

REPORT OF COMPLETED WORKS - SEACOAST FORTIFICATIONS
(Fire Control or Torpedo Structures)

COAST DEFENSES OF PEARL HARBOR
FORT WEAVER
STRUCTURE: FIRE CONTROL STATION U
FOR BATTERY WILLISTON

Form 2 Corrected to May 19, 1924.

Location : Puu o hulu. (3-1/2 Miles S.E. of Waianae)
Date of transfer : April 7, 1924.
Cost to that date : \$ 5,226.24

Type of construction:

(a) Roof

(b) Remainder of building

How concealed

How protected

Height above concealment

Height above protection

Conspicuous at 500 yards.

Source of electric current

Kilowatts required

Type of lighting fixtures

How heated

Connected to water mains

Connected to sewer

Type of latrine

Permanent or temporary installation

Present condition

Reference of site

Reference of instrumental axis

Type of observing instrument

Type of plotting board

Type of data transmission

: Reinforced concrete.

: " "

: Light earth covering.

: Dug-out type.

: Not above.

: Not above.

: No.

: Local battery (Wet, Edison #207)

: Instrument lights only.

: Flash lights.

: None required.

: No.

: No.

: None.

: Permanent.

: Good.

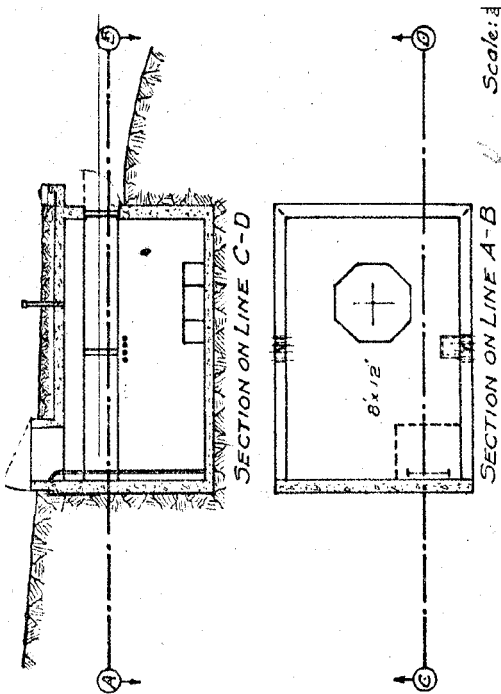
: 856.5 Ft. (Top of earth cover)

: 853.45 " (M.L.L.W.), Subject to check.

: D. P. F. intended.

: None.

: Telephones intended.



Scale: 1/4"

Fire Control Station “U” Complex

The original fire control station built atop Puu-o-Hulu-Kai in 1923 was designated Station “U.” All subsequent FC stations atop the ridge carried the same station designator, along with assigned reference numbers.

The first FC station served Battery Williston’s pair of 16-inch guns at Ft. Weaver, west of the Pearl Harbor channel. The single-story 8 by 12-foot concrete observation station at the peak 860-foot elevation was dug into the surrounding rock. The structure included a slab roof and overhanging eaves on the front (west) and sidewalls. The steel vertical shutters, outside the three narrow observation slits on the front and sidewalls, opened upward. The observation room was entered via a manhole on the roof. The station, with a single concrete pier for an M1907 DPF observing instrument, was transferred to the coast artillery on April 7, 1924.

The next two FC stations built atop Puu-o-Hulu were identical 8 by 12-foot single-story box-shaped reinforced-concrete observation stations completed in the late 1920s, with narrow view slits on the front and side walls protected by exterior steel drop shutters. Both stations were entered through steel doors in their rear walls. One station served Battery Closson (two 12-inch long-range guns, Ft. Kamehameha), while the other served the railway mortar positions on the Leeward Coast. Early in World War II, the station assigned to the newly casemated Battery Closson was reassigned as a base end station for the Browns Camp 8-inch railway battery. The station assigned to the railway mortar positions was reassigned to serve Battery Salt Lake (two 8-inch NT), 1/2 mile from the south rim of Aliamanu Crater.(40)

The fourth FC station was built in 1934 to service the two 16-inch guns of Battery Hatch at Fort Barrette, some 5-3/4 miles west of Pearl Harbor. The single-story reinforced-concrete double station, 16 feet wide by 15 feet deep and equipped with two DPF instruments, was located just below the original 1923 station. This station was reassigned in 1945 to serve the almost completed Battery Arizona (one 14-inch NT) at Kahe Point.(41) Its protected entryway was in the right rear wall.

The fifth FC station built on the crest was a single-story double station equipped with two DPF instruments, completed by December 3, 1940, with eaves and slit window openings covered by outside steel drop shutters. Between the pair of the 1920s FC stations, it included a room at the rear for a plotting board and FC switchboard. This Hulu Gun Group command post provided tactical control of the 8-inch railway guns at Browns Camp and their alternate firing position at Waianae, Battery Awanui’s four 155 mm guns at Browns Camp, the 5-inch and 155 mm guns at Nanakuli, and the 155 mm guns at Kahe Point. The CP was manned early in World War II by a detachment from HQ and HQ Battery, 1st Bn, 41st CA.(42)

Gun Group on July 27, 1944, and the Hulu Group was inactivated by GO No. 4, HD of Honolulu and Pearl Harbor, on August 30, 1944.(43)



Cable tram motor and cable reel, with generator building above the cable tram assembly. *Guidry*



Cableway steel support tower. The Lualualei Naval Reservation is in the background. *Guidry*



Generator building on reverse slope of Puu-o-Hulu. *Guidry*

Initial access to the FC stations was via a steep winding trail on the reverse slope. Later an aerial cableway powered by a 6-cylinder GMC gasoline donkey engine was built over a cable right-of-way on the reverse slope obtained in April 1931, to haul material up the steep slope more rapidly.(44) cableway's engine and cable reel were at the end of the line between the northern-most FC station and the Hulu Group CP.



Demolished building atop Puu-o-Hulu, believed to be mess hall and kitchen. *Guidry*



.30 cal. MG pipe-mount between cable tram landing and Hulu Group CP. *Guidry*

Several temporary buildings on the reverse slope below the crest that supported the men manning the FC stations included two wooden 40-man bunkhouses, a kitchen, storeroom, and a latrine that were completed just prior to December 1940. Electrical power was supplied by a 5 kW 110 V 60-cycle

just below the ridgeline NNW of the northern-most FC station. Several short trails connected the new buildings with the main trail.(45)

Perimeter defense of the FC station complex included two MG dugouts equipped with galvanized-pipe mounts, probably for .30-caliber MGs. One position was on the ridge between the cable tram landing and the Hulu Group CP, close to the trail; the second position was several feet east of the highest FC station.

Antiaircraft Intelligence Service Station No. 8 was established sometime before September 18, 1941, at one of the two highest FC stations.

Communication Lines

Wire communication lines were part of the Signal Corps' island-wide "Command and Fire Control Cable System." A 50-pair subterranean branch cable, No. 115, connected to the POHMR, including the FC complex, from the Maili FC Switchboard Hut "U" adjacent to POHMR's northwest corner. A

100-pair subterranean cable, No. 113, ran from the Ewa Plain up the west coast to Hut “U.”(46) The cable network continued up the coast to Waianae, connecting with a hut at Kaena Point.



Maili FCSB Room/Cable Hut “U.” *Author*



Possible transformer building on Maili MR. *Author*

The Maili Military Reservation (MMR) consisted of FC Switchboard/Hut “U,” completed in 1929 to service a 12-inch railway mortar-battery firing position at a nearby railroad siding.(47) In World War II, a MG position was established atop the mound adjoining the rear (south) wall of the cable hut. A .30-caliber MG was probably mounted on the galvanized pipe found embedded in the ground.

A possible transformer or generator building some 100 feet north of Cable Hut “U” had thick walls and a large open window on

the east wall, and a single doorway on the west wall at the southwest corner. An electrical distribution box was affixed to the upper south wall of the structure.

Searchlight Position

Targets were illuminated by 60-inch portable Seacoast Searchlights Nos. 57 and 58 atop concrete emplacements on Puu-o-Hulu's northwest slopes, just about the 100-foot elevation. HQ Battery, 41st CA, manned the searchlights until relieved by the newly activated Battery G, 15th CA, who manned the searchlights until the battery was inactivated in August 1944. The personnel, however, were reassigned to the 856th CA (SL) Battery (Separate), which continued to man the searchlights until the end of the war. On December 31, 1945, the 856th CA Battery was inactivated per G.O. No. 15, 2274th HSAC.(48)

Concluding Remarks

The Puu-o-Hulu Military Reservation consisted of approximately 69.48 acres.(49) The State of Hawaii owns the land upon which all extant structures are located, including the casemated gun emplacements, tunnels, fire control stations, and Cable Hut "U." The largest parcel now encompasses 97.014 acres, Tax Map Key: 87006006, and also a 5.637-acre parcel (Tax Map Key: 87006008). The former MMR included 19,840 square feet recorded under Tax Map Key 87006005. The City and County of Honolulu leases 1.377 acres, Tax Map Key: 87006032, of the former military reservation from the State of Hawaii as a construction equipment base yard for the Board of Water Supply.

Entry to the former POHMR is restricted due to the increased level of security since September 11, 2001. The City and County of Honolulu's Civil Defense Agency leases and occupies Battery Hulu's two casemates, and uses portions of the tunnel complex to store equipment. The extant structures of the POHMR remain in fair to good condition, with the tunnel complex left unfinished.

Acknowledgements

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End Notes

1. Defense Environmental Restoration Program For Formerly Used Defense Sites, "Findings and Determination of Eligibility, Puu-o-Hulu Military Reservation, Puu-o-Hulu, Island Of Oahu, Hawaii, Site No. H09HII030600," Jan. 1993, U.S. Army Engineer District, Pacific Ocean Division, Fort Shafter, Hawaii. (Hereafter: DERP-FUDS, Puu-o-Hulu.) Mary Kawena Pukui and Samuel Elbert, *Hawaiian Dictionary: Hawaiian-English, English-Hawaiian* (Honolulu: Univ. of Hawaii Press, 1957, Rev. 1986), p. 358, s.v. "pu'u. 1. v1. Any kind of a protuberance from a pimple (pu'u 2) to a hill: peak, cone, hump, mound...."
2. DERP-FUDS, Puu-o-Hulu. William C. Gaines and Peter D. Smith, "Installations and Organizations of the Coast Artillery Corps, U.S. Army, on the Island of Oahu, Territory of Hawaii, 1905 - 1946; Puu O Hulu Military Reservation," pp. 13-18, unpub. MS in author's collection. (Hereafter: Gaines and Smith.)
3. R.C. Garrett, CG 2274th HSAC, "Study of Seacoast Battery Requirements Hawaiian Islands," 31 May 1945, Predecessor Commands, 1942- RG 494, NARA. (Hereafter: HDE.) (All NARA citations from College Park, MD.)
4. E.R. Lewis and D.P. Kirchner, "The Oahu Turrets," *Warship International*, No. 3 (1992), p. 280.
5. Hawaiian Department Engineer to CG HSAC, "Type of Construction, 7-inch Naval Gun Battery, Puu-o-Hulu," Sep. 7, 1942, HDE.

6. Earl Fielding, AG, HQ, HSAC, memorandum to COs HDKB, HDPH, NS Gpmnt., and HD Hon, "Names of New Battery Positions," Oct. 21, 1942, HDE. The HSAC typically named World War II batteries for their locations, until the project batteries, e.g. BCNs 301, 405, etc. However, Batteries Arizona and Pennsylvania were named for the two *Pennsylvania*-class battleships.
7. Robert C. Richardson, Jr., *Historical Review, Corps of Engineers, United States Army, Vol. I, Covering Operations During World War II, Pacific Ocean Area: 7-Inch Naval Gun Batteries*, (War Department, n.d.), p. 322A, RG 494, Entry 125, NARA. (Hereafter: *Historical Review: 7-inch Batteries*.) Battery Hulu Site Plan dated October 1942, RG 338, Entry 43101, Box G-441, NARA.
8. The "front" of an emplacement was towards the enemy, the "rear" away from the enemy. Gun No. 1 was always on the right-hand side of the battery, viewed from the rear.
9. *Historical Review: 7-inch Batteries*, p. 322A. "History For the Year 1944 of the Harbor Defenses of Honolulu and Pearl Harbor," Records of the Office of the Adjutant General, RG 407, Entry 427, File No. 9-8 Dpl - 0.1, Box 423, NARA. (Hereafter: 1944 History of the HDs of Honolulu and Pearl Harbor.
10. John D. Bennett, "Sand Island's Military Past, 1916-1945," *CDJ*, Vol. 16, No. 3 (August 2002), p. 90.
11. Earl Fielding, AG, HQ, HSAC, to District Engineer, memorandum, "Transfer of Completed Work in the Vicinity of Puu-o-Hulu, Oahu T.H.," 5th Ind., n.d., HDE.
12. "Unit History 1944," 2274th HSAC, APO 956, San Francisco, CA, RG 407, Entry 427, File No. 98 CA-1 - 0.1, Box 422, NARA.
13. H.T. Burgin, inter-office routing slip, Dec. 28, 1943, HDE.
14. TAG to CG, Central Pacific Area, "Deficiencies in Seacoast Armament," Dec. 14, 1943, HDE. Battery Hulu was among the batteries to be eliminated.
15. Gaines and Smith, p. 17. 1944 History of the HDs of Honolulu and Pearl Harbor, p. 5.
16. Gaines and Smith, p. 17.
17. John D. Bennett, "Puu-o-Hulu Military Reservation, Site Reconnaissance Report," 2002, unpub. (Hereafter: Bennett, Site Recon.) In the plotting room, the remains of a metal bracket for a blower fan was in the air-lock, with a medium-size concrete T-shaped pipe vent on the ground outside of the west wall of the structure. *Historical Review: New Naval Gun Batteries*, pp. 321, 323. War Department, *Basic Field Manual: Defense against Chemical Attack*, FM 21-40, (GPO, 1940), p. 33.
18. *Historical Review: 7-Inch Naval Gun Batteries*, p. 323
19. Department Engineer to Capt. Garnett, (Dist.) Engineers Office, Punahou, "Notes on Fortifications Projects Pertaining to Hawaiian Seacoast Artillery Command," Item No. 10b, Jul. 30, 1942, Entry 46101, HDE. A 1994 Lee Guidry photo of the inside of the BCS shows two concrete brackets at either end of the front wall, flush with the top of the lower observation slit; these could have accommodated two observing instruments. An octagonal concrete mounting pier on the center-front floor probably mounted a 15-foot CRF.
20. David Madsen, *Resurrection: Salvaging the Battle Fleet at Pearl Harbor*, (Annapolis: Naval Insitute Press, 2003), p. 102.
21. HSAC to DC/A, "Temporary Installation Battery Hulu," 1st through 13th Ind, Feb. 1, 1943, HDE.
22. *Ibid*.
23. C.D. Baker to CG HSAC, "Transfer of Completed Work at Battery Hulu," Sep. 14, 1943, HDE.
24. Everett W. Rosworth, AAG, HQ, U.S. Army Central Pacific Area to Chief Signal Officer, "Radar Equipment for Fire Control of Fixed Seacoast Batteries on Oahu, T.H.," June 1944, HDE.
25. Gregg K. Kakesako, "Lualualei," <<http://starbulletin.com/98/10/05/news/story1.html>>, Feb. 17, 2006.
26. H.R. Westphalinger, C/Seacoast Defense Projects Branch, & L.A. Whittaker, SDPB, to Chiefs of Ordnance, Engineers, Signal, and Chemical Warfare, "Modernization Program, Seacoast Artillery, Oahu, T.H.," 18 Dec. 1943, HDE. (Hereafter: Westphalinger and Whittaker, Modernization Program.)
27. 2006, regarding the 6-inch emplacements being built fronting the tunnel portals.

28. John D. Bennett, "Battery Construction Number 302: The Sentinel of Kaneohe Bay," *CDSJ*, Vol. 17, No. 1 (Nov. 2002), pp. 51-52. (Hereafter: Bennett, BCN-302.)
29. Robert D. Zink, "The Six-Inch Part of the Modernization Program of 1940," *CDSGJ*, Vol. 8, No. 2 (May 1994), p. 22. (Hereafter: Zink.)
30. Westphalinger and Whittaker, Modernization Program.
31. G.M. Wells to Ordnance Officer, Hawaiian Dept., "Kaneohe Bay, Proposed Installation of 6-inch and 8-inch Batteries," May 5, 1942, HDE. Bennett, BCN-302, pp. 61-62.
32. Zink, p. 22.
33. Guidry photographed the extant remnants of the POHMR in 1994, including the interior of Battery Hulu's BCS.
34. *Historical Review: New Standard Seacoast Batteries*, pp. 310-311. A small base camp with Theater of Operations buildings was probably established at the reservation to house the men manning the guns and searchlights, most likely a kitchen eliminated the need to build one in the tunnel complex.
35. Zink, p. 22.
36. *Ibid. Historical Review: 6-Inch Batteries*, p. 312. BCN-302's power room was equipped with a 10,000-gallon underground storage tank (see Bennett, BCN-302), p. 56. The DERP/FUDS team discovered an excavation inside the transverse tunnel that was in all probability for a diesel fuel storage tank.
37. Bennett, Site Recon., p. 14.
38. HQ, 2274th HSAC, "Study of Seacoast Battery Requirements, Hawaiian Islands," May 31, 1945, p. 8, HDE.
39. *Ibid.*, p. 10.
40. Gaines and Smith, "Fire Control Station U," pp. 13-14. (Hereafter: Gaines and Smith, "Station U.")
41. *Ibid.*
42. *Ibid.*
43. 1944 History of the HDs of Honolulu and Pearl Harbor, p. 6
44. Gaines and Smith, "Station U."
45. James H. Reid, Assoc. Engineer, to Chief of Engineer Div., "Fire Control Stations, current construction program, report on planning....," Dec. 3, 1940, pp. 4-5, HDE.
46. John D. Bennett, "Oahu's Command and Fire Control Cable System," *CDJ*, Vol. 16, No. 4 (Nov. 2002), p. 51. HDP-1940; Command and Fire Control Project, Incl. No. 8.
47. War Department Report of Completed Works – Seacoast Fortifications, Form 2, corrected to July, 1929, HD of Pearl Harbor, Structure: Fire Control, Switchboard Room, Maile [sic] Military Reservation, HD Geographical File, 1918-1945, Entry 1007, RG 77, NARA. Alvin H. Grobmeier, Collection. Bennett, Site Recon.
48. Gaines and Smith, "Puu-o-Hulu Searchlight Position." "History for the Year 1945 Of The Harbor Defenses Of Honolulu And Pearl Harbor," RG 407, Entry 427, File No. 98 Dpl - 01, Box 423, NARA.
49. "DERP-FUDS, Puu-o-Hulu.

Additional Sources

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