

The Bolinas Military Reservation

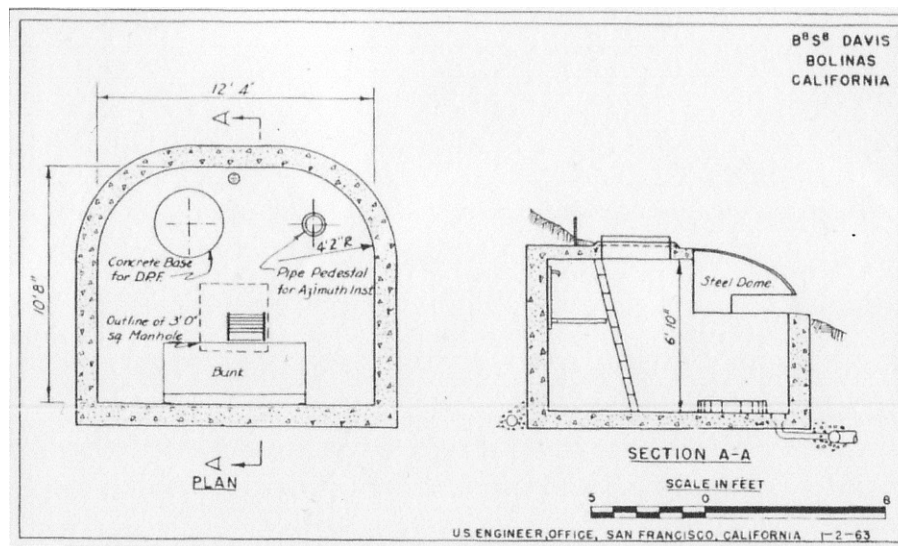
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Realizing that deficiencies existed in the current long-range armament at San Francisco, the army undertook a modernization program reflected in the 1937 Annexes to the Harbor Defense Project, Harbor Defenses of San Francisco, and resulted in construction of two new 16-inch casemated batteries: Battery Richmond P. Davis at Fort Funston and Battery Townsley at Fort Cronkhite. Battery Davis was at Fort Funston, on the southern flank of the defenses, while Battery Townsley was at Fort Cronkhite, on the northern flank.(1)

These new 16-inch batteries had a range of up to 28 miles and required observation/spotting sites to provide target acquisition, range, and azimuth data to the guns. Each 16-inch gun required base lines at least 15,000 yards long.(2) New reinforced-concrete base end stations would have to be constructed to insure that each battery had effective observation over the entire water area covered by its armament. At a minimum, five observation stations along the coast between San Pedro Point and Gull Rock would be required to cover effectively the entire field of fire for each new 16-inch gun battery. (3) Eventually, eight stations would be constructed for Battery Davis and nine for Battery Townsley, covering some 30 miles north and south of each battery.(4)

Reservation Established

With the revisions to the existing fire control system described in the 1937 annex, land would have to be acquired to build new fire control installations. On January 13, 1939, the adjutant general authorized purchase of 8.98 acres for the Bolinas Military Reservation, which included 1.68 acres for the road right-of-way and 0.45 acres for the cable right-of-way.(5) On March 24, 1943, an additional 4.67 acres was purchased for a more concealed access road. This addition to the original reservation and road right-of-way was approved on December 14, 1942.(6)



1. B⁸S⁸ Battery Davis

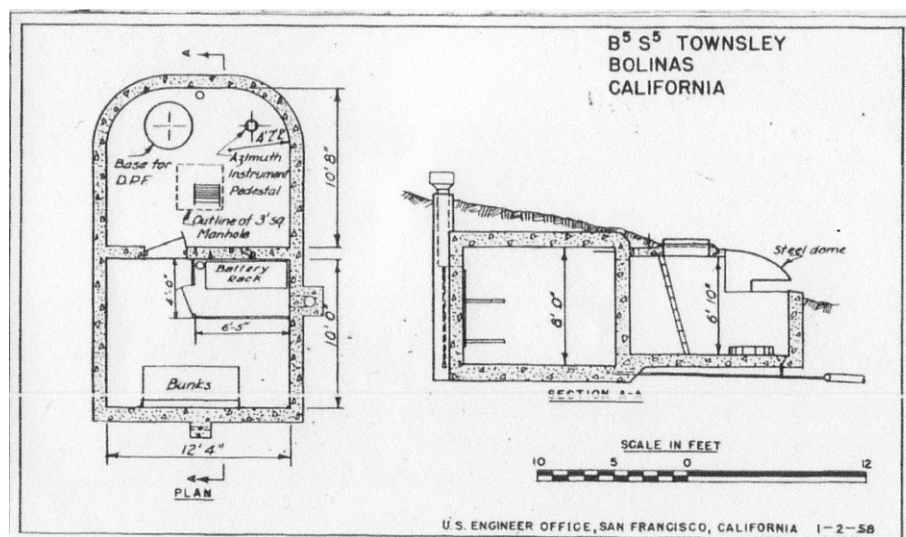
Base End Stations

Since high ground was available to provide the necessary elevation for the new observation/spotting stations, towers were not employed in the Harbor Defenses of San Francisco. Dug-in stations were deemed suitable for the local terrain - practically invisible from the sea and air while protecting personnel and material.(7) Three small reinforced concrete dug-in observation/spotting bunkers or base end stations would be built on the Bolinas reservation, starting in 1941.

B⁸S⁸ Battery Davis (**Fig. 1**) measured 10' x 8" by 12' x 4". One "prison-type" folding bunk was provided, mounted on the rear wall of the station.(8) B⁵S⁵ Battery Townsley (**Fig. 2**) also measured 10' x 8" by 12' x 4", but in addition it had a rear room 10' by 12' x 4" for use as a switchboard, complete with telephone repeater equipment, a battery rack, and two folding prison-type bunks, one above the other. A vent located a few feet from the ceiling in the middle of the rear wall of the switchboard room provided interior ventilation.

These two stations were of similar reinforced-concrete construction, with one-inch-thick steel domes for front and overhead protection. Both were concealed with earth cover, vegetation, and a camouflaged steel dome. Entrance to the stations was through manholes and slanted steel staircases with flat treads from the roof. Two men were required for B⁸S⁸ Battery Davis, while B⁵S⁵ Battery Townsley required two men for the operation of the base end station and one man for operation of the rear switchboard/repeater room at all times. While the stations were permanent, they were not provided with heat and or connections to water or sewer lines, nor were latrines provided. Data transmission was by Signal Corps telephones. Electric power was provided by a nearby power house. Both stations contained concrete bases for depression position finders (DPFs). B⁸S⁸ Battery Davis had an M1 DPF (Class-5 DPF, serial No. 150, at 406.54 feet M.L.L.W, and B⁵S⁵ Townsley had a Class-4 DPF, serial No. 79, at 392.54 feet M.L.L.W.). Both had pipe pedestals for M1910 azimuth instruments. The observation slots for both stations were protected with a movable, one-piece heavy-steel counterbalanced visor.

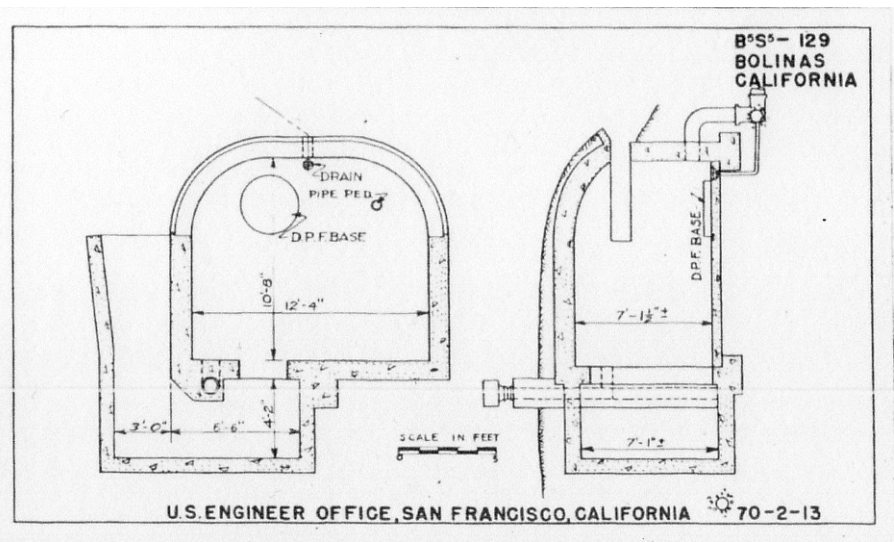
Both were transferred to the coast artillery on November 14, 1941, B⁸S⁸ Battery Davis for \$2,768.12 and B⁵S⁵ Battery Townsley for \$3,792.42.(9)



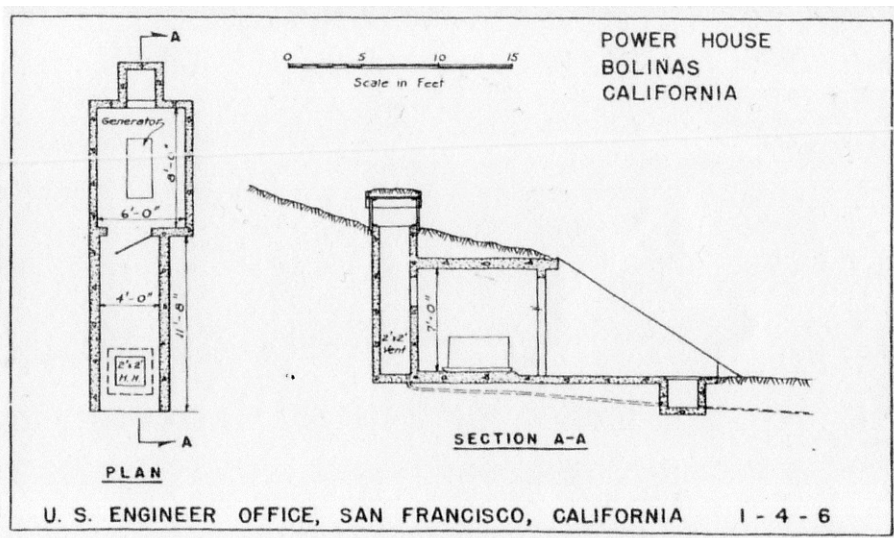
2. B⁵S⁵ Battery Townsley

Beginning in September 1942, construction began on an additional 16-inch battery, Battery Construction No. 129 (BCN 129), some 800 feet above sea level on Diablo Ridge at Fort Barry. This

required a new observation/spotting station at the Bolinas M.R. In April 1943, construction was started on B⁵S⁵ BCN 129. (Fig. 3) This dug-in station was also of reinforced concrete, although unlike the earlier two stations, it had a reinforced-concrete roof, and was provided with nine overlapping steel shutters for the observation slot. This station also measured 10'x 8" by 12'x 4", with a concrete base for an M1 Class 5 DPF, and a pipe for an M1910 azimuth instrument. The elevation of the instrument pedestal was 379.62 feet M.L.L.W. The station was concealed with backfill and vegetation. Two personnel were required at all times, with two prison-type folding wooden bunks mounted on the rear wall of the station. Entrance was by outside stairs through an access corridor on the left side of the station through a steel door. A vent located a few feet from the ceiling in the left corner by the interior doorway to the station provided interior ventilation. Like the earlier stations, this station was also permanent but with no heat, water, or sewer lines, nor a latrine, and data transmission was also by telephone. Built for \$4,927.14, B⁵S⁵ Battery 129 was transferred to the coast artillery on October 25, 1943.(10)



3. B⁵S⁵ BCN 129



4. Power house

Power House

In 1943, authorization was given for the furnishing of electrical power for equipment and lighting in base end stations at all fire control sites, except sites for which both commercial and fortification power were available. (11) Beginning in 1944, a reinforced-concrete dug-in power house was constructed at the reservation. (Fig. 4) The floor elevation at the site is 390.00 feet M.L.L.W. This station was concealed with earth backfill and barley and rye vegetation. This 48-square-foot underground power house contained a single M5 3 kVA 125-volt electrical generator, serial No. 6509, to provide standby power in the event commercial power from Pacific Gas and Electric (PG&E) was lost. No underground fuel tank was needed as the generating unit had its own fuel tank filled from five-gallon gas cans. Output was 0.1 kW for the power house and 2.6 kW for the other three stations, distributed via underground cable. The main switch for all of the stations at the reservation was located in the rear room of B⁵S⁵ Battery Townsley, which contained a switch for commercial power and standby power. The commercial power switch was located on Pole No. 2.

Built at a cost of \$2,537.94, including cables and trenching, the power house was transferred to the coast artillery on May 22, 1944.(12) With the addition of electrical power for the base end stations on the reservation, it is assumed that all stations at this time were outfitted with electrical lines, conduit, associated outlets, and type CSF-1 light fixtures, along with a Crouse Hinds power distribution panel where required.(13) All three stations and the power house were enclosed by a chain-link fence.

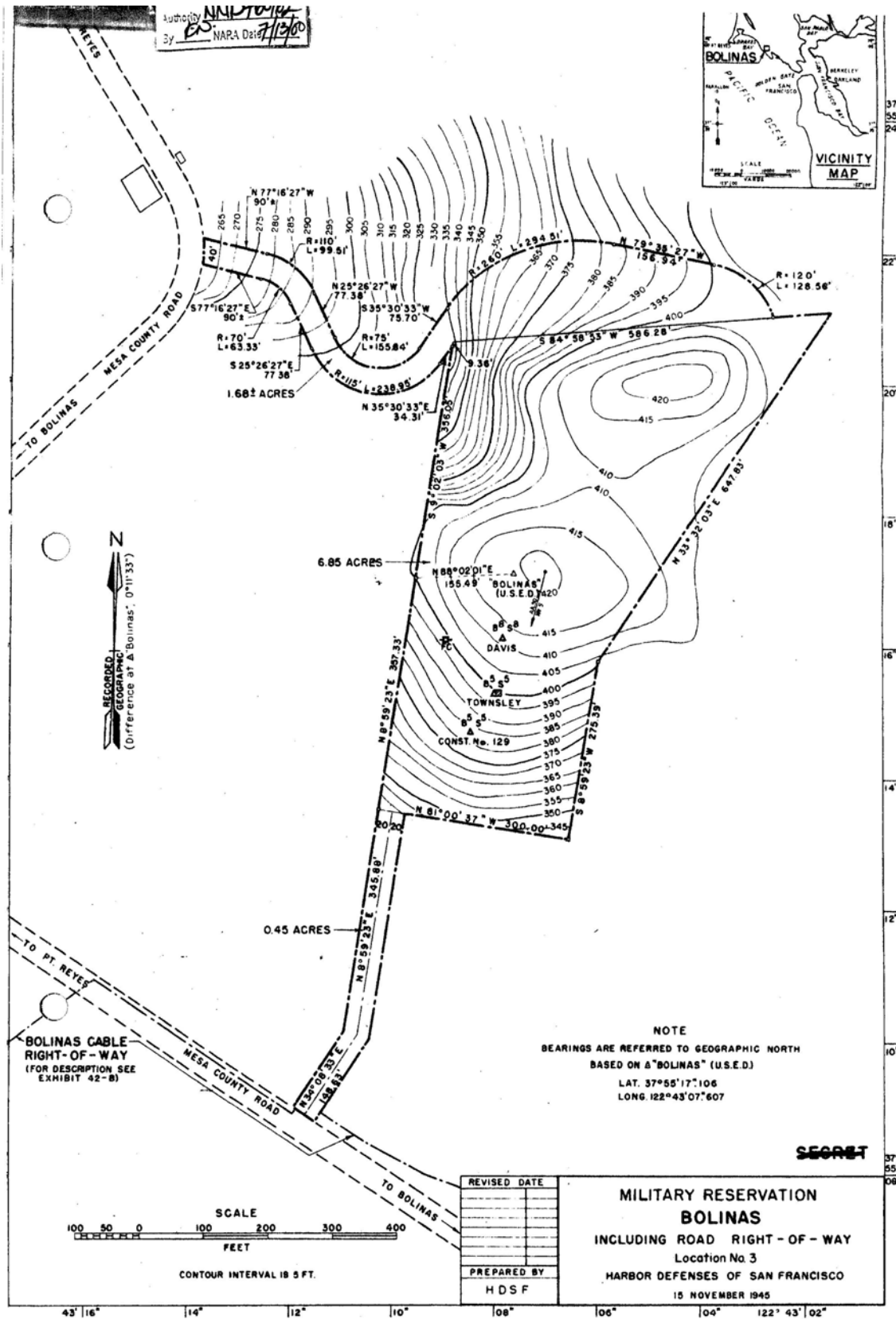
Additional Construction

The continuous operation of the harbor defenses on a 24-hour-per-day basis after Pearl Harbor necessitated personnel living at the outlying military reservations to man the fire control stations. As of 1942, no provisions had been made for housing and messing the troops stationed at these remote reservations north and south of San Francisco. The troops manning the stations were living in the rear of the stations on prison-type folding bunks. Several stations were scheduled to receive repeater equipment, and the rear rooms would need to be vacated. Since the fire control stations were located on small tracts of land adjacent to the tops of hills, tents would be visible from a considerable distance from both sea and air.(14)

A secret letter dated April 15, 1942, from the harbor defense commander to the commanding general, Western Defense Command and VII Army Corps, concerning "Concealed Type Hutments for Outlying Military Reservations," addressed the need for construction of concealed theater-of-operations hutments with messing facilities. Minimum design requirements for the hutments were one room large enough to accommodate 16 bunks and another room to provide messing facilities for 16 men. These hutments would be constructed in excavations adjacent to existing slopes in order to provide maximum protection and concealment. A lean-to-type roof would allow placing earth and shrubbery in accordance with existing slopes and natural vegetation for camouflage.(15)

On June 3, 1942, construction of eight concealed hutments for the outlying personnel of the Harbor Defenses of San Francisco was approved at an estimated cost of \$32,000.(16)

A wood-frame structure measuring 16' by 33' was constructed for 16 men at the Bolinas M.R. behind the fenced in portion of the reservation, directly above the entrance right-of-way on the landward slope of the hill, which was not visible from the ocean. Eventually over the years it was concealed by a grove of trees. The cost was \$1,239.(17)



5. Map of the Bolinas M.R., November 15, 1945. NARA

Local Armament

The Bolinas M.R. was defended by a single M2 .50-caliber antiaircraft machine gun outside the fence line, directly behind B⁸S⁸ Battery Davis on a small knob. This gun position was identified as “.50-caliber Antiaircraft Gun No. 3.” There are no remains of this position at the reservation.(18) (**Fig. 5**)

Post War Use

By 1948, with the deactivation of the Harbor Defenses of San Francisco, the Bolinas M.R. with its three base end stations and power house was no longer needed. On October 31, 1951, the reservation was transferred to the Department of the Navy. However, in a letter from the secretary of the army dated November 28, 1952, the reservation was withdrawn from the navy and control of the site was returned to the army. Available documentation provides no reason for this change.(19)

On May 22, 1959, the San Francisco District, USACE, reported the Bolinas M.R. to the General Services Administration (GSA) as excess.(20) In turn the GSA quitclaimed the site to Fred N. Woods on June 15, 1960.(21) Mr. Woods subsequently built a house on the property, which as of July 2015 has been torn down. It is unknown who the current property owner is as of 2015.

The Bolinas Military Reservation in 2015

The site was inspected by the author on July 8, 2015. The reservation can be accessed from the dirt road leading up to the reservation off of Mesa Road (**Fig. 6**), although a locked fence prevents vehicles from using the road. There are no remains of the barracks above the entrance road except for the rusting remains of a water tank and a metal roof vent. No remains were found of .50-caliber AA Gun No. 3's position outside the main reservation fence line behind B⁸S⁸ Battery Davis.



6. Locked access gate to the Bolinas M.R. as viewed from Mesa Road. *Author, July 8, 2015*

The chain-link fence that used to surround the main portion of the reservation containing the three base end stations and power house has been removed. B⁸S⁸ Battery Davis is the best preserved of the three stations. **(Fig. 7)** The steel access hatch on the roof of the station has been sealed shut, although no evidence of welding is present. **(Fig. 8)** It appears as if the hatch has been friction fitted to render it nonfunctional. The steel vision slit for the station has been left open. A curved wooden bench for the DPF is still inside the station, along with various electrical boxes on the walls. Inspection through the vision slit did not reveal any remains of the bunk provided for the station. While the RCW for this station shows a bare steel dome, a steel lip was welded to the dome in order to provide support to rocks cemented to front portion of the steel dome, providing additional camouflage. There are no camouflage paint remains on the steel dome.

Moving down the dilapidated access road from the top of the reservation, B⁵S⁵ Battery Townsley is in poor condition. **(Fig. 9)** The concrete front of the station, along with the steel dome, steel staircase, and steel counterbalance observation slot visor, were removed some time after the reservation was decommissioned in 1948. The author assumes that the steel dome was removed and front of the station was demolished, along with the rear concrete wall, to access the repeater equipment housed in the rear of the station. The heavy steel observation slot cover which used to sit on the ground to the left of the station has been removed from the reservation, while the intact one-inch-thick steel dome was located several hundred feet to the left and behind the station to the northeast, overgrown with vegetation and small trees. The steel dome is completely rusted with no traces of camouflage paint, while the inside of the dome still has its cork board insulation. **(Fig. 10)**

The rear wall of the station housing the switchboard and repeater equipment has been completely demolished. **(Fig. 11)** The battery rack for the repeater equipment has been removed, but the main power switch for the reservation and connecting six-switch Crouse-Hinds electrical panelboard dis-



7. B⁸S⁸ Battery Davis. Author, July 8, 2015.



8. Sealed manhole hatch to B⁸S⁸ Battery Davis. *Author, July 8, 2015.*



9. B³S⁵ Battery Townsley, missing its steel dome and the front portion of the station. *Author, July 8, 2015.*



10. Remains of the one-inch-thick steel dome from B⁵S⁵ Battery Townsley, northeast of the station.
Author, July 8, 2015.

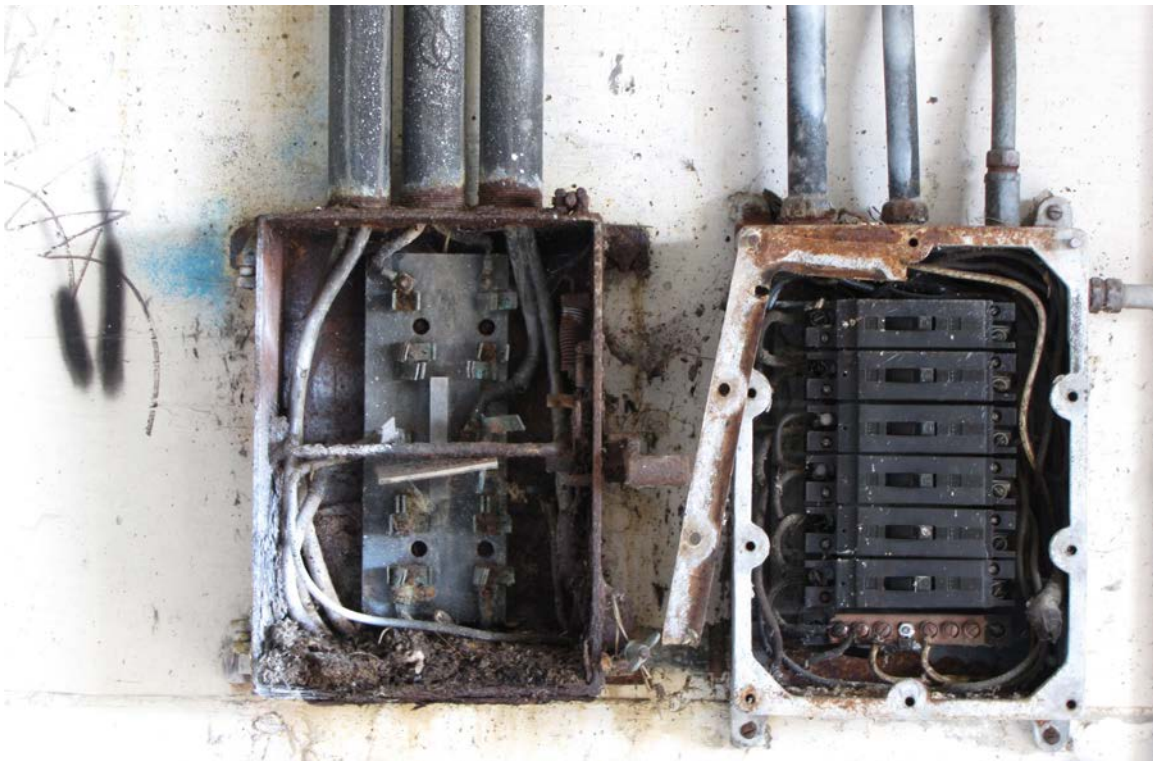
tribution boxes are still intact, minus their metal covers. **(Fig. 12)** Several standard electrical outlets **(Fig. 13)** and associated hardware are still intact, along with a pin-type electrical outlet and screw-on cover plate. **(Fig. 14)** One light fixture in the rear of the station on the ceiling still houses its original light bulb, protected by a glass globe enclosed in a protective metal cage. **(Fig. 15)** Several light fixtures on the ceiling of the station also remain in various degrees of preservation, along with their associated electrical junction boxes and conduits. **(Fig. 16)** A curved wooden DPF bench is also in the rear of the station. The author believes this bench was removed from B⁵S⁵ Battery No. 129 and placed inside the station. No remains of the bunks provided for this station were found.

B⁵S⁵ Battery No. 129, below and to the right of the former site of the Wood's house, is better preserved. All of the steel observation slot shutters are currently closed. The author was unable to gain access to the interior of the station due to large amounts of poison oak in the dug-in entrance way. Rocks cemented to the reinforced-concrete roof for camouflage are still in place. Of note, the RCW for the station shows no additional rock camouflage on the façade of the concrete roof, rocks have been cemented and conformed to the front portion of the concrete dome.

The power house also survives, although nothing remains of the M5 generator unit housed inside the station. **(Fig. 18)** It was extremely hard to gain access to this position, requiring a low crawl through heavy vegetation. The dug-in entrance is now almost completely inaccessible due to the heavy growth and copious amounts of poison oak. **(Fig. 19)** Due to the remote location of the reservation and the private ownership, the observation/spotting stations and power house are some of the finest surviving examples within the Harbor Defenses of San Francisco.



11. View from the rear repeater room with demolished interior wall inside B⁵S⁵ Battery Townsley. *Author, July 8, 2015.*



12. The main power switch for the reservation and connecting six-switch Crouse-Hinds electrical panel-board distribution box located in the rear repeater room of B⁵S⁵ Battery Townsley. *Author, July 8, 2015.*



13. Standard electrical outlet plug with cover, on the rear wall of the repeater room inside B⁵S⁵ Battery Townsley. *Author, July 8, 2015.*



14. Pin-type electrical outlet and screw-on cover plate, on the lower right-hand portion of the rear wall to the repeater room inside B⁵S⁵ Battery Townsley. *Author, July 8, 2015.*



15. Sole intact light bulb housing on the ceiling of the repeater room inside B⁵S⁵ Battery Townsley.

Author, July 8, 2015.



16. Light fixtures and electrical conduit on the ceiling of the rear repeater room of B⁵S⁵ Battery Townsley.

Author, July 8, 2015.



17. B⁵S⁵ BCN 129. *Author, July 8, 2015.*



18. Vent to dug-in power house. *Author, July 8, 2015*



19. Dug-in entrance to power house. *Author, July 8, 2015.*

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