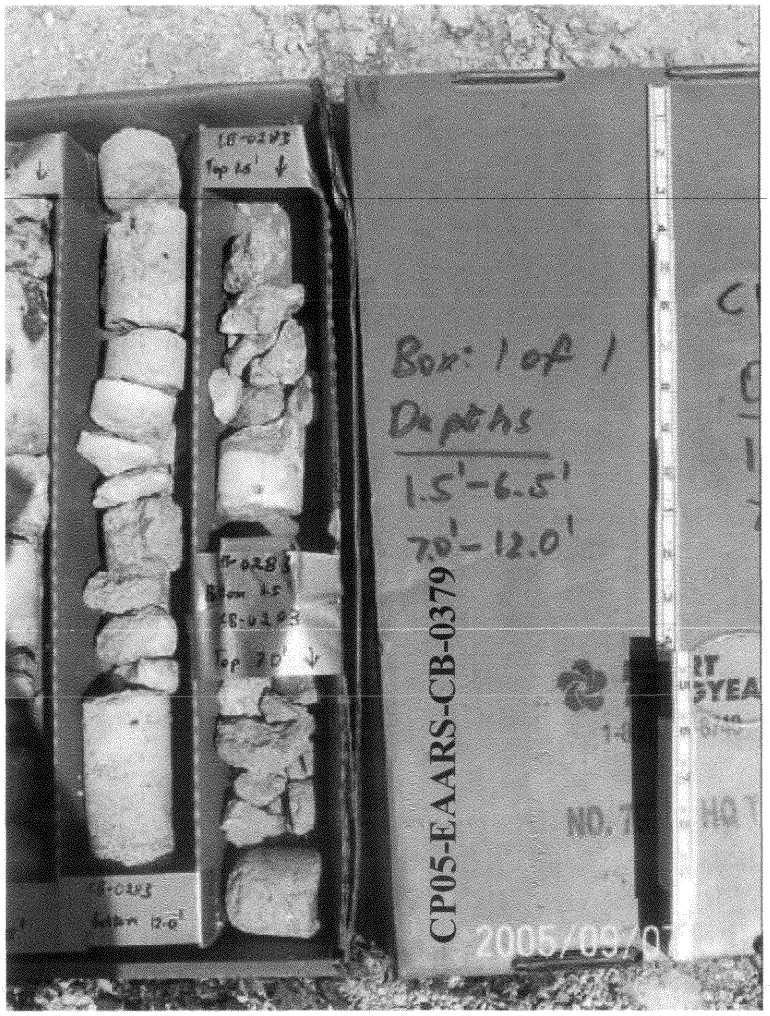
Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0376	
Location	West Section Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
4.50 to 9.50	73.00	73.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0377	
Location	Interior	
Depth (feet)	**Percentage Recovery**	**RQD**
5.50 to 10.50	60.00	40.00
10.50 to 15.50	40.00	20.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0378	
Location	West Central Section	
Depth (feet)	**Percentage Recovery**	**RQD**
6.00 to 11.00	64.00	35.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0379	
Location	East Central Section	
Depth (feet)	**Percentage Recovery**	**RQD**
1.50 to 6.50	16.00	0
7.00 to 12.00	54.00	8.00



Project	Everglades Agricultural Area	
Boring Number	CP05-EAARS-CB-0380	
Location	South Side	
Depth (feet)	**Percentage Recovery**	**RQD**
5.50 to 10.00	88.00	20.37
10.00 to 12.00	88.00	50.00