FROM: Ed
TO: INITIAL:

DATE: 8-15-90  FILE IN: 2358-01, 02, 27, 28, 48

PLEASE:

See Me
Call
Review & Comment
Take Action
Investigate & Report
Draft Reply
Acknowledge Receipt
Type Draft
Type Final
cc:
Xerox copies
File
Mail

REMARKS:

Meet on 8-14-90 with Mike Watanabe-

Gushinig Water Inc., Stephanie Aschmann +
Bruce Eilerts - Navy at Well 2358-27 (middle well). Mike
wants to replace the existing gate valve assembly with a "T" assembly
so he can increase water use from the well during the heat of the day = 08
hrs./day during this summer. Concluded that he needs to go thru Navy + CWRM
procedures for payment & modify permit. Sent Mike form
for Well Permit (modif.) Also - Navy to contact Moss
for fixing leak at 2358-02 (recent well repair Lehua Klem).
KAILUA-KONA OFFICE CORP PLANNED
James F. Boe & Associates has announced plans to construct a 21,000 square foot office complex in Kailua-Kona. Hawaiian Terrace Professional Building will feature office space ranging from 500 to 1,000 square feet. The building has been designed to take advantage of the trade winds for ventilation. Each office will be individually metered and pre-wired for air conditioning units if desired. Outlets for ceiling fans will also be included. General amenities will consist of a meeting room, elevator and protective fire sprinkler system, and restrooms with solar heated showers. The project is expected to be completed in spring 1985, with rents from $1 to $1.80 per square foot per month.

NAVY LAND AVAILABLE FOR LEASE
The Navy is offering for lease nearly 38 acres of land at Pearl City Peninsula for agricultural purposes. The property consists of two separate parcels, the first 19.5, and the other, 18.2 acres, located in the vicinity of Lehua Elementary School. The lease term will run for a maximum of five years. The property may be used only for agricultural purposes with parcel one devoted to truck and orchard-type farming and the other devoted to paddy-type crops. Livestock agricultural activities, such as the raising of poultry, gamecocks, or hogs, will not be allowed. The lease will not permit construction or installation of permanent buildings or structures, and the premises may not be used for residential purposes. A Soil and Water Conservation Plan for the property details specific conservation measures that must be undertaken by the lessee to protect and improve the productivity and fertility of the land. It also contains a schedule for completion of prescribed conservation work. The cost to the lessee of certain work items will be applied as a credit toward rent. The complete plan may be reviewed at the real estate division, Pacific division, Naval Facilities Command, Makalapa, Pearl Harbor, or at the Soil Conservation Service, U.S. Department of Agriculture, Prince Kuhio Federal Building in Honolulu. Public opening of bids is scheduled for November 13, 1985.

LUK OFFERS SECOND WAILUNA INCREMENT
Lusk Hawaii has announced the opening of the second increment of its Aiea based single-family residences. The Heights at Wailuna, following the sell-out of the 31 three- and four-bedroom units in phase one. The Heights’ display models, done in neo-classic styles, have living room fireplaces offered as standard features in all units, as well as options including barbeque, wet bar, lap pool and jacuzzi. Priced from $156,000 to $193,000. The Heights’ homes may be purchased with 50-year leases, 30 years of which are fixed. There are 23 residences to be built in phase two.

FINANCE REALTY OFFERS MAKAKILO HOMES
Finance Realty's first offering of new homes in three years features the single-family homes, of Palaehe Heights III starting at $153,000. More than a dozen new three- and four-bedroom home designs are being offered, among them the Vanda and the Executive Home. All homes feature Monier-tiled roofing and ceramic-tiled entryways. The Vanda model basic unit comes with three bedrooms, 1.5 baths, and standard features such as a study, living room ceiling, a separate laundry, second 1/2 bath and an enclosed two-car-garage with storage area. Plans are drawn and space has been allocated for adding a master suite and a family room. A 300-square-foot covered lanai can also be added. The Executive Home is a three-bedroom, two-and-a-half bath split-level home featuring a sunken living room, a fireplace, tinted windows, polished oak bath-room accessories, Corian counter tops, solid wood and cabinets and upgraded wall-to-wall carpet. With 90 new models will be built at Palaehe Heights III, including the ganger, a split level with three bedrooms and two half baths. Downstairs, an open kitchen leads to a living and dining area and balcony. Upstairs are the bedrooms, bathrooms and utility area.

ROAL SUMMIT WINS "BEST IN SHOW"
For the fourth time in the last five years, Herbert K. Horita's Royal Summit development has won "Best In Show" honors during the Parade of Homes. This year, Royal Summit's model home entry, the Kane-Kapolei received seven awards of excellence. These awards include: "Best In Show," "Tropical Treasures" Theme Award, "Landscaping Award," "First Place Project," "Single Family Dwelling Award, Division II," "Best Overall Use of Wood," "Best Use of Ceramic Tile" Contributing contractors to the Kane-Kapolei were Horita Home/Architect Pacific Engineering-Structural Engineer, Mark Matsuda Designs, Inc.-Interior Designer; S. Horita Contracting-Builders; Takano Nakamura Landscaping-Landscape Contract, Village Park, also a Herbert K. Horita project, was the winner of "Best Use of Art Glass-Mirror" in the Parade of Homes.

HAWAII KAI OFFICE BUILDING RENOVATED
The Hawaii Kai Office Building at Koko Marina has been renovated and rededicated. The building's entry, lobby and exterior have been revitalized by new signage, landscaping, interior decoration and a new portico under the supervision of the architectural firm Charles Kober Associates - Hawaii. Designers for the wood and stone portico were Wong & Seada with landscaping by Tongg, Clarke & Mechler. Color consultation for the building entry was by Bill Williamson. Interiors provided color design for the lobby and interior common spaces as well as nautical artwork to complement the building's location by the Hawaii Kai marina. The Hawaii Kai Office Building is managed by Hawaii Management Corp. for owners Prudential Insurance Co. of America.

ROYAL SUMMIT WINS "BEST IN SHOW"
For the fourth time in the last five years, Herbert K. Horita's Royal Summit development has won "Best In Show" honors during the Parade of Homes. This year, Royal Summit's model home entry, the Kane-Kapolei received seven awards of excellence. These awards include: "Best In Show," "Tropical Treasures" Theme Award, "Landscaping Award," "First Place Project," "Single Family Dwelling Award, Division II," "Best Overall Use of Wood," "Best Use of Ceramic Tile." Contributing contractors to the Kane-Kapolei were Horita Home/Architect Pacific Engineering-Structural Engineer, Mark Matsuda Designs, Inc.-Interior Designer; S. Horita Contracting-Builders; Takano Nakamura Landscaping-Landscape Contract, Village Park, also a Herbert K. Horita project, was the winner of "Best Use of Art Glass-Mirror" in the Parade of Homes.
<table>
<thead>
<tr>
<th>To</th>
<th>Initial</th>
<th>Name</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Manabu Tagomori</td>
<td>See me</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Albert Ching</td>
<td>Call</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Daniel Lum</td>
<td>Take action by</td>
</tr>
<tr>
<td></td>
<td></td>
<td>George Matsumoto</td>
<td>Review &amp; comment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nobu Kaneshiro</td>
<td>Draft reply by</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tom Nakama</td>
<td>Type draft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paul Matsuo</td>
<td>Type final</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Edwin Sakoda</td>
<td>Xerox copies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neal Imada</td>
<td>Mail</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Joe Menor</td>
<td>Acknowledge receipt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jon Kurio</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mitchell Ohye</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sherrie Samuels</td>
<td>Approval</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kay Oshiro</td>
<td>Signature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Doris Hamada</td>
<td>Information</td>
</tr>
</tbody>
</table>

---

Follow up act on?
March 15, 1985

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Field Visit of Wells (2358-01, 02, 27, 28, 48) on Navy Lease Land, PHGWCA

On March 13, 1985, Alwyn Morisako of the Honolulu BWS and I visited the following wells near Lehua Elementary School, Pearl City:

Well 2358-28. The well is hidden by vegetation. The valve was in the closed position. No action necessary at present.

Well 2358-01. The well is free-flowing. There is no valve. A wood and cloth plug was inserted into the two-inch opening to shut off most of the flow. A shut-off valve is needed.

Well 2358-27. We shut the valve on this well. There was still some leakage around the valve. The valve should be replaced.

Well 2358-02. The well is free-flowing and is to be recased under a new lease agreement.

Well 2358-48. We were unable to locate this well because of the dense vegetation. It should be located to prevent future damage by machinery or equipment.

ES:ko

ED SAKODA
April 8, 1985

MEMORANDUM

FROM: Ed Sakoda

To: Tom Egland

SUBJECT: Suggestions for wells (2358-01, 02, 27, 28, 48) on Navy Lease Land, Pearl Harbor Ground Water Control Area.

I have coordinated the review of the "Specifications for Recasing of Well No. 2358-02, Pearl City Peninsula" with U.S. Geological Survey personnel and our office. Some material was omitted and new material added. New material is underlined. A new drawing reflects changes made.

In addition to the "Specifications" I have included a memorandum of a field visit to the wells conducted on March 13, 1985.

Following are suggestions concerning the wells:

1. Well 2358-01 — install a shut-off valve.
2. All wells — flowmeters should be installed if used. Perhaps the flowmeters could be included as a Government-directed reimbursable conservation improvement.
3. I would like to locate well 2358-48 — perhaps during recasing of well 2358-02.
4. The condition of the wells should be reviewed with each lease renewal. Major work necessary should be included in the new lease.
SPECIFICATIONS FOR
RECASING OF WELL NO. 2358-02
PEARL CITY PENINSULA, OAHU
AGRICULTURAL OUTLEASE AREA
(LEASE NO. N6274285RP)

1. DESCRIPTION OF WORK: The work to be performed as described herein is a Government-directed reimbursable conservation improvement for Agricultural Outlease N6274285RP and includes recasing of Well No. 2358-02 and installation of a new PVC well head valve assembly as shown in Appendix B, in accordance with the schedule given in Appendix C. The lessee shall coordinate the performance of this work with the Division of Water and Land Development (DOWALD), Department of Land and Natural Resources (DLNR), State of Hawaii, and obtain all necessary permits as required. Further, the lessee shall coordinate all operations with the Activity Civil Engineer, Navy Public Works Center, telephone (808)471-0211 and the Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii, telephone (808)471-3217, prior to commencement of work.

2. MATERIALS: Materials shall meet the requirements specified below:

a. Polyvinyl chloride (PVC) plastic pipe (6-inch diameter) shall conform to the requirements of ASTM 1785, Schedule 80. PVC plastic pipe fittings shall conform to the requirements of ASTM D 2466 or D 2467. The coupling rubber ring gasket shall consist of synthetic rubber compound which conforms to the requirements of ASTM D 1869, Rubber Rings for Asbestos Cement Pipe.

b. All pipe and fittings shall bear the seal of approval of "nSf" trade mark of the National Sanitation Foundation Testing Laboratory, Inc., School of Public Health, University of Michigan, Ann Arbor, Michigan. Solvent cement shall be compatible with and of the kind recognized by the industry as proper for use.

3. WORK REQUIREMENTS: The work on the well shall be performed by a licensed well driller. The order of work for this project shall be as follows:

a. Establishing a Reference Mark: A reference mark shall be established in a safe location at the job site. The existing measuring point is the top of the horizontal flange on the 12-inch steel casing (13.17 feet above mean sea level). After all work is completed, the elevation of the measuring point for the new system shall be transferred back from the established reference mark to the top of the gate-valve. This elevation point is a USGS datum standard and is necessary for determining the height of the water above mean sea level.

b. Access to the well shall be provided for vehicles and equipment. The work area shall be cleared of all ground and overhead obstructions.
c. Removal of Existing Well Head: The existing 12-inch steel casing shall be cut to remove the valve assembly and other above-ground appurtenances leaving a casing extension of 2 feet above ground. A temporary standpipe shall be installed to prevent artesian flow of water during logging and recasing operations.

d. Logging: The well shall be logged by DOWALD to determine total depth and existing condition of the open well bore and casing. Logging data shall be used to determine depths for and setting the new PVC casing and packer. Two days advance notice of readiness to log shall be given by the lessee, or his contractor, to DOWALD. The State's point of contact for such operations is Mr. Ed Sakoda, telephone 548-7543.

e. Clearing of the Well: All obstructions shall be cleared and removed from the portion of the well to be re-cased as determined by DOWALD. Clearing of the well shall be judged by the unimpeded passage of a 12-inch diameter drilling bit or equivalent.

f. Well Recasing: The well shall be recased with 6-inch PVC, Schedule 80, plastic pipe, as generally depicted in the attached diagram and as approved by DOWALD in the field. A pneumatic rubber packer shall be installed in the open hole below the existing casing at a depth determined by DOWALD. A grout seal consisting of 1 ft of sand and 5 ft of neat cement shall be placed above the packer and allowed to set for 24 hours before grouting the remaining annular space. The remaining annular space shall be grouted through a tremie pipe placed above the grout seal and withdrawn as the grout rises in the annulus.

g. Well head valve Assembly: A 6-inch PVC gate-valve assembly shall be installed as depicted on the attached drawing. A 6-inch threaded cap with a 3/4-inch threaded plug shall be installed on top of the PVC pipe.

h. Cleanup: At the completion of the project, the lessee, or his contractor, shall remove all excess materials and debris and leave the job site in a neat and orderly condition. Any damage to the ground and/or existing structures shall be immediately repaired by the lessee or his contractor upon completion of re-casing operations.

4. COMPLETION OF WORK:

a. Recasing of the well shall be considered completed when the well is grouted, well head assembly installed, and site has been cleaned up.

b. Payment: Removal of the existing valve assembly, preparing the well site for logging and re-casing work, clearing any obstructions in the well, installing and grouting PVC casing, installing new PVC well head valve assembly, and cleanup operations shall be paid for on a lump sum basis, which price shall be full compensation for furnishing all materials,
labor, tools, equipment and miscellaneous items, and for accomplishing all work involved in furnishing and installing, modifying or repairing the components or combinations thereof as required by this recasing work. All additional materials and labor not shown or listed on the plans or called for herein which are necessary to complete the recasing of the well, shall be considered incidental to the work and no additional compensation will be allowed therefor. Payment shall be in accordance with Section IV of the Soil and Water Conservation Plan.

Attach.
3/4" Threaded plug

6" Threaded cap
Std hose bib

6" PVC gate valve

6"x6" Threaded nipple, PVC, Sch. 80

Top of gate valve ≈ 12' msl

Threaded joint

GROUND ELEV. ≈ 9'

Existing 12" steel casing

New 6" PVC, Sch. 80 Casing

Neat cement grout

= 1' sand

Pneumatic rubber packer

6" PVC Coupling to prevent packer from slipping off

Not to scale
FROM: Tom Eylander
TO: Ed Sakoda
SUBJ: Receiving of Well No. 2358-02, Pearl City Peninsula

1. Per our discussion of this date, enclosed please find a draft spec. for the subject project. Please feel free to comment on the specification requirements and return suggested changes. Modifications for inclusion in the final draft.

2. Your cooperation and expeditions review will be appreciated.

Tom
SPECIFICATIONS FOR
RECASING OF WELL No. 2358-02
PEARL CITY PENINSULA
AGRICULTURAL OUTLEASE AREA
(LEASE NO. N6274285RP)

1. DESCRIPTION OF WORK: The work to be performed as a Government-directed reimbursable conservation improvement for Agricultural Outlease N6274285RP includes recasing of Well No. 2358-02 and installation of a gate-valve assembly as shown in Appendix B, in accordance with the schedule given in Appendix C. The lessee shall coordinate the performance of this work with the Division of Water and Land Development, Department of Land and Natural Resources (DLNR), State of Hawaii, and obtain all necessary permits as required. Further, the lessee will coordinate operations with the Activity Civil Engineer, Navy Public Works Center, telephone (808) prior to commencement of work.

2. MATERIALS: Materials shall meet the requirements specified below:
   a. Polyvinyl chloride (PVC) plastic pipe (6-inch diameter) shall conform to the requirements of ASTM 1785, Schedule 80. PVC plastic pipe fittings shall conform to the requirements of ASTM D 2466 or D 2467. The coupling rubber ring gasket shall consist of synthetic rubber compound which conforms to the requirements of ASTM D 1869, Rubber Rings for Asbestos Cement Pipe.
   b. All pipe and fittings shall bear the seal of approval of "nSf" trade mark of the National Sanitation Foundation Testing Laboratory, Inc., School of Public Health, University of Michigan, Ann Arbor, Michigan. Solvent cement shall be compatible with and of the kind recognized by the industry as proper for use.

3. WORK REQUIREMENTS: The order of work for this project shall be as follows:
a. Establishing a Reference Mark: A reference mark shall be established in a safe location at the job site. The existing measuring point is the top of the horizontal flange on the 12-inch steel casing (13.17 feet above mean sea level). After all work is completed, the elevation of the measuring point for the new system shall be transferred back from the established reference mark. This elevation point is a USGS datum standard and is necessary for determining the height of the water above mean sea level.

b. Removal of Existing Casing: The existing casing shall be cut to remove the valve assembly and other aboveground appurtenances, leaving a casing extension of about 1 to 2 feet aboveground. The well casing shall then be cleared from the top of the casing to a depth of 58 feet below existing ground level.

c. Sounding or Logging: The well shall be sounded or logged to determine total depth and condition of the open well bore and existing casing. Logging data shall be examined to determine where and how to best seat the new PVC casing. Prior to logging of the well, two days advance notice shall be given by the lessee, or his contractor, to the Division of Water and Land Development, DLNR, in order that the State may have a representative present during the aforementioned operation. The State's point of contact for such operations is Mr. Ed Sakoda, telephone 3.

d. Clearing of the Well: Upon evaluation of the logging data, all obstructions shall be cleared and removed from the top of the existing casing to a depth of 58 feet below existing ground level. Clearing of the well shall be judged by the unimpeded passage of a 12-inch diameter drilling bit to a depth of 58 feet below existing ground level.

e. Well Recasing: The well shall be recased using 6-inch PVC plastic pipe. The PVC pipe casing shall be installed to provide an extension of
about 3 feet aboveground (about 2 feet above the existing casing after removal of the valve assembly and other appurtenances). The annulus formed between the existing casing and the 6-inch PVC casing shall be grouted using the tremie method. Neat cement shall be used to recase the well. The grout shall be pumped through the tremie pipe which shall be placed within 5 feet of the pneumatic rubber packer and withdrawn as the grout rises in the annulus. Recasing of the well shall be considered complete when the well is grouted to the top of the existing casing.

f. Valve Assembly: A 6-inch PVC or brass gate-valve assembly shall be installed as depicted on the drawing attached to this appendix. A 6-inch threaded cap shall be placed on top of the PVC pipe to allow access for siphon tubes should the artesian water level fall below the height of the valve. A small 1/2-inch valve on top of the cap shall be installed for USGS access for water level measurements under normal conditions.

g. Cleanup: At the completion of the project, the lessee, or his contractor, shall remove all materials and debris not incorporated in or necessary to the recased well and leave the job site in a neat and orderly condition. Any damage to the ground and/or existing structures shall be immediately repaired by the lessee or his contractor upon completion of operations.

4. COMPLETION OF WORK

a. Water Samples: Upon completion of work, a sample of the water should be obtained for chemical analysis for common ions, nutrients, organic compounds and for coliform.

b. Payment: Replacement of the existing valve assembly, clearing of the well casing, logging, recasing and cleanup operations will be on a lump sum basis, which price shall be full compensation for furnishing all materials, labor, tools, equipment and miscellaneous items, and for
accomplishing all work involved in furnishing and installing, modifying or repairing the components or combinations thereof as required by this improvement. All additional materials and labor not shown or listed on the plans or called for herein which are necessary to complete the recasing of the well, shall be considered incidental to the work and no additional compensation will be allowed therefor. Payment will be in accordance with Section IV of the Soil and Water Conservation Plan.
Sketch of proposed re-casing of well B-2368-02

- Subject to revision -  
- Not to scale -
March 15, 1985

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Field Visit of Wells (2358-01, 02, 27, 28, 48) on Navy Lease Land, PHGWCA

On March 13, 1985, Alwyn Morisako of the Honolulu BWS and I visited the following wells near Lehua Elementary School, Pearl City:

Well 2358-28. The well is hidden by vegetation. The valve was in the closed position. No action necessary at present.

Well 2358-01. The well is free-flowing. There is no valve. A wood and cloth plug was inserted into the two-inch opening to shut off most of the flow. A shut-off valve is needed.

Well 2358-27. We shut the valve on this well. There was still some leakage around the valve. The valve should be replaced.

Well 2358-02. The well is free-flowing and is to be recased under a new lease agreement.

Well 2358-48. We were unable to locate this well because of the dense vegetation. It should be located to prevent future damage by machinery or equipment.

ED SAKODA

ES:ko
Date: ________
Time: a.m. ________ p.m. ________

Memo To: ______________________
Memo From: ____________________

Message:

☐ Telephoned
☐ Please Phone
☐ Returned Your Call
☐ Urgent Call At Once
☐ Will Call Again
☐ Wants to See You
Date 10/19/94 Time 10:15 a.m.
Memo To: __________
Memo From: __________
Mr./Ms. Glen Yoshinaga of NAVY - PAC DIV
Phone __________
Message: Please call at Navy Base. Don't call us. We will call you. Call again.

☐ Telephoned
☐ Please Phone
☐ Returned Your Call
☐ Urgent Call At Once
☐ Will Call Again
☐ Wants to See You
June 29, 1984

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Wells on Navy Lease Land, PHGWCA (2358-01, 02, 27, 28, 48)

Spoke with Gene Chock, Navy Real Estate Division, regarding above wells. Kohler is no longer the lessee. The lease was terminated in December 1983 and he has been out of there since March 1984. The Navy is working on a management plan for the property. It could include provisions for recasing the wells as part of the lease.

Gene Chock mentioned that the Legislature passed something in 1982 concerning the area. I met with Paul Schwind, Dept. of Agriculture and he gave me copies of the House and Senate Resolutions (attached) concerning wetland agriculture which includes and mentions the Navy land.

The following people are connected with this situation:

Gene Chock, Navy, Real Estate Division, (Ph. ___)

Don Rappel, Navy, Land and Natural Resources—out of town until July 9, 1084.

Charlie Ewart, USGS: Working on the design of USGS Observation Well 2358-02. Will submit to Navy and to DOWALD for review.

Paul Schwind, Dept. of Agriculture. DOA is interested in keeping such areas in wetland agriculture, as reflected in the legislative resolutions.

ES: ka

ED SAKODA
- DON KPP

C 9 7.1

1

since Mar '84

Term in Dec. '83

Gene CHK

10 11

Joan

DOA - Work with Alish

Unravel lands - without areas of principle

- Planner: DOA
01.35 - Paul Schmie
Date 6/29  Time 9:30 p.m.  Mr./Ms. Jan

Memo To: EL

Memo From: ____________________

Message: ______________________

☐ Telephoned
☒ Please Phone
☐ Returned Your Call
☐ Urgent Call At Once
☐ Will Call Again
☐ Wants to See You
Spoke w/ Charlie Event re: USGS OBS Navy Lehua Elem. well/2358-02:

Charlie will send a drawing of how they want the obs. well recaulked. He suggested
DOA/USGS log the well before recaulk USGS could log it too, if we want them to.

I will follow up the following:

Contact Paul Schwab, DOA, re: wetland design/471-3217
Contact Don Kang, Navy (returning 9 July)

1/2/84
Spoke with Ron Rappel, 7/24/84. Mary working on plan — hope to come up with something by fall of '84. They will have DCON 7-054 revise their plans & maybe assist. Told him of 5 wells on property. They are aware of leakage. They are also mandated (by Congress) to keep wetland areas in paddy-type crops.

5 wells not "grandfathered" — no meters, etc.
RESPONSE OF
GOVERNOR'S AGRICULTURE COORDINATING COMMITTEE
TO
SENATE RESOLUTION NO. 58, S. D. 1
(REGULAR SESSION OF 1982)
URGING LANDOWNERS OF THE PEARL HARBOR AREA TO
SUPPORT WETLAND AGRICULTURE

JANUARY, 1983

RESPONSE OF
GOVERNOR'S AGRICULTURE COORDINATING COMMITTEE
TO
SENATE RESOLUTION NO. 58, S. D. 1 (REGULAR SESSION OF 1982)
URGING LANDOWNERS OF THE PEARL HARBOR AREA TO
SUPPORT WETLAND AGRICULTURE

Watercress production as it is now practiced requires abundant fresh water and adequate sunlight. In the State of Hawaii the Pearl Harbor Wetland Area possesses these characteristics. Although these lands are therefore the prime watercress lands and have 23 of the State's total 30 acres of watercress in cultivation, they are not part of the Agricultural Lands of Importance (ALISH) system. The reason for this exclusion is that the entire area is in the State Urban District.

Continued watercress production in this area is therefore uncertain. The most visible of the farms is the one 11-acre parcel bordering the Pearlridge Shopping Center. This farm has assured tenancy under a long term lease from the Bishop Estate. The remaining 12 acres are located in two other areas: Wai'aku and Waialua, where tenacious tenancy is the rule. Prospects for substituting this with more permanent terms are clouded by contingent needs of the United States Navy and Hawaiian Electric Company as to one area. As to the second area, if the landowners were willing to proceed beyond pondering the idea of joint development of an agricultural park with the State to come within the exemption from County subdivision ordinances, water supply and flood hazard factors will first have to be studied before any decision can be made to proceed further.
RESPONSE OF GOVERNOR'S AGRICULTURE COORDINATING COMMITTEE TO SENATE RESOLUTION NO. 58. S. D. 1 (REGULAR SESSION OF 1982) URGING LANDOWNERS OF THE PEARL HARBOR AREA TO SUPPORT WETLAND AGRICULTURE

Introduction

Senate Resolution No. 58 requests the Governor's Agriculture Coordinating Committee (GACC) to submit a report on the "feasibility of converting the Pearl Harbor wetland area into an agricultural park."

The response which follows is based on research conducted by H. Mogi Planning and Research, Inc., as part of the work covered by its contract with the State Department of Agriculture to prepare the Statewide Agricultural Park Action Plan, Phase II.

Pearl Harbor Wetlands Area

The Pearl Harbor wetlands are especially suited to the cultivation of watercress and other wetland crops because of the abundant supply of naturally occurring spring water* and sunlight. This area is the major watercress producing area in the State, having 23 acres out of the State's total 30 acres of watercress in cultivation. There are three producing areas in this area: at Kalamao Springs, Waiahole Springs and Waiau Springs (see Map 1). Watercress production has been tried in other areas on Oahu, such as Kahaluu, Waiahole and Laie, but such attempts have not been successful because the percentage of cloud cover in these areas is too high.

*Throughout this report there is reference to use of naturally occurring spring water. This is not to say that use of such water is guaranteed in perpetuity - springs in other areas of rural Oahu have been capped.
Although these wetlands are the prime areas for watercress cultivation, because they are part of the State Urban District, they are not classified as "unique agricultural lands" according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system. Only lands in State Agricultural Districts are classified by ALISH. ALISH establishes the agricultural classification of land based on physical characteristics but does not designate any area for a specific land use.

The future of wetland agriculture in the Pearl Harbor area is uncertain due to the U.S. Navy practice of leasing land to the highest bidder, and the month-to-month leases prevailing on other private lands. Recent loss by the Watercress Hawaii Cooperative of its lease of wetland belonging to the U.S. Navy has resulted in approximately five acres going out of watercress production. However, the successor lessee of this land has stated he has plans for reviving watercress production at the site. In 1981 and continuing to part of 1982 Hawaii for the first time began importing a substantial amount of watercress from the mainland. The 1981 imports represented about 10 percent of the market. Previously, Hawaii had been virtually self-sufficient in watercress.

The most feasible site for an agricultural park in the Pearl Harbor area appears to be at the Waiau Springs site belonging to Bishop Estate. This site, however, will require further study to determine water quality and supply and possible mitigating measures for flooding conditions. Waiau Springs, the other site, offers little chance for long term lease and practically no prospect for purchase.

**Waiau Springs Area**

Waterland agriculture production in the Waiau area totals about seven acres, dispersed on approximately 67 acres of contiguous parcels owned by the Bishop Estate. Some of this acreage is used for residences but most of the land is not being used. The area is without domestic water connection or sewage facilities. Watercress production here uses naturally occurring spring water and water pumped from artesian wells. Farmers lease the land on a month-to-month basis, Bishop Estate having a policy not to give long term leases on unimproved land.

An agricultural subdivision was considered for this area by the Bishop Estate and Anfac, which has the development rights for this land. Any agricultural subdivision, however, is subject to the City and County of Honolulu subdivision regulations. This includes provisions for paved vehicular access, drainage, sewage, availability of water for domestic, agricultural and fire protection purposes, and availability of electrical and telephone service. The land is also within a Flood Hazard District and requires a flood determination by the City and County. The Bishop Estate has surmised that meeting the City and County subdivision regulations would result in higher rents than the farmers could afford.

A joint venture agricultural park project may be a possible alternative, since a State agricultural park can be developed exempt from County land use regulations so long as it meets the conditions required by Sec. 172-118, Hawaii Revised Statutes. Any such proposal would require further study of site constraints, including water availability for expansion of wetland crop cultivation and mitigating measures for flooding conditions. To date there has been no formal application filed for development of the areas as a joint venture, exempt agricultural park.
Water supply is an important factor if expansion of wetland agriculture beyond the seven acres now in production at Waiea is contemplated. At present the Pearl Harbor basin ground-water resource is under the management of the Department of Land and Natural Resources, which has determined that no new artesian wells may be drilled in the area due to the lowering of the water table in past years.

A wetland crop such as watercress requires the use of a natural water source, inasmuch as the amount of water it needs makes economically prohibitive the use of municipal water. The optimum amount of water required for watercress production has been cited as 1 mgd per acre, but most farmers in the area are not using as much as this. Other factors such as water quality (salt content), possibilities of recycling water, and use of overhead sprinklers may affect the amount of fresh water required. Another important consideration will be equitable distribution and use of the spring water, since spring water only occurs in certain areas and no new artesian wells may be drilled.

It may be that the amount of naturally occurring spring water and water from existing artesian wells might support more wetland agriculture, but quantity of water available in years of low flow need to be calculated. Water quantity from spring flows is measured by the U.S. Geological Survey at three gauging stations (Station Nos. 7, 8, and 9) in the maui central area of the Bishop Estate lands. These stations measure combined water flows from various mauka areas. For the period of 1973 to 1982, measurements for a relatively dry year (1974) were 5.11 mgd (million gallons per day), 0.24 mgd, and 9.18 mgd for stations 7, 8, and 9, respectively. Measurements for a relatively wet year (1982) were 10.7 mgd, 1.39 mgd, and 15.7 mgd for stations 7, 8, and 9, respectively.

Quality of water is also of prime importance for the support of agriculture. The salt content of the Waiea Spring water is much higher than the Kalawao Spring water tested by the U.S. Geological Survey. The U.S. Geological Survey measures the specified conductance (measured in micromhos/cm at 25°C) of spring water at the previously mentioned gauging stations. Specified conductance is an indicator of the salt content or chloride content of the water. Chloride is an electrical conductor, therefore, the higher the specified conductance measure, the higher the chloride content of the water. Measurements of specified conductance at the Kalawao Springs stations this year were 5,100 m/cm, 7,000 m/cm, and 5,500 m/cm, and at the Kalawao Springs station it was 1,400 m/cm. This may indicate that other spring water sources at Waiea not now in use may not be of sufficient quality for watercress or other wetland crops.

Flooding conditions and mitigating measures also need to be studied. The majority of the Kalawao Springs site is identified by the Department of Land Utilization (DLU) as an area of 100-year flood potential for which the base flood elevation or flood hazard factors have not been determined. A soil and drainage study in coordination with the U.S. Army Corps of Engineers would be required to make this determination and to establish mitigation measures needed if the area is to be used for an agricultural park.

*McHugh, John, et al., Watercress Production in Hawaii, University of Hawaii College of Tropical Agriculture and Human Resources, Research Extension Series 012, 1981.
The U.S. Army Corps of Engineers recently completed a detailed study of the Waiawa Stream, the results of which are recommended for use by the City and County. Map 2 shows the approximate delineation of the 100-year Waiawa Stream flood plain and floodway area. Most of the existing structures lie outside of the floodplain area except in the immediate vicinity of the stream.

According to the Flood Hazard District regulations of the City and County, "no use or structure shall be permitted in any floodway area that will adversely affect normal flood flow ... or lead to added property damage or hazards to life ....". Agricultural uses and related structures are permitted uses within a flood plain area (100-year flood plain), but structures must be located, elevated and constructed to resist flotation.

Waiawa Springs Area

The Waiawa Springs area has supported about 24 acres of both wetland and dryland crops including 8 acres of watercress. Acreage under cultivation is currently much less due to a recent change in lessees. The area includes approximately 44 acres owned by the Federal government (U.S. Navy Reservation) and the Hawaiian Electric Company (HECO). The probability of acquiring this land for an agricultural park is very low.

*City and County of Honolulu Comprehensive Zoning Code, Article II Section 21-11.4 (a)."
The larger portion of the Waiau Springs area, about 41.6 acres, is designated as a U.S. Navy Reservation. These lands had been leased to the Watercress Hawaii cooperative from 1966 to 1981 in consecutive five-year lease periods. One parcel of 3.9 acres was recently leased to Mr. Kohler for a nursery operation and two other parcels comprising 37.7 acres, including the wetland area, were leased to Mr. Kohler. Both were the highest bidders for the parcels. In previous years Watercress Hawaii was the only bidder for the land.

The U.S. Navy is authorized to outlease lands by law (10 U.S.C. 2667) only under a contingency requirement, that is, the land is temporarily not needed for public use and may be leased only until such need shall occur. The law also limits the length of the leases to five years unless the Navy determines that a longer lease period would promote the national defense or be in the public interest. It is a long standing policy to lease lands on a competitive basis unless it can be shown that a negotiated lease would be in the best interest of the government or that there is only one available lessee. This land would otherwise only become available (other than by the described leasing procedure) if it is declared excess and not required for military purposes, which is highly unlikely because of the military importance of Pearl Harbor.

The Navy concluded that lease negotiation could not be justified since there were several parties bidding for the land and the subsequent lessees had plans to continue agricultural activities in the area. Much of the land Mr. Kohler leased has been fallow. However, the primary reasons given by Mr. Kohler for not having more land under production at this time were the need to hire additional farm personnel and the unusually wet weather which prevented the use of heavy equipment. Mr. Kohler has stated that his plans are to grow sweet corn in the dryland area and to revolve the watercress acreage that was previously in cultivation by Watercress Hawaii.

The Navy has stated that in the future the leasing program will limit the wetland area to paddy type crop use only.

The other wetland area is a small triangular area of about 2.7 acres owned by HECO and located next to the HECO plant. HECO has been leasing this land to watercress farmers on a month-to-month basis continuously since the 1950's at very favorable rents. HECO has no future plans at this time that might displace the farmers, but requires that the month-to-month lease be continued. The land was originally bought for expansion purposes and is retained for this purpose. The company has stated that long term leases are not desirable for HECO because of the dynamic nature of planning and production for today's energy market. The land is presently zoned for industrial use (I-1) by the City and County.

Kalauao Springs Area

The Kalauao Springs site is already under long term lease and fully utilised for watercress production. This is the site of the well-known watercress farm of approximately 11 acres located next to the Pearlridge Shopping Center along Kamehameha Highway. The site is owned by Bishop Estate, and since 1963 has been under a 35-year lease to Hasaru Sunida. The farm uses the natural Kalauao Spring water which has an abundant output ranging from about 7 mgd to 11 mgd recorded between 1973 and 1982.
REFERENCES

Documents

2. Correspondence to Honorable Richard Wong, President, Senate of the State of Hawaii, from P.S. Sterns, Deputy Assistant Commander for Real Estate, U.S. Navy, June 14, 1982.

Interviews

5. Leo, Mr. Chester; City and County of Honolulu, Board of Water Supply, August 23, 1982.
7. McHugh, Mr. John; University of Hawaii, College of Tropical Agriculture and Human Resources, August 24, 1982.
8. Nekatani, Mr. James; watercress farmer, August 27, 1982.
9. Rosehill, Mr. Robert; Bishop Estate, Land Manager, August 26, 1982.
10. Sumida, Mr. Masaru and Kobashigawa, Mr. Seijun; Pearl Harbor farmers, August 9, 1982.

Phone Conversation

1. Kohler, Mr. Dan; farmer, lessee on U.S. Naval Reservation, August 11, 1982.
2. Yoshimoto, Mr. James; Department of Land and Natural Resources, August 16, 1982.
URGING LANDOWNERS OF THE PEARL HARBOR AREA TO SUPPORT WETLAND AGRICULTURE.

WHEREAS, the wetlands of the Pearl Harbor area constitute unique lands which support a variety of specialized paddy crops such as watercress, lotus, swamp cabbage, and water chestnuts; and

WHEREAS, the Pearl Harbor wetland area has an abundant supply of naturally recurring, fresh, spring water and ample sunlight, which are essential ingredients for the successful cultivation of watercress and other wetland crops; and

WHEREAS, the United States Navy's practice of leasing wetlands to the highest bidders has often resulted in the termination of wetland farms as land prices have risen beyond the economic capability of the farmers; and

WHEREAS, the month-to-month leases in effect for wetlands other than the Navy-owned parcels has caused uncertainty and insecurity among the wetland farmers; and

WHEREAS, short-term leases do not permit farmers to make long-term capital investments necessary to modernize their paddies, to achieve greater economy in labor, and to make wetland farming more attractive for young farmers; now, therefore,

BE IT RESOLVED by the Senate of the Eleventh Legislature of the State of Hawaii, Regular Session of 1982, that the Navy and the Hawaii congressional delegation be apprised that the Navy's current practice of leasing its Pearl Harbor wetlands by bid every five years has adversely affected the wetland farmers who are unable to compete financially with persons who plan to utilize the lands for other than wetland crops; and

BE IT FURTHER RESOLVED that Bishop Estate and Hawaiian Electric Company, private owners of Pearl Harbor wetlands, be apprised of the importance of keeping their lands in wetland crops; and

BE IT FURTHER RESOLVED that the Governor's Agriculture Coordinating Committee be requested to submit a report to the legislature, prior to the convening of the Regular Session of 1983, of its findings and recommendations on the feasibility of converting the Pearl Harbor wetlands area into an agricultural park; and

BE IT FURTHER RESOLVED that certified copies of this resolution be transmitted to the President of the United States; the Secretary of Defense; the Secretary of the Navy; the Chief of Naval Operations; the Commander-In-Chief of the Pacific; the Commander, Naval Base Pearl Harbor; the Hawaii State Congressional Delegation; Tadashi Tojo, Chairman, Governor's Agriculture Coordinating Committee; Jack K. Suwa, Chairman, Board of Agriculture; Susumu Ono, Chairman, Board of Land and Natural Resources; Richard Lyman, Jr., President, Board of Trustees, Bishop Estate; C. Dudley Pratt, President, Hawaiian Electric Company; and Dickey Nitta, President, Hawaii Farm Bureau Federation.
House Resolution No. 233 requests a study on: 1) the feasibility, including legal considerations as applicable, of converting the subject lands (watercress farmlands on Oahu) into an agricultural park and 2) the feasibility of the acquisition of lands from the federal government, Bishop Estate, and Hawaiian Electric Company through purchase, exchange and land banking.

The Pearl Harbor wetlands are especially suited to the cultivation of watercress and other wetland crops because of the abundant supply of naturally occurring spring water and sunlight. This area is the major watercress producing area in the State having 23 acres out of the State's total 30 acres of watercress in cultivation. There are three producing areas in the Pearl Harbor area, at Kualoa Springs, Wai'au Springs and Wai'anae Springs (see Map 1). Watercress production has been tried in other areas on Oahu, such as Kahanu, Waialae and Kailua, but has not been successful because the percentage of cloud cover experienced was too high for the growth of watercress.

While the Pearl Harbor wetlands are especially suited for watercress, they are not classified as "unique agricultural lands" according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system. Lands are classified only in State Agricultural Districts, and the Pearl Harbor wetlands are part of the State Urban Districts. The ALISH system establishes the agricultural classification of the land based on its physical characteristics but does not constitute a designation of any area to a specific land use.

The future of wetland agriculture in the Pearl Harbor area is uncertain due to the U.S. Navy practice of leasing land to the highest bidder, and the month-to-month lease situations on other private lands. Recent loss by the Watercress Hawaii cooperative of its lease of wetland belonging to the U.S. Navy has resulted in approximately five acres going out of watercress production. However, the new lease of the Navy land has stated plans for...
reviving watercress production at the site. The years 1981 and part of 1982 were the first time that Hawaii has begun importing a substantial amount of watercress from the mainland. Importation of watercress in 1981 represented about 10 percent of the market, whereas previously, Hawaii was virtually self-sufficient in watercress.

It has been found that the best feasibility for an agricultural park in the Pearl Harbor area is at the Waialua Springs site belonging to Bishop Estate. Proposal for an agricultural park at this site, however, will require further study of the site's water quality and supply factors and possible mitigating alternatives to the site's flooding conditions. These factors may be a constraint to an agricultural park development, especially if expansion of existing wetland agriculture is considered. Other producing sites, the Kualoa Springs and Waialua Springs areas, have little possibility for long term leases or purchase of sites for an agricultural park.

**Waialua Springs Area**

Wetland agriculture in the Waialua area totals about seven acres and is dispersed on approximately 67 acres of contiguous parcels owned by the Bishop Estate. Some of the land is used for residences but most of the land is unused. The land is unimproved without domestic water or sewage facilities. Watercress production here uses naturally occurring spring water and water pumped from artesian wells. Farmers lease the land from the Bishop Estate on a month-to-month basis, since Bishop Estate has a policy not to give long term leases on unimproved land.

An agricultural subdivision has been considered for this area by the Bishop Estate and Amfac, which has the development rights for this land. Any private agricultural subdivision, however, is subject to the City and County of Honolulu subdivision regulations. This would include provisions for paved vehicular access, drainage, sewage, availability of water for domestic, agricultural and fire protection purposes, and availability of electrical and telephone service. The land is also within a Flood Hazard...
District and requires a flood determination by the City and County. The Bishop Estate has surmised that meeting the City and County subdivision regulations would result in higher rents than the farmers could afford.

A joint venture agricultural park project may be a possible alternative, since a State agricultural park can be developed exempt from County land use regulations so long as it does not preclude the public health and safety (HPS Section 171-11B). An agricultural park proposal would require further study of site constraints, including water availability for expansion of wetland crop cultivation and mitigating measures for flooding conditions. To date there has been no formal or detailed proposal to the State for development of the area as a joint venture exempt agricultural park project.

Water supply is an important factor in determining the feasibility of an agricultural park, particularly if expansion of wetland agriculture beyond the existing seven acres now in production at Waiawa is contemplated. At present the Pearl Harbor basin ground water resource is under the management of the Department of Land and Natural Resources, which has determined that no new artesian wells can be drilled in the area due to the lowering of the water table in past years.

A wetland crop such as watercress requires the use of a natural water source, in as much as the amount of water it needs precludes the use of municipal water. The optimum amount of water required for watercress production has been cited as 1 mgd per acre, but most farmers in the area are not using as much as this.* Other factors such as water quality (salt content), possibilities of recycling water, and use of overhead sprinklers may affect the amount of water required. An important consideration for an agricultural park development will be the equitable distribution and use of the spring water, since spring water only occurs in certain areas and no new artesian wells may be drilled.

*McHugh, John, et al., Watercress Production in Hawaii, University of Hawaii College of Tropical Agriculture and Human Resources, Research Extension Series 812, 1981.

The amount of naturally occurring spring water and water from existing artesian wells might support more wetland agriculture, but this would need to be calculated based on quantity of water available in years of low flow. Water quantity from spring flows is measured by the U.S. Geological Survey at three gauging stations (Station Nos. 7, 8, and 9) in the main central area of the Bishop Estate lands. These stations measure combined water flows from various mauka areas. For the period of 1973 to 1982, measurements for a relatively dry year (1974) were 5.11 mgd (million gallons per day), 0.24 mgd, and 9.18 mgd for stations 7, 8, and 9, respectively. Measurements for a relatively wet year (1982) were 10.7 mgd, 1.39 mgd, and 15.7 mgd for stations 7, 8, and 9, respectively.

The quality of water is also of prime importance for the support of agriculture. The salt content of the Waiawa Spring water is much higher than the Kalawao Spring water tested by the U.S. Geological Survey. The U.S. Geological Survey measured the specified conductance (measured in microhos/cm at 25°C) of spring water at the previously mentioned gauging stations. Specified conductance is an indicator of the salt content or chloride content of the water. Chloride is an electrical conductor, therefore, the higher the specified conductance measure, the higher the chloride content of the water. Measurements of specified conductance at the Waiawa Springs stations this year were 5,100 mS/cm, 7,000 mS/cm, and 5,300 mS/cm, and at the Kalawao Springs station it was 1,400 mS/cm. This may indicate that other spring water sources at Waiawa not now in use may not be of sufficient quality for watercress or other wetland crops.

Flooding conditions and mitigating measures also need to be studied for an agricultural park development. The majority of the Waiawa Springs site is identified by the Department of Land Utilization (DLU) as an area of 100-year flood potential for which the base flood elevation or flood hazard factors have not been determined. A soil and drainage study would be required by the DLU in order to make a flood determination in coordination with the U.S. Army Corps of Engineers to establish the regulation and mitigation measures needed for the proposed use.
The U.S. Army Corps of Engineers recently completed a detailed study of the Waiau Stream, the results of which are recommended for use by the City and County. Map 2 shows the approximate delineation of the 100-year Waiau Stream flood plain and floodway area. Most of the existing structures lie outside of the floodplain area except in the immediate vicinity of the stream.

According to the Flood Hazard District regulations of the City and County, "no use or structure shall be permitted in any floodway area that will adversely affect normal flood flow...or lead to added property damage or hazards to life...". Agricultural uses and related structures are permitted uses within a flood plain area (100-year flood plain), but structures must be located, elevated and constructed to resist flotation.

Waiau Springs Area

The Waiau Springs area has supported about 24 acres of both wetland and dryland crops including 8 acres of watercress. Acreage under cultivation is currently much less due to a recent change in lessees. The area includes approximately 44 acres owned by the Federal government (U.S. Navy Reservation) and the Hawaiian Electric Company (HECO). The feasibility of acquiring this land for an agricultural park is very low.

The larger portion of the Waiau Springs area, about 41.6 acres, is designated as a U.S. Navy Reservation. These lands have been leased to the Watercress Hawaii cooperative from 1966 to 1981 in consecutive five year lease periods. One parcel of 3.9 acres was then recently leased to Mr. Richard Tsuji for a nursery operation and two other parcels of a total 37.7 acres, including the wetland area, were leased to Mr. Dan Kohler. Both were the highest bidders for the parcels. In previous years, Watercress Hawaii was the only bidder for the land.

*City and County of Honolulu Comprehensive Zoning Code, Article 11 Section 21-11.4 (a).
The U.S. Navy is authorized to outlease lands by law (10 U.S.C. 2667) only under a contingency requirement, that is, the land is temporarily not needed for public use and may be leased only until such need shall occur. The law also limits the length of the leases to five years unless the Navy determines that a longer lease period would promote the national defense or be in the public interest. It is a long standing policy to lease lands on a competitive basis unless it can be shown that a negotiated lease would be in the best interest of the government or that there is only one available lessee. This land would otherwise only be available (other than by the described leasing procedure) if it is declared in excess and without military requirement, which is highly unlikely because of the military importance of Pearl Harbor.

The Navy has concluded that lease negotiation cannot be justified since there were several parties bidding for the land and the subsequent lessees have plans to continue agricultural activities in the area. Much of the land Mr. Kohler leased has been fallow. However, the primary reasons given by Mr. Kohler for not having more land under production at this time were the need to hire additional farm personnel and the unusually wet weather which prevented the use of heavy equipment. Mr. Kohler has stated that his plans are to grow sweet corn in the dryland area and to revive the watercress acreage that was previously in cultivation by Watercress Hawaii.

The Navy has stated that in the future the leasing program will limit the wetland area to peddy type crop use only.

The other wetland area is a small triangular area of about 2.7 acres owned by HECO and located next to the HECO plant. HECO has been leasing this land to watercress farmers on a month-to-month basis continuously since the 1950’s at very favorable rents. HECO has no future plans at this time that might displace the farmers, but requires that the month-to-month lease be continued. The land was originally bought for expansion purposes and is retained for this purpose. The company has stated that long term leases are not desirable for HECO because of the dynamic nature of planning and production for today’s energy market. The land is presently zoned for industrial use (I-1) by the City and County.

Kalawao Springs Area

The Kalawao Springs site is already under long term lease and fully utilized for watercress production. This is the site of the well-known watercress farm of approximately 11 acres located next to the Pearlridge Shopping Center along Kamahana Highway. The site is owned by Bishop Estate and since 1963 has been under a 35-year lease to Masaru Sumida. The watercress farm uses the natural Kalawao Spring water which has an abundant output ranging from about 7 mgd to 11 mgd recorded between 1973 to 1982.
REFERENCES

Documents
2. Correspondence to Honorable Richard Wong, President, Senate of the State of Hawaii, from F.S. Sterne, Deputy Assistant Commander for Real Estate, U.S. Navy, June 14, 1982.

Interviews
1. Check, Mr. Gene; U.S. Navy, Pacific Division, Naval Facilities Engineering Command.
5. Lao, Mr. Chester; City and County of Honolulu, Board of Water Supply, August 23, 1982.
7. McHugh, Mr. John; University of Hawaii, College of Tropical Agriculture and Human Resources, August 24, 1982.
8. Kukatani, Mr. James; watercress farmer, August 27, 1982.
9. Rowhill, Mr. Robert; Bishop Estate, Land Manager, August 26, 1982.
10. Sumida, Mr. Mataru and Kobashigawa, Mr. Seijun; Pearl Harbor farmers, August 9, 1982.

Phone Conversation
1. Kohier, Mr. Dan, farmer, lessee on U.S. Naval Reservation, August 11, 1982.
2. Yoshimoto, Mr. James; Department of Land and Natural Resources, August 16, 1982.
3. Phone Conversation
WHEREAS, Section 3, Article XI, of the Constitution of the State of Hawaii mandates the State to "conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and ensure the availability of agriculturally suitable lands"; and

WHEREAS, on January 28, 1977, the Board of Agriculture adopted a classification system called Agricultural Lands of Importance to the State of Hawaii (ALISH); and

WHEREAS, the ALISH classification system categorizes agricultural lands into three categories of suitability for crop production: (1) prime agricultural lands, (2) unique agricultural lands, and (3) other important agricultural lands; and

WHEREAS, the category of "unique agricultural lands" refers to lands other than prime agricultural lands that are used for the production of specific high-value food crops and which have a special combination of soil quality, growing season, temperature, humidity, sunlight, air drainage, elevation, aspect, moisture supply, and other conditions, such as nearness to the market, that favor the production of a specific crop of high quality and high yield when the land is treated and managed according to modern farming methods; and

WHEREAS, the Wetlands of the Pearl Harbor and Waiawa areas constitute unique lands which can produce a variety of specialized paddy crops such as watercress, lotus, swamp cabbage, and water chestnuts; and

WHEREAS, the Pearl Harbor and Waiawa wetland areas have an abundant supply of naturally recurring fresh spring water and ample sunlight, both of which are essential ingredients for successfully growing watercress; and

WHEREAS, the Wetlands of Pearl Harbor and Waiawa have areas which are believed to be the largest watercress farms in the State, producing almost all the watercress in Hawaii; and

WHEREAS, recent experience with the conduct of sale by the U.S. Navy, which awards leases to the highest bidder, has caused land prices to rise far beyond the economic capability of the watercress farmers; and

WHEREAS, once the wetland crops are taken out of production and used for purposes other than the cultivation of wetland crops, these lands will be irretrievably lost; and

WHEREAS, the month-to-month leases in effect for lands other than Navy lands has caused uncertainty and insecurity among the watercress growers; and

WHEREAS, short term leases do not permit farmers to make long term capital investments necessary to modernize their paddies to achieve greater economy in terms of labor savings and to also make wetland farming more attractive for young farmers to enter into; and

WHEREAS, until the problem of uncertain land tenure and the practice of the Navy putting out to public auction their lands every five years is resolved, the future of the wetlands' production cannot be assured; now, therefore,

BE IT RESOLVED by the House of Representatives of the Eleventh Legislature of the State of Hawaii, Regular Session of 1982, that our Congressional Delegation be apprised that the Navy's current practice of putting their Pearl Harbor wetlands out to public auction every five years has adversely affected the watercress growers in that they cannot economically compete with persons who plan to utilize the lands for use other than wetland crops; and

BE IT FURTHER RESOLVED that our Congressional Delegation meet with the Honorable John F. Lehman, Jr., Secretary of the Navy, to work out a solution whereby the wetland areas with growing crops not be subjected to the public auction method, but rather lease rent be determined by direct negotiation; and

BE IT FURTHER RESOLVED that land suitable for growing wetland crops such as watercress and presently utilized in such manner be designated in the State Agricultural Plan as "unique agricultural lands" and be preserved for such purpose; and
BE IT FURTHER RESOLVED that Bishop Estate and Hawaiian Electric Company, owners of the subject Pearl Harbor and Waiawa wetlands, be apprised of the importance of maintaining their lands in wetland crops, and one of the ways to accomplish this is to provide farmers with long term leases of their lands: and

BE IT FURTHER RESOLVED that the Board of Agriculture and the Department of Land and Natural Resources are requested to submit a report to the Legislature prior to the convening of the Regular Session of 1983 of its finding and recommendations, as appropriate, as to: (1) the feasibility, including legal considerations as applicable, of converting the subject lands into an agricultural park; and (2) the feasibility of the acquisition of lands from the federal government, Bishop Estate and Hawaiian Electric Company through purchase, exchange, and land banking; and

BE IT FURTHER RESOLVED that certified copies of this Resolution be transmitted to members of the Hawaii State Congressional Delegation; Mr. Jack K. Suwa, Chairman, Board of Agriculture; Mr. Susumu Ono, Chairman, Board of Land and Natural Resources; Mr. Richard Lyman, Jr., President, Board of Trustees of Bishop Estate; Mr. C. Dudley Pratt, President, Hawaiian Electric Company, and Mr. Dickey Witta, President, Hawaii Farm Bureau Federation.
June 29, 1984

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Wells on Navy Lease Land, PHGWCA (2358-01, 02, 27, 28, 48)

Spoke with Gene Chock, Navy Real Estate Division, regarding above wells. Kohler is no longer the lessee. The lease was terminated in December 1983 and he has been out of there since March 1984. The Navy is working on a management plan for the property. It could include provisions for recasing the wells as part of the lease.

Gene Chock mentioned that the Legislature passed something in 1982 concerning the area. I met with Paul Schwind, Dept. of Agriculture and he gave me copies of the House and Senate Resolutions (attached) concerning wetland agriculture which includes and mentions the Navy land.

The following people are connected with this situation:

Gene Chock, Navy, Real Estate Division, (Ph. [Redacted])

Don Rappel, Navy, Land and Natural Resources—out of town until July 9, 1984.

Charlie Ewart, USGS: Working on the design of USGS Observation Well 2358-02. Will Submit to Navy and to DOWALD for review.

Paul Schwind, Dept. of Agriculture. DOA is interested in keeping such areas in wetland agriculture, as reflected in the legislative resolutions.

ED SAKODA

ES: ka
Date: 9/13
Memo To: Ed
Memo From: Navy
Message: Water used by Pearl City well at times by the nursery operations. Also by loan operations for some waterers growing.
May 21, 1982

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Field Trip to Wells Located on Land Leased from the Navy, Pearl Harbor Ground Water Control Area

On May 18, 1982, Neal and I, along with Glenn Yoshinaga and Gene Chock of the Navy, visited five well sites near Lehua Elementary School, Waiawa, Oahu.

Four of the five wells were field checked by Neal and Peter around August 1981. Gene Chock of the Navy Real Estate Division wanted us to identify the four wells for him. The fifth well (2358-02) was not field checked by DOWALD personnel. It was free flowing and the casing above ground was quite deteriorated. There was no visible valve.

The wells are all located on Navy land but leased to various people. The Navy will send us a letter informing us of any changes in lessees since certification in 1979. DOWALD will check on the possibility of recasing Well 2358-02. We will research the basic data on the well and make recommendations concerning recasing. The Navy will follow up on our recommendations and work out the financial and procedural details of recasing the well. The Navy will also look at the other four wells to determine if modifications are necessary.

Following are the wells visited:

<table>
<thead>
<tr>
<th>Well No. (w/o #)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2358-01 (200)</td>
<td>Free flowing; pump connected to well serving nearby dwelling; serving watercress field; lessee - Kohler.</td>
</tr>
<tr>
<td>2358-02 (201)</td>
<td>Free flowing; casing quite deteriorated; use not certain (Gene Chock will check); lessee - Tsuchiya, R. (USGS NETWORK WELL - DO NOT SEAL)</td>
</tr>
<tr>
<td>2358-27 (200-1)</td>
<td>Free flowing; serving watercress field; lessee - Kohler.</td>
</tr>
<tr>
<td>2358-28 (200-2)</td>
<td>Not in use; valve closed; lessee - Kohler.</td>
</tr>
<tr>
<td>2358-48 (201-1)</td>
<td>Free flowing; serving watercress field; lessee - Kohler.</td>
</tr>
</tbody>
</table>

Chloride Sample: 5/26/82 @ 9:00 AM 688 ppm

2405 ppm

355 ppm

925 ppm

ES: dh

ED SAKODA
<table>
<thead>
<tr>
<th>From:</th>
<th>Initials:</th>
<th>Date:</th>
<th>File In:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5/10</td>
<td></td>
</tr>
</tbody>
</table>

**To:**
- Initials: Chuck
- Initials: Fujii
- Initials: Yoshimoto
- Initials: Tagomori
- Initials: Morimoto
- Initials: Morimatsu
- Initials: Miyashiro
- Initials: Sakal
- Initials: Asari
- Initials: Ching
- Initials: Matsumoto
- Initials: Lum
- Initials: Matsuo
- Initials: Kaneshiro
- Initials: Sakoda

**Notes:**
- See Me
- Take action by
- Route to your branch
- Review & comment
- Draft reply by
- For Information
- Xerox distributed
- Acknowledge receipt
- File
- Jane Sakal
- Doris Hamada
- Lorraine Nanbu
- Jean Sharot
- Elsie Yonamine

**Handwritten Note:**
In our files, file 201-1 is cross referenced as 2398-48.
Mr. Robert Chuck  
Manager-Chief Engineer  
Department of Land and Natural Resources  
Division of Water and Land Development

Dear Mr. Chuck:

Your letter of April 5, 1982 requested information on Well 2358-48. First of all, it should be noted that Well 2358-48 is not the same as Well 201-1 as noted in your letter. Well 201-1 is now designated as Well 2358-01.

This letter is to confirm that Mr. Dan Kohler is the new user of Wells 2358-48, 2358-01, 2358-27 and 2358-28 as of December 1, 1981 as covered under Navy Lease N62742-82-R-P00007. The wells will continue to be used for irrigation of wet and dry land crops. Should there be any change of user or intent to change the use, modify the wells or discontinue use of the wells, the Department of Land and Natural Resources will be notified.

Sincerely,

FRANCIS K.Y. MAU  
Head, Environmental Branch
March 25, 1982

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu

Dear Mr. Hayashida:

Well 2358-48 (Old Well No. 201-1),
Pearl Harbor Ground Water Control Area

Thank you for informing us of the status of Well 2358-48 and of the termination of the lease of the previous water user. We have contacted the Navy Real Estate Division and have informed them of the situation.

Thank you very much for the information.

Very truly yours,

Robert T. Chuck
Manager-Chief Engineer

ES:ey
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latitude</td>
<td>5</td>
</tr>
<tr>
<td>Depth</td>
<td>52</td>
</tr>
<tr>
<td>pH</td>
<td>3</td>
</tr>
<tr>
<td>SiO₂</td>
<td>18</td>
</tr>
<tr>
<td>Ca</td>
<td>2O</td>
</tr>
<tr>
<td>Mg</td>
<td>20</td>
</tr>
<tr>
<td>Na</td>
<td>7-7</td>
</tr>
<tr>
<td>Cl</td>
<td></td>
</tr>
<tr>
<td>Total cations</td>
<td>0.5%</td>
</tr>
<tr>
<td>Total anions</td>
<td>0.5%</td>
</tr>
</tbody>
</table>
About 100 yds. south of Oklu railway. Land on tracks, 400 yds. east of Pearl City Standard Well 261 and 300 yds. east of Pearl City R. R. station. Long. 167°58'66", Lat. 21°23'22".

Owner: Lt.-L. LeCandless Estate. U.S. Navy
Altitude: 15 ft.
Drilled: 12".10" 7/1/43 10/5/43
Diameter: designer 12/5/43
Depth: Well is old, uncapped and flows all the time. It is in a small pool under a dense growth of paris grass. Entire flow goes to irrigate watercress.

Irrigation. Center of circle chiseled in top of large boulder 10 ft. east of well; altitude, 16.58 ft.

Use: Irrigation

Condition: Not available.

LOG:

Diagram:

- Site of well
- Irrigation area
- Landmarks

Scaling note: 1"=100 ft.
January 2, 1980

Mr. Wilfred G. Koshimizu

Dear Mr. Koshimizu:

Pearl Harbor Ground Water Control Area

We acknowledge receipt on January 2, 1980, of your Declaration of Existing Water Withdrawal and Use in the Pearl Harbor Ground Water Control Area. Our staff will review the data and may contact you for a field inspection of your well(s) before certification of your declared water use is made by the Board of Land and Natural Resources.

We appreciate your early filing of the declaration of existing water use.

Very truly yours,

SUSUMU ONO
Chairman of the Board
January 2, 1980

Mr. Wilfred G. Koshimizu

Dear Mr. Koshimizu:

Pearl Harbor Ground Water Control Area

We acknowledge receipt on January 2, 1980, of your Declaration of Existing Water Withdrawal and Use in the Pearl Harbor Ground Water Control Area. Our staff will review the data and may contact you for a field inspection of your well(s) before certification of your declared water use is made by the Board of Land and Natural Resources.

We appreciate your early filing of the declaration of existing water use.

Very truly yours,

SUSUMU ONO
Chairman of the Board
State of Hawaii
Department of Land and Natural Resources

DECLARATION OF EXISTING WATER WITHDRAWAL AND USE
Pearl Harbor Ground Water Control Area

Instructions: This form must be properly completed, signed, and submitted for each individual well or connected battery of wells on or before January 2, 1980, in accordance with Regulation 9 of the Department. Submit the form with any attachments to Department of Land and Natural Resources.

1. WATER USER: Name WILFRED G. KOSHIMIZU Mailing address phone: 

2. WATER USER'S WELL CONNECTED BATTERY OF WELLS:
User's Well Name and Location WILFRED G. KOSHIMIZU TMK 9-7-17,18-28

User's Well No. (s) Pump or natural flow capacity (gpm) Capacity determined by flowmeter, nameplate, orifice, etc. (specify) Year pump inst./modified
2358-01 23,580-28 not in use since 1975 no water

3. BENEFICIAL USE OF WATER:
(a) Major Use: ☐ Municipal ☐ Agriculture ☐ Military ☐ Industrial ☐ Domestic ☐ Other (specify) (specify)
(b) Minor Uses: (specify)
(c) For Agriculture Use list crop(s) WATERCRESS, total acreage irrigated 1 acre, and attach map showing acreage irrigated by the well source.

4. BENEFICIALLY USED WATER WITHDRAWALS:
(a) All figures given in (b) are records of: ☐ Metered flow ☐ Nameplate pump capacity ☐ Orifice ☐ Weir ☐ Other (specify) No records available
(b) Records available (in million gallons per day, three decimal places):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sep.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yr. total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mo. Ave.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-year average:</td>
<td>mgd</td>
<td>highest day use mgd on</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(c) For Agriculture Use only: description of withdrawal schedule (include times of day and days of week: continuous use

5. WELL DESCRIPTION:
On the attached computer list of wells, make corrections or additions thereon in red pencil as necessary and return with Declaration form. If information is readily available in another form, you may submit it in lieu of a corrected computer list.

Declaration: Under penalties provided in Regulation 9 of the Department of Land and Natural Resources, the undersigned declare and certify that this declaration has been examined, including accompanying statements and to the best of knowledge and belief, it is true, correct, and complete.

Signature: WILFRED G. KOSHIMIZU Date: 12-28-1979

Signature: LANDOWNER OF WELL SITE Date:

For Official Use:
Last day to certify 7-03-1980 Date Certified 
Amount certified WELL NO. 2358-01
SUPPLEMENTARY DISCHARGE MEASUREMENT NOTES

U.S. NAVY Stream, Spring, Trench, Well No. 2350-02 (201)

Enter on this form ample notes in regard to the following:

1. Accuracy of measurement; 2. gage; 3. observer; 4. bench marks; 5. gage-height corrections; 6. adjustments to total discharge; 7. station equipment; 8. channel, control, and point of zero flow; 9. rating, backwater; 10. diversions, regulation; 11. records; 12. cooperation.

No. 1 of 1 sheets

A. Morisako
Date: October 20, 1984

U.S. NAVY Stream, Spring, Trench, Well No. 2350-02 (201)

SUPPLEMENTARY DISCHARGE MEASUREMENT NOTES

Enter on this form ample notes in regard to the following:

1. Accuracy of measurement; 2. gage; 3. observer; 4. bench marks; 5. gage-height corrections; 6. adjustments to total discharge; 7. station equipment; 8. channel, control, and point of zero flow; 9. rating, backwater; 10. diversions, regulation; 11. records; 12. cooperation.

NORTH SIDE OF WELL

\[ \frac{3}{4} \times 5\frac{7}{8} \text{ Galv. Nipple & Cap} \]

\[ 10.06' \text{ mal} \]

\[ 10.20' \text{ ms} \]

\[ 0.97' \]

\[ 0.50' \]

\[ 8'' \text{ Gate Valve} \]

\[ 3.00' \]

\[ 9.00' \text{ ms} \]

No. 1 of 1 sheets

A. Morisako
**WATER RESOURCES DIVISION**

**ISLAND** OAHU

**GROUND WATER DATA**

Chlorides: highest, lowest, records available.

Water level: highest, lowest, records available.

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level (ft above MSL)</th>
<th>Chloride (mg/l)</th>
<th>Temp. (°C)</th>
<th>Sp.C. (μmhos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb 9</td>
<td>1.800</td>
<td>20.5</td>
<td>7.500</td>
<td></td>
</tr>
<tr>
<td>Mar 22</td>
<td>9.50</td>
<td>20.5</td>
<td>3.400</td>
<td></td>
</tr>
<tr>
<td>May 5</td>
<td>2.00</td>
<td>20.0</td>
<td>3.200</td>
<td></td>
</tr>
<tr>
<td>June 15</td>
<td>6.40</td>
<td>20.5</td>
<td>2.200</td>
<td></td>
</tr>
</tbody>
</table>
Drilled irrigation artesian basal-water well in basalt of Koolau Volcanic Series, Pliocene (?) age, diam 12 in (30 cm), depth 336 ft (102 m), cased to 58 ft (18 m). MP top of upper flange on valve, 13.17 ft (4.01 m) above msl.

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level</th>
<th>Chloride (mg/l)</th>
<th>Temp Sp. C. (°C)</th>
<th>Date</th>
<th>Water level</th>
<th>Chloride (mg/l)</th>
<th>Temp Sp. C. (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td></td>
<td></td>
<td></td>
<td>1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan 15</td>
<td>13.30</td>
<td>850</td>
<td>21</td>
<td>Jan 16</td>
<td>1200</td>
<td>20.5</td>
<td></td>
</tr>
<tr>
<td>Feb 15</td>
<td>13.45</td>
<td>840</td>
<td>21</td>
<td>Feb 25</td>
<td>1460</td>
<td>20.5</td>
<td></td>
</tr>
<tr>
<td>Mar 12</td>
<td>12.95</td>
<td>660</td>
<td>21</td>
<td>Mar 11</td>
<td>1420</td>
<td>21.0</td>
<td>4000</td>
</tr>
<tr>
<td>Apr 12</td>
<td>12.33</td>
<td>460</td>
<td>21</td>
<td>Apr 12</td>
<td>1200</td>
<td>20.5</td>
<td></td>
</tr>
<tr>
<td>May 10</td>
<td>12.07</td>
<td>440</td>
<td>20.5</td>
<td>May 12</td>
<td>365</td>
<td>20.0</td>
<td>1350</td>
</tr>
<tr>
<td>June 6</td>
<td>11.93</td>
<td>430</td>
<td>20.5</td>
<td>Nov 20</td>
<td>13.43</td>
<td>1420</td>
<td>21.5</td>
</tr>
<tr>
<td>July 10</td>
<td>12.37</td>
<td>20.5</td>
<td></td>
<td>May 23</td>
<td>1800</td>
<td>20.5</td>
<td>6000</td>
</tr>
<tr>
<td>Aug 7</td>
<td>11.52</td>
<td></td>
<td></td>
<td>Aug 15</td>
<td>360</td>
<td>21.0</td>
<td>1275</td>
</tr>
<tr>
<td>Sept 6</td>
<td>11.45</td>
<td></td>
<td></td>
<td>Sept 25</td>
<td>322</td>
<td>19.5</td>
<td>1190</td>
</tr>
<tr>
<td>Oct 15</td>
<td>11.35</td>
<td>280</td>
<td>20.5</td>
<td>Oct 15</td>
<td>1900</td>
<td>20.0</td>
<td>6500</td>
</tr>
<tr>
<td>Nov 15</td>
<td>11.61</td>
<td>390</td>
<td>20.5</td>
<td>Nov 15</td>
<td>330</td>
<td>20.0</td>
<td>1200</td>
</tr>
<tr>
<td>Dec 12</td>
<td>12.39</td>
<td>20.5</td>
<td></td>
<td>Dec 29</td>
<td>1620</td>
<td>20.0</td>
<td>5000</td>
</tr>
</tbody>
</table>
## WATER LEVELS IN OBSERVATION WELLS


Records available: 1910-21, 1923, 1926, 1929-72

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level (ft)</th>
<th>Chloride (mg/l)</th>
<th>Temp Water (°C)</th>
<th>Date</th>
<th>Water level (ft)</th>
<th>Chloride (mg/l)</th>
<th>Temp Sp.C. (°C/mhos)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan. 26</td>
<td>16.25</td>
<td>1,390</td>
<td>20</td>
<td>Jan. 25</td>
<td>15.72</td>
<td>1,580</td>
<td>21</td>
</tr>
<tr>
<td>Feb. 25</td>
<td>16.12</td>
<td>1,470</td>
<td>20</td>
<td>Feb. 29</td>
<td>15.42</td>
<td>1,580</td>
<td>21</td>
</tr>
<tr>
<td>Mar. 29</td>
<td>15.77</td>
<td>1,440</td>
<td>20</td>
<td>Mar. 29</td>
<td>14.79</td>
<td>1,520</td>
<td>21</td>
</tr>
<tr>
<td>Apr. 13</td>
<td>16.01</td>
<td>1,480</td>
<td>20</td>
<td>Apr. 19</td>
<td>15.02</td>
<td>1,580</td>
<td>21</td>
</tr>
<tr>
<td>May 10</td>
<td>16.06</td>
<td>1,500</td>
<td>20</td>
<td>May 18</td>
<td>14.11</td>
<td>1,400</td>
<td>21</td>
</tr>
<tr>
<td>June 3</td>
<td>15.96</td>
<td>1,500</td>
<td>20</td>
<td>June 15</td>
<td>13.78</td>
<td>1,100</td>
<td>21</td>
</tr>
<tr>
<td>July 15</td>
<td>15.74</td>
<td>1,500</td>
<td>20</td>
<td>July 19</td>
<td>13.28</td>
<td>500</td>
<td>21</td>
</tr>
<tr>
<td>Aug. 25</td>
<td>14.87</td>
<td>1,380</td>
<td>20</td>
<td>Aug. 16</td>
<td>12.97</td>
<td>550</td>
<td>21</td>
</tr>
<tr>
<td>Sept. 22</td>
<td>14.65</td>
<td>1,350</td>
<td>20</td>
<td>Sept. 18</td>
<td>430</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov. 24</td>
<td>14.49</td>
<td>1,300</td>
<td>20</td>
<td>19</td>
<td>12.84</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Dec. 13</td>
<td>14.70</td>
<td>1,350</td>
<td>20</td>
<td>20</td>
<td>12.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>560</td>
<td>20 1,825</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Oct. 25</td>
<td>12.48</td>
<td>540</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nov. 21</td>
<td>12.76</td>
<td>640</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24</td>
<td>675</td>
<td>20 2,300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dec. 11</td>
<td>12.97</td>
<td>660</td>
</tr>
</tbody>
</table>

United States
Department of the Interior
Geological Survey

WATER RESOURCES DIVISION
ISLAND: OAHU
COUNTY: OAHU

WATER LEVELS IN OBSERVATION WELLS

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level (ft)</th>
<th>Chloride (mg/l)</th>
<th>Temp Water (°C)</th>
<th>Date</th>
<th>Water level (ft)</th>
<th>Chloride (mg/l)</th>
<th>Temp Sp.C. (°C/mhos)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan. 26</td>
<td>16.25</td>
<td>1,390</td>
<td>20</td>
<td>Jan. 25</td>
<td>15.72</td>
<td>1,580</td>
<td>21</td>
</tr>
<tr>
<td>Feb. 25</td>
<td>16.12</td>
<td>1,470</td>
<td>20</td>
<td>Feb. 29</td>
<td>15.42</td>
<td>1,580</td>
<td>21</td>
</tr>
<tr>
<td>Mar. 29</td>
<td>15.77</td>
<td>1,440</td>
<td>20</td>
<td>Mar. 29</td>
<td>14.79</td>
<td>1,520</td>
<td>21</td>
</tr>
<tr>
<td>Apr. 13</td>
<td>16.01</td>
<td>1,480</td>
<td>20</td>
<td>Apr. 19</td>
<td>15.02</td>
<td>1,580</td>
<td>21</td>
</tr>
<tr>
<td>May 10</td>
<td>16.06</td>
<td>1,500</td>
<td>20</td>
<td>May 18</td>
<td>14.11</td>
<td>1,400</td>
<td>21</td>
</tr>
<tr>
<td>June 3</td>
<td>15.96</td>
<td>1,500</td>
<td>20</td>
<td>June 15</td>
<td>13.78</td>
<td>1,100</td>
<td>21</td>
</tr>
<tr>
<td>July 15</td>
<td>15.74</td>
<td>1,500</td>
<td>20</td>
<td>July 19</td>
<td>13.28</td>
<td>500</td>
<td>21</td>
</tr>
<tr>
<td>Aug. 25</td>
<td>14.87</td>
<td>1,380</td>
<td>20</td>
<td>Aug. 16</td>
<td>12.97</td>
<td>550</td>
<td>21</td>
</tr>
<tr>
<td>Sept. 22</td>
<td>14.65</td>
<td>1,350</td>
<td>20</td>
<td>Sept. 18</td>
<td>430</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov. 24</td>
<td>14.49</td>
<td>1,300</td>
<td>20</td>
<td>19</td>
<td>12.84</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Dec. 13</td>
<td>14.70</td>
<td>1,350</td>
<td>20</td>
<td>20</td>
<td>12.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>560</td>
<td>20 1,825</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Oct. 25</td>
<td>12.48</td>
<td>540</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nov. 21</td>
<td>12.76</td>
<td>640</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24</td>
<td>675</td>
<td>20 2,300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dec. 11</td>
<td>12.97</td>
<td>660</td>
</tr>
</tbody>
</table>

Report Page No. 37
GROUND WATER BRANCH
STATE: HAWAII
212332N1575822. Local number 201. U. S. Navy, Pearl City. Drilled irrigation artesian basal-water well in basalt of Koolau Volcanic Series, Pliocene(? ) age, diam 12 in, depth 336 ft, cased to 58. MP top of upper flange on valve, 13.17 ft above msl.

**Highest water level**: 31.21 **Feb. 1916**; **lowest**: 12.93 **Aug. 18, 1970**

Records available 1910-21, 1923, 1926, 1929-70

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level</th>
<th>Chloride (mg/l)</th>
<th>Temp (°F)</th>
<th>Date</th>
<th>Water level</th>
<th>Chloride (mg/l)</th>
<th>Temp (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td></td>
<td></td>
<td></td>
<td>1970</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan. 17</td>
<td>19.28</td>
<td>1,750</td>
<td>68°</td>
<td>Jan. 14</td>
<td>16.86</td>
<td>1,550</td>
<td>20°</td>
</tr>
<tr>
<td>Feb. 27</td>
<td>19.17</td>
<td>1,800</td>
<td>68°</td>
<td>Feb. 25</td>
<td>15.64</td>
<td>1,420</td>
<td>20°</td>
</tr>
<tr>
<td>Mar. 18</td>
<td>19.10</td>
<td>1,800</td>
<td>68°</td>
<td>Mar. 18</td>
<td>13.65</td>
<td>1,250</td>
<td>20°</td>
</tr>
<tr>
<td>Apr. 29</td>
<td>17.38</td>
<td>1,680</td>
<td>68°</td>
<td>Apr. 27</td>
<td>14.27</td>
<td>1,180</td>
<td>20°</td>
</tr>
<tr>
<td>May 27</td>
<td>17.39</td>
<td>1,680</td>
<td>68°</td>
<td>June 17</td>
<td>13.49</td>
<td>725</td>
<td>20°</td>
</tr>
<tr>
<td>June 26</td>
<td>17.18</td>
<td>1,600</td>
<td>68°</td>
<td>July 28</td>
<td>13.45</td>
<td>575</td>
<td>20°</td>
</tr>
<tr>
<td>July 23</td>
<td>16.77</td>
<td>1,580</td>
<td>68°</td>
<td>Aug. 18</td>
<td>12.93</td>
<td>500</td>
<td>20°</td>
</tr>
<tr>
<td>Aug. 12</td>
<td>16.40</td>
<td>1,520</td>
<td>68°</td>
<td>Sept. 24</td>
<td>12.97</td>
<td>510</td>
<td>21°</td>
</tr>
<tr>
<td>Sept. 22</td>
<td>15.85</td>
<td>1,400</td>
<td>68°</td>
<td>Oct. 29</td>
<td>13.05</td>
<td>550</td>
<td>20°</td>
</tr>
<tr>
<td>Oct. 30</td>
<td>15.48</td>
<td>1,380</td>
<td>68°</td>
<td>Nov. 23</td>
<td>13.66</td>
<td>720</td>
<td>20°</td>
</tr>
<tr>
<td>Nov. 18</td>
<td>16.48</td>
<td>1,400</td>
<td>68°</td>
<td>Dec. 17</td>
<td>14.22</td>
<td>1,010</td>
<td>20°</td>
</tr>
<tr>
<td>Dec. 17</td>
<td>16.12</td>
<td>1,500</td>
<td>68°</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WELL 201

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

ISLAND OAHU

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

GEOLOGICAL SURVEY

WATER LEVELS IN OBSERVATION WELLS

212332N1575822. Local number 201. U.S. Navy. Pearl City.

Records available 1910-21, 1923, 1926, 1929-68

Water level in ft above msl, chloride in ppm

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level</th>
<th>Chloride (ppm)</th>
<th>Temp. (°F)</th>
<th>Date</th>
<th>Water level</th>
<th>Chloride (ppm)</th>
<th>Temp. (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 26</td>
<td>15.69</td>
<td>1,402</td>
<td>68°</td>
<td>Jan. 8</td>
<td>18.17</td>
<td>1,672</td>
<td>68°</td>
</tr>
<tr>
<td>Oct. 24</td>
<td>15.60</td>
<td>1,426</td>
<td>68°</td>
<td>Feb. 9</td>
<td>18.97</td>
<td>1,746</td>
<td>68°</td>
</tr>
<tr>
<td>27</td>
<td>15.59</td>
<td></td>
<td></td>
<td>Mar. 14</td>
<td>18.29</td>
<td>1,698</td>
<td>68°</td>
</tr>
<tr>
<td>Nov. 16</td>
<td>15.83</td>
<td>1,451</td>
<td>68°</td>
<td>Apr. 26</td>
<td>18.26</td>
<td>1,628</td>
<td>68°</td>
</tr>
<tr>
<td>Dec. 26</td>
<td>17.66</td>
<td>1,623</td>
<td>68°</td>
<td>May 21</td>
<td>17.99</td>
<td>1,488</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>June 17</td>
<td>17.32</td>
<td>1,558</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>July 22</td>
<td>16.62</td>
<td>1,512</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aug. 30</td>
<td>15.99</td>
<td>1,490</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sept. 23</td>
<td>15.59</td>
<td>1,380</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Oct. 22</td>
<td>16.00</td>
<td>1,460</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nov. 22</td>
<td>15.52</td>
<td>1,410</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dec. 27</td>
<td>17.56</td>
<td>1,650</td>
<td>68°</td>
</tr>
</tbody>
</table>
Local number 201. U. S. Navy. Pearl City.

<table>
<thead>
<tr>
<th>Date</th>
<th>Water level</th>
<th>Chloride</th>
<th>Temp (°F)</th>
<th>Date</th>
<th>Water level</th>
<th>Chloride</th>
<th>Temp (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan.  5</td>
<td>16.70</td>
<td>1,560</td>
<td>68°</td>
<td>May  8</td>
<td>16.50</td>
<td>1,520</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.54</td>
<td>1,536</td>
<td>68°</td>
<td></td>
<td>16.37</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.45</td>
<td>1,488</td>
<td>68°</td>
<td></td>
<td>16.42</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.40</td>
<td>1,560</td>
<td>68°</td>
<td>June 1</td>
<td>16.44</td>
<td>1,544</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.38</td>
<td>1,488</td>
<td>68°</td>
<td></td>
<td>16.43</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td>Feb.  8</td>
<td>16.25</td>
<td>1,440</td>
<td>68°</td>
<td></td>
<td>16.43</td>
<td>1,520</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.19</td>
<td>1,512</td>
<td>68°</td>
<td></td>
<td>16.37</td>
<td>1,512</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.24</td>
<td></td>
<td>68°</td>
<td></td>
<td>16.74</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td>Mar.  1</td>
<td>15.96</td>
<td>1,416</td>
<td>68°</td>
<td>July 7</td>
<td>16.25</td>
<td>1,544</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.08</td>
<td>1,440</td>
<td>68°</td>
<td></td>
<td>16.23</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.32</td>
<td>1,440</td>
<td>68°</td>
<td></td>
<td>16.08</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.61</td>
<td>1,464</td>
<td>68°</td>
<td></td>
<td>16.29</td>
<td>1,495</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.49</td>
<td>1,536</td>
<td>68°</td>
<td>Aug.  3</td>
<td>15.96</td>
<td>1,402</td>
<td>68°</td>
</tr>
<tr>
<td>Apr.  5</td>
<td>16.73</td>
<td>1,512</td>
<td>68°</td>
<td></td>
<td>16.19</td>
<td>1,402</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.61</td>
<td>1,520</td>
<td>68°</td>
<td></td>
<td>16.23</td>
<td>1,500</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.52</td>
<td>1,520</td>
<td>68°</td>
<td></td>
<td>16.11</td>
<td>1,377</td>
<td>68°</td>
</tr>
<tr>
<td></td>
<td>16.40</td>
<td>1,495</td>
<td>68°</td>
<td></td>
<td>16.08</td>
<td>1,377</td>
<td>68°</td>
</tr>
<tr>
<td>May  2</td>
<td>16.47</td>
<td>1,520</td>
<td>68°</td>
<td>Sept. 7</td>
<td>16.01</td>
<td>1,402</td>
<td>68°</td>
</tr>
</tbody>
</table>
WELL 201 Pearl City

MAX. WATER LEVEL
31.21

MIN. WATER LEVEL
14.18

<table>
<thead>
<tr>
<th>1936</th>
<th>1937</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>19.53</td>
</tr>
<tr>
<td>F</td>
<td>19.80</td>
</tr>
<tr>
<td>L</td>
<td>19.39</td>
</tr>
<tr>
<td>A</td>
<td>19.71</td>
</tr>
<tr>
<td>M</td>
<td>19.22</td>
</tr>
<tr>
<td>L</td>
<td>17.57</td>
</tr>
<tr>
<td>C</td>
<td>17.73</td>
</tr>
<tr>
<td>A</td>
<td>17.41</td>
</tr>
<tr>
<td>G</td>
<td>16.45</td>
</tr>
<tr>
<td>D</td>
<td>20.39</td>
</tr>
<tr>
<td>N</td>
<td>30.75</td>
</tr>
<tr>
<td>D</td>
<td>21.77</td>
</tr>
</tbody>
</table>
(over)

Jan. 27, 1956

Oahu Well 201
Well Descriptions
State of Hawaii

Island and Number of Well: Oahu Well 201

Owner's name: U. S. Navy

Location: Pearl City

Latitude and Longitude: Lat. 21°23'32" N, Long. 157°58'20" W

Method of construction: Drilled
(Bored, drilled, driven, dug, or jetted)

Use: Irrigation
(Domestic, industrial, irrigation, municipal, observation, and stock)

Artesian or water-table: Artesian basal-water well

Aquifer: In basalt of Koolau Volcanic Series, Pliocene (?) age.

Diameter or size (in.): 12 in.

Depth (ft.): 336 ft.

Casing and screen setting or perforations: Cased to 58 ft.

Altitude of land-surface datum: 9 ft above msl.

Description of Measuring Point: Top of upper flange on valve, 13.17 ft. above msl.

Highest water level of record: 31.21 above msl, Feb. 1916

Lowest water level of record: 12.73 above msl, Aug. 1923, 1926, 1929-72


Measurement discontinued or suspended:

Well sealed, recased, well replaces another well:

Remarks: (Installation or removal of a recording gage)

Additional published measurements.
*For additional measurements, see

Records furnished by: USGS Observation well.

Compiled by RM Date May 1965
Checked by Date
<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Depth to Water</th>
<th>Elev of Water Surface</th>
<th>Temp. °C</th>
<th>Sp. Cond.</th>
<th>Chloride</th>
<th>Remarks</th>
<th>Meas. by</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-3-80</td>
<td>1405</td>
<td>0.05</td>
<td>20.5 3,600</td>
<td>1100</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-11-80</td>
<td>1420</td>
<td>0.05</td>
<td>20.5 4,400</td>
<td>1400</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-25-80</td>
<td>1445</td>
<td>0.05</td>
<td>20.5 3,600</td>
<td>1100</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-4-80</td>
<td>1335</td>
<td>0.05</td>
<td>20.5 2,900</td>
<td>900</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-31-80</td>
<td>1110</td>
<td>0.05</td>
<td>20.5 7.50</td>
<td>2400</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-10-81</td>
<td>1230</td>
<td>0.05</td>
<td>21.0 6,000</td>
<td>2200</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-20-81</td>
<td>1330</td>
<td>0.05</td>
<td>20.5 4,700</td>
<td>1400</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-1-81</td>
<td>1305</td>
<td>0.05</td>
<td>20.5 2,200</td>
<td>650</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-11-81</td>
<td>1330</td>
<td>0.05</td>
<td>20.5 1,500</td>
<td>420</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-30-81</td>
<td>1410</td>
<td>0.05</td>
<td>20.5 1,300</td>
<td>390</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-15-81</td>
<td>1340</td>
<td>0.05</td>
<td>20.5 1,300</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-27-81</td>
<td>1330</td>
<td>0.05</td>
<td>20.5 1,200</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

New No. 3-2358-02
**GROUND WATER FIELD NOTES**

**NEW NO. 3-2358-02**

**OWNER** U.S. Navy  
**OLD NO.** 201  
**LOCATION** Pearl City Int. School  
**QUAD NO.**  
**SAMP. PT.**  

**MEAS. PT.** Top of Horizontal Flange  
**MEAS. PT. ELEV.** 13'17" (Free Flow)

<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Depth to Water</th>
<th>Elev. of Water Surface</th>
<th>Temp. °C</th>
<th>Sp. Cond.</th>
<th>Remarks</th>
<th>Meas. by</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-79</td>
<td>1430</td>
<td></td>
<td>20.5</td>
<td>2000</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>3-21-79</td>
<td>1305</td>
<td></td>
<td>20.5</td>
<td>5400</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>4-27-79</td>
<td>1445</td>
<td></td>
<td>20.5</td>
<td>4400</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>6-13-79</td>
<td>1420</td>
<td></td>
<td>20.5</td>
<td>3400</td>
<td></td>
<td>85 1000</td>
<td></td>
</tr>
<tr>
<td>7-25-79</td>
<td>1430</td>
<td></td>
<td>20.5</td>
<td>2200</td>
<td></td>
<td>85 600</td>
<td></td>
</tr>
<tr>
<td>9-13-79</td>
<td>1215</td>
<td></td>
<td>20.5</td>
<td>2100</td>
<td></td>
<td>85 640</td>
<td></td>
</tr>
<tr>
<td>10-22-79</td>
<td>1430</td>
<td></td>
<td>20.5</td>
<td>1800</td>
<td></td>
<td>85 540</td>
<td></td>
</tr>
<tr>
<td>11-23-79</td>
<td>1220</td>
<td></td>
<td>20.5</td>
<td>2200</td>
<td></td>
<td>85 640</td>
<td></td>
</tr>
<tr>
<td>1-17-80</td>
<td>1410</td>
<td></td>
<td>20.5</td>
<td>3800</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>3-13-80</td>
<td>1335</td>
<td></td>
<td>20.5</td>
<td>4100</td>
<td></td>
<td>85 600</td>
<td></td>
</tr>
<tr>
<td>4-11-80</td>
<td>1350</td>
<td></td>
<td>20.5</td>
<td>2800</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>5-21-80</td>
<td>1240</td>
<td></td>
<td>20.5</td>
<td>2500</td>
<td></td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

**New No. 3-2358-02**
<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Depth to Water</th>
<th>Elev of Water Surface</th>
<th>Temp °C</th>
<th>Sp Cond.</th>
<th>Remarks</th>
<th>Meas by</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-22-77</td>
<td>1210</td>
<td></td>
<td></td>
<td>205</td>
<td>900</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>9-2-77</td>
<td>1430</td>
<td></td>
<td></td>
<td>205</td>
<td>825</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>10-18-77</td>
<td>1140</td>
<td></td>
<td></td>
<td>205</td>
<td>850</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>11-12-77</td>
<td>1410</td>
<td></td>
<td></td>
<td>200</td>
<td>1050</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>1-12-78</td>
<td>1310</td>
<td></td>
<td></td>
<td>20.0</td>
<td>1450</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>2-16-78</td>
<td>1350</td>
<td></td>
<td></td>
<td>20.0</td>
<td>975</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>4-6-78</td>
<td>1500</td>
<td></td>
<td></td>
<td>20.5</td>
<td>950</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>5-16-78</td>
<td>1445</td>
<td></td>
<td></td>
<td>20.5</td>
<td>1400</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>6-30-78</td>
<td>1200</td>
<td></td>
<td></td>
<td>20.5</td>
<td>1300</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>7-4-78</td>
<td>0950</td>
<td></td>
<td></td>
<td>21.0</td>
<td>970</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>9-18-78</td>
<td>1135</td>
<td></td>
<td></td>
<td>20.5</td>
<td>870</td>
<td>FS</td>
<td>B</td>
</tr>
<tr>
<td>12-21-78</td>
<td>1545</td>
<td></td>
<td></td>
<td>20.5</td>
<td>1600</td>
<td>FS</td>
<td>B</td>
</tr>
</tbody>
</table>

Remarks:

New No. 3-2358-02
<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Depth to Water</th>
<th>Elev. of Water Surface</th>
<th>Temp. °C</th>
<th>Sp. Cond.</th>
<th>Remarks</th>
<th>Meas. by</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-22-76</td>
<td>1530</td>
<td>1.50</td>
<td>13.0</td>
<td>20.5</td>
<td>3.400</td>
<td>Free Flow</td>
<td>BS</td>
</tr>
<tr>
<td>5-5-76</td>
<td>1450</td>
<td>1.50</td>
<td>13.0</td>
<td>20.5</td>
<td>2.200</td>
<td>3&quot; pipe off to 1st drain</td>
<td>BS</td>
</tr>
<tr>
<td>6-30-76</td>
<td>1370</td>
<td>2.00</td>
<td>13.0</td>
<td>20.5</td>
<td>2.200</td>
<td>Returned to main drain</td>
<td>BS</td>
</tr>
<tr>
<td>7-2-76</td>
<td>1350</td>
<td>21.0</td>
<td>13.0</td>
<td>20.5</td>
<td>2.200</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>4-13-76</td>
<td>1350</td>
<td>20.5</td>
<td>14.0</td>
<td>20.5</td>
<td>1.000</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>8-22-76</td>
<td>1110</td>
<td>20.5</td>
<td>12.5</td>
<td>20.5</td>
<td>1.250</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>12-6-76</td>
<td>1030</td>
<td>20.5</td>
<td>15.0</td>
<td>20.5</td>
<td>1.500</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>1-25-77</td>
<td>1145</td>
<td>20.5</td>
<td>14.0</td>
<td>20.5</td>
<td>1.200</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>3-11-77</td>
<td>1225</td>
<td>20.5</td>
<td>12.0</td>
<td>20.5</td>
<td>1.000</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>4-26-77</td>
<td>1325</td>
<td>20.5</td>
<td>11.0</td>
<td>20.5</td>
<td>1.100</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>5-4-77</td>
<td>1420</td>
<td>21.0</td>
<td>11.0</td>
<td>21.0</td>
<td>1.100</td>
<td></td>
<td>BS</td>
</tr>
<tr>
<td>6-14-77</td>
<td>1205</td>
<td>20.5</td>
<td>11.0</td>
<td>20.5</td>
<td>1.100</td>
<td></td>
<td>BS</td>
</tr>
</tbody>
</table>

Remarks:
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4/13/25</td>
<td>925</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/12/74</td>
<td>3/85</td>
<td></td>
<td></td>
<td>30.0</td>
<td>3.800</td>
<td>Free Flow</td>
<td>134.17</td>
</tr>
<tr>
<td>11.20</td>
<td>134</td>
<td></td>
<td></td>
<td>215</td>
<td>4.800</td>
<td>1 Valve</td>
<td>134.17</td>
</tr>
<tr>
<td>4-11-75</td>
<td>1135</td>
<td></td>
<td></td>
<td>240</td>
<td>6.500</td>
<td>Free Flow</td>
<td>140.19</td>
</tr>
<tr>
<td>5/29/11</td>
<td>1/10</td>
<td></td>
<td></td>
<td>200</td>
<td>6.100</td>
<td>&quot;Ph = 6.9</td>
<td>130.19</td>
</tr>
<tr>
<td>7-9-72</td>
<td>1/25</td>
<td></td>
<td></td>
<td>210</td>
<td>4.580</td>
<td></td>
<td>130.19</td>
</tr>
<tr>
<td>8-15</td>
<td>1400</td>
<td></td>
<td></td>
<td>210</td>
<td>12.75</td>
<td>Water being spread</td>
<td>130.19</td>
</tr>
<tr>
<td>9-25</td>
<td>1275</td>
<td></td>
<td></td>
<td>195</td>
<td>118.7</td>
<td>LAB</td>
<td>130.19</td>
</tr>
<tr>
<td>11-175</td>
<td>1375</td>
<td></td>
<td></td>
<td>200</td>
<td>1200</td>
<td></td>
<td>130.19</td>
</tr>
<tr>
<td>12-200</td>
<td>1100</td>
<td></td>
<td></td>
<td>20.0</td>
<td>5.000</td>
<td>Free Flow</td>
<td>130.19</td>
</tr>
<tr>
<td>2-9-71</td>
<td>1375</td>
<td></td>
<td></td>
<td>24.5</td>
<td>7.500</td>
<td></td>
<td>130.19</td>
</tr>
</tbody>
</table>

Remarks:

New No. 3-2358-02
# Water Level Measurements

**Date** | **Hour** | **Depth to Water (ft)** | **Elav. on Water Surface (ft)** | **Measure by** | **Remarks**
--- | --- | --- | --- | --- | ---
1974 | | | | | W.S. Temp

1/16/74 | 1425 | | | | Could not take reading
2/25/74 | 1340 | | | | 120" h 20.5 -
3/26/74 | 1400 | | | | 120" h 20.5 -

USGS OAHU NETWORK WELL

---

Record low 10/15/73 11.35
<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Depth to Water</th>
<th>Elst. of Water Surface</th>
<th>Meas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-10</td>
<td>11:34</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-11</td>
<td>9:35</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-12</td>
<td>9:35</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-17</td>
<td>1:34</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-17</td>
<td>2:43</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-17</td>
<td>2:43</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-17</td>
<td>2:43</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
<tr>
<td>3-17</td>
<td>2:43</td>
<td>190</td>
<td>4.8</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Remarks: Nearby well pumping, etc.
Directions to get to well:
1. Go down Lehua St.
2. Turn left onto Second St.
3. Turn right at the Hongwanji School
4. Turn left onto paved roadway.
5. First watercress patch visible.
Cahu Well 200-1

Location: On mauka edge of watercress field, Pearl City, about 500 ft. west of well No. 200 and 500 yds. east of Pearl City Post Office.

Owner: T. Miyahara.

Altitude: 8 ft.

Drilled: April, 1953 by Nat Whiton.

Diameter: 8 in.

Depth: 100 ft.

Casing: 47 ft.

Head: Apr. 22, 1953, 17.31 ft.

Chloride: Apr. 22, 1953, 142 p.p.m.

Use: Irrigation.

Bench Mark: Top of vertical flange on 8" elbow on well, 2 ft. above ground; altitude, 10.01 ft.

Log

0 - 4 ft. Very soft soil
4 - 20 Soil and boulders
20 - 33 Compact gritty soil
33 - 45 Mudrock or soft gray rock; first water at 38 ft.
45 - 70 Soft gray rock with streaks of hard gray rock
70 - 100 Medium and soft red rock with a hard streak at 95 ft. after which flow greatly increased.
LEVEL NOTES

Stream: T. Mobyau, well NEL 200-1
Locality: Reuss City 3-2358-27
Party: 3 Day
Date: Apr. 22, 1953

<table>
<thead>
<tr>
<th>STATION</th>
<th>R.S.</th>
<th>HT. INST.</th>
<th>F.S.</th>
<th>ELEVATION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.35</td>
<td>18.02</td>
<td></td>
<td>12.67</td>
<td>Top of well</td>
<td>flange on 8&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10.01</td>
<td>Top of vertical flange on 8&quot;</td>
<td></td>
</tr>
<tr>
<td>10.01</td>
<td></td>
<td></td>
<td></td>
<td>flange on well 2/4&quot; inside ground</td>
<td></td>
</tr>
<tr>
<td>7.33</td>
<td>17.31</td>
<td></td>
<td></td>
<td></td>
<td>soft soil and Boulders.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Soft gritty soil.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Second rock or soft rock. First at 38.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gray rock streaks of gray rock.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limestone and soft rock with a streak at 95 of which flow slightly increased.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>flange on</td>
</tr>
</tbody>
</table>

Head - April 22, 1953 - 17.5
Salt - - - - - 13.7 gpg

Purchased Equipment: 1953 $0.00 by Whiton
Mr. Melvin Miyahira  

Dear Mr. Miyahira:

Pearl Harbor Ground Water Control Area

We acknowledge receipt on January 4, 1980, of your Declaration of Existing Water Withdrawal and Use in the Pearl Harbor Ground Water Control Area. Our staff will review the data and may contact you for a field inspection of your well(s) before certification of your declared water use is made by the Board of Land and Natural Resources.

We appreciate your early filing of the declaration of existing water use.

Very truly yours,

SUSUMU ONO  
Chairman of the Board
DECLARATION OF EXISTING WATER WITHDRAWAL AND USE
Pearl Harbor Ground Water Control Area

Instructions: This form must be properly completed, signed, and submitted for each individual well or connected battery of wells on or before January 2, 1980, in accordance with Regulation 9 of the Department. Submit the form with any attachments to Department of Land and Natural Resources.

1. WATER USER: Name MELVIN MIYAHIRA  Mailing address 1741 HOOUKE ST
   Phone:

2. WATER USER'S WELL CONNECTED BATTERY OF WELLS: TAX MAP KEY
   User's Well Name and Location
   Pump or natural flow capacity (gpm) Capacity determined by flowmeter, nameplate, orifice, etc. (specify) Year pump inst./modified
   
3. BENEFICIAL USE OF WATER:
   (a) Major Use: [ ] Municipal [ ] Agriculture [ ] Military [ ] Industrial
   [ ] Domestic [ ] Other (specify)
   (b) Minor Uses: (specify)
   (c) For Agriculture Use list crop(s) irrigated, total acreage irrigated, and attach map showing acreage irrigated by the well source.

4. BENEFICIALLY USED WATER WITHDRAWALS:
   (a) All figures given in (b) are records of: [ ] Metered flow [ ] Nameplate pump capacity [ ] Orifice [ ] Weir [ ] Other (specify)
   (b) Records available (in million gallons per day, three decimal places):
   
5. WELL DESCRIPTION:
   On the attached computer list of wells, make corrections or additions thereon in red pencil as necessary and return with Declaration form. If information is readily available in another form, you may submit it in lieu of a corrected computer list.

Signature: ___________________________ Date: ___________________________
WATER USER

Signature: ___________________________ Date: ___________________________
LANDOWNER OF WELL SITE

For Official Use:
Last day to certify 7-4-80
Date Certified ___________________________
Amount certified ___________________________
WELL NO. 2358-27
Ground Water Index

EXPLANATION

• WELL NUMBER - Six-digit well numbers are assigned by the Department of Land and Natural Resources, Division of Water and Land Development and are based on the latitude and longitude position of the well.

Minute of Latitude

Minute of Longitude

Sequential Number within Minute Grid

2456-01

• QUAD MAP NO. - U.S. Geological Survey 7½ Minute topographic quadrangle maps, 1" = 2000' scale. Maps have arbitrarily assigned reference numbers.

• TYPE CONS - Type of Well Construction

Symbols listed:

ROT - Rotary
PER - Percussion
TUN - Tunnel
DUG - Dug

• CSG DIA IN - Casing diameter in inches

• GRD ELEV FT - Ground surface elevation in feet, referenced to mean sea level

• TOTL DEP FT - Total depth of well in feet

• CSG DEP FT - Casing depth in feet

• MAJ USE - Major use of well

Symbols listed:

MUN - Municipal
IRR - Irrigation
IND - Industrial
DOM - Domestic
UNU - Unused
SLD - Sealed
OBS - Observation
OTH - Other
LOS - Lost
RCH - Recharge

• CL - Chloride content of water

• WTR LEV - Water level

• WTR TEM - Water temperature

• CHEM ANAL - Chemical analysis of water

• DRFT - Draft or withdrawal from well

Symbols listed:

ANN - Annually
MON - Monthly
WKY - Weekly
REC - Recorder
OCC - Occasional

Ground Water Summary

• YEAR DRLD - Year well was drilled

• CSG DIA IN - Casing diameter in inches

• GRD SURF - Ground surface

• BOT OF HOLE - Bottom of hole, i.e., total depth of well

• BOT SOL CSG - Bottom of solid, unperforated section of casing

• BOT PERF CSG - Bottom of perforated or screened section of casing

• STAT HEAD FT - Static water level elevation in feet

• CL MG/L - Chloride content of water in milligrams/liter

• PUMP RATE GPM - Maximum test pumping rate in gallons per minute

• DRAWDOWN FT - Drawdown of well in feet at stated rate

• SPEC CAP - Specific well capacity in gallons per minute per foot of drawdown

• C MG/L - Chloride content of water during maximum pumping rate

• WTR TEMP C - Field water temperature in degree Celsius

• PUMP CAP MGD - Installed pump capacity, million gallons per day

• DRFT MGD - Average annual draft from well in million gallons per day

• BATT - Battery of wells connected together as one source

• AQFR - Aquifer tapped by well. Symbols listed are geologic formation symbols used on published Island geologic maps.
<table>
<thead>
<tr>
<th>WELL NG</th>
<th>UNDER USER</th>
<th>YEAR</th>
<th>CGS ELAVATIONS IN FEET</th>
<th>INITIAL TEST</th>
<th>PUMPING TEST RESULTS</th>
<th>WATER SUPPLY</th>
<th>AQAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2806-04</td>
<td>MILLIANI IN</td>
<td>1975</td>
<td>20</td>
<td>75 - 251 - 40</td>
<td>20.6</td>
<td>1800</td>
<td>20.1</td>
</tr>
<tr>
<td>2449-02</td>
<td>MINAMI K</td>
<td>1998</td>
<td>4</td>
<td>128 - 78 - 12</td>
<td>19.4</td>
<td>39</td>
<td>100</td>
</tr>
<tr>
<td>2455-03</td>
<td>MINAMI K</td>
<td>1974</td>
<td>7</td>
<td>100 - 120 - 80</td>
<td>17.3</td>
<td>142</td>
<td>20.2</td>
</tr>
<tr>
<td>2358-27</td>
<td>MIYAHARA T</td>
<td>1992</td>
<td>8</td>
<td>8 - 92 - 39</td>
<td></td>
<td></td>
<td>170</td>
</tr>
<tr>
<td>1900-14</td>
<td>N O A A</td>
<td>1974</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2359-23</td>
<td>NAKAMA C</td>
<td>1949</td>
<td>8</td>
<td>12 - 138 - 71</td>
<td>17.1</td>
<td>177</td>
<td>20.5</td>
</tr>
<tr>
<td>2359-24</td>
<td>NAKAMA S</td>
<td>1942</td>
<td>8</td>
<td>14 - 151 - 23</td>
<td>14.8</td>
<td>134</td>
<td>21.2</td>
</tr>
<tr>
<td>2358-25</td>
<td>NAKAMA W</td>
<td>1961</td>
<td>8</td>
<td>13 - 137 - 48</td>
<td>11.6</td>
<td>498</td>
<td>20.0</td>
</tr>
<tr>
<td>2201-13</td>
<td>NAKATA D</td>
<td>1959</td>
<td>4</td>
<td>5 - 105 - 55</td>
<td>14.3</td>
<td>146</td>
<td>35</td>
</tr>
<tr>
<td>2356-03</td>
<td>NAKATA H</td>
<td>1951</td>
<td>1</td>
<td>30 - 326 - 370 - 317</td>
<td>17.4</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

**GROUND WATER SUMMARY - OAHU CODE 3**

<table>
<thead>
<tr>
<th>WELL</th>
<th>YEAR</th>
<th>CGS ELAVATIONS IN FEET</th>
<th>INITIAL TEST</th>
<th>PUMPING TEST RESULTS</th>
<th>WATER SUPPLY</th>
<th>AQAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2359-13</td>
<td>NISHIDA I</td>
<td>1955</td>
<td>2</td>
<td>8 - 122 - 62</td>
<td>19.0</td>
<td>353</td>
</tr>
<tr>
<td>1955-07</td>
<td>NOAA</td>
<td>1972</td>
<td>4</td>
<td>6 - 100 - 99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2458-02</td>
<td>OAHU R &amp; L</td>
<td>1975</td>
<td>117 - 38</td>
<td>17.2</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>2901-01</td>
<td>OAHU R &amp; L</td>
<td>1910</td>
<td>262 - 213</td>
<td>19.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2155-01</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>21 - 719 - 679</td>
<td>23.3</td>
<td>499</td>
<td></td>
</tr>
<tr>
<td>2156-01</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>25 - 583 - 495</td>
<td>21.7</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>2156-02</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>33 - 697 - 488</td>
<td>23.0</td>
<td>293</td>
<td></td>
</tr>
<tr>
<td>2158-01</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>15 - 94</td>
<td>22.2</td>
<td>1150</td>
<td></td>
</tr>
<tr>
<td>2203-01</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>284</td>
<td>19.6</td>
<td>91</td>
<td>22.4</td>
</tr>
<tr>
<td>2203-02</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>284 - 126</td>
<td>19.6</td>
<td>91</td>
<td>22.4</td>
</tr>
<tr>
<td>2203-03</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>284</td>
<td>19.6</td>
<td>91</td>
<td>22.4</td>
</tr>
<tr>
<td>2203-04</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>284</td>
<td>19.6</td>
<td>91</td>
<td>22.4</td>
</tr>
<tr>
<td>2203-05</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>284</td>
<td>19.6</td>
<td>91</td>
<td>22.4</td>
</tr>
<tr>
<td>2203-06</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>256</td>
<td>19.6</td>
<td>91</td>
<td>22.4</td>
</tr>
<tr>
<td>2203-07</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>356 - 19</td>
<td>21.4</td>
<td>77</td>
<td>22.4</td>
</tr>
<tr>
<td>2255-02</td>
<td>OAHU SUGAR</td>
<td>12</td>
<td>18 - 308</td>
<td>104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2255-03</td>
<td>OAHU SUGAR</td>
<td>6</td>
<td>20</td>
<td>208</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2255-04</td>
<td>OAHU SUGAR</td>
<td>6</td>
<td>23 - 211 - 63</td>
<td>146</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2255-05</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>25 - 520 - 225</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>2255-06</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>25 - 496 - 222</td>
<td>187</td>
<td></td>
</tr>
<tr>
<td>2255-07</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>21 - 370 - 129</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-08</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>19 - 154 - 108</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-09</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>23 - 376 - 137</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-10</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>25 - 475</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-11</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>25 - 475</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-12</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>19 - 186 - 136</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-13</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>22 - 266 - 128</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>2255-14</td>
<td>OAHU SUGAR</td>
<td>1900</td>
<td>12</td>
<td>20 - 216 - 114</td>
<td>24.9</td>
<td>380</td>
</tr>
<tr>
<td>WELL NO.</td>
<td>LOCATION</td>
<td>MAP NO.</td>
<td>USER</td>
<td>YEAR BUILT</td>
<td>DRILLER</td>
<td>LATITUDE</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>---------</td>
<td>------</td>
<td>------------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>280-05</td>
<td>MIIKI'I'A IN</td>
<td>05</td>
<td>MIIKI'I'A IN</td>
<td>1975</td>
<td>NAT RES INTL</td>
<td>212093508007</td>
</tr>
<tr>
<td>2455-02</td>
<td>WAIMALU</td>
<td>07</td>
<td>MENAMI K</td>
<td>1958</td>
<td>PACIFIC DRPLG</td>
<td>21240157552</td>
</tr>
<tr>
<td>2455-03</td>
<td>WAIMALU</td>
<td>07</td>
<td>MENAMI K</td>
<td>1964</td>
<td>LAYNE INT</td>
<td>21240157557</td>
</tr>
<tr>
<td>2358-27</td>
<td>PEARL CITY</td>
<td>07</td>
<td>MIZAKAWA T</td>
<td>1953</td>
<td>NAT WHITIN</td>
<td>2123321573815</td>
</tr>
<tr>
<td>1900-14</td>
<td>EWA BEACH</td>
<td>10</td>
<td>N U A A</td>
<td>1972</td>
<td>CUNTZ DRPLG CG</td>
<td>211911580024</td>
</tr>
<tr>
<td>1900-15</td>
<td>EWA BEACH</td>
<td>10</td>
<td>N U A A</td>
<td>1972</td>
<td>CUNTZ DRPLG CG</td>
<td>2119291580022</td>
</tr>
<tr>
<td>2358-23</td>
<td>PEARL CITY</td>
<td>09</td>
<td>NAKAMA G</td>
<td>1949</td>
<td>NAT WHITIN</td>
<td>2126421573848</td>
</tr>
<tr>
<td>2358-44</td>
<td>PEARL CITY</td>
<td>09</td>
<td>NAKAMA S</td>
<td>1962</td>
<td>NAT WHITIN</td>
<td>2123521573854</td>
</tr>
<tr>
<td>2358-25</td>
<td>PEARL CITY</td>
<td>09</td>
<td>NAKAMA W</td>
<td>1951</td>
<td>NAT WHITIN</td>
<td>2123421573849</td>
</tr>
<tr>
<td>2358-40</td>
<td>PEARL CITY</td>
<td>09</td>
<td>NAKAMA W</td>
<td>1957</td>
<td>NAT WHITIN</td>
<td>2123431573848</td>
</tr>
<tr>
<td>2201-13</td>
<td>PEARL HARBOUR</td>
<td>09</td>
<td>NAKATA D</td>
<td>1959</td>
<td>PACIFIC URG</td>
<td>21222515800125</td>
</tr>
<tr>
<td>2356-03</td>
<td>AREA</td>
<td>09</td>
<td>NAKATA H</td>
<td>1955</td>
<td>CANDEELESS</td>
<td>2123521573869</td>
</tr>
<tr>
<td>2359-13</td>
<td>WAIPAHU</td>
<td>09</td>
<td>NISHIDA I</td>
<td>1955</td>
<td>NAT WHITIN</td>
<td>2123311573919</td>
</tr>
<tr>
<td>1959-07</td>
<td>FT WHALER RD</td>
<td>10</td>
<td>NOCA A</td>
<td>1972</td>
<td>CONTINENTAL</td>
<td>2119071575946</td>
</tr>
<tr>
<td>2458-02</td>
<td>PEARL CITY</td>
<td>09</td>
<td>GANU R &amp; R L</td>
<td>1955</td>
<td>CANDEELESS</td>
<td>2124091573814</td>
</tr>
<tr>
<td>2501-01</td>
<td>WAIPAHU</td>
<td>05</td>
<td>GANU R &amp; R L</td>
<td>1950</td>
<td>CANDEELESS</td>
<td>2125231580145</td>
</tr>
<tr>
<td>2155-01</td>
<td>MAKALAPA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2121381575545</td>
</tr>
<tr>
<td>2156-01</td>
<td>MAKALAPA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1974</td>
<td>GANU SUGAR</td>
<td>2121271575605</td>
</tr>
<tr>
<td>2156-02</td>
<td>MAKALAPA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2121301575602</td>
</tr>
<tr>
<td>2158-01</td>
<td>HAP'PU PENINSULA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2121311575832</td>
</tr>
<tr>
<td>2203-01</td>
<td>HONOULOULU P5 A</td>
<td>05</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2122231580354</td>
</tr>
<tr>
<td>2203-02</td>
<td>HONOULOULU P5 B</td>
<td>05</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2122231580354</td>
</tr>
<tr>
<td>2203-03</td>
<td>HONOULOULU P5 C</td>
<td>05</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2122211575350</td>
</tr>
<tr>
<td>2203-04</td>
<td>HONOULOULU P5 D</td>
<td>05</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2122231580354</td>
</tr>
<tr>
<td>2203-05</td>
<td>HONOULOULU P5 E</td>
<td>05</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2122231580354</td>
</tr>
<tr>
<td>2203-06</td>
<td>HONOULOULU P5 F</td>
<td>05</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>GANU SUGAR</td>
<td>2122231580354</td>
</tr>
<tr>
<td>2253-01</td>
<td>PIED HILL</td>
<td>12</td>
<td>GANU SUGAR</td>
<td>1941</td>
<td>CLARKE</td>
<td>2122481575334</td>
</tr>
<tr>
<td>2255-02</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122191575556</td>
</tr>
<tr>
<td>2255-03</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122221575551</td>
</tr>
<tr>
<td>2255-04</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122301575554</td>
</tr>
<tr>
<td>2255-05</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122311575540</td>
</tr>
<tr>
<td>2255-06</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122131575539</td>
</tr>
<tr>
<td>2255-07</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-08</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-09</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-10</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-11</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-12</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-13</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
<tr>
<td>2255-14</td>
<td>HANANA</td>
<td>10</td>
<td>GANU SUGAR</td>
<td>1975</td>
<td>HANANA</td>
<td>2122211575544</td>
</tr>
</tbody>
</table>
**Well 200-2**

<table>
<thead>
<tr>
<th>Location</th>
<th>At Pearl City, about 115 ft. northeast of well 200, 300 yd. south of Kamehameha Highway and 700 yd. east of Pearl City post office.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>K. Koshimizu.</td>
</tr>
<tr>
<td>Altitude</td>
<td>1½ ft.</td>
</tr>
<tr>
<td>Drilled</td>
<td>May 1953 by Nat Whiton.</td>
</tr>
<tr>
<td>Diameter</td>
<td>8 in.</td>
</tr>
<tr>
<td>Depth</td>
<td>118 ft.</td>
</tr>
<tr>
<td>Casing</td>
<td>37.3 ft.</td>
</tr>
<tr>
<td>Head</td>
<td>May 15, 1953, 16.31 ft.</td>
</tr>
<tr>
<td>Chloride</td>
<td>May 15, 1953, 1.41 p.p.m.</td>
</tr>
<tr>
<td>Use</td>
<td>Irrigation.</td>
</tr>
<tr>
<td>Capacity</td>
<td>Flowing 0.36 m.g.d., May 15, 1953.</td>
</tr>
<tr>
<td>Bench Mark</td>
<td>Top of vertical flange on 8&quot; elbow, 4 ft. above ground; altitude, 15.54 ft.</td>
</tr>
</tbody>
</table>

**Tax Key 9-7-18**

Log

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 - 8.0</td>
<td>Soft soil</td>
</tr>
<tr>
<td>8.0 - 21.0</td>
<td>Soil, gravel, &amp; boulders</td>
</tr>
<tr>
<td>21.0 - 26.5</td>
<td>Soft soil</td>
</tr>
<tr>
<td>26.5 - 29.6</td>
<td>Boulder</td>
</tr>
<tr>
<td>29.6 - 35.6</td>
<td>Soil</td>
</tr>
<tr>
<td>35.6 - 45.0</td>
<td>Soft red rock - water</td>
</tr>
<tr>
<td>45.0 - 77.0</td>
<td>Medium red &amp; gray rock</td>
</tr>
<tr>
<td>77.0 - 82.0</td>
<td>Soft red rock</td>
</tr>
<tr>
<td>82.0 - 105.0</td>
<td>Medium gray rock</td>
</tr>
<tr>
<td>105.0 - 118.0</td>
<td>Hard gray rock</td>
</tr>
</tbody>
</table>
### LEVEL NOTES

**Stream**: Well 200-2  
**Locality**: Pearl City  
**Party**: H. Kanem x Sen Wong  
**Date**: Nov 2, 1952

<table>
<thead>
<tr>
<th>STATION</th>
<th>B.S.</th>
<th>HT. INST.</th>
<th>F.S.</th>
<th>ELEVATION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.F.</td>
<td>2.87</td>
<td>19.46</td>
<td>16.59</td>
<td><strong>chased circle</strong> on top of well</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>root well 200</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.57</td>
<td><strong>top of vertical pipe on 8'' elbow on well</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12.54</td>
<td><strong>2 ft. below ground</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Diagram**:
-标注了井的位置和具体数据
-井的结构示意图

**File**: Oahu Well 200-2  
**Main Board of Water Supply**: April 8 to April 27, 1985  
**S.S.**: U.E.K.  
**No. of sheets**: Comp. by: H.K. Chk. by: S.W.  
**U.S. GOVERNMENT PRINTING OFFICE**: 19-27066-1
Date: 4/21  Time: 10:00 a.m.

Memo To: Ed Sakoda

Memo From: 

Message: We sent them on arterial wells in Pearl Harbor peninsula.

Mr./Ms.: Gene Chock
Of: Navy Real Estate

Phone: 

☐ Telephoned
☐ Please Phone on Monday
☐ Returned Your Call
☐ Urgent Call At Once
☐ Will Call Again
☐ Wants to See You

Cancelled
Not necessary
April 5, 1982

Commander, Pacific Division
Naval Facilities Engineering Command

Attention: Code 24

Dear Sir:

Well 2358-48 (Old Well No. 201-1)

The Honolulu Board of Water Supply has notified us that Well 2358-48 was drilled by Watercress of Hawaii, Inc. on Navy land covered by Navy Lease NOy(R)-98690. An agreement between the BWS and Watercress of Hawaii states that upon the termination of the lease the well will be capped and sealed according to State and County regulations by the lessee. We understand that the lease to Watercress of Hawaii has expired and a new tenant, Mr. Dan Kohler, now is using the well.

The subject well is located in the Pearl Harbor Ground Water Control Area and is subject to the Department of Land and Natural Resources' Chapter 166 of Title 13, Administrative Rules entitled, "Regulations for the Control of Ground Water Use in the State of Hawaii". Please contact our office at [REDACTED] should there be any proposed modification of the well, including any change in use, change in user, or any plan to abandon or to seal the well.

Thank you very much for your cooperation.

Very truly yours,

ROBERT T. CHUCK
Manager-Chief Engineer

ES:dh
cc: Honolulu BWS
Mr. Dan Kohler
DIVISION OF WATER AND LAND DEVELOPMENT

From: [Signature]
Date: 3/5
File In: 

To: Initial

Robert T. Chuck
Takeo Fujii
James Yoshimato
Manabu Tagomori
George Morimoto
Herbert Morimatsu
George Miyashiro
Harold Sakai
Leslie Asari
Albert Ching
George Matsumoto
Daniel Lum
Paul Matsuo
Noboru Kaneshiro
Edwin Sakoda

See Me
Take action by 
Route to your branch
Review & comment
Draft reply by
For Information
Xerox distributed
Acknowledge receipt

File

Jane Sakai
Doris Iwamata
Lorraine Nanbu
Jean Sharot
Elsie Yonamine

Do not

Get me info on well.
See note on file re: new well.

I'll contact R. Kogami to find out who wants to use well. New cases (if any) should sign similar agreement?
<table>
<thead>
<tr>
<th>To</th>
<th>Initial</th>
<th>Please</th>
<th>initial</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>See me</td>
<td></td>
<td>Manabu Tagomori</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Call</td>
<td></td>
<td>Albert Ching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Take action by</td>
<td></td>
<td>Daniel Lum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review &amp; comment</td>
<td></td>
<td>George Matsumoto</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Draft reply by</td>
<td></td>
<td>Nobu Kaneshiro</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Tom Nakama</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paul Matsuo</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Edwin Sakoda</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Neal Imada</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Joe Menor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mitchell Ohye</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Kay Oshiro</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Doris Hamada</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Robert Chuck</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Takeo Fujii</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Jane Sakai</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Elsie Yonamine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bill Koyanagi</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Richard Jinnai</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yoshi Shibuya</td>
</tr>
</tbody>
</table>

---

BWS

1. Del. 100 (no written prop.)
2. Contract must for our lease
3. Scale agreement shall be
4. Scale agreement contains
5. Well shall have approximate
does < to be free Liberal
Watercress of Hawaii, Inc.

Attention Mr. M. Sumida
Manager

Gentlemen:

As requested by your letter of August 7, 1967 this Command interposes no objection to drilling a well for irrigation purposes on Navy land covered by Lease NOy(R)-98690.

However, before work can begin on drilling the well, necessary permits in accordance with State and County regulations must be obtained by you from the State Department of Land and Natural Resources and the Board of Water Supply of the City and County of Honolulu.

Upon termination of Lease NOy(R)-98690, the well must be properly capped and sealed to conform with State and County regulations.

It is requested that you furnish this Command with the actual specifications and identification or serial number of the well.

Very truly yours,

A. G. Barksdale
Acting Director
Real Estate Division
September 30, 1969

Dear Sir:

As requested by the Board of Water Supply, I will seal and cap the well to conform with the State and County regulations upon termination of Lease NOy (R)-98690.

Sincerely yours,

Raymond H. Koizumi

cc/ Watercress of Hawaii
October 17, 1969

Watercress of Hawaii, Inc.
98-160 Kam Highway
Aiea, Oahu, Hawaii 96701

Gentlemen:

Enclosed for your files is a copy of the approved application for a well to be drilled in Pearl City for R. H. Koizumi. This application was approved with a provision that R. H. Koizumi will seal the well at his expenses upon the termination of Navy lease No. (R)-98690 as stated in his letter dated September 30, 1969.

Very truly yours,

Bunji Higaki
Water Sources & Conservation Section

Enclosure
INSTRUCTIONS: Please send 5 copies to Honolulu Board of Water Supply, P. O. Box 3410, who will distribute to other agencies concerned. In filling out, refer to applicable rules and regulations of Honolulu Board of Water Supply and State Division of Sanitation. This form may be used for a multi-well project.

OWNER: Watercress of Hawaii, Inc. (Lesseeholder)

ADDRESS: 98-160 Kam Highway, Aiea, Oahu, Hawaii

(a) Plans a new well project which has been classified by the Manager and Chief Engineer of the Honolulu Board of Water Supply as (Check one):

Artesian x Caprock
Non-artesian Shaft
Tunnel
Test Boring

(b) Plans to recase a drilled well.

(c) Plans to reopen a well which has been unused for more than five (5) years.

THE LOCATION OF THE WELL IS: Pearl City, off Lehua Avenue, between the school and the ball park and approximately 300 feet towards Pearl Harbor from makai-waikiki corner of school building. Approximately 10 feet from a small stream. (A sketch or map is attached hereto.)

THE WORK WILL BE PERFORMED BY Roscoe Moss Company, 630 Keawo Street, Honolulu, Hawaii.

USE TO WHICH WATER FROM THE WELL WILL BE PUT (Check proper use(s)):

(a) Irrigation x (c) Wholly domestic
(b) Industrial (d) Partially domestic

AREA SERVED: XXXXX 1 1/2 acres

DESCRIPTION OF WELL (including altitude of well head, diameter, depth): Elevation is approximately 5.0 ft. Diameter is 8" cased. Depth is approximately 100.0 ft.
DESCRIPTION OF CASING (material, diameter, thickness, welded or screw joints, shoe (if any), total length, limits of any perforated section):

Casing will be 8" I.D. x 1/4" wall thickness of A53 Grade B steel with welded joints. Depth of casing will be 50.0 feet, with no perforations.

DESCRIPTION OF PUMP (type, nominal capacity): No pump required.

MEANS OF MEASURING DRAFT: Possibly with weir box.

The Owner hereby agrees to perform the work and thereafter to operate and maintain control of the well in accordance with the laws of the State of Hawaii and the Rules and Regulations of the Honolulu Board of Water Supply and the State Division of Sanitation.

The $25.00 fee (per well) is: x enclosed. not required.

April 30, 1969
Date Submitted

R. H. Krisman (OK)
Signature of Owner

10/8/69
Signed
George Uren
Manager and Chief Engineer
Board of Water Supply
Honolulu, Hawaii
DECLARATION OF EXISTING WATER WITHDRAWAL AND USE
Pearl Harbor Ground Water Control Area

Instructions: This form must be properly completed, signed, and submitted for each individual well or connected battery of wells on or before January 2, 1980, in accordance with Regulation 9 of this Department. Submit the form with any attachments to Department of Land and Natural Resources. [Signature and date]

1. WATER USER: Name: [Name] Mailing address: [Address]; phone: [Phone]

2. WATER USER'S WELL CONNECTED BATTERY OF WELLS:
User's Well Name and Location: [Location]; TMK [TMK];

<table>
<thead>
<tr>
<th>User's Well No. (s)</th>
<th>Pump or natural flow capacity (gpm)</th>
<th>Capacity determined by flowmeter, nameplate, orifice, etc. (specify)</th>
<th>Year pump inst./modified for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[User's Well No. 1]</td>
<td>[24.58]</td>
<td>[not in use since 1975]</td>
<td>[24.58]</td>
</tr>
<tr>
<td>[User's Well No. 2]</td>
<td>[23.52]</td>
<td>[1975]</td>
<td>[23.52]</td>
</tr>
</tbody>
</table>

3. BENEFICIAL USE OF WATER:
(a) Major Use: [Municipal] [Agriculture] [Military] [Industrial] [Domestic] [Other (specify)]

(b) Minor Uses: [specify]

(c) For Agriculture Use list crop(s) [specify], total acreage irrigated [30 acres], and attach map showing acreage irrigated by the well source.

4. BENEFICIALLY USED WATER WITHDRAWALS:
(a) All figures given in (b) are records of: [Metered flow] [Nameplate pump capacity]

(b) Monthly average: [specify] (in million gallons per day, three decimal places): [specify]

(c) For Agriculture Use only: description of withdrawal schedule (include times of day and days of week: [specify])

5. WELL DESCRIPTION:
On the [Site of well, make corrections or additions thereon in red pencil number with a legible signature]. If information is readily available in another form, you may submit it in lieu of a corrected computer list.

Declaration: Under penalties provided in Regulation 9 of the Department of Land and Natural Resources, the undersigned declare and certify that this declaration has been examined, including accompanying statements and to the best of knowledge and belief, it is true, correct, and complete.

Signature: [Signature] Date: 12-28-1979

For Official Use:
Last day to certify: 7-03-1980
Date Certified: [Date]
Amount certified: [Amount]

WELL NO. [Number]
ROSCOE MOSS COMPANY

WELL CONTRACTORS
Log of Well No. Drilled for: Watercorp of Hawaii, Inc.

Ot. Pearl City, Oahu, Hawaii

Exact Location: Waterland, Pearl City, Hawaii

Started Work: October 21, 1969

Completed Work: December 16, 1969

Total depth: 195 ft. Size of shoe: 8 in.

123.6 ft. of 3/4 in. or gauge casing used 123.6 left in Well

Type of Perforator used: None

Perforated ft. to ft. Holes per. inches


Water level when first started Test: 4 ft.

Draw down from standing level: 4 ft.

No. of gallons per minute pumped when Test first started: 122.

No. of gallons per minute pumped when Test completed: 122.

Draw down at completion of Test: 122.

Hours Testing Well: 2 days 13 hours 30 minutes.

Formation: Mention size of water gravel:

- 2 ft. to 3 ft. Top soil
- 8 ft. Clay and rock
- 8 ft. Clay, gravel, hard streaks
- 32 ft. Clay gravel
- 118 ft. Rock, medium hard
- 126 ft. Clay and gravel
- 110 ft. Medium hard rock
- 146 ft. Hard rock
- 177 ft. Medium hard rock
- 192 ft. Jasper, brown and red rock

Note below your observation of any change in water level while drilling:

- Diameter of Perforations
- Length of Perforations
- Depth at which water was first found
- Standing level before perforating
- Standing level after perforating

Make diagram of perforation in square, showing dimensions.
<table>
<thead>
<tr>
<th>Depth from surface cut</th>
<th>Size of casing cut</th>
<th>Lap in larger casing</th>
<th>Depth from surface cut</th>
<th>Size of casing cut</th>
<th>Lap in larger casing</th>
</tr>
</thead>
<tbody>
<tr>
<td>236</td>
<td>140</td>
<td></td>
<td>176</td>
<td>177</td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>177</td>
<td></td>
<td>154</td>
<td>174</td>
<td></td>
</tr>
<tr>
<td>195</td>
<td></td>
<td></td>
<td>126</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If reducing strings of casing were cut off, state how cut

Depth from surface cut ______ ft.
Size of casing cut ______ ft.
Lap in larger casing ______ ft.

Was adapter or cement used?

If casing was swaged or repaired, state depth, describe repairs, and probable future effect:

Make drawing of adapter or cement, showing dimensions:

<table>
<thead>
<tr>
<th>Is well straight, top to bottom?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Actual condition</th>
<th>Later</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 ppm at 250 GPM</td>
<td>200 ppm at 400 GPM</td>
<td>360 ppm at 700 GPM</td>
</tr>
</tbody>
</table>

Will there be any detrimental effect on pump?

If so, what effect?

<table>
<thead>
<tr>
<th>No. of tons of gravel installed in well</th>
</tr>
</thead>
</table>

Give any additional data which may be of future value:

- Cemented annular space from bottom of casing to top.
- Well has an 8" L and 8" valve on discharge.
- Well had about 200 GPM flow from 126 to 163 ft. Flow increased at 163 ft. to about 250 GPM. Well flowing about 700 GPM at 195 feet.

Driller must fill in report as work progresses and report must be complete for his successor.

Date of report: January 16, 1979

Driller

Type and Rig No. used: 60L rig

Hayland Evans, Herman Keyers
March 25, 1982

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu

Dear Mr. Hayashida:

Well 2358-48 (Old Well No. 201-1),
Pearl Harbor Ground Water Control Area

Thank you for informing us of the status of Well 2358-48 and of the termination of the lease of the previous water user. We have contacted the Navy Real Estate Division and have informed them of the situation.

Thank you very much for the information.

Very truly yours,

Robert T. Chuck

ROBERT T. CHUCK
Manager-Chief Engineer

ES:ey
March 2, 1982

Mr. Robert T. Chuck  
Manager and Chief Engineer  
Department of Land and Natural Resources  
Division of Water and Land Development

Dear Mr. Chuck:

Subject: Well 2358-48 (Old Well No. 201-1)

We attach a copy of an agreement by the owner to seal the well at his own expense upon termination of his lease. The owner has informed us that his lease expired on November 30, 1981, however, another person proposes to use the well. The continued use of the well will then require your department's approval.

If you have any questions, please call Chester Lao at

Very truly yours,

Kazu Hayashida  
Manager and Chief Engineer

Attach.

New lessee (from A.M. BNS) Jan. 12, 82 (R.K. lease exp. on 11/30/81)  
Feb. 9, 82: Mr. Dan Kohler (new lessee)  
Marita Plt.
Old Fort Wall, Lahaina Restoration Project
Structural Restoration, Lahaina
Kanaha Pond Wildlife Dev. - Planning
Improvements to Water Circulation in Kanaha Pond
Construction of Pipeline and Comfort Station (Laniupoko)
2-1/2-Inch Pipeline and Comfort Station (Laniupoko)
Kaumahina State Park - Planning
Open Space and Recreation Development - Between Wailuku and Kahului
State Park Development, Waianapanapa Caves, Maui
Waianapanapa State Park, Pipeline and Tank, Hana, Maui
Docking Facilities, Lahaina Historical Restoration, Lahaina, Maui
Comfort Stations, Parking Areas and Pipeline, Wahikuli State Park, Lahaina, Maui
Additional Buildings - Unit 2, Waianapanapa State Park, Hana, Maui
Raymond Keizum

PH GWCA

Well on NAVY LAND near Lebanon Elem. School.

If SEAL well can drill new well on own property?

Told him I can foresee no problem in drilling another well as long as amount pumped remained the same or less and new well does not interfere with another.

He will call if he plans to drill new well.

Ed
April 5, 1982

Commander, Pacific Division
Naval Facilities Engineering Command

Attention: Code 24

Dear Sir:

Well 2358-48 (Old Well No. 201-1)

The Honolulu Board of Water Supply has notified us that Well 2358-48 was drilled by Watercress of Hawaii, Inc. on Navy land covered by Navy Lease NOy(R)-98690. An agreement between the BWS and Watercress of Hawaii states that upon the termination of the lease the well will be capped and sealed according to State and County regulations by the lessee. We understand that the lease to Watercress of Hawaii has expired and a new tenant, Mr. Dan Kohler, now is using the well.

The subject well is located in the Pearl Harbor Ground Water Control Area and is subject to the Department of Land and Natural Resources' Chapter 166 of Title 13, Administrative Rules entitled, "Regulations for the Control of Ground Water Use in the State of Hawaii". Please contact our office at [redacted] should there be any proposed modification of the well, including any change in use, change in user, or any plan to abandon or to seal the well.

Thank you very much for your cooperation.

Very truly yours,

ROBERT T. CHUCK
Manager-Chief Engineer

ES: dh
cc: Honolulu BWS
Mr. Dan Kohler
December 27, 1979

Mr. Raymond H. Koizumi

Dear Mr. Koizumi:

Pearl Harbor Ground Water Control Area

We acknowledge receipt on December 20, 1979, of your Declaration of Existing Water Withdrawal and Use in the Pearl Harbor Ground Water Control Area. Our staff will review the data and may contact you for a field inspection of your well(s) before certification of your declared water use is made by the Board of Land and Natural Resources.

We appreciate your early filing of the declaration of existing water use.

Very truly yours,

SUSUMU ONO
Chairman of the Board
DECLARATION OF EXISTING WATER WITHDRAWAL AND USE
Pearl Harbor Ground Water Control Area

Instructions: This form must be properly completed, signed, and submitted for each individual well or connected battery of wells on or before January 2, 1980, in accordance with Regulation 9 of the Department. Submit the form with any attachments to Department of Land and Natural Resources, P.O. Box _________.

1. WATER USER: Name: ___________________________ Mailing address: ___________________________
   Phone: ___________________________

2. WATER USER’S WELL OR CONNECTED BATTERY OF WELLS:
   User’s Well Name and Location: ___________________________
   TMK: ___________
   User’s Well No. (s): ___________
   Pump or natural flow capacity (gpm): ___________
   Capacity determined by flowmeter, nameplate, orifice, etc. (specify): ___________
   Year pump inst./modified: ___________

3. BENEFICIAL USE OF WATER:
   (a) Major Use: ___________________________
      (specify)
      (b) Minor Uses: ___________________________
      (specify)
      (c) For Agriculture Use list crop(s): ___________________________
      total acreage irrigated: ___________

4. BENEFICIALLY USED WATER WITHDRAWALS:
   (a) All figures given in (b) are records of: ___________________________
      (specify)
      (b) Records available (in million gallons per day, three decimal places):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sep.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yr. total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mo. Ave</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-year average:</td>
<td>mgd, highest day use</td>
<td>mgd on ___________</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (c) For Agriculture Use only: description of withdrawal schedule (include times of day and days of week: ___________________________ )

5. WELL DESCRIPTION:
On the attached computer list of wells, make corrections or additions thereon in red pencil as necessary and return with Declaration form. If information is readily available in another form, you may submit it in lieu of a corrected computer list.

Declaration: Under penalties provided in Regulation 9 of the Department of Land and Natural Resources, the undersigned declare and certify that this declaration has been examined, including accompanying statements and to the best of knowledge and belief, it is true, correct, and complete.

Signature: ___________________________ WATER USER
Date: ___________________________

Signature: ___________________________ LANDOWNER OF WELL SITE
Date: ___________________________

For Official Use:
Last day to certify: _______12/31/1980
Date Certified: ___________________________
Amount certified: ___________________________
WELL NO.: _______2358-48

53