

**SECTION 106 CONSULTATION FOR THE
PROPOSED UNDERTAKING TO
REPLACEMENT OF EXTERIOR DOOR AT BUILDING 11 &
INSTALLATION OF ELECTRICAL SUBPANEL
& RECEPTACLE AT BUILDING 396006
KA'ENA POINT SATELLITE TRACKING STATION
O'AHU, HAWAI'I**



APRIL 08, 2016

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DEPARTMENT OF THE AIR FORCE
50TH SPACE WING (AFSPC)

MAR 22 2016

MEMORANDUM FOR HAWAII STATE HISTORIC PRESERVATION DIVISION
Administrator
601 Kamokila Blvd. Suite 555
Kapolei, Hawaii 96707

FROM: Det 3, 21 SOPS/CC
10 Hickam Court Unit 4
JBPHH, HI 96853-5208

Subject: Request for Section 106 Review and Concurrence for Proposed Undertakings to Replace Exterior Door at Building 11 and Install Electrical Subpanel and Receptacle at Building 39006, Kaena Point Satellite Tracking Station (KPSTS).

1. The U.S. Air Force (USAF) is evaluating alternatives for two proposed undertakings, to replace a severely damaged door and associated corroded hardware at Building 11 and to install an electrical subpanel and wall receptacle at Building 39006.
2. In accordance with 36 CFR Part 800.3, this letter initiates our Section 106 coordination, and requests your concurrence with our determination of No Adverse Effect for the proposed Undertaking. This letter and the information in the attachments fulfill the documentation requirements of 36 CFR 800.11, and support our determination of No Adverse Effect.
3. Please direct questions or comments to Mr. Lance Hayashi by telephone at 697-4312, by mail at the above address or via email to Ms. Lynn Cruz at: linda.cruz.ctr@us.af.mil.

A handwritten signature in black ink, appearing to read "R. F. Shumaker", is positioned above the printed name.

ROBERT F. SHUMAKER, Major, USAF
Commander

3 Attachments:

1. Section 106 Consultation Documentation
2. Building 39006 New Subpanel & Receptacle
3. HAER HI-97-D (Building 11) & G (Building 39006)

cc:

Office of Hawaiian Affairs (OHA)
Royal Order of Kamehameha
Kawaihapai Ohana
Koa Mana

ATTACHMENT 1 SECTION 106 CONSULTATION

**PROPOSED UNDERTAKING:
REPLACEMENT OF EXTERIOR DOOR AT BUILDING 11 AND INSTALLATION OF
ELECTRICAL SUB PANEL AND RECEPTACLE AT BLDG 39006
At KAENA POINT SATELLITE TRACKING STATION
U.S. AIR FORCE (USAF) SPACE COMMAND
(Proponent)**

**NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE REQUEST
FOR SECTION 106 REVIEW AND CONCURRENCE**

SECTION I (Information from Proponent of Undertaking)

- A. TITLE OF UNDERTAKING: Replacement of exterior door at Building 11 and installation of electrical subpanel and receptacle at Building 39006, Kaena Point Satellite Tracking Station (KPSTS)
- B. PROPOSED START DATE: April 25, 2016
- C. LOCATION: The Tax Map Key for this undertaking is 6-9-003: 005. There are two project sites for this undertaking and they are located at Buildings 11 and 39006.
- D. DESCRIPTION OF PROPOSED UNDERTAKING:

The proposed undertaking includes replacing the exterior door to Building 11. The existing exterior door is severely damaged due to water log and the hardware is heavily corroded. The door in its current state no longer provides functionality or facility security. The replacement door will be wooden and hardware will closely match the existing door.

Additionally, Building 39006 requires modification of the electrical system to support emergency back-up power requirements for critical HVAC capability and is included as part of this proposed undertaking. Work to be conducted at Building 39006 includes installation of one surface mount (11"x 13") 125-AMP Eaton subpanel and one surface mount 240V/30A (4"x 4") wall receptacle adjacent to the existing 240V lighting distribution panel (Attachment 2). The subpanel will be powered by the existing lighting panel. The installation of the subpanel and wall receptacle both require mounting to the building's interior concrete wall with concrete screws.

SECTION II (Information from the Environmental Planning Office)

- A. IDENTIFY HISTORIC RESOURCES
 - 1. ARCHITECTURAL FEATURES

Building 11 is a 12'x 12' one-story military vernacular building that was constructed in 1959 as a guardhouse. Only the building entry door and signage with building number

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have been changed throughout its lifetime. The building is 57 years and is associated with KPSTS satellite tracking mission that began in the early 1960s and has significance related to Cold War activities.

Building 39006 is a large radome constructed in 1972 for its original mission of space vehicle (satellite) radar tracking and communications. Over its lifetime, Building 39006 has experienced mission changes as well as modifications, additions and renovations to its architecture, systems, mechanical equipment and mission equipment. The building has reached a current age of 44 years. Although less than 50 years old, Building 39006 is associated with the KPSTS satellite tracking mission that began in the early 1960s and has significance related to Cold War activities.

In April 2012, KPSTS completed and submitted to the Hawaii State Historic Preservation Division (SHPD) a Determination of Eligibility (DOE) for buildings at KPSTS that were potentially eligible for registry in the National Register of Historic Places (NRHP). As a result of the DOE, Buildings 11 and 39006, despite age and alterations, were deemed eligible for listing in the NRHP under Criterion A (associations with persons or events significant to our history) and Criterion C (Architecture) as part of a thematic group of buildings associated with Cold War activities. The SHPD concurred with the DOE's findings and recommended completion of a Historic American Engineering Record (HAER) Level II recordation as stated in a letter dated May 7, 2012 (SHPD Log 2012.1292, Doc. 1205RS09).

In March 2013, a HAER, recorded by the SHPD as document HAER HI-97, was completed for the four KPSTS buildings determined eligible for NRHP listing. Within that document, Buildings 11 and 39006 are recorded as HAER HI-97-D and G respectively (Attachment 3).

2. ARCHAEOLOGICAL FEATURES:

According to KPSTS's Integrated Cultural Resource Management Plan (ICRMP) (International Archaeological Research Institute, Inc, September 2009), there are no known archeological sites within the project sites. The proposed undertaking would not adversely affect any archeological sites or cultural resources. Further, this undertaking involves no ground-disturbing activities.

3. TRADITIONAL RESOURCES

Kaena Point is particularly well known as a Hawaiian *leina a ka 'uhane*, or 'leaping place of the spirit.' This cultural use, however, is traditionally understood to have occurred at the westernmost tip of Oahu Island, several kilometers from the proposed project areas. Although the ahupua'a of Kaena and Keawaula are rich in traditional history, there are no known traditional cultural places within the proposed project areas.

B. DETERMINE POTENTIAL EFFECT

The Area of Potential Effect (APE) for this proposed undertaking is limited to Buildings 11 and 39006. Since work on these projects will be conducted within and upon the buildings, the

ATTACHMENT 1 SECTION 106 CONSULTATION

likelihood of human remains or other archeological materials being inadvertently discovered is negligible. If such discovery were to occur, then all work in the vicinity of the discovery will stop and KPSTS personnel will take measures to help secure any remains, archeological materials associated context and the SHPD will be notified and consulted in accordance with the ICRMPs compliance procedures and standard operating procedures.

All the work to be completed is minor and will not affect the buildings overall visual appearance. HAER HI-97 documents Buildings 11 and 39006 as they are determined eligible for NRHP listing. The buildings' general appearance would not change, and would remain consistent with other facilities on site.

The HAER recommended by SHPD in 2012 is adequate recordation of the buildings and provides a lasting record, through photographs, engineering drawings, history, timeline and references, to mitigate any potentially adverse effects of the proposed undertaking.

C. REQUEST FOR CONCURRENCE

It is the opinion of KPSTS that, pursuant to 36 Code of Federal Regulations §800.4 (d) (1), the proposed undertaking will have “no adverse effect” on archaeological resources or other native Hawaiian cultural resources. This is based on the information gathered from archival documents, old maps, and recent archaeological investigations. Further, this undertaking involves no ground-disturbing activities.

We have determined, and respectfully request your concurrence pursuant to 36 Code of Federal Regulations §800.4 (d) (1) that the proposed undertaking will have “no adverse effect” on historic properties because (1) replacement of an exterior door and hardware and addition of a subpanel and receptacle do not change the visual quality of the site; and (2) Buildings 11 and 39006 are adequately documented in the HAER HI-97.

SECTION III Contact Information

For further information you may contact Mr. Lance Hayashi at 697-4312 or via email to linda.cruz.ctr@us.af.mil.

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Attachment 2: Building 39006 New Subpanel & Receptacle



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THE UNITED STATES AIR FORCE



FINAL

**HISTORIC AMERICAN ENGINEERING RECORD
FOR HISTORIC AND COLD WAR ERA
EVALUATION AND SURVEY
AT KA'ENA POINT SATELLITE TRACKING STATION
OAHU, HAWAII**

Contract Number: FA8903-08-D-8791

Task Order: 0027

Project Number: LXHY496805

April 2013

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HISTORIC AMERICAN ENGINEERING RECORD

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KA`ENA POINT SATELLITE TRACKING STATION
BUILDING NO. 11

HAER HI-97-D

(Guardhouse)

Ka`ena Point, Wai`anae Mountains above Keawaula Bay

Waialua

Honolulu County

Hawai`i

Documentation: 6 Exterior Photographs (2012)
 1 Interior Photograph (2012)
 1 Architectural Drawing (1958)

Original materials are owned by the U.S. Air Force and held at Ka`ena Point Satellite Tracking Station Administration Building.

Steve Brinkman, Photographer
Tony Martie, Photographer

April 2012
April 2012

<u>PHOTO No.</u>	<u>DESCRIPTION</u>
HAER HI-97-D-01	Ka`ena Point Satellite Tracking Station, vicinity of Building No. 11, Exterior, looking Southwest
HAER HI-97-D-02	Ka`ena Point Satellite Tracking Station, vicinity of Building No. 11, Exterior, looking North
HAER HI-97-D-03	Ka`ena Point Satellite Tracking Station, vicinity of Building No. 11, Exterior, looking Northwest
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HAER HI-97-D-05	Ka`ena Point Satellite Tracking Station, vicinity of Building No. 11, Exterior, looking Southeast
HAER HI-97-D-06	Ka`ena Point Satellite Tracking Station, vicinity of Building No. 11, Exterior, looking South
HAER HI-97-D-07	Ka`ena Point Satellite Tracking Station, vicinity of Building No. 11, Interior, looking North
HAER HI-97-D-08	Ralph M. Parsons Company, "Guardhouse Plans and Details," Drawing No. 1430-1A, A-6, Sheet 11, 15 April 1958

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HAER HI-97-D-01



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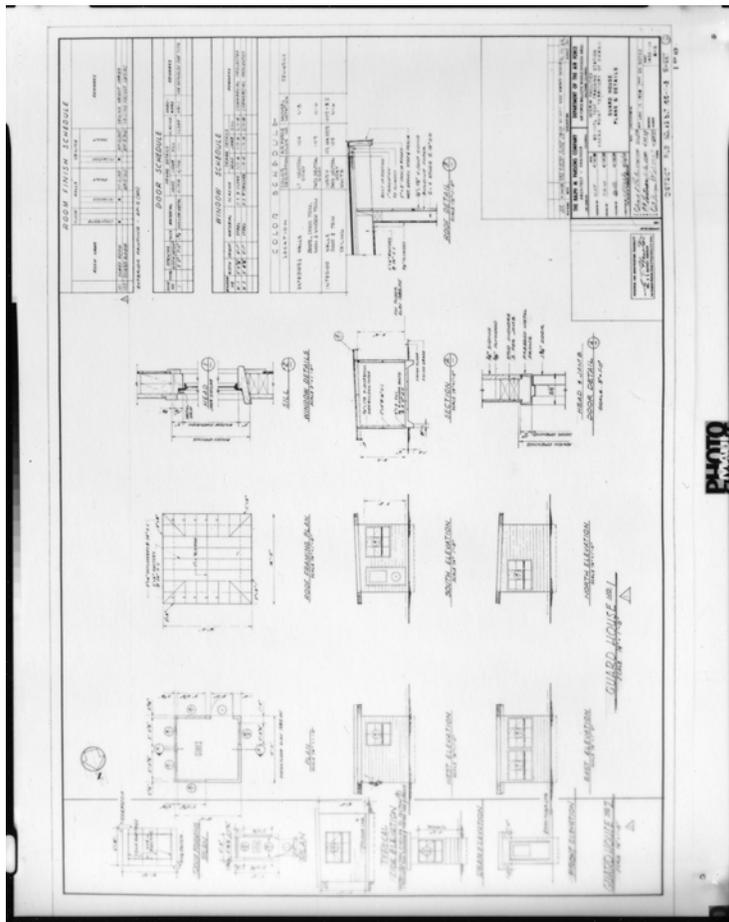
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HAER HI-97-D-08



HISTORIC AMERICAN ENGINEERING RECORD

KA'ENA POINT SATELLITE TRACKING STATION
BUILDING NO. 11
(Guardhouse)

HAER HI-97-D
(Page1)

Location: Ka'ena Point, Wai'anae Mountains above Keawaula Bay
Waialua, Honolulu County, Hawai'i

United States Geological Survey (USGS) Ka'ena Point,
Hawaii Quadrangle,
Universal Transverse Mercator Coordinates
Building 11: 2384475.05 m N, 578663.95 m E

Present Owner: Headquarters, Air Force Space Command
150 Vandenberg Street, Suite 1105
Peterson Air Force Base, CO 80914

Present Occupant: United States Air Force
Detachment 3, 21st Space Operations Squadron
50th Space Wing
P.O. Box 868
Waianae, Hawai'i 96792-0868

Present Use: Satellite Tracking Station

Significance: Ka'ena Point Satellite Tracking Station (KPSTS) is a radio receiving and transmitting facility that occupies approximately 153 acres of land leased from the State of Hawai'i, including easements and rights-of-way. KPSTS was originally established in 1958 to support the CORONA/Discoverer Satellite Program.

The CORONA/Discoverer Program was a covert surveillance and satellite reconnaissance program run by the United States (U.S.) in the 1950s and 1960s that was instrumental in the development of radar and surveillance technological advancements. The nation's first satellite reconnaissance program was named Discoverer. Since the program was classified, it became known by its codeword CORONA although CORONA is not an acronym. The antenna equipment and support structures, and command stations, located within KPSTS, then known as "HULA," supported the CORONA/Discoverer programs with data retrieval, tracking and relay; as well as gathering orbit and trajectory data to aid in the recovery of surveillance film capsules that were ejected from the satellites.

During the Cold War years when suspicions between the U.S. and the Soviet Union were high, concerns over the manufacture of nuclear

weapons by the Union of Soviet Socialist Republics (U.S.S.R.) spurred the innovations in the U.S. reconnaissance missions. Space surveillance satellites captured photographs of suspect weapons storage and manufacturing locations within the Soviet Union at increasingly higher resolution throughout the duration of the CORONA/Discoverer program.¹ Global mapping and terrain imagery became an indispensable part of military intelligence. The last CORONA/Discoverer mission flight was in 1972.

Selected History Timeline of Events that Influenced the
CORONA/Discoverer Program²

- 1946 First Post-war nuclear bombs explode in Operation Crossroads
- 1947 Central Intelligence Agency (CIA) established; Army separates from Air Force (AF)
- 1954 U-2 Program begins
- 1957 Soviets launch Sputnik I
- 1958 National Aeronautic Space Administration (NASA) established; Advanced Research Projects Agency (ARPA) est.; Air Force WS-117-L cancelled (and reconstituted as CORONA secretly)
- 1959 First series of “Special students” from Air Force Aeronautical Charting and Information Center (ACIC) arrive at Ohio State University (OSU); Army World Geodetic Datum (WGD59) finished
- 1960 First successful CORONA/Discoverer mission; Francis Gary Powers and U-2 shot down over Soviet Union; RACOMS Program begins
- 1961 Bay of Pigs invasion; TALENT-KEYHOLE security protocols formalized; National Reconnaissance Office (NRO) established
- 1962 Cuban Missile crisis; first successful CORONA-ARGON mission; first “Advanced” CORONA/Discoverer KH-4 mission
- 1965 Escalation of wars in Vietnam and Laos
- 1966 Secret Department of Defense (DOD) study suggests applications of classified reconnaissance information by nominally civilian federal agencies

¹ USNSSDC 1960: n.p. United States National Space Science Data Center, U. N., 20 August 1960. “Discoverer 14: NSSDC ID: 1960 -010A.” Accessed 21 January 2012.
<<http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1960-010A>>

² Cloud 2002: 262. Cloud, J. “American Cartographic Transformations During the Cold War.” In *Cartography and Geographic Information Science*, Vol. 29, No. 3, pp. 261-282, 2002.

Selected History Timeline of Events that Influenced the
CORONA/Discoverer Program (continued)

- 1966 U.S. Geological Survey (USGS) begins Building E-1 at new National Mapping Division (NMD) center in Virginia
- 1967 Six-Day War, Soviet invasion of Czechoslovakia, first CORONA/Discoverer KH-4B mission; Outer Space Treaty signed
- 1968 First color films flown in CORONA/Discoverer missions; Civilian Applications Committee (CAC) formed
- 1969 Strategic Arms Limitations Talks (SALT) begin in Finland; Apollo 11 Astronauts reach the Moon; Military Geographic Information Systems (MGIS) Program begins
- 1971 First HEXAGON satellite reconnaissance mission
- 1972 Last CORONA/Discoverer Mission; SALT Treaty signed; World Geodetic System of 1972 (WGS72) completed; Most DOD and IC service-level mapping and geodesy service agencies consolidated into the Defense Mapping Agency (DMA)
- 1973 Office of Management and Budget Mapping Agency Task Force recommends consolidation
- 1975 Vietnam War ends
- 1978 President Carter publicly acknowledges the U.S. employs satellite reconnaissance
- 1992 NRO is officially recognized to exist; President Clinton elected
- 1995 Authorization for the declassification of CORONA; the CAC is acknowledged to exist

As a result of the contributions of the CORONA/Discoverer program, KPSTS is significant for its contributions to America's history in the science and space exploration advances during the Cold War. KPSTS was a vital part of the U.S. military reconnaissance mission during the early development of our nation's Satellite Command and Control Network.

PART I. ARCHITECTURAL STATEMENT

A. General Statement:

1. History: Building No. 11, a guardhouse that is also identified as "SP Entry Con Bldg.," is a one-story military vernacular building. It was designed along with two other guardhouses by Ralph M. Parsons Company, Los Angeles, California, for the Department of the Air Force, Air Force Ballistic Missile Division, which was part of the Air Research and Development Command (ARDC), in Inglewood, California in 1958. Building No. 11 was erected in the following year as a guardhouse for the Interim Facilities for the WS-117L, Test Tracking Station. Despite five decades of service, the building has not been substantially altered and remains intact. The exceptions are the building's entry

door, which has been changed and signage with the building number has been added at an indeterminate date.

2. Architectural Character: The guardhouse is one-story in height and one-pile in depth. The building has an entry that is located on the south facade. (See photographic documentation for HAER HI-97-D-01 through HAER HI-97-D-08).

B. Description of the Exterior:

1. Overall Dimensions: The building measures 12 feet -0inches in width and 12 feet -0 inches in depth.

2. Foundations: The foundations are concrete with 8 inch footings which have been poured to a depth of 1 foot – 0 inches and support a 6 inch concrete slab.

3. Structural System, Framing: The walls of the guardhouse are framed with nominal 2 inch x 4 inch wood studs which have been spaced at 1 foot – 4 inch centers and attached to 4 inch x 4 inch wood sills which have been secured to a concrete slab with ½ inch diameter anchor bolts. The wall framing has been capped with top plates of continuous doubled 2 inch x 4 inch wood members and the rough openings of windows and a single door have headers that have been framed similarly, with paired 2 inch x 4 inch wood members.

4. Wall Construction: The guardhouse is of balloon frame construction that has been clad with ¾ inch x 7 ½ inch V-Groove wood siding, referred to in the period vernacular as “V-Joint Siding,” over building paper.

5. Porches: The building does not have covered entries or porches but their absence has been compensated by continuous eaves that are 2 feet – 0 inches in width.

6. Openings:

a. Doorways and Doors: A single hollow metal entry door which measures 3 feet -0 inch wide x 7 feet – 0 inches in height and 1 ¾ inch thickness is located in the south facade and replaced an original metal entry door that was glazed with a single light. The door has been simply cased with wood trim.

b. Windows: The guardhouse has been fenestrated with metal casement windows that have been installed in all four facades. They include nine-light metal sash which measure 5 feet - 0 7/8 inch x 4 feet -1 inch and are located in the northwest, southeast, and northeast facades and one six-light metal sash that measures 3 feet - 5 7/8 inch x 4 feet -1 inch and is located in the southwest facade. The windows are simply cased with wood trim and feature wood sills.

7. Roof:

a. Shape and Covering: The building has a shed roof which is 16 feet – 0 inches in width and depth and has a slope of ¼ inch per foot. It has been framed with nominal 2 inch x 6 inch rafters which have been spaced at 2 feet – 0 inch centers and covered with a “built-up” roof which consists of composition roll roofing over 1 inch insulation board and 5/8 inch exterior plywood.

b. Cornice: The guardhouse roof does not have a cornice but features open eaves with exposed 2 inch x 6 inch rafter tails, known in the vernacular of the period as “outlookers,” which terminate into a continuous 2 inch x 8 inch wood fascia board.

C. Description of the Interior:

1. Floor Plan: Entry is made from the southeast facade into the building which consists of a single room that is devoid of interior partitions.

2. Flooring: The floor of the building is concrete.

3. Wall Finishes: Interior wall finishes of the guardhouse consist of 3/8 inch plywood which has been painted.

4. Doorways and Doors: There are no interior doors.

5. Light Fixtures: Mid-twentieth century light fixtures have been removed and replaced with late twentieth century fluorescent fixtures.

6. Heating and Mechanical: No method for heating the building has been provided but a wall-mounted air conditioner has been installed in the southwest wall.

PART II. SOURCES OF INFORMATION

A. Original Architectural/Engineering Drawings:

Parsons, Ralph M., Company. “Guardhouse Plans and Details.” As-Built File #199-11-3, Drawing No. 1430-1A, A-6, Sheet 11. Los Angeles, California, 15 April 1958.

PART III. BIBLIOGRAPHY

Cloud, J. “American Cartographic Transformations During the Cold War.” In *Cartography and Geographic Information Science*, Vol. 29, No. 3, pp. 261-282, 2002.

United States National Space Science Data Center, U. N., 20 August 1960. “Discoverer 14: NSSDC ID: 1960 -010A.” Accessed 21 January 2012.
<<http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1960-010A>>

PART IV. HISTORIANS

Historical research was conducted and the historical narrative was prepared by Kathryn Ladoulis Urban, AIA, K Design Group, Honolulu, while the architectural descriptions were prepared by Stanley Solamillo, also of K Design Group, and completed on July 16, 2012.

PART V. PROJECT INFORMATION

This Historic American Engineering Record (HAER) recording project was undertaken and funded by the United States Air Force Center for Environmental Excellence, Department of Defense as part of an agreed mitigation with the Architecture Branch, State Historic Preservation Division (SHPD) of the Hawai'i Department of Land and Natural Resources. The recording team consisted of preservation architect Kathryn Ladoulis Urban, AIA, architectural historian Stanley Solamillo, as well as architectural photographers Steve Brinkman and Tony Martie.

Research for this project was conducted at the University of Hawai'i Government Documents collection; the Joint Base Pearl Harbor Hickam 15 Airlift Wing Base historian office archive collection, at KPSTS Administration Building 10 archive drawing collection; the National Electronics Museum archives in Linthicum Heights, Maryland; the University of Notre Dame Hershburgh Library, South Bend, Indiana, in the General collection and Government documents collection; the Declassified Files section of the National Reconnaissance Office; as well as on-line sources from December 2, 2011 through July 12, 2012.

Initial site visits were performed from December 13 through 15, 2011 at KPSTS. A two day site visit and photographic fieldwork for HAER documentation as well as photography of archival construction and as-built drawings of KPSTS buildings No. 11, 35, 39005, and 39006 was performed from April 18-19, 2012. Additional HAER photography of existing measured drawings was performed on June 28, 2012.

HISTORIC AMERICAN ENGINEERING RECORD

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KA'ENA POINT SATELLITE TRACKING STATION
BUILDING NO. 39006
(Satellite Tracking Antenna)
Ka'ena Point, Wai'anae Mountains above Keawaula Bay
Waialua
Honolulu County
Hawai'i

HAER HI-97-G

Documentation: 4 Exterior Photographs (2012)
 2 Interior Photographs (2012)
 5 Architectural/Engineering Drawings (1970)

Original materials are owned by the U.S. Air Force and held at Ka'ena Point Satellite Tracking Station Administration Building.

Steve Brinkman, Photographer
Tony Martie, Photographer

April 2012
April 2012

<u>Photo No.</u>	<u>Description</u>
HAER HI-97-G-01	Ka'ena Point Satellite Tracking Station, vicinity of Building No. 39006, Exterior, looking West
HAER HI-97-G-02	Ka'ena Point Satellite Tracking Station, vicinity of Building No. 39006, Exterior, looking Southwest
HAER HI-97-G-03	Ka'ena Point Satellite Tracking Station, vicinity of Building No. 39006, Exterior, looking East
HAER HI-97-G-04	Ka'ena Point Satellite Tracking Station, vicinity of Building No. 39006, Exterior, looking Southeast
HAER HI-97-G-05	Ka'ena Point Satellite Tracking Station, vicinity of Building No. 39006, Interior, Oblique
HAER HI-97-G-06	Ka'ena Point Satellite Tracking Station, vicinity of Building No. 39006, Interior, Oblique
HAER HI-97-G-07	Department of the Air Force, "Antenna & Radome Support Structure, Architectural Plans & Details," AW 35-47-01, Sheet A-1, Los Angeles, California, 14 December 1970
HAER HI-97-G-08	Department of the Air Force, "Antenna & Radome Support Structure, Civil & Plot Utility Plan," AW 35-47-01, Sheet C-1, Los Angeles, California, 14 December 1970

HISTORIC AMERICAN ENGINEERING RECORD

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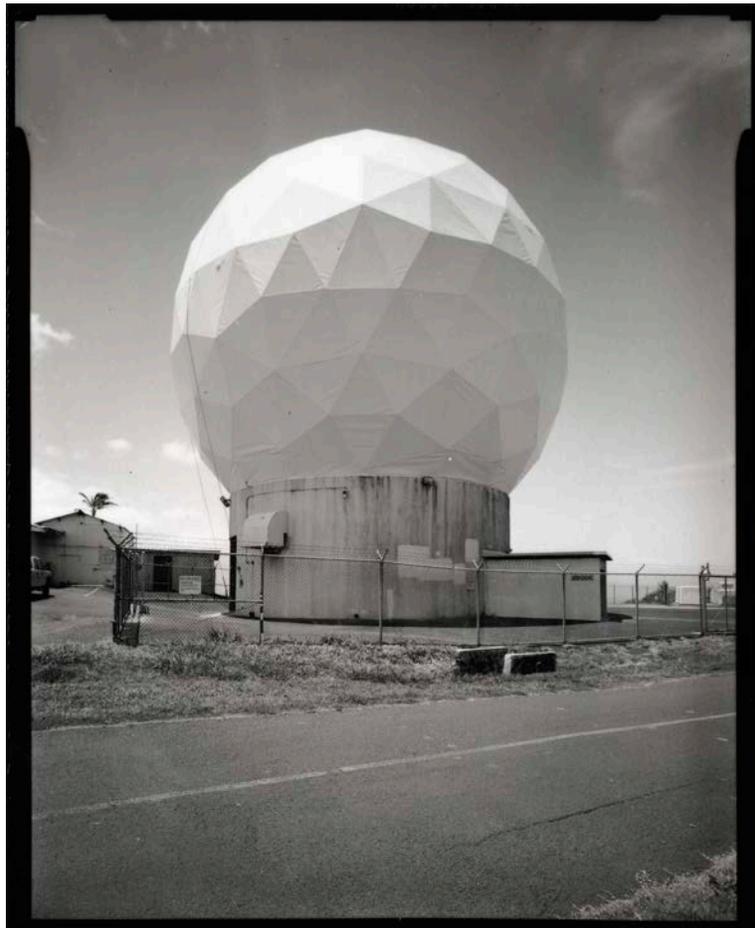
HAER HI-97-G

Original materials are owned by the U.S. Air Force and held at Ka`ena Point Satellite Tracking Station Administration Building.

<u>Photo No.</u>	<u>Description</u>
HAER HI-97-G-09	Department of the Air Force, "Antenna & Radome Support Structure, Structural Plans, Sections & Details," AW 35-47-01, Sheet S-1, Los Angeles, California, 14 December 1970
HAER HI-97-G-10	Department of the Air Force, "Antenna & Radome Support Structure, Structural Plans, Elevations, Sections & Details," AW 35-47-01, Sheet S-2, Los Angeles, California, 14 December 1970
HAER HI-97-G-11	Department of the Air Force, "Antenna & Radome Support Structure, Structural Plans, Elevations, Sections & Details," AW 35-47-01, Sheet S-3, Los Angeles, California, 14 December 1970

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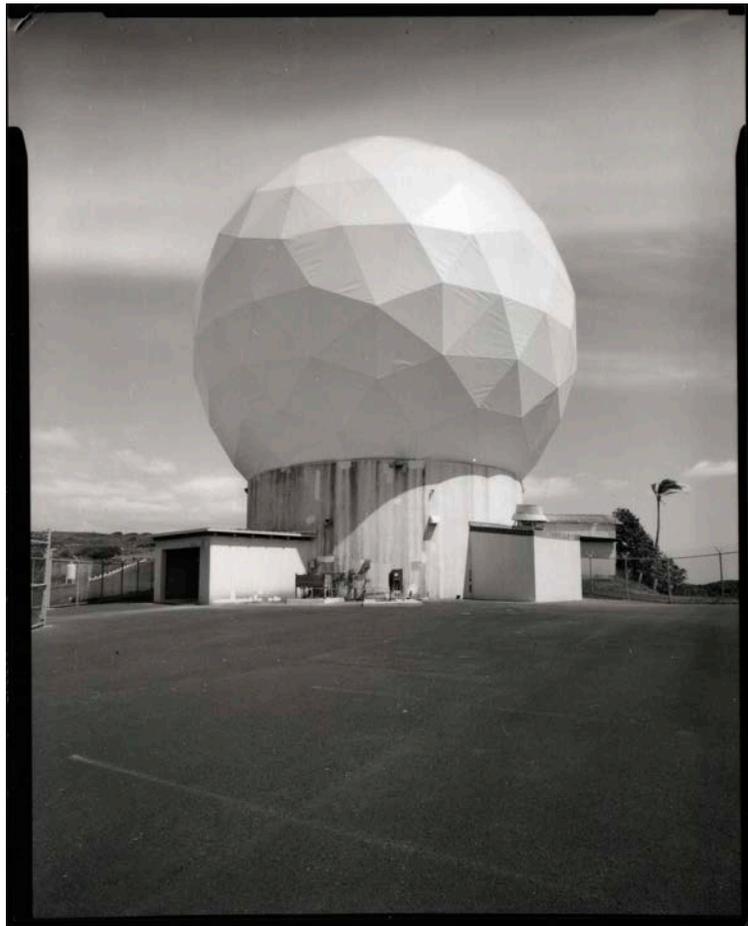
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HAER HI-97-G-05



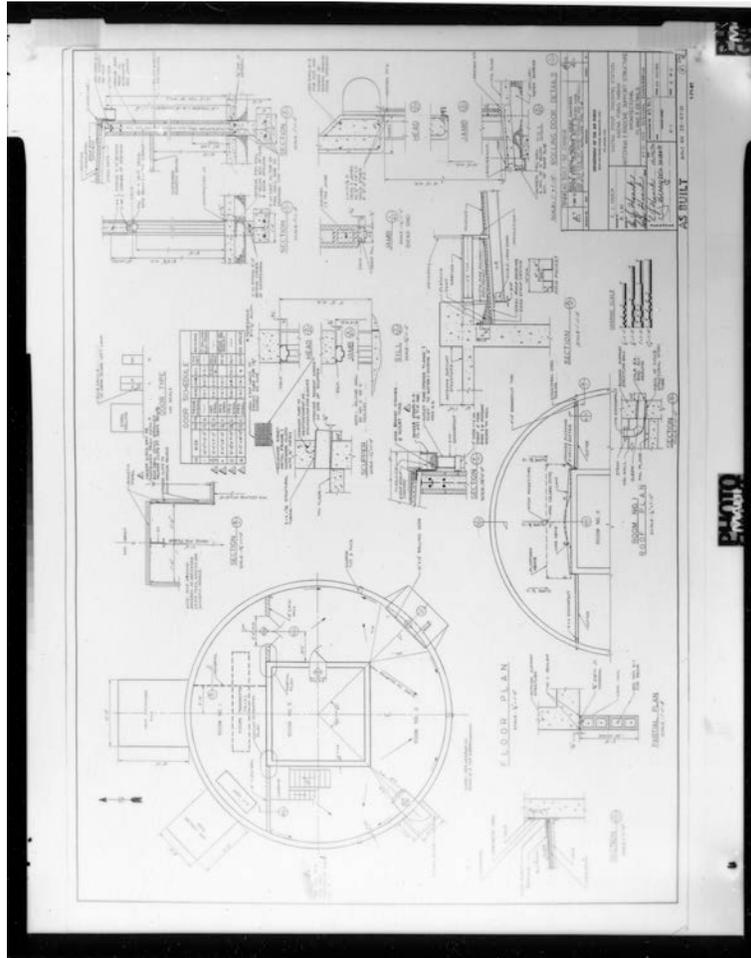
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HAER HI-97-G-06



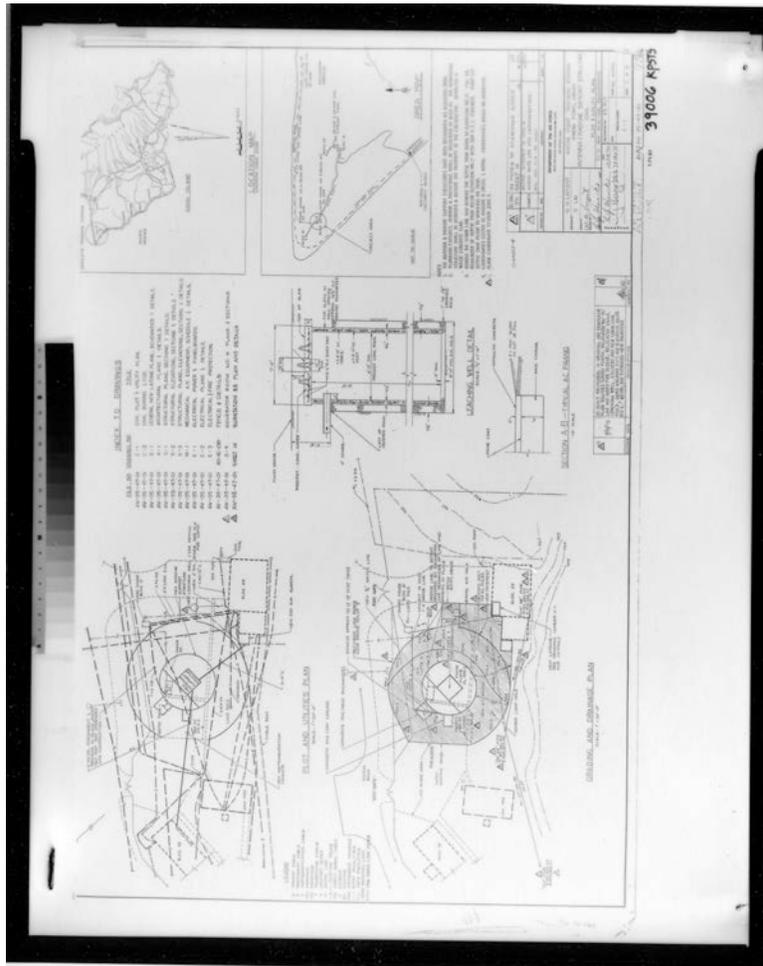
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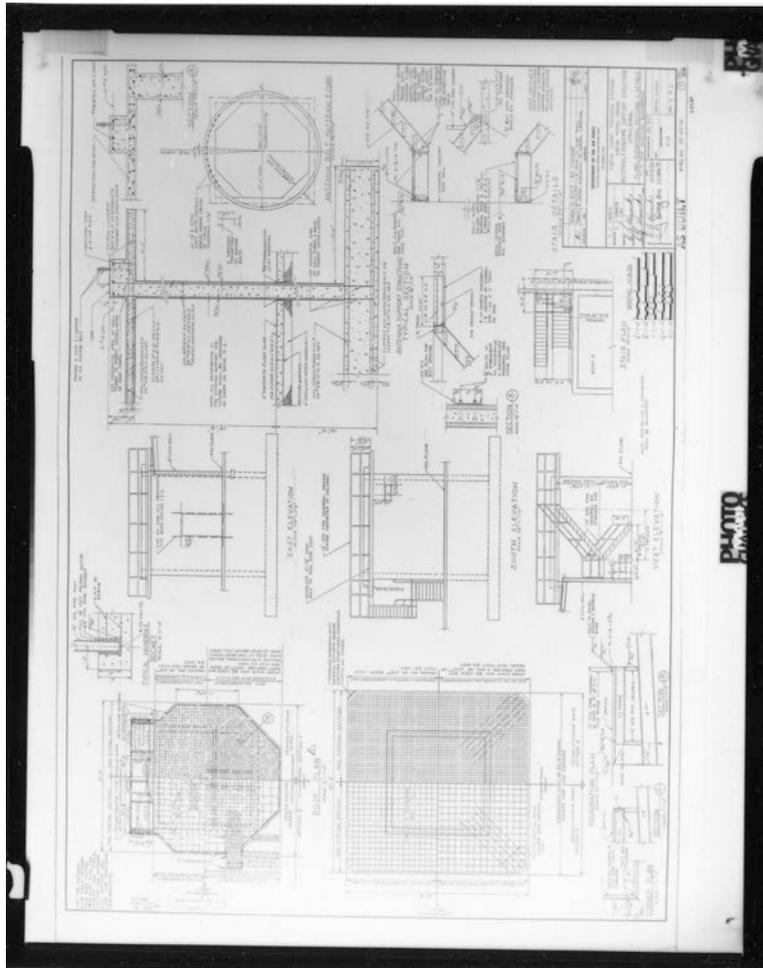
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HAER HI-97-G-11



HISTORIC AMERICAN ENGINEERING RECORD
KA'ENA POINT SATELLITE TRACKING STATION
BUILDING NO. 39006
(Satellite Tracking Antenna)
(Antenna support structure/pedestal with associated radome)

HAER HI-97-G
(Page 1)

Location: Ka'ena Point, Wai'anae Mountains above Keawaula Bay
Waialua, Honolulu County, Hawai'i

United States Geological Survey (USGS) Ka'ena Point,
Hawaii Quadrangle,
Universal Transverse Mercator Coordinates
Building 39006: 2385304.93 m N, 576375.77 m E

Present Owner: Headquarters, Air Force Space Command
150 Vandenberg Street, Suite 1105
Peterson Air Force Base, CO 80914

Present Occupant: United States Air Force
Detachment 3, 21st Space Operations Squadron
50th Space Wing
P.O. Box 868
Waianae, Hawai'i 96792-0868

Present Use: Satellite Tracking Station

Significance: Ka'ena Point Satellite Tracking Station (KPSTS) is a radio receiving and transmitting facility that occupies approximately 153 acres of land leased from the State of Hawai'i, including easements and rights-of-way. KPSTS was originally established in 1958 to support the CORONA/Discoverer Satellite Program.

The CORONA/Discoverer Program was a covert surveillance and satellite reconnaissance program run by the United States (U.S.) in the 1950s and 1960s that was instrumental in the development of radar and surveillance technological advancements. The nation's first satellite reconnaissance program was named Discoverer. Since the program was classified, it became known by its codeword CORONA although CORONA is not an acronym. The antenna equipment and support structures, and command stations, located within KPSTS, then known as "HULA," supported the CORONA/Discoverer programs with data retrieval, tracking and relay; as well as gathering orbit and trajectory data to aid in the recovery of surveillance film capsules that were ejected from the satellites.

During the Cold War years when suspicions between the U.S. and the Soviet Union were high, concerns over the manufacture of nuclear weapons by the Union of Soviet Socialist Republics (U.S.S.R.) spurred

KAHANA POINT SATELLITE TRACKING STATION
BUILDING NO 39006
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innovations in the U.S. reconnaissance missions. Space surveillance satellites captured photographs of suspect weapons storage and manufacturing locations within the Soviet Union at increasingly higher resolution throughout the duration of the CORONA/Discoverer program.¹ Global mapping and terrain imagery became an indispensable part of military intelligence. The last CORONA/Discoverer mission flight was in 1972.

Selected History Timeline of Events that Influenced the
CORONA/Discoverer Program²

- 1946 First Post-war nuclear bombs explode in Operation Crossroads
- 1947 Central Intelligence Agency (CIA) established; Army separates from Air Force (AF)
- 1954 U-2 Program begins
- 1957 Soviets launch Sputnik I
- 1958 National Aeronautic Space Administration (NASA) established; Advanced Research Projects Agency (ARPA) est.; Air Force WS-117-L cancelled (and reconstituted as CORONA secretly)
- 1959 First series of "Special students" from Air Force Aeronautical Charting and Information Center (ACIC) arrive at Ohio State University (OSU); Army World Geodetic Datum (WGD59) finished
- 1960 First successful CORONA/Discoverer mission; Francis Gary Powers and U-2 shot down over Soviet Union; RACOMS Program begins
- 1961 Bay of Pigs invasion; TALENT-KEYHOLE security protocols formalized; National Reconnaissance Office (NRO) established
- 1962 Cuban Missile crisis; first successful CORONA-ARGON mission; first "Advanced" CORONA/Discoverer KH-4 mission
- 1965 Escalation of wars in Vietnam and Laos
- 1966 Secret Department of Defense (DOD) study suggests applications of classified reconnaissance information by nominally civilian federal agencies
- 1966 U.S. Geological Survey (USGS) begins Building E-1 at new National Mapping Division (NMD) center in Virginia

¹ USNSSDC 1960: n.p. United States National Space Science Data Center, U. N., 20 August 1960. "Discoverer 14: NSSDC ID: 1960 -010A." Accessed 21 January 2012. <<http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1960-010A>>

² Cloud 2002: 262. Cloud, J. "American Cartographic Transformations During the Cold War." In *Cartography and Geographic Information Science*, Vol. 29, No. 3, pp. 261-282, 2002.

Selected History Timeline of Events that Influenced the
CORONA/Discoverer Program (continued)

- 1967 Six-Day War, Soviet invasion of Czechoslovakia, first CORONA/Discoverer KH-4B mission; Outer Space Treaty signed
- 1968 First color films flown in CORONA/Discoverer missions; Civilian Applications Committee (CAC) formed
- 1969 Strategic Arms Limitations Talks (SALT) begin in Finland; Apollo 11 Astronauts reach the Moon; Military Geographic Information Systems (MGIS) Program begins
- 1971 First HEXAGON satellite reconnaissance mission
- 1972 Last CORONA/Discoverer Mission; SALT Treaty signed; World Geodetic System of 1972 (WGS72) completed; Most DOD and IC service-level mapping and geodesy service agencies consolidated into the Defense Mapping Agency (DMA)
- 1973 Office of Management and Budget Mapping Agency Task Force recommends consolidation
- 1975 Vietnam War ends
- 1978 President Carter publicly acknowledges the U.S. employs satellite reconnaissance
- 1992 NRO is officially recognized to exist; President Clinton elected
- 1995 Authorization for the declassification of CORONA; the CAC is acknowledged to exist

As a result of the contributions of the CORONA/Discoverer program, KPSTS is significant for its contributions to America's history in the science and space exploration advances during the Cold War. KPSTS was a vital part of the U.S. military reconnaissance mission during the early development of our nation's Satellite Command and Control Network.

PART I. ARCHITECTURAL STATEMENT

A. General Statement:

1. History: Building 39006 is an antenna support structure/pedestal with associated radome that was designed by an unidentified engineering company for the Department of the Air Force and erected in 1972 as a Satellite Control Station for the CORONA/Discoverer Project. It contains the second most intact radome interior on the Ka'ena Point Satellite Tracking Station premises.
2. Architectural Character: The antenna support structure/pedestal is a two-story circular concrete building with a dome and two one-story additions. It has entrances that are located on the southwest and southeast sides of the base. (See photographic documentation for HAER HI-97-G-01 through HAER HI-97-G-11).

B. Description of the Exterior:

1. Overall Dimensions: In plan, the radome ringwall measures 24 feet – 0 inches in radius or 48 feet 0 inches in diameter and the radome's equatorial radius measures 68 feet – 0 inches. An addition containing a mechanical room has plan dimensions of 13 feet – 4 inches in width and 8 feet – 11 inches in depth while another addition which contains a heat exchanger is of indeterminate dimension. The exterior walls of the antenna support structure are visible approximately 19 feet – 7 inches vertical above grade to the intersection of the radome.
2. Foundations: The foundations of the radome base and the antenna support structure are two independent systems. The radome base has cast-in-place foundation walls which are supported on concrete piers that have been poured to a depth of 8 feet -6 inches beneath finished floor. The footings are 3 feet – 0 inches in width and 1 foot – 6 inch in depth. The antenna support structure's foundation is a floating concrete slab which is square with clipped corners. It is 32 feet – 8 inches in width, 2 feet – 0 inches in depth, and is located 3 feet – 0 inches beneath finished grade. The floor slabs are typically 6 inches in thickness.
3. Wall Construction: The building base has walls of reinforced cast-in-place concrete, the walls of the additions are of reinforced concrete masonry unit construction with a plaster coating.
4. Wall System, Framing: The walls of the antenna support structure are reinforced concrete and are 1 foot – 2 inches in thickness.
5. Vestibules: There is a portico which is of concrete masonry unit construction, located on the southwest side of the building, and provides shelter for the pedestrian entry.
6. Openings:
 - a. Doorways and Doors: The exterior door of the pedestrian entry is solid core metal while the maintenance entrance is enclosed by a metal overhead door. There is a personnel hatch that is located at the top of the radome. Louvered metal doors provide access to the mechanical room.
 - b. Windows: There are no windows in the walls of the radome base but there are tower boresight and star boresight windows located in the radome.

7. Roof:

a. Shape and Covering: Its structure is that of a geodesic dome and it is composed of a self-bracing framework of extruded metal frames and struts which form triangles to which are attached a membrane.

b. Cornice: The building does not have a cornice but features a battered concrete cap that measures 6 feet – 6 inches in width, has minimum and maximum depths of 2 feet – 6 inches and 4 feet – 8 inches, and provides support for a steel wide flange I-beam (W 10) to which is anchored the steel framed radome above.

C. Description of the Interior:

1. Floor Plan: Entry is made from the southwest side of the building base, through a covered pedestrian entry which contains an airlock into Room No. 2. The room is open and provides access to Room No. 3 which is centrally located within the building and serves as the base of the antenna. Room No. 1 is located on the north side of the building and contains transmitter, air conditioning, and other mechanical equipment. A second entrance which permits access and egress for oversize equipment and maintenance is located on the southeast side of the building base. A steel stair provides access to a concrete catwalk for the maintenance of the antenna and the interior of the radome. Room No. 4 is a mechanical room which was built in 1971 on the west side of the building base. Room No. 5 is an addition which appears to have been constructed after Room No. 4 to enclose a heat exchanger.

2. Flooring: The floor finish is concrete throughout.

3. Wall Finishes: Interior wall finishes are painted concrete and painted concrete masonry unit.

4. Doorways and Doors: Interior doors are metal throughout.

5. Light Fixtures: Period light fixtures include mid- and late-twentieth century fluorescent fixtures.

6. Heating: Constant temperature, humidity, and air pressure is provided by mechanical systems which have been upgraded since the building's initial construction.

PART II. SOURCES OF INFORMATION

A. Original Architectural/Engineering Drawings:

Louie, Paul & Associates. "Foundation Plan, Building. Sections, Penthouse Roof Framing Plan," Drawing No. 04-14-92, Sheet A-4.

Louie, Paul & Associates. “[Building 39006] Floor Plan, Foundation Plan, Roof Framing Plan, Antennae Plat- form Floor Plan,” Drawing No. 04-14-92, Sheet A-2, April 1992.

_____. “Reflected Ceiling Plans, North & West Exterior Elevations,” Drawing No. 04-14-92, Sheet A-3, April 1992

_____. “Building Section, Wall Section of Antennae Platform, Wall Section of Radome Support, Roof Framing Plan,” Drawing No. 04-14-92, Sheet A-4, April 1992.

U.S. Department of the Air Force. Space and Missile Systems (AFSC). “[Building 39006] Civil, Plot & Utility Plan,” As-Built AW 35-47-01, Drawing No. C-1, Los Angeles, California, 20 January 1971.

_____. “Architectural Plans & Details,” Drawing No. A-1.

_____. “Structural Plans, Sections & Details,” Drawing No. S-1.

_____. “Structural Elevations, Sections & Details,” Drawing No. S-2.

_____. “Structural Plans Elevations, Plans, Sections & Details” Drawing No. S-3.

PART III. BIBLIOGRAPHY

Cloud, J. “American Cartographic Transformations During the Cold War.” In *Cartography and Geographic Information Science*, Vol. 29, No. 3, pp. 261-282, 2002.

United States National Space Science Data Center, U. N., 20 August 1960. “Discoverer 14: NSSDC ID: 1960 -010A.” Accessed 21 January 2012.
<<http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1960-010A>>

PART IV. HISTORIANS

Historical research was conducted and the historical narrative was prepared by Kathryn Ladoulis Urban, AIA, K Design Group, Honolulu, while the architectural descriptions were prepared by Stanley Solamillo, also of K Design Group, and completed on July 16, 2012.

PART V. PROJECT INFORMATION

This Historic American Engineering Record (HAER) recording project was undertaken and funded by the United States Air Force Center for Environmental Excellence, Department of Defense as part of an agreed mitigation with the Architecture Branch, State Historic Preservation Division (SHPD) of the Hawai'i Department of Land and Natural Resources. The recording team consisted of preservation architect Kathryn Ladoulis Urban, AIA, architectural historian Stanley Solamillo, as well as architectural photographers Steve Brinkman and Tony Martie.

Research for this project was conducted at the University of Hawai'i Government Documents collection; the Joint Base Pearl Harbor Hickam 15 Airlift Wing Base historian office archive collection, at KPSTS Administration Building 10 archive drawing collection; the National Electronics Museum archives in Linthicum Heights, Maryland; the University of Notre Dame Hershburgh Library, South Bend, Indiana, in the General collection and Government documents collection; the Declassified Files section of the National Reconnaissance Office; as well as on-line sources from December 2, 2011 through July 12, 2012.

Initial site visits were performed from December 13 through 15, 2011 at KPSTS. A two day site visit and photographic fieldwork for HAER documentation as well as photography of archival construction and as-built drawings of KPSTS buildings No. 11, 35, 39005, and 39006 was performed from April 18-19, 2012. Additional HAER photography of existing measured drawings was performed on June 28, 2012.