

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 211601 STATION 1001
 HAWAII
 LATITUDE 21 ° 30' TO 22 ° 00'
 LONGITUDE 160 ° 00' TO 160 ° 30'
 DIAGRAM NF 4-6 KAUI

Barn, south gable (Niihau Island, C. L. Garner, 1926).—South gable of long dark shed running parallel to the beach at Nonopapa Landing.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: BARN SOUTH GABLE
 STATE: HAWAII YEAR: 1926 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE: 21 ° 52' 13.30	ELEVATION: METERS
GEODETIC LONGITUDE: 160 14 06.05	FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	ϕ OR Δ ϕ ANGLE *
HI 5	5105	476,823.56	73,959.14	- 0° 01' 32"

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

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

QI 270

JUN 1978
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HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1002
 HAWAII
 LATITUDE 21 ° 30' TO 22 ° 00'
 LONGITUDE 160 ° 00' TO 160 ° 30'
 DIAGRAM NF 4-6 KAUAI

Black (Niihau Island, C. L. Garner, 1926).—On the edge and highest point of a black bluff which is the western end of a chain of small undulating hills on the north end of Niihau Island, 2 miles south-southwest of Lehua. Marking not known.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: BLACK
 STATE: HAWAII YEAR: 1926 THIRD ORDER

SOURCE: G-SP156
 NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	21 ° 59' 13.18	ELEVATION:	METERS
GEODETIC LONGITUDE:	160 06 58.52		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	ϕ HOR Δ ϕ ANGLE *
HI 5	5105	517,080.40	116,365.83	+ 0 01' 08"

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

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

Q1 263

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HORIZONTAL CONTROL DATA

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 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1004
 HAWAII
 LATITUDE 21° 30' TO 22° 00'
 LONGITUDE 160° 00' TO 160° 30'
 DIAGRAM NF 4-6 KAUAI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: CLOTH
 STATE: HAWAII YEAR: 1926 THIRD ORDER

SOURCE: G-SP156
 NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE: 21° 56' 25.45	ELEVATION: METERS
GEODETIC LONGITUDE: 160 09 55.15	FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ ϕ ANGLE °
HI 5	5105	500,456.61	99,437.73	+ 0° 00' 02"

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

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
Q1 265			

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1008
 HAWAII
 LATITUDE 21 ° 30' TO 22 ° 00'
 LONGITUDE 160 ° 00' TO 160 ° 30'
 DIAGRAM NF 4-6 KAUAI

Kal (Niihau Island, C. L. Garner, 1926).—On the outer point of the two high rocky promontories about 2¼ miles north of Nonopapa Landing. Station is about 6 feet from the extreme point of the cliff. Marked according to note 2. Two reference marks, note 12b, were established as follows: No. 1, distant 13.384 meters (43.91 feet), in azimuth 296° 24'; No. 2, distant 10.99 meters (36.06 feet), in azimuth 338° 58'.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION KAL
 STATE HAWAII YEAR 1926 SECOND ORDER

SOURCE G-SP156

GEODETIC LATITUDE:	21 ° 54' 20.162	ELEVATION:	1	METERS
GEODETIC LONGITUDE:	160 12 39.239	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ 01 ANGLE *
HI 5	5105	485,004.32	86,797.41	- 0° 00' 59"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ 01 FORMULA NEGLECTING THE SECOND TERM.

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

Q1 257

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HORIZONTAL CONTROL DATA

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QUAD 211601 STATION 1009
 HAWAII
 LATITUDE 21° 30' TO 22° 00'
 LONGITUDE 160° 00' TO 160° 30'
 DIAGRAM NF 4-6 KAUAI

Kawaewae (Kaw) (Niihau Island, C. L. Garner, 1926).—On northeast shoulder of hill by same name, 1½ miles south-southeast from Nonopapa Landing.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **KAWAEWAE-KAW**
 STATE: **HAWAII** YEAR: **1926** SECOND ORDER

SOURCE: **G-SP156**

GEODETIC LATITUDE:	21° 50' 58.566	ELEVATION:	88	METERS
GEODETIC LONGITUDE:	160 13 09.756	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ (OR Δ) θ' ANGLE *
HI 5	5105	462,123.54	66,455.90	- 0° 01' 11"

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

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

Q1 255

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HORIZONTAL CONTROL DATA

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QUAD 211601 STATION 1010
 HAWAII
 LATITUDE 21 ° 30' TO 22 ° 00'
 LONGITUDE 160 ° 00' TO 160 ° 30'
 DIAGRAM NF 4-6 KAUAI

Kawaihoa (Hoa) (Niihau Island, C. L. Garner, 1926).—On the highest point of prominent hill at the extreme southern end of Niihau Island. The remains of a stake were found about eight-tenths of a meter north of the station; this stake was probably the remains of a Hawaiian Government Survey station mark. Station marked according to note 2. Reference marks, note 12a, were placed about 8 meters north, and about 35 meters southwest along the ridge.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: KAWAIHOA-HOA
 STATE: HAWAII YEAR: 1926 SECOND ORDER

SOURCE: G-SP156

GEODETIC LATITUDE:	21 ° 47' 03.885	ELEVATION:	167	METERS
GEODETIC LONGITUDE:	160 12 21.491	SCALED		FEET

STATE COORDINATES (Fvt)				
STATE & ZONE	CODE	X	Y	ρ OR Δ OR ANGLE*
HI 5	5105	486,664.43	42,773.79	- 0 ° 00' 53"

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

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

QI 260

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HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1011
 HAWAII
 LATITUDE 21 ° 30' TO 22 ° 00'
 LONGITUDE 160 ° 00' TO 160 ° 30'
 DIAGRAM NF 4-6 KAUAI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: LAKE
 STATE: HAWAII YEAR: 1926 THIRD ORDER

SOURCE: G-SP156
 NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	21 ° 47' 41.68	ELEVATION:	METERS
GEODETIC LONGITUDE:	160 14 05.99		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	# 10R Δ #1 ANGLE °
HI 5	5105	476,817.05	46,590.96	- 0 ° 01' 31"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE # 10R Δ #1 FORMULA NEGLECTING THE SECOND TERM.

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

Q1 272

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1012
 HAWAII
 LATITUDE 21° 30' TO 22° 30'
 LONGITUDE 160° 00' TO 160° 30'
 DIAGRAM NF 4-6 KAUAI

Paniau (Niihau Island, C. L. Garner, 1926).—A Hawaiian Government Survey station, on the highest point of Niihau, near the eastern line of cliffs, about 2,070 meters south of the precipice at the northern edge of the central plateau, and 4,880 meters north of Pueo Point. In 1926 a standard Coast and Geodetic Survey disk was cemented into the center of the concrete monument previously established, and two standard disk reference marks were cemented into drill holes in the rock at the following distances and azimuths: No. 1, 11.98 meters (39.30 feet), 232° 20'; No. 2, 6.02 meters (19.75 feet), 155° 54'. A corner fence post is 9.70 meters (31.82 feet) distant, in azimuth 334° 40'.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PANIAU
 STATE: HAWAII YEAR: 1926 SECOND ORDER
 SOURCE: G-SP156

GEODETIC LATITUDE:	21° 56' 30.414	ELEVATION:	352
GEODETIC LONGITUDE:	160 05 10.073	SCALED	METERS FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	β OR Δ OR ANGLE *
HI 5	5105	527,295.78	99,945.81	+ 0° 01' 48"

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

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

QI 255

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HORIZONTAL CONTROL DATA

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 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1013
 HAWAII
 LATITUDE 21° 30' TO 22° 00'
 LONGITUDE 160° 00' TO 160° 30'
 DIAGRAM NF 4-6 KAUAI

Pin (Niihau Island, C. L. Garner, 1926).—The highest point of black rock detached hill about 3½ miles south by west, from Lehua Island and at the foot-hills of the mountain mass. Easily identified from near by. Not marked.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PIN
 STATE: HAWAII YEAR: 1926 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE:	21° 57' 30.398	ELEVATION:	METERS
GEODETIC LONGITUDE:	160 06 40.043		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ FOR Δ & I ANGLE *
HI 5	5105	518,825.17	105,994.90	+ 0° 01' 15"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ FOR Δ & I FORMULA NEGLECTING THE SECOND TERM

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

QI 264

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 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 211601 STATION 1014
 HAWAII
 LATITUDE 21 ° 30' TO 22 ° 00'
 LONGITUDE 160 ° 00' TO 160 ° 30'
 DIAGRAM NF 4-6 KAUAI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **ROB**
 STATE: **HAWAII** YEAR: **1926** THIRD -ORDER

SOURCE: **G-SP156**
 NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	21 ° 50' 55.79	ELEVATION:	METERS
GEODETIC LONGITUDE:	160 13 17.21		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ FOR Δ θ 1 ANGLE *
HI 5	5105	481,421.21	66,176.02	- 0 ° 01' 13 "

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ FOR Δ θ 1 FORMULA NEGLECTING THE SECOND TERM.

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

Q1 271

