U.S. Quarantine Station Flagstaff (Honolulu County, Hawaii, E.O.K., 1940)—The U.S. Quarantine flagstaff is in the city of Honolulu, on Sand Island. It is near the NW corner of the boathouse at the Quarantine Station.

HORIZONTAL CONTROL DATA

<table>
<thead>
<tr>
<th>QUAD 211573</th>
<th>STATION 1388</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAWAII</td>
<td></td>
</tr>
<tr>
<td>LATITUDE 21° 00' TO 21° 30'</td>
<td></td>
</tr>
<tr>
<td>LONGITUDE 157° 30' TO 158° 00'</td>
<td></td>
</tr>
<tr>
<td>DRAGRAM NO. 4.11</td>
<td>CAVU</td>
</tr>
</tbody>
</table>

ADJUSTED HORIZONTAL CONTROL DATA

<table>
<thead>
<tr>
<th>NAME OF STATION</th>
<th>US QUARantine sta flagstaff</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE</td>
<td>HAWAII</td>
</tr>
<tr>
<td>YEAR</td>
<td>1940</td>
</tr>
<tr>
<td>THIRD ORDER</td>
<td></td>
</tr>
</tbody>
</table>

| SOURCE: G-9849 |

<table>
<thead>
<tr>
<th>GEODETIC LATITUDE</th>
<th>21° 48' 38.322</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEODETIC LONGITUDE</td>
<td>157° 52' 35.483</td>
</tr>
<tr>
<td>ELEVATION</td>
<td>Meters</td>
</tr>
<tr>
<td>F EET</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATE COORDINATES (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE &amp; ZONE</td>
</tr>
<tr>
<td>HI 3</td>
</tr>
</tbody>
</table>

*Plane azimuth has been computed by the H. L. E. formula neglecting the second term.

<table>
<thead>
<tr>
<th>TO STATION OR OBJECT</th>
<th>GEODETIC AZIMUTH (from north)</th>
<th>PLANE AZIMUTH* (from north)</th>
<th>CODE</th>
</tr>
</thead>
</table>

QF 149
**HORIZONTAL CONTROL DATA**

by the National Ocean Survey
OLD HAWAIIAN DATUM

**UNITED STATES ENGINEERS NORTH BASE (OAHU, HAWAII, 1909).—On made ground about 0.5 mile northeast of the lighthouse at the entrance to Honolulu Harbor. Marked by concrete post.**

**RECOVERY NOTE: TRIANGULATION STATION**

**NAME OF STATION:** USE NORTH BASE

**STATE:** HAWAII

**YEAR:** 1909

**THIRD ORDER**

**SOURCE:** G-SP150

**ADJUSTED HORIZONTAL CONTROL DATA**

<table>
<thead>
<tr>
<th>GEOCENTRIC LATITUDE</th>
<th>GEOCENTRIC LONGITUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>21° 10' 5.41&quot; N</td>
<td>157° 52' 27.59&quot; W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>D P</th>
<th>ELEVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 3</td>
<td>5103</td>
<td>542,784.62</td>
<td>50,880.23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION OR OBJECT</th>
<th>GEOCENTRIC AZIMUTH (FROM NORTH)</th>
<th>PLANE AZIMUTH (FROM NORTH)</th>
<th>CODE</th>
</tr>
</thead>
</table>

* Plane azimuth has been computed by the 2 d Az. D. formula neglecting the second term.

* These of the first party should be observed here. The officer who saw them first should sign his name at the end of the survey.

* One of these forms must be used for every station recovered.

**Diagram:** SH 4-11 OAHU
Waihiole (Oahu Island, E.R. Hand, 1926).—On the eastern coast of Oahu, near the shore of Kaneohe Bay, and back from the main highway where it runs along the shore of the bay, between Libbyville and Waikane, and at a point where the concrete road bends sharply around the end of the ridge between the Waihiole and Kalaena Valleys. Station is at the most southeasterly part of curve, back from the road and up the slope about 65 feet. The telephone wires cut across the end of the ridge, passing almost directly over the station. Marked according to note 5; the rock in which the mark is placed is about 4 feet high and is the only rock in the vicinity.

WAIHIOLE (Hawaii, E.R. Hand, 1926; H.A.P., 1932) -- Recovered in good condition. Station is 30 meters N of cornfield and about 3 meters W of a path under the telephone line.

H.A.P., 1932) -- Recovered in good condition. The clearing has now been extended to the station and a fence built near the mark.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAIHIOLE
ESTABLISHED BY: E.R.H.
YEAR 1926
STATE: Hawaii
COUNTY: Honolulu

Detailed statements as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:

Station mark was recovered in good condition. Line of sight to all old stations is blocked by banana trees so no reference marks were established. A complete description follows:

Station is located about 2 miles northwest of Kaneohe, on point of ridge between Waihiole and Kalaena Valleys, just above the highway where it rounds the end of the ridge, and is at the north end of the yard at the home at 47-996 Kanahou Highway.

To reach station from the post office in Kaneohe, go north on Kanahou Highway for 6.0 miles to mailbox on left with address 47-996. Turn left up steep driveway for about 75 yards to station.

Station mark is a standard disk stamped "WAIHIOLE 1926," cemented in a drill hole in a 4 x 5-foot boulder that projects 3 feet. It is 1 foot south of fence, 12 feet west from center of large mango tree, 10.3 feet east of the east 1 of 2 palms, and 92.2 feet north-northwest of the northeast corner of the house.

* Place of chief of party should be inserted here. The officer who actually visited the station should sign his name at the end of the company notes.

Hist.--One of these notes must be used for every station recovered.
**HORIZONTAL CONTROL DATA**

**NAME OF STATION:** Waialae, Kauai-Hilton Hotel, stack
**STATE:** Hawaii
**COUNTY:** Honolulu
**YEAR:** 1964
**DESCRIPTION:** Located about 2 miles northeast of Diamond Head, near seashore, on Waialae Golf Course. Station is the small black stack, 20 inches in diameter and projecting 2 feet above roof-line of the Kahala-Hilton hotel. It is 16 feet west of the north-south center line of the building, near northeast corner of west wing of the building and 18 feet south of north edge of roof. The hotel is a 10-story, concrete structure, rectangular in shape and setting east-west. The west wing of the building is offset 40 feet north from the east wing. Top of building is 145 feet above ground.

**RECOVERY NOTE:** Recovered in good condition as described.

**SOURCE:** C-12464

---

**ADJUSTED HORIZONTAL CONTROL DATA**

**NAME OF STATION:** MAIALAE KAHALA HILTON STACK
**STATE:** HAWAII
**YEAR:** 1964
**ELEVATION:** METER
**COORDINATES (feet):**

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>H/A H/A ANGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 3</td>
<td>5103</td>
<td>576,068.66</td>
<td>39,533.71</td>
<td>+ 0 04 52'</td>
<td></td>
</tr>
</tbody>
</table>

---

**NOTE:** Plane azimuth has been computed by the 0.00648 formula neglecting the second term.
HORIZONTAL CONTROL DATA

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: MAIKIKI GS
STATE: HAWAII
YEAR: 1892
SECOND ORDER
SOURCE: G-SP156

<table>
<thead>
<tr>
<th>DEGREES</th>
<th>SCALE</th>
<th>FEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATITUDE</td>
<td>21° 16' 52.23&quot;</td>
<td>2</td>
</tr>
<tr>
<td>LONGITUDE</td>
<td>157° 50' 01.10&quot;</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>D OR D° D' D&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 3</td>
<td>5103</td>
<td>556,033.23</td>
<td>416,224.95</td>
<td>+ 0° 03' 37&quot;</td>
</tr>
</tbody>
</table>

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\Sigma$-ORDINATE FORMULA NEGLECTING THE SECOND TERM.

<table>
<thead>
<tr>
<th>TO STATION OR OBJECT</th>
<th>GEODESIC AZIMUTH (FROM STATION)</th>
<th>PLANE AZIMUTH* (FROM STATION)</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 400</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Walkiki latitude, eccentric (Oahu Island, E. D. Preston, 1891).—Position refers to the trigonometric station which is 4.38 meters (14.0 feet) north and 19.38 meters (63.6 feet) west of the Coast and Geodetic Survey latitude pier at Walkiki, about 2 miles southeast of Honolulu, and about 400 feet from the sea-shore. The latitude pier of the observatory of the International Geodetic Association is 9.45 meters (31.0 feet) north and 9.39 meters (30.8 feet) west of the Coast and Geodetic Survey latitude pier.

Station is gone. This location is in the heavily built up beach front part of Walkiki that is occupied by hotels.
WEaver (Hawaii, L.O.S., 1927) -- A standard station-mark disk.

RECOVERY NOTE. TRIANGULATION STATION

NAME OF STATION: WEAVER
ESTABLISHED BY: L.O.S. YEAR: 1927 STATE: Hawaii
RECOVERED BY: R. Porter YEAR: 1963 COUNTY: Honolulu

Detailed statement as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:

Station was not recovered. The original description, giving no information as to location of station, compared with descriptions of other stations established at that time on coastal defense installations and classified as secret. An old sketch obtained from the Pearl Harbor P.W.D. shows the area in which the station was located to have been a military installation, and the station was near a power plant.

The entire area has now been re-developed and is now a Naval Capehart Housing tract. It is believed that the station was destroyed.

<table>
<thead>
<tr>
<th>STATE &amp; CODE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>S (DEG. X ANGLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 3</td>
<td>9103</td>
<td>506.531.78</td>
<td>56.493.63</td>
<td>+ 0'00.25</td>
</tr>
</tbody>
</table>

* Plane azimuth has been computed by the Z (or A) formula neglecting the second term.

<table>
<thead>
<tr>
<th>STATE CODE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GF 009</td>
</tr>
</tbody>
</table>
NO ORIGINAL TEXT

WHITE CHURCH SPIRE (Hawaii, O.B.F., 1910; H.A.P., 1932)
---Station is the Catholic Church in Waikane, a yellow wooden building 10 by 50 feet, standing 85 meters W of the paved highway. On the S end of the building there is a square, yellow cupola with a yellow pyramidal roof with a cross as the finial.

NAME OF STATION: White Church Spire
Engraved by: O.B.F.
YEAR 1910 STATE: Hawaii
RECOVERED BY: D.M. Whipp
YEAR 1965 COUNTY: Honolulu

Detailed statement as to the fitness of the original description, including marks found, alterations, changes made, and other pertinent facts:

A church was found at the site, however it is somewhat larger than the one described originally. It has a cupola at the southwest corner. From St. Anne's Rectory in Kaneohe it was learned that the church was rebuilt in the 1930's, but it was not known there if it was rebuilt on the same site and around the old spire and cupola. The church cannot be seen from any distance because of trees so it could not be checked by angle from a triangulation station. Station is probably lost.

---

<table>
<thead>
<tr>
<th>STATE COORDINATES (State Plane)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE &amp; ZONE</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>HI 3</td>
</tr>
</tbody>
</table>

*Plane azimuth has been computed by the X (OR A) FORMULA neglecting the second term.

---

PLAN/ZONE

TO STATION OR OBJECT | GEOGRAPHIC LATITUDE | GEOGRAPHIC LONGITUDE | PLANE AZIMUTH | CODE
|---------------------|---------------------|---------------------|----------------|------

---

*Please of draft of paper should be inserted here. The officer who actually visited the station should sign his name at the end of the recovery note.

From DC 9134
**NO ORIGINAL TEXT**

**U.S. DEPARTMENT OF COMMERCE**
**COAST AND GeODETIC SURVEY**

**NO RECOVERY NOTE, TRiANGULATION STATION**
**INTERSECTION**

**NAME OF STATION:** Wilhelmina Rise, center of reservoir shed
**ESTABLISHED BY:** U.S. Survey 1928 State: Hawaii
**RECOVERED BY:** M.O. Rorshorth Year: 1964 County: Honolulu

Detailed statement as to the lines of the original description, including marks found, stumps, changes made, and other pertinent facts:

Station was recovered in good condition. It is a 9-foot-square, green structure with a peaked roof. The building sets on the north edge of a large, flat-topped, concrete water reservoir that projects 2 to 4 feet above ground level, excepting at the north side, where it is flush with the hillside.

The reservoir is located on Wilhelmina Rise at about 1100 feet elevation, 70 feet south-southwest of station KALEPEAOA, 265 feet northeast of Mauamal Circle and at the end of a concrete driveway leading through a locked gate off Mauamal Circle. It is in a grove of ironwood trees and not visible from a distance.

---

**ADJUSTED HORIZONTAL CONTROL DATA**

**NAME OF STATION:** WILHELMINA C OF RESERVOIR SHED
**STATE:** HAWAII
**YEAR:** 1928
**THIRD ORDER**

**NO OBSERVATION CHECK ON THIS POSITION**

| GEODETIC LATITUDE: 21° 10' 04.73" |
| GEODETIC LONGITUDE: 157° 47' 16.71" |

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>E U.M. *</th>
<th>N U.M. *</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 3</td>
<td>5103</td>
<td>572178.15</td>
<td>48956.78</td>
<td>0 04 37</td>
<td></td>
</tr>
</tbody>
</table>

* Plane azimuth has been computed by the x-th order, x^n formula neglecting the higher terms.

<table>
<thead>
<tr>
<th>TO STATION OR OBJECT</th>
<th>GEODETIC AZIMUTH (From Station)</th>
<th>PLANE AZIMUTH (Take Off)</th>
<th>COIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*Name of chief of party should be entered here. The officer who actually visited the station should sign his name at the end of the recovery notes.

Notes: One of these forms must be used for every station recovered.
HORIZONTAL CONTROL DATA

by the
National Ocean Survey
OLD HAWAIIAN DATUM

QUAD 211573 STATION 1397
HAWAII
LATITUDE 21° 00' TO 21° 30'
LONGITUDE 157° 30' TO 158° 00'

DIAGRAM 4-10 OAHU

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: Woodlawn

DATE: 1929

LOCALITY: Honolulu

DISTANCES AND DIRECTIONS TO DEPARTMENT SURVEY AND ADEQUATE OBJECTS WHICH CAN BE SEEN FROM THE STATION:

STATE: Hawaii

YEAR: 1928

SECOND ORDER

NAME OF STATION: Woodlawn

STATE: Hawaii

YEAR: 1928

ELEVATION: 122

SCALE:

STATE COORDINATES (Feet):

STATE & ZONE
CODE
K
V
0
HI 3
5103
566,755.55
53,050.57
0.04 17

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: Woodlawn

STATE: Hawaii

YEAR: 1928

SECOND ORDER

SOURCE: G-7448

GEODETIC LATITUDE: 21° 18' 45.372

GEODETIC LONITUDE: 157° 48' 13.535

STATE COORDINATES (Feet):

STATE & ZONE
CODE
K
V
0
HI 3
5103
566,755.55
53,050.57
0.04 17

PLANAR AZIMUTH HAS BEEN COMPUTED BY THE 2-HD, H2 FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT

GEODETIC AZIMUTH (From south)
PLANAR AZIMUTH (From south)
CODE

GE 010

* Name of chief of party should be inserted here. The officer who actually visited the station should sign his name at the end of the recovery note.

Note: One of these notes must be used for every station recovered.

Comm: DC 34554
NO ORIGINAL TEXT

WYLLIE (Hawaii, L.G.S. 1927; E.O.H. 1940)
--This station is located at the N side of Nuuanu Valley, on the S slope of a ridge known as Aiea Heights. It is on the N. extension of Wyllie Street. Station is marked by a Type C mark of the Hawaiian Territorial Survey.

(11-8-40)

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: WYLLIE
EXPLORING BY: L.G.S. YEAR: 1927 STATE: Hawaii
RECOVERED ON: 11-8-40 COUNTY: Honolulu

Detailed statement as to the stones of the original description, including marks found, stumpage, changes made, and other pertinent facts:
A "Type C" Hawaiian Territorial Survey signal was recovered and found in good condition.
A complete description follows:
Station is located about 2 miles airline north-northeast of the Federal Building in Honolulu; in the Aiea Heights District, and in back of the house at 1172 Kawaiauna Pl. To reach station from the junction of Beretania Street and Nuuanu Ave. in Honolulu, go northeast on Nuuanu Ave. for 1.5 miles; turn left on Wyllie Street and go 0.55 mile; turn left at T-intersection and follow Aiea Drive up grade for 0.6 mile; turn right and go 0.15 mile on Aiea Drive to fork. Continue ahead, on right fork, Kawaiauna Pl., for 0.15 mile to end of street and station up behind house.
Station is center of 2-1/2-inch, iron pipe projecting from center of 5-foot-square, concrete floor on top of solid, stone and cement foundation that is 4 feet high. It sets in an L-corner at rear of house, 1.8 feet southeast of one wave trench and 3.5 feet northwest of other wave trench. The entire signal is heavily covered with vines.
NOTE: Because of the well-protected position of the station, and because there is no suitable location in the small yard area, no reference marks were established.

* Name of chief of party should be inserted here. The author who actually visited the stations should sign his name at the end of the recovery note.

Note: One of these forms must be used for every station measured.

GEODETIC LATITUDE: 21° 30' 15.651
GEODETIC LONGITUDE: 157° 30' 17.401

INDEX PARCEL:

STATE COORDINATES (feet):

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>UOM</th>
<th>UOM</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th># UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 3</td>
<td>5103</td>
<td>349,405.74</td>
<td>62,140.83</td>
<td>+ 0 03 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Plane azimuth has been computed by the X UNITS. Formula reflecting the second term.

TO STATION OR OBJECT

GEODETIC AZIMUTH

PLANE AZIMUTH

CODE
DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: Y 2
STATE: Hawaii
COUNTY: Honolulu

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

CHIEF OF PARTY: W.M. Porter
YEAR: 1960

DISTANCES AND DIRECTIONS TO ADJACENT MARKS, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION

OBJECT

SALT LAKE 1873 1227

DISTANCE
36.62
10.252
24.97
27.86

DIRECTION
00 00 00 00

STATION IS LOCATED IN THE PEARL HARBOR SHIPYARD, NEAR THE SOUTHWEST END OF PIER Y 2.

STATION MARK IS A STANDARD DISK, STAMPED Y 2 1960, EMBEDDED IN A DRILL HOLE IN THE CONCRETE PIER. IT IS 35 FEET NORTHWEST OF THE SOUTHEAST EDGE OF PIER Y 2 AND 9.1 FEET NORTHWEST OF THE SOUTHEAST EDGE OF THE PIER.

REFERENCE MARK 1 IS A STANDARD DISK, STAMPED Y 2 NO 1 1960, EMBEDDED IN A DRILL HOLE IN THE CONCRETE PIER. IT IS 6.2 FEET NORTHWEST OF THE SOUTHEAST END OF PIER Y 2 AND 2 FEET NORTHWEST OF THE SOUTHEAST EDGE OF THE PIER.

REFERENCE MARK 2 IS A STANDARD DISK, STAMPED Y 2 NO 2 1960, EMBEDDED IN A DRILL HOLE IN A 4 INCH SQUARE CONCRETE MAN HOLE. IT IS 75 FEET NORTHWEST OF THE SOUTHEAST EDGE OF PIER Y 2, 12 FEET NORTHWEST OF THE SOUTHEAST EDGE OF PIER Y 3 AND IT IS IN THE EAST CORNER OF THE CONCRETE MAN HOLE.

S 7 (USH) IS A UNITED STATES NAVY BRASS DISK, EMBEDDED IN A DRILL HOLE IN THE WEST CORNER OF PIER Y 7. IT IS 15.6 FEET NORTHWEST OF THE EAST CORNER OF THE PIER AND 4.5 FEET WEST OF THE WEST CORNER OF THE PIER.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Y 2
STATE: Hawaii
YEAR: 1960

DETAILS STATEMENT AS TO THE FITNESS OF THE ORIGINAL DESCRIPTION; INCLUDING MARKS FOUND, CHANGES MADE, AND OTHER PERTINENT FACTS: WAS RECOVERED AND ALL MARKS FOUND IN GOOD CONDITION AS DESCRIBED.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: Y 2
STATE: Hawaii
YEAR: 1960

SURVEY 6-12191

DEG. LATITUDE: 21° 21' 31.572
DEG. LONGITUDE: 157° 30' 58.644

SCALE: 2 METERS

STATE COORDINATE (FOOT)

HI 3
5103
517.159.68
69.761.01
+ 0.01 06

PLANE ADMN. HAS BEEN COMPUTED BY THE Z-INV. R FORMULA NEGLECTING THE SECOND TERM.

TO STATION FROM OBJECT

SALT LAKE
257°53' 57.8
257°52' 38.2
5103