Historic Resources Evaluation

NAVAL RADIO RECEIVING FACILITY
IMPERIAL BEACH

San Diego County, California

Prepared for:

Naval Facilities
Engineering Command
Southwest Division

Prepared by:

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Davis, California 95616

under contract with:

KEA Environmental, Inc.
1420 Kettner Avenue, Suite 620
San Diego, California 92101

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TABLE OF CONTENTS

FIGURES

PHOTOGRAPHS

1. EXECUTIVE SUMMARY

Historical cultural resources on the Naval Radio Receiving Facility - Imperial Beach (NRRF) relate to three periods: the speculative real estate boom of the late 19th century in San Diego, the development of the NRRF by the US Navy immediately prior to and during World War II, and the construction of the current installation during the Cold War.

The "Boom" resources are comprised of an abandoned railroad and a few remaining cypress-lined streets surviving from the never developed speculative city, or "paper town", of Coronado Heights. The paper town lacks sufficient integrity -- more than half of the original area has been overlain with modern development -- to be eligible for listing on the National Register of Historic Places.

There are three different types of World War II-era resources. The first, exemplified by Building 42, represents a fragment of the immediate pre-war development of the Navy's radio direction finding and relay facility. This small building is ineligible for listing on the National Register individually, and because nothing else remains of this base, cannot be considered part of an historic district.

Two large above ground concrete water reservoirs, Buildings 901 and 902, were part of the original construction of Fort Emory Amphibious Training Base. However, this base was a large and complicated facility with literally hundreds of Quonset huts, support structures, and administrative buildings. While a large number of foundations are still visible, the base is for all intents and purposes completely gone. Moreover, Building 901 has been converted into a set of shops, and Building 902 is abandoned. Neither can be considered individually eligible, and there is no district to which they might serve as contributing elements. Therefore, they are ineligible for listing on the National Register.

The primary extant resources are related to the Fort Emory coastal defense batteries, Battery Imperial, Battery 134 (Getchell), Battery Baker, and the Plotting and Sighting Room (PSR). The batteries and PSR are contributing resources to an historic district eligible for listing on the National Register of Historic Places. The batteries at Fort Emory are significant resources related to coastal defense plans developed during World War II to protect the strategically important harbor at San Diego and the defense industries located within the city. They are significant under Criterion A, resources that are "associated with events that have made a significant contribution to the broad pattern of our history," for their association with World War II coastal defense. The batteries and PSR are also eligible under Criterion C, as resources that "embody the distinctive characteristics of a type, period, or method of construction ... or that represent a significant and distinguishable entity whose components may lack individual distinction." Fort Emory's batteries, like batteries Davis, Ashburn, Townsley, Construction 129, and the more than 30 other such complexes located on the US coast, Alaska, Hawaii, and other

US possessions or Allied territories, are important examples of an extremely specialized and relatively rare type of military construction. The batteries of this pattern were among the last of their kind built by the US military. The period of significance under both Criterion A and Criterion C is 1942-1945, when the batteries were constructed and operated as a part of the wartime harbor defensive system for San Diego.

Finally, the Wullenweber Antennae (built 1965) and Building 1 represent a technological achievement of the Cold War period. However, because of the antenna's secret classification, little information can be gathered about its construction or function during the Cold War-era. As such the preparers of this report were unable to adequately evaluate the Wullenweber Antenna for listing in the National Register of Historic Places.

2. HISTORICAL OVERVIEW

2.1. Introduction: the Area as Part of Rancho Isla o Peninsula de San Diego, 1769-1885.

The area containing the Naval Radio Receiving Facility - Imperial Beach (NRRF) sits at the southern end of the long and narrow peninsula separating San Diego Bay from the Pacific Ocean. **Figure 1** shows the location of the facility; the general layout is shown in **Figure 3**. The area is typified by low terrain consisting primarily of sandy soils and ocean front dunes. The ground is currently covered by grasses and extensive areas of iceplant. In general, the terrain slopes very gently downhill from east to west, ending at the ocean shore. [1]

San Diego was the point of original Spanish settlement in California. The famed Spanish missionary Junipero Serra founded its mission and accompanying presidio at the north end of the bay in 1768.[2] The area within the NRRF was apparently unaffected by the early development of San Diego and was not part of any early Spanish land grant. It was granted late in the Mexican period to Pedro C. Carillo in 1846 in part out of lands of the Pueblo of San Diego. The grant was permitted by the pueblo's authorities and eventually was confirmed by the California Land Commission to Bezar Simmons in 1856.[3] The area remained part of a cattle ranch throughout the early years of statehood. There are no remaining resources from this period on the NRRF.

2.2. The Speculative Boom of the late 19th Century in San Diego and Southern California, 1886-89, and its aftermath.

The activity that first left surviving resources on the NRRF was that of the Speculative Boom in Southern California, principally 1885-1887. It was during this time that the subdivision's boosters laid out the north-south street pattern, constructed the railroad line, and planted the stands of ornamental cypress trees flanking the "town" streets.

As noted above, the area of the NRRF was part of a larger cattle ranch until well into the late 19th century. Its development -- ephemeral though it was -- was linked to its promoters successful efforts farther north on the peninsula, at Coronado.

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[1] This overview is based in part on two previous reports: Douglas M. Flower and Linda J. Roth, *Cultural Resources: Archaeology and History, Naval Radio Receiving Facility, Imperial Beach, California*, final draft submitted April 28, 1982, and Rebecca McCorkle Apple and Stephen Van Wormer, *Archeological and Architectural Survey for the Naval Radio Receiving Facility, Imperial Beach*, prepared September 1995, which drew heavily on the 1982 report. Both were completed for the Navy as a part of its cultural resources management program for the facility.

[2] Walton Bean, *California, an Interpretive History*. New York: McGraw-Hill, 25-26.

[3] H. C. Hopkins, *History of San Diego, its Pueblo Lands and Water*. 1929, 230-240.

Southern California underwent a frantic land boom in the middle of the 1880s. San Diego was not left out of the frenzy. The boom was fueled in part by the extremely low promotional fares offered by the railroads, which drew thousands of the curious, tourists, health seekers, and other visitors to Southern California. The result was a scramble to establish real estate developments catering to the land hunger of the visitors. Dozens of "paper towns" sprouted between Los Angeles and San Bernardino; and in San Diego County, over 30 subdivisions were filed between 1886 and 1888. Among these was Coronado, developed by Elisha S. Babcock, with his partners H.L. Story and Joseph Collett. Led primarily by Babcock, the investors laid out Coronado, and built the now famous Hotel Del Coronado, one of the largest hotels in the world at the time. To bring in their guests, potential land buyers, and visitors, the company founded a cross-bay ferry service, and financed construction of a railroad to provide better service from San Diego to Coronado. It was this railroad that passed through Coronado Heights.

Babcock and his partners laid out Coronado Heights and South Coronado in 1887, hoping that they would prove as successful as Coronado. This effort came at the height of the boom in San Diego, when another seven subdivisions were also laid out around San Diego Bay. As was typical of such developments, the company laid out streets, established a site for a resort hotel, and lined their streets with trees, all with the aim of giving the prospective buyer a feel for the shape of the future town.. Unfortunately for Babcock and his associates, the boom turned to bust in 1888, and Coronado Heights remained essentially empty, a vacant tract of tree-lined boulevards. No hotel was ever constructed. Two thirds of such subdivisions in San Diego met similar fates. However, the real estate boom had a long term effect on growth in the area; even after the bust, San Diego's population was considerably higher than before the boom.[4]

Babcock may not have sold all the lots in Coronado Heights, but he was successful in attracting other wealthy investors to buy Southern California real estate. Among these was John D. Spreckels, who, with his family, invested heavily in land in and around San Diego. It was Spreckels who eventually came to own Coronado Heights. The Spreckels heirs offered the land for sale to the State of California in 1929 for park land, but the state did not exercise an option and the offer died. The military condemned most of the northern portion of the NRRF during World War II, obtaining the land from J. D. and A. B. Spreckels.[5]

Evidence from maps and aerial photographs suggests that the area was little developed in the 20th century prior to its acquisition by the military. In 1902, the USGS San Diego quadrangle showed only eight structures on the site, located adjacent to, or near, the Coronado Railroad line

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[4] Flower and Roth, *Archeology and History*, April 28, 1982, 40-43, 55; Glenn S. Dumke, *The Boom of the Eighties in Southern California*. San Marino: Huntington Library, 1944. 132-148; John E. Baur, *The Health Seekers of Southern California, 1870-1900*. San Marino: Huntington Library, 1959. 63-64.

[5] Hopkins, *History of San* Diego, 1929, 209-210; Construction Division, War Department, O.C.E. "Real Estate: San Diego Harbor Defense, Coronado Beach Bat'ry No. 239 -- Military Reservation (Fort Emory)." 1944 On file, NAVCOMTELSTA San Diego.

running through the area. An aerial photograph from 1928, however, shows no structures on the property, the only visible remnants of the subdivision being six north-south streets lined with trees.[6]

The military acquired the land in 1942 for the purpose of erecting coastal defense batteries as a part of an overall plan to defend San Diego harbor. Civilian authorities assisted by ordering abandonment of the streets and alleys established by the Coronado Heights subdivision map; all public roads, the railroad, and water lines were shifted to the east so that they ran outside the military area boundaries.[7] By this time the last remaining resources related to the "boom" period would have been the cypress trees, road pattern, and railroad tracks.

2.3. Development by the US military, 1920s - present.

The history of military use of the NRRF follows a somewhat convoluted path. The area of the current base was acquired in stages between 1920 and 1945, and for a substantial period was a mixture of Army and Navy facilities. What began as a small Navy radio compass station manned by two men later developed into an Army coastal artillery battery and Navy amphibious warfare training center with a capacity of over 7,000 persons. After World War II the base's use again shifted, becoming a far more lightly-staffed but highly technical radio communications facility.

Radio Compass Station Imperial Beach

In 1920 the Navy established a small radio compass station to aid ships in navigation. The facility, located on 1.91 acres in the southwestern corner of the present facility, contained five buildings. The little station was outside of the existing Coronado Heights area, and sat at the edge of the ocean beach. At first staffed by two sailors, in 1924 its complement was raised to five. It continued to serve this function through 1938, when it was again expanded, taking an adjacent ten acres to the east. This position formed the basis for the later Navy Radio Direction Finder facility established in 1941 at the southern end of the current base. The area of the Radio Compass Station is now the location of the YMCA's Camp Surf.[8]

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[6] USGS, *San Diego*, 1904 (surveyed in 1902); Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, plate 1.

[7] Flower and Roth, *Archeology and History*, April 28, 1982, 55.

[8] Flower and Roth, *Archeology and History*, April 28, 1982, 43, figures 8 and 9; Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, 10, plate 2.

Radio Direction Finder Station Imperial Beach

The old radio compass station became part of a more modern World War II facility designated Radio Direction Finder Station Imperial Beach. The facility served a similar function as the compass station, but was considerably larger. By June of 1944 it contained 58 buildings, providing housing, recreation, health, and administrative facilities for a complement of 238 sailors, officers, and Waves by 1945.[9] The complex included a large antennae field located to the east and north of the building complex, which is now almost completely gone. The sole remaining resource related to this facility is Building 42, a small emergency generator shed located approximately 30 yards east-northeast of the main gate security building.

Coastal Artillery Batteries

Among the largest and most substantial remaining buildings left on the NRRF are those related to the World War II-era coastal defense artillery batteries that formed part of the defensive plan to protect San Diego harbor and its defense plants from enemy attack. Throughout much of its history, San Diego had been protected by artillery batteries constructed on Point Loma, situated to defend the city against a seaborne invasion fleet, or in later years, from invaders from the south attacking by land. With the advent of war in the Pacific in 1941, threats from the west were deemed far more likely than attacks from the south; and the need to defend from bombardment from ships standing off the city was seen as more acute than a frontal assault. This lead to the planning and construction of modern heavy batteries more capable of defending the city against modern enemy ships and their guns.[10]

It was this effort that resulted in the construction of Battery Imperial, Battery 134 (Gatchell, Building 99), Battery Baker (Building 100) and related structures such as the Plotting and Sighting rooms (PSR, Building 98), and related base end stations and other buildings at Fort Emory (now part of the NRRF).[11]

The War Department designated Fort Emory in December 1942 as a subpost of Fort Rosecrans, the headquarters of coastal defense for San Diego during World War II. The development of the batteries at Fort Emory had two main stages: construction of a temporary set of four 155 mm guns known as Battery Imperial, 1942-43; and construction of the main batteries, Baker and 134 (Gatchell), 1942-44.[12]

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[9] Flower and Roth, *Archeology and History*, April 28, 1982, 57; Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, 15-16.

[10] A general history of the defense of San Diego harbor can be found in Barry Alan Joyce's *A Harbor Worth Defending: A Military History of Point Loma*. San Diego: Cabrillo Historical Association, 1995.

[11] Plotting and Sighting Rooms are often also referred to as "Plotting and Spotting Rooms."

[12] Generally speaking, "batteries" refer to the entire gun emplacement; "casemates" are the protective structures in which cannon are placed.

Battery Imperial consisted of four "Panama" mounts holding the 155 mm G.P.F. guns. They were spaced at intervals of between 89' and 98.9' in a generally north-south line starting about 300 yards northwest of Battery 134 (Gatchell). G.P.F. stood for "Grand Puissance Fillioux," designed by a French artillery officer in 1917 and sold to the Army. Improved versions of the G.P.F. cannons were readily available before the war started, and became standard mobile heavy artillery used to support infantry and as mobile coastal defense weapons. **Photographs 1** and **2** show two typical 155mm G.P.F gun emplacements. As historian Howard Overton observed, "hauled by vehicle, the 155 mm G.P.F. was quickly emplaced on a concrete pad with a steel track called the 'Panama Mount.' This type of mount was first developed in Panama and the name stuck." The four guns remained in place during construction of Battery Grant, and were removed upon its completion.[13]

Battery Grant (Building 100) was the only permanent battery carried to completion and full functionality at Fort Emory. It was named for Colonel Homer Blackie Grant, who had died in 1939. The battery casemates were built between June 1942 and April 1943 by Herbert Mayson, contractor, at a cost of $218,851.95. The battery received its guns in December 1943. The battery's armament consisted of two 6" guns on barbette carriages. They were mounted on rings outside the casemate building, and were shielded with heavy metal armor.[14] A 6" battery similar in design to Battery Grant is shown in **Photograph 3**.

Battery 134 (Gatchell; Building 99) is the largest and most massive building on the NRRF, and one of the two biggest batteries planned by the Army's coastal artillery for Fort Emory. It, along with Battery Ashburn on Point Loma, was the largest type of battery built to defend San Diego from attack from the west. The battery was planned to hold the largest coast defense guns available, with 146 ton, 68' long, 16" barrels capable of accurately firing a 2,340 lb. shell over 30 miles. Each gun cradle weighed 39 tons, and rested on a base ring weighing 84 tons. Protected within the massive concrete casemates and protected by a heavy steel armor shell, the guns of the two batteries would have provided the Army Coastal Artillery with the ability to bombard ships within an arc running from beyond Carlsbad on the north and 30 miles south of Tiajuana in Mexico. At Battery 134 (Gatchell) the guns were to be placed in a standard design casemate 500' apart. **Photograph 4** is a completed 16" battery according to the same standard design used for Building 99. The casemate contained rooms to store powder and shells, along with storerooms, latrines, and generating equipment. While Battery Ashburn was completed and its guns test fired, Battery 134 (Gatchell) never received its guns, its construction being deferred and finally canceled after expenditure of over $1.04 million, owing to the greatly reduced threat of

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[13] Erwin N. Thompson, *The Guns of San Diego: San Diego Harbor Defenses, 1796-1947*. Historic resources Study, Cabrillo National Monument. San Diego: National Park Service, 1991. 108-120; Howard Overton, "Battery Point Loma." *Fort Guijarros Quarterly*. Summer 1988, Vol. 1, No. 2, 9; Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, 15. A photograph of this type weapon, on similar mounts, can be found in Lewis, *Seacoast Fortifications of the United States*, 1993. 121, figure 53A-B.

[14] Thompson, *The Guns of San Diego*, 1991. 114-115; US Army, "Report of Completed Works -- Seacoast Fortifications." Site 12, Battery Grant. In Coast Defense Study Group, *The Harbor Defense of San Diego*, August 15-18, 1992; Lewis, *Seacoast Fortifications of the United States*, 1993. 121, figure 60 depicts a similar gun.

Japanese attack on the West Coast by 1944. It was usually referred to as Battery 134, and was tentatively to be named Battery Gatchell in honor of a former commanding officer of Fort Rosecrans.[15]

Each battery was part of a complicated system of coastal defenses that included smaller batteries, base end stations, and plotting and sighting facilities. The coastal artillery used base end stations to triangulate the distances to targets, while the planning and sighting rooms, connected to the batteries and base end stations by telephone, directed firing. Batteries Grant and 134 (Gatchell) each had a base end station nearby, disguised as a water tower. The two batteries also had a planning and sighting room (now Building 98), located to the northeast between the batteries and San Diego Bay. The base end stations, one 108' tall for Battery 134 (Gatchell) and the other 125' tall for Battery Grant, have been demolished, leaving behind only their concrete foundations.[16]

The World War II-era batteries at NRRF were part of a national system of coastal defense as well as a specific plan to protect the San Diego region, with its harbor and defense industries. The Army constructed 36 sets of batteries at points within the Continental United States, Alaska, Hawaii, Newfoundland, and the Caribbean during the war. In his history of US coastal fortifications, Emanuel Lewis stated that these types of batteries "were among the least varied ever constructed by this country, for both weapons and installation designs were standardized to an unprecedented degree," adapting only slightly to account for local terrain or conditions. The design for Battery 134 (Gatchell) was based upon a prototype installation, Battery Richmond P. Davis at Fort Funston in San Francisco, construction of which began in 1936. Plans for this battery, and two others defending San Francisco, grew out of plans and decisions of the Army Coastal Artillery made between 1915 and 1936. "Though Battery Davis was never precisely duplicated," wrote Lewis, "its essential form was used as the basis for all new 16-inch gun installations."[17] In fact, his description of Battery Davis applies equally well to Batteries Ashburn or 134 (Gatchell).

> This installation consisted of a pair of 16-inch guns within enormous casemates six hundred feet apart, between which extended a series of galleries housing the ammunition magazines, electrical power generators, and certain of the storage and operating facilities. The entire battery structure, designed to withstand direct hits from battleship projectiles or aerial bombs of equivalent energy, was roofed along its

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[15] Joyce, *A Harbor Worth Defending*, 1995, 62; US Army, "Report of Completed Works -- Seacoast Fortifications." Site 12, Battery 134; Thompson, *The Guns of San Diego*, 1991, 109, 115, 119.

[16] US Army, "Report of Completed Works -- Seacoast Fortifications." Site 12, Fire Control Structures BC6 B1/6 S1/6, and SRS296; Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, DPR 523s for Building 98, 99, 100.

[17] Erwin N. Thompson, *Seacoast Fortifications of San Francisco Harbor*, May 1979. 266, 285, 297-302; Lewis, *Seacoast Fortifications of the United States*, 1993. 115-117.

> full length by eight to ten feet of densely reinforced concrete and up to twenty additional feet of earth. Directly over the casemates, from which only the gun barrels protruded through heavy armor shields, the concrete cover was even more massive.[18]

In the case of Battery 134 (Gatchell), the concrete roof of the casemate was 13' thick.

6" batteries like Battery Grant (Building 100) were also standardized. Lewis notes that unlike the larger batteries, the 6" guns were not housed within casemates, but had rotating turrets protected by steel shells 4-6" thick. Other portions of all batteries were modeled after the 16-inch prototype. Lewis summarized,

> The earth-covered concrete structure located between the two guns housed most of the ancillary components -- magazines, power generators, air-conditioning equipment, communications, storage, and service rooms -- and often the fire-control plotting room as well, though in the case of many 16-inch installations the plotting room, because of firing concussion problems, occupied a separate underground site at some distance from the batteries proper.

This was the case at the NRRF, where the PSR (Building 98) was located to the rear of the two batteries. Plans for the facility show that it was built at a cost of over $120,000, and contained a switchboard room, plotting and spotting room, latrine, heater and power room, and ventilation system. Heavily protected, the main walls were 12' thick reinforced concrete, and the ceiling over the control areas was also over 12' thick.[19]

The fire control facilities, such as base end stations, were often dug into the hillsides on the Pacific Coast; however, on the flatter terrain of the Atlantic Coast, towers were used.[20] As noted above, the low terrain of the NRRF required towers as well.

Battery Grant was carried to completion and became fully operational, while Battery 134 (Gatchell) casemate was completed but never provided with guns. This proved a common fate. "Of the more than 150 batteries projected" at the 36 World War II sites, noted Lewis, "about two-thirds were brought to structural completion, but of these many were not provided with armament." Work on Battery 134 (Gatchell) began in March 1943, but was suspended in February 1944.[21]

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[18] Lewis, *Seacoast Fortifications of the United States*, 1993. 115-117.

[19] US Army, "Report of Completed Works -- Seacoast Fortifications." Site 12, PSR, Battery Constr. No. 134.

[20] Lewis, *Seacoast Fortifications of the United States*, 1993. 115-117, 120-121. Figures 59 and 60 show batteries in the Puget Sound region that are virtually identical to Battery Grant and Battery 134 (Gatchell). Figure 62A depicts base end station tower types that were similar to those at NRRF, including one housing a radar unit that looked like a water tower.

[21] Lewis, *Seacoast Fortifications of the United States*, 1993. 124; Thompson, *The Guns of San Diego*, 1991, 115-117; US Army, "Report of Completed Works -- Seacoast Fortifications." Site 12, Battery 134.

The troops who manned the batteries included Battery H of the 19th Coast Artillery, and Third Battalion, Headquarters Battery. They were housed in a "subdivision" of barracks, messhalls, and administrative buildings disguised as one and two-family pastel-painted homes, complete with lawns, shrubbery, trees and sidewalks.[22] None of these buildings have survived.

Fort Emory Amphibious Training Base and Navy Communications School

The end of the Army's Coastal Artillery's efforts at Fort Emory in February 1944 did not end the facility's wartime use. As noted earlier, the Navy had occupied the southern half of the NRRF as a radio direction finder station. With the Army leaving, the Navy obtained an agreement from the War Department to use the Fort Emory area as a training station. The Navy retained the Fort Emory name, and designated the Amphibious Training Base Fort Emory as a sub-base of the amphibious training station at Coronado which had been established in June 1943. Construction at Fort Emory began in May 1944, undertaken by J. H. Pomeroy Co. of San Francisco. The company had over 600 men at work erecting what became a large and complicated facility with a capacity of 7,000 enlisted men and 400 officers. The enlisted men were quartered in 240 Quonset huts, while 32 smaller huts provided housing for the officers. Other buildings at the base included a theater (the foundation of which is located directly north of Building 99), BOQ, dispensary, training and classrooms in Quonset huts, a brig, mess halls, gate house, administrative headquarters, legal office, and a variety of utility buildings (sewage treatment, pump house, etc.) that included two 1,000,000 gallon concrete potable water tanks. In addition, landing craft docking and repair shops with a 500' pontoon dock was constructed at the north end of the station within San Diego Bay. The Navy had a nine foot deep channel dredged to provide access for larger vessels.[23]

Of the entire complex erected during 1944, the sole remaining resources are Buildings 901 and 902, the two concrete water tanks. The quonset huts were either removed or demolished. The location of the more permanent administrative buildings are marked by the streets and poured concrete foundations and slabs still visible in the northern half of the NRRF.

Post-World War II Uses.

At the end of the war in 1945, the Navy continued use of Direction Finder Station Imperial Beach and expanded it following its closure of Radio Station Point Loma in 1947. At that time the facility, retained because of the advantages of its flat terrain, was renamed Naval Radio Station (R) Imperial Beach. In 1948 the Navy established a radio technician training school in conjunction with the radio station. Cold War-era concerns after 1947 led to expanded use of the base, and the Navy in 1952 acquired the Army's portion of old Coronado Heights. Some new

[22] Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, 15.

[23] Apple and Van Wormer, *Archeological and Architectural Survey*, 1995. 16, 21, Figure 6; US Navy, *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946.* Washington: Government Printing Office, 1947. 279.

buildings were erected, the old batteries were used to house sensitive equipment, and old building from the amphibious training base were reused. The Navy also built additional modern antennae arrays throughout the now combined area. The school expanded during these years, eventually training 1000 students at a time. However, the Navy moved the school to Pensacola, Florida, in 1961.[24]

Building 1 and the Wullenweber Antennae, 1965.

Once the communications school left, the NRRF underwent its final major change. By 1963 the Navy had demolished virtually all remaining buildings -- only the batteries, PSR, and water tanks survived, probably because they were simply too large to remove. In May 1964, the Navy began the construction of the large Wullenweber Antennae and Building 1, near the south end of the base. It was completed by September 1965. The antennae was one of 14 built around the world by the Navy at this time as a part of their global communication system. The surrounding buildings were removed to reduce interference with radio signals. [25]

3. DESCRIPTION OF EXISTING HISTORIC RESOURCES

3.1. Coronado Heights

The Coronado Heights speculative town left behind three resources: a street pattern, a fragment of an interurban railroad, and stands of cypress trees lining the street pattern in the northern end of the NRRF.

The street pattern that has survived from the Coronado Heights-era is fragmentary. Only the northern half of the streets has survived (**Photograph 5**).

The Coronado Railroad is also a fragment, as it is no longer connected to its original line at the southeastern edge of the NRRF. The line was relocated in 1942 when the military took over the area. It currently runs through the center of the northern portion of the NRRF, and is visible in the asphalt of Johnson Avenue. Its northern end can be seen in the area west of Building 98, but is almost completely obscured by iceplant (**Photograph 6**).

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[24] Apple and Van Wormer, *Archeological and Architectural Survey*, 1995. 21.

[25] See the *San Diego Union,* May 17, 1964, as cited in Apple and Van Wormer, *Archeological and Architectural Survey*. 1995. 21.

3.2. Military Resources

Building 1 -- Wullenweber Antennae

The Wullenweber Antennae (WA) is a part of a Navy communications system that takes in radio messages from the Eastern Pacific and relays them to other Navy communications facilities via land lines. The Navy's overall system consisted of 14 such stations; however, several have been decommissioned or destroyed.

The WA was constructed between 1963 and 1965. The complex consists of a large control building at the center of three concentric rings of antennae poles resembling fences. The inner ring is the highest (approximately 100 feet), the central ring about one-half the height of the inner ring, and the outside ring lowest. The rings stretch approximately .4 km in diameter (ca.1,400 feet). The center building is a roughly three-story concrete cube, essentially windowless, with a small number of personnel doors and loading bays. Its exterior is festooned with a variety of antennae and electronic devices.

Building 42 -- Emergency Electrical Generating Building

Building 42 is a small, 6' x 9' rectangular, one story building with a single door and no windows. It sits on a poured concrete foundation, sided in redwood vertical tongue and groove. It has a moderately pitched gable roof clad in asphalt. A small vent over the door has been sealed with a board. It originally had a door, which has been removed. A second vent is located on the east facade, near ground level. Currently empty, Building 42 was originally built in 1940 as a part of the Navy's Radio Direction Finder Station at the site. At that time it contained emergency electrical generating equipment (**Photograph 7**).

Building 98 -- Plotting and Sighting Room

Building 98, the Plotting and Sighting Room (PSR) served as the central coastal artillery control center for the three batteries located with the NRRF. Information regarding targets was to be relayed to the PSR, which would then prepare aiming and firing orders for the batteries.

Given its function, it is not surprising that the building was heavily fortified and camouflaged. It is a massive, poured concrete bunker measuring approximately 150' x 300' It is earth covered, and rises about 25' above the surrounding surface (**Photograph 8**). There is a main entrance way located on the east side of the structure, with two large steel doors, each with an upper and lower circular vent (**Photograph 9**). A central ventilation station, approximately two feet high and five feet square, is located on top of the bermed cover near the center of the building, while at the northern end is a concrete and steel hatchway. It was built in 1943 as a part of the nation's coastal defense system.

Building 99 -- Battery 134 Getchell

Building 99 (Battery 134 Getchell) was built in 1942-1944 to house a coastal defense battery consisting of massive 16" guns. It currently houses a Navy communications training facility. The building, technically referred to as a casemate, stretches 300' wide and 600' long, rises about 40' above the surrounding surface (**Photograph 10**). Like the PSR, the underlying structure is of poured concrete, and has been covered with earth except at the gun emplacements and entryways. On the eastern side, spaced relatively regularly, are three poured concrete entryways into the structure. The northern and southern doors provided access for equipment and ammunition; the central entry was the primary personnel entry. The central door is surmounted by a large system of ventilating ducts and fans, which was part of the original construction but rebuilt in the 1950s (**Photograph 11**). Also located on the eastern side of Building 99 is a modern, open-sided storage shed, sitting just to the north of the central entryway. Equipment within the shed connects to the interior of the building through a series of pipes, ducts and cables that runs to the main entrance at the ceiling level. On the western side, at each end of the building and 500' apart, are the gun emplacements. Each is a large, poured concrete surface and retaining wall about 100' long and 40' high; and each has a solid concrete conical deflector (roof) extending over the gun mounts. The mounts were formed by large concrete lined pits, which have since been backfilled with debris. The battery openings, designed to be protected with a rotating curtain wall of heavy armor, have been closed with a concrete wall in which has been installed a single personnel door (**Photograph 12**). The battery was heavily protected by steel reinforced concrete, which was poured 13' thick over the top of the structure (**Photograph 13**); the entire structure (with the exception of the doors and battery openings) was then covered with a thick layer of earth. Navy records indicate that the 16" guns were never installed, owing to the reduced danger of Japanese invasion as World War II entered its final years.

Battery 134's complex included a base end station tower, since demolished, located approximately 600' to the northeast. All that remains of the tower, which was designed to resemble a water tower, is its concrete foundation.

Building 100 -- Battery Grant

Building 100 resembles Buildings 98 and 99 in that it is a poured concrete structure covered with a layer of protective and camouflaging earth. It is substantially smaller that Building 99, being roughly 150' x 80,' and 25' high. It was designed to hold 6" guns, which were to be mounted in enclosed steel armored mounts set on circular concrete firing platforms adjacent to the building's northern and southern entrances. The northern firing platform retains protective earthworks (**Photograph 14**). Three entryways provide access to the interior, one each on the east, northern, and southern sides. Each has double steel doors, with the same sets of circular vents found on the entry doors of Building 98 (see above). The main entry door, located on the eastern side of the building (**Photograph 15**), is flanked to the south by a vented double concrete opening leading to the battery's water cooler room and muffler gallery. Building 100 currently houses the facility's maintenance and security departments.

Like Building 99, the battery had a base end station tower, in this case located about 900' to the east. It was also disguised as a water tower, and has since been demolished leaving behind only its concrete foundation. At this site was also located a radio transmitting station, also demolished.

Buildings 911 and 912 are part of the original construction of Building 100 (Battery Grant). They served as "fuel tank pits" and were located on the southeastern side of the battery. The tanks within the vaults have recently been removed. These two storage tanks (given individual building numbers because of the Navy's policy to number all structures) have very limited surface manifestations. The only above ground resources associated with the tanks are two poured concrete hatch ways, each with steel access panels, about two feet high and 4.5' square (**Photographs 16 and 17**).

(No Building Number) -- Battery Imperial

There is no building at this site. Remaining resources are four circular concrete pads that held 155 mm guns on "Panama" mounts (**Photograph 18**). As originally constructed, the guns were mounted on the pads, with a more distant ring of poured concrete that supported a tubular steel camouflage support and provided a footing for the mobile guns' twin trails. The guns remained in place only until Building 100 was operational. The complex included a fire control tower (since demolished) located about 850' to the north. Thus the remaining resources consist of four circular concrete slabs, with a set of four concrete tower piers set off at a distance. The slabs are partially obscured by beach sand and a heavy growth of iceplant ground cover; the outer rings are completly covered and are not visible.

Buildings 901 and 902 -- Reservoirs, water, potable

Buildings 901 and 902 were built in 1944 to hold potable water for personnel assigned to Fort Emory Amphibious Training Base. Each constructed of circular poured concrete wall 20' high and 100' in diameter. Building 901 was converted into shops/warehouse in 1992, at which time was constructed a new roof with skylights, and entryways on the north, west, and south sides (**Photograph 19**). On the interior, alterations included lighting and a new concrete floor. Building 902 is essentially abandoned, with a wooden roof in deteriorated condition (**Photograph 20**). The Navy is currently planning to convert Building 902 to office space.[26]

[26] Interview with Judy Luindowski, NAVCOMTELSTA San Diego, November 26, 1996.

4. APPLICATION OF NATIONAL REGISTER CRITERIA FOR EVALUATION

This report has been prepared to evaluate potential National Register of Historic Places eligibility for historical resources on the Imperial Beach Naval Radio Receiving Facility. Within the facility are three classes of resources, each related to a different historic period. The first, comprised of an abandoned railway, street pattern, and stands of mature cypress trees, relate to the period of speculative real estate booms in southern California in the latter decades of the 19th century. The second group relates to Army coastal defense works and Navy training facilities erected in the period prior to, and during, World War II. The last, the Wullenweber Antennae, relates to Navy technological developments of the Cold War period (generally, 1947-1989). Each group of resources will be addressed in turn below. This report concludes that the Coronado Heights landscape, Buildings 42, 901 and 902 are not eligible for the National Register of Historic Places under Criteria A, B, or C, either because of a lack of integrity or individual significance. Resources related to the Fort Emory coastal artillery -- Buildings 98, 99, 100 (with its fuel vaults, buildings 911 and 912) and Battery Imperial are eligible under Criteria A and C at a local level of significance as an historic district with a period of significance of 1942-1945.

Eligibility to the National Register of Historic Places rests on twin factors: *significance* and *integrity*. A property must have both significance and integrity to be considered eligible for listing on the National Register. Loss of integrity, if sufficiently great, will overwhelm the historical significance of a resource and render it ineligible. Likewise, a resource can have complete integrity, but if it lacks significance it will also be considered ineligible.

Historical significance is judged by application of four criteria, denominated A through D.

> Criterion A: association with "events that have made a significant contribution to the broad patterns of our history"
>
> Criterion B: association with "the lives of persons significant in our past"
>
> Criterion C: resources "that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction"
>
> Criterion D: resources "that have yielded, or may be likely to yield, information important to history or prehistory"

Integrity is determined through application of seven factors: location, design, setting, workmanship, materials, feeling, and association. In addition, a resource must be at least 50 years old in order to be eligible to the National Register, unless it meets specific and exacting criteria for special significance [27] The procedures for evaluating historic resources are explained

[27] CFR Title 36, Part 60.

in bulletins issued by the National Park Service, including Bulletin 15, *Guidelines for Applying the National Register Criteria for Evaluation*, Bulletin 18, *How to Evaluate and Nominate Designed Historic Landscapes*, and Bulletin 30, *Guidelines for Evaluating and Documenting Rural Historic Landscapes.* For the purposes of this evaluation, Bulletins 15 and 18 provide the most relevant guidance

4.1 Resources Related to Coronado Heights in the Speculative Boom Period, 1880-1900.

National Park Service *Bulletin 18: How to Evaluate and Nominate Designed Historic Landscapes* delineates seventeen types of designed historic landscapes, two of which types might apply to the Coronado Heights resource. These are "city planning and civic design," and "subdivisions and planned communities/resorts."[28] Coronado Heights is at once troublesome and interesting in that it combines these categories with its history. Between its original design and subdivision and its acquisition by the military, only eight buildings had been constructed on the property. Thus while it is an example of a planned 19th century subdivision, it is primarily an example of a failed speculative effort.

There are three main resources on the NRRF related to Coronado Heights in the Speculative Boom period: an abandoned railroad, a road/street pattern, and scattered stands of cypress trees planted as ornamentals at the time of the abortive development.

A segment of the Coronado Railroad runs through the NRRF, visible in Johnson Boulevard and elsewhere. This line was installed in 1886 by the builders of the Hotel Del Coronado and refurbished at least once, when new tracks were installed in the 1930s. Examination in the field revealed only two places where rail forging dates were visible, both north of Building 99 and near the end of the tracks. One was dated 1899, and the other marked "Carnegie 189_." The line not only provided access to the short lived Coronado Heights paper town, but it also ran farther north up the peninsula to the town of Coronado. Its association is with the development of Coronado (town) and the Hotel Del Coronado, rather than with the paper town of Coronado Heights. After the property was acquired by the military during World War II, the railroad was relocated to the east, running along the edge of San Diego Bay. The old line was probably used for a short time as a means to deliver construction materials and supplies, and then abandoned. It no longer has integrity to the period of significance (the late 1880s).

The street pattern of the paper town consisted of a grid of streets laid out to define lots and parcels. Some survived after being adopted by the military, primarily those running north-south. These were "Central Avenue" (portions of which are Johnson Boulevard), "B Avenue" (of which Hooper Boulevard is the greatest portion), and "C Avenue" and "A Avenue," which survive as unnamed streets on the NRRF. Of the original streets, only about 50% remain as visible

[28] Some of the other categories mentioned are small residential grounds, estate or plantation grounds, arboreta or botanical/display gardens, zoos and parks, church yards and cemeteries, monuments or memorial grounds, plazas and public squares, greens or malls, campuses, parks, campgrounds, battlefield parks, commercial or industrial grounds, commemorative parks, sports grounds such as golf courses, bridal paths, race courses, fairgrounds, parkways or trails, and bodies of water or fountains. *Bulletin 18*, pp. 2-3.

resources; these, while sharing the same alignment as the original subdivision street pattern, have been altered by paving and, in some instances, widening. Moreover, only the northern half of the remaining street pattern remains today. Thus the streets, like the railroad, lack integrity to the period of significance.

The remaining cypress trees lining the old street pattern remains one of the most visible resources related to the Coronado Heights subdivision. Approximately 60 cypress trees are located along old "C Avenue" (two trees), "Central Avenue" (ten trees), "B Avenue" (the largest group, 30 trees), and "A Avenue" (17 trees). As noted, the stand along "B" (now Hooper Boulevard) is the most extensive stand. At its northern end there is a group of 19 trees, eight on the west side and eleven on the east side of Hooper. This location gives the best surviving sense of the cypress lined streetscape planted to lure potential investors. On Hooper Boulevard, the street and cypress trees, taken together and flanked by empty lots, give a sense of the failed aspirations of developers of such paper towns. While southern California was home to a large number of such speculative, often failed ventures, it is rare to find a location where the paper town grid pattern has survived 20th century urban and suburban development.

Coronado Heights as an historic landscape suffers from a general lack of integrity in terms of setting, materials, feeling and association. This is true of the three remaining resource types: the railroad, street pattern, and cypress trees. About half of the original subdivision has been obliterated in the southernmost portion of the NRRF, where the US Army constructed its massive coastal artillery batteries, where the Navy erected its Fort Emory training facility, and where the Navy later established the Wullenweber Antennae array.

As noted above, the railroad line that once linked the speculative venture with Coronado to the north, and the eastern side of San Diego Bay (by running south, then east and north toward the city) is now cut off and abandoned. Only portions of the line remain, visible as rail tops in the asphalt of Johnson Street, or in several locations at the northern end of the base in the iceplant ground cover. While some of the rails were observed to be quite old (ca. 1899), they do not date to the original construction of the tracks. In addition, the line itself is an isolated fragment of the original line, which was shifted to the north during World War II.

Of the original street pattern shown on the original subdivision map of Coronado Heights, only the north - south boulevards appear to have been constructed. They retain their street trees to a very limited extent, but are recognizable as a part of the original design. The 1904 USGS quadrangle for the area does not indicate any grid of streets; rather, it simply shows a single street running north-south through the NRRF, on "Central Avenue" (what is now Johnson Boulevard). There is no indication of east-west streets, and those existing today relate to the Fort Emory Amphibious Training Base.

While there are a number of old cypress trees standing on the remains of the 19th century plan, only a portion of one of the original streets retains a sufficient number of cypress trees to give the visitor a sense of the original plantings; the other stands are more scattered and limited in numbers of trees. A 1928 aerial photograph of the area shows six north-south streets lined with

hundreds of cypress trees; and a 1952 aerial shows that at the northern end, these extensive stands of trees apparently survived the military development of World War II. However, only a small fraction of these trees remain today.[29]

Therefore, while Coronado Heights may have qualified under Criterion A, as an example of a Southern California speculative town of the great land boom of the 1880s, its constituent resources lack sufficient integrity to merit listing on the National Register of Historic Places.

4.2. Resources Related to the World War II-Era, 1941-45.

There are three groups of World War II- era resources: those associated with the immediate pre-war construction of the radio direction finding station (Building 42); those associated with the coastal defense system, at this location known as Fort Emory and built by the US Army (Buildings 98, 99, 100, 911, 912, and Battery Imperial); and those associated with the Amphibious Training facility established near the end of World War II by the US Navy (Buildings 901 and 902).

Building 42

Building 42, a small structure once housing an emergency generator, is an isolated remnant of Radio Direction Finder Station Imperial Beach, which no longer exists. While it may have contributed to a larger historic district based on the pre-war and World War II-era radio receiving facility, the demolition of all buildings and structures with which it was associated has made it a fragment of a once larger whole. It lacks both significance and integrity, and lacks sufficient individual distinction. It is thus ineligible for listing on the National Register of Historic Places.

Buildings 901 and 902

Buildings 901 and 902, concrete water reservoirs, are isolated remnants of the Fort Emory Amphibious Training Center. This once large and complicated facility included 240 Quonset hut enlisted barracks, 32 Quonset officers' quarters, a Bachelor Officers' Quarters, brig, administration building, legal offices, two enlisted mess halls, an officers' mess, twelve Quonset training/class rooms, maintenance buildings, storage facilities, sewage disposal, pump house, and a 1,000 seat auditorium. To the northeast, on the bay side, were also located wharfage and piers, a dredged access channel, underground fuel tanks and related facilities. Buildings 901 and 902 are all that are left of the training center.

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[29] It is difficult to count the number of trees on each street on this photograph, but a rough estimate would be about 400. See Plate 1, "1928 Aerial Photograph of the Coronado Heights Area," in Apple and Van Wormer, 1995, and Figure 20, "Aerial Photograph of Imperial Beach 1952," in Flower and Roth, 1982.

Buildings 901 and 902 are not eligible for listing on the National Register of Historic Places for several reasons. For one, they are (as noted above) isolated fragments of a once much larger complex. That complex, were it to exist today, might be eligible under Criterion A, for its association with the nation's activities during World War II. Neither building is sufficiently distinctive in terms of architectural merit or innovative design to qualify for listing as individual resources. Second, nothing about the buildings gives a sense of the original training complex of which it was a part, its function, or place in the history of World War II. Third, Building 901 has been heavily altered, to the point where its original function has been completely lost.

Coastal Defense Batteries: Buildings 98, 99, 100, 911, 912, and Battery Imperial

This leaves the resources related to Fort Emory coastal defense batteries: Buildings 98, 99, 100, 911, 912, and Battery Imperial. These resources are all that remains of Fort Emory's coastal artillery batteries and related structures. The batteries and fire control facilities were earth covered, for their protection and to further camouflage their purpose. The facility, besides these buildings, originally contained a cantonment for troops disguised to resemble a suburban neighborhood, with one and two-family cottages painted in a variety of colors, landscaped with lawns, trees, shrubbery, sidewalks and pathways; however, none of these ancillary resources remain today. Other additional important resources, the batteries' base end stations set it "water tank" towers and radio transmitting facilities have also been demolished.

Similar batteries, including 16", 6", and 155 mm emplacements exist in numerous places around strategic points on the continental US Pacific Coast, and presumably in other locations on the Atlantic and Gulf coasts, as well as in Alaska, Hawaii, Puerto Rico, and the Panama Canal Zone. In California, four such 16" batteries, including the one that was the prototype for their kind (Battery Richmond Davis at Fort Funston, near Lake Merced in San Francisco) were planned to protect San Francisco. Apparently only three were built. Six batteries with 6" guns, and one Panama Mount set of 155 mm cannon were also planned or constructed. The others included one emplacement at Fort Cronkhite (Battery Townsley) on the Marin headlands, another planned for Fort Barry (Battery Construction 129), and proposed Battery Construction 130 on Milagra Ridge south of Fort Funston.[30]

Batteries like Grant, 134 (Gatchell), and Imperial have been considered in historic resources surveys, evaluations and nominations from other areas. In March 1973, an early National Register nomination was made by the NPS for an historic district taking in Forts Baker, Barry, and Cronkhite on the Marin headlands. Among the contributing resources to the historic district were Battery Townsley in Fort Cronkhite, and Battery Construction 129 in Fort Barry (the

[30] Thompson, *Seacoast Fortifications, San Francisco Harbor*. May 1979. 292-327, 443-445, 449, Historic Base Map, Sheets 4, 5, 10.

nomination called it "Battery Hill"). Battery Townsley was completed, while Battery Construction 129 suffered almost the same fate as Battery 134 (Gatchell), receiving its gun tubes but lacking carriages; its construction was canceled at the end of the war.[31]

In his May 1979 inventory and evaluation of coastal defense batteries in the Golden Gate National Recreation Area, the NPS's Erwin Thompson noted that "while the overall history of the defenses of San Francisco may be considered to be of national significance, no individual work, be it a World War II fire control station or an Endicott battery, is considered to possess more than local significance by itself." Regarding Battery Richmond Davis, he stated that it "possesses considerable historical significance for being the first 16-inch gun battery undertaken at San Francisco, for being a representative of this mighty climax to coastal guns, and for being the prototype for gun casemates of modern batteries." Thompson recommended that Battery Davis be "protected, preserved, maintained, and interpreted." He suggested the same treatment be applied to the two other 16" batteries, Townsley and Battery Construction 129. He mentioned two 6" batteries, Lobos and Battery Construction 243. Of these, only Battery 243 appears to be of the same design as Battery Grant on the NRRF. Thompson recommended that it be protected, preserved, maintained and interpreted. Finally, only one Panama mounted set of 155 mm guns were installed in San Francisco, at Battery Bluff in Fort Funston. By 1979, one of the four rings had been lost to erosion, and a second was in a dangerous position and in severely deteriorated condition. Thompson urged that the remaining two rings be moved to a location near Battery Davis for interpretation.[32]

The 16" battery at Fort Funston was determined eligible for listing on the National Register in July 1980 as a contributing element of the Fort Funston Historic District, on a local level of significance, under criteria A and C. The Keeper of the National Register stated that the district was significant "for its associations with the evolution of the Bay Area's coastal defense system between World War I and World War II." Battery Davis was "a particularly impressive reflection of military philosophy and construction techniques of the interwar period." Besides Battery Davis, the other contributing elements of the district included a "plotting-switchboard structure," a 155 mm battery (informally dubbed "Battery Bluff"), Antiaircraft Battery No. 3, (with a magazine and store and power room), three fire control stations (Fort Funston originally had eight), and a Nike Missile Battery. At the time of the nomination some World War II-era enlisted barracks and officers' quarters existed off Fort Funston on land owned by the City of San Francisco; these were not part of the nominated district.[33]

Another similar 16" battery is Battery Ashburn located on Point Loma. Originally planned to be paired with Battery 134 (Gatchell) at Fort Emory, Battery Ashburn was completed in 1944 when

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[31] National Register of Historic Places Inventory-Nomination Form, "Forts Baker, Barry and Cronkhite," Marin County, California. Listed December 12, 1973.

[32] Thompson, *Seacoast Fortifications, San Francisco Harbor*. May 1979. 443-445, 449

[33] National Register of Historic Places Inventory-Nomination Form, "Fort Funston Historic District." Prepared by Erwin N. Thompson, January 22, 1979. The Keeper of the National Register notified the State of California that the district was eligible on July 31, 1980.

it received its guns. In their May 1996 National Register Nomination of Fort Rosecrans, Keniston Architects found Battery Ashburn eligible under criteria A and C with a period of significance from 1941 to 1945.

The batteries at Fort Emory (NRRF-Imperial Beach) are similarly eligible for listing on the National Register of Historic Places as an historic district. They have both sufficient integrity and significance to merit listing under Criteria A and C. Each factor is further discussed below.

Significance.

The batteries at Fort Emory are significant resources related to coastal defense plans developed during World War II to protect the strategically important harbor at San Diego and the defense industries located within the city. They are significant under Criterion A, resources that are "associated with events that have made a significant contribution to the broad pattern of our history," for their association with World War II coastal defense. They are also the linear descendants of Spanish, Mexican, and American batteries placed on Point Loma to protect the city and harbor in earlier times.

The World War II casemates represent the highest level of development attained by coastal defense facilities during the war, containing (or being planned to contain) the most advanced available coastal defense weaponry. They also were constructed to take into account advances in enemy weaponry. Their extremely heavy layers of protective steel reinforced concrete were aimed at providing a shield from bombardment from both modern ship-mounted guns and from attacking aircraft. They, along with batteries on Point Loma, were to be the main harbor and city defense from attack from the sea.

Battery Imperial represents the first hurried and temporary effort to provide protection to the southern end of San Diego Bay at the outset of the war, becoming unnecessary with the completion of Battery Grant. Battery Grant, with its smaller 6" guns, protected a more limited area located at closer range, was the only permanent battery on site to become completely operational. Battery 134 (Gatchell), the 16" battery, combined with Battery Ashburn on Point Loma, was planned to provide an arc of protection stretching seaward over 30 miles. It, like Battery Construction 129 at Fort Barry, was completed but never received its armament. The PSR, similarly, was part of a complicated fire control system that provided direction for guns at Fort Emory and contributed to aiming and firing commands for other batteries located on Point Loma to the north.

The batteries and PSR are also eligible under Criterion C, as resources that "embody the distinctive characteristics of a type, period, or method of construction ... or that represent a significant and distinguishable entity whose components may lack individual distinction." Fort Emory's batteries, like batteries Davis, Ashburn, Townsley, Construction 129, and the more than 30 other such complexes located on the US coast, Alaska, Hawaii, and other US possessions or Allied territories, are important examples of an extremely specialized and relatively rare type of military construction. The batteries of this pattern were among the last of their kind built by the

US military. In most instances, the new batteries replaced a large number of smaller, older weapons, and allowed for protection of much larger areas.[34] In the years since World War II, changes in defensive technologies has resulted in the abandonment of construction of heavy gun batteries; coastal defense is now handled by ships, aircraft, and mobile missiles.

The period of significance under both criteria would be 1942-1945, when the batteries were constructed and operated as a part of the wartime harbor defensive system for San Diego.

Integrity

The batteries have remained in military ownership since their construction and have retained a relatively high degree of integrity of location, design, setting, workmanship, materials, feeling, and association. There have been some minor losses of integrity; however, taken as a whole, these have not been sufficient to result in ineligibility.

As a district, the principal loss of integrity experienced by the batteries was the demolition of their base end stations located in false water towers, a radio transmitting building, and the small cantonment that housed the coastal artillery troops who manned the batteries. The foundations for the base end station towers mark their locations.

Building 98, the PSR, is essentially in its original condition. Building 99, Battery 134 (Gatchell), has suffered somewhat more. Losses to its integrity include the closure of the casemates around the gun mounts, which were closed with a concrete wall once the Navy acquired the facility and adapted the battery as a part of its telecommunications training base in the 1950s and 1960s. At this time the gun pit, into which the 16" guns were to be mounted, was backfilled on the exterior with debris. The main entrance doors, originally steel, have been replaced by a glass personnel door. The ventilation system mounted over the main entrance was rebuilt in the 1950s, but was replaced in kind. Similarly, the main access ways for each gun mount, located at the north and south ends of the east side of the casemate, have wooden doors instead of the original steel. On the northern end of the battery, an antennae array has been mounted near the gun opening. None of these losses of integrity are sufficient to make the main battery ineligible, and most are reversible.

Building 100, Battery Grant, is also essentially intact. Its main entrance doors are original. While the main gun battery has been removed and the gun emplacement areas paved, the barbette circles are clearly visible. The doors providing access between the barbette areas and the interior of the casemate appear to be original. Minor intrusions on the building's exterior include small

[34] Three locations in California had batteries built between 1937 and 1945: San Diego, Los Angeles, and San Francisco. Two additional batteries were located in the Pacific Northwest, one at Puget Sound and one at the mouth of the Columbia River. Alaska and Hawaii had four locations each, while there were eleven on the Atlantic coast, two on the Gulf coast, two each in Panama and Puerto Rico, and one each in Newfoundland, Bermuda, and Trinidad. The Puget Sound battery allowed the coastal artillery to protect an area previously guarded by over 40 guns in three main forts. Similar results were obtained by construction of a modern 16" battery at Narragansett on the Atlantic coast. Lewis, *Seacoast Fortifications of the United States,* 1993, 9, 12, 140-141.

antennae located on the southern end and sodium vapor lights over the main door. Two small structures with building numbers, Buildings 911 and 912, are fuel vaults that are part of the Building 100 complex. The vaults are currently empty, having had their underground tanks removed; however, their openings are in place and they should be considered part of the Building 100 resource.

In terms of location, design, setting, workmanship, materials, feeling, and association, the Fort Emory coastal defense batteries retain sufficient integrity to merit listing on the National Register. Standing facing the Pacific Ocean, these massive structures provide a clear sense of their mission and function as coastal guardians and sentinels. While there are a limited number of modern structures located to the east of Building 99, these do not detract substantially from the overall feeling at the site. Each element of the district provides a strong sense of time and place, and retains a good level integrity of workmanship and materials.

Contributing resources to the district are:

Building 98	Plotting and Sighting Room
Building 99	Battery 134 (Gatchell)
Building 100	Battery Grant
Building 911	Fuel Vault, Battery Grant
Building 912	Fuel Vault, Battery Grant
No building number	Battery Imperial

4.3. Resources Related to the Cold War Era.

Building 1, Wullenweber Antennae

The Wullenweber Antennae was completed in 1965 and is less than fifty years old. It would therefore have to qualify as exceptionally significant or as a Cold War-era resource. However, because of its secret classification, the antennae's current function as well as records concerning the antennae's construction and function during Cold War-era are restricted. Until this information is available the preparers of this report cannot adequately evaluate the antenna for listing in the National Register of Historic Places under Cold War-era criteria.

5. MANAGEMENT RECOMMENDATIONS

The Navy should seek concurrence with the State Historic Preservation Officer (SHPO) regarding the eligibility determination using the National Register of Historic Places (NRHP) criteria summarized in **Table 1**. If the SHPO concurs with the finding of NRHP eligibility regarding eligibility findings, the Navy should consult with the SHPO regarding the ongoing management of these properties. This will require agency coordination, internal planning, and preparation and review of documents to be submitted to the SHPO.

The National Historic Preservation Act of 1966, as amended (1993), established a program for the preservation of historic properties. Section 106 of this legislation stipulates that the head of a federal agency, such as the Navy, with jurisdiction over federal undertakings (federally sponsored, federally assisted, or federally licensed), must take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP. Demolition, alteration of setting, transfer of ownership, and major renovations are examples of activities that can have an adverse effect on structures considered eligible for the NRHP.

Prior to any undertaking that could affect NRHP eligible structures, the Navy is required to provide the Advisory Council on Historic Preservation (ACHP) and the SHPO a reasonable opportunity to comment. The ACHP's procedures for Section 106 consultation are codified under 36 CFR 800. If the Navy and SHPO concur that an undertaking will have an adverse effect on the NRHP eligible properties, then the Navy drafts a Memorandum of Agreement (MOA) for signature by the Navy, SHPO, and ACHP.

Section 110 of the National Historic Preservation Act contains several additional mandates. Section 110(a)(1) requires that the Navy use, to the maximum extent feasible, historic buildings. In Section 110(a)(2), there are also requirements for establishing a program for identifying, evaluating, nominating, and protecting resources eligible for the NRHP. Such properties under the jurisdiction or control of any Federal agency are to be managed and maintained in a manner "that considers the preservation of their historic, archeological, architectural, and cultural values." In other words, the Navy should actively manage their historic resources in accordance with their respective values and should avoid any action that might constitute an effect under Section 106 without appropriate consultation.

In addition, the National Historic Preservation Act calls for the protection of properties of religious or cultural importance to Native Americans. These Traditional Cultural Properties can involve a number of types of properties such as sacred mountains or other religious sites, resource areas, or burial grounds. To date, the Native American contact program has not identified any historic resources at NRRF of concern to the Native American community.[35] If alterations or other ground-disturbing construction activities result in the discovery of cultural remains, a qualified archeologist should be contacted to assist in the documentation and evaluation. The Native American community should also be notified, and may request to monitor any ground disturbing activities.

Finally, the Wullenweber Antennae and Building 1 will need to be evaluated for its potential significance under National Register Cold War-era criteria. It was not evaluated for this report owing to security concerns. In order to evaluate the Wullenweber Antennae, information regarding its original function, any technological advances it may have represented, and numbers of similar arrays will need to be developed. It will then need to be more fully recorded and described for the purposes of the inventory, and the new information applied for purposes of evaluation.

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[35] Apple and Van Wormer, *Archeological and Architectural Survey*, 1995, 26.

Table 1. Summary of NRHP Eligibility Determinations

Building Number	Function	Date Constructed	Eligibility Determination
1	Radio Receiver Building -- Wullenweber Antennae	1963-1965	Unable to evaluate
42	Emergency Electrical Generating Building	1940	Ineligible--lack of individual significance and integrity
98	Plotting and Sighting Room	1944	Eligible as part of an historic district -- Criteria A and C
99	Battery 134 (Getchall)	1944	Eligible as part of an historic district -- Criteria A and C
100	Battery Grant	1943	Eligible as part of an historic district -- Criteria A and C
--	Battery Imperial	1941	Eligible as part of an historic district -- Criteria A and C
901	Concrete Water Reservoir	1944	Ineligible -- lack of integrity
902	Concrete Water Reservoir	1944	Ineligible -- lack of integrity
911	Underground Diesel Oil Storage Tank	1944	Eligible as part of an historic district in association with Building 100 -- Criteria A and C
912	Underground Diesel Oil	1944	Eligible as part of an historic district in association with Building 100 -- Criteria A and C
---	Coronado Heights Landscape	1887	Ineligible -- lack of integrity

6. CONCLUSIONS

Coronado Heights historic landscape is not eligible for the National Register of Historic Places owing to an overall lack of sufficient integrity.

Building 42 is not eligible for the National Register of Historic Places individually, nor is it part of an historic district.

The concrete storage reservoirs (buildings 901 and 902) are not eligible for the National Register of Historic Places individually, nor are they part of an historic district.

The battery complex, including Buildings 98, 99, and 100, (with underground tanks, Buildings 911 and 912) is eligible for the National Register of Historic Places as an historic district. A nomination form for the district is attached to this report as Appendix 1.

The Wullenweber Antennae could not be adequately evaluated because access to information regarding its' construction and function during the Cold War is currently restricted. However, consideration should be given to its eligibility to the National Register as a significant Cold War resource should that information become available in the future.