

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P. O. BOX 621  
HONOLULU, HAWAII 96809

MICHAEL D. WILSON  
CHAIRPERSON  
ROBERT G. GIRALD  
DAVID A. NOBRIGA  
LAWRENCE H. MIKE  
RICHARD H. COX  
HERBERT M. RICHARDS, JR.  
RAE M. LOUI, P.E.  
DEPUTY

NOV - 1 1996

Mr. Jon Fukuda  
U.S. Army  
DPW, ATTN: APVG-GVW, U.S. Army Garrison  
Schofield Barracks, HI 96857-5000

Dear Mr. Fukuda:

Well Construction / Pump Installation Permit Application  
Well No. 2901-13

We have received your well construction / pump installation permit application and filing fee for the MW1-1 Well (Well No. 2901-13). However, your application is incomplete.

We are returning the original well construction/pump installation permit application to you (attached). Please complete all highlighted areas on the application and return the completed application to our office. A copy of your application has been made for our record.

Other matters which must be addressed before we accept your application as complete are as follows:

1. Please complete all highlighted areas on the original well completion reports for the following wells (originals attached; copies have been made for our record):
  - a. Well No. 2901-13
  - b. Well No. 3004-02
  - c. Well No. 3004-03
  - d. Well No. 2802-01

With regard to MW4-2, our records indicate that there are two (2) wells named MW4-2; one is assigned Well No. 2900-01 and the other is assigned Well No. 3004-02 (see attached map, permit applications, permits, and well completion reports for the two wells). Please confirm if there are two existing wells named MW4-2.

Mr. Jon Fukuda  
Page 2

NOV - 1 1996

Also, note that the well completion report - Part II for Well No. 2900-01 shows a permanent pump installation. We request that you submit an after-the-fact application for the permanent pump installation in Well No. 2900-01. We have attached a blank application form for your use.

You are correct in that Well No. 3004-03 refers to MW4-3 instead of MW4-4; we apologize for this typographical error in our letter of April 11, 1996. We also confirm that Well No. 2900-02 refers to MW2-1, as indicated on the table in your letter of October 14, 1996.

Upon receipt of the above information we will accept your application as complete and you can then expect your application to be processed within ninety (90) days.

If you have any questions about your permit application, please contact Lenore Nakama of the Commission staff at 587-0218. Thank you for your continued assistance and cooperation in matters related to water resources.

Sincerely,



RAE M. LOUI  
Deputy Director

LN:fc

Enclosure

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



MICHAEL D. WILSON  
CHAIRPERSON  
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P. O. BOX 621  
HONOLULU, HAWAII 96809

RAE M. LOUI, P.E.  
DEPUTY

REF:CWRM-SS

MAY - 9 1996

Mr. Jon Fukuda  
United States Army  
DPW, Attn: APVG-GWV, U.S. Army Garrison  
Schofield Barracks, HI 96857-5000

Dear Mr. Fukuda:

After-the-Fact Well Construction Permit  
MW 2-1 (Well No. 2900-02)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s). As part of the Commission's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 11:

Special Conditions

1. Standard Conditions 1, 2, and 9 are waived.

Please sign the permit copies and return one for our files.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214 or 1-800-468-4644 extension 70214.

Aloha,

A handwritten signature in black ink, appearing to read "Michael D. Wilson".

MICHAEL D. WILSON  
Chairperson

Enclosures

# AFTER-THE-FACT WELL CONSTRUCTION PERMIT

## MW 2-1 Well, Well No. 2900-02

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of MW 2-1 Well (Well No. 2900-02) at Schofield Barracks, Oahu, TMK 7-6-01, subject to the following conditions:

### STANDARD PERMIT CONDITIONS

1. The Commission on Water Resource Management, P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work by this permit commences.
2. The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached **Aquifer Pump Testing Procedure** (attached). The permittee shall submit to the Commission the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Commission.
3. The permittee shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible.
4. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (587-0045) immediately.
5. The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct the well shall not constitute a determination of correlative water rights.
6. The following shall be submitted to the Commission within thirty (30) days from the date of approval:
  - a. Well completion report, (attached - Part I, Well Construction Report).
  - b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
  - c. As-built sectional drawing of the well.
  - d. Plot plan and map showing the exact location of the well.
  - e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other water quality data.
7. The permittee shall comply with all applicable laws, rules, and ordinances.
8. The well construction permit application is incorporated into the permit by reference.
9. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.
10. If the well is not to be used it must be properly capped. If the well is to be abandoned then the applicant must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.
11. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: **5/9/96**  
Expiration Date: **5/9/98**

  
MICHAEL D. WILSON, Chairperson  
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Firm or Title: \_\_\_\_\_

Please sign both copies and return one copy of this permit to the Commission and retain a copy for your record.

Attachment  
cc:

USGS  
Department of Health/ Safe Drinking Water & Wastewater Branches  
Honolulu Board of Water Supply

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



MICHAEL D. WILSON  
CHAIRPERSON  
  
ROBERT G. GIRALD  
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HERBERT M. RICHARDS, JR.

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P. O. BOX 621  
HONOLULU, HAWAII 96809

RAE M. LOUI, P.E.  
DEPUTY

REF:CWRM-SS

MAY - 9 1996

Mr. Jon Fukuda  
United States Army  
DPW, Attn: APVG-GWV, U.S. Army Garrison  
Schofield Barracks, Hawaii 06857-5000

Dear Mr. Fukuda:

After-the-Fact Pump Installation Permit  
MW 2-1 (Well No. 2900-02)

Enclosed are two (2) copies of your approved Pump Installation Permit for the captioned well(s). As part of the Commission's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 10:

Special Conditions

1. Standard Conditions 1 and 8 are waived.
2. The requirement to install a flowmeter (Standard Condition 3) is waived.

Please sign the permit copies and return one for our files.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214 or 1-800-468-4644 extension 70214.

Aloha,

MICHAEL D. WILSON  
Chairperson

Enclosures

# AFTER THE-FACT PUMP INSTALLATION PERMIT

## MW 2-1 Well, Well No. 2900-02

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the pump installation for MW 2-1 Well (Well No. 2900-02) at Schofield Barracks, Oahu, TMK 7-6-01, subject to the following conditions:

### STANDARD PERMIT CONDITIONS

1. The Commission on Water Resource Management, P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work covered by this permit commences.
2. The pump installation permit shall be for installation of a 25 gpm capacity, or less, pump in the well.
3. The permittee shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on a monthly basis.
4. The proposed use shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.
5. The applicant shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Commission within thirty (30) days from the date of approval.
6. The applicant shall comply with all applicable laws, rules, and ordinances.
7. The pump installation permit application is incorporated into the permit by reference.
8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.
9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the applicant must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.
10. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: 5/9/96  
Expiration Date: 5/9/98

  
MICHAEL D. WILSON, Chairperson  
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Firm or Title: \_\_\_\_\_

Please sign both copies and return one copy of this permit to the Commission and retain a copy for your record.

Attachment  
cc: USGS  
Department of Health/ Safe Drinking Water & Wastewater Branches  
Honolulu Board of Water Supply

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



RECEIVED  
SAFE DRINKING WATER BRANCH

MICHAEL D. WILSON  
CHAIRPERSON  
ROBERT G. GIRALD  
DAVID A. NOBRIGA  
LAWRENCE H. MIIKE  
RICHARD H. COX  
HERBERT M. RICHARDS, JR.  
RAE M. LOUI, P.E.  
DEPUTY

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P. O. BOX 621  
HONOLULU, HAWAII 96809

APR 15 1996

APR 11 1996

TO: Honorable Lawrence Miike, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch

FROM: Michael D. Wilson, Chairperson *MDS*  
Commission on Water Resources Management

SUBJECT: After-the-Fact Applications for Well Construction/Pump Installation Permits  
MW2-1 through 2-5, MW4-2A, & MW4-4 Wells  
Well Nos. 2900-02, 2903-01, 2902-03, 2801-02, 2959-01, 3004-05, & 3004-04

Transmitted for your review and comment are copies of after-the-fact applications for well construction/pump installation permits.

We would appreciate your comments on the captioned applications for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by April 29, 1996.

Please find a map, attached, to locate the wells. If you have any questions about these permit applications, request additional information, or request additional review time, please contact Lenore Nakama at 587-0218.

LN:ss  
Attachment(s)

RESPONSE:  We have no comments  
 Comments attached

Contact Person: Bill Wong Phone: 5864258

Signed: Bill Wong Date: 4/15/96

RECEIVED  
96 APR 17 13:30  
COMMISSION ON WATER  
RESOURCE MANAGEMENT

BENJAMIN J. GAYETANO  
GOVERNOR OF HAWAII



APR 15 1996

*gr*  
*KAS*

MICHAEL D. WILSON  
CHAIRPERSON  
  
ROBERT G. GIRALD  
DAVID A. NOBRIGA  
LAWRENCE H. MIIKE  
RICHARD H. COX  
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STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P. O. BOX 621  
HONOLULU, HAWAII 96809

RAE M. LOUI, P.E.  
DEPUTY

APR 11 1996

TO: Honorable Lawrence Miike, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch

FROM: *gr* Michael D. Wilson, Chairperson *mg*  
Commission on Water Resources Management

SUBJECT: After-the-Fact Applications for Well Construction/Pump Installation Permits  
MW2-1 through 2-5, MW4-2A, & MW4-4 Wells  
Well Nos. 2900-02, 2903-01, 2902-03, 2801-02, 2959-01, 3004-05, & 3004-04

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Please find a map, attached, to locate the wells. If you have any questions about these permit applications, request additional information, or request additional review time, please contact Lenore Nakama at 587-0218.

LN:ss  
Attachment(s)

RESPONSE:  We have no comments  
 Comments attached

Contact Person: Lori N. Kajiwara Phone: 587-2993

Signed: Lori N. Kajiwara Date: 4/12/96

92 APR 19 1996  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P2: 27

RECEIVED



2018 18 BS: SJ

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
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DEPUTY

APR 11 1996

Mr. Jon Fukuda  
U.S. Army  
DPW, Attn: APVG-GWV, U.S. Army Garrison  
Schofield Barracks, HI 96857-5000

Dear Mr. Fukuda:

Permit Applications for MW2-1 through 2-5, MW4-2A, & MW4-4  
(Well Nos. 2900-02, 2903-01, 2902-03, 2801-02, 2959-01, 3004-05, & 3004-04)

We accepted your after-the-fact well construction/pump installation permit applications on February 27, 1996, and hereby acknowledge that they are complete. You can expect your applications to be processed for action within ninety (90) days from that acceptance date.

We are returning your check for \$175.00 because government agencies are not subject to the payment of any fees (§13-171-12(c) HAR).

Thank you for submitting the boring logs and well completion diagrams for Wells MW1-1, MW4-1, and MW4-3. We have reviewed the record for each of the monitor wells shown on your map. Listed below are the items that should be submitted to complete the record for the following wells:

1. MW1-1 (Well No. 2901-13)
  - a. After-the-fact application for a well construction/pump installation permit.
  - b. Well completion report (Parts I and II, attached)
2. MW4-2 (Well No. 3004-02)
  - a. Well completion report (Parts I and II, attached)
  - b. As-built sectional drawing of the well
  - c. As-built sectional drawing of the pump
3. MW4-2 (Well No. 2900-01)
  - a. As-built sectional drawing of the pump
4. MW4-4 (Well No. 3004-03)
  - a. Well completion report (Parts I and II, attached)

In addition, documentation from a Hawaii-licensed surveyor should be submitted for all of your monitor wells.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI  
Deputy Director

LN:ss  
Enclosure

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
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DEPUTY

APR 11 1996

TO: Honorable Lawrence Miike, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch

FROM: *for* Michael D. Wilson, Chairperson *mg*  
Commission on Water Resources Management

SUBJECT: After-the-Fact Applications for Well Construction/Pump Installation Permits  
MW2-1 through 2-5, MW4-2A, & MW4-4 Wells  
Well Nos. 2900-02, 2903-01, 2902-03, 2801-02, 2959-01, 3004-05, & 3004-04

Transmitted for your review and comment are copies of after-the-fact applications for well construction/pump installation permits.

We would appreciate your comments on the captioned applications for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by April 29, 1996.

Please find a map, attached, to locate the wells. If you have any questions about these permit applications, request additional information, or request additional review time, please contact Lenore Nakama at 587-0218.

LN:ss  
Attachment(s)

RESPONSE:  We have no comments  
 Comments attached

Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

RECEIVED : 2/27/96

**To:** Mr. Charlie Ice  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, Hawaii 96809

**From:** Bruce S. Wedgeworth  
Associate Geologist

**Date:** February 27, 1996

**Subject:** Schofield Barracks RI/FS; Schofield Barracks, Oahu, Hawaii

**Project Number:** 28339 01.01.12

Submitted for your review and approval are seven Applications for Permits and seven Well Completion Reports for monitoring wells MWs 2-1 through 2-5, MW4-2A, and MW4-4 that were installed for the Schofield Barracks Remedial Investigation/Feasibility Study (RI/FS) project. Also enclosed are boring logs and well completion diagrams for Wells MW1-1, MW4-1, and MW4-3, though they were previously permitted. We are conducting this project on behalf on the U.S. Army. Groundwater chemistry data for each of the wells are pending but will be published by the Army in the Final OU 2 RI Report. If requested, this data can be sent to you after release by the Army.

Also enclosed is a check for \$175 (for seven well applications at \$25 each).

If you have any questions, please contact me.

BSW/MWC/rmf

Enclosures: Applications for Permit, Wells MW2-1 through MW2-5, MW4-2A, and MW4-4  
Well Completion Reports, Wells MW2-1 through MW2-5, MW4-2A, and MW4-4  
Monitoring Well Location Map, USGS Quadrangles  
Tax Map Key  
Table 1. Water-Level Data  
Table 2. Location Coordinates of Wells Drilled at Schofield Barracks  
Boring Logs and Well Completion Diagrams (also includes MWs 4-1, 4-3, and 1-1)  
\$175 Check Payment, Harding Lawson Associates



**Harding Lawson Associates**  
235 Pearlridge Center, Phase 1  
Aiea, Hawaii 96701  
(1)-808 486 6009



State of Hawaii  
 COMMISSION ON WATER RESOURCE MANAGEMENT  
 Department of Land and Natural Resources

WELL COMPLETION REPORT

Instructions: Please print or type and submit completed report within 30 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 587-0225, or 1-800-468-9694 Ext 7-0225.

- 1. STATE WELL NO. 2900-02 WELL NAME MW2-1 96786 ISLAND Oahu
- 2. LOCATION: Address East Range Rd., Schofield Barracks HI Tax Map Key 7-6-01
- 3. DRILLING OR PUMP INSTALLATION CONTRACTOR Roscoe Moss Hawaii, Inc.
- 4. CONTRACTOR'S C-57 LICENSE NUMBER C-16437
- 5. NAME OF DRILLER WHO PERFORMED WORK Elmo Shephard
- 6. TYPE OF RIG/CONSTRUCTION Air Rotary/Star 150K
- 7. DATE OF WELL DRILLING COMPLETION 11/19/94  
(NOTE: Report must be submitted within 30 days after this date)

- 8. GROUND ELEVATION (msl) 902 ft.  
 Top of Drilling Platform (msl) 904 ft.  
 Height of Drilling Platform above Ground surface 2 ft.  
 Bench Mark and Method Used to Determine Ground Elevation +866.38 ft. (differential leveling)

9. DRILLER'S LOG:

Water Level Dates	Depth (ft.)	Rock Description, Remarks,	Water Level Dates	Depth (ft.)	Rock Description, Remarks,
to		See attached boring log	to		
to			to		
to			to		
to			to		
to			to		

(If more space is needed, continue on back.)

- 10. TOTAL DEPTH OF WELL BELOW GROUND 796 ft.
- 11. HOLE SIZE: 18 inch dia. from 0 ft. to 30 ft. below ground  
13 inch dia. from 30 ft. to 796 ft. below ground  
         inch dia. from          ft. to          ft. below ground
- 12. CASING INSTALLED:  
6 in. I.D. x 0.28 in. wall solid section to 619 ft. below ground  
6 in. I.D. x 0.25 in. wall perforated section to 769 ft. below ground  
 Type of Perforation Horizontal louvered openings
- 13. ANNULUS: Grouted from 0 ft. below ground to 593 ft. below ground  
 Gravel packed from 605 ft. below ground to 781 ft. below ground
- 14. INITIAL WATER LEVEL 616.45 ft. below ground. Date and time of measurement 0823 hrs., 11/21/94
- 15. INITIAL CHLORIDE 17 ppm Date and time of sampling 1520 hrs., 05/31/95
- 16. INITIAL TEMPERATURE 70.5 °F Date and time of sampling 1408 hrs., 05/31/95
- 17. PUMPING TESTS: Reference Point (R.P.) used:         , which elevation is          ft.  
 Date          Date           
 Start water level          ft. below R.P. Start water level          ft. below R.P.  
 End water level          ft. below R.P. End water level          ft. below R.P.  
 Depth of well          ft. below R.P. Depth of well          ft. below R.P.

18. AQUIFER PUMP TEST PROCEDURES DATA & GRAPHS ATTACHED?  Yes  No

PUMP INSTALLATION REPORT

- 19. DATE OF PUMP INSTALLATION 5/10/95
- 20. PUMP INSTALLATION: Submersible, Meyers,  
 Pump Type, Make, Serial No. 3JF7543-25B Capacity 25 gpm  
 Motor type, H.P., Voltage, rpm Franklin Electric, 7.5 HP, 460V, 1760 RPM  
 Depth of Pump Intake Setting 763 ft. below ground surface, which elevation is 141 ft.  
 Depth of bottom of airline N/A ft. below         , which elevation is          ft.  
 Pumping Head is 632 ft.

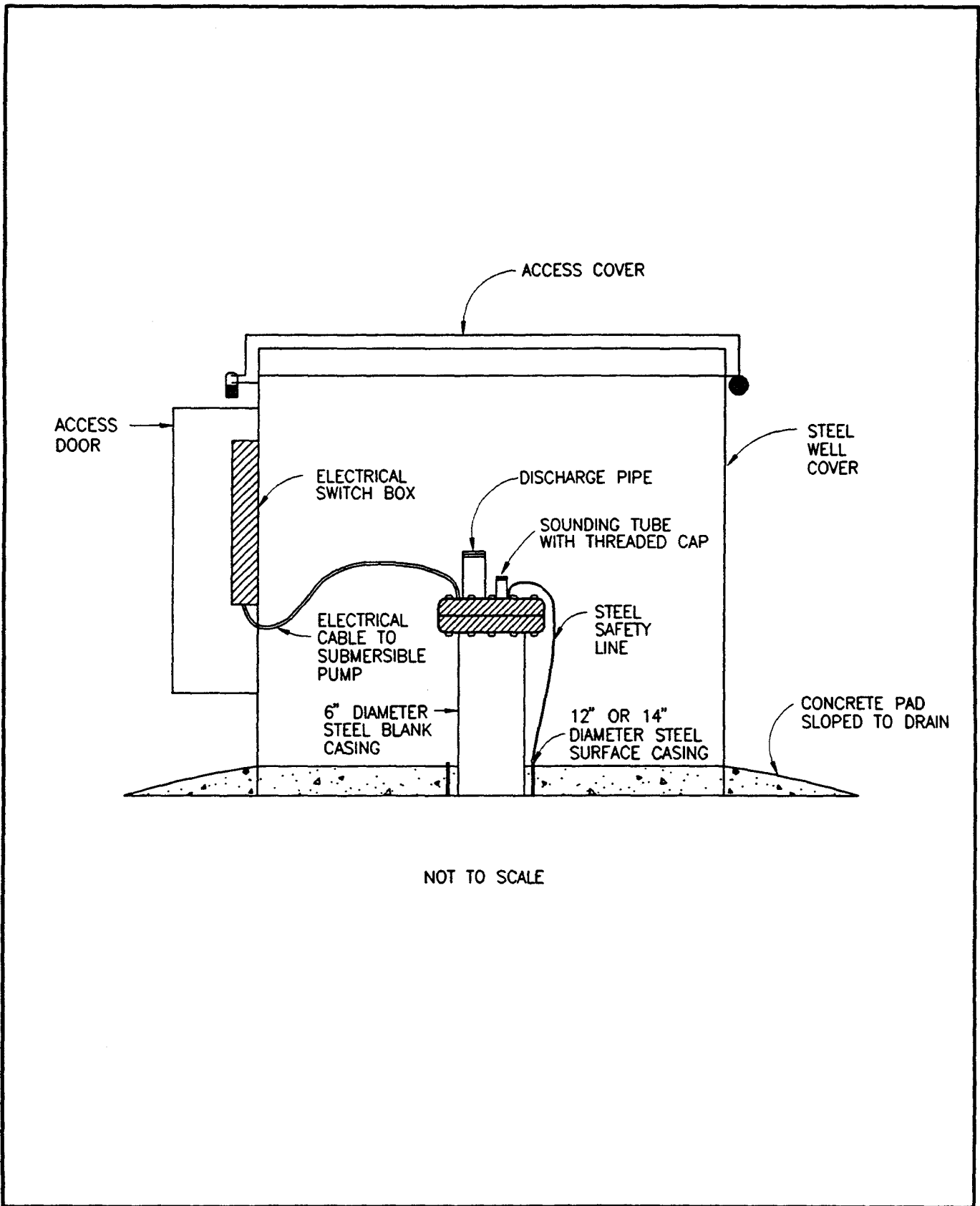
Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 (If more space is needed, continue on back.)

Contractor (print) Roscoe Moss Hawaii, Inc Title Manager  
 Signature Tracy Rummel Date 2/15/96

For Driller's Use:  
 Job Name \_\_\_\_\_ Job No. \_\_\_\_\_

For Official Use: Well No. 2900-02  
 Longitude 158 00 53 Latitude 21 29 27





NOT TO SCALE

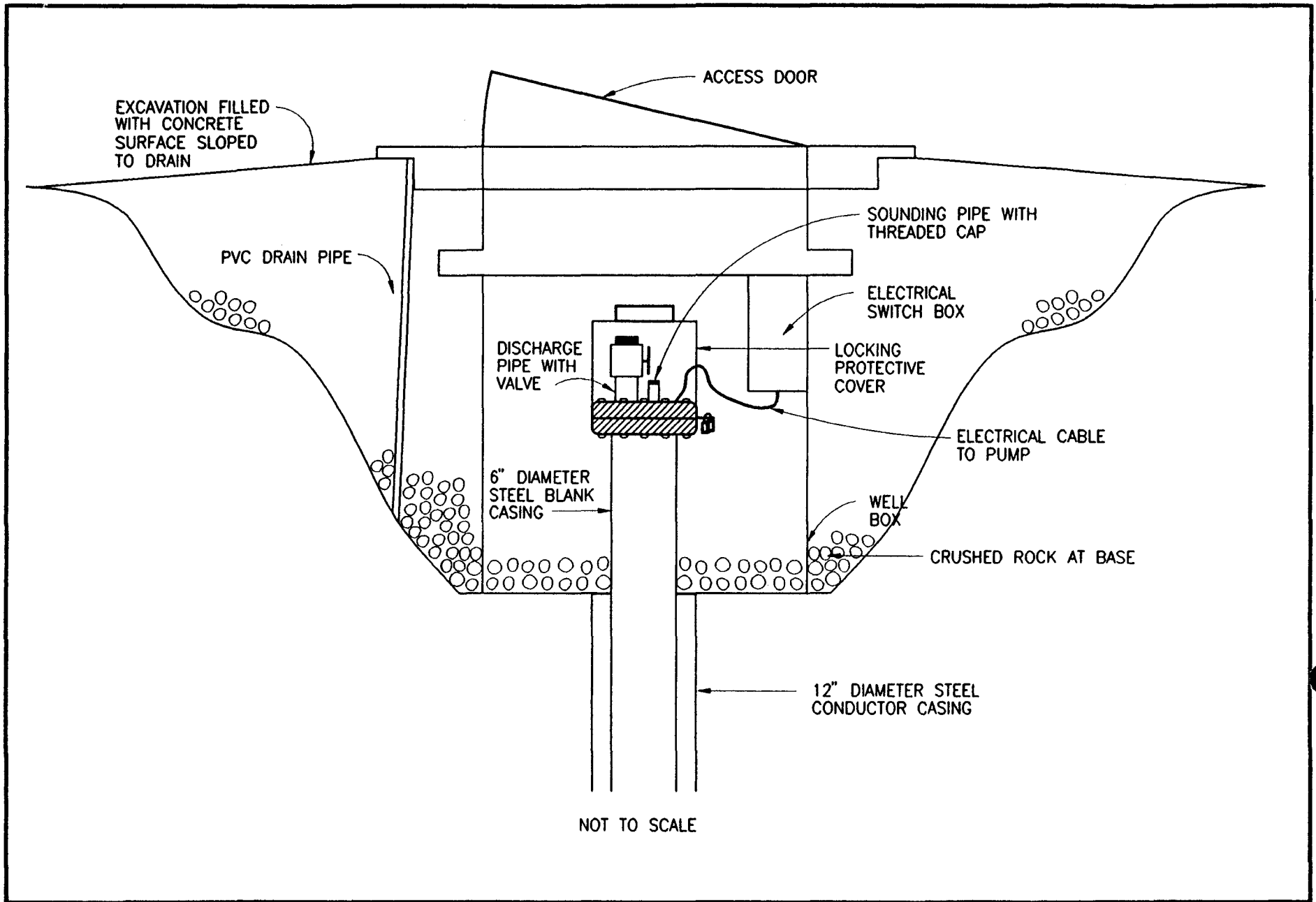


**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Monitoring Wells 2-1 Through 2-5 and 4-2A**  
**Typical Well Head and Well Cover Detail**  
 Schofield Barracks  
 Island of Oahu, Hawaii

FIGURE

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
jcl	28339.09.02.12		28339052_1.0 19951106.1529	10/95	



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Monitoring Well 1-1 Detail**  
 Schofield Barracks  
 Island of Oahu, Hawaii

FIGURE

DRAWN  
 jcl

JOB NUMBER  
 28339.09.02.12

APPROVED

FILE  
 28339051\_1.0  
 19951106.1538

DATE  
 10/95

REVISED DATE



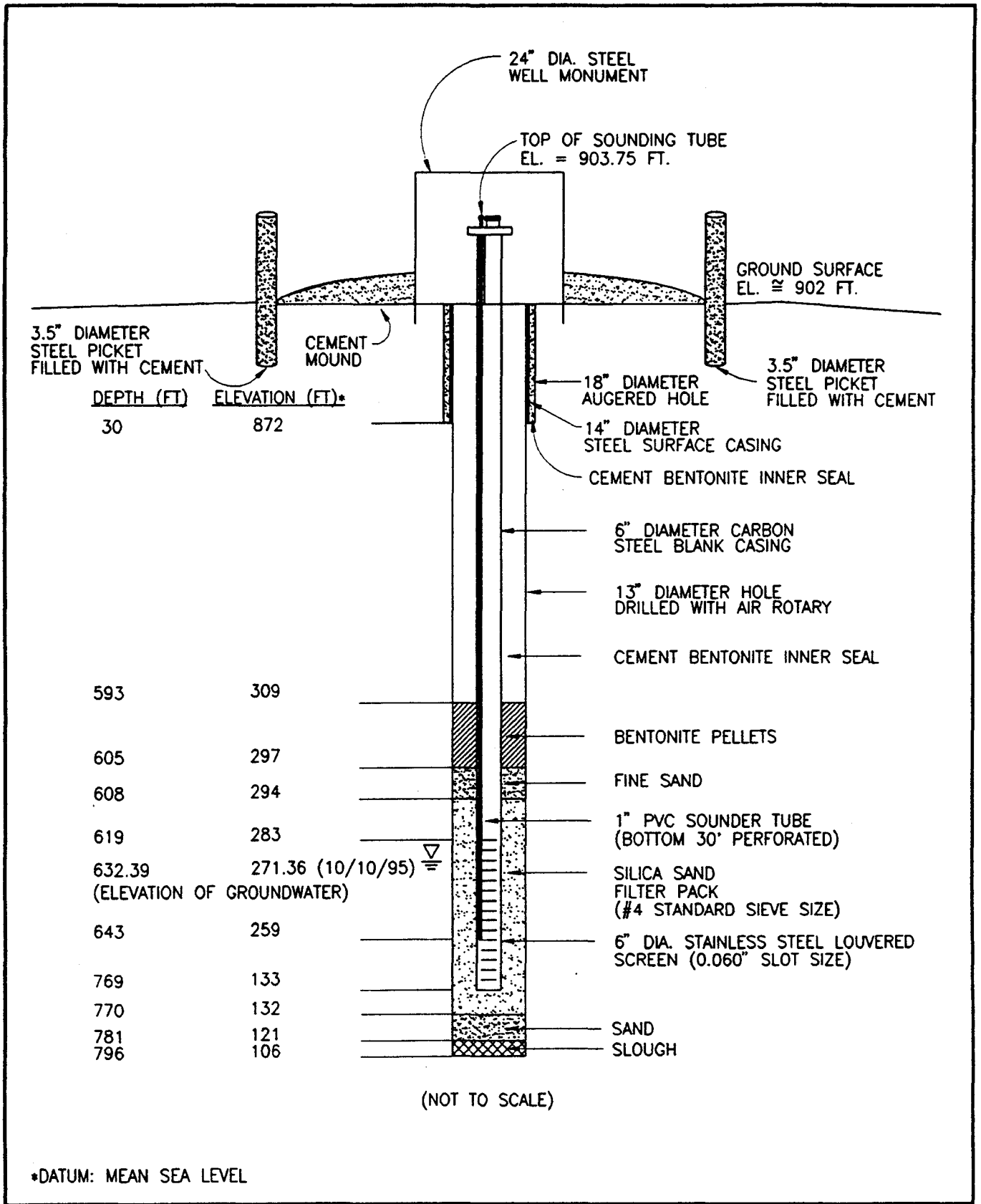
**Table 1. Schofield Water-Level Data**

Permit Number	HLA Well Name	Date Measured	Time Measured	Top of Sounding Tube Elevation (Ft)	Depth to Water (Ft)	Vertical Displacement (Ft)	Corrected Depth (Ft)	Groundwater Elevation (Ft)
2901-13	1-1	10/10/95	1143	852.78	582.21	0.22	581.99	270.79
—	2-1	10/10/95	1126	903.75	632.40	0.01	632.39	271.36
—	2-2	10/10/95	1029	864.34	593.25	0.05	593.20	271.14
—	2-3	10/10/95	1330	828.81	557.59	0.04	557.55	271.26
—	2-4	10/10/95	1314	829.70	558.55	0.09	558.46	271.24
—	2-5	10/10/95	1103	912.20	640.41	0.11	640.30	271.90
3004-01	4-1	10/10/95	0835	853.47	585.73	2.65	583.08	270.39
3004-02	4-2	10/10/95	0949	947.11	677.25	1.54	675.71	271.40
—	4-2A	10/10/95	1003	946.87	676.24	0.04	676.20	270.67
3004-03	4-3	10/10/95	0855	884.15	613.27	0.13	613.14	271.01
—	4-4	10/10/95	0925	829.88	559.28	0.0	559.28	270.60

**Table 2. Location Coordinates of Wells Drilled at Schofield Barracks, Island of Oahu, Hawaii**


HLA Well No.	Hawaii State Well I.D. No.	Hawaii State Planar (Ft)		Top of Sounding Tube Elevation (Ft)	UTM Coordinates (Meters)		Latitude	Longitude
		Northing	Easting		Northing	Easting		
FILE/DATA SP 2/1/16 NEED WELL 1-1	3-2901-13	117515.94	490579.06	852.78	2376770	600760	21° 29' 24.680"	158° 01' 39.755"
2-1	3-2900-02 NA	117736.41	495036.81	903.75	2376800	602280	21° 29' 26.871"	158° 00' 52.554"
2-2	3-2900-01 NA	121016.10	481183.95	864.34	2377760	597830	21° 29' 59.344"	158° 03' 19.250"
2-3	3-2900-03 NA	115456.52	483851.56	828.81	2376100	598640	21° 29' 04.253"	158° 02' 50.984"
2-4	3-2900-02 NA	114890.40	489648.08	829.70	2375930	600435	21° 28' 58.657"	158° 01' 49.608"
2-5	3-2900-01 NA	118439.36	503505.78	912.20	2377050	604675	21° 29' 33.838"	157° 59' 22.878"
4-1	3-3004-01	123512.01	474676.13	853.47	2378530	595840	21° 30' 24.055"	158° 04' 28.178"
4-2	3-3004-02	124621.32	472744.17	947.11	2378880	595300	21° 30' 35.038"	158° 04' 48.642"
4-2A	3-3004-03 NA	124606.63	472746.61	946.87	2378875	595300	21° 30' 34.892"	158° 04' 48.616"
4-3	3-3004-03	122896.38	474006.88	884.15	2378340	595660	21° 30' 17.949"	158° 04' 35.261"
4-4	3-3004-02 NA	124474.82	474375.30	829.88	2378815	595825	21° 30' 33.594"	158° 04' 31.367"

NA = Not assigned yet by the DLNR.



FIGURE

**Harding Lawson Associates**  
Engineering and Environmental Services



**Monitoring Well 2-1**  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
jcl	28339.09.02.12		28339033 1.0 19951106.1436	9/95	

Pump SECTION OVER

DEPTH (FT)      ELEVATION (FT)\*

608                  294

632.39              271.36 (10/10/95)  $\nabla$   
 (ELEVATION OF GROUNDWATER)

643                  259

756                  147

763                  141

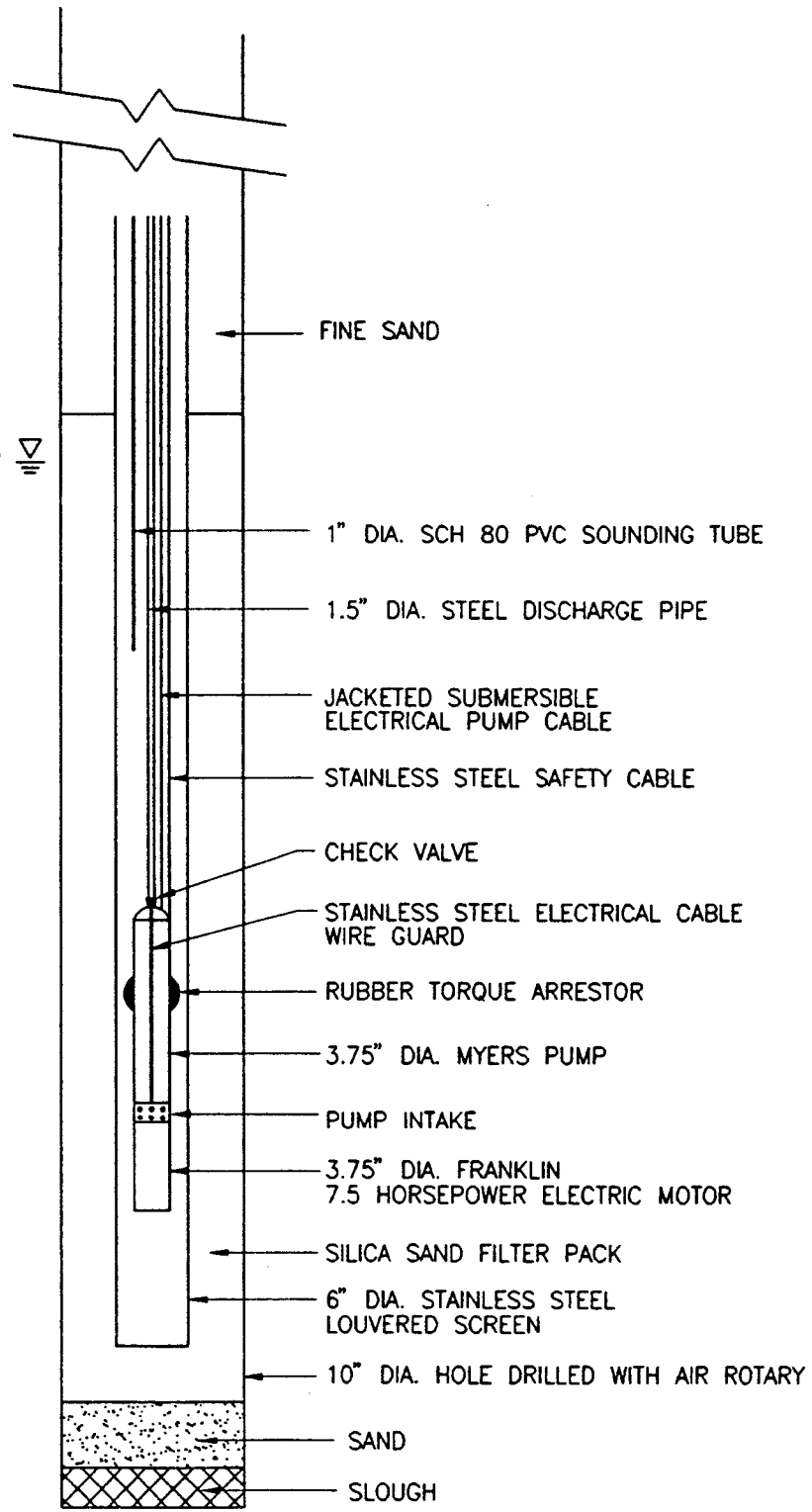
765                  138

769                  133

770                  132

781                  121

796                  106



\*DATUM: MEAN SEA LEVEL

(NOT TO SCALE)



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Pump Installation Diagram for  
 Monitoring Well 2-1**  
 Schofield Barracks  
 Island of Oahu, Hawaii

FIGURE

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
jcl	28339.09.02.12		28339032 1.0 19951106.1431	9/95	

2900-02

Sample Interval (feet)	Drilling Rate (min./5 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment	(Ground) Elevation	Date
0-1.5	-	0	1	0	Air Rotary/Star 150K	902 ft	11/19/94
					BLACK ASPHALTIC CONCRETE, approximately 0.3 feet thick.		
					GRAY SILTY GRAVEL (GM) (2.5Y,N5/), medium dense, dry, approximately .3 feet thick coralline (base coarse).		
1.5-7	-	0	2	5	Light brown (2.5YR,6/4) below 1.5 feet.		
					VERY DUSKY RED ELASTIC SILT (MH) (2.5YR,2.5/2), firm, dry, with fine gravel (coral).		
					Dark reddish brown (2.5YR,3/4), less elastic, below 7 feet.		
7-14	-	0	3	10	Red (2.5YR,4/6) below 10 feet.		
14-18	-	0	4	15			
					Mottled, very dark reddish brown (2.5YR, 2.5/2) below 18 feet.		
					Red (2.5YR,4/6) below 21 feet.		
18-28	-	0	5	25			
	6			30	(Driller switched from Kelley bar and auger to air rotary at 30 feet. Set 14-inch surface casing to 30 feet.)		
28-40	4	0	6	35			
	3			40	Weak red (10YR,4/4) below 40 feet.		
40-50	2	0	7	45			
				50	Light reddish brown (5YR,6/4) with sand below 50 feet.		
				55			
50-60	-	0	8	60			
				65	Mottled red (10YR,4/8) and reddish yellow (7.5YR,6/8) below 60 feet.		



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**Log of Monitoring Well 2-1** (Sheet 1 of 13) **FIGURE**  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	

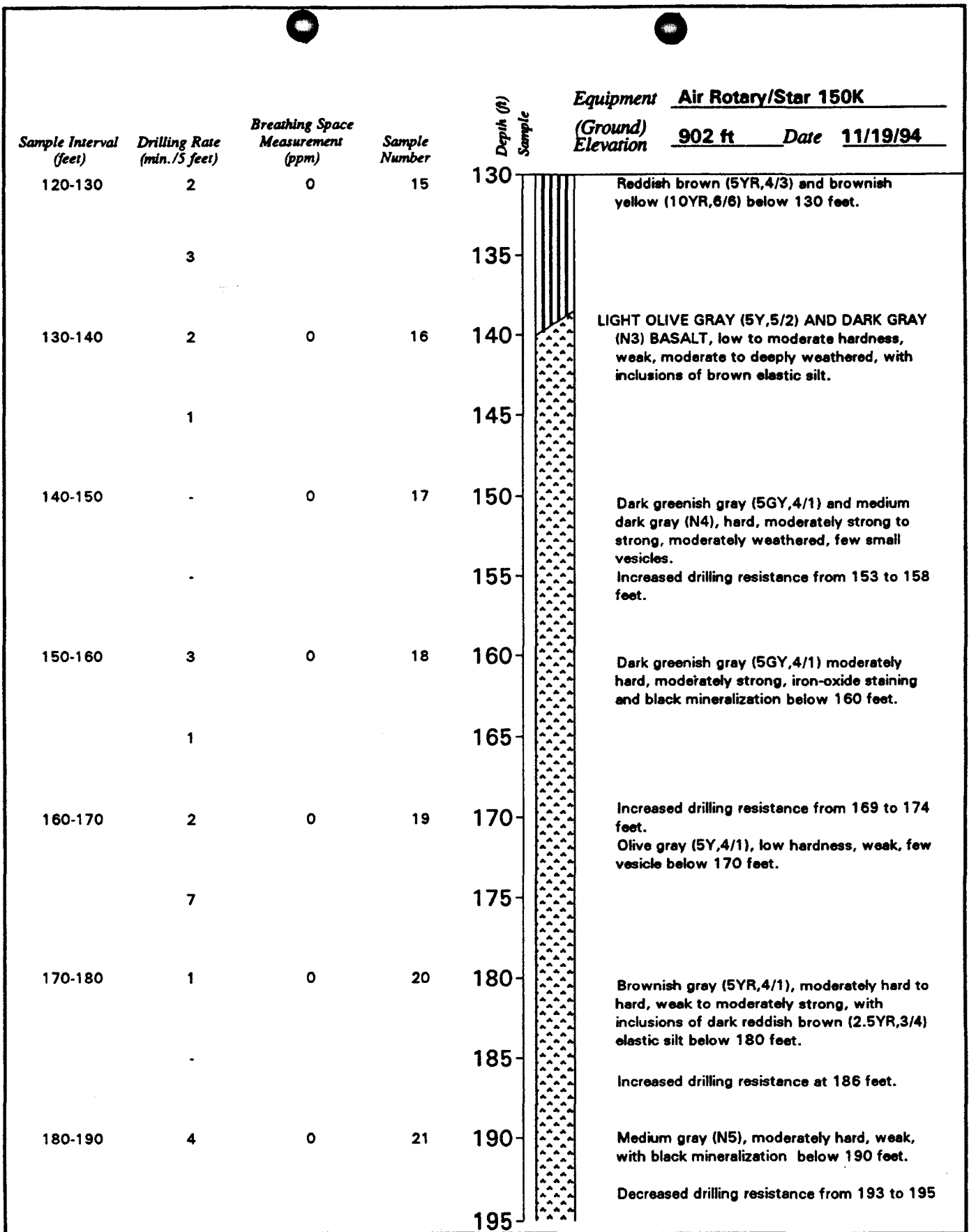
Sample Interval (feet)	Drilling Rate (min./5 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment (Ground) Elevation	Date
				65	Air Rotary/Star 150K	11/19/94
60-70	4	0	9	70		
	1			75		
70-80	3	0	10	80	Reddish brown (5YR,4/4) below 70 feet.	
				85		
80-90	-	0	11	90		
	2			95		
90-100	4	0	12	100	Mottled red (2.5YR,4/8) and light brown (7.5YR,6/4) below 100 feet. (Saprolite.)	
	1			105		
100-110	2	0	13	110	Dark reddish brown (2.5YR,3/4) with weathered olive gray (5Y,4/1) basalt.	
	2			115		
110-120	2	0	14	120	Dark reddish brown (2.5YR,3/4) below 120 feet. (Saprolite with pockets of weathered basalt.)	
	2			125		
				130	Increased drilling resistance at 128 feet.	



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Log of Monitoring Well 2-1 (Sheet 2 of 13) FIGURE  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

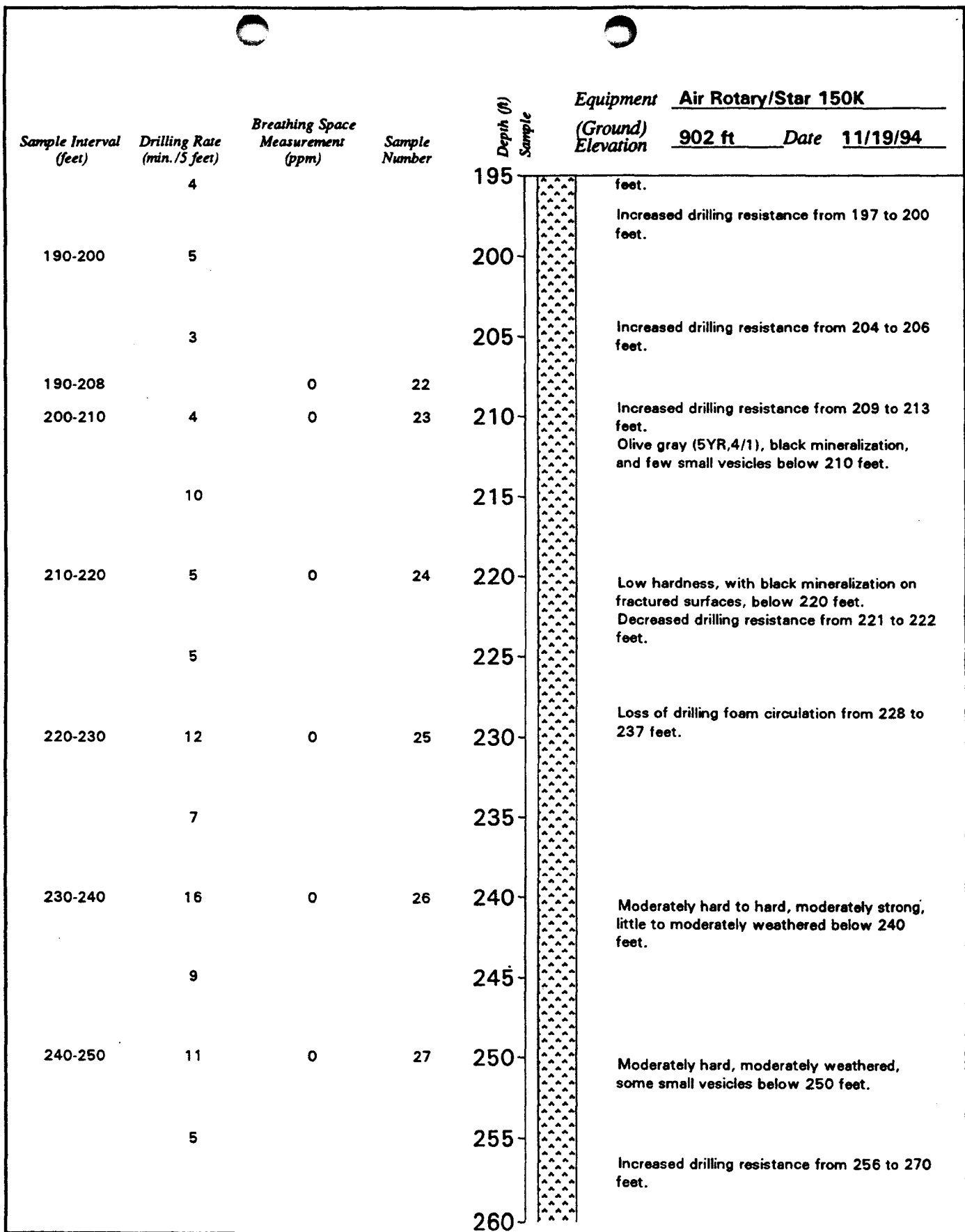
DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	



**Harding Lawson Associates**  
Engineering and  
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**Log of Monitoring Well 2-1** (Sheet 3 of 13) **FIGURE**  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	



**Harding Lawson Associates**  
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 Environmental Services

**Log of Monitoring Well 2-1** (Sheet 4 of 13) **FIGURE**  
 Schofield DA03  
 Schofield Barracks  
 Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	



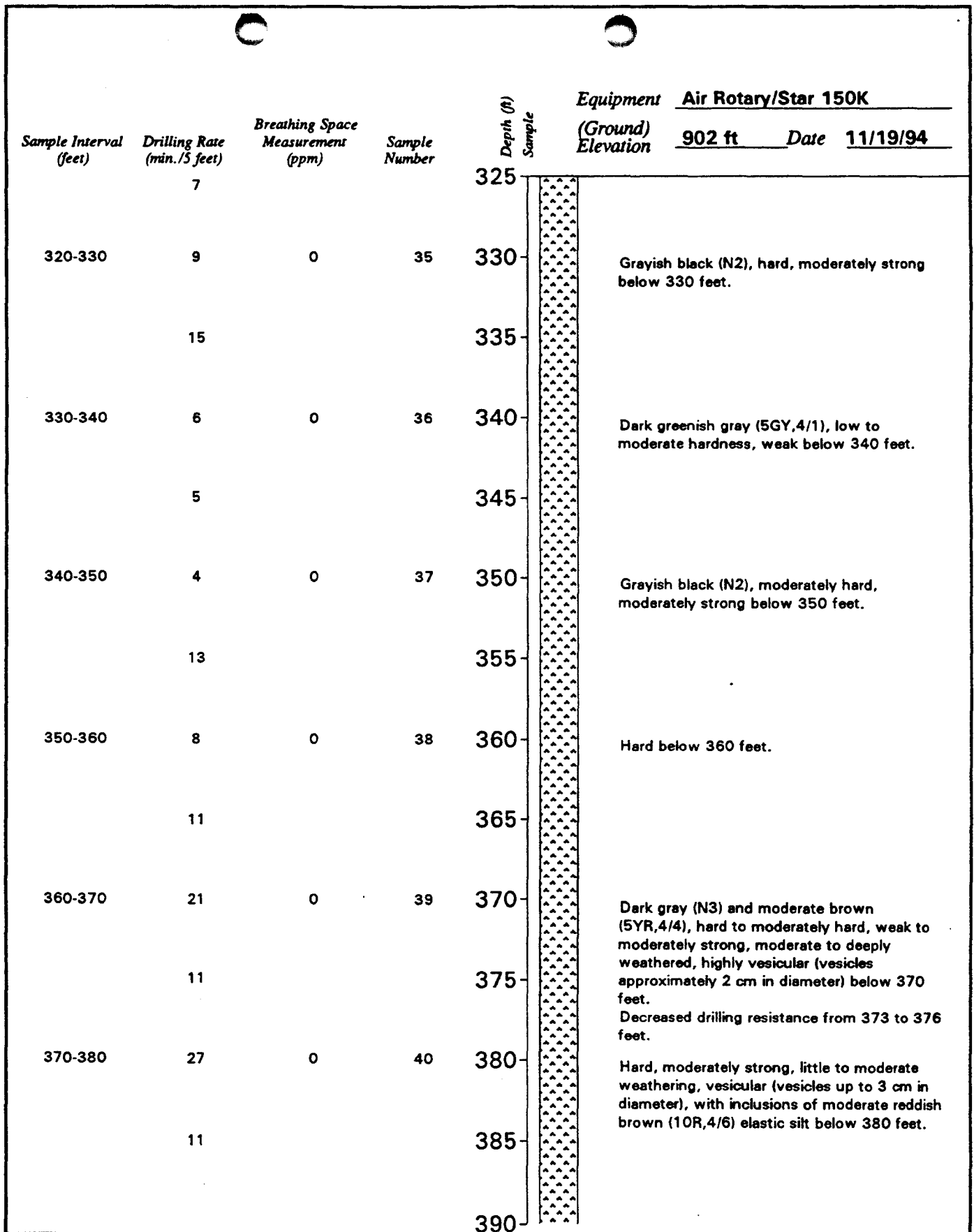
Sample Interval (feet)	Drilling Rate (min./5 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment	Air Rotary/Star 150K
					(Ground) Elevation	902 ft
250-260	13	0	28	260		
	29			265		
260-270	28	0	29	270		Dark greenish gray (5GY,4/1), low hardness, weak below 270 feet.
	6			275		
270-290	17	0	30	280		Medium dark gray (N4), moderately hard to hard, moderately strong below 280 feet. Increased drilling resistance from 282 to 310 feet.
	8			285		
280-290	6	0	31	290		Dark gray (N3) below 290 feet.
	15			295		
290-300	17	0	32	300		Grayish black (N2), hard, moderately strong to strong, moderately weathered below 300 feet.
	20			305		
300-310	10	0	33	310		Dark gray (N3), moderately hard to hard, moderately strong below 310 feet.
	5			315		Increased drilling resistance at 316 feet.
310-320	15	0	34	320		Dark greenish gray (5GY,4/1), low to moderate hardness, weak to moderately strong below 320 feet.
				325		



**Harding Lawson Associates**  
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**Log of Monitoring Well 2-1** (Sheet 5 of 13) **FIGURE**  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Log of Monitoring Well 2-1** (Sheet 6 of 13) **FIGURE**  
 Schofield DA03  
 Schofield Barracks  
 Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	

Sample Interval (feet)	Drilling Rate (min./15 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment	Date
					(Ground) Elevation	
380-390	14	0	41	390	Air Rotary/Star 150K	11/19/94
	8			395		
390-400	6	0	42	400		
	9			405		
400-410	6	0	43	410		
	18			415		
410-420	8	0	44	420		
	10			425		
420-430	9	0	45	430		
	10			435		
430-440	11	0	46	440		
	6			445		
440-450	5	0	47	450		
				455		

Dark gray (N3), olive gray (5Y,4/1) and dark reddish brown (10R,3/4), moderately hard, moderately strong, moderate to deeply weathered, highly vesicular (vesicles up to 3 cm in diameter) below 390 feet. Decreased drilling resistance from 391 to 401 feet.

Grayish black (N2) and grayish brown (5YR,3/2), moderately hard to hard below 400 feet.

Olive gray (5Y,4/1), olive black (5Y,2/1) and moderate reddish brown (10R,4/0), low to moderate hardness, weak to moderately strong, vesicles up to 5 cm in diameter below 410 feet.

Grayish black (N2) and moderate brown (5YR,4/4), hard below 420 feet. Decreased drilling resistance from 422 to 425 feet.

Olive gray (5Y,4/1) and olive black (5Y,2/1), low to moderate hardness, little to moderate weathering, vesicles up to 3 cm in diameter below 430 feet.

Dusky brown (5YR,2/2), hard, moderately strong, moderately weathered, vesicles up to 5 cm in diameter below 440 feet.

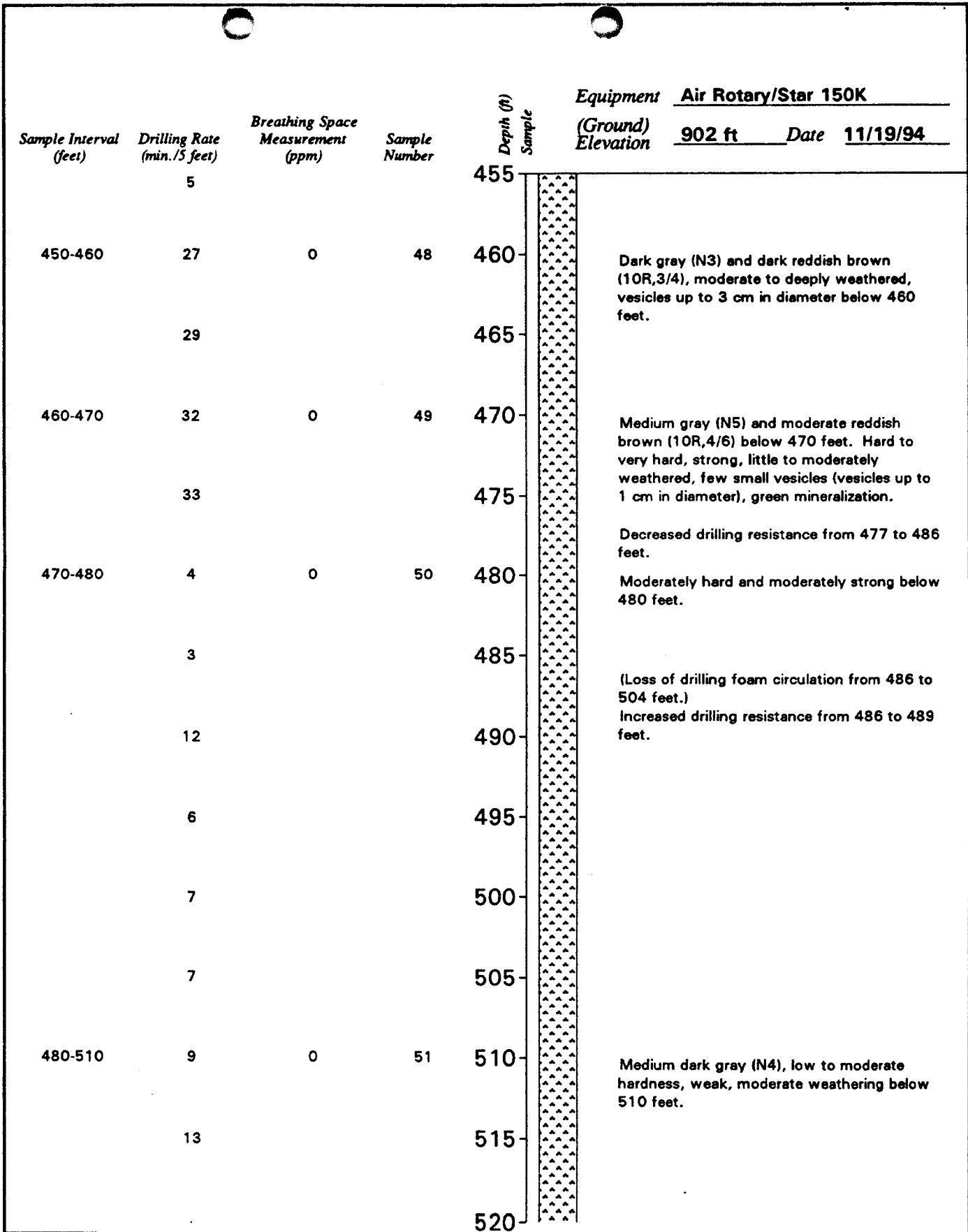
Decreased drilling resistance from 446 to 465 feet.



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**Log of Monitoring Well 2-1** (Sheet 7 of 13) **FIGURE**  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Log of Monitoring Well 2-1** (Sheet 8 of 13) **FIGURE**  
 Schofield DA03  
 Schofield Barracks  
 Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	

Sample Interval (feet)	Drilling Rate (min./15 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment	Air Rotary/Star 150K	
					(Ground) Elevation	902 ft	Date
	7	0		520			
	14	0		525			
521-530	21	0	52	530		Increased drilling resistance at 529 feet. (Loss of drilling foam circulation from 529 to 536 feet.) Dark gray (N3) and dark reddish brown (10R,3/4), hard, moderately strong, little to moderately weathered, vesicular below 530 feet.	
	12			535			
530-540	25	0	53	540		Medium dark gray (N4), moderately hard below 540 feet.	
	13			545			
540-550	3	0	54	550		Moderately hard to hard, and slightly vesicular, below 550 feet.	
	5			555			
550-560	12	0	55	560		Increased drilling resistance at 559 feet.	
	28			565			
560-570	14	0	56	570		Grayish black (N2) and dark reddish brown (10R,3/4), moderately hard, moderate to deeply weathered, vesicular below 570 feet.	
	9			575			
570-580	9	0	57	580			
				585			



**Harding Lawson Associates**  
Engineering and  
Environmental Services

**Log of Monitoring Well 2-1**  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

(Sheet 9 of 13)

FIGURE

**DRAWN**  
kar

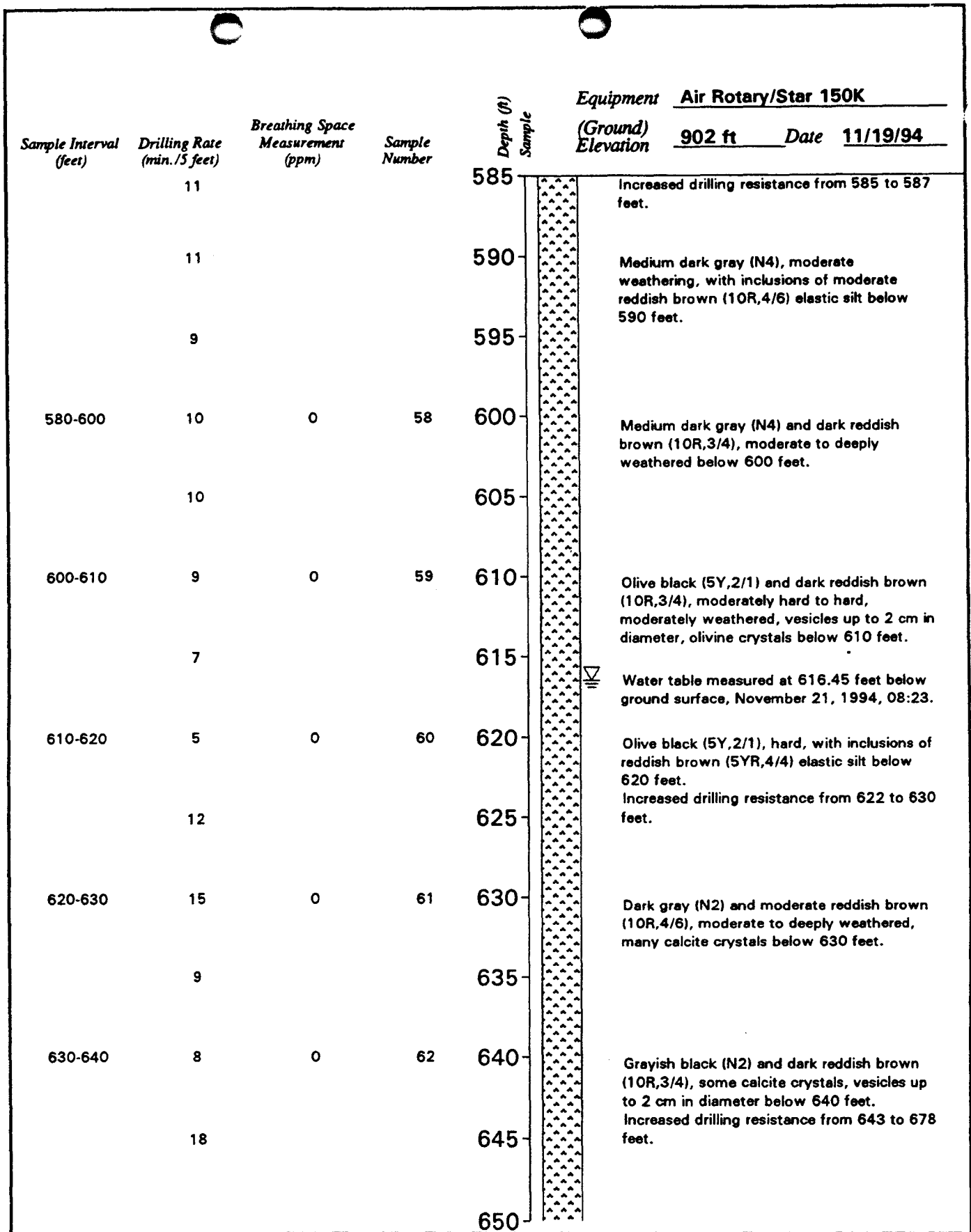
**JOB NUMBER**  
28339.06.01.12

**APPROVED**

**FILE**  
SDA03

**DATE**  
4/95

**REVISED DATE**



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Log of Monitoring Well 2-1** (Sheet 10 of 13) **FIGURE**  
 Schofield DA03  
 Schofield Barracks  
 Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	

Sample Interval (feet)	Drilling Rate (min./5 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment	Date
					(Ground) Elevation	
640-650	32	0	63	650	Air Rotary/Star 150K	11/19/94
	21	0		655		
650-660	22	0	64	660		
	31			665		
660-670	25	0	65	670		
	43			675		
670-680	27	0	66	680		
	4			685		
680-690	6	0	67	690		
	34			695		
690-700	33	0	68	700		
	28			705		
700-710	34	0	69	710		
				715		

Grayish black (N2) and moderate reddish brown (10R,4/6), hard, vesicles up to 1 cm in diameter, few calcite crystals below 650 feet.

Dark gray (N3) and dark reddish brown (10R,3/4), moderately hard, weak, moderately weathered below 660 feet.

Dark gray (N3), hard, moderately strong, little to moderate weathering, trace calcite crystals below 670 feet.

Medium dark gray (N4), hard to very hard, strong, trace olivine crystals below 680 feet.

Increased drilling resistance from 690 to 697 feet.  
Dark gray (N3) and moderate red (5R,4/6), moderately hard, moderately strong, moderate to deeply weathered, trace olivine crystals below 690 feet.

Increased drilling resistance from 698 to 713 feet.  
Dark gray (N3) and dark reddish brown (10R,3/4), hard below 700 feet.

Hard to very hard, strong, little to moderately weathered below 712 feet.

Decreased drilling resistance from 713 to 721



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Log of Monitoring Well 2-1 (Sheet 11 of 13) FIGURE  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	

Sample Interval (feet)	Drilling Rate (min./5 feet)	Breathing Space Measurement (ppm)	Sample Number	Depth (ft) Sample	Equipment	Air Rotary/Star 150K	
					(Ground) Elevation	902 ft	Date
	24			715		feet.	
710-720	4	0	70	720		Dark gray (N3), moderately hard, moderately strong, little weathering below 720 feet.	
	21			725		Increased drilling resistance from 724 to 731 feet.	
720-730	37	0	71	730		Grayish black (N2) and moderate reddish brown (10R,4/6), moderately hard to hard, moderately strong to strong, little to moderately weathered below 730 feet.	
	11			735		Decreased drilling resistance from 733 to 738 feet.	
730-740	20	0	72	740		Olive black (5Y,2/1) and dark reddish brown (10R,3/4), moderately strong, vesicles up to 1 cm in diameter below 740 feet.	
	37			745			
740-750	40	0	73	750			
	26			755			
750-760	7	0	74	760		Grayish black (N2), blackish red (5R,2/2) and moderate reddish brown, moderately weathered, vesicles up to 2 cm in diameter below 760 feet.	
	11			765			
760-770	8	0	75	770		Increased drilling resistance from 769 to 773 feet.	
	34			775		Medium dark gray (N4) and light brown (5YR,5/6), hard, moderate to deeply weathered, vesicles up to 2 cm in diameter, yellow mineralization below 770 feet.	
				780		Increased drilling resistance from 771 to 773 feet.	

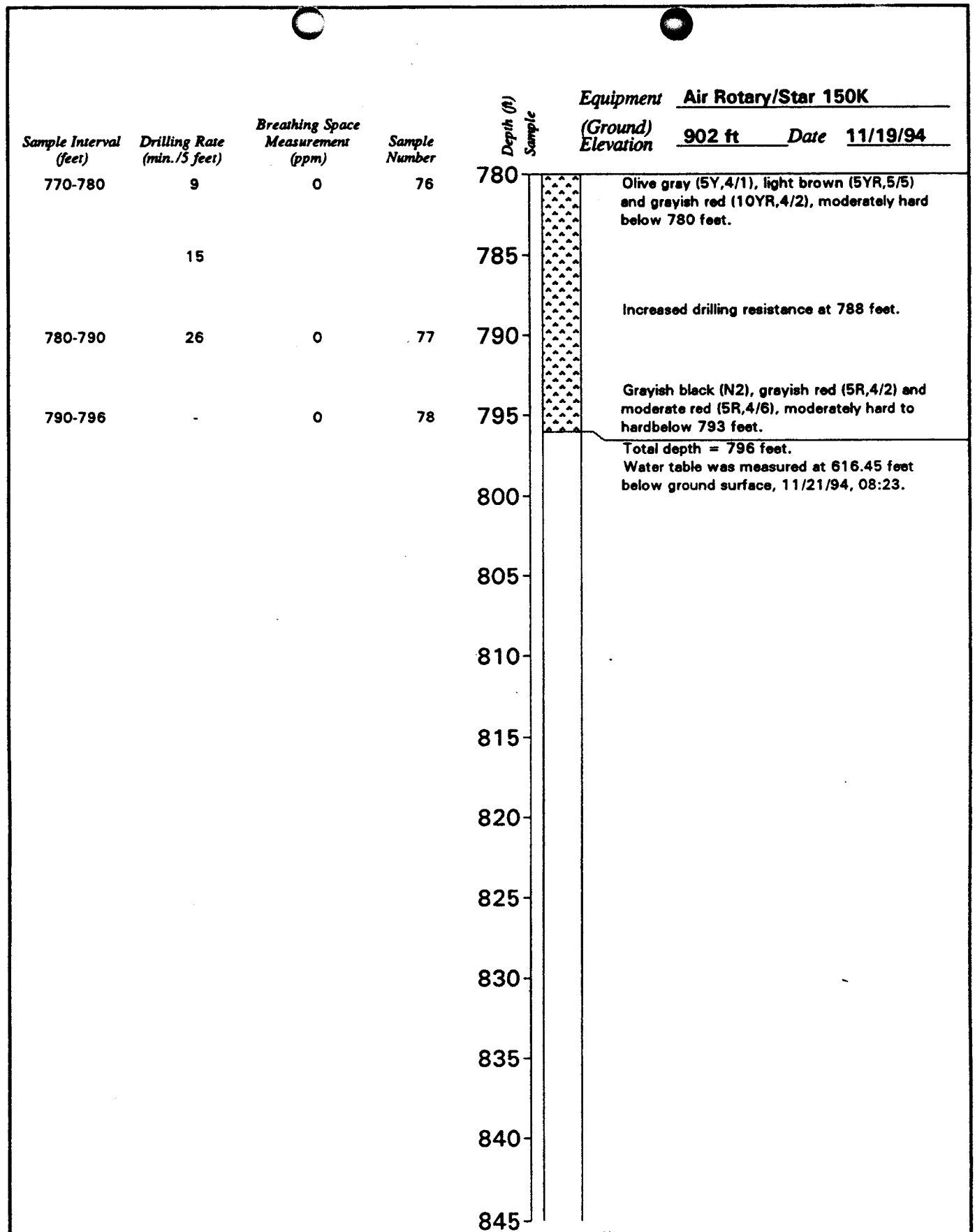


Harding Lawson Associates  
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Log of Monitoring Well 2-1 (Sheet 12 of 13) FIGURE  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	





**Harding Lawson Associates**  
Engineering and  
Environmental Services

**Log of Monitoring Well 2-1** (Sheet 13 of 13) **FIGURE**  
Schofield DA03  
Schofield Barracks  
Island of Oahu, Hawaii

DRAWN	JOB NUMBER	APPROVED	FILE	DATE	REVISED DATE
kar	28339.06.01.12		SDA03	4/95	



State of Hawaii  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
 Department of Land and Natural Resources

**APPLICATION FOR PERMIT**  
 Well Construction or  Pump Installation

Instructions: Please print in ink or type and send completed application with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of \$25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0225.

1. APPLICANT: (circle primary contact (a), b, or c) Primary Fax: 656-1039

(a) WELL OWNER (b) LANDOWNER

Firm/Name U.S. Army Firm/Name SAME AS WELL OWNER  
 Contact Person Jon Fukuda Ph: 656-2878 Contact Person \_\_\_\_\_ Ph: \_\_\_\_\_  
 Address DPW, Attn: APVG-GWV, U.S. Army Address \_\_\_\_\_  
Schofield Barracks, Garrison  
Hawaii 96857-5000

(c) CONTRACTOR

Firm/Name Roscoe Moss Hawaii, Inc. Ph: 682-5856 Contractor's C-57 License No. C-16437  
 Contact Person Tracy Runnels  
 Address 92-159A Olai St., Kapolei, Hawaii 96707

2. WELL LOCATION/NAME: Schofield Barracks-East Range/MW2-1 Island Oahu  
 Address East Range Road, Schofield Barracks, HI 96786 Tax Map Key 7-6-01  
 (Attach a USGS map, scale 1"=2000', and a property tax map showing well location referenced to established property boundaries.)

3. (a) PROPOSED WORK:  Drill New Well  Deepen  Install New Pump  
 Modify Existing Well  Redrill  Modify Pump  
 Abandon/Seal \*  Replace Pump  
 \* Be sure to complete and submit well abandonment report upon completion of work.

(b) WELL TYPE:  Dug  Bored  Driven  Drilled  Radial  
 Is this well a part of a battery of wells?  Yes  No  
 (Briefly describe and fill in the diagram on the back of this form.)

4. PROPOSED PUMP INFORMATION: Rated Pump Capacity: 25 gallons per minute

Pump Type:  Deep Well Turbine  Rotary  Propeller  Diesel  
 Submersible  Rotary-Displacement  Reciprocating  Gas  
 Centrifugal  Rotary-Gear  Impulse  Electric, rated horsepower: 7.5

If Pump Replacement, Existing Pump Capacity: \_\_\_\_\_ gallons per minute

5. PROPOSED USE:  Municipal (including hotels, stores, etc.)  Military  
 Domestic (individual, noncommercial water sys.)  Industrial  
 Irrigation (crop) \_\_\_\_\_  Other (explain)

6. (a) PROPOSED AMOUNT OF WITHDRAWAL: 6 gallons per day  
 (b) METHOD OF FLOW MEASUREMENT:  Flow-meter  Open-pipe  Orifice Plate  Weir

7. PENDING ACTIONS:  CUA  SMA  EIS  EA  NONE  Other(explain)  
 Completion Date: \_\_\_\_\_

8. REMARKS, EXPLANATIONS: Well shall be used for monitoring of groundwater quality and for collecting groundwater elevation data.

(if more space is needed, continue on back)

I understand that approval of this application attaches the following standard conditions: 1) the proposed work is to be completed within two (2) years of the approval date; 2) the contractor shall submit to the Commission a well completion/abandonment report within 30 days after the completion date of the permitted work; 3) monthly water use data shall be submitted to the Commission; 4) such approval shall not constitute a determination of correlative water rights and shall not guarantee the pump capacity or future use up to the permitted pump capacity.

Well Owner \_\_\_\_\_ Landowner \_\_\_\_\_ Contractor \_\_\_\_\_  
 Signature [Signature] Signature \_\_\_\_\_ Signature \_\_\_\_\_  
 Date 21 Feb 96 Date \_\_\_\_\_ Date \_\_\_\_\_

For Official Use Only:  
 Date Received \_\_\_\_\_ Longitude \_\_\_\_\_ Aquifer System Name \_\_\_\_\_  
 Date Accepted \_\_\_\_\_ Latitude \_\_\_\_\_ State Well No. \_\_\_\_\_  
 Field Checked By \_\_\_\_\_  
 Date \_\_\_\_\_

8. Remarks, Explanations (cont'd): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### 9. PROPOSED WELL SECTION

Elevation at top of casing  
904 ft, msl.

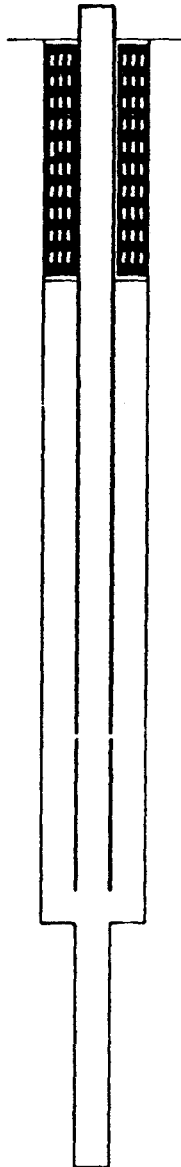
Cement Grout: 593 ft.

Bentonite Seal  
12 ft.

Rock Packing 176 ft.

Hole Diameter: 13 in.

Total Depth 796 ft.



Ground Elevation: 902 ft, msl\*

Solid Casing:  
 Material carbon steel  
 Length 619 ft.  
 Diameter 6 in.  
 Wall thickness 0.28 in.

Casing:  Perforated  Screen (louvered)  
 Material stainless steel  
 Length 150 ft.  
 Diameter 6 in.  
 Wall thickness 0.25 in.  
 Openings 2.4 sq. in./L.F.

Open Hole:  
 Length 0 ft.  
 Diameter \_\_\_\_\_ in.

\*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.