

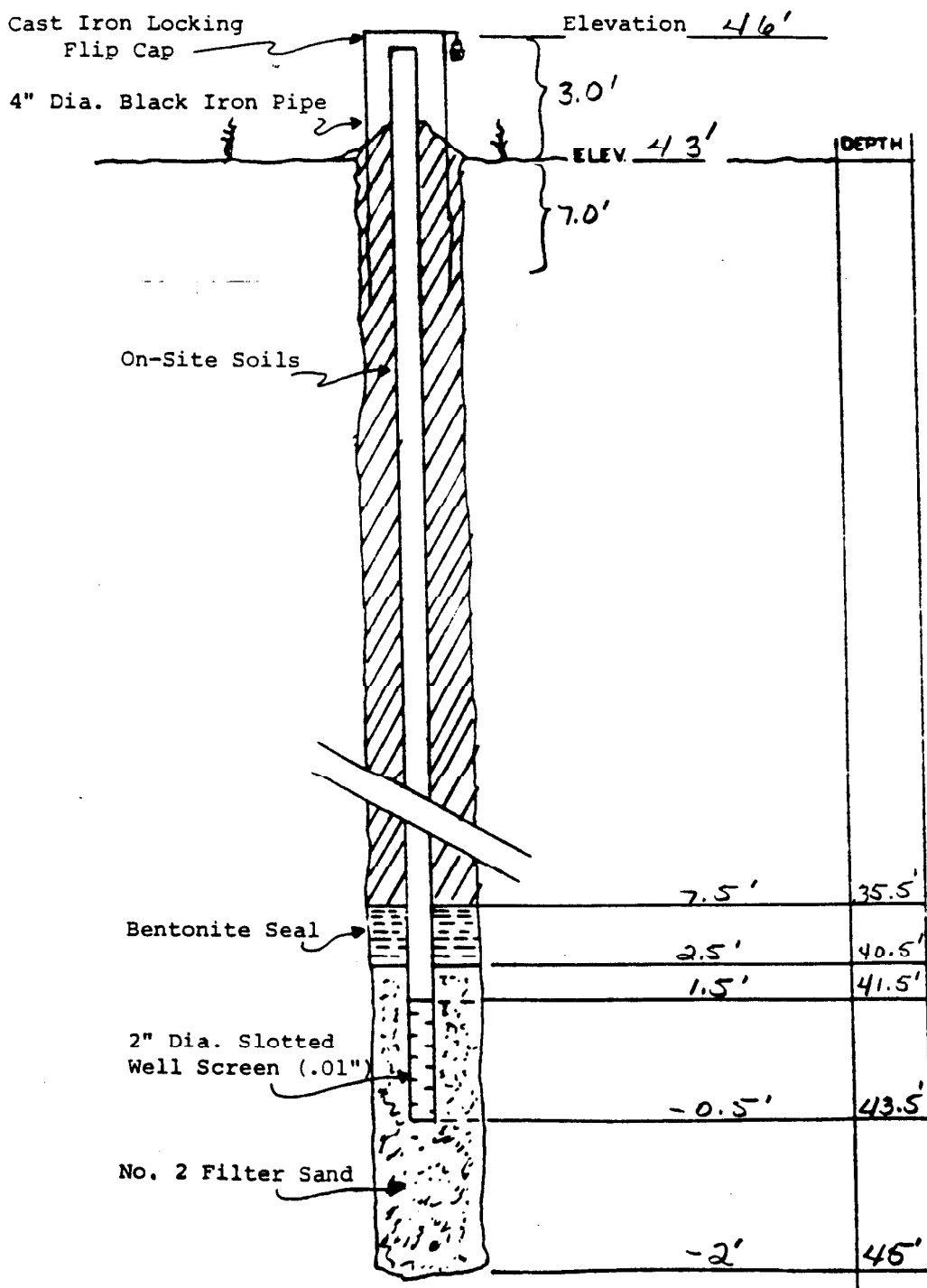
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project No. DACW-33-85-D-0011
D.O.#0003

Project: Aberjona River, Wells G&H
Woburn MA

Well No. FD85- 24
Cluster No. S- 93



CLUSTER S-93

FD-85-24

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site ASERJONA RIVER PROJECT NO. DAW-33-85-D-0011
WELLS GYM, WILBURN, MA DD-3
Page 1 of 2 Pages
Hole No. FD-85-24 Diam. (Casing) 4 Boring Started 10/29/85
Co-ordinates: N SEE E DRAWING Boring Completed 10/29/85
Drilled by CAMBRIDGE T BOYER Report Submitted _____
Purpose of Exploration PNEUMETER INSTALLATION

Elevation Top of Hole 43 M.S.L.
Total Overburden Drilled 45 Feet
Elevation Top of Rock - M.S.L.
Elevation Bottom of Hole -2 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Hole 45 Feet
Core Recovered - %
Core Recovered - Ft. - Diam. - In.
Soil Samples - In. Diam. - No.
Soil Samples - In. Diam. - No.

Casing Left in Place TOTAL 10 Feet

SEE FD-85-19 FOR SOIL LOG

Water Table Depth 0.37'

Depth		Method of Drilling and Type of Bit Used	INDEX	
From	To			
0	45	4" ID AUGER	Ground Water	Back of Page
		HYDRANT WATER USED DURING	Boring Location Sketch	Back of Page
		ALL DRILLING	Overburden Record	Page
			Rock Drilling	Page
				Page
				Page
				Page

Prepared by PAUL FISHER

FIELD DATA

LAB. DATA

Submitted by ATLANTIC TESTING LAB

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERJONA R. Woburn DATE: 10/29/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-24
 PIEZ TYPE: 2" Ø SLOTTED .010" DEPTH OF PIEZ: 43.5 RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL FD-85-19
 (SOIL TYPE): MP SAND (SP) SAMPLE NO.: 55-9 BORING DIAM: 8"

METHOD OF INSTALLATION: 4" ID AUGER
 TYPE OF PROTECTION FOR PIEZ: 4" Ø X 10' LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 43' ELEV. TOP OF RISER: 46' ELEV. PIEZ TIP: -0.5'
 FILTER: #2 SAND FROM ELEV: -2' TO ELEV: 2.5'
 SEAL: 3/8 PELTONITE FROM ELEV: 2.5' TO ELEV: 7.5'
 INSTALLED BY: CAMBRIDGE & BOYER CONTRACT DALN-33-85-D-0011 NO.: DO. #3 FOREMAN: FISHER

DATE OF INSTALLATION: 10/29/85 DATE OF OBSERVATIONS: 10/30/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
0931	—	3.37	0951	3	3.37			
0948	0	0						
	1/8	2.20						
0949	1	3.00						
0950	2	3.31						

REMARKS: 3.0 RISER STICKUP
- 2' SCREEN USED

FISHER
 INSPECTOR

OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Aberjona River, Wells G&H

Project: Woburn MA

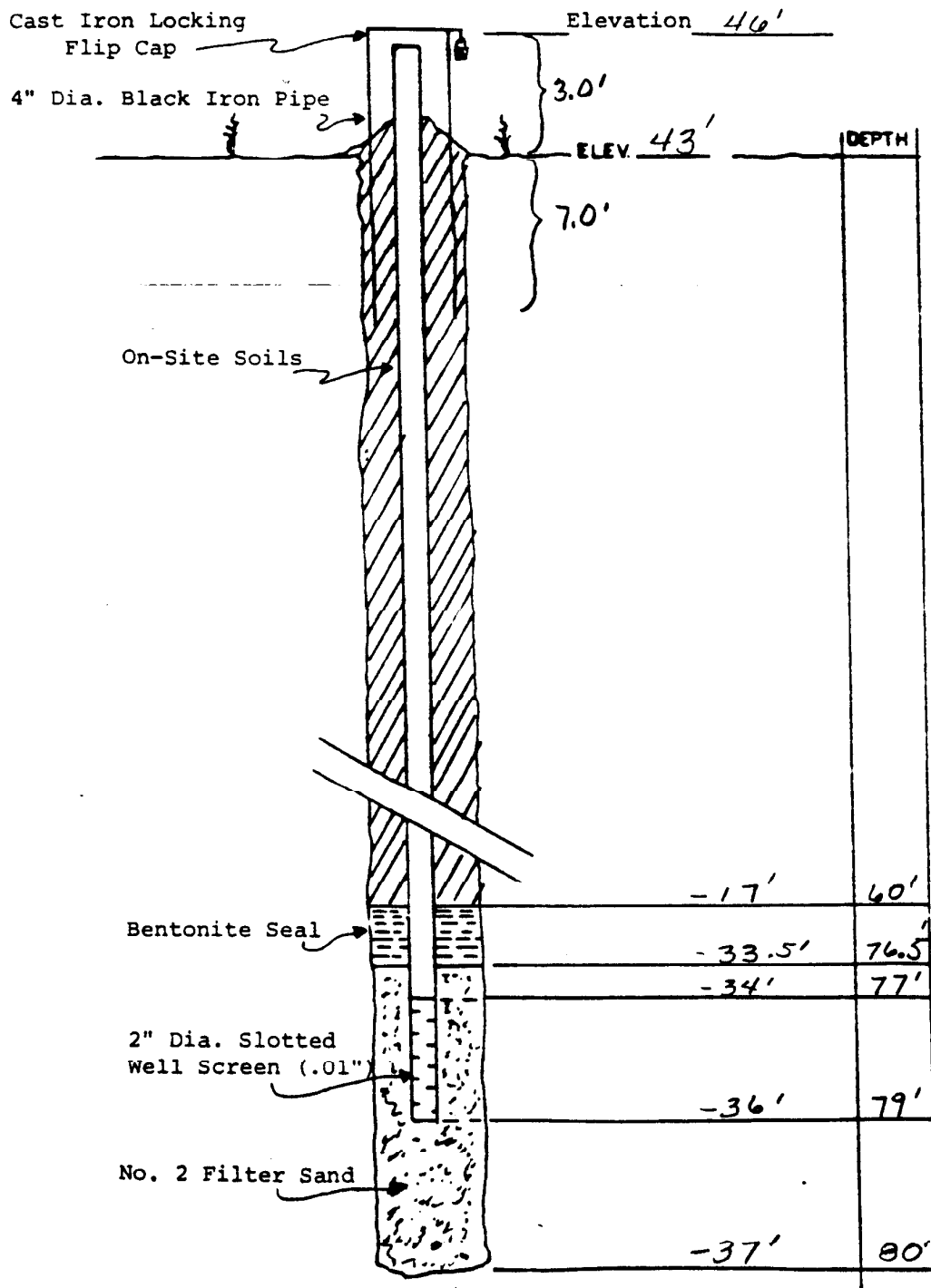
DACW-33-85-D-0011

D.O.#0003

Project No.

Well No. FD85- 19

Cluster No. S- 93



CLUSTER S-93

FD-85-19

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site Abeyone River, Woburn MA PROJECT NO. DAW-33-85-D-0011 D.O. # 3
Page 1 of Pages

Hole No. FD-85-19 Diam. (Casing) 4"

Boring Started 24 Oct 85

Co-ordinates: N see sketch —

Boring Completed 10/29/85

Drilled by Cambridge + Boyer (ATL)

Report Submitted

Purpose of Exploration soil sampling and piezometer installation to monitor contaminant plume at EPA Superfund Site

Elevation Top of Hole 43 M.S.L.

Casing Left in Place TOTAL 10' Feet
3.0' stickup

Total Overburden Drilled 80' Feet

Elevation Top of Rock M.S.L.

Elevation Bottom of Hole -37' M.S.L.

Total Rock Drilled 0 Feet

Total Depth of Hole 80 Feet

Core Recovered %

Core Recovered Ft.; Diam. In.

Soil Samples 178 In. Diam. 16 No.

Soil Samples In. Diam. No.

Water Table Depth 0.35'

Depth		Method of Drilling and Type of Bit Used
From	To	
0'	80.0'	4" driven casing washed out using 3 7/8" Ticone Fillet bit HYDRANT WATER USED DURING ALL DRILLING

INDEX

Ground Water Back of Page 1

Boring Location Sketch Back of Page 1

Overburden Record Page 2

Rock Drilling Page 2

 Page

 Page

 Page

Prepared by TA Beddoe

Field Data

Lab. Data

Submitted by Atlantic Testing Labs, Ltd

U. S. ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

Site Abington River Woburn MA Page 1 of 3

Boring No. FD-85-19 Desig. 19 Diam. (Casing) 4"

FIELD LOG OF TEST BORING

Co-ordinates: N see sketch E —

Elevation Top of Boring 43' M.S.L. Hammer Wt. 140 lb Boring Started 24/8/18
Total Overburden Drilled 80' Feet Hammer Drop 30"
Elevation Top of Rock — M.S.L. Casing Left 4" Boring Completed 10/29/0
Total Rock Drilled 0 Feet (Subsurface Water Data) — Page —
Elevation Bottom of Boring -37 M.S.L. Obs. Well 2"
Total Depth of Boring 80 Feet Drilled By Cambridge & Boren
Core Recovered — % No. Boxes — Mfg. Des. Drill Track Mounted CMES5
Core Recovered — Ft. — Diam. — In. Inspected By: J A Reddick
Soil Samples 1 1/2 In. Diam. 16 No. Classification By: J A Reddick
Soil Samples — In. Diam. — No. Classification By: P. Fisher

DEPTH		CORE/SAMPLE		BLOWS PER FT. CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIAL
	1" 5' 2 2	NO.	SIZE	DEPTH RANGE		
1.5	5-1	1 7/8	15%	hammer weight	4" driven casing washed out using 3 7/8" Thicone roller bit	peat, wet, OM-OL, loose trace contaminants
5.0						change @ 30'
4.5	5-2	1 3/8	100%	3 4		grey brown c-mf sand SW wet, loose
10.0						
14.5	5-3	1 3/8	100%	2 2		similar soils: SP no coarse fraction, gray
15.0						
16.5		1 3/8	0%	1 2		no recovery: soils too fine - washed out
20.0						
41.5	5-4	1 3/8	100%	2 2		similar soils: SP
45.0						

GENERAL REMARKS:

contam. is suspected 1,2-trans dichloroethylene

Site

Aberjona River, Woburn MA

Boring No.

FD-85-19

Page 2of 3

DEPTH	CORE/SAMPLE			BLOWS PER FT CORE RECV	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIAL
	NO	SIZE	DEPTH RANGE			
26.5	SS-5	1 3/8	Rec 85%	3 2 2		similar soils: SD
30.0						
31.5	SS-6	1 3/8	80%	1 1 2		similar soils: SD
35.0						
36.5	SS-7	1 3/8	70%	2 2 3		similar soils: SP
40.0						
41.5	SS-8	1 3/8	65%	3 4 2		similar soils: SP
45.0						
46.5	SS-9	1 3/8	55%	3 3 2		similar soils: SP
50.0						
51.5	SS-10	1 3/8	100%	4 4 3		similar soils: SP
55.0						
56.5	SS-11	1 3/8	15%	3 2 10 1/2"	end of explorations 10/04/85 water level 4 inches below surface at start of explorations 10/02/85	change @ 54' open down core shell and core 9.41 @ SILT, wet, moderately dense 5' with gravel
60.0						
63.0	SS-12	1 3/8	50%	3 1 2		similar soils: SP with gravel SAME AS SS-11
64.0						
65.0	SS-13	1 3/8	50%	3 1 2	end of explorations 10/02/85 START 10/2	cobbles @ 63.0' and 64.0' SAME AS SS-11

Site
Abercrombie River

Boring No.
FD-85-19

Page 1
of 3

DEPTH	CORE/SAMPLE			BLOWS PER FT	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIAL
	NO.	SIZE	NAME			
67.5						
700			REL			
71.5	S-14	1 3/8	39%	56 32 20		SAME AS SS-11
74						
75.0	S-15	WAS N	SAME			SAME AS SS-11
76.5	S-16	1 3/8	10%	73 40 18		SAME AS SS-11
800					END OF EXPLORATION	

PIEZOMETER INSTALLATION REPORT

PROJECT: Abenigona River, Woburn MA DATE: 10/24/85
 LOCATION (STA): see sketch OFFSET FROM CENTER LINE: _____ PIEZ NO.: FD-85-19
 PIEZ TYPE: 2" ϕ SLOTTED 010" DEPTH OF PIEZ: 79.5' RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL
 (SOIL TYPE): SAND + GRAY, LITTLE SILT SAMPLE NO.: SS-16 BORING DIAM: 4"
 METHOD OF INSTALLATION: 3 3/8 ROLLER BIT FOLLOWED BY 4" DRIVEN CASE
 TYPE OF PROTECTION FOR PIEZ: 4" ϕ X 10' LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 43' ELEV. TOP OF RISER: 46' ELEV. PIEZ TIP: -36.5'
 FILTER: #2 SAND FROM ELEV: -37' TO ELEV: -33.5'
 SEAL: BENTONITE SLURRY FROM ELEV: -33.5' TO ELEV: -17'
 INSTALLED BY: Cambridge & Boyer (ATL) CONTRACT OKW-33-85-D-0011
 NO.: DD #3 FOREMAN: FISHER

DATE OF INSTALLATION: 10/29/85 DATE OF OBSERVATIONS: 10/30/85

METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
0929	—	3.35						
	0	0						
0942	1/2	3.31						
0943	1	3.35						
0943								

REMARKS: 3.0 RISER STICK UP

2.0' SCREEN

PAUL FISHER
INSPECTOR

ATLANTIC TESTING LABORATORIES, LIMITED

at

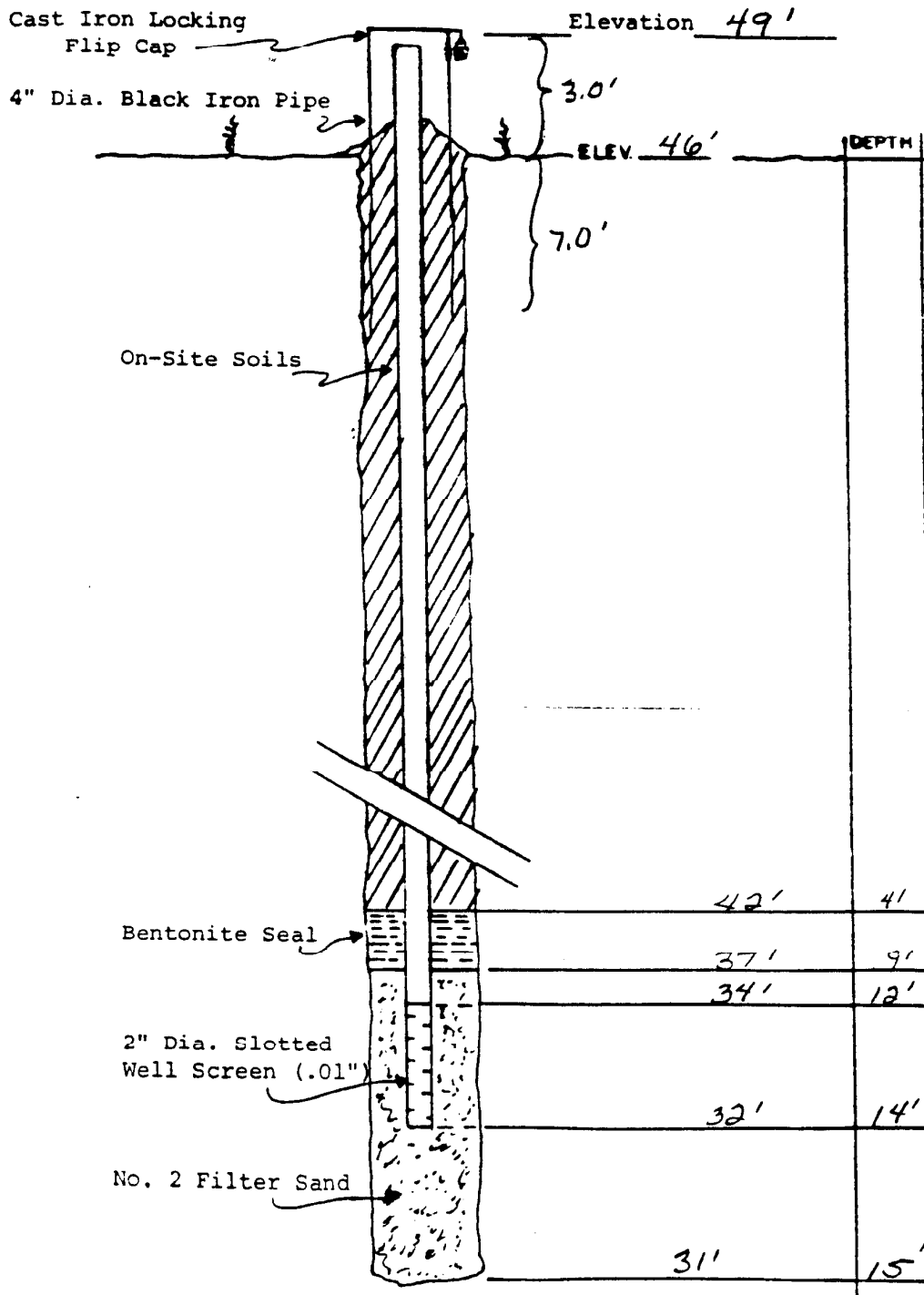
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project: Aberjona River, Wells G&H
Woburn MA

Project No. DACW-33-85-D-001
D.O.#0003

Well No. FD85-17
Cluster No. S-94



CLUSTER 5-94

FD-85-17

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

ABERJONA RIVER PROJECT NO. DAW-33-85-D-0011
Site WELL GYM, WOBURN, MA D.O. #3
Page 1 of 2 Pages
Hole No. FD-85-17 Diam. (Casing) 4" Boring Started 10/22/85
Co-ordinates: N SEE E DRAWING Boring Completed 10/22/85
Drilled by CAMBRIDGE & BOWEN Report Submitted _____

Purpose of Exploration SET PIEZOMETER

Elevation Top of Hole 46 M.S.L.
Total Overburden Drilled 15 Feet
Elevation Top of Rock — M.S.L.
Elevation Bottom of Hole 31 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Hole 15 Feet
Core Recovered — %
Core Recovered — Ft.; — Diam. — In.
Soil Samples — In. Diam. — No.
Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10 Feet
3.0 STICKUP

SEE BORING FD-85-16
FOR SOIL LOG

Water Table Depth 2.5'

Depth		Method of Drilling and Type of Bit Used	INDEX	
From	To			
0	15	8" AUGER, HYDRANT WATER USED DURING ALL DRILLING	Ground Water	Back of Page
			Boring Location Sketch	Back of Page
			Overburden Record	Page
			Rock Drilling	Page
				Page
				Page
				Page

Prepared by PAUL FISHER
Field Data

Submitted by ATLANTIC TESTING LAB

Lab. Data

PIEZOMETER INSTALLATION REPORT

PROJECT: Acquona R. - Woburn, MA DATE: 10/22/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-17
 PIEZ TYPE: 2" ϕ SLOTTED .010" DEPTH OF PIEZ: 14' RISER PIPE DIAM: 4"
 PIEZ TIP SET IN SOIL FD-85-16
 (SOIL TYPE): FINE SAND SAMPLE NO.: 5-3 BORING DIAM: 8"

METHOD OF INSTALLATION: 8" AUGER
 TYPE OF PROTECTION FOR PIEZ: 10' LONG X 4" ϕ PIPE VENT: LOCK CAP
 GROUND ELEV.: 46' ELEV. TOP OF RISER: 49.0' ELEV PIEZ TIP: 32'

FILTER: #2 SAND FROM ELEV: 31' TO ELEV: 37'

SEAL: 3/8 PELONITE FROM ELEV: 37' TO ELEV: 42'

INSTALLED BY: CAMBRIDGE & BOYER CONTRACT DACW-33-85-D-0011 NO.: D.O. 3 FOREMAN: FISHER

DATE OF INSTALLATION: 10/22/85 DATE OF OBSERVATIONS: 10/22/85

METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
1724	—	5.50	1743	7	5.48			
1739	0	.15	1747	8	5.50			
	1/2	4.41						
1740	1	5.11						
1741	2	5.42						

REMARKS:

FISHER

INSPECTOR

ATLANTIC TESTING LABORATORIES, LIMITED

at

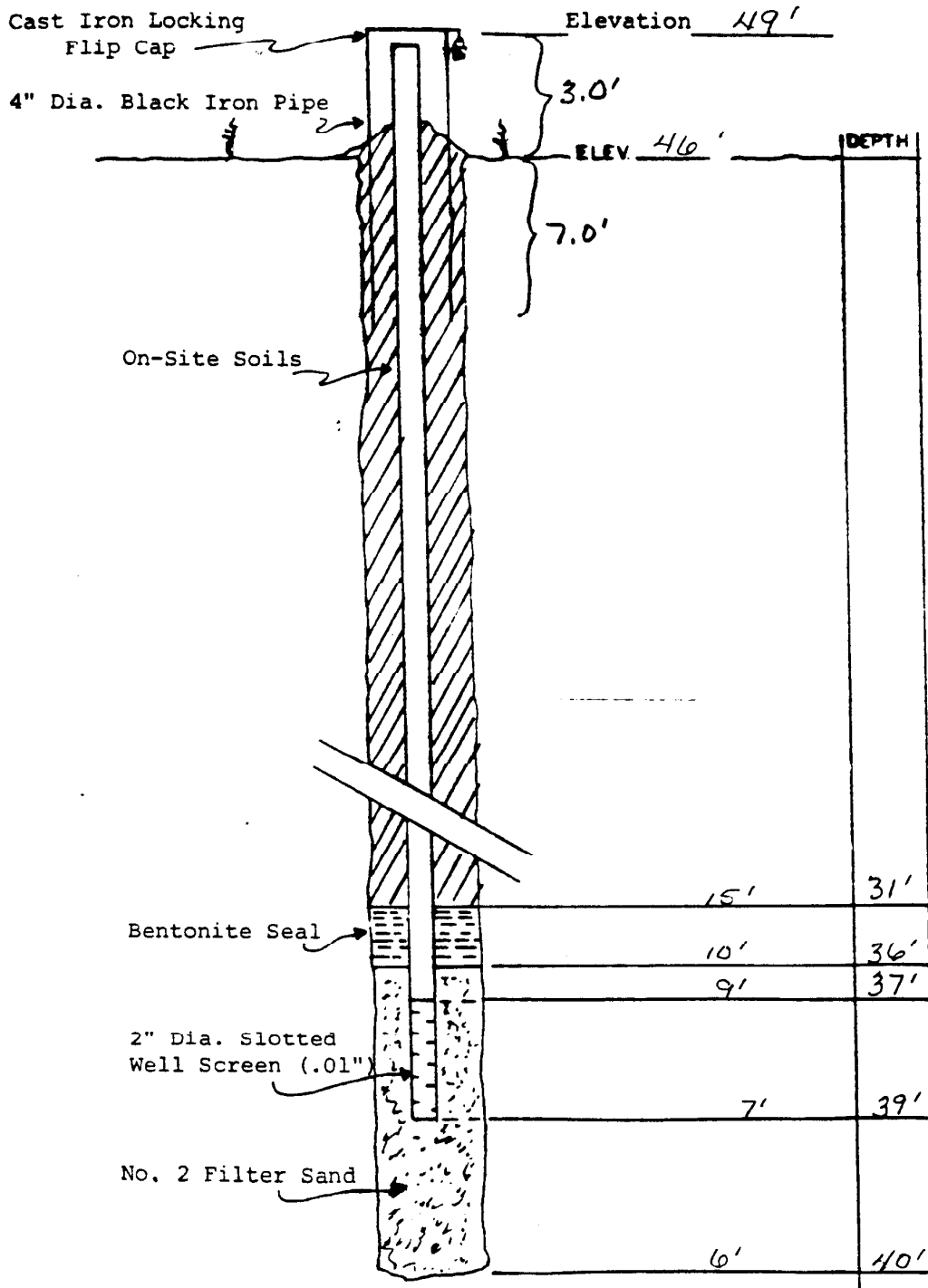
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project: Aberjona River, Wells G&H
Woburn, MA

Project No. DACW-33-85-D-001
D.O.#0003

Well No. FD85- 18
Cluster No. S- 94



CLUSTER 5-94FD-85-18

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site ABERVONA RIVER PROJECT NO. DACW-33-85-D-0011
WELL 874, WOBURN, MA D.O. #3
Page 1 of 2 Pages
Hole No. FD-85-18 Diam. (Casing) 4" Boring Started 10/22/05
Co-ordinates: N SEE E DRAWING Boring Completed 10/22/05
Drilled by CAMBRIDGE T BOWER Report Submitted _____
Purpose of Exploration PIEZOMETER INSTALLATION

Elevation Top of Hole 46 M.S.L.
Total Overburden Drilled 40 Feet
Elevation Top of Rock — M.S.L.
Elevation Bottom of Hole 6 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Hole 40 Feet
Core Recovered — %
Core Recovered — Ft.: — Diam. — In.
Soil Samples — In. Diam. — No.
Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10' Feet
3.0 STICKUP

SEE BORING FD-85-16
FOR SOIL LOG

Water Table Depth 2.84'

Depth		Method of Drilling and Type of Bit Used	INDEX
From	To		
0	40	8" AUGER, HYDRANT WATER USED DURING ALL DRILLING	Ground Water _____ Back of Page _____ Boring Location Sketch _____ Back of Page _____ Overburden Record _____ Page _____ Rock Drilling _____ Page _____ _____ Page _____ _____ Page _____ _____ Page _____

Prepared by PAUL FISHER
Field Data

Submitted by ATLANTIC TESTING LAB

Lab. Data

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERSONA RIVER, WOBURN MA DATE: 10/22/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: PIEZ NO.: FD-85-18
 PIEZ TYPE: 2" Ø SLOTTED .010" DEPTH OF PIEZ: 39' RISER PIPE DIAM: 4"
 PIEZ TIP SET IN (SOIL TYPE): FINE SAND & GRAVEL SOIL FD-85-16 SAMPLE NO.: 5-9 BORING DIAM: 8"
 METHOD OF INSTALLATION: 8" AUGER
 TYPE OF PROTECTION FOR PIEZ: 10' LONG X 4" Ø PIPE VENT: LOCK CAP
 GROUND ELEV.: 46' ELEV. TOP OF RISER: 49' ELEV PIEZ TIP: 7'
 FILTER: #2 SAND FROM ELEV: 6' TO ELEV: 10'
 SEAL: 3/8" PELONITE FROM ELEV: 10' TO ELEV: 15'
 INSTALLED BY: CAMBRIDGE & BOYER CONTRACT DAWN-33-85-D-011 NO.: DR.#3 FOREMAN: FISHER

DATE OF INSTALLATION: 10/22/85 DATE OF OBSERVATIONS: 10/23/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
1418	—	5.84	1425	4	5.84			
1421	0	15						
	1/2	5.29						
1422	1	5.74						
1423	2	5.82						

REMARKS: PIEZO FLUSHED OUT PRIOR TO TEST
2' SCREEN

FISHER
 INSPECTOR

ATLANTIC TESTING LABORATORIES, LIMITED

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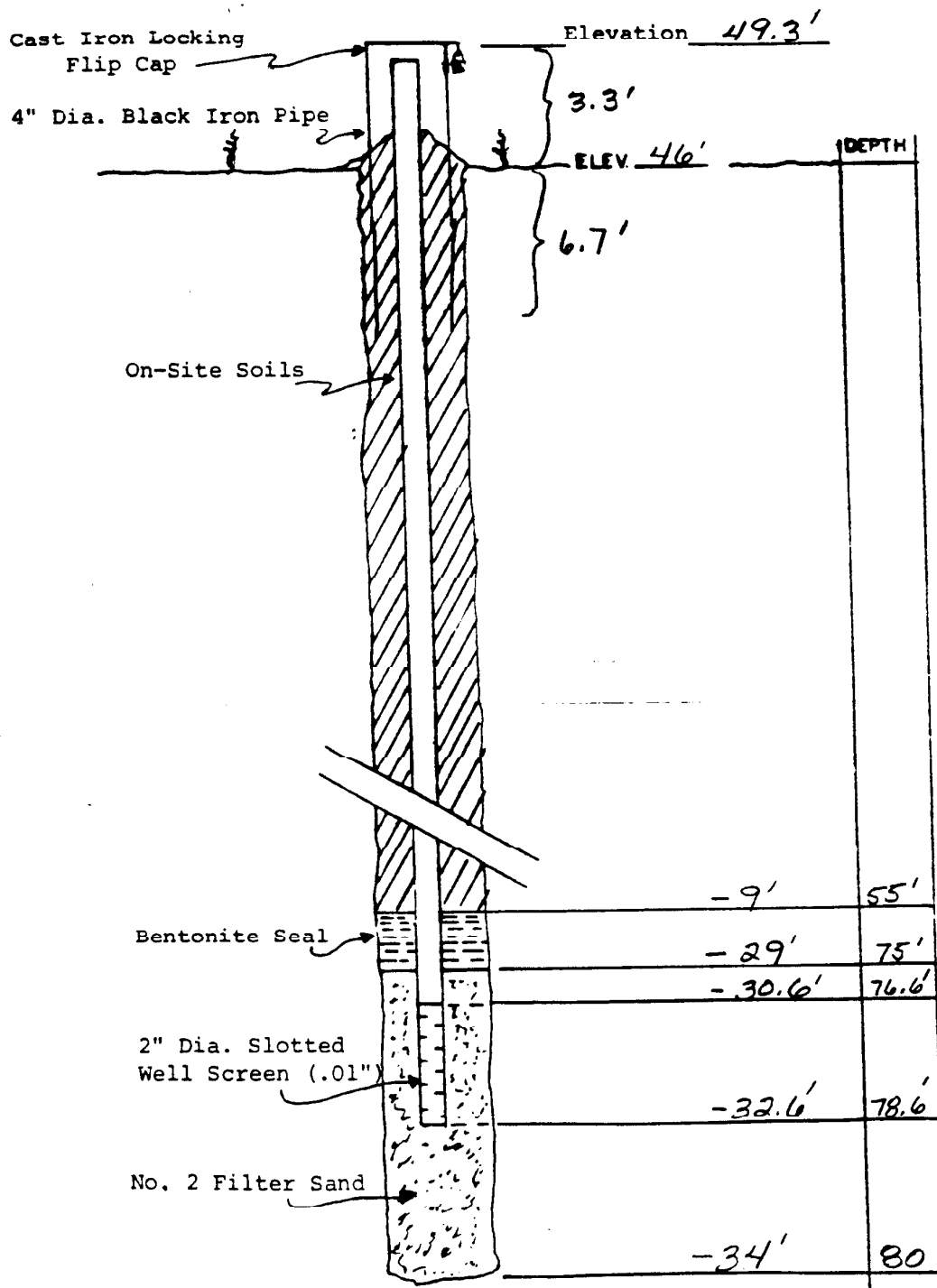
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project: Aberjona River, Wells G&H
Woburn MA

Project No. DACW-33-85-D-001
D.O.#0003

Well No. FD85-16
Cluster No. S-94



CLUSTER S-94

FD-85-16

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

ABERJONA RIVER PROJECT NO. DAW-33-85-D-0011
Site WELL G+H WOBURN MA DO. #3
Page 1 of 5 Pages
Hole No. FD-85-16 Diam. (Casing) 4" Boring Started 10/17/85
Co-ordinates: N SEE E DRAWING Boring Completed 10/21/85
Drilled by CAMBRIDGE + ROVER Report Submitted _____

Purpose of Exploration SOIL SAMPLING + PIEZOMETER INSTALLATION

Elevation Top of Hole 46 M.S.L.

Casing Left in Place TOTAL 10' Feet
3.3 STICKUP

Total Overburden Drilled 80 Feet

Elevation Top of Rock — M.S.L.

Elevation Bottom of Hole -34 M.S.L.

Total Rock Drilled 0 Feet

Total Depth of Hole 80 Feet

Core Recovered 5

Core Recovered — Ft.; — Diam. — In.

Soil Samples 1 3/8 In. Diam. 18 No.

Soil Samples — In. Diam. — No.

Water Table Depth 2.68'

Depth		Method of Drilling and Type of Bit Used	INDEX	
From	To			
0	80	3" ROller BIT FOLLOWED BY 4" DRIVEN CASING HYDRANT WATER USED FOR ALL DRILLING	Ground Water	Back of Page
			Boring Location Sketch	Back of Page
			Overburden Record	Page
			Rock Drilling	Page
				Page
				Page
				Page

Prepared by PAUL FISHER
Field Data

Submitted by ATLANTIC TESTING LAB

Lab. Data

U. S. ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

FIELD LOG OF TEST BORING

Site ABERDONIA R. WELLS C+H Page 1 of 3 Pages

Boring No. FD-85-16 Desig. 16 Diam. (Casing) 4"

Co-ordinates: N SEE DRAWING E -

Elevation Top of Boring 46 M.S.L. Hammer Wt. 140# Boring Started 10/17/85
Total Overburden Drilled 80 Feet Hammer Drop 30"
Elevation Top of Rock - M.S.L. Casing Left 4" Boring Completed 10/21/85
Total Rock Drilled 0 Feet (Subsurface Water Data) - (Page -)
Elevation Bottom of Boring -34 M.S.L. Obs. Well 2"
Total Depth of Boring 80 Feet Drilled By CAMBRIDGE & BOYER
Core Recovered - % No. Boxes - Mfg. Des. Drill TRACK MOUNTED INT. SS
Core Recovered - Ft. - Diam. - In. Inspected By: M. THUR
Soil Samples 17/8 In. Diam. 17 No. Classification By: M. THUR
Soil Samples - In. Diam. - No. Classification By: -

DEPTH	CORE/SAMPLE		BLOWS PER FT. CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	NO.	SIZE			
0.0				ADVANCE BORING BY 3" KOLC? BIT FOLLOWED BY 4" PLAIN CASING.	
1.5	S-1	1 3/8	85%		Reddish Brown cmf SAND; occasional TILL (most) Trace organic matter. recorded by NUS
5.0					
6.5	S-2	1 3/8	60%		Brown cmf SAND (wet) * trace contains marks record by NUS
10.0					
11.5	S-3	1 3/8	60%		Brown (1.5) SAND (wet)
14.0					
15.0					
16.5	S-4	1 3/8	100%		Reddish Brown Brown cmf SAND; some f. COBBLES (wet)

GENERAL REMARKS:

- 1st water level

Site MERJONA R. WOBURN, MASS.					Boring No. FD-85-16	Page <u>2</u> of <u>3</u>
DEPTH	CORE/SAMPLE		BLOWS PER FT	SAMPLING AND CORING OPERATIONS		CLASSIFICATION OF MATERIALS
ft	NO	SIZE	PERCENT			
21.5	S-5	1 3/8	5%	50 Blows/ no rec		Boulders encountered @ 21 Brown cmf SAND, and GRAVEL (wet)
22.0						Cobbles encountered @ 20-22
25.0						
26.5	S-6	1 3/8	30%			Brown cmf SAND, and mf GRAVEL (wet)
30.0						
31.5	S-7	1 3/8	30%			WASH sample
35.0	S-8	1 3/8				WASH SAMPLE
36.5	S-9	1 3/8	20%			Grey cmf SAND, and GRAVEL (wet)
40.0						Numerous COBBLES ENCOUNTERED @ 31.0 TO 40.0'
41.5						
45.0	S-10	1 3/8	WASH			Boulders & COBBLES ENCOUNTERED @ 40.0' to 45.0'
46.5	S-11	1 3/8	5%			WASH SAMPLE 147.0--
50.0						Same as S-9
51.5	S-12	1 3/8	10%			
55.0						end of day (10-11-25)
56.5	S-13	1 3/8	100%			Grey MC SAND, and GRAVEL (wet) TR FM SAND
60.0						
61.5	S-14	1 3/8	50%			Same as S-13

Water Depth:
3' From
bottom
(10/10/05)

Site ABERJONA R. WORCEN, MASS.					Boring No. FD-85-16	Page 3 of 3
DEPTH	CORE/SAMPLE		BLOW COUNT	SAMPLING AND CORING OPERATIONS		CLASSIFICATION OF MATERIAL
ft.	NO.	SIZE	RECVY			
65.0						
66.5	S-15	1 3/8	50% 19-52			SAMPLE AS S-13
70.0						
71.5	S-16		100 38 35 22	END 10/10/85 START 10/21/85		SAME AS S-13 COBBLE AT 72'
75.0						
76.5	S-17					SAME AS S-13
80	S-18		WASH SAMPLE	END OF EXPLORATION		Assumed Same As S-13

PIEZOMETER INSTALLATION REPORT

ABERJONA R. Well G+H
 PROJECT: WOODBURN MA DATE: 10/21/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: ———— PIEZ NO.: FD-85-16
 PIEZ TYPE: 2" ϕ SLOTTED .010" DEPTH OF PIEZ: 78.6' RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL (SOIL TYPE): MC SAND + FM GRAVEL SAMPLE NO.: 5-17 BORING DIAM: 4"
 METHOD OF INSTALLATION: 3" ROLLER FOLLOWED BY 4" DRIVEN CASING
 TYPE OF PROTECTION FOR PIEZ: 10' LONG X 4" ϕ PIPE VENT: LOCK CAP
 GROUND ELEV.: 46 ELEV. TOP OF RISER: 49.3' ELEV PIEZ TIP: -32.6'
 FILTER: #2 SAND FROM ELEV: -34' TO ELEV: -29'
 SEAL: BENTONITE SLURRY FROM ELEV: -29' TO ELEV: -9'
 INSTALLED BY: CAMARIQUE & BOYER CONTRACT OAW-33-85-D-0011 NO.: D.O. #3 FOREMAN: FISHER
 DATE OF INSTALLATION: 10/21/85 DATE OF OBSERVATIONS: 10/22/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
1723	—	5.98	1732	4	5.98			
1728	0	.37	1736	8				
	1/4	5.89						
1729	1	5.95						
1730	2	5.97						

REMARKS: 2' SLABED USED

FISHER

INSPECTOR

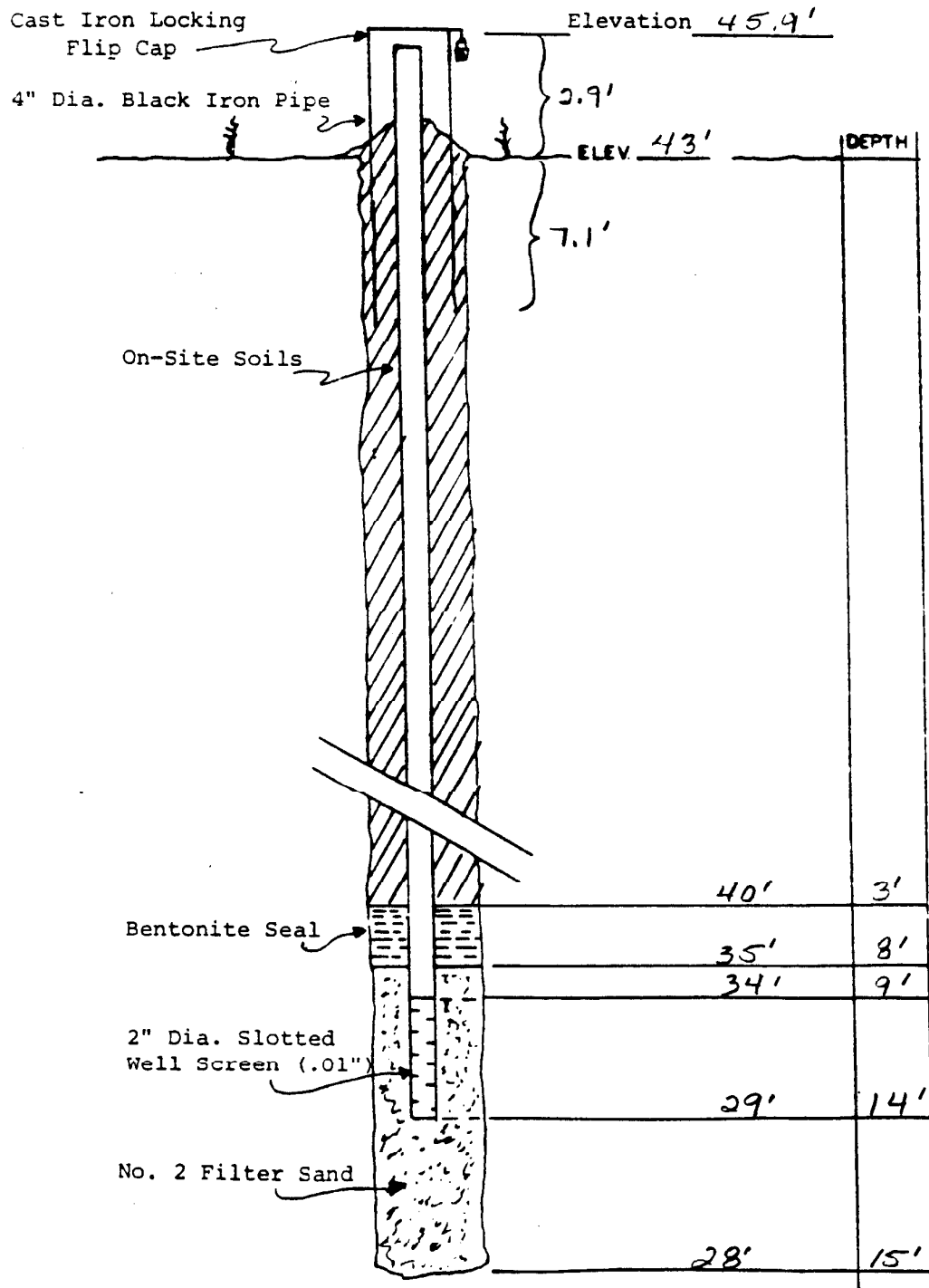
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project No. DACW-33-85-D-0011
D.O.#0003

Project: Aberjona River, Wells G&H
Woburn MA

Well No. FD85- 30
Cluster No. S-95



CLUSTER S-95

FD-85-30

CORPS OF ENGINEERS, U. S. ARMY

NEW ENGLAND DIVISION

FOUNDATION AND MATERIALS BRANCH

FIELD LOG OF TEST BORING

ADJOURN RIVER PROJECT NO. DACW-33-85-D-0011
 Site W-1 E-4, Woburn, MA D.O. #3
 Page 1 of 2 Pages
 Hole No. FD-85-30 Diam. (Casing) 4" Boring Started 11/9/85
 Co-ordinates: N SEE E DRAWING Boring Completed 11/9/85
 Drilled by CAMBRIDGE + BOYER Report Submitted _____
 Purpose of Exploration PIEZOMETER INSTALLATION

Elevation Top of Hole 43 M.S.L.
 Total Overburden Drilled 15 Feet
 Elevation Top of Rock — M.S.L.
 Elevation Bottom of Hole 28 M.S.L.
 Total Rock Drilled 0 Feet
 Total Depth of Hole 15 Feet
 Core Recovered — %
 Core Recovered — Ft.: — Diam. — In.
 Soil Samples — In. Diam. — No.
 Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10 Feet

SEE FD-85-26 FOR SOIL LOG

Water Table Depth -0.55'

Depth		Method of Drilling and Type of Bit Used	INDEX
From	To		
0	15	4" ID AUGER HYDRANT WATER USED DURING ALL DRILLING	Ground Water _____ Back of Page _____ Boring Location Sketch _____ Back of Page _____ Overburden Record _____ Page _____ Rock Drilling _____ Page _____ _____ Page _____ _____ Page _____ _____ Page _____

Prepared by PAUL FIGHIER _____
 Submitted by ATLANTIC TESTING LAB _____
 Field Data Lab Data

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERJONA RIVER WOBURN MA | DATE: 11/9/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-30
 PIEZ TYPE: 2" Ø SLOTTED .010" DEPTH OF PIEZ: 14' RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL FD-85-26
 (SOIL TYPE): MF SAND (SP) SAMPLE NO.: 55-4 BORING DIAM: 8"
 METHOD OF INSTALLATION: 4" ID AUGER
 TYPE OF PROTECTION FOR PIEZ: 4" Ø X 10' LONG PIPE VENT: LUCKY CAP
 GROUND ELEV.: 43' ELEV. TOP OF RISER: 45.9' ELEV. PIEZ TIP: 29'
 FILTER: #2 SAND FROM ELEV: 28' TO ELEV: 35'
 SEAL: 3/8 PELTONITE FROM ELEV: 35' TO ELEV: 40'
 INSTALLED BY: CAMBRIDGE & BOYER CONTRACT NO.: D.O.#3 FOREMAN: FISHER
 DATE OF INSTALLATION: 11/9/85 DATE OF OBSERVATIONS: 11/9/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
1603		2.35						
1615	0	0						
	1 1/2	2.28						
1616	1	2.35						

REMARKS: 5' SCREEN
2.9 RISER SET UP

FISHER
 INSPECTOR

OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Aberjona River, Wells G&H

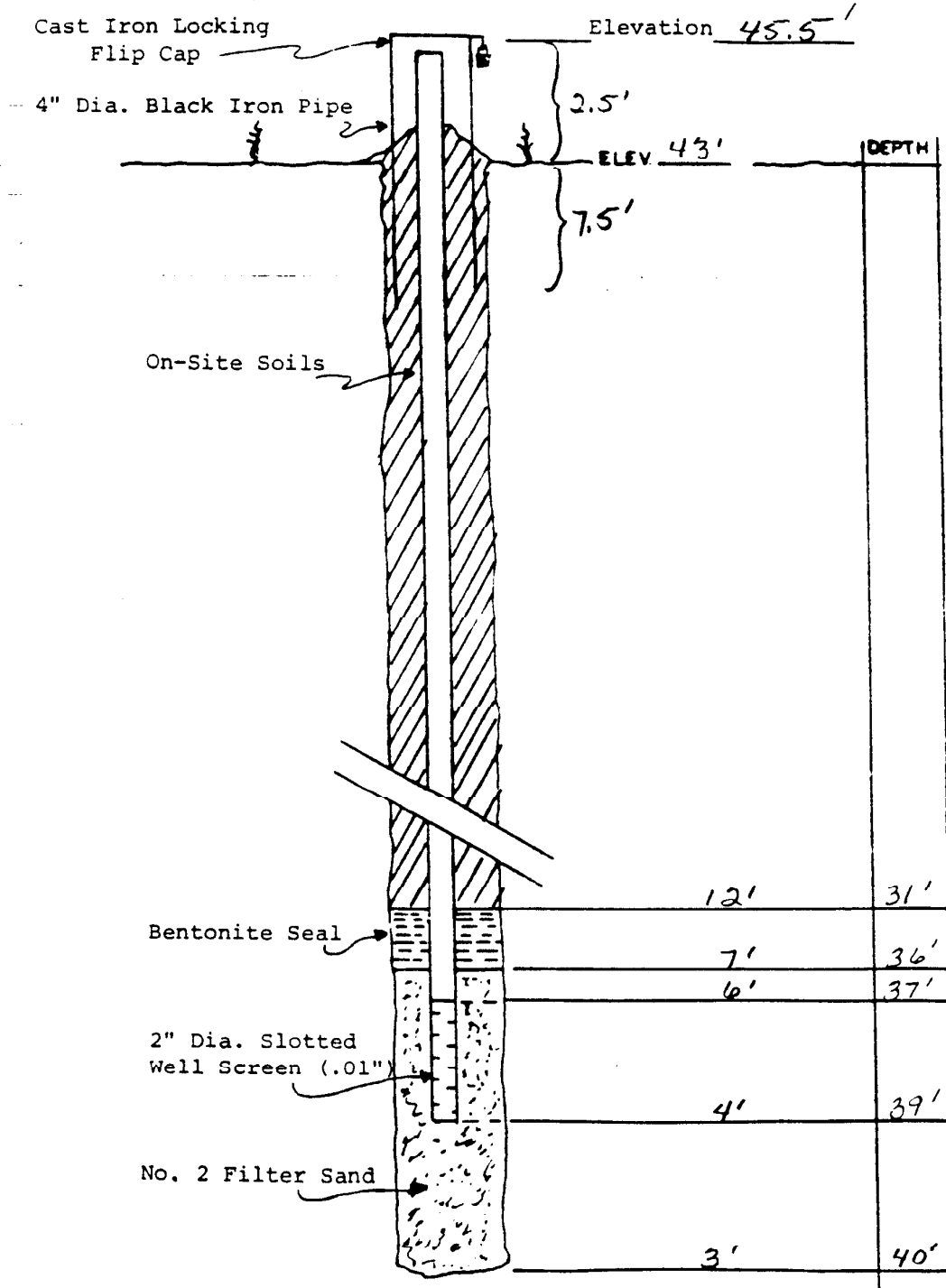
Project: Woburn MA

DACW-33-85-D-0011

Project No. D.O.#0003

Well No. FD85- 31

Cluster No. S-75



CLUSTER 5-95

FD-35-31

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site ABERJONA RIVER
WELLS 64 N, MORGAN PT.

PROJECT NO.

DAEN-33-85-D-0011

Page 1 of 2 Pages

Hole No. FD-85-31 Diam. (Casing) 4Boring Started 11/9/85Co-ordinates: N 55.5 E DRAWINGBoring Completed 11/9/85Drilled by CAMBRIDGE + BOVER

Report Submitted

Purpose of Exploration PIEZOMETER INSTALLATIONElevation Top of Hole 43 M.S.L.Casing Left in Place TOTAL 10 FeetTotal Overburden Drilled 40 FeetElevation Top of Rock — M.S.L.

SEE FD-85-26 FOR SOIL LOG

Elevation Bottom of Hole 3 M.S.L.Total Rock Drilled 0 FeetTotal Depth of Hole 40 FeetCore Recovered — FeetCore Recovered — Ft.: — Diam. — In.Soil Samples — In. Diam. — No.Soil Samples — In. Diam. — No.Water Table Depth 0.4'

Depth		Method of Drilling and Type of Bit Used
From	To	
0	40	4" ID AUGER
		HYDRANT WATER USED DURING
		ALL DRILLING

INDEX

Ground Water — Back of Page —Boring Location Sketch — Back of Page —Overburden Record — Page —Rock Drilling — Page —— Page —— Page —— Page —Prepared by PAUL FISHER

Field Data

Lab. Data

Submitted by ATLANTIC TESTING LAB

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERJONA R. WILMUN, MA DATE: 11/9/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-31
 PIEZ TYPE: 2" Ø SLOTTED, .010" DEPTH OF PIEZ: — RISER PIPE DIAM: 2"
 PIEZ TIP SET IN (SOIL TYPE): MR SAND (SP) SOIL FD-85-26 SAMPLE NO.: 25-9 BORING DIAM: 8"

METHOD OF INSTALLATION: 4" ID AUGER
 TYPE OF PROTECTION FOR PIEZ: 4" Ø X 10' LONG RPE VENT: LOOSE CAP

GROUND ELEV.: 43' ELEV. TOP OF RISER: 45.5' ELEV PIEZ TIP: 4'

FILTER: #2 SAND FROM ELEV: 3' TO ELEV: 7'

SEAL: 3/8 PELTONITE FROM ELEV: 7' TO ELEV: 12'

INSTALLED BY: CAMBRIDGE + BOYER CONTRACT NO.: D.O. #3 FOREMAN: FISHER

DATE OF INSTALLATION: 11/9/85 DATE OF OBSERVATIONS: 11/9/85

METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
1605		2.10	1622	3	1.93			
1619	0	.30	1623	4	2.06			
	1/2	.75	1624	5	2.10			
1620	1	1.48						
1621	2	1.87						

REMARKS: 2.5 STICK UP

FISHER
INSPECTOR

OBSERVATION WELL INSTALLATION DETAIL

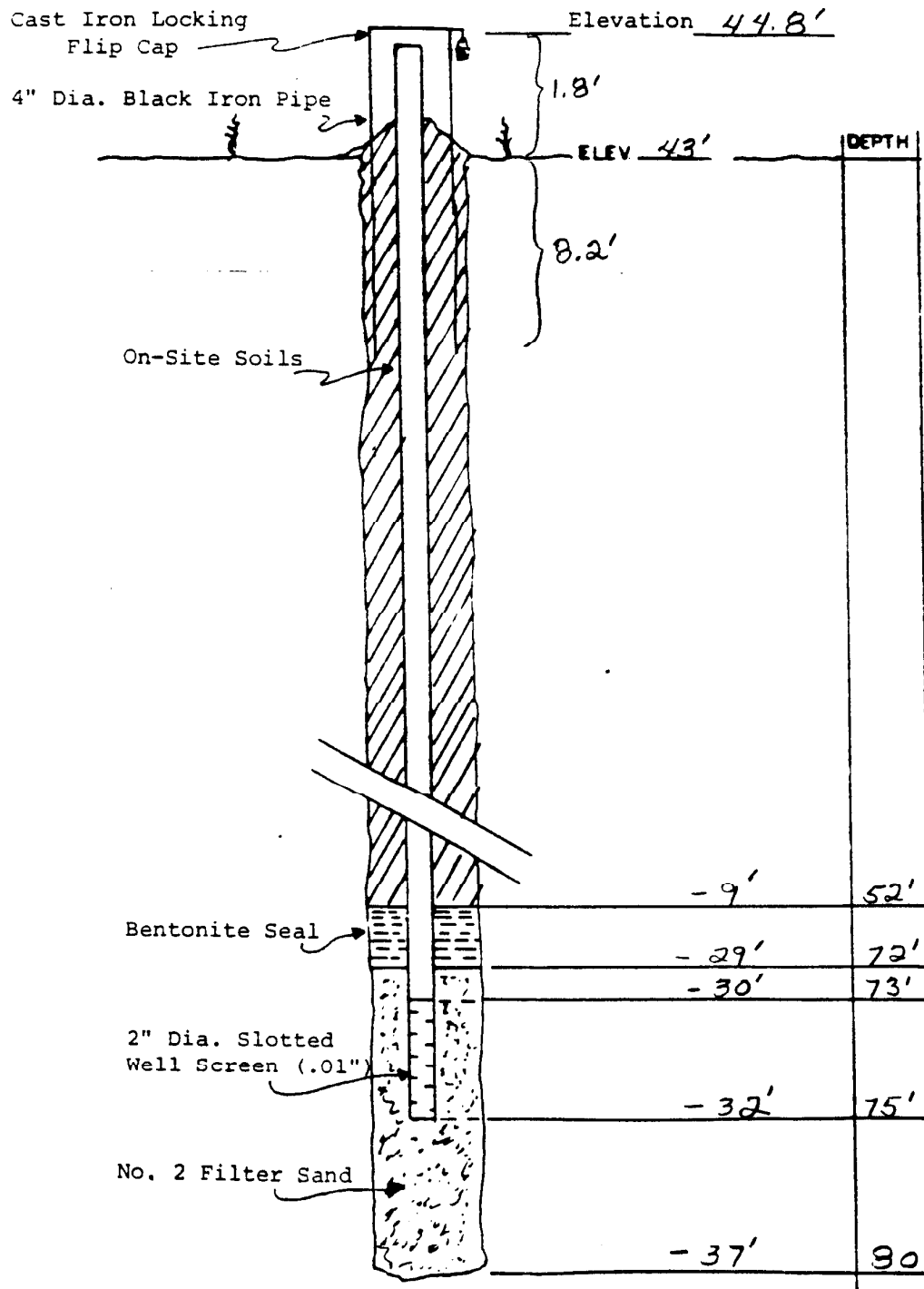
Client: ARMY CORPS OF ENGINEERS, NED

Aberjona River, Wells G&H

Project: Woburn MA

Project No. DACW-33-85-D-0011
D.O.#0003

Well No. FD85-26
Cluster No. S-95



CLUSTER 5-95FD-85-26

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

AGASSON RIVER PROJECT NO. DACW-33-85-D-0011
Site Wells G+H, Woburn, MA D.O. 3
Page 1 of 3 Pages
Hole No. FD-85-26 Diam. (Casing) 4 Boring Started 10/31/85
Co-ordinates: N SEE E DRAWING Boring Completed 11/8/85
Drilled by CAMBRIDGE & BOYER Report Submitted _____
Purpose of Exploration SOIL SAMPLING + PERIMETER INSTALLATION

Elevation Top of Hole 43' M.S.L.
Total Overburden Drilled 80 Feet
Elevation Top of Rock — M.S.L.
Elevation Bottom of Hole -37 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Hole 80 Feet
Core Recovered — %
Core Recovered — Ft.: — Diam. — In.
Soil Samples 1 3/8 In. Diam. — No.
Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10 Feet

Water Table Depth 0.3'

Depth		Method of Drilling and Type of Bit Used	INDEX
From	To		
0	80	4" DRIVEN CASING, WASH WITH 3 3/8 ROLLER BIT HYDRANT WATER USED DURING AND DRILLING	Ground Water _____ Back of Page _____ Boring Location Sketch _____ Back of Page _____ Overburden Record _____ Page _____ Rock Drilling _____ Page _____ _____ Page _____ _____ Page _____ _____ Page _____


Prepared by PAUL FISHER
Field Data

Submitted by ATLANTIC TESTING LAB

Lab. Data

U. S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION	Site <u>ACEP/DNA R 122, 1204 (E) 23</u> Page 1 of <u> </u> Pages Boring No. <u>FD-85-26</u> Desig. <u>26</u> Diam. (Casing) <u>4"</u> Co-ordinates: N <u>See Drawing</u> E <u> </u>
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FIELD LOG OF TEST BORING			
Elevation Top of Boring <u>43</u>	M.S.L.	Hammer Wt. <u>140^{lb}</u>	Boring Started <u>10/31/85</u>
Total Overburden Drilled <u>80</u>	Feet	Hammer Drop <u>30</u>	Boring Completed <u>11/8/85</u>
Elevation Top of Rock <u> </u>	M.S.L.	Casing Left <u>4"</u>	
Total Rock Drilled <u>0</u>	Feet	Subsurface Water Data <u> </u> (Page <u> </u>)	
Elevation Bottom of Boring <u>-37</u>	M.S.L.	Obs. Well <u>2"</u>	
Total Depth of Boring <u>80</u>	Feet	Drilled By <u>CAMBRIDGE + BUYER</u>	
Core Recovered <u> </u> % No. Boxes <u> </u>		Mfg. Des. Drill <u>TRACK MOUNTED CME 55</u>	
Core Recovered <u> </u> Ft. <u> </u> Diam. <u> </u> In.		Inspected By: <u>PAUL FISHER</u>	
Soil Samples <u>1 3/8</u> In. Diam. <u>17</u> No.		Classification By: <u>PAUL FISHER</u>	
Soil Samples <u> </u> In. Diam. <u> </u> No.		Classification By: <u>MARY Jo AOT</u>	

DEPTH	CORE/SAMPLE	BLOWS PER FT.	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
Feet	NO. SIZE	RANGE		
1.5	SS-1 1 3/8	20	10/31/85 - pounding in 4" casing - 5' increments - 3 1/8" roller wash to sampling depth	organic silt, part, wet
5 6.5	SS-2 "	80		mf sand, organic silt, wet no production
10 11.5	SS-3 "	10		tan mf sand, clean, moist
15 16.5	SS-4 "	10		tan mf sand clean, moist
20 21.5	SS-5 "	80		tan mf sand, clean, moist
GENERAL REMARKS:				

Site ABERSON R., Wells G+H
Woburn, MA

Boring No.

FD-85-26

Page 2

of 3

DEPTH		CORE/SAMPLE		BLOWS PER FT	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
1'	NO.	SIZE	DEPTH RANGE			
26.5	SS-6	1 3/8	10	2 2 3	Pouring in 4" casing - 5' increments - 3 7/8" roller wash	Similar soils (SS-4, 5)
30						NUS detected > trace contaminants in hole, not in air
31.5	SS-7	"	100	3 3 3		Similar soils (SS-3)
35						
36.5	SS-8	"	75	3 2 3	casing to 40', not washed.	Similar soils (SS-4, 5)
40						
41.5	SS-9	"	100	2 2 2		Similar soils (SS-3)
45					11/1/85 pouring in 4" casing - 5' increments - 3 7/8" roller wash to sampling depth	
46.5	SS-10	"	100	2 1 1		Similar soils (SS-3) fine gravel
50						
51.5	SS-11	"	40	14 7 9	END 11/1/85 START 11/5/85	CMC gravel, little CMF sand
55						
56.5	SS-12	"	25	7 9 10		SAME As SS-11
60					END 11/5/85 START 11/8/85	
61.5	SS-13	"	25	18 12 11		TRACE CONTAMINANTS FOUND BY NUS SAME As SS-11
65						
66.5	SS-14	"	20	23 8 7		SAME As SS-11

FORM 58A (Test)

Boring No. FD-85-26

PERSONA IT
Woburn MA

Boring No.

FD-85-26

Page 3

of 3

DEPTH		CORE/SAMPLE		BLOWS PER FT CORE REC'D		SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
1'	NO	SIZE	DEPTH RANGE	NO	RECVY		
68							
70.0							INCREASED GRAVEL FRACTION CHANGE NOTED @ 69'
71.5	SS-15	1 3/8	10	108	115		FC GRAVEL, LITTLE FINE SAND, TRAIL COBBLE, BA + BR
75.0							
	SS-16	"	10	100/12"		ALL CHANGES STOPPED IN POSSIBLE ADVANCE WITH 3 1/2" ROLLER BIT	FC GRAVEL, SOME COBBLE, LITTLE FINE SAND GY/BA, POSSIBLE TILL
	SS-17	WASH SAMPLE					WASH SAMPLE (CUTTINGS). NOTED COLOR CHANGE + NO WATER LOSS, POSSIBLE TILL
90.0						END OF EXPLORATION	

58A (Test)

Boring No. FD-85-26

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERJONA R. WOBURN MA DATE: 11/8/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: AD-85-26
 PIEZ TYPE: 2" ϕ SLOTTED, .010" DEPTH OF PIEZ: 75 RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL
 (SOIL TYPE): FL GRAY, SOME COARSE LITTLE SAND SAMPLE NO.: 55-16 BORING DIAM: 4"

METHOD OF INSTALLATION: 4" DRIVEN CASING + 3 3/8
 TYPE OF PROTECTION FOR PIEZ: 4" ϕ x 10' LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 43' ELEV. TOP OF RISER: 44.8 ELEV. PIEZ TIP: -32

FILTER: #2 SAND FROM ELEV: -37 TO ELEV: -29

SEAL: BENTONITE SLURRY FROM ELEV: -29 TO ELEV: -9

INSTALLED BY: CAMBRIDGE & BOYER CONTRACT NO.: 00.43 FOREMAN: FISHER

DATE OF INSTALLATION: 11/8/85 DATE OF OBSERVATIONS: 11/9/85

METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
1601	—	2.10						
1612	0	.97						
	1/2	2.00						
1613	1	2.10						

REMARKS: 1.8 Riser Stuck
- 2 ft screen (not longer because of fill)

FISHER
INSPECTOR

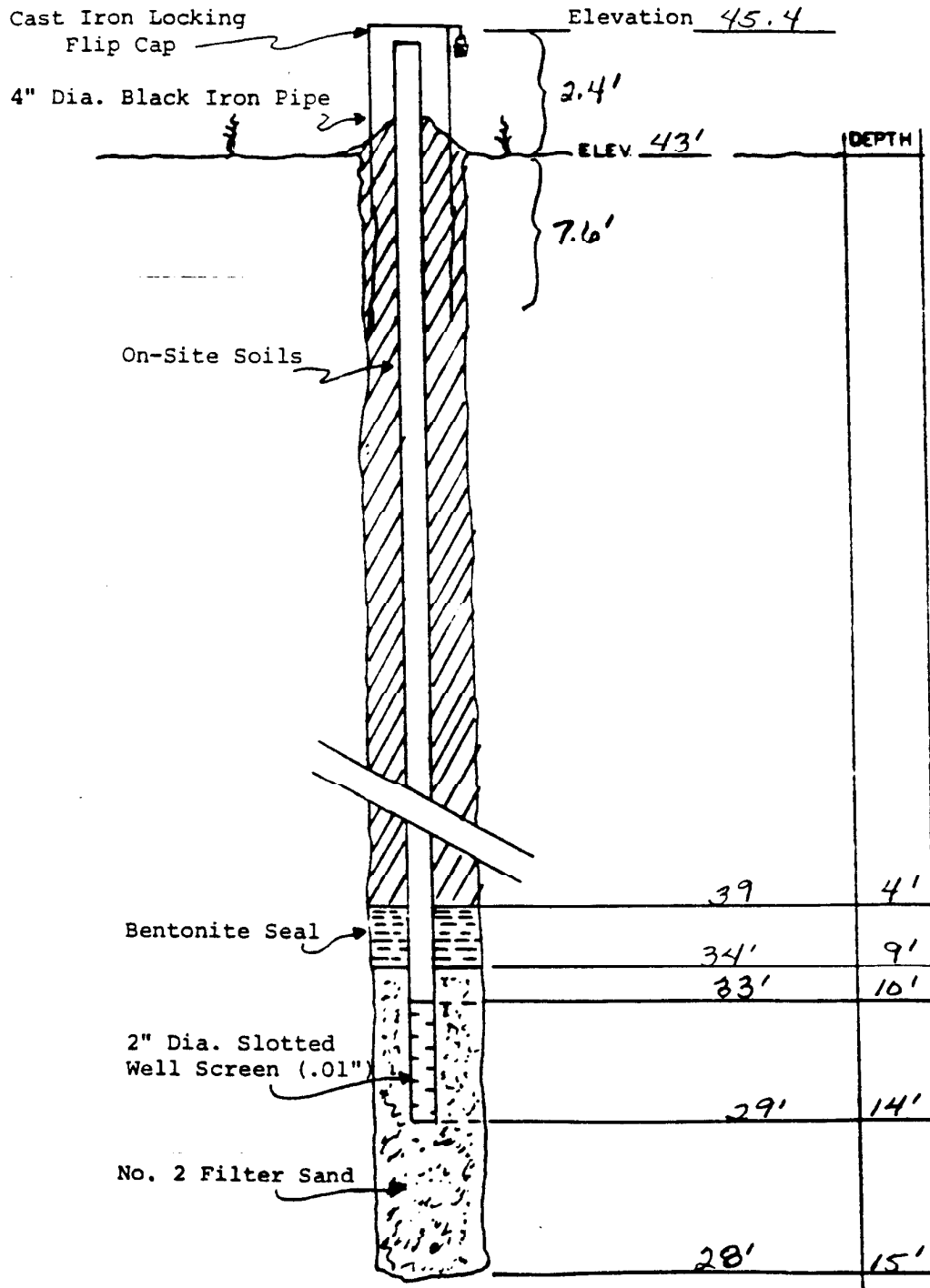
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project No. DACW-33-85-D-0011
D.O.#0003

Project: Aberjona River, Wells G&H
Woburn MA

Well No. FD85- 21
Cluster No. S-96



CLUSTER S-96

FD-85-21

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site ABERJONA RIVER
WELLS G+H, WOODMAN, MA

PROJECT NO.

DAWN-83-85-D-0011

DO #3

Page 1 of 2 Pages

Hole No. FD-85-21 Diam. (Casing) 4"Boring Started 10/29/85Co-ordinates: N SEE E DRAWINGBoring Completed 10/29/85Drilled by DAVIS J HAWKINS

Report Submitted

Purpose of Exploration PIEZOMETER INSTALLATIONElevation Top of Hole 43' M.S.L.Casing Left in Place TOTAL 10' FeetTotal Overburden Drilled 15' FeetElevation Top of Rock — M.S.L.Elevation Bottom of Hole 28' M.S.L.

SEE FD-85-20 FOR SOIL LOG

Total Rock Drilled 0 FeetTotal Depth of Hole 15' FeetCore Recovered — %Core Recovered — Ft.; — Diam. — In.Soil Samples NONE In. Diam. — No.Soil Samples — In. Diam. — No.Water Table Depth 0.25'

Depth		Method of Drilling and Type of Bit Used
From	To	
0	15	4" ID AUGER
		HYDRANT WATER USED DURING
		ALL DRILLING

INDEX

Ground Water — Back of Page —Boring Location Sketch — Back of Page —Overburden Record — Page —Rock Drilling — Page —— Page —— Page —— Page —Prepared by PAUL FISHER

Field Data

Lab. Data

Submitted by ATLANTIC TESTING LAB

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERJONA R W/ JOURNAL | DATE: 10/27/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-21
 PIEZ TYPE: 2" ϕ SLOTTED .010" DEPTH OF PIEZ: 14' RISER PIPE DIAM: 4"
 PIEZ TIP SET IN SOIL FD-85-20
 (SOIL TYPE): CME SAND SAMPLE NO.: 5-3 BORING DIAM: 8"

METHOD OF INSTALLATION: 4" ID AUGER
 TYPE OF PROTECTION FOR PIEZ: 4" ϕ X 10' LONG P.P.R VENT: LOCK CAP

GROUND ELEV.: 43' ELEV. TOP OF RISER: 45.4 ELEV PIEZ TIP: 29'

FILTER: #2 SAND FROM ELEV: 28' TO ELEV: 34'

SEAL: 3/8 PELTONITE FROM ELEV: 34' TO ELEV: 39'

INSTALLED BY: DAVIS + HAWKINS CONTRACT DAW-83-83-D-0011 NO.: D.O. #3 FOREMAN: FISHER

DATE OF INSTALLATION: 10/29/85 DATE OF OBSERVATIONS: 10/30/85

METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
0905	—	2.65						
0915	0	0						
	1/2	2.61						
0916	1	2.63						
0917	2	2.65						

REMARKS: - 2 - 2' SCREENS USED FOR PIEZ

- 2.4 RISER STICKUP

P. FISHER
INSPECTOR

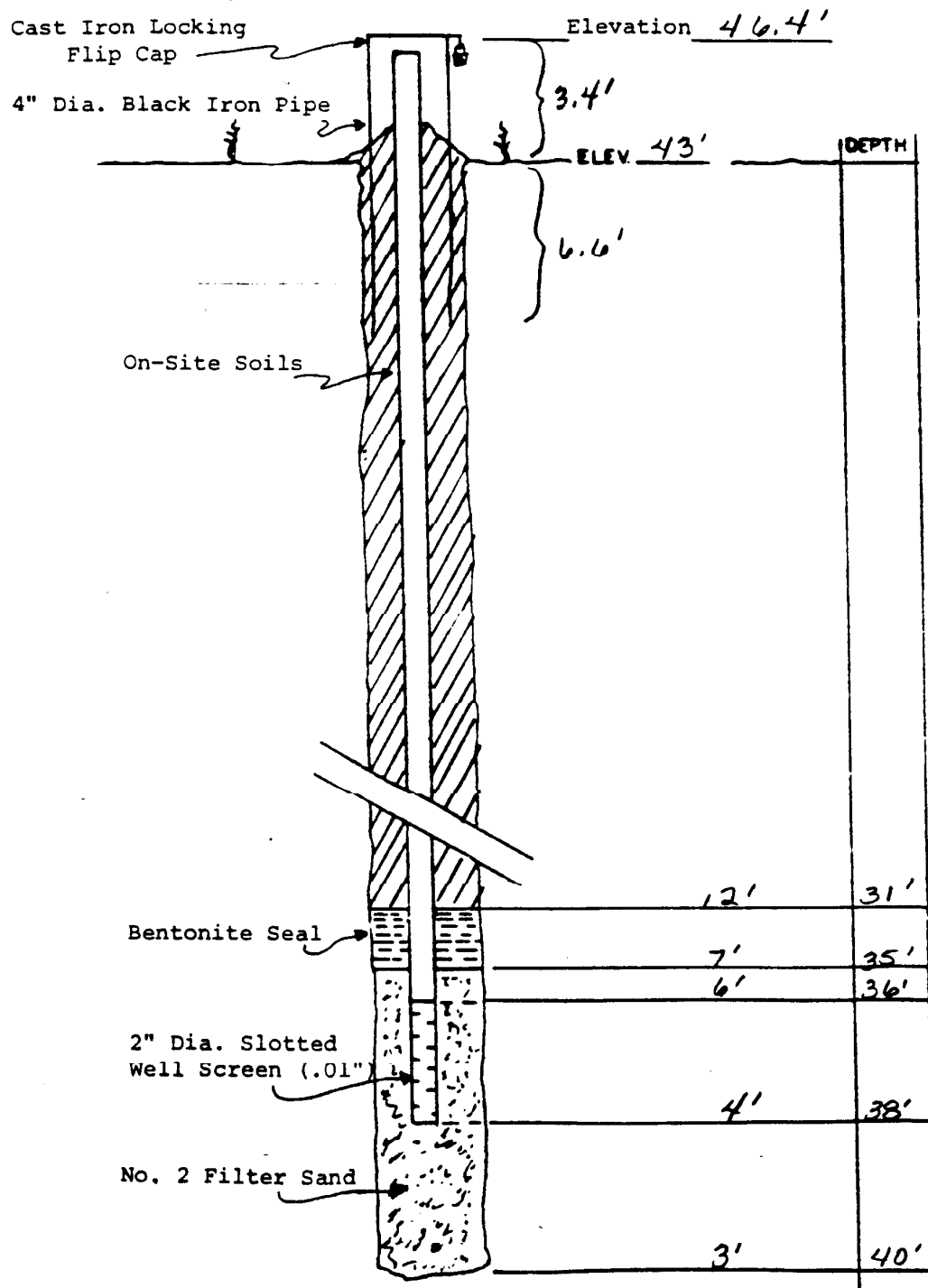
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project: Aberjona River, Wells G&H
Woburn MA

Project No. DACW-33-85-D-0011
D.O.#0003

Well No. FD85-22
Cluster No. S-96



CLUSTER S-96

FD-85-22

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site ABERJONA RIVER PROJECT NO. DALN-33-85-D-0011
WELLS ST + 4, WOBURN MA D.O. #3
Page 1 of 2 Pages
Hole No. FD-85-22 Diam. (Casing) 4" Boring Started 10/29/85
Co-ordinates: N SER E DRAWING Boring Completed 10/29/85
Drilled by DAVIS & HAWKINS Report Submitted _____
Purpose of Exploration PIEZOMETER INSTALLATION

Elevation Top of Hole 43 M.S.L.
Total Overburden Drilled 40 Feet
Elevation Top of Rock — M.S.L.
Elevation Bottom of Hole 3 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Hole 40 Feet
Core Recovered — %
Core Recovered — Ft.: — Diam. — In.
Soil Samples — In. Diam. — No.
Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10 Feet

SEE FD-85-21 FOR SOIL LOG

Water Table Depth 0.18'

Depth		Method of Drilling and Type of Bit Used	180022
From	To		
0	40	4" ID AUGER	Ground Water _____ Back of Page _____
		HYDRANT WATER USED DURING	Boring Location Sketch _____ Back of Page _____
		ALL DRILLING	Overburden Record _____ Page _____
			Rock Drilling _____ Page _____
			_____ Page _____
			_____ Page _____
			_____ Page _____

Prepared by PAUL FISHER

Field Data

Lab. Data

Submitted by ATLANTIC TESTING LAB

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERJONA RIVER WOBURN DATE: 10/29/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-22
 PIEZ TYPE: 2" ϕ SLOTTED .010" DEPTH OF PIEZ: 39' RISER PIPE DIAM: 3"
 PIEZ TIP SET IN SOIL FD-85-20
 (SOIL TYPE): M.F. SAND (SP) SAMPLE NO.: 55 9 BORING DIAM: 8"

METHOD OF INSTALLATION: 4" ID AUGER
 TYPE OF PROTECTION FOR PIEZ: 4" ϕ X 10 LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 43 ELEV. TOP OF RISER: 46.4 ELEV PIEZ TIP: 4'
 FILTER: #2 SAND FROM ELEV: 3' TO ELEV: 7'
 SEAL: 3/8" DELTANITE FROM ELEV: 7' TO ELEV: 12'
 INSTALLED BY: DAVIS & HARRIS CONTRACT DAW-85-85-D-001 NO.: 0.0. #3 FOREMAN: FISHER

DATE OF INSTALLATION: 10/29/85 DATE OF OBSERVATIONS: 10/30/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
0904	—	3.58	0913	3	3.58			
0910	0	0						
	1/2	2.97						
0911	1	3.44						
0912	2	3.56						

REMARKS: — 3.4' RISER STICKUP
— 2' SCREEN USE

P. FISHER
INSPECTOR

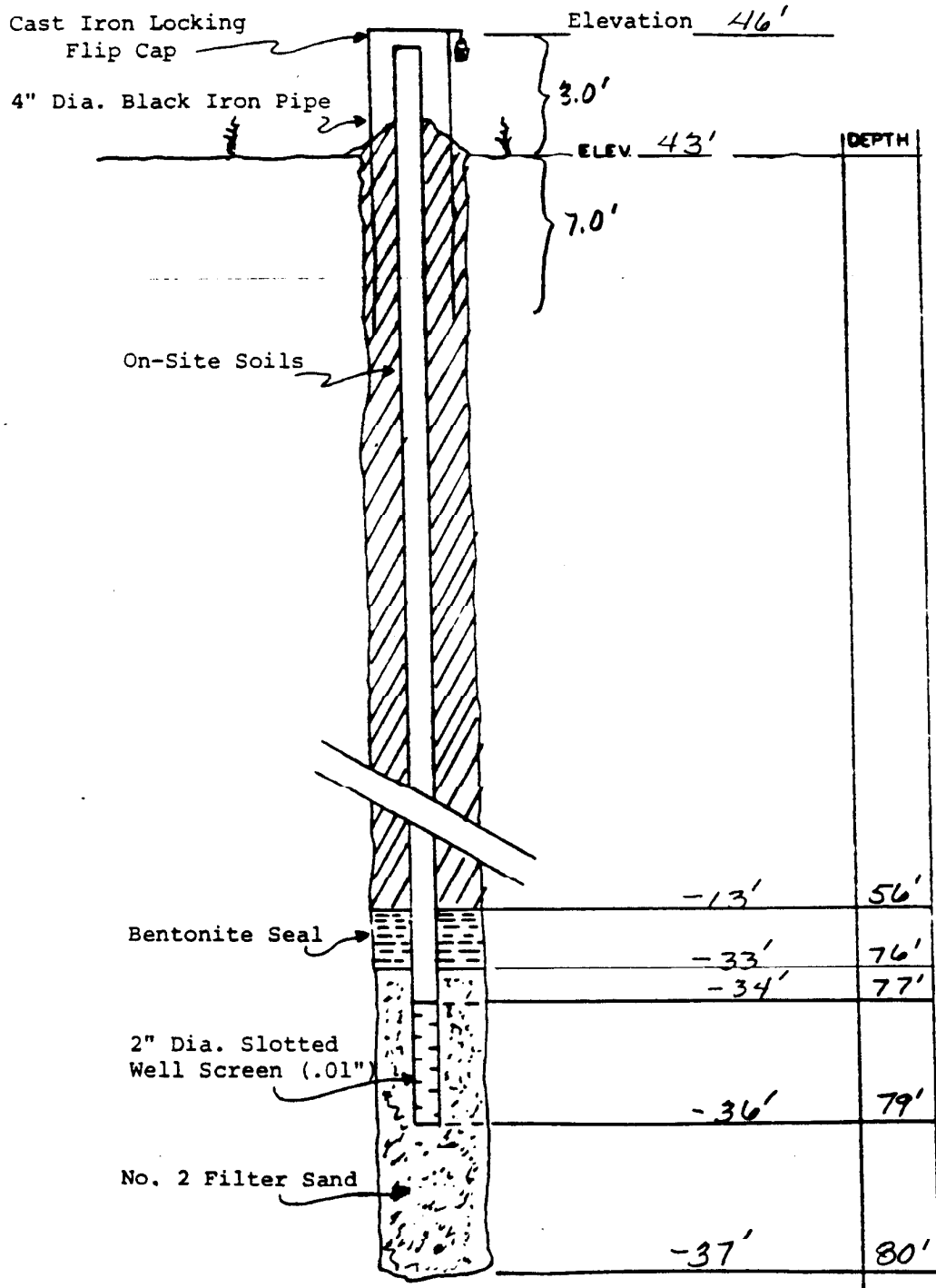
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project No. DACW-33-85-D-0011
D.O.#0003

Project: Aberjona River, Wells G&H
Woburn MA

Well No. FD85- 20
Cluster No. S- 96



CLUSTER S-96

FD-85-20

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site Aberjona River, Woburn MA PROJECT NO. DAW-33-B5-D-0011 D.O.# 3
Mole No. ED-85-20 Diam. (Casing) 4" Page 1 of 5 Pages
Co-ordinates: N sketch E — Boring Started 24 Oct 85
Drilled by Davis and Hawkins (ATL) Boring Completed 10/28/85
Report Submitted —

Purpose of Exploration soil sampling and piezometer installation to monitor contaminant plume at EPA Superfund site

Elevation Top of Hole 43' M.S.L.
Total Overburden Drilled 80' Feet
Elevation Top of Rock — M.S.L.
Elevation Bottom of Hole -37 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Hole 80' Feet
Core Recovered — %
Core Recovered — Ft.; — Diam. — In.
Soil Samples 13/8 In. Diam. 16 No.
Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10 Feet

Water Table Depth -0.06'

Depth		Method of Drilling and Type of Bit Used	INDEX
From	To		
0'	80.0"	driven casing washed out using 3 7/8" Tricone roller bit	Ground Water <u>—</u> Back of Page <u>1</u>
		HYDRANT WATER USED DURING ALL DRILLING	Boring Location Sketch <u>—</u> Back of Page <u>1</u>
			Overburden Record <u>—</u> Page <u>2</u>
			Rock Drilling <u>—</u> Page <u>2</u>
			<u>—</u> Page <u>—</u>
			<u>—</u> Page <u>—</u>
			<u>—</u> Page <u>—</u>

Prepared by TA Beddoe

Field Data

Lab. Data

Submitted by Atlantic Testing Labs, Ltd.

U. S. ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

Site 2501 252 F 105 11000 1100 Page 1 of 3 Page

Boring No. FD-85-20 Desig. 20 Diam. (Casing) 4"

FIELD LOG OF TEST BORING

Co-ordinates: N 200 252 11000 E —

Elevation Top of Boring 43 M.S.L. Hammer Wt. 100 lb Boring Started 24 Oct 85
Total Overburden Drilled 30 Feet Hammer Drop 20"
Elevation Top of Rock — M.S.L. Casing Left 4" Boring Completed 10/24/85
Total Rock Drilled 0 Feet (Subsurface Water Data) — (Page —)
Elevation Bottom of Boring -37 M.S.L. Obs. Well 2"
Total Depth of Boring 60 Feet Drilled By DAVIS & HAWKINS
Core Recovered — % No. Boxes — Mfg. Co. Drill TRACKMOUNTED CME 45
Core Recovered — Ft. — Diam. — In. Inspected By: P. FISHER
Soil Samples 138 In. Diam. 16 No. Classification By: P. FISHER
Soil Samples — In. Diam. — No. Classification By: T. BEEDOR

DEPTH	CORE/SAMPLE		BLOWS PER FT. CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIAL
	NO.	SIZE			
1.5	S-1	1 3/8	100	4' driven casing washed out using 3 7/8" Tritone roller bit	peat, wet, loose OM-OL no recovery in split spoon, so rubbed sample at 6" depth — change @ 2.0'
5.0	S-2	1 3/8	80%		grey with iron staining c-m-t san wet, loose (SP) trace contaminant
10.0	S-3	1 3/8	100%		similar soils - (SP) no iron staining
15.0	S-4	1 3/8	65		SAME AS S-3 trace contaminant
20.0	S-5	1 3/8	100		similar soils (SP) trace contaminant

GENERAL REMARKS:

contaminant suspected 1,2 trans dichloroethylene

Site
Abington River Station MA

Boring No.
FD-85-20

Page 1
of 4

DEPTH	CORE/SAMPLE	BLOWS PER FT CORE RECVY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
1". 85.0	NO. SIZE	DEPTH RANGE		
24.5	SS-6 1 3/8	24.5 23 5		Similar soils (SP) + trace contaminants
30.0				
31.5	SS-7 1 3/8	100% 2 3		Similar Soils (SP)
35.0				
36.5	SS-8 1 3/8	100% 12 6		Similar Soils (SP)
40.0				
41.5	SS-9 1 3/8	100% 3 5 5		Similar soils (SP) only red
45.0				
46.5	SS-10 1 3/8	100% 3 5 5		Similar soils (SP) gray again
50.0				
51.5	SS-11 1 3/8	50% 3 2 6	change @ 39'	Similar soils (SP) to 51.0 change to comp SAND, some fine GRAVEL, gray, moist, loose (SW)
55.0			End of explorations 10/24/86 @ 51' - water level @ surface at start of explorations 10/25/85	
56.5	SS-12 1 3/8	50% 3 3 6		gray MP SAND, and fine GRAVEL, with SILT, wet, loose. SW with gravel
60.0				
61.5	SS-13 1 3/8	60% 10 9 12		change @ 57.5 gray MP SAND, trace fine GRAVEL, trace SILT, wet loose (SD)
65.0				
66.5	SS-14 1 3/8	50% 39 15 7	change @ 66.5	similar soils to 60.0, then brown MP sand, loose moist (SD) to (SP) + trace contaminants
67.5				

Site A 60' BORE HOLE, WOODHURST, MA					Boring No. FD-85-20		Page 3 of 3	
DEPTH		CORE/SAMPLE		BLOWS PER FT	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS		
1" 5'	NO	SIZE	REMARKS	REMARKS				
67.5			REL					
70.0								
71.5	55-5	13	200	26	END 10/25/85 START 10/28/85	brown CMP SAND, some CO GRAVEL, trace SILT, iron stained horizons, wet, somewhat dense SW with gravel		
75.0						73.5' POSSIBLE CHANGE		
76.5	55-16		0%	ON COARSE	WASH SAMPLE	CMP SAND + GRAVEL, LITTLE COBBLE, CR.		
80.0					END OF EXPLORATION			

PIEZOMETER INSTALLATION REPORT

PROJECT: Abolona Pond Woburn, MA DATE: 10/24/85
 LOCATION (STA): 500+20.0 OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-20
 PIEZ TYPE: 2" ϕ SLOTTED .010" DEPTH OF PIEZ: 79' RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL (SOIL TYPE): CMF SAND + GRAVEL, LITTLE CLAY SAMPLE NO.: 55-16 BORING DIAM: 4"
 METHOD OF INSTALLATION: 3/4" ROLLER BIT FOLLOWED BY 1" DRIVEN CASING
 TYPE OF PROTECTION FOR PIEZ: 10' LONG X 4" ϕ PPE VENT: LOCK CAP
 GROUND ELEV.: 43' ELEV. TOP OF RISER: 46' ELEV. PIEZ TIP: -36'
 FILTER: #2 SAND FROM ELEV: -37' TO ELEV: -33'
 SEAL: BENTONITE SLURRY FROM ELEV: -33' TO ELEV: -13'
 INSTALLED BY: Davis & Hawkins (ATL) CONTRACT DAW-33-85-D-0011 NO.: 20*3 FOREMAN: FISHER
 DATE OF INSTALLATION: 10/28/85 DATE OF OBSERVATIONS: 10/30/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
0906	—	2.94	0922	3	2.94			
0919	2	0						
	1/2	2.84						
0920	1	2.90						
0921	2	2.93						

REMARKS: 2' SCREEN USE
→ 3.0 RISER STICK UP

P. FISHER
 INSPECTOR

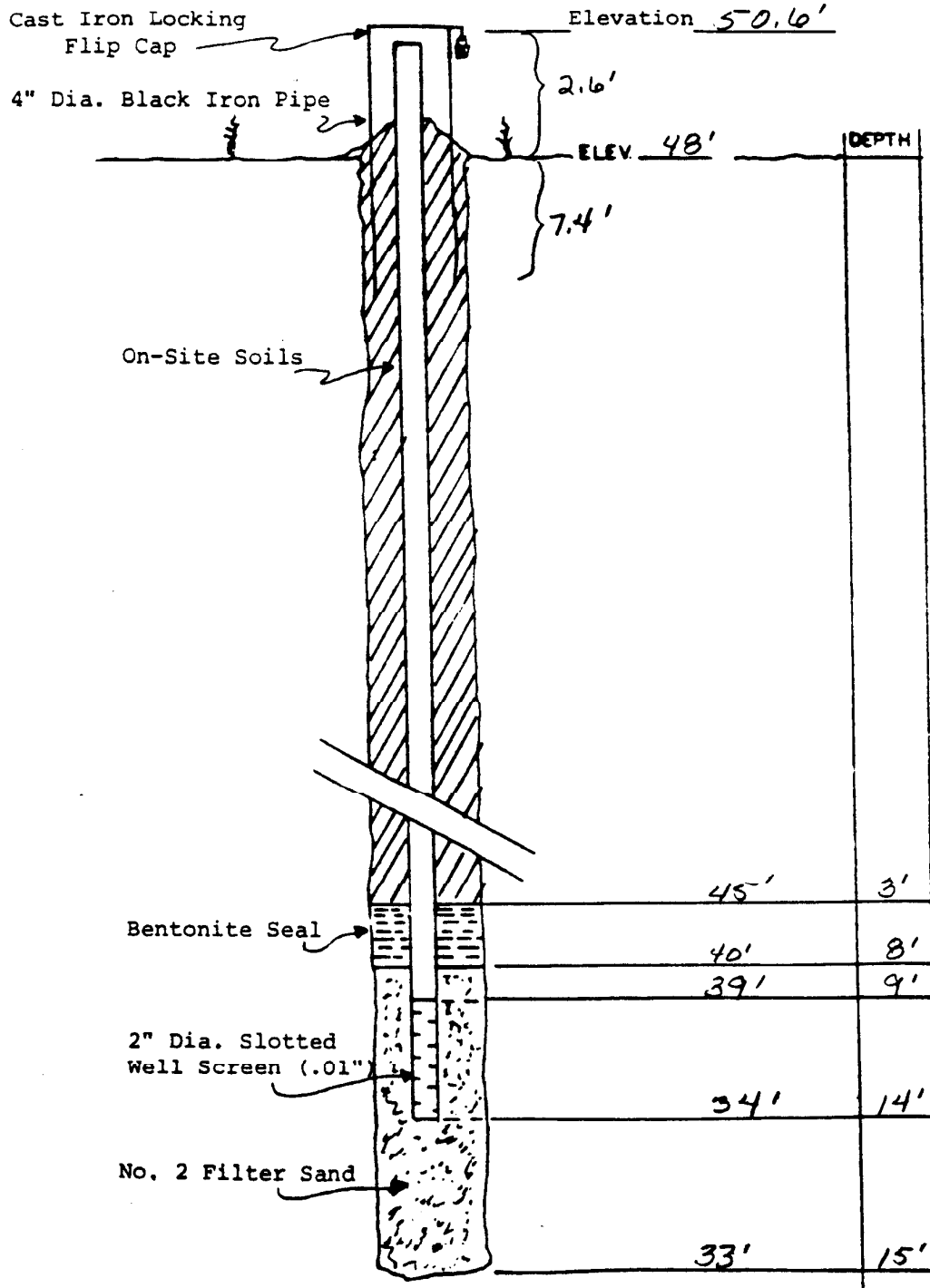
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project: Aberjona River, Wells G&H
Woburn MA

Project No. DACW-33-85-D-0011
D.O.#0003

Well No. FD85- 34
Cluster No. S- 97



PIEZOMETER INSTALLATION REPORT

PROJECT: ASERKUN R. Woburn MA DATE: 11/11/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-34
 PIEZ TYPE: 2"φ X 5' LONG SHOTDRILL .010" DEPTH OF PIEZ: 14' RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL FD-85-32
 (SOIL TYPE): SAND & GRAVEL TR SILT SAMPLE NO.: SS-4 BORING DIAM: 8"
 METHOD OF INSTALLATION: 4" ID AUGER
 TYPE OF PROTECTION FOR PIEZ: 4"φ X 10' LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 48 ELEV. TOP OF RISER: 50.6 ELEV PIEZ TIP: 34'
 FILTER: #2 SAND FROM ELEV: 33' TO ELEV: 40'
 SEAL: 3/8 FELTONITE FROM ELEV: 40' TO ELEV: 45'
 INSTALLED BY: CAMBRIDGE & BOYER CONTRACT NO.: DC-#3 FOREMAN: FISHER
 DATE OF INSTALLATION: 11/11/85 DATE OF OBSERVATIONS: 11/11/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
		7.00	1512	3	7.00			
1515	0	9.1						
1516	1	6.58						
1517	2	6.92						
		6.98						

REMARKS:

2.6 RISER STICKUR

FISHER
INSPECTOR

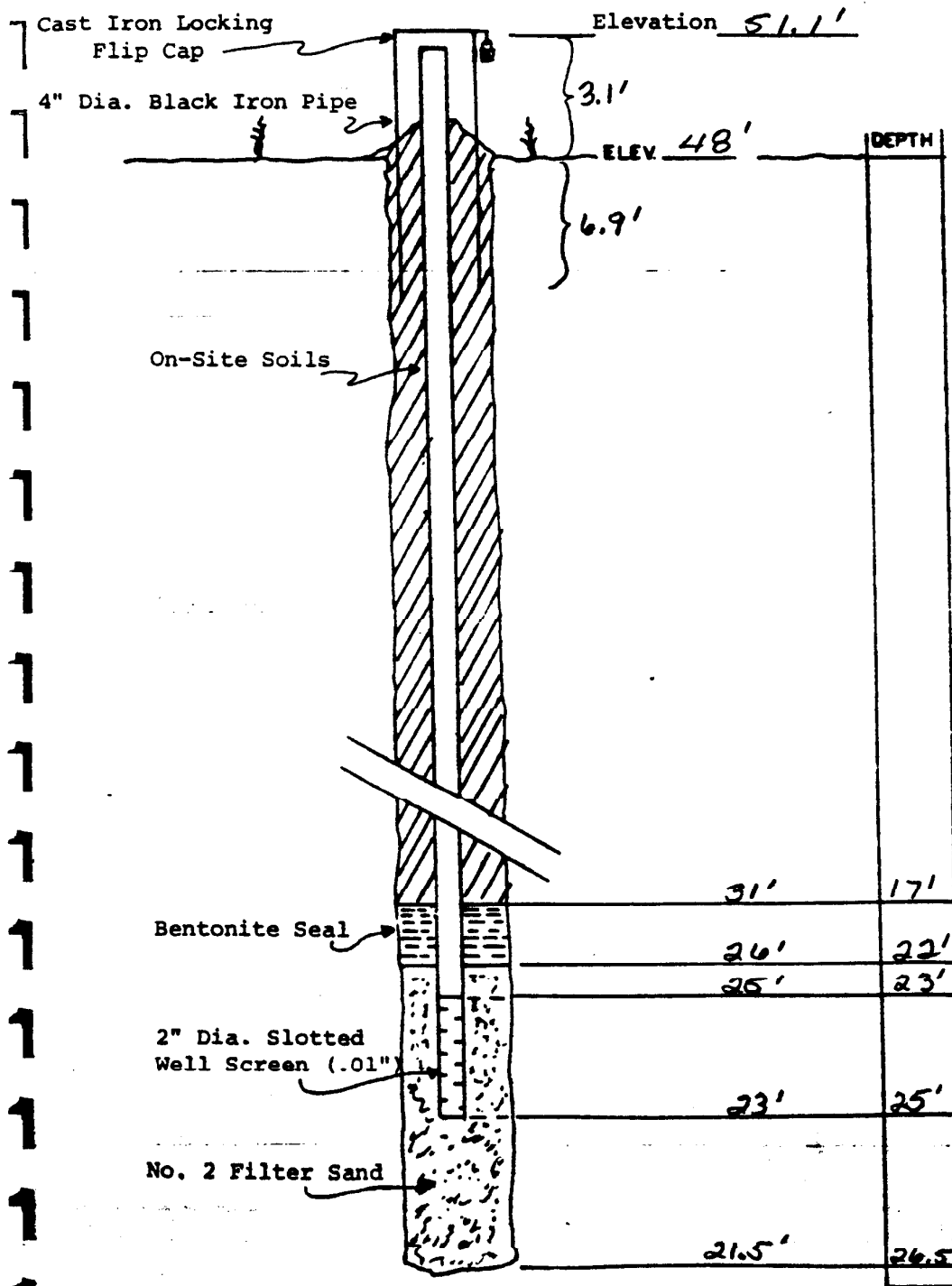
ATLANTIC TESTING LABORATORIES, LIMITED

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OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED
Aberjona River, Wells G&H
Project: Woburn MA

Project No. DACW-33-85-D-0011
D.O.#0003
Well No. FD85-33
Cluster No. S-97



CLUSTER S-97

FD-85-33

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

Site ABERJONA RIVER PROJECT NO. DACN-33-85-D-0011
WELLS & H, LYBURN, MA D.O. #3
Page 1 of 1 Pages
Mole No. FD-85-33 Dim. (Casing) 4 Boring Started 11/11/85
Co-ordinates: N SEE E DRAINING Boring Completed 11/11/85
Drilled by CAMBRIDGE & BOYER Report Submitted _____

Purpose of Exploration SOIL SAMPLING AND PIEZOMETER INSTALLATION

Elevation Top of Mole 48 M.S.L.
Total Overburden Drilled 26.5 Feet
Elevation Top of Rock — M.S.L.
Elevation Bottom of Mole 21.5 M.S.L.
Total Rock Drilled 0 Feet
Total Depth of Mole 26.5 Feet
Core Recovered — %
Core Recovered — Ft.: — Dim. — In.
Soil Samples 1 3/4 In. Diam. 2 No.
Soil Samples — In. Diam. — No.

Casing Left in Place TOTAL 10 Feet

SEE FD-85-32 FOR TOTAL SOIL LOG

Water Table Depth 3.21'

Depth		Method of Drilling and Type of Bit Used	INDEX
From	To		
0	26.5	4" ID - 8" OD AUGER HYDRAULIC WATER USED DURING ALL DRILLING	Ground Water _____ Back of Page _____ Boring Location Sketch _____ Back of Page _____ Overburden Record _____ Page _____ Rock Drilling _____ Page _____ _____ Page _____ _____ Page _____ _____ Page _____

Prepared by PAUL FISHER
Field Data

Submitted by ATLANTIC TEST LAB
Lab. Data

FORM
NED DEC 63 121

REPLACES EDITION OF JUN 51 WHICH MAY BE USED UNTIL EXHAUSTED

U. S. ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

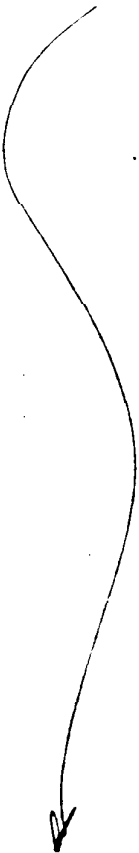
Site ABERDEEN, WEARN M Page 1 of 2 Pages

Boring No. ED-85-33 Desig. 33 Diam. (Casing) 4"

FIELD LOG OF TEST BORING

Co-ordinates: N SEE DRAWING E

Elevation Top of Boring 48 M.S.L. Hammer Wt. 140 Boring Started 11/11/85
Total Overburden Drilled 26.5 Feet Hammer Drop 30
Elevation Top of Rock — M.S.L. Casing Left 4" Boring Completed 11/11/85
Total Rock Drilled 0 Feet | Subsurface Water Data — (Page —)
Elevation Bottom of Boring 26.5 M.S.L. ; Obs. Well 2"
Total Depth of Boring 26.5 Feet Drilled By CAMBRIDGE & BOYER
Core Recovered — % No. Boxes — Mfg. Des. Drill TRACK MOUNTED CM 255
Core Recovered — Ft — Diam. — In. Inspected By: PAUL FISHER
Soil Samples 1 3/8 In. Diam. 2 No. Classification By: FISHER
Soil Samples — In. Diam. — No. Classification By: —

DEPTH		CORE/SAMPLE			BLOWS PER FT.	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	1"=5'	NO.	SIZE	DEPTH RANGE			
	0			REL		4" ID x 8" OD AUGER 	
	5						
	10						
	15						
	20						
	24.5	SS-1	1 3/8	30%	17 3/4 24		
GENERAL REMARKS:							

PIEZOMETER INSTALLATION REPORT

PROJECT: ABERDEEN R., WOBURN, MA DATE: 11/11/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-33
 PIEZ TYPE: 2" ϕ x 2' LONG SLOTTED .010" OF PIEZ DEPTH: 25' RISER PIPE DIAM: 2"
 PIEZ TIP SET IN SOIL (SOIL TYPE): SAND + GRAVEL TR SILT SAMPLE NO.: SS-2 BORING DIAM: 8"
 METHOD OF INSTALLATION: 4" ID x 9" OD AUGER
 TYPE OF PROTECTION FOR PIEZ: 4" ϕ x 10' LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 48' ELEV. TOP OF RISER: 51.1' ELEV PIEZ TIP: 23'
 FILTER: #2 SAND FROM ELEV: 21.5' TO ELEV: 26'
 SEAL: 3/8 PULTRONITE FROM ELEV: 26' TO ELEV: 31'
 INSTALLED BY: CAMBRIDGE & BAKER CONTRACT NO.: D.O. #3 FOREMAN: FISHER
 DATE OF INSTALLATION: 11/11/85 DATE OF OBSERVATIONS: 11/11/85
 METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
		6.31	1504	3	6.21			
1505	0	0	1507	4	6.27			
	1/2	4.13	1510	5	6.29			
1506	1	5.37	1512	7	6.31			
1507	2	6.10						

REMARKS:

3.1' RISER STUCK UP

FISHER
INSPECTOR

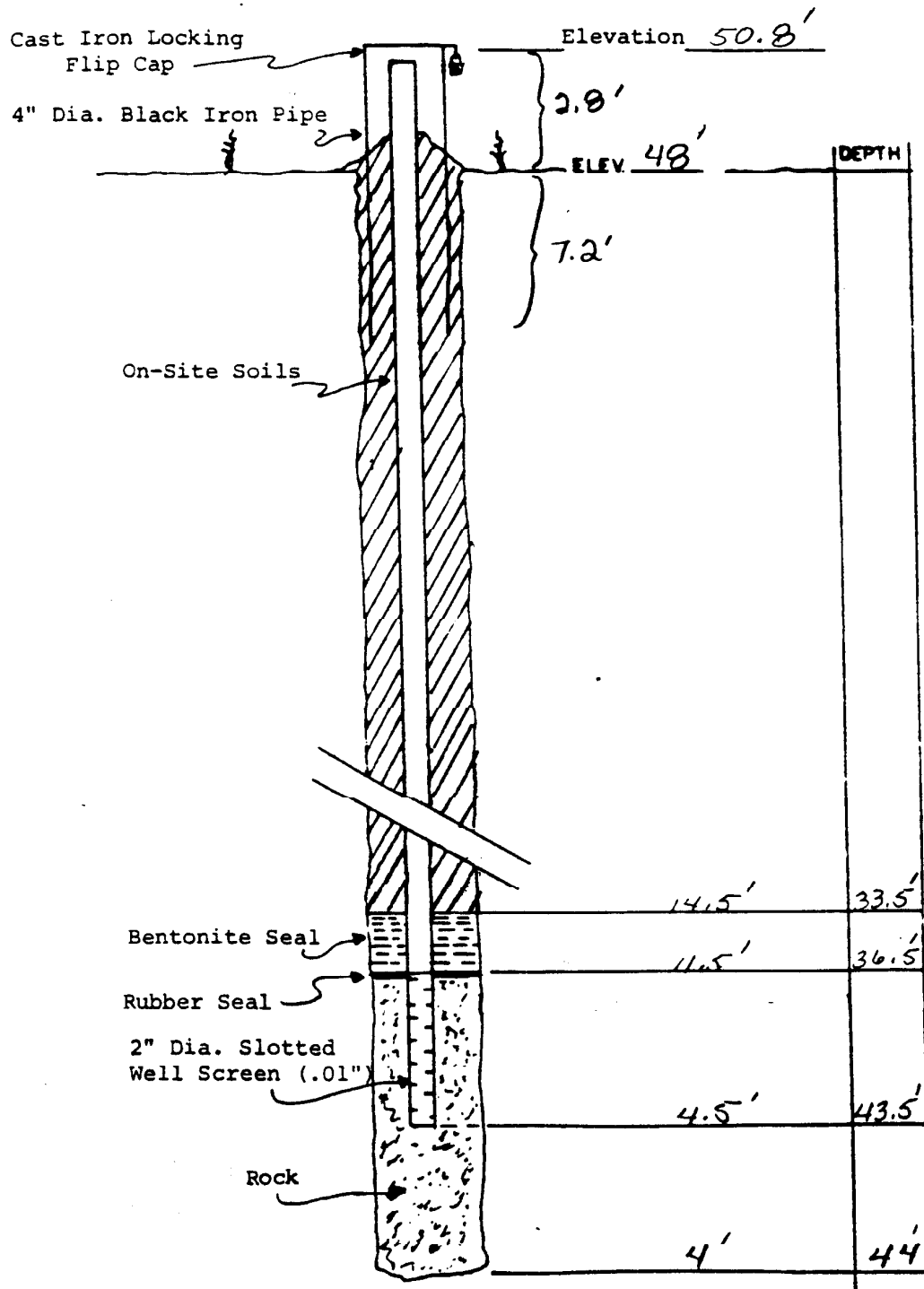
OBSERVATION WELL INSTALLATION DETAIL

Client: ARMY CORPS OF ENGINEERS, NED

Project No. DACW-33-85-D-0011
D.O.#0003

Project: Aberjona River, Wells G&H
Woburn MA

Well No. FD85- 32
Cluster No. S- 97



CLUSTER S-97

FD-85-32

CORPS OF ENGINEERS, U. S. ARMY
NEW ENGLAND DIVISION
FOUNDATION AND MATERIALS BRANCH
FIELD LOG OF TEST BORING

ABERJONA RIVER, PROJECT NO. DACW-33-85-D-0011
Site WELLS ST 4, WOBURN, MA D.O. #3
Mole No. FD-85-32 Diam. (Casing) 4" Page 1 of 4 Pages
Co-ordinates: N SEE E DRAWING Boring Started 11/10/85
Drilled by CAMBRIDGE & BOYER Boring Completed 11/11/85
Report Submitted _____
Purpose of Exploration SOIL SAMPLING & PRESSUREMETER INSTALLATION

Elevation Top of Mole 4B M.S.L. Casing Left in Place TOTAL 10 Feet
Total Overburden Drilled 33.5 Feet
Elevation Top of Rock 14.5 M.S.L.
Elevation Bottom of Mole 4 M.S.L.
Total Rock Drilled 10.5 Feet
Total Depth of Mole 44 Feet
Core Recovered _____ %
Core Recovered _____ Ft.; _____ Diam. _____ In.
Soil Samples 170 In. Diam. 8 No.
Soil Samples _____ In. Diam. _____ No.
Water Table Depth 3.10'

Depth		Method of Drilling and Type of Bit Used	INDEX
From	To		
0	33.5	4" ID X 8" OD AUGER HYDRANT WATER USED DURING ALL DRILLING	Ground Water _____ Back of Page _____ Boring Location Sketch _____ Back of Page _____ Overburden Record _____ Page _____ Rock Drilling _____ Page _____ _____ Page _____ _____ Page _____ _____ Page _____
33.5	44	2" ID CORE BARREL	

Prepared by PAUL FISHER
Field Data

Submitted by ATLANTIC TESTING LAB
Lab Data

FORM
NED DEC 83 121

REPLACES EDITION OF JUN 51 WHICH MAY BE USED UNTIL EXHAUSTED

U. S. ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

Site FERGUSON ROAD, MA Page 1 of 2 Pages

Boring No. FD-85-32 Desig. 32 Diam. (Casing) 4

FIELD LOG OF TEST BORING

Co-ordinates: N SEE DRAWING E ---

Elevation Top of Boring 48 M.S.L. Hammer Wt. 140 Boring Started 11/10/85
Total Overburden Drilled 33.5 Feet Hammer Drop 30
Elevation Top of Rock 14.5 M.S.L. Casing Left 4" Boring Completed 11/11/85
Total Rock Drilled 10.5 Feet | Subsurface Water Data --- | Page ---
Elevation Bottom of Boring 4 M.S.L. Obs. Well 2"
Total Depth of Boring 44 Feet Drilled By CAMBRIDGE + BOYER
Core Recovered --- % No. Boxes 1 Mfg. Des. Drill TRAIL MOUNT CME 55
Core Recovered --- Ft. --- Diam. 2 in. Inspected By: PAUL FISHER
Soil Samples 1 3/8 in. Diam. 8 No. Classification By: FISHER
Soil Samples --- in. Diam. --- No. Classification By: ---

DEPTH Ft.	CORE/SAMPLE		BLOWS PER FT. CORE RECOVERY	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	NO.	SIZE			
1.5	SS-1	1 3/8	REL 22	4" ID, 8" OD AUGER 3/8" ROLLER BIT	FM SAND, SOME TOP SOIL, ROOT MATTER BK TO TAN CONTAMINANTS NOTED BY NUS
5.0					▽ WATER @ 3.5'
6.5	SS-2	"	30 + 2 32		FM SAND, TAN (SP) CONTAMINANTS GRAVELLY FMC SAND, BK + TAN (SP)
10.0					
11.5	SS-3	"	30 27 1A		FMC SAND + FC GRAVEL, TR SILT TAN + BK TR COBBLES CONTAMINANTS
15.0					
16.5	SS-4	"	30 12 10 21		SAME AS SS-3 CONTAMINANTS
20.0					
21.5	SS-5	"	35 10 15 20		SAME AS SS-3 CONTAMINANTS

GENERAL REMARKS:

Site <u>ABERSONIA R</u> <u>WINDHAM, MA</u>						Boring No. <u>FD-85-32</u>	Page <u>2</u> of <u>2</u>
DEPTH		CORE/SAMPLE		BLOWS PER FT		SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	<u>1.5'</u> <u>25.0</u>	NO.	SIZE	BEAM PENET	CONE RESIST		
	<u>26.5</u>	<u>SS-6</u>	<u>1 3/8</u>	<u>REL</u> <u>45%</u>	<u>15</u> <u>45</u> <u>100</u>	<u>4" ID AUGER</u>	<u>SAME AS SS-3</u> <u>CONTAMINANTS</u>
	<u>30.0</u>	<u>SS-7</u>	<u>"</u>	<u>80%</u>	<u>40-100</u> <u>75</u>		<u>GRAVELLY FINE SAND, LITTLE SILT,</u> <u>CONTAMINANTS</u>
	<u>33.5</u> <u>34.0</u>	<u>SS-8</u>	<u>WASH SAMPLE</u>			<u>TOP OF BED ROCK</u> <u>3 3/4" ROLLER</u>	<u>WASH SAMPLE, SAND, SILT &</u> <u>ROCK CUTTINGS</u>
	<u>39.0</u>		<u>2"</u>		<u>49"</u> <u>60"</u>	<u>NX (2 3/4" OD x 2" ID) CORE</u> <u>BARREL (5' LONG)</u>	<u>GRANITE ROCK (RQD @</u> <u>28" / 60"). NOTED 3" VOID</u> <u>@ 37.5'.</u>
	<u>44.0</u>		<u>2</u>		<u>64"</u> <u>60"</u>	<u>END OF EXPLORATION</u>	<u>CONT. BED ROCK (RQD @</u> <u>22" / 60") NOTED 3" VOID @</u> <u>40'</u>

PIEZOMETER INSTALLATION REPORT

PROJECT: AGERONA R. WOBURN DATE: 11/11/85
 LOCATION (STA): SEE DRAWING OFFSET FROM CENTER LINE: — PIEZ NO.: FD-85-32
 PIEZ TYPE: 2" ϕ X 2' LONG SLOTTED .010" OF PIEZ DEPTH: 43.5 RISER PIPE DIAM: 2"
 PIEZ TIP SET IN (SOIL TYPE): BED ROCK SOIL SAMPLE NO.: CORE BORING DIAM: 8"
 METHOD OF INSTALLATION: 4" I.D. AUGER + 2" I.D. CORE BARREL
 TYPE OF PROTECTION FOR PIEZ: 4" ϕ X 10' LONG PIPE VENT: LOCK CAP
 GROUND ELEV.: 48' ELEV. TOP OF RISER: 50.8 ELEV. PIEZ TIP: 4.5
 FILTER: NONE FROM ELEV: — TO ELEV: —
 SEAL: 3/8 PELTONITE FROM ELEV: 11.5 TO 14.5 TO ELEV: 19.5

INSTALLED BY: CAMBRIDGE + BOYER CONTRACT NO.: D.O. #3 FOREMAN: FISHER

DATE OF INSTALLATION: 11/11/85 DATE OF OBSERVATIONS: 11/11/85

METHOD OF TESTING PIEZ.: FALLING HEAD TEST

TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET	TIME	ELAPSED TIME MINUTES	DEPTH TO WATER FEET
		5.90	1501	10	2.39	1942	4 HRS 5 MIN	5.69
1451	0	0	1513	22	4.44	0642	15 HRS 5 MIN	5.62
1452	1	.42	1525	34	5.13	POSSIBLE RAIN CHARGE		
1453	2	.82	1551	60	5.61			
1456	5	1.75	1631	120	5.74			

REMARKS: 5' + 2' SCREEN IN ROCK
2.8 RISER STICK UP

FISHER
INSPECTOR

SECTION 9

OTHER RECORDS TAKEN

ATLANTIC TESTING LABORATORIES, LIMITED

Sustaining Member—N.Y.S. Society of Professional Engineers

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September 27, 1985

Box 29
Canton, N.Y. 13617
(315) 386-4578

U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Mass. 02254-9149

Box 356
Cicero, N.Y. 13039
(315) 690-5281

Attn: James Blair
Building 117 South

Re: Woburn, Mass.
ATL Project No. CD002-9-85
Delivery Order No. 0003

Gentlemen:

Mechanical analyses were performed on samples of Type No. 2, 3 and 4 silica sand at our laboratory. Test results are as follows:

PERCENT PASSING

<u>Sieve Size</u>	<u>Type No. 2</u>	<u>Type No. 3</u>	<u>Type No. 4</u>
1/4" (0.25")	100	100	100
#10 (0.787")	100	100	99
#20 (.0331")	90	55	11
#40 (.0165")	4.4	1.7	0.5
#80 (.0070")	0	0	0
#200 (.0029")	0	0	0

Based on the above sieve analyses, it appears that the material is predominantly coarser than the 0.010 inch particle size. We intend to use Type No. 3 silica sand on this job. See attached grain size distribution graph.

Please feel free to contact our office should you have any questions.

Respectfully submitted,

Judy Ames

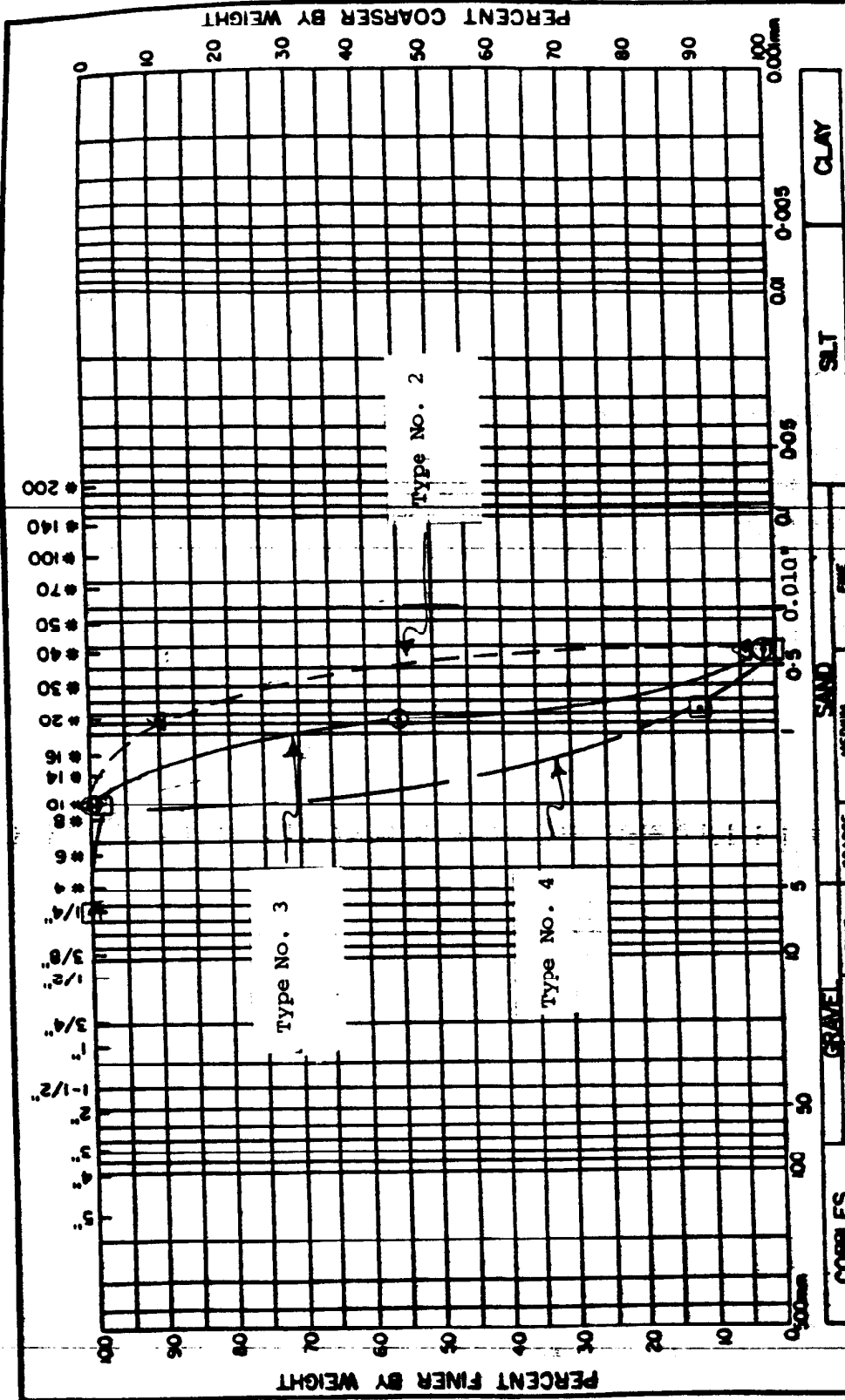
Judy Ames, CET

JA/smf
att.



ATLANTIC TESTING LABORATORIES, Limited

GRAIN SIZE DISTRIBUTION GRAPH



Sample No.	Ele. / Depth	Classification	w% LL	PL	PI

PROJECT: Woburn, Mass.

CLIENT: U.S. Army Corps Engineers
Waltham, Mass.

DATE: 9-27-85 JOB No. CD002-85