HORIZONTAL CONTROL DATA

by the
National Ocean Survey
OLD HAWAIIAN DATUM

GUAD 211572 STATION 1051
HAWAII LATITUDE 21° 00' TO 21° 30'
LONGITUDE 157° 00' TO 157° 30'
DIAGRAM NO. 416 MAUI

Port (Molokai Island, R. W. Woodworth, 1925).—On western coast of Molokai, 25 feet above high water on the southerly side of the rocky point 3/4 mile north of Puu o Kilaia (the hill on which the loading tower is situated), and 3/4 mile north of a frame house, the only one in the vicinity. Station is 5 feet lower in elevation than the highest part of the point, and is marked according to note 2, a standard bronze tablet set in concrete in a depression in outcropping bedrock. Three reference marks, all standard bronze tablets with arrows pointing toward the station, were set in concrete in depressions in outcropping bedrock, note 12b, at the following distances and azimuths from the station: No. 1, 12.92 meters (42.7 feet), 320° 07'; No. 2, 18.00 meters (59.2 feet), 185° 46'; No. 3, 14.01 meters (46.0 feet), 240° 00'.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Port
ESTABLISHED BY: R.W.W., YEAR: 1925
RECOVERED BY: R.W.W., YEAR: 1963

State: Hawaii
County: Maui

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

Station and reference marks were recovered in good condition. No check was made on the distance to the reference marks. Description is adequate and correct except for the loading tower and form house which have been removed.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Port
ESTABLISHED BY: R.W.W., YEAR: 1925

AERIAL DISTANCE AND DIRECTION FROM NEAREST TOWN:

Six (6) miles NW of Kaunoe Loa

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

Station and reference marks recovered as previously described and found to be in good condition.
HORIZONTAL CONTROL DATA

PUKAlAJOI (Molokai Island, Hawaiian Government Survey; R. W. Woodworth, 1925).—In southwest Molokai. In 1925 station surveyed for and made certain that the pile of stones marking the station had been removed.

Recovery Note, Triangulation Station

NAME OF STATION: PUKAlAJOI
Established by: H.O.N.
Year: 1925
State: Hawaii
Recorded by: H.O.N.
Year: 1925
Survey Plate: #11

Detailed statement as to the Status of the original description, including notes found, stamps, changes made, and other pertinent facts:

The station was plotted on a U.S. G.I. map and the area visited. A thorough search of the area was made but no stone observed which was used to mark the station was found.

The station should be considered lost.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PUKAlAJOI

STATE: HAWAII
Year: 1925
Second Order

SOURCE: G-SP156

Geodetic Latitude: 21° 06' 45.628
Geodetic Longitude: 157° 10' 31.530
Elevation: Scaled 250 meters

STATE COORDINATES (Feet)

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 2</td>
<td>5101</td>
<td>326,551.69</td>
<td>283,335.70</td>
<td>-0' 41' 00'</td>
</tr>
</tbody>
</table>

*Plane Azimuth has been computed by the Z DROP formula neglecting the second term.

TO STATION OR OBJECT | Geodetic Azimuth | Plane Azimuth* |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(From north)</td>
<td>(From north)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CODE

QI 569
**DEPARTMENT OF COMMERCE**

**U.S. DEPARTMENT OF COMMERCE**

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

**NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY**

**HORIZONTAL CONTROL DATA**

**DESCRIPTION OF TRIANGULATION STATION**

**NAME OF STATION:** FUNAKOU  
**STATE:** HAWAII  
**COUNTRY:** HAWAI  
**CHIEF OF PARTY:** N.J. Seaborg  
**YEAR:** 1962  
**Island:** Molokai  
**Surveyed by:** J.L.S.

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>Bearing</th>
<th>Distance (meters)</th>
<th>Height of Light Above Station Mark (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAUNA LOA 1872 1985 (HSG)</td>
<td>SRE</td>
<td>25.14</td>
<td>7.967</td>
</tr>
<tr>
<td>HH 1</td>
<td>SBE</td>
<td>24.46</td>
<td>7.511</td>
</tr>
<tr>
<td>HH 2</td>
<td>NRE</td>
<td>24.85</td>
<td>0.59</td>
</tr>
<tr>
<td>VOR, Molokai MM</td>
<td>WRE</td>
<td>(about 1 mile)</td>
<td>329 49 13.4</td>
</tr>
</tbody>
</table>

Station is located, airline, about 9 miles west of Kaunakakai, 40 east northeast of the town of Kauna Loa, on the east end of a small ridge. To reach the station from the junction of State Highway 46 & 46, just south of the Post Office in Kaunakakai, go westward on State Highway 46 for 7.6 miles to a fork and sign "MAUNA LOA". Keep left and follow State Highway 46 for 5.75 miles to a dirt road at the top of the grade, and sign on right "UNITED STATES COAST GUARD". Turn left and go southerly on road through pine apple fields for 0.2 mile to gate on right, at north end of grove of trees. Bear right, through gate, and follow graded road for 0.4 mile to a T-intersection, turn left and go 0.1 mile to a locked gate on the left, pass through gate and follow road 0.5 mile to a board gate, pass through gate and follow road southeast 0.7 mile to the tip of hill and a track road on the right.

Turn right and follow the track road for 0.2 mile to the southeast edge of the hill and the station mark. The station mark is a standard disk stamped, FUNAKOU 1962, set in the top of a concrete base that projects 1 inch, 46 feet east of a white witness post.

Reference mark No. 1 is a standard disk stamped, FUNAKOU No 1 1962 cemented in a drill hole in a boulder that projects about 1 foot above the surface of the ground.

Reference mark No. 2 is a standard disk stamped, FUNAKOU No 2 1962, cemented in a drill hole in a boulder that projects about 1 foot above ground.

KAUNA LOA can be used as the azimuth.

**ADJUSTED HORIZONTAL CONTROL DATA**

**NAME OF STATION:** FUNAKOU  
**STATE:** HAWAII  
**YEAR:** 1962

**SOURCE:** G-12734  
**COORDINATES (WGS) (1983) METERS**

<table>
<thead>
<tr>
<th>STATE &amp; CODE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>E OR O K ANGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 2</td>
<td>5102</td>
<td>3314740.92</td>
<td>2851365.87</td>
<td>-</td>
</tr>
</tbody>
</table>

**TO STATION OR OBJECT**

**DEGREES AZIMUTH (From north)**

| MAUNA LOA | 154 25 58.7 | 154 36 28 | 5102 |

**PLANAZIMUTH (From NAD27)**

| MAUNA LOA | 154 25 58.7 | 154 36 28 | 5102 |
HORIZONTAL CONTROL DATA
by the
National Ocean Survey
OLD HAWAIIAN DATUM

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PUNAKUA
STATE: HAWAII
YEAR: 1925

SOURCE: G-SP156

GEODETIC LATITUDE: 21° 06' 03.68"
GEODETIC LONGITUDE: 157° 16' 32.08"
ELEVATION: METER

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>Σ-O-O-Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 2</td>
<td>5102</td>
<td>292,435.42</td>
<td>279,221.15</td>
<td>0° 13' 09&quot;</td>
</tr>
</tbody>
</table>

"PLANE AZIMUTH HAS BEEN COMPUTED BY THE Σ-O-O-Angle FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT | GEODETIC AZIMUTH (From north) | PLANE AZIMUTH " | CODE |
|---------------------|-------------------------------|----------------|------|

QI 585
HORIZONTAL CONTROL DATA

by the
National Ocean Survey
OLD HAWAIIAN DATUM

QUAD 211572  STATION 1055
Hawaii 1
LATITUDE 21° 00’ TO 21° 30’
LONGITUDE 157° 00’ TO 157° 30’
DIAGRAM NF 416  MAUI

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION  PUNAKUA 2
STATE  Hawaii  YEAR  1962

SECOND

0-12734

DEGREES DEC. MIN.

DEGREES DEC. MIN.

S

STATE COORDINATES (ft)

STATE ZONE CODE X Y

HI 2 5122 262.454 62 275.238 63 0° 12’ 00”

PLANE A monuments have been computed by the "A" in the formula neglecting the second term.

TO STATION OR OBJECT

GRADED DISTANCE (from north) PLANE DISTANCE (from north) CODE

HALENA

263 12 26.0 263 25 35 5102

Station is located, airline, about 1-1/4 miles southeast of the village of
Mauna Loa, 1-3/4 miles west-northwest of the sand-loading plant at Hale O Lono
Point, 2-1/2 miles east of Lono Point which is the westernmost point of Molokai
Island, and 1/2 mile north of the southern coast of the island, on the summit of a
rocky promontory of about 300 feet elevation.

To reach from the post office in Mauna Loa, go westerly on State Highway 66
for 0.25 mile to a graded side road sharp left, after rounding a right curve in the
highway. Turn sharp left and go southeast for 1.0 mile to a T-junction. Turn right
and go west on graded road for 0.4 mile to a fork. Take right fork and go 0.25
mile to station PONAKUA on the right. Continue westerly on graded road for 1.05
miles to wash. Cross wash and continue on graded road along fence line for 0.5 mile
to a locked gate. Pass through gate and continue 0.4 mile to a T-junction just
left of a cattleguard. Turn left and follow side sand road for 1.7 miles to a track
road right, at top of grade. Turn right and go westerly for 0.5 mile to a fork.
Take left fork for 0.15 mile to crossroad at stake. Turn left for 0.20 miles then take
right fork and follow main road for 0.6 mile to grove of trees on right, where fence
begins to bear away from road on left. Continue ahead for 0.1 mile to dim side road
left. Go left for 0.1 mile to fence corner on left. Pass around fence corner and
bear southeast on old track road for 0.3 mile to wash on right. Turn right and go
cross-country southeast-southwest for 0.15 mile to end of track trail at left side of
shallow rocky wash at edge of dense brush. Punch southeast through brush for
about 250 yards to summit of hill and station.

Station mark is a standard disk stamped "PUNAKUA 2 1962", cemented in a drill
hole in a 3-foot-diameter red rock outcrop that projects 16 inches above ground.
It is on the open north side of the hill, about 10 yards northeast of dense brush.
Reference mark number one is a standard disk stamped "PUNAKUA 2 NO 1 1962", cemeneted in a drill hole in the west end of a 6-foot-diameter red rock outcrop that
projects 2 feet above ground. It is on the northeast slope of the hill and about 2
feet lower than the station.
Reference mark number two is a standard disk stamped "PUNAKUA 2 NO 2 1962", cememted in a drill hole in a 4-foot-diameter, red rock outcrop that projects about
2-1/2 feet above ground. It is the highest outcrop in the vicinity, in 20 feet
northeast of dense brush and is about 1 foot higher than the station.

Station HALENA will serve as the azimuth mark.

NOTE: Key for locked gate may be obtained from the Molokai Ranch office
in Hanahakai.

* Station to station in systems of triangulation and state subdivision of triangulation.
  (Direction angle measured clockwise, returned to initial station.)
HORIZONTAL CONTROL DATA
by the National Ocean Survey
OLD HAWAIIAN DATUM

NAME OF STATION: PULU ANGANG
RECOVERY NOTE, TRIANGULATION STATION

STATE: HAWAII
YEAR: 1925
THIRD ORDER

SOURCE: GSP156

STATE COORDINATES (NAD)

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th># OR. + ANGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 2</td>
<td>5102</td>
<td>376,937.54</td>
<td>303,590.43</td>
<td>- 0°07'50&quot;</td>
</tr>
</tbody>
</table>

*Plane azimuth was computed by the "p or." formula neglecting the second term.

TO STATION OR OBJECT | GEOD. AZIMUTH (True) | PLANE AZIMUTH (True) | CODE

QI 548
DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Puu Apalu, Tank
YEAR: 1962
STATE: Hawaii
COUNTY: Maui
Island: Molokai

CHIEF OF PARTY: HJS

Description, including sketch of object:
Station is located on Puu Apalu, about 3.5 miles south-southeast of the U.S. Coast Guard, Ilio Point, Loran Transmitting Station, about 3 miles north-northwest of Maunaloa, and about 1.5 miles east of the west coast of Molokai Island.

Station is the center of finial on a brownish grey wooden water tank. Tank is about 18 feet high.

Station was located for charting as a landmark.

HORIZONTAL CONTROL DATA

QUAD J11572
STATION 1057
HAWAII
LATITUDE: 21° 00' to 21° 30'
LONGITUDE: 157° 00' to 157° 30'
DIAGRAM NF 416

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: Puu Apalu Tank
STATE: Hawaii
YEAR: 1962
THIRD

SOURCE: G-12734

DESCRIPTIC LATITUDE: 21° 10' 47.498
DESCRIPTIC LONGITUDE: 157° 13' 58.368

ELEVATION: METERS

STATE COORDINATES (FHM)

<table>
<thead>
<tr>
<th>STATE &amp; ZONE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>θ</th>
<th>D [°]</th>
<th>N [°]</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 2</td>
<td></td>
<td>5102</td>
<td>307,092.61</td>
<td>307,808.13</td>
<td>0° 12' 17&quot;</td>
<td></td>
</tr>
</tbody>
</table>

* Plane Azimuth has been computed by the θ [(θ + α) R] formula neglecting the second term.

TABLE OF STATION OR OBJECT

<table>
<thead>
<tr>
<th>TO STATION OR OBJECT</th>
<th>GEOGRAPHIC AZIMUTH (From north)</th>
<th>PLANE AZIMUTH (From north)</th>
<th>CODE</th>
</tr>
</thead>
</table>

QF 342
HORIZONTAL CONTROL DATA

QUAD 211572  
STATION 1058
HAWAII
LATITUDE 21° 00' TO 21° 30'
LONGITUDE 157° 00' TO 157° 30'
DIAGRAM NF 416
MAUI

NO ORIGINAL TEXT

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Puu Makina
ESTABLISHED BY: R.W.W.  
YEAR: 1925  
STATE: HAWAII  
COUNTY: Maui  
Island: Molokai

HEIGHT OF TELESPECOPE ABOVE STATION MARK: METERS.  
HEIGHT OF LIGHT ABOVE STATION MARK: METERS.

DISTANCES AND DIRECTIONS TO ASINUSH MARK, REFERENCE MARKS AND PERMANENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>MEASURING</th>
<th>FEET</th>
<th>METERS</th>
<th>DIRECTION</th>
</tr>
</thead>
</table>

A 1-inch iron pipe with a target pole centered over it was recovered. A complete description follows:

Station is located, airshire, about 3-1/2 miles southwest of the village of Hana Loa, 1/2 mile north of the south shore line and 0.6 mile northwest of the N.O.A. Company's sand loading plant at Hana Loa Point, on the west slope of a bruntly knob of about 325 feet elevation.

To reach from the post office in Hana Loa, go west on State Highway 46 for 0.25 mile to a graded side road left, after rounding a right turn in the highway. Turn sharp left and go southeast for 1.0 mile to a T-junction. Turn right and go west on wide graded road for 0.4 mile to fork. Take left fork, main sanded road, and go 0.5 mile to fence corner on left. Continue ahead on main road for 0.25 mile to a gravelled side road left, 0.1 mile before reaching a black water tank. Turn left and go southerly 0.15 mile to a fence corner on left. Continue southerly along fence line for 0.6 mile to fork. Take left fork, through gate, then take right fork and go 0.15 mile to locked gate. Pass through gate and go 0.15 mile to fork. Take right fork and continue on main gravelled road for 0.25 mile to a side road right. Turn right and go 0.4 mile to a fork. Take left fork and go 0.1 mile to junction with wide sand road. Turn left and go southerly on sand road for 0.15 mile to a left curve in road. Here leave road and turn back sharp right down through trees and across draw for 0.3 mile to dis connector. Bear left and follow track road southwest down along crest of ridge for 0.3 mile to station on left.

Station is marked by a 1-inch iron pipe projecting 10 inches above ground and surrounded by a circle of rocks. It is 27 yards south of center line of track road and about 50 yards west of high point of hill.

No reference objects were found.

NOTES: Key to locked gate may be obtained from the Molokai Ranch Office.

HORAA FORM 76-31
(01-62)
HORIZONTAL CONTROL DATA
by the
National Ocean Survey
OLD HAWAIIAN DATUM

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PUU ILOLI
STATE: HAWAII
YEAR: 1885
SECOND ORDER

HEIGHT OF TELESCOPE ABOVE STATION MARK: 1.39 METERS
HEIGHT OF LIGHT ABOVE STATION MARK: 0.00 METERS

DISTANCES AND DIRECTIONS TO ASZMUTH MARK, DATUM MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>BEARING</th>
<th>DISTANCE</th>
<th>DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUKAEKOU</td>
<td>NE</td>
<td>24.65</td>
<td>7.576</td>
</tr>
<tr>
<td></td>
<td>NW</td>
<td>24.87</td>
<td>7.583</td>
</tr>
</tbody>
</table>

Station is located about 6½ miles air-line west of Kaunakakai, along the south shore of Molokai Island, on a small hill of the same name.

To reach the station from the Post Office in Kaunakakai go westerly on State Highway 46 for 2.6 miles to a reverse-Y on left at bottom of grade. Turn sharp right and go south on old paved road to second side road right. Turn right and go west on gravel road for 1.45 miles to a fork, take right fork across cattle guard for 0.15 mile to a reverse-Y on right. Angle left and go west for 0.65 mile to a fork. Take right fork straight ahead for 0.9 mile to a fork. Take right fork along the top of a dike for 0.6 mile to a crossroad. Continue ahead on dike road for 1.0 mile to fork, take right fork off of dike and continue on track road for 0.7 mile to metal gate. Pass through gate for 0.25 mile to the end of truck travel. From here park northerly through trees to the base of a ridge. Follow game trail up left side of ridge for about 500 yards to the top of the hill and station.

The station mark is a standard disk stamped, PUU ILOLI 1915-1962, braced to the top of a 1½-inch iron pipe that is set in cement and projects 8 inches above the surface of the ground, 8½ feet northwest of a 4 X 4 post that is set on top of a group of large boulders that projects about 3 feet above the surrounding area.

Reference mark No. 1 is a standard disk stamped, PUU ILOLI NO 1 1915-1962, set in a drill hole in a lava boulder that projects two feet above ground and about one foot higher than the station. Reference mark No. 2 is a standard disk stamped, PUU ILOLI NO 2 1915-1962, set in a drill hole in a lava boulder that projects 1 foot and is about level with the station mark.

Station KALA will serve as the azimuth mark.

(R.L.N., 1967) -- Station and all reference marks recovered as described. Description adequate and correct.

NOTE: One of these items must be used in place of the recovery note.
NAME OF RECOVERY NOTE: PUU ILOLI
RECOVERY AGENCY: U.S. Geological Survey
RECOVERY DATE: 1967-07-29

SOURCE: G-12734
HORIZONTAL CONTROL DATA

NO ORIGINAL TEXT

PUU KAPELE ( Maui County,
Hawaii, Hawaiian Government
Survey, 1932; Hawaiian Territorial Survey, 1932)

Station was originally marked with a redwood post and box
signal, which finally rotted down, and the station was marked by
a 2-in. pipe in 1924 by the H.T.S.
Station, now marked by a Type B monument, is situated on the
summit of the hill of the same name, 200 ft. from the edge of the
meadow, and about 1000 ft. N of the W boundary of Lot 31 of
the Hoolehua-Falatalu Homesteads. The present station mark is 1 ft.
lower than the original station.
There is an observation sheet for this station in the H.T.S.
files.

RECOVERY NOTE, TRIANGULATION STATION

Name of Station: PUU KAPELE
Established by: Govt. of H.
Year: 1885
State: Hawaii
County: Maui
Island: Molokai

Detailed statement as to the Status of the original description; including marks found, stumpages, changes made, and other pertinent facts:

Station recovered in good condition.
Station is located on the north coast on a prominent hill, about 7.0 miles west
of Halawa, about 2.5 miles north of the Molokai Airport, about 2.4 miles north-
northwest of Kualapa, and about 270 feet south of the coast.
To reach the station from the junction of State Routes 34 and 413, about 1.5 miles
east of the Molokai Airport, go 1.4 miles north on State Route 413 to junction with
State Route 34, then turn left on 3.0 mile west in intersection with field road, turn right
to 0.75 mile north to intersection with field road, turn left and cross railroad on
fenceline on right, take truck road on right just after crossing railroad, go 0.3
mile north to coast in road, take right fork about 0.5 mile north to brush or prominent
hill and end of truck travel. From here head about 0.05 mile northwest on station on
route of hill. A 4-wheel vehicle can be driven up the southeast slope of the hill to
the summit and allow the survey to the station.
State survey, Type B now over station.

PUU KAPELE
U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

RECOVERY NOTE, TRIANGULATION STATION

Name of Station: PUU KAPELE
Established by: Govt. of H.
Year: 1964
State: Hawaii
County: Maui
Island: Molokai

Detailed statement as to the Status of the original description; including marks found, stumpages, changes made, and other pertinent facts:

Station was not visited but the Hawaii Territorial Survey "Type B"
signal was seen and observations made on it.

RECOVERY NOTE, TRIANGULATION STATION

Name of Station: PUU KAPELE
Established by: Govt. of Hawaii
Year: 1855
State: Hawaii

Detailed statement as to the Status of the original description; including marks found, stumpages, changes made, and other pertinent facts:

Station found in good condition as previously described.
NO ORIGINAL TEXT

HORIZONTAL CONTROL DATA

by the
National Ocean Survey
OLD HAWAIIAN DATUM

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PUU LUA
STATE: HAWAII
YEAR: 1925
THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE: 21° 10' 48.09"
GEODETIC LONGITUDE: 157° 33' 38.16"

ELEVATION: METERS
FEET

STATE & ZONE CODE X Y phi Delta phi
HI 2 5132 302.822.75 537.144.06 -3 07 27

PLANISH ATTITUDE HAS BEEN COMPUTED BY THE Eq. (A) FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT GEODETIC AZIMUTH (deg/min/sec) PLANE AZIMUTH (deg/min/sec) CODE

QI 546
HORIZONTAL CONTROL DATA

by the National Ocean Survey
OLD HAWAIIAN DATUM

Puu Luahine (Maui County, Hawaii), R. W. Woodworth, 1925.—In central Molokai, on the higher and more westerly of two red hills seen about 3 miles north of Kaunakakai village. The hill is most symmetrical and shows up prominently against the skyline. It appears to be elongated in an east and west direction, and a cairn marking station is seen plainly at its western end.

Puu Luahine (Maui County, Hawaii, R. W. W., 1925; Hawaiian Territorial Survey, 1930)

Station is on a prominent red hill, 5 mi. back of Kaunakakai, elevation is 1210 ft., in the land of Hololeua. Found three witness corsses on rocks, and a 2-by-3-in. in a large pile of stones agreeing well with the witness marks, but the azimuths to and from other stations (equally well marked) do not agree very precisely with the recorded values. This was noted by others as well as myself.

Bronze disk, B.M. EL. 1210 FT., was set by the U.S. G.S. and cemented in the same rock as one of the original witness corsses.

Brew and bronze disk, 12-by-12-in., 18 in. below the surface of the ground, and a Type E1 superstructure about 1 ft. above ground, with edges extending 1 ft. below the ground surface, and 1 ft. thick all around, all of boulder concrete. Bench mark and two witness corsses are exposed a little below the surface of the platform.

This is a very valuable station.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Puu Luahine
ESTABLISHED BY: B.W.W.
YEAR: 1925
STATE: Hawaii
ISLAND: Molokai
RECOVERED BY: L.P. Woodcock
YEAR: 1966
COUNTY: Maui
H.I.: 1.82m

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

OBJECT
MIDDLE HILL (1925) 1885
Cross on Boulder
cross on Boulder
PBM Maunahui (1900)
Wahawahawee, Aero Beacon
Red Light

BEARING
E
SW
WSW
W

DISTANCE
2.56 ft.
2.56 ft.
2.56 ft.
7.0 miles

DIRECTION
0° 00' 00"
162° 09' 50"
296° 06' 08"
334° 16' 41.7"

STATE COORDINATES (Feet)
HI 2
N 5102
X 381,109.76
Y 250,351.05
E 0° 07' 33"

FORM 208
U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

NAME OF STATION: Puu Luahine
ESTABLISHED BY: B.W.W.
YEAR: 1925
STATE: Hawaii
ISLAND: Molokai
RECOVERED BY: L.P. Woodcock
YEAR: 1966
COUNTY: Maui

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

Station was recovered as described in good condition.
NO ORIGINAL TEXT

HORIZONTAL CONTROL DATA
by the
National Ocean Survey
* Old Hawaiian Datum

QUAD 211572   STATION 1063
HAWAI'I
LATITUDE 21° 00' TO 21° 30'
LONGITUDE 157° 00' TO 157° 30'
DIAGRAM HP 416 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PUU O HOLOHUA
STATE: HAWAI'I
YEAR: 1925
SECOND ORDER

SOURCE: G-SP156

LATITUDE
DEGREES, MINUTES, SECONDS
21° 07' 17.186"

LONGITUDE
DEGREES, MINUTES, SECONDS
157° 07' 50.510"

ELEVATION
FEET
265

STATE ZONE CODE X Y D-H. ANGLE
MI 2 5102 341.844.62 286°471.16° 0 10 02°

STATE COORDINATES (Feet)

TO STATION OR OBJECT
DEGREES, MINUTES, SECONDS
PLANE ANGLES
DEGREES, MINUTES
CODE

*Plane azimuths have been computed by the Z. Ord. P. Formula neglecting the second term.

* Place 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 note.

Code: MG 295216
Puu o Kahaniu (Mau County, Hawaii, R. W. Woodworth, 1925)—On southern coast of Molokai, on a knoll 3½ miles west along coast from Kaunakakai wharf, and 1 mile east of the deep cove where small mangrove is planted, 1,040 meters up from the sea, and 450 meters above government road. From the station the end of Kaunakakai Wharf bears 80° E; and a prominent square house, red, with pyramidal roof, located down on the beach and belonging to a native named Kahiu or Kanihu bears 80° W. Station is on an old grave. Underground Mark is a bottle. Surface mark is concrete post 1 foot square, projecting 1 foot above surface of ground, with standard United States Coast and Geodetic Survey bronze disk in top, note 60%. Over the mark a semicircular calymp was erected and painted white.

Puu o Kahaniu (Mau County, Hawaii, R.W., 1925; G.W.S., 1930) — Station was recovered as described. A loose rock wall enclosure about 40- by 25- by 3- ft. high, probably an old native house foundation, 18 m. S of the station.

Recovery Note, Triangulation Station

NAME OF STATION: Puu o Kahaniu
ESTABLISHED BY: B.W., 1925
RECOVERED BY: H.W. Seaborg, 1962
COUNTY: Mau
Island: Molokai
STATE: Hawaii
YEAR: 1962

HEIGHT OF TELESCOPE ABOVE STATION METER: 1.44 METER
HEIGHT OF LIGHT ABOVE STATION METER: 1.44 METER

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

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>MEASUREMENT</th>
<th>DISTANCE</th>
<th>DIRECTION</th>
</tr>
</thead>
</table>
| Puu Ilohi    | W           | 22.44    | 00° 00' 00.00"
| Ae'o beacon  | NW          | 38 Miles | 37 26 18.1 |
| BK 2         | NNW         | 29.72    | 09 26 21 |

Station is located about 3.75 miles west northwest of Kaunakakai, 3 miles southeast of the Molokai Airport and 0.75 mile north of the south coast of Molokai Island, on a low rocky knoll on the south slope of rolling brushy country that rises gradually to the north. The highest point of land is about 6 mile north of the station.

To reach the station from the junction of State Highways 45 & 46 just south of the post office in Kaunakalai, go west one mile to a reverse Y on left. Turn sharp left and go 0.15 mile on old paved road to the second side road on the right. Turn right and go 1.4 mile to a fork and cattle guard, cross cattle guard and go 0.1 mile to a reverse Y on right. Angle left and go west for 0.2 mile to a power pole with white paint on it, continue ahead for 0.5 mile to a point 50 feet before reaching the last power pole along road. At a point marked by a triangle blaze on keawe tree go right, off of road, and pick way through trees and rocks north for 0.45 to station on rocky knoll.

The station is a standard disk unstamped, set in the top of a 6" concrete post that projects 15 inches, 3.9 feet southeast of a white witness post and is near the center of a large pile of rocks.

Reference mark No. 1 is a standard disk stamped, Puu o Kahaniu No 1 12-05-1962, cemented in a drill hole in rock outcrop that projects about 15 inches and about 1 foot lower than the station.

Reference mark No. 2 is a standard disk stamped, Puu o Kahaniu No 1, 1995 1962, cemented in a drill hole in rock outcrop that projects 1 foot and is about 3 feet lower than the station.

Station P begins can be used as the azimuth mark.

(continued on next page)
PUU O KAHAUI (continued)

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: PUU O KAHAUI
ESTABLISHED BY: R.W.W. YEAR: 1928
RECOVERED BY: R.L.H. YEAR: 1967
STATE: Hawaii COUNTY: Maui
TOWN DISTANCE AND DIRECTION FROM REFERENCE POINT:
Island: Molokai

3.75 West North West of Kuamahalei

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

Station and all reference marks recovered as described.
Description adequate and correct.
Pu‘u o Kaiaka (Maui County, Hawaii)

R.W. Woodworth, 1925—On western coast of Molokai, on the most southerly of two 100-foot knolls about 60 meters apart on hill of same name, about 2½ miles south of Illo Point, and at northeast end of beach 2 miles long. A derrick and loading platform for the near-by pineapple plantation is located on the western extremity of the same hill. Station is at the seaward or west end of a stone enclosure (law lookout) about 20 by 30 feet in size. No center mark was found in 1915, but the three reference crosses were found, and a ring of paint placed around each. These marks were at the following distances from station: No. 1, to north, 3 feet; No. 2, to east and at end of stone wall, 5 feet; and No. 3, to west, 5 feet. The distances between reference marks were as follows: Nos. 1 to 2, 7.1 feet; Nos. 2 to 3, 7.9 feet; and Nos. 3 to 1, 8 feet. Paint was placed on corner of wall to serve as hydrographic signal. In 1925 the three reference marks were recovered, but the distances between them did not agree with the distances given in the earlier descriptions, the new distances being as follows: Nos. 1 to 2, 7.00 feet; Nos. 2 to 3, 8.14 feet; and Nos. 3 to 1, 7.21 feet. A new mark put in consisted of a standard United States Coast and Geodetic Survey bronze disk, stamped 1925, and set in a mass of concrete, red rock, and bowlders. Its distances from the reference marks are as follows: No. 1, 3.0 feet; No. 2, 5.01 feet; and No. 3, 4.96 feet.

Pu‘u O Kaiaka (Maui County, Hawaii, R.W.W., 1925) — This station was recovered and conforms with the description in every detail except that the derrick, mentioned, no longer stands on the loading platform. (O.W.S., 1930) — Station is on the W coast of Molokai Island. It was recovered as described. Boulders are around the end of the wall whitewashed for a signal.

(C.T.R., 1935) — Station was recovered as described and in good condition. All reference marks are crosses cut on stone. Station is located on property of the Molokai Ranch, and a key to locked gates must be procured from their office.

(continued on next page)
HORIZONTAL CONTROL DATA
by the
NATIONAL GEODETIC SURVEY
OLD HAWAIIAN DATUM

PUU O KAIKA (continued)

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: PUU O KAIKA
ESTABLISHED BY: R.W.N.
YEAR: 1925
STATE: Hawaii
RECOVERED BY: R.L.H.
YEAR: 1967
COUNTY: Maui

AIRLINE DISTANCE AND DIRECTION FROM NEAREST POINT:
6 Miles R.W. of Mauna Loa

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

Station has been bulldozed over. R.M. 10 was found and a search made for station, but R.M. 10 may have been moved by bulldozer.
Station is assumed to be destroyed.

The station is located on the western coast of Molokai, 2.5 miles south of the Coast Guard Station, on the most southerly of two 100-foot knobs about 200 feet apart. Station is at the west end of a stone enclosure about 20 by 30 feet in size. To reach the station from the Post Office in Mauna Loa, go west on State Highway 46 for 0.25 mile to a graded road on the left. Turn left and go southwest for 1.0 mile to a T-junction. Turn right and go 0.4 mile to a fork. Take right fork and go 0.25 mile to station Pohaku-loa on the right. Continue westward for 1.05 miles, cross wash and continue on graded road for 0.5 mile along fence to a locked gate. Pass through gate and continue westward for 0.4 mile to a sand road. Turn right on sand road and go 0.7 miles to a fork, turn right and go 1.2 miles to a fork, keep right fork and continue on track road for 1.3 miles to a board gate, just after passing a water tank, pass through gate and continue on track road for 0.7 mile to a track road on the left, turn left and follow track road and wash for 0.2 mile to the end of track travel. From here pack up the hill west and southwest for about 5 minutes.

The station is a standard disk stamped 1925 set in the top of a concrete post that projects 1 inch. In the south-west corner of a rock wall that was used as a fish lookout.

Reference Mark No. 1 is a standard disk stamped, PUU O KAIKA NO 1 1915 1925 1962, cemented in a larger boulder that is about 3 feet lower than the station.

Reference Mark No. 2 is a standard disk stamped, PUU O KAIKA NO 2 1915 1925 1962, cemented in a drill hole in a boulder that projects 6 inches and about 2 feet lower than the station.
HORIZONTAL CONTROL DATA

by the
National Ocean Survey
OLD HAWAIIAN DATUM

SAND (Maui County, Hawaii, C.T.H., 1950)--Station is located near the NE corner of Molokai Island, near the extreme W end of Ilio Point, on a prominent sand point, about 700 ft. in from the shore, and on government owned land at the proposed site of a U.S. Coast Guard loran station. It is a 1-in. galvanized-iron pipe driven into the ground, projecting 8 in. and painted white. The center of the pipe is the station.

No reference marks were set.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: SAND
ESTABLISHED BY: C.T.H.
YEAR: 1950
STATE: Hawaii
COUNTY: Maui
ISLAND: Molokai

RECOVERED BY: H.J.S.
YEAR: 1960
COUNTY: Maui
ISLAND: Molokai

HEIGHT OF TELESCOPE ABOVE STATION MARK: 1.46 METERS.
HEIGHT OF LIGHT ABOVE STATION MARK: 1.24 METERS.

DISTSANCES AND DIRECTIONS TO REFERENCE MARKS AND POINTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>MEASUREMENTS</th>
<th>DISTANCE</th>
<th>DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FEET</td>
<td>METERS</td>
</tr>
<tr>
<td>KAO 1935</td>
<td>Illo Pt. Coast Guard Loran Mast</td>
<td>E</td>
<td>00 00 00 00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 34 16.6</td>
<td></td>
</tr>
</tbody>
</table>

The station is located on Ilio Pt. and about 300 yards west of the Coast Guard Station on a small sandy knoll.

The station was recovered and found to be in good shape no reference marks were set. A complete description follows:

To reach the station from the Post Office in Kaunakakai, just north of junctions of State Highways 45 & 16, go westerly on State Highway 46 for 2.1 mi to a fork and sign "MAUNA LOA". Keep on Highway 46 for 5.75 miles to a dirt crossroad at the top of the grade, and sign on the left "UNITED STATES COAST GUARD". Turn right and go northeast on the graded road for 0.65 miles through the pineapple field to a locked gate. Pass through the gate and follow the Coast Guard road for 4.35 miles to a board gate, just after passing corrals and loading pens, continue on Coast Guard road for 0.65 mi to a fork, keep left fork leading to the Coast Guard Station for 1.3 miles to a concrete water tank on the right, continue on Coast Guard road for 2.8 miles and just before reaching the Coast Guard Station turn sharp right to the top of a small sand knoll and the station.

The station is a standard disk stamped, SAND 1935, set in the top of a concrete post that is 6 by 6 inches square and projects 4 inches.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Sand
ESTABLISHED BY: C.T.H.
YEAR: 1950
STATE: Hawaii
COUNTY: Maui
ISLAND: Molokai

RECOVERED BY: R.W. Newcomb
YEAR: 1967
COUNTY: Maui
ISLAND: Molokai

AIRCRAFT DISTANCE AND DIRECTION FROM NEAREST TOWN: 74 miles SW of Mauna Loa

Station recovered in good condition as described.
HORIZONTAL CONTROL DATA

by the National Ocean Survey
OLD HAWAIIAN DATUM

QUAD 211572 STATION 1067
HAWAII
LATITUDE 21° 01' 20" TO 21° 04' 30"
LONGITUDE 157° 00' 00" TO 157° 03' 30"
DIAGRAM N/4-16 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: W.C. 17
STATE: HAWAII
YEAR: 1925
THIRD

SOURCE: G-SP156

PHOTOMONITORING

STATE COORDINATES (Hawaii)

<table>
<thead>
<tr>
<th>STATE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>H INT. + H ANGLE</th>
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</thead>
<tbody>
<tr>
<td>H1 2</td>
<td>5102</td>
<td>287,236.15</td>
<td>286,958.68</td>
<td>-0 13 31</td>
</tr>
</tbody>
</table>

PLANE ADJACENT HAS BEEN COMPUTED BY THE Z ON W. FORMULA HAVING THE SECOND TERM.

TO STATION OR OBJECT

<table>
<thead>
<tr>
<th>GEODETIC AZIMUTH (From North)</th>
<th>PLANE ADJACENT (From North)</th>
<th>CODE</th>
</tr>
</thead>
</table>

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: W.C. 17
ESTABLISHED BY: R.W.W.
YEAR: 1905
STATE: Hawaii
RECLAIMED DATED: R. R. S.
YEAR: 1967
COUNTY: Maui
AIRLINE DISTANCE FROM NEAREST TOWN: 8 miles west of Hanaa Lea.

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

Station was recovered as previously described. A hydrographic signal (15' Tripod) was built over station.
**DESCRIPTION OF TRIANGULATION INTERSECTION STATION**

**NAME OF STATION:** Waiahewaheva Aero Beacon, Red Light  
**YEAR:** 1962  
**STATE:** Hawaii  
**COUNTY:** Maui  
**Island:** Molokai  
**CHIEF OF PARTY:** NOS

**Description, including sketch of object:**

Station is located about 7.5 miles northwest of Kunakaka, about 5.5 miles east of Maunaloa, about 2.5 miles southwest of the Molokai Airport, and at the east end of eastwest ridge.

Station is center of flashing red warning light atop a 27 foot wooden pole. Light appears on CAOS Charts 4116 and 4120 as a landmark.

**RECOVERY NOTE, TRIANGULATION STATION INTERSECTION**

**NAME OF STATION:** Waiahewaheva Aero Beacon, Red Light  
**YEAR:** 1962  
**STATE:** Hawaii  
**COUNTY:** Maui  
**Island:** Molokai  
**RECOVERED BY:** R. Purzel Jr.  
**YEAR:** 1969  
**STATE & COUNTY:** Hawaii  
**ISLAND:** Molokai  
**AERIAL DISTANCE AND DIRECTION FROM NEAREST TOWN:** 5.9 miles east of Maunaloa

**Detailed statement as in the form of the original description, including media issued, campings, changes made, and other pertinent facts:**

This station was recovered in good condition as described.

---

**ADJUSTED HORIZONTAL CONTROL DATA**

**NAME OF STATION:** Waiahewaheva Aero SGN-450

**YEAR:** 1962  
**STATE:** Hawaii  
**THIRD ORDER:**

**SIGNIFICANCE:**

**COLUMNS:**

- **STATE & CODE**
- **X**
- **Y**
- **Z (HOR.)**
- **H (ANG.)

**COORDINATES (U.S.)**

<table>
<thead>
<tr>
<th>STATE &amp; CODE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>Z (HOR.)</th>
<th>H (ANG.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI 2</td>
<td>5102</td>
<td>343.345.43</td>
<td>295.105.47</td>
<td></td>
<td>0° 00' 57&quot;</td>
</tr>
</tbody>
</table>

**PLANE AZIMUTH HAS BEEN COMPUTED BY THE **(H,ANG.)** FORMULA APROXIMATING THE REFERENCE YEAR**

**TO STATION OBJECT**

**GEODETIC AZIMUTH**

**PLANE AZIMUTH**

**COORDINATES**

**U.S. DEPARTMENT OF COMMERCE**

**ENVIRONMENTAL SERVICE**

**NATIONAL OCEAN SURVEY**

**NATIONAL GEOETIC SURVEY**

**NOAA FORM 74-36**

**(SI)-28**
NO ORIGINAL TEXT

Waieiki (Metolani Island, Hawaiian Government Survey 1885; R. W. Woodworth, 1922) - Near southern coast of western Molokai, on prominent hill of same name, 3 miles east of Laau Point and 1 mile back from shore. In 1915 no center marks were found, and the point was reproduced from reference marks which were excised out in inmuvable rock outcroppings. The new monument is a concrete monument with bronze disk in top, note 94. The distances to the reference marks are: No. 1, 67.7 feet; No. 2, 42.7 feet; and No. 3, 10.76 feet. The distances between the marks are: No. 1 to No. 2, 67.7 feet; No. 2 to No. 3, 10.68 feet; and No. 3 to No. 1, 10.57 feet.

WAIEKI (Hawaii, Hawaiian Government Survey, 1899). Station is on W Molokai. It was not visited. The highest point of mountain was used for hydrography.

(Hawaiian Territorial Survey, 1930). The original station of 1885 was replaced in 1915 by E.R. with a concrete monument with a brass disk in the top. The station is at present marked with a Type B monument and is situated on a prominent hill of the same name, 3 miles east of Laau Point, and 1 mile back from shore. Reference ties were verified and checked and found to be correct. There is a triangulation sheet on this station in the N.G.S. files.

WAIEKI (Hawaii, Hawaiian Government Survey, 1885). Station is soon to be disturbed by quarrying operations by Libby, McNeil and Libby, who are building roads at the W end of the island. A new station, WAIEKI 2, was established 319.76 ft. from the station in azimuth 165° 25' 30".

RECOVERY NOTE: TRIANGULATION STATION

NAME OF STATION: WAIEKI
ESTABLISHED BY: E.R.C. YEAR: 1915 STATE: HAWAII
RECOVERED BY: E.R.C. YEAR: 1962 COUNTY: MAUI

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

Station was 'extreme'. Station was not recovered as reported by E.R.C. in 1915 recovery note.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAIEKI
STATE: HAWAII YEAR: 1885 SECOND: 0.000
SOURCE: G.S.P. 156

LATITUDE: 21° 30' 00" N LONGITUDE: 157° 14' 20.44" E

ELEVATION: SCALED 171

STATE COORDINATES (FROM):

<table>
<thead>
<tr>
<th>STATE</th>
<th>CODE</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>E</th>
<th>N</th>
</tr>
</thead>
</table>
| HI    | 2    | 5102    | 304.904.85 | 280.388.89 | - | U 12 22

"PLANE AZIMUTH HAS BEEN COMPUTED BY THE z ^ ^ H - FORMULA, NLECTING THE SECOND TERM"

TO STATION OR OBJECT: GEODETIC AZIMUTH (FROM REPORT)

PLANE AZIMUTH: "" CIRCLE: QI 566
HORIZONTAL CONTROL DATA

by the
National Ocean Survey
OLD HAWAIIAN DATUM

QUAD 211572    STATION 1070
HAWAII
LATITUDE 21° 00' TO 21° 30'
LONGITUDE 157° 00' TO 157° 30'
DIAGRAM NO. 416 MAUI

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: WAIELI 2
STATE: Hawaii
COUNTY: Maui

CHIEF OF PARTY: James H. Dunn
YEAR: 1945

DESCRIPTION: The station is located near the southern coast of the west end of Molokai Island. It is about 5 miles east of fast point and 1 mile back from the shore. The mark is a Territorial Survey brass disk set in the top of a concrete post on pipe, about 3.5 feet long, filled with concrete, and set in concrete.

Three reference marks were set as follows:
Reference mark No. 1 is marked by a cross on a cement block 15.75 feet away from the station, in azimuth 206 degrees 28 minutes.
Reference mark No. 2 is marked by a cross on a cement slab in a hole in the rock 19.06 feet away from the station, in azimuth 303 degrees 20 minutes.
Reference mark No. 3 is marked by a cross on a boulder 14.96 feet away from the station, in azimuth 39 degrees 34 minutes.

Reference mark No. 1 to Reference mark No. 2 = 26.11 feet
Reference mark No. 2 to Reference mark No. 3 = 20.92 feet
Reference mark No. 3 to Reference mark No. 1 = 29.02 feet

STATE COORDINATES (Feet)

HI 2 5102 304,820.12 280,697.24 - 0° 12' 22"

ELEVATION SCALED 192 Meters

STATE ZONE CODE H V Z
HI 2 5102 304,820.12 280,697.24 - 0° 12' 22"

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY
RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAIELI 2
ESTABLISHED BY: J.H.D.
YEAR: 1945

RECHECKED BY: J.H.D.
YEAR: 1962
COUNTY: Maui

Station destroyed. A new station was established in the approximate location of WAIELI 1945 by a Territory of Hawaii survey party in 1945. This station was destroyed about 2 months ago when the top of the hill was graded. The area is now better covered for travel.

This station was replaced by HLMA 1962 which is located about 0.2 mile unort.

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

Hawaii Dept. of Land and Natural Resources, 87-4939 Hawaii Memorial Drive, Wahiawa, HI 96786.

QF 017
NO TEXT
HORIZONTAL CONTROL DATA

by the National Ocean Survey
OLD HAWAIIAN DATUM

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAIMU AEREO BEACON RED LIGHT
STATE: HAWAII
YEAR: 1962
THIRD ORDER

G-1273
OBSERVATION CHECK ON THIS POSITION

<table>
<thead>
<tr>
<th>GEODETIC LATITUDE:</th>
<th>ELEVATION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>21°09'54.145</td>
<td>NUTPOS:</td>
</tr>
<tr>
<td>GEODETIC LONGITUDE:</td>
<td>157°07'54.359</td>
</tr>
<tr>
<td></td>
<td>7967 ft</td>
</tr>
</tbody>
</table>

STATE & ZONE CODE X Y D-COD, D ANGLE
HI 2 9102 341,520.67 300,292.99 -0.0004

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE 2 OR 6 FORMULA NEGLECTING THE SECOND TERM.

POSITION DETERMINED BY TRAVERSE FROM STATION HAUKEA 2

QF 345
White (Molokai Island, W. W. Woodworth, 1926).—On southwest coast of Molokai, about 1/4 mile west from Kolo Wharf, atop of the most prominent sand dune in the vicinity, 10 feet above and 15 meters back from high-water mark. No koa trees grow within 8 meters of station. Mark is a standard United States Coast and Geodetic Survey bronze disk set in top of concrete post 6 inches square projecting 1 foot above surrounding sand. Reference marks, standard bronze tablets with arrows pointing toward station, note 12b, were placed in the immovable bedrock fringing the beach, the distance between the marks being 24.075 meters (78.99 feet). The distances between the station and the reference marks were measured on the slope, the station end of the tape being held 5 feet above the mark. Azimuths and distances were: No. 1, 22.005 meters (72.16 feet) (on slope), 320° 11'; No. 2, 24.075 meters (78.99 feet) (on slope), 26° 09'.

RECOVERY NOTE. TRIANGULATION STATION

NAME OF STATION: WHITE
RECOVERED BY: M.A.S., Year: 1925 State: Hawaii
NAD 83 STATE: Hawaii

The station has been destroyed. The top 12 inches of the concrete post with disk was found broken off and frayed on the surface of the sand. The sand had probably eroded away from the top of the post. A rim of the concrete post is still in place. Reference mark 1 was found but not recovered. Reference mark 2 was recovered in good condition. It is located about 11 feet from the base of the sand hill and 119 feet from high water.

The station could still be used for hydrographic surveys.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WHITE
STATE: HAWAII
YEAR: 1925
THIRD ORDER

SOURCE: G-SP156

DESCRIPTIVE LATITUDE: 21° 05' 34.613
DESCRIPTIVE LONGITUDE: 157° 13' 18.828
ELEVATION SCALED: 3 METERS

Geodetic Latitude: 21° 05' 34.613
Geodetic Longitude: 157° 13' 18.828

STATE COORDINATES (EPSG):

HI 2
5102
310.724.44
276.243.63
0 11.59

*PLATE ANGLES HAVE BEEN COMPUTED BY THE E H.D.O. E' FORMULA RECOMMENDED FOR SECOND ORDER

TO STATION OR OBJECT

GEODETIC LATITUDE

PLATE ANGLES*

CODE

01 59c