21
150

R

Ronald T Green RTG

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This notebook contains field notes from the Aug 1994 trip to Akrotiri, Greece	1-26
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8/26/94
RH

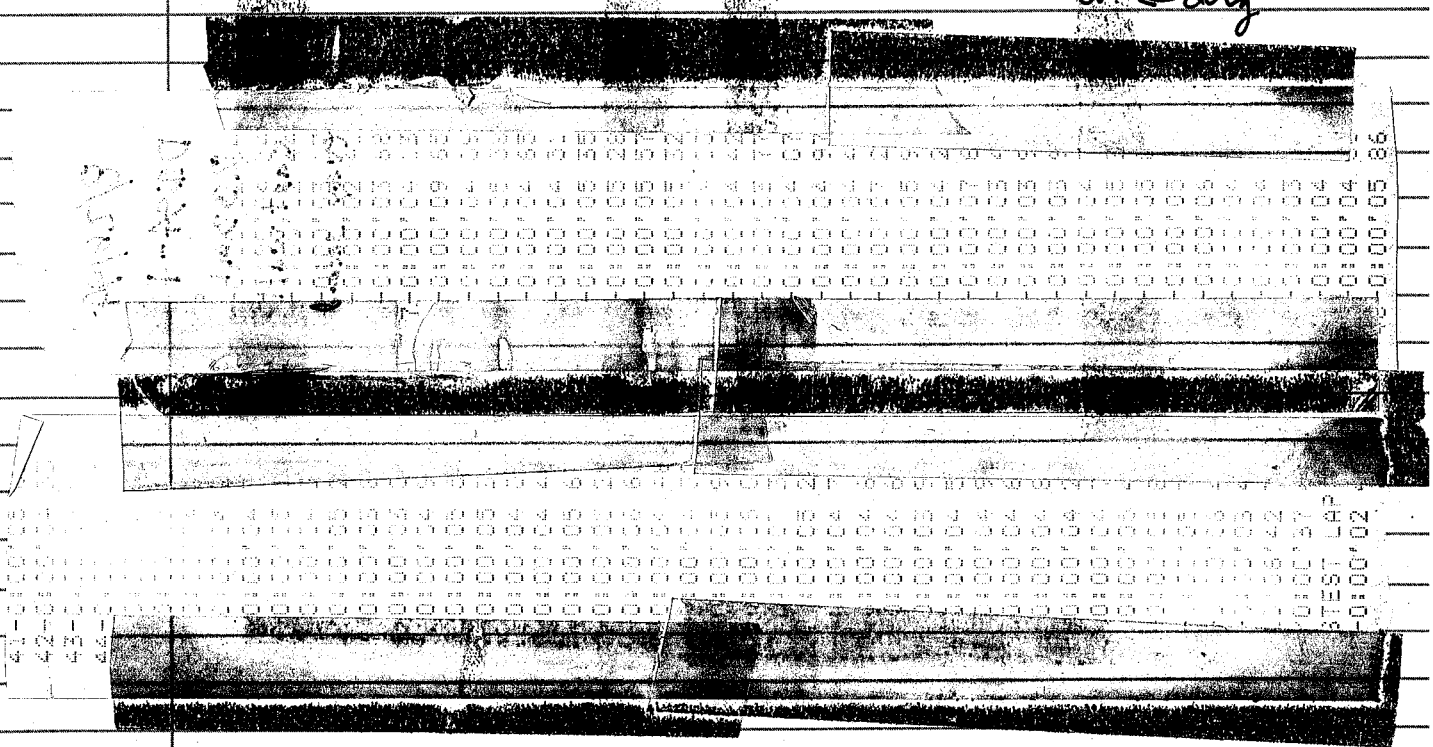
Permeability tests at Abrotini

The first set of permeability tests at Abrotini are to be infiltration (+ head) and disk permeameter tests of the flood deposits. A site was located that has 2-4 m thick sequence of the flood deposits. The location is about 40 m south of A3 at a relatively high location located within one of the existing, unexcavated buildings.

Media was too rocky to permit putting in a borehole thus will conduct only disk permeameter tests

Put first DI test (DI94-1) on bench at east wall there is some question about accuracy of timer made with timer/printer. Difficult to make accurate recordings

Collected soil samples for saturation measurement both inside infiltrated area and outside DA94-1 w ← wet
" d ← dry



DI94-2 is located at corner of Building
about 50 cm from edge of surface thus indicating
the subsurface is indeed the flood deposits
Suction was at 23~~3~~ ml (2.14 $^{8/26/94}$) readings every mm.
Difficult to record at mm, could have missed some.
Collected sample in infiltration ring and outside of
ring DI94-2w & DI94-2d

8/26/94
D[illegible]
[illegible]RT 5:23

-0:00'05 5
-0:00'02 [illegible]
-0:00'04 2
-0:00'04 6
-0:00'04 [illegible]
-0:00'06 2
-0:00'04 2
-0:00'03 5
9-0:00'03 [illegible]
0-0:00'03 7
1-0:00'04 [illegible]
2-0:00'04 8
3-0:00'03 4
4-0:00'02 9
5-0:00'03 1
16-0:00'02 8
17-0:00'05 6
18-0:00'04 6
19-0:00'04 0
20-0:00'03 5
21-0:00'03 7
22-0:00'04 7
23-0:00'05 1
24-0:00'03 6
25-0:00'04 5
26-0:00'03 97
27-0:00'05 32
28-0:00'04 64
29-0:00'05 28

32-0:00'04 58
33-0:00'04 84
34-0:00'04 78
-0:00'04 45
-0:00'04 11
-0:00'03 24
-0:00'03 95
-0:00'04 70
-0:00'04 58
-0:00'03 61
-0:00'03 78
-0:00'03 96
-0:00'04 11
5-0:00'04 67
6-0:00'03 81
7-0:00'03 79
8-0:00'03 65
9-0:00'04 24
0-0:00'04 75
1-0:00'04 42
2-0:00'04 97
3-0:00'05 40
54-0:00'03 68
55-0:00'03 94
56-0:00'03 65
57-0:00'03 42
58-0:00'05 02
59-0:00'04 98
60-0:00'04 59
61-0:00'04 28
62-0:00'03 20
63-0:00'04 05
64-0:00'03 97
65-0:00'06 34
SPL0:04'42 40
/S/0:00'27 09

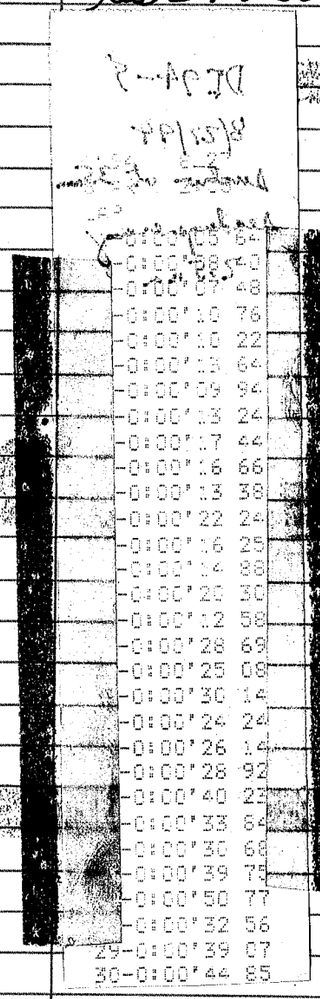
D DI94-3 set 0.4 m north of DI 94-2
Suction at ~~135~~ 136 mm (RA 8/27/94) readings every 5 mm, collected soil
samples for pre & post saturation measurements. Recorded w/
timer/printer

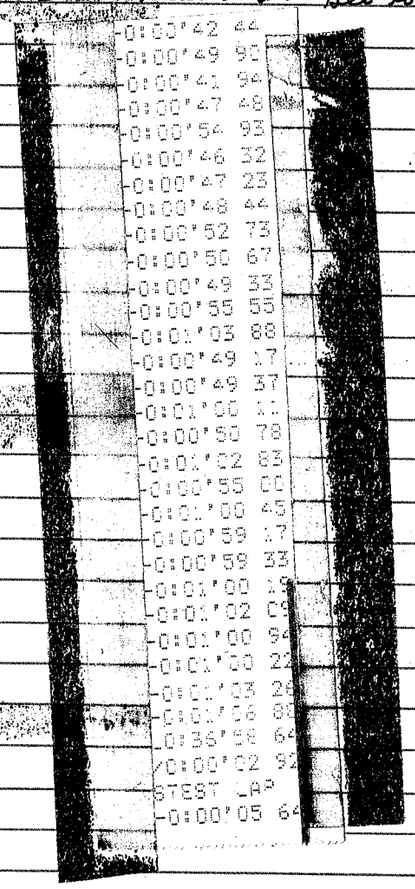
D94-4 set 0.4 m west of DI 94-3, suction
set at 65 ml, readings every 5 mm - collected
soil samples for saturation measurements D94-4 w & d
Recorded w/ timer/printer

8/27/94 RH

Checked out disk permeameter. There appears to have been a leak, the top stopper was not in place as it should have been. All previous DI data (e.g., DI94-1 thru 4) are suspect. Will repeat.

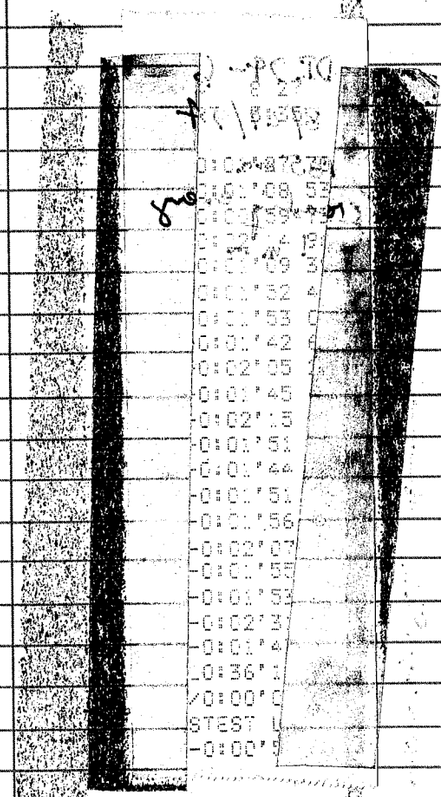
DI94-5 was conducted 040 m S of DI94-2. Suction set at [redacted], readings every 2.5 mm a total of 58 readings over 36:50 minutes. Reading of meniscus was much better than earlier tests. Collected pre & post soil samples DI94-5 w & d (wet & dry). Located in flood deposit. Total test 36:98 minutes. See location on pg 9





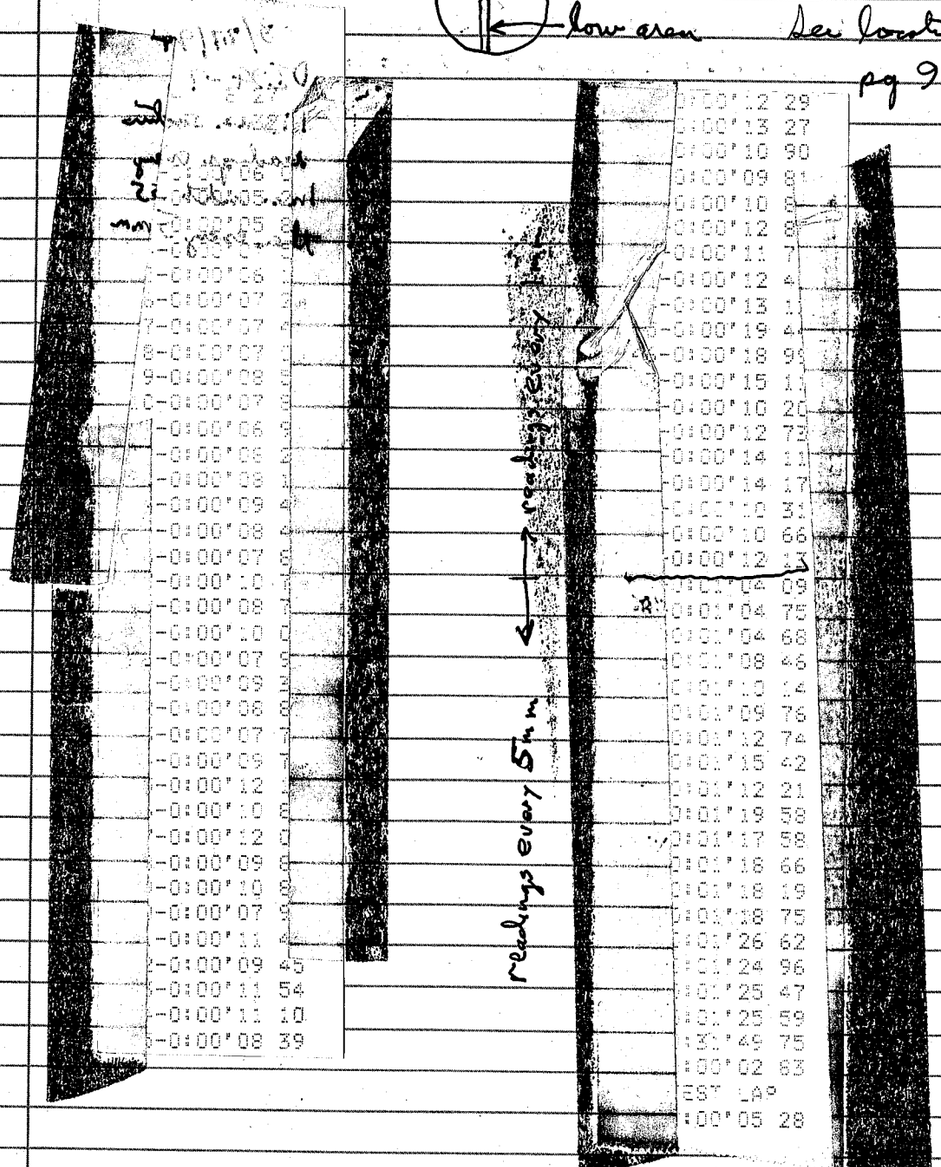
Base site preparation as for DI94-9 on pg 8
RH 8/29/94

DI94-6 located 2.0 m south of DI94-5. Started at 235 mm but couldn't get any flow, dropped suction to [redacted], took readings every 1 min. Collected pre- & post saturation samples of soil DI94-6 w & d. Pattern of wetting under disk indicated pretty good hydraulic contact with a small area (~ 1 inch square) that may not have been fully saturated. Located in flood deposit. Total test 36:11 minutes. See location on pg 9. *Base site preparation as for DI94-9 on pg 8. RH 8/29/94



DI 94-7 located 0.4 m east of DI 94-2, section at [illegible], readings every 1 mm until nearly 55 then every 5 mm. Pretty good contact but there was one strip about the size of a pencil going ~ 3/3 the way through the disk that looked to lie a little low & stayed a little dry. Pre- & post soil samples collected for saturation. DI 94-7 d & w
located in flood deposit Total test 31:49 minutes

← low area See location on pg 9



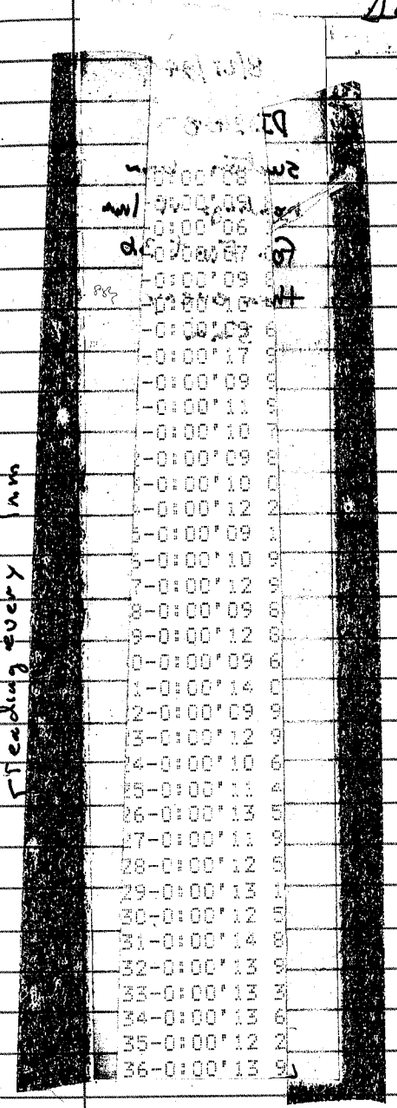
readings every 5mm ←

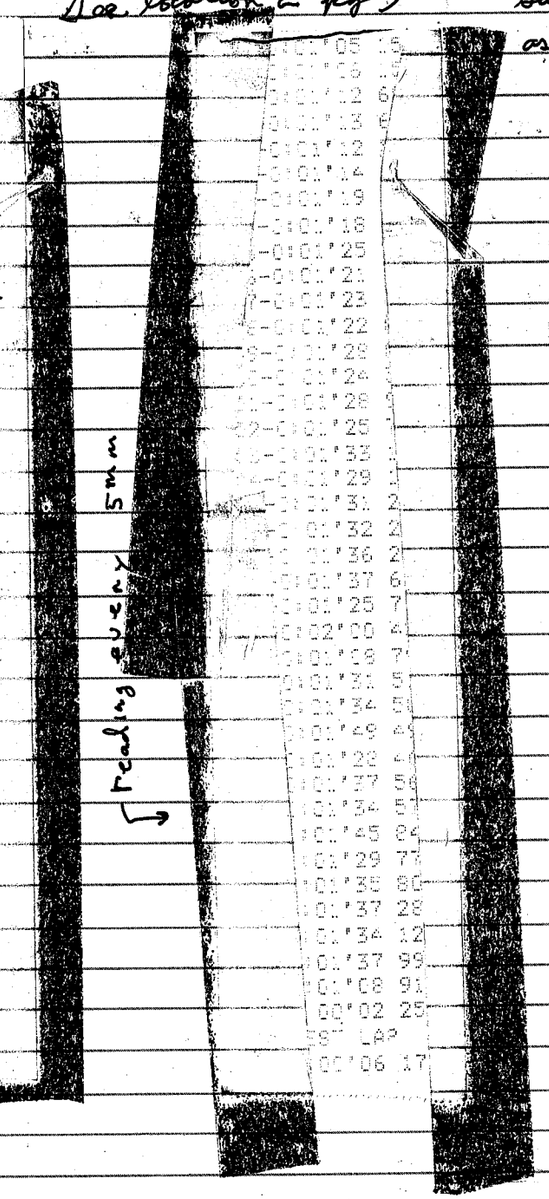
Base site preparation for DI 94-9 ~ pg 8
RH 8/28/94

DI 94-8 located 0.5 m east of DI 94-6 in flood deposit. Section set at [illegible], readings every 1 mm for first 36, then every 5 mm. Need to average readings 60 & 61, 60 was a little late, also average 64 & 65, 64 was a little late. Pre- & post soil sample for saturation ~ DI 94-8 d & w Total test 1 hr 1 minute

See location on pg 9

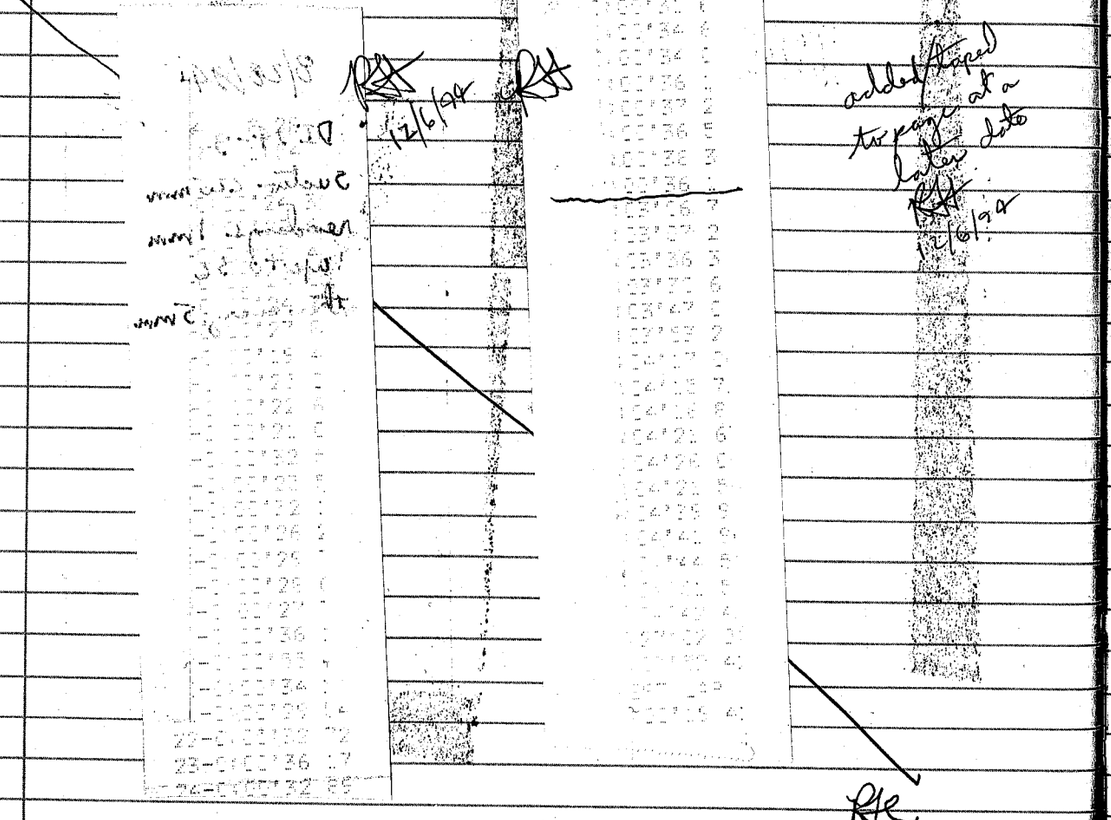
Same site preparation as for DI 94-9 ~ pg 8
RH 8/28/94

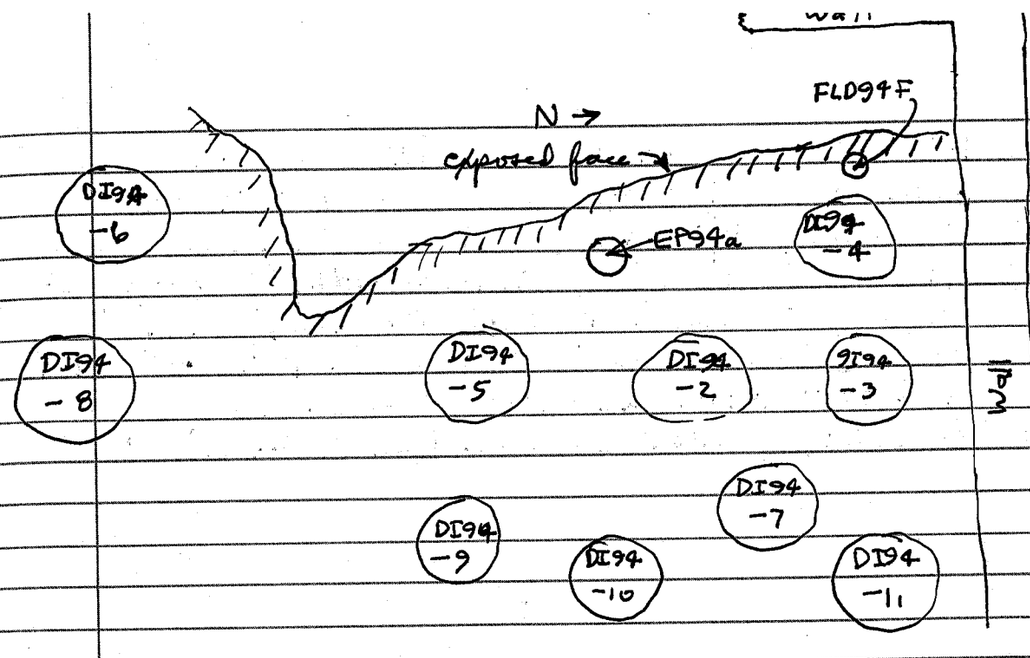




8/28/94 RH

DI94-9 located in flood deposits (see diagram pg 9) located 0.5 m east of DI94-5. Prepared base by scraping off surface to expose flood deposits with some of the cobble exposed. Removed largest cobble pieces & smoothed with edge of metal ruler. Sieved some of the removed flood deposit sediments (to remove all particles greater than 2mm) and smoothed thin layer from 8/28/94 RH to provide a smooth surface with adequate hydraulic contact. This is the same procedure used to prepare all the bases in the previous flood deposit permeameter tests. Suction at [redacted], readings every 1mm for 32 readings then every 5mm. Collected pre- & post-soil samples for measuring saturation DI94-9w & d. Total test = 1 hr 27 minutes. See location on pg 9





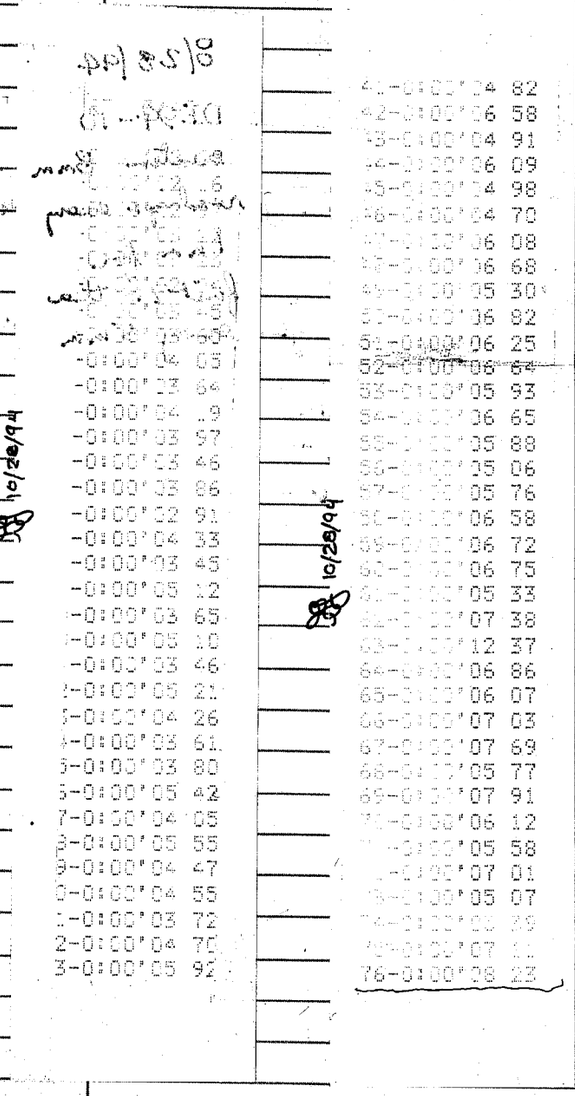
Locations of disk permeameter tests on flood deposits

Recorded gypsum blocks 8/28/94, zeroed meter to 100

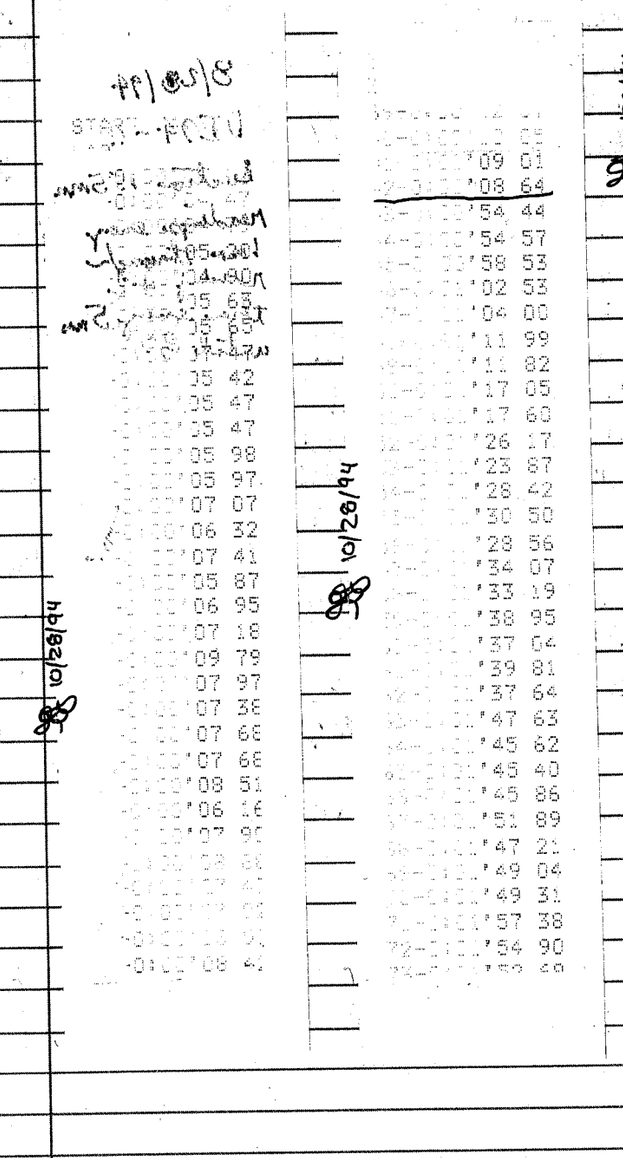
Δ3		23	14:12	GB94a
Δ3	red	27	14:10	GB94b
Δ3	green	00	14:10	GB94c

RH

DI94-10 · located in flood deposits about 0.4m north of DI94-9 and 0.4m southeast of DI94-7. Suction set at [illegible]. Readings every 1mm for first 76 readings then every 5mm until 104. Good apparent hydraulic connection. Collected pre & post soil samples for saturation measurement. DI94-10 w&d. Total test 28:42 minutes. See location on pg 9. Same site preparation as described for DI94-9 on pg 8



DI94-11 located in flood deposits, 0.3m northeast of DI94-11. Suction at [illegible], readings every 1mm through 42 then every 5mm until 83. Good apparent hydraulic connection. Collected pre- & post soil samples for saturation measurement. DI94-11 w&d. Total test 1 hr 12 minutes. See location on pg 7. Same site preparation as DI94-9 on pg 8



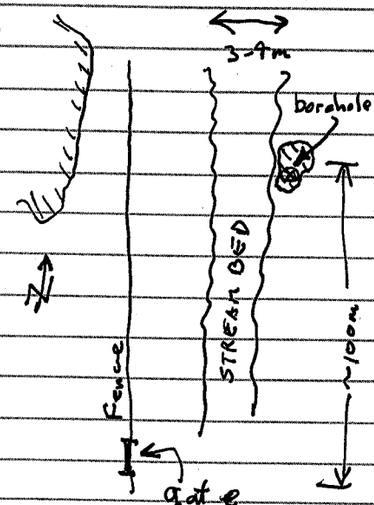
8/29/94
RH

I installed two gypsum blocks into bedrock (pre-Minoan) located at east side of creek that runs N-S to the east of the archeological site. The location is on horizontal surface on an outcrop that is about 2m by 1½m. The outcrop is about 100m north of the locked gate located in the fence along the eastern border of the site.

A 2" diameter hole was augered by hand into the rock (~2½ hrs) to a depth of 48cm. The rock cuttings were moist to the touch. A gypsum block was placed in the bottom of the hole. The hole was backfilled to 24cm. The cuttings were packed into the hole with the auger handle. The wire lead was marked with red tape. A second gypsum block was installed at a depth of 24cm and denoted with green tape. The wire of the shallow block is a little longer, outside of the borehole. These two gypsum blocks are labeled

GB94d - red, deep
GB94e - green; shallow

The blocks were read to be ØØ.



Block reading 8/29/94 at 11:00AM

GB94a	27
GB94b	31
GB94c	ØØ

12:30 PM Prepared epoxy soil samples in flood deposits (2) and the Minoan ash (1). Pressed empty tin cans into sediments after surface dust & debris was cleared away. Used epoxy kit that had been prepared by K. Meyer & J. James in San Antonio, TX. The epoxy kit was manufactured by Polycasics, Inc. Washington PA, 18976. Mixed 80 ml of ADC w/ 2.8 ml of D (the hardener) and gently stirred for 5 minutes. Poured one batch (~82.8 ml) into each can. The first can EK94a was located near site of flood deposit dish penetrator tests. Could only get can to penetrate surface to a depth of about ½ - ¾ inch. EK94b was put in flood deposits exposed along east wall. EK94c was in the Minoan ash near the location of the 1993 Minoan ash dish & infiltrometer tests. The second can in the flood deposits only penetrated ½ - ¾ inch but the tuff can was depressed about 1½ - 2 inches into the tuff. Epoxy was present covering the soils in all three cans, thus only one batch of epoxy was required per can. The epoxy is to set for 24 hrs to solidify.

RH

Collected sediment samples in core tubes. Put two 2" diameter cores in the Mirror Ash at same location as where the 1993 disk permeameter tests were conducted. FLD94a taken within 0.5 m of EP94c ~~FLD94b~~ was taken near the location of the gypsum block

Also took a 2" diameter core from bench along east wall in flood deposits. Had to drive it with a hammer many times. The sample may be somewhat disturbed but no alteration was identified. Had filled the ends after cylinder to keep rest of core intact. FLD94a

Collected two 1" diameter cores from flood deposits at bench along east wall. Same problem with disturbing sediments as with 2" diameter core FLD94b & c (no difference in location)

Collected two 1" diameter cores from flood deposits a location of disk permeameter flood deposit measurements. Same problem with disturbing sediments during pounding them into subsurface. Filled by hand the remaining portion of the cylinders then capped w/plastic end caps & taped. FLD94 d & e

RW

8/30/94 Collected 2" diameter core sample from west of DI94-4. This sample was fairly intact and could be good candidate for hydraulic testing FLD94F RW 5/11/95

Checked new gypsum blocks GB94d-red-deep-23 10:00AM GB94e-green-shallow-06

Shallow gypsum block near 03 is still spare, may have to re-seat it.

Epoxy is still wet, has not yet set up

8/31/94 Labeled and numbered gypsum blocks so that the Acoustic electrician can easily record the readings.

GB94a in 03 has been labeled number (1) and colored with a single band of white colored tape at location where the wire lead comes out of the ground and near the end of the leads.

GB94b in 03 (the deep gypsum block) was relabeled with two red stripes of tape. One set near the ground & the other at the end. Also number (2)

The shallow block never registered anything but ØØ so it was either not well connected with the subsurface or had a shot in the wire leads. It was dug out and replaced with a new gypsum block and labeled with a set of two green colored tape stripes at top and bottom and numbered (3) for the electrician. Same as GB94a

3 RH 8/31/98

Number ④ is the gypsum block for 1993 that is at the north end of the Minoan Phase 2 disk permeameter test area. It was labeled with a single orange colored tape stripe and numbered ④ at both ends.

Number ⑤ is the gypsum block for 1993 that is at the south end of the Minoan Phase 2 disk permeameter test area. It was labeled with a single yellow colored tape stripe and numbered ⑤ at both ends.

Number ⑥ is the gypsum block for 1993 that is located in the stream bed wall north of the site, in Minoan Arl. It was labeled with a set of two orange stripes and the number ⑤ at both ends of the lead wire. It measured 23 with the meter.

RH

~~Started~~ disk permeameter tests of Phase I deposits within building located about 20 m west of where 1993 Phase II deposits disk permeameter tests were conducted and 50m south of Δ3. These are the closest Phase I deposits to Δ3 that are available for testing.

DI94-12 about 4 m due south of pier structure at 154mm suction. Readings every 1 mm through 49 then every 5 mm for 50 - 79, then every 10 mm. The tape stuck momentarily at readings 83-85.

Note: no room left for DI94-12 data, put on pg 24 RH 12/6/94

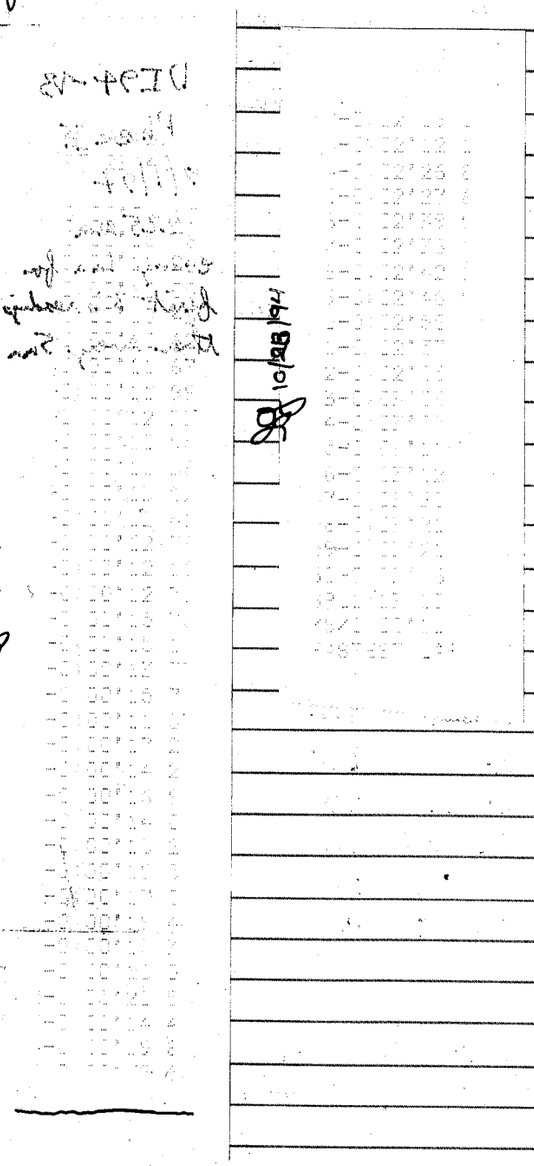
Prepared surface in method similar to flood deposit tests (pg 8).

Tape was running low: readings are:

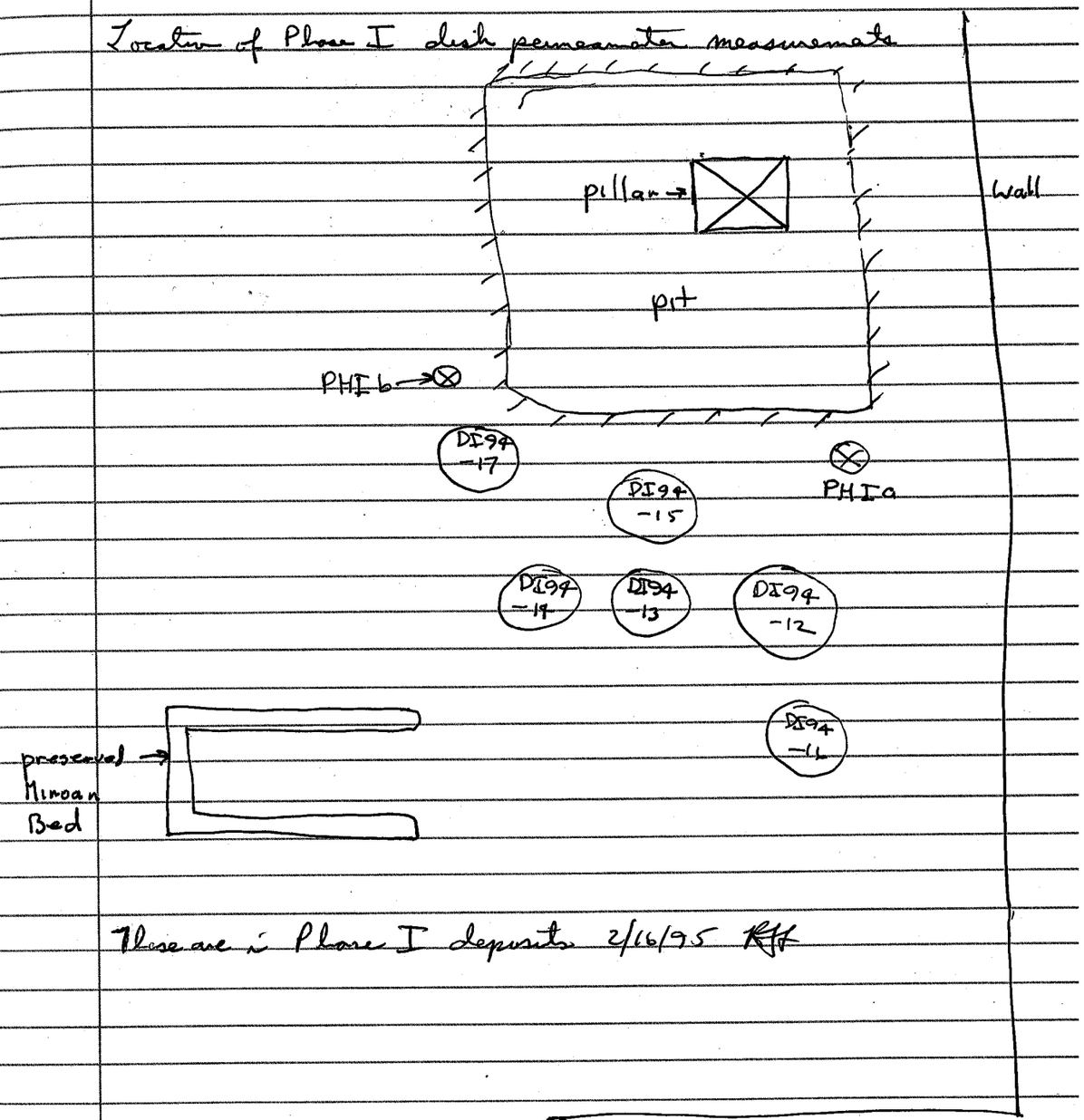
96	2' 25	52
97	2' 26	59
98	2' 28	47
99	2' 26	75
100	2' 29	44
101	2' 30	65
102	2' 29	03
103	2' 40	61
104	2' 31	18
105	2' 36	42

Collected pre- & post-test soil samples for saturation determination DI 94-12 w & d.

9/1/94 Continued disk permeameter test on Phase I deposits located 0.5m west of DI94-12. Prepared surface in same fashion as on pg 8. Suction at 225 mm. Readings every ~~5~~ 9/1/94 1mm for first 36 readings. Then every 5mm. This is DI 94-13. Hand hydraulic connector. Pre- and post soil samples for saturation measurement DI94-13 w & d

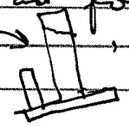


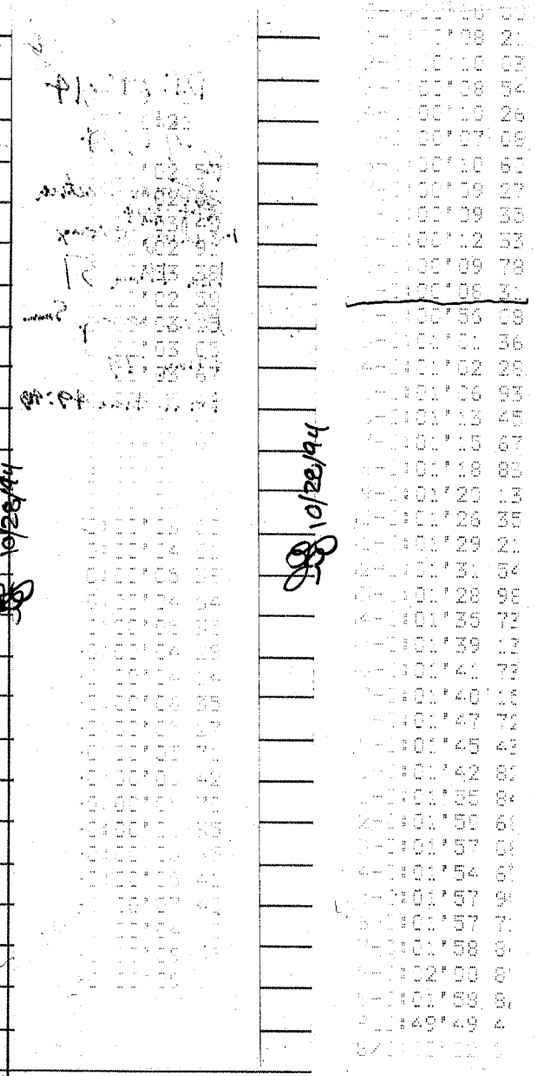
Location of Phase I disk permeameter measurements



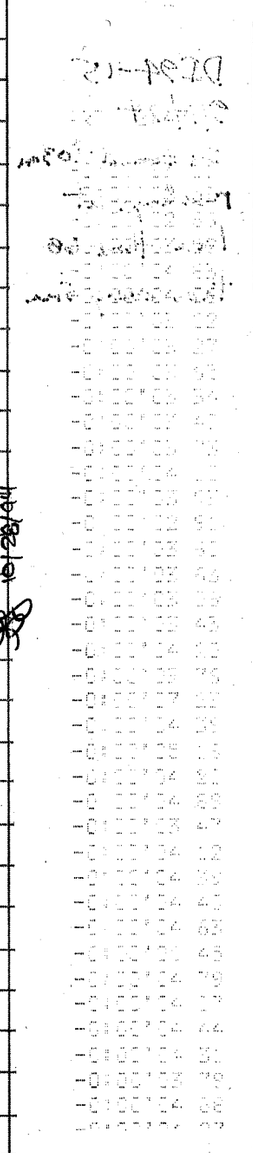
These are in Phase I deposits 2/16/95 RFF

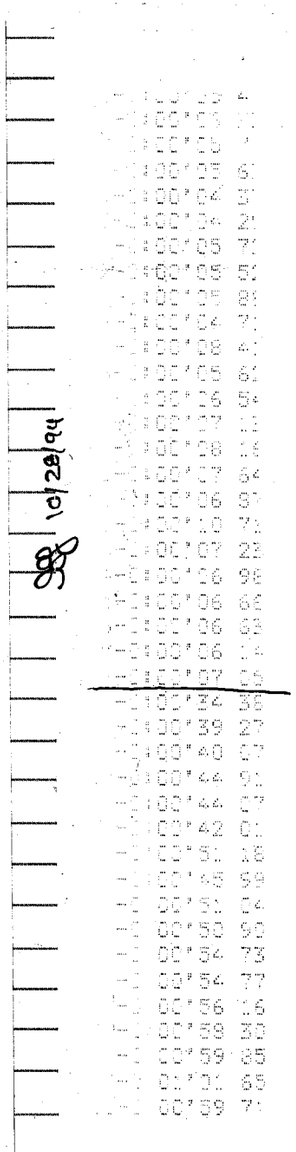
DI94-14 located in Plane I 0.7m west of DI94-13, suction at ~~2.6mm~~ 2.4mm. Prepared surface in same way as on pg 8. Readings every 1mm for first 51 readings then every 5mm. Total time 49:49. Suction was checked and found to be [illegible]. Tube slightly tilted →, less than 10°



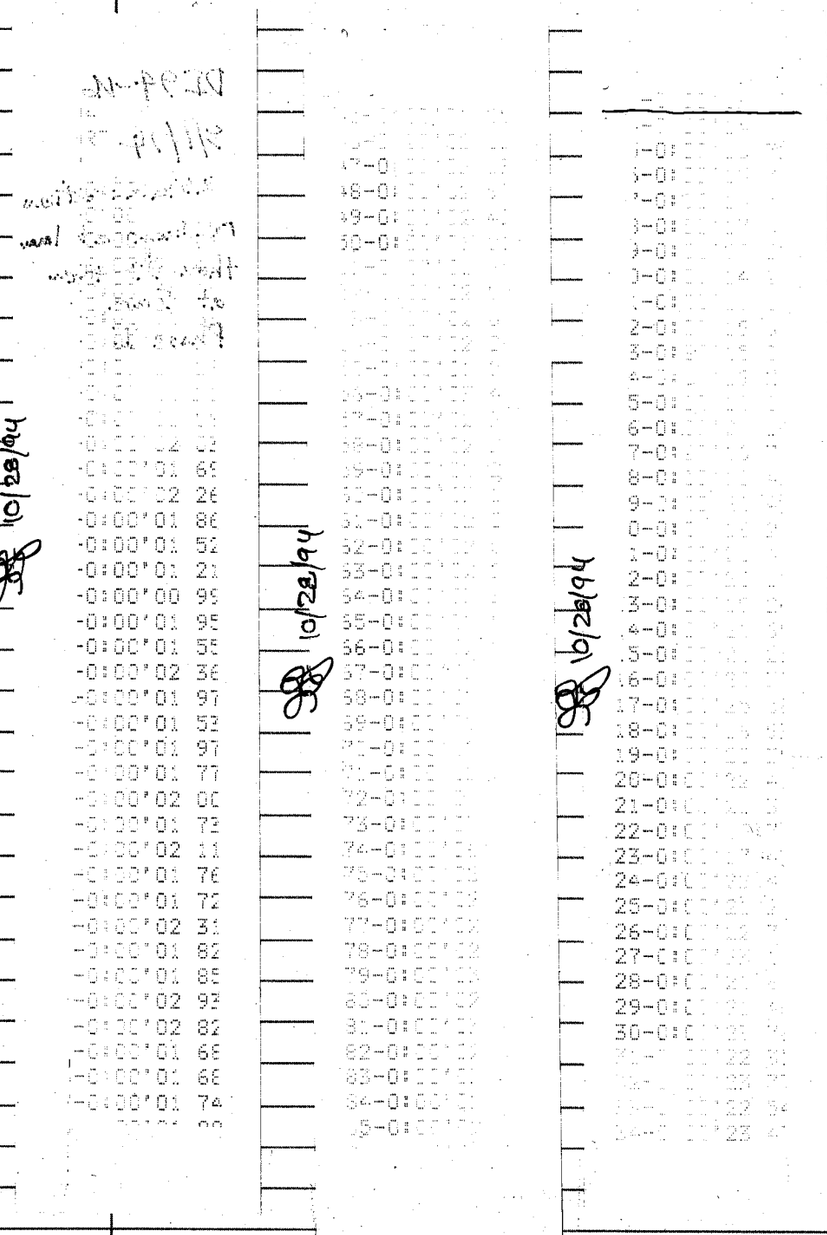


DI94-15 located 0.5m north of DI94-13 in Phase I. Suction at [illegible]. Used hydraulic conductivity between plate & surface. Same surface preparation as on pg 8. Collected pre- & post soil samples for saturation DI94-15w & d

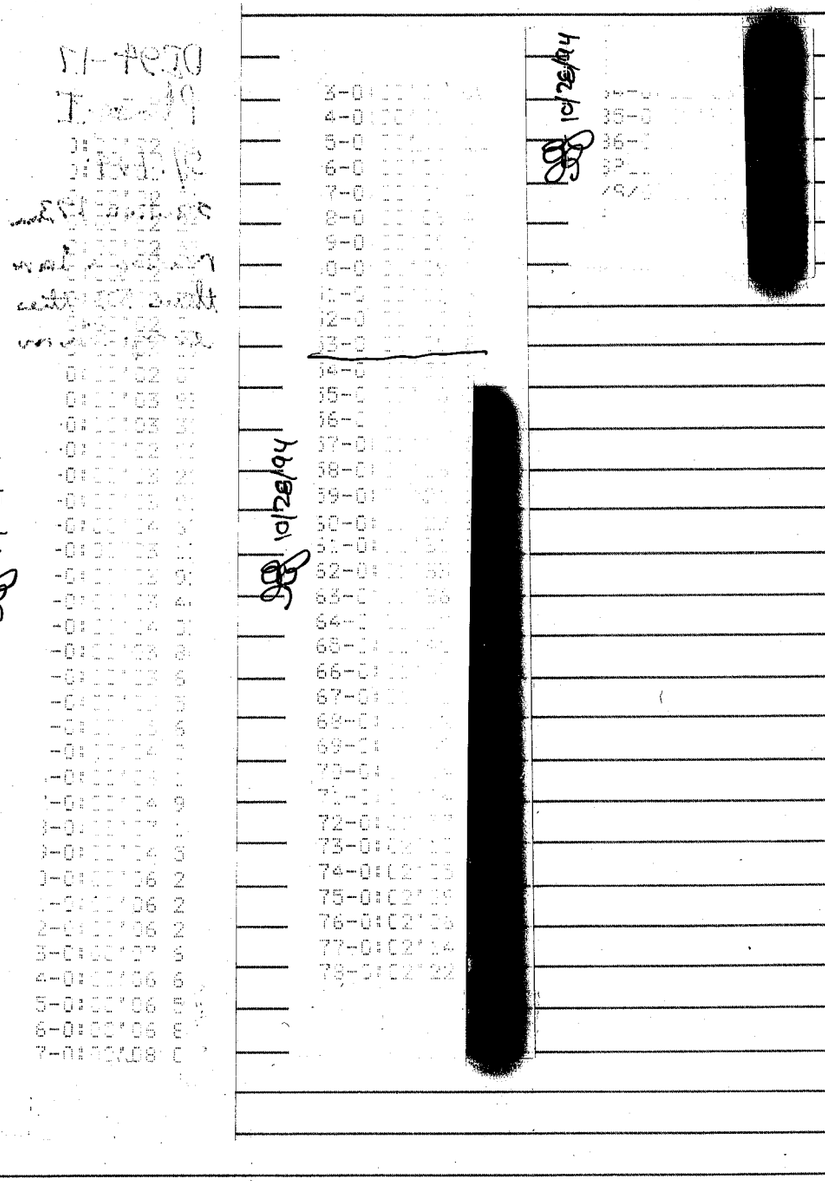




DI94-16 located 0.5 m south of DI94-12. Good Hydraulic connection. Prepared surface same as pg 8 - Suction [redacted], readings at 1mm then 93 then at 5mm. Pre & post test soil sample for checking saturation DI94-16 w & d



DI94-17 located 0.7 m west of DI94-15; Phase I. Suction at [redacted]. Readings every 1mm then 53 then every 5mm. Good hydraulic connection. Prepared surface as in pg 8. Column straight up. Pre- and post soil sample collected for saturation measurement DI94-17 w & d



Collected two 2" diameter soil samples of PHase I, sealed & taped PHI a & PHI b located on map pg 19

These data are for DI 94-12 (pg 17, where there was no room) RH 12/6/94

12/6/94 RH

```
   8:30
RT  4:22
0:00'03
0:00'04
0:00'06
0:00'06
0:00'02
0:00'03
0:00'02
0:00'02
0:00'02
0:00'02
0:00'03
0:00'02
0:00'02
0:00'02
0:00'02
0:00'03
0:00'03
0:00'03
0:00'03
20-0:00'03
21-0:00'04
22-0:00'02
23-0:00'03
24-0:00'03
25-0:00'03
-0:00'04
-0:00'05
-0:00'03
-0:00'04
-0:00'04
-0:00'06
-0:00'05
-0:00'04
-0:00'04
-0:00'03
-0:00'02
-0:00'05
-0:00'04
0:00'05
0:00'04
0:00'04
0:00'05
0:00'05
0:00'05
0:00'05
46-0:00'0
```

12/6/94 RH

```
47-0:00'00 62
-0:       25
-0:
-0:  '7
-0:  '18
-0:00'29
-0:00'30
-0:00'30
-0:00'32 4
-0:00'32 55
-0:00'34 74
-0:00'34 86
-0:00'36 26
-0:00'37 24
-0:00'38 46
-0:00'39 89
-0:00'39 80
-0:00'42 28
-0:00'44 30
-0:00'42 67
-0:00'45 21
-0:00'44 17
-0:00'46 23
-0:00'47 07
-0:00'50 23
0:00'47 33
0:00'50 13
0:00'51 98
0:00'48 95
0:00'53 67
0:00'54
0:00'52
0:00'56
0:01'47
0:01'53
-0:01'54
-0:01'58
-0:02'03
-0:02'07
-0:02'06
-0:02'06
-0:02'13
-0:02'14
-0:02'12
-0:02'16
-0:02'17
-0:02'18
-0:02'23
-0:02'26
```

12/6/94 RH

```
4-  02'31 18
5-  02'36 42
PL  23'08 20
S/  0'20 68
AST LST LAP
0-  0'02 14
```


3:50 Gypsum blocks at east creek. Red is deep is numbered 7, green is shallow is 8

7 - 29

8 - 22

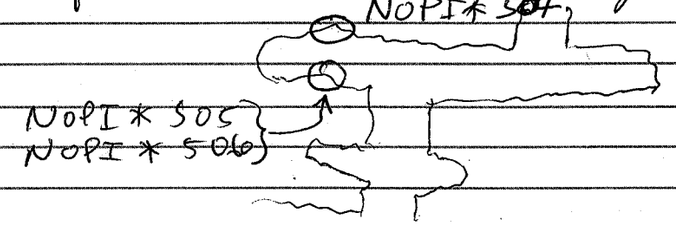
RH 12/6/94

2/15/95 The disc infiltrometer data are on sneezy
RH home/sneezy/kgreen/analog/thiwa/disc-94

RH 2/15/95

8/29/95 Collected rock samples at Nopal I, Peña
RH Blanca, Mexico.

Sample NOPI*504 Sample of semi broken fracture in-fill from major E-W fracture referred to as the 13-meter fracture. Sample was collected from adit wall. North side of wall in the adit arm going west



Sample consists of hematite and other crumbly materials.

Samples NOPI*505 and NOPI*506 were both collected from the adit on the +0 level 3 meters from adit intersection along south face of adit wall. The two samples are located within 0.5 feet of each other are taken from the 13 meter fracture zone. The surfaces of the rock samples have fracture minerals on them

Sample NOPI*507 was collected at surface of +10 level in a depression associated with the low angle fractures. It was solid & had to be dislodged. It was located at 11/30 31 according to local mining system. There RH 8/29/95 was no obvious mineralization on fracture surfaces.

ECP 1/14/97

I have reviewed this notebook and find it generally in compliance with QAP-001. There is sufficient information for a qualified person to repeat the activities.

E.C. Perry
1/14/97

This project has ended.

E.C. Perry
1/14/97