

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1202
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 411 OAHU

ADJUSTED HORIZONTAL CONTROL DATA

HONOLULU, HAWAIIAN ELECTRIC COMPANY, NORTHWEST STACK (Hawaii, H.O.F., 1955)--The NW stack of the Hawaiian Electric Company is located in downtown Honolulu, on Ala Moana Boulevard, between Bishop and Richard Streets, opposite pier 7, and on the N corner of the roof of the NW one of two power plants. The 40-ft. steel stack is mounted on the 110-ft. building, making the entire height 150 ft. above ground level.

Form 528
 (11-8-55)

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

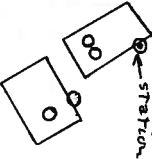
INTERSECTION

R

Name of Station: Honolulu, Hawaiian Electric Co., N.W. Stack
 Established by: H.O.F. Year: 1955 State: Hawaii
 Removed by: D.G. Rushford Year: 1964 County: Honolulu

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

Station was recovered. It is the most northerly one of the 5 stacks at the power plant and is on the north corner of the north building of the two. Located at the Hawaiian Electric Co. power plant in downtown Honolulu, on Ala Moana Blvd., opposite pier 7.



(C.A. Annals, 1969)--Station recovered in good condition as described.

* Name of other of party should be inserted here. The officer who actually visited the station should sign the name of the end of the recovery note.
 Notes--Careful check items must be used for every station recovery. COM-DC 34514

NAME OF STATION: HONOLULU HAWAII ELEC NW STACK
 STATE: HAWAII YEAR: 1955 THIRD ORDER

SOURCE: G-14543

GEODETIC LATITUDE	21 18 34.70478	ELEVATION	METERS
GEODETIC LONGITUDE	157 52 00.25620		FEET

STATE & ZONE	CODE	STATE COORDINATES (Feet)		S (or Δ) S. ANGLE
		X	Y	
HI 3	5103	545,362.88	51,951.85	+ 0° 02' 54"

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)		PLANE AZIMUTH* (From mark)		CODE
	1	2	1	2	
* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S (OR Δ) S. FORMULA NEGLECTING THE SECOND TERM.					

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

STATION 1203
 QUAD 211573
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

HONOLULU
 NAME OF STATION: HAWAIIAN GRAIN CORP ELEV
 CHIEF OF PARTY: CARL A. AMIS YEAR: 1969 STATE: HAWAII COUNTRY: HONOLULU

Description, including sketch of object:
 The intersection is located on a large elevator with 16 round bins, and with one high shaft on the north end and a smaller shed on the south end. The elevator is located at 701 North Nimitz Highway in Honolulu. The point intersected is the south end of the small shed.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: HONOLULU HAWAIIAN GRAIN ELEV
 STATE: HAWAII YEAR: 1969 THIRD ORDER

SOUND: G-14543

DEGREES LATITUDE: 21 18 53.79370 ELEVATION: METERS
 DEGREES LONGITUDE: 157 52 19.73503 FEET

STATE & ZONE	STATE COORDINATES (FT)			ϕ OR Δ or ANGLE °
	CODE	X	Y	
HI 3	5103	543,519.09	53,876.38	+ 0 02 47

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ϕ OR Δ or FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (FROM SMO)	PLANE AZIMUTH (FROM SMO)	CODE
	0 7 2	0 7 2	

FORM CG-5028 (12-65)
 UNCOM-DC 2430-998

Described by _____
 U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY

JUN 1978
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1204
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: HONOLULU ZEN BUDDHIST MISSION CENTER TOWER
 CHIEF OF PARTY: G. A. Annis YEAR: 1969 STATE: Hawaii COUNTY: Honolulu

Description, including sketch of object:
 The station is the top of the spire on the tallest and center tower of the Honolulu Zen Buddhist Mission of Hawaii and Bonsai Garden. It is located at 1708 Nuuanu Avenue in Honolulu and is about 100 feet high.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: HONOLULU BUDDHIST MISSION CENTER TOWER
 STATE: HAWAII YEAR: 1969 ORDER: THIRD

SOURCE: G-14543

GEODETIC LATITUDE	21 19 17.36358	ELEVATION	METERS
GEODETIC LONGITUDE	157 51 27.19455		FEET
STATE COORDINATES (FEET)			
STATE 8 ZONE	CODE	X	Y
H1 3	5103	548485.19	56258.82
			± 0° 03' 07"

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

TO STATION OR OBJECT	GEODETIC AZIMUTH (from north)	PLANE AZIMUTH* (from north)	CODE
	0	0	

FORM CGO-325b (12-68)

Described by U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY

HORIZONTAL CONTROL DATA

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

Form 528
 (11-8-65)

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

R

NAME OF STATION: HONOLULU, American Cannery Tank
 ESTABLISHED BY: L.G.S. YEAR: 1927 STATE: Hawaii
 RECOVERED BY: D.M. Whlpp YEAR: 1965 COUNTY: Honolulu

NAME OF STATION: HONOLULU AMERICAN CANNERY TANK
 STATE: HAWAII YEAR: 1927

THIRD ORDER

SOURCE: G-14543

Detailed statement as to the status of the original description: including marks found, stampings, changes made, and other pertinent facts:
 Station was recovered. It is the silver, elevated, water tank, located at the American Can Co. plant in the Iliet District of Honolulu. It is about 130 feet high and sets about 600 feet east from the prominent, elevated, "pineapple" tank; these two are the only elevated tanks in Honolulu.

RECOVERY NOTE, INTERSECTION STATION

R

NAME OF STATION: HONOLULU, AMERICAN CANNERY WATER TANK
 ESTABLISHED BY: L.G.S. YEAR: 1927 STATE: Hawaii
 RECOVERED BY: D.M. Whlpp YEAR: 1969 COUNTY: Honolulu

ASLIDE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Intersection station recovered in good condition as described by D. M. Whlpp in 1965.

GEODETIC LATITUDE	21° 19' 12.56815	ELEVATION	METERS
GEODETIC LONGITUDE	157° 52' 20.86065		FEET

STATE COORDINATES (FWD)			
STATE & ZONE	CODE	X	Y
HI 3	3103	543,411.50	55,770.62
			± 0 02 47"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ or FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH* (From mark)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1206
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 411 OAHU

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

FORM 526
 (11-6-65)
 U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY
 RECOVERY NOTE, TRIANGULATION STATION

R

Honolulu,
 NAME OF STATION: Hawaiian Pineapple Co., tank
 ESTABLISHED BY: L.G.S.
 RECOVERED BY: D.M. Whipp
 YEAR: 1928 STATE: HAWAII
 YEAR: 1965 COUNTRY: HONOLULU

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

Station was recovered. It is the large elevated tank, a replica of a pineapple, mounted atop 4 steel legs, located in the Iwilei District of Honolulu at the Dole Pineapple Company cannery. Top of tank is about 195 feet above ground.

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: HONOLULU HAWAIIAN PINEAPPLE COMPANY TANK
 ESTABLISHED BY: L.G.S.
 RECOVERED BY: P.D.C.
 YEAR: 1928
 YEAR: 1978
 STATE: HAWAII
 COUNTY: HONOLULU
 BENCH MARKED ALSO
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Detailed statement as to the fitness of the original description, including marks found, stamping, changes made, and other pertinent facts:
 THE STATION WAS RECOVERED AS DESCRIBED AND IN GOOD CONDITION.

NAME OF STATION: HONOLULU HAWAIIAN PINEAPPLE TK
 STATE: HAWAII
 YEAR: 1928
 ORDER: THIRD

source: G-14543

GEODETIC LATITUDE:	21 19 12.52145	ELEVATION	
GEODETIC LONGITUDE:	157 52 26.59531	METERS	

STATE & ZONE	CODE	STATE COORDINATES (Feet)		S. OR Δ. OF ANGLE *
		X	Y	
H1 3	5103	542,869.29	551,765.47	+ 0° 02' 45"

TO STATION OR OBJECT	GEODETIC AZIMUTH (From bench)		PLANE AZIMUTH * (From bench)		CODE
	0	90	0	90	

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S. OR Δ. OF FORMULA NEGLECTING THE SECOND TERM.

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1207
 HAWAII
 LATITUDE 21° 30' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: HONOLULU KALANIHUIA APT BLDG ELEV SHAFT
 CHIEF OF PARTY: C.A. ANNIS YEAR: 1969 STATE: HAWAII COUNTY: HONOLULU

Description, including sketch of object:

The station is the base of a short rod on the top of the elevator shaft; the building is located at 1220 Ala street and it is 15 floors high.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: HONOLULU KALANIHUIA APT SHAFT
 STATE: HAWAII YEAR: 1969

THIRD -ORDER

source G-14543

GEODETIC LATITUDE:	21° 19' 09".24810	ELEVATION:		METERS
GEODETIC LONGITUDE:	157 51 56.05861			FEET

STATE & ZONE	CODE	STATE COORDINATES (Feet)		# FOR Δ B. ANGLE *
		X	Y	
HI 3	5105	545,756.81	55,437.58	+ 0 02' 56"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE # FOR Δ B. ANGLE * FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	DECODED AZIMUTH (FROM READ)	PLANE AZIMUTH * (FROM READ)	CODE

FORM CGO5-523 (11-69) Described by U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

1521 3244-5432

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1208
 HAWAII LATTITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NR 4-11 OAHU

HORIZONTAL CONTROL DATA

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: HONOLULU RADIO STA KCCN MAST
 CHIEF OF PARTY: Carl A. Annis Year: 1969 State: Hawaii County: Honolulu

Description, including sketch of object:

Located between Nimitz Highway and Dillingham Boulevard at the Kapalama Drainage Canal and at the south end of Hart Street, in Honolulu. About 140 feet high, a three-legged steel structure painted in alternate bands of red and white. The point intersected is the red light atop the mast.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: HONOLULU RADIO STA KCCN MAST
 STATE: HAWAII YEAR: 1969 THIRD ORDER

SOURCE: G-14543

GEODETIC LATITUDE	21° 19' 27.42453	ELEVATION:	METERS
GEODETIC LONGITUDE	157° 52' 46.50551		FEET

STATE COORDINATES (FNM)				
STATE & ZONE	CODE	X	Y	9-10R Δ SI ANGLE *
HI 3	5103	540,985.64	57,287.71	+ 0° 02' 38"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE 9-10R Δ SI FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT		GEODETIC AZIMUTH (From South)	PLANE AZIMUTH * (From South)	CODE

FORM CGC-208 (11-64)
 U.S. DEPARTMENT OF COMMERCE

Described by _____
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY

JUN 1978
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1209
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

Honolulu,
 NAME OF STATION: KAPALAMA INCIN PLANT STACK
 CHIEF OF PARTY: Carl A. Amis YEAR: 1969 STATE: Hawaii COUNTRY: Honolulu
 Description, including sketch of object:
 Located at Kokea and North King Streets at the Kapalama dumping area. A tan stack 141 feet high.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: HONOLULU KAPALAMA INCIN STACK
 STATE: HAWAII YEAR: 1969 THIRD ORDER
 SOURCE: G-14543

GEODETIC LATITUDE	21° 19' 32.42495	ELEVATION	METERS
GEODETIC LONGITUDE	157 52 21.18467		FEET

STATE & ZONE	CODE	STATE COORDINATES (Feet)		ANGLE
		X	Y	
H1 3	5103	543,379.24	57,774.14	+ 0 02' 47"

TO STATION OR OBJECT	GEODETIC AZIMUTH		PLANE AZIMUTH*		CODE
	(From station)	(To station)	(From station)	(To station)	

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

NO ORIGINAL TEXT

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1210
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

ADJUSTED HORIZONTAL CONTROL DATA

RECOVERY NOTE, TRIANGULATION STATION
 INTERSECTION

NAME OF STATION: Honolulu, Board/Water Supply, Stack
 ESTABLISHED BY: Terr. of Hawaii YEAR: 1957 STATE: Hawaii
 RECOVERED BY: D.G. Rushford YEAR: 1964 COUNTRY: Honolulu

R

NAME OF STATION: HONOLULU BOARD WTR SUPPLY STK
 STATE: HAWAII YEAR: 1957

THIRD

ORDER

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

1-3/4 miles northwest of the center of Honolulu, in the south angle of
 crossroad intersection of King and Houghgalling Streets, at the Kalih
 Pumping Station of the Honolulu Board of Water Supply,
 Station is a concrete stack 100 feet tall, painted green, with a
 black section at the top.

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: Honolulu, Board/Water Supply, Stack
 ESTABLISHED BY: Terr. of Hawaii YEAR: 1957 STATE: Hawaii BRANCH MARKER ALSO
 RECOVERED BY: Carl A. Amis YEAR: 1969 COUNTRY: Honolulu
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

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

Station was recovered, located about 1-3/4 miles northwest of the
 center of Honolulu, in the south angle of crossroad intersection
 at King Street and Waiakamilo Road, at the Kalih Pumping Station
 of the Honolulu Board of Water Supply.

The station is a concrete stack 100 feet tall, painted green, with
 a black section at the top.

SOURCE: G-14543

GEODETIC LATITUDE	21° 19' 51.74816	ELEVATION	
GEODETIC LONGITUDE	157° 52' 28.51866	METERS	

STATE COORDINATES (FEET)			
STATE & ZONE	CODE	X	Y
HI 3	5103	542,684.29	59,723.27
			± 0° 02' 44"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From Azimuth)	PLANE AZIMUTH* (From Azimuth)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1211
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 411 OAHU

HORIZONTAL CONTROL DATA

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: HONOLULU ST THERESA'S CH CROSS
 CHIEF OF PARTY: Carl A. Amis Year: 1969 STATE: Hawaii COUNTRY: Honolulu

NAME OF STATION: HONOLULU ST THERESAS CH CROSS
 STATE: HAWAII YEAR: 1969 THIRD ORDER

ORDER

Description, including sketch of object:
 Located at the intersection of North School Street and Monolia Street in Honolulu. The point intersected is the cross on top of the bell tower at the west corner of the church.

SOURCE: G-14543

GEODETIC LATITUDE:	21° 19' 38.94190	ELEVATION:	
GEODETIC LONGITUDE:	157 51 50.47695		METERS FEET

STATE COORDINATES (FEET)				
STATE & ZONE	CODE	X	Y	θ OR Δ ANGLE *
HI 3	5103	540 + 281.96	584 + 34.12	+ 0° 02' .58 "

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ IN FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From data)	PLANE AZIMUTH * (From math)	CODE

FORM CGO-225b (11-68)
 USCOMM:OC 225b-108

Described by U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1212
 HAWAII 21° 00' TO 21° 30'
 LATITUDE 157° 30' TO 158° 00'
 LONGITUDE NF 4-11 OAHU

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

Form 526 (11-9-65)
 U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY
 RECOVERY NOTE: TRIANGULATION STATION
 INTERSECTION

R

Name of Station: HICKAM AFB, Control Tower
 Established by: HTS Year: 1957 State: Hawaii
 Recovered by: J.G. Rushford Year: 1964 County: HONOLULU

NAME OF STATION: HICKAM AFB CONTROL TOWER
 STATE: HAWAII YEAR: 1957 THIRD ORDER

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

SOURCE: G-14543

Station was identified by angle from Ewa Church and recovered. It is located at the center of Hickam Air Force Base, 0.65 mile east-southeast from the base Operations Building, along the north side of wide taxi-way and about 125 yards southwest from Building No. 4, which is the southernmost building in a north-south row of 7 very large, prominent, hangar-type structures. Station is an octagonal, glass-enclosed room mounted atop a square, concrete legs. Roof of control tower is about 80 feet above ground. A pair of red obstruction lights are mounted on a single metal pole about 10 feet above top of roof. Point intersected was center of control tower.

Form 526 (11-9-65)
 U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY
 RECOVERY NOTE: TRIANGULATION STATION

R

Name of Station: HICKAM A.F.B. Control Tower
 Established by: HTS Year: 1957 State: Hawaii
 Recovered by: C.A.A. Year: 1969 County: Honolulu

Detailed statement as to the fitness of the original description, including marks found, stampings, changes made, and other pertinent facts:
 Station recovered in good condition as described.

GEODETIC LATITUDE:	21° 20' 10.07705	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 56' 56.75686		FEET

STATE & ZONE	CODE	STATE COORDINATES (Feet)		COR. Δ OF ANGLE
		X	Y	
HI 3	5103	517,319.92	61,558.45	+ 0 01 07

TO STATION OR OBJECT	GEODETIC AZIMUTH (from north)	PLANE AZIMUTH (from north)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1213
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NO. 4-11 OAHU

NO ORIGINAL TEXT

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

R

NAME OF STATION: HICKAM AFB WATER TOWER
 STATE: HAWAII YEAR: 1957 THIRD ORDER

Form 328 (11-6-60)
 Name of Station: Hickam AFB, Water Tower
 Established by: HTS
 Recovered by: M.R. Porter Year: 1964 State: Hawaii County: Honolulu
 Detailed statement as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:
 Station was identified by angle from

EWA CHURCH.
 Located at the extreme northwest corner of Hickam Air Force Base, at the southeast side of the Hickam Elementary School, in the center of a circular driveway. Shown on USGS map as "Hickam School Tower". Station is octagonal, concrete structure, tapering slightly, with a large external concrete rib running up each angle or corner. There are several windows scattered around sides of the tower. The tower is topped by 2 octagonal, stepped-down sections, the top one being a glassed-in observation cupola, with a red obstruction light on center of its top. There is a double door on southeast side of tower. Inside of tower there is a plate steel standpipe for water storage. The tower is building No. 1013-5A and is about 45 feet in diameter at the base, and 165 feet high.

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: Hickam AFB, Water Tower
 ESTABLISHED BY: HTS
 RECOVERED BY: C.A.A.
 YEAR: 1957 STATE: Hawaii BENCH MARKS ALSO
 YEAR: 1969 COUNTY: Honolulu
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Detailed statement as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:
Station recovered in good condition as described.

ADJUSTED HORIZONTAL CONTROL DATA

GEODETIC LATITUDE	21° 00' 45.63055	ELEVATION	METERS
GEODETIC LONGITUDE	157° 57' 53.72225		FEET

STATE & ZONE	CODE	STATE COORDINATES (Feet)			S OR Δ or ANGLE
		X	Y		
HI 3	5103	511,937.42	65,144.30	+ 0° 00' 46"	

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S OR Δ or FORMULA NEGLECTING THE SECOND TERM

TOTATION ON OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH* (From mark)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1214
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NO. 411 OAHU

JUN 1978

PEARL HARBOR WATER TANK B^a (Hawaii, E.R.H., 1928) --
 In S Oahu, on E side of entrance to Pearl Harbor, a water tank,
 gray, on high steel frame. Has superstructure.

Geodetic name of control point and object name
 (NAD 83)
 RECOVERY NOTE, TRIANGULATION STATION

R

Name of Station: *Pearl Harbor Water Tank 'a'*
 Established by: *ERH* State: *Hawaii*
 Recovered by: *S.L.H.* Year: *1928* Country: *Honolulu*

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

Station is inside Pearl Harbor Navy Base, on the south side of Avenue 'D' on South side of building 64. It is on orange and white checked water tank with superstructure (house). Radio Mast on top of house.

RECOVERY NOTE, TRIANGULATION STATION

R

Name of Station: Pearl Harbor Water Tank B^a
 Established by: E.R.H. Year: 1925 State: Hawaii
 Recovered by: W.R. Porter Year: 1963 Country: Honolulu

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

Station was recovered. It is on the Pearl Harbor Navy Base, in the south angle of the intersection of Avenue 'D' and 7th Avenue, at building No. 64A (the Navy Post Office building). Station is large, orange and white checked, water tank mounted atop of steel girder legs. There is a glass enclosed control booth on top of the tank, with a large mast with cross-arm extending above it. Top of control booth is about 170 feet above ground.

(C.A.Annls, 1969) -- Station recovered in good condition as described.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PEARL HARBOR WATER TANK B STATE: HAWAII YEAR: 1925 THIRD -METERS

SOURCE: G-14543

GEODETIC LATITUDE	21° 21' 14.78889	ELEVATION	METERS
GEODETIC LONGITUDE	157° 57' 26.74759		FEET

STATE & ZONE	STATE COORDINATES (FMT)			S (OR Δ) OF ANGLE *
	CODE	X	Y	
HI 3	5103	514,486.63	68,086.59	+ 0° 00' 56"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S (OR Δ) OF FORMULA, NEGLECTING THE SECOND TERM.

STATION OR OBJECT	GEODETIC AZIMUTH (From south)		PLANE AZIMUTH * (From south)	
	o	'	o	'

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1215
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

HORIZONTAL CONTROL DATA

NO ORIGINAL TEXT

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

NAME OF STATION: PEARL Harbor, Ford Island, Control Tower
 ESTABLISHED BY: H.O.F.
 YEAR: 1957 STATE: Hawaii
 RECOVERED BY: F. J. Tucker JFY: 1964 COUNTY: Honolulu

R

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

Station was identified by angle at SAUP
 LAKE & BWA CHURCH Triangulation Stations, and recovered. It is a tall,
 enclosed tower, or standpipe, painted alternate red and white, with an
 octagonal, glass-enclosed, observation room mounted on top. The tower
 is about 195 feet high and has an external stairway running up the
 east side.



RECOVERY NOTE, INTERSECTION STATION
 INTERSECTION
 NAME OF STATION: PEARL HARBOR FORD ISLAND CONTROL TOWER
 ESTABLISHED BY: H. O. F. YEAR: 1957 STATE: HAWAII BENCH MARKED: Also
 RECOVERED BY: CARL A. ANNIS YEAR: 1969 COUNTY: HONOLULU

R

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

The intersection station was recovered in good condition as described by F. J. Tucker in 1964.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PEARL HARBOR FORD IS CONT TWR
 STATE: HAWAII YEAR: 1957 THIRD ORDER

SOURCE: 6-14543

GEODETIC LATITUDE:	21° 21' 49.64400	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 57' 51.24237		FEET

STATE & ZONE	STATE COORDINATES (FPM)			B OR Δ SI ANGLE
	CODE	X	Y	
H1 3	5103	512,170.39	71,603.27	+ 0 00' 47"

TO STATION OR OBJECT	GEODETIC AZIMUTH (True Azim)		PLANE AZIMUTH (True Azim)		CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF OCT 1971

JUN 1978
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY , NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1216
 HAWAII 21° 20' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: **ALIAMANU HONO LULU BOARD OF WATER SUPPLY TANK**
 CHIEF OF PARTY: **G. A. Knols** YEAR: **1969** STATE: **HAWAII** COUNTY: **HONOLULU**
 Description including sketch of object: **Not described.**

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **ALIAMANU BOARD WTR TK** THIRD ORDER
 STATE: **HAWAII** YEAR: **1969**

SOURCE: **G-14543**

GEODETIC LATITUDE:	21° 21' 26.97976	ELEVATION:	
GEODETIC LONGITUDE:	157° 54' 50.91199		METERS FEET

STATE COORDINATES (Feet)			
STATE & ZONE	CODE	X	Y
HI 3	5103	528,649.63	69,322.75
			± 0.01" 50"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE § (M.A. 6) FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (from meridian)	PLANE AZIMUTH* (from meridian)	CODE
	0	0	

FORM CG65-528 (12-68)

Described by U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

JUN 1978
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

STATION 1217
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: EWA AIR FORCE CALIB TOWER
 CHIEF OF PARTY: Carl A. Amis Year: 1969 STATE: Hawaii COUNTY: Honolulu

Description, including sketch of object:
 The station is the red light on top of the tower, located about 1.75 miles south of the intersection of Waipio Access Road and Parliunon Highway, about 1.5 miles south of the Navy dry dock, and on Waipio Peninsula. It is a 4 x 8 - foot square four-legged structure about 210 feet high bolted to a concrete pad about six inches thick, with calibration targets on top of the tower.

FORM CAGS-5128 (12-74) Described by U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL GEODETIC SURVEY

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: EWA AIR FORCE CALIB TOWER
 STATE: HAWAII YEAR: 1969 THIRD ORDER

SOURCE: G-14543

GEODETIC LATITUDE: 21° 22' 70.44175
 GEODETIC LONGITUDE: 157° 59' 27.02906
 ELEVATION: METERS

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	ϕ (ON Δ or ANGLE ϕ)
HI 3	5103	503,116.29	74,709.47	+ 0° 00' 12"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ϕ ON Δ or FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	PLANE AZIMUTH*		CODE
	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH* (From south)	
	0	0	

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211573 STATION 1218
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

DEPARTMENT OF COMMERCE
 U.S. COAST AND GEODETIC SURVEY
 Description of TRIANGULATION STATION

NAME OF STATION: 171 (USN) STATE: Hawaii COUNTY: HONOLULU

CHIEF OF PARTY: W.R. Porter YEAR: 1960 DESCRIBED BY: D.R. Treadwell

NOTE: HEIGHT OF TELESCOPE ABOVE STATION MARK 1 METERS. HEIGHT OF LIGHT ABOVE STATION MARK METERS.

DESC	SURFACE-STATION MARK	UNDERGROUND-STATION MARK	DISTANCE AND DIRECTION WHICH CAN BE SEEN FROM THE GROUND AT THE STATION	DISTANCE		DIRECTION	
				FEET	METERS	DEGREES	MINUTES
DEMO	MARK 1			27.08	8.253	0 00	00.00
DEMO	MARK 2			25.48	7.766	69 58	14
						312	35 04

Station is located in the Pearl Harbor Shipyard, on the roof of building 171 near the south corner.

Station mark is United States Navy bronze disk, stamped 171, cemented in the top of a 5 inch square concrete post projecting 2 inches.

Reference mark 1 is a standard disk, stamped 171 USN NO 1 1960, cemented in a drilled hole in the southeast edge of the building.

Reference mark 2 is a standard disk, stamped 171 USN NO 2 1960, cemented in a drilled hole in the west corner of the building.

FORM 536 (11-7-65)
 U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY
 RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: 171 (USN)
 ESTABLISHED BY: W.R. Porter YEAR: 1960 STATE: Hawaii
 RECOVERED BY: D.G. Rushford YEAR: 1964 COUNTRY: HONOLULU

Detailed statement as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:
 Station
 WAS RECOVERED AS DESCRIBED AND ALL MARKS FOUND IN GOOD CONDITION.

R

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: 171 USN STATE: HAWAII YEAR: 1960 SECOND ORDER

SOURCE: G-12191

GEODETIC LATITUDE: 21° 21' 15.923" ELEVATION: 1 METERS
 GEODETIC LONGITUDE: 157° 57' 50.925" SCALED: FEET

STATE & ZONE	CODE	STATE COORDINATE (FEET)		ELEVATION (FEET)
		X	Y	
HI 3	5103	512,201.16	68,200.85	+ 0° 00' 47"

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	MAGNETIC AZIMUTH (From mark)	CODE
WAIPIO UKA	155° 03' 05.4"	155° 02' 18"	5103

* Name of chief of party should be inserted here. The office who actually staked the station should sign the name to the recovery note.
 Notes - One of them should be used for every station recovery.
 FORM 536 (11-7-65)

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY * NATIONAL GEODETIC SURVEY
 OLD HAWAIIAN DEPTUM

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Deptum

QUAD 211573 STATION 1221
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 411 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT A
 STATE: HAWAII YEAR: 1976
 SOURCE: G-15809
 ORDER: 085 BY NGS
 THIRD ORDER

GEODETIC LATITUDE:	21° 25' 33.32683	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 45' 34.78749		FEET

STATE & ZONE	STATE COORDINATES (FEET)			# OR Δ IN ANGLE *
	CODE	X	Y	
HI 3	5103	581,747.01	94,234.10	+ 0° 05' 16"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE # OR Δ IN FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (FROM STATE)	PLANE AZIMUTH * (FROM STATE)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 001

NOV 1979
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY / NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1222
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

HORIZONTAL CONTROL DATA

ADJUSTED HORIZONTAL CONTROL DATA

ADJUSTMENT BY NGS

NO TEXT

NAME OF STATION: AERO OBSTRUCTION LT AA OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: 6-15809

GEODETIC LATITUDE	21° 25' 46.10499	ELEVATION:	METERS
GEODETIC LONGITUDE	157° 45' 42.91735		FEET

STATE & ZONE	STATE COORDINATES (FMU)			# COR Δ SI ANGLE *
	CODE	X	Y	
HIT 3	5103	580,976.92	95,522.25	+ 0° 05' 13"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE # COR Δ SI FORMULA, NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (FROM BEAR)		PLANE AZIMUTH* (FROM BEAR)		CODE
	0	1	0	1	

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 002

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1223
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NR 4-11 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT C OBS BY NGS
 STATE: HAWAII YEAR: 1976 ORDER: THIRD

SOURCE: G-15809

GEODETIC LATITUDE: 21° 24' 46.97209 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 46' 06.64861 FEET

STATE COORDINATES (FWD)				
STATE & ZONE	CODE	X	Y	θ OR Δ ANGLE *
HI 3	5102	578,743.59	89,552.34	+ 0° 05' 04"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION ON OBJECT			
	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY ; NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1224
 HAWAII LATITUDE 23° 00' TO 23° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT D OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD
 -ORDER

SOURCE: 6-15809

GEODETIC LATITUDE: 21° 34' 27.80060 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 46' 29.67873 FEET

STATE COORDINATES (FWD)				
STATE & ZONE	CODE	X	Y	B ION Δ S I ANGLE °
HI 3	5103	576,570.24	87,616.75	± 0° 04' 56"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE B ION Δ S I FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From bench)	PLANE AZIMUTH* (From bench)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 004

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY • NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1225
 HAWAII LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

HORIZONTAL CONTROL DATA

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION L I E OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE:	21° 24' 23.61150	ELEVATION:	
GEODETIC LONGITUDE:	157° 46' 51.39802	METERS	
		FEET	

STATE & ZONE	CODE	STATE COORDINATES (Feet)		COR. Δ. of ANGLE *
		X	Y	
HI 3	5103	574,518.98	87,189.17	+ 0° 04' 48"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\frac{1}{2}(\alpha + \beta)$ FORMULA, NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From bench)	PLANE AZIMUTH * (From bench)	CODE				
				0	1	2	3

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 005

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1226
 HAWAII 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NR 4-11 OAHU

NO TEXT

HORIZONTAL CONTROL DATA

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT G OBS BY AGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE:	21° 25' 49.88774	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 47' 45.07878		FEET

STATE COORDINATES (FWM)				
STATE & ZONE	CODE	X	Y	SURD. ANGLE *
H1 J	5103	569,434.61	95,887.66	+ 0° 04' 29"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE SURD. ANGLE FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT		GEODETIC AZIMUTH (From bench)	PLANE AZIMUTH * (From bench)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY & NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1227
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF-4-11 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT I OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE: 21° 26' 53.68340 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 49' 31.50585 FEET

STATE COORDINATES (FPM)				
STATE & ZONE	CODE	X	Y	β OR Δ ANGLE *
HI 3	5103	559,372.29	102,312.55	+ 0° 05' 50"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE β OR Δ ANGLE FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From 1979)	PLANE AZIMUTH (From 1979)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 007

NOV 1979
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1228
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

NO TEXT

HORIZONTAL CONTROL DATA

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT J OBS BY NGS
 STATE HAWAII YEAR 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE	21° 26' 34" 08649	ELEVATION:	METERS
GEODETIC LONGITUDE	157° 49' 56" 61086		FEET

STATE COORDINATES (Feet)			
STATE & ZONE	CODE	X	Y
HI 3	5103	562,671.07	100,338.98
			β ION Δ OF ANGLE *
			+ 0° 04' 03"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE β ION Δ OF FORMULA, NEGLECTING THE SECOND TERM.

TORSTATION OR OBJECT	GEODETIC AZIMUTH (from meridian)	PLANE AZIMUTH * (from meridian)	CODE
	0	0	

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1229
 HAWAII LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NO 4.11 OAHU

HORIZONTAL CONTROL DATA

ADJUSTED HORIZONTAL CONTROL DATA

ADJUSTMENT BY NGS

NAME OF STATION: AERO OBSTRUCTION LT K OBS BY NGS

STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE:	21° 26' 58.92509	ELEVATION:		METERS
GEODETIC LONGITUDE:	157° 49' 22.81427			FEET

STATE COORDINATES (FZM)				
STATE & ZONE	CODE	X	Y	φ (ON Δ) ANGLE *
HI 3	5103	560,192.77	102,842.36	+ 0° 03' 53"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE φ (ON Δ) FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From FZM)	PLANE AZIMUTH * (From FZM)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY • NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1230
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NO. 4-11 OAHU

NO TEXT

HORIZONTAL CONTROL DATA

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT L

OBS BY NGS

STATE: HAWAII

YEAR: 1976

THIRD

-ORDER

SOURCE: G-15809

GEODETIC LATITUDE:	21° 27' 08.74659	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 49' 18.12006		FEET

STATE COORDINATES (FWS)				
STATE & ZONE	CODE	X	Y	θ (CRD Δ or ANGLE)
HI 3	5103	5601655.09	1031833.87	+ 0° 03' 55"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ θ FORMULA, NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From north)	PLANE AZIMUTH* (From north)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEANIC SURVEY ; NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

STATION 1231
 QUAD 211573
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT M OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE: 21° 27' 14" S 4054 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 49' 11" W 3091 FEET

STATE COORDINATES (Feet)				ELEVATION	METERS
STATE & ZONE	CODE	X	Y		
HI 3	5103	561,275.75	104,419.21		+ 0' 03" 57"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ϕ OR Δ ϕ FORMULA NEGLECTING THE SECOND TERM.

TOR STATION OR OBJECT	GEODETIC AZIMUTH (From 1980)	PLANE AZIMUTH (From 1980)	CODE
	0	0	

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NOV 1979
 U. S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY / NATIONAL GEODETIC SURVEY

by the
 National Ocean Survey
 Old Hawaiian Datum

STATION 1232
 HAWAII
 QUAD 211573
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

HORIZONTAL CONTROL DATA

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT N OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD -ORDER

6-15809
 ROUND OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE: 21° 25' 32" 732296 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 47' 48" 73179 FEET

STATE & ZONE		STATE COORDINATES (FWD)			
STATE	ZONE	CODE	X	Y	ANGLE
HI	3	5103	569+280+68	94+156+53	+ 0° 04' 28"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE 8 (ORD) OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION ON OBJECT	GEODETIC AZIMUTH (From bench)	PLANE AZIMUTH* (From bench)	CODE
	0	0	

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NO TEXT

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1233
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 411 OAHU

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT 0 OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE:	21° 26' 11.66629"	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 47' 26.09021"		FEET

STATE & ZONE	STATE COORDINATES (Feet)			S (COR Δ) ANGLE *
	CODE	X	Y	
HI 3	5103	571,225.70	96,086.90	+ 0° 04' 36"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S (COR Δ) FORMULA NEGLECTING THE SECOND TERM.

STATION OR OBJECT	GEODETIC AZIMUTH (From Mean)		PLANE AZIMUTH (From Mean)		CODE
	0	+	0	+	

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY * NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1234
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NO. 411 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT P OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE: 21° 27' 00.81656 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 49' 39.91101 FEET

STATE COORDINATES (FPM)				
STATE & ZONE	CODE	X	Y	θ (CM Δ of ANGLE °)
HI 3	5103	558,577.48	105,031.42	+ 0° 03' 47"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ (CM Δ) OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From center)	PLANE AZIMUTH* (From center)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 014

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY / NATIONAL GEODETIC SURVEY

NO TEXT

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 213573 STATION 1235
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT A OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD -ORDER

SOURCE: G-15809

GEODETIC LATITUDE: 21° 27' 08" 54807 ELEVATION: METERS
 GEODETIC LONGITUDE: 157° 49' 51" 87480 FEET

STATE & ZONE		STATE COORDINATES (Feet)			θ COR Δ or ANGLE *
CODE	X	Y			
HI 3	5103	557,446.47	103,810.30	+ 0° 03' 42"	

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ COR Δ or FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (from south)	PLANE AZIMUTH (from south)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 015

NOV 1979
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1236
 HAWAII
 LATITUDE 21° 00' TO 21° 30'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION L T R OBS BY NGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

SOURCE: G-15809

GEODETIC LATITUDE:	21° 27' 18.29490	ELEVATION:	METERS
GEODETIC LONGITUDE:	157° 49' 58.44781		FEET

STATE & ZONE	CODE	STATE COORDINATES (FEET)			S FOR Δ OF ANGLE *
		X	Y	Z	
HI 3	5103	556,824.50	104,793.10	+ 0° 03' 40"	

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S FOR Δ OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From South)	PLANE AZIMUTH * (From South)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 Old Hawaiian Datum

QUAD 211573 STATION 1237
 HAWAII 21° 00' TO 21° 36'
 LONGITUDE 157° 30' TO 158° 00'
 DIAGRAM NF 4-11 OAHU

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: AERO OBSTRUCTION LT S OBS BY MGS
 STATE: HAWAII YEAR: 1976 THIRD ORDER

BOUNCE: G-15809

GEODETIC LATITUDE:	21° 27' 23.99913	ELEVATION:	
GEODETIC LONGITUDE:	157° 50' 01.11386	METERS	
		FEET	

STATE COORDINATES (Feet)			
STATE & ZONE	CODE	X	Y
HI 3	5103	556,572.04	105,368.39
			± 0' 03" 39"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE 1/2 COS Δ S² FORMULA, NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From South)	PLANE AZIMUTH* (From South)	CODE

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

K9 017

