

Fort Barry Balloon Hangar and Motor Vehicle Sheds, (NPS Photo, 2004)

GOLDEN GATE



Rodeo Valley Stables

**(Balloon Hangar, Motor Vehicle Sheds and Rifle Range Camp)
Forts Baker, Barry and Cronkhite National Register Historic
District**

FINAL DRAFT VERSION

**Cultural Resource Reports and Site Treatments:
Cultural Landscape Report
Historic Structures Report
Archeological Assessment and Treatment Report**

April 30, 2013
United States National Park Service,
Golden Gate National Recreation Area
Division of Cultural Resources

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Introduction

How to Use This Document

This Cultural Resource Report combines historic structures reports, a cultural landscape report, and an archeological assessment for the Rodeo Valley Stables area (Balloon Hangar, Motor Vehicle Sheds and Rifle Range Camp of the Forts Baker Barry and Cronkhite National Register Historic District) under one cover for the convenience of the user. Administrative data, contextual information and site history common to all these reports are placed into one common front section in order to avoid repetition. This document is intended to guide the Golden Gate National Recreation Area (GGNRA) and its tenants to manage the property to preserve its essential characteristics, conform to relevant planning documents, comply with the National Historic Preservation Act, and provide interpretive information for the benefit of park users. Historic structure reports are not yet prepared for structures that are not presently expected to be treated beyond basic stabilization measures. The precise location of sensitive archeological sites may be redacted from public versions of this document in accordance with National Park Service (NPS) policy and the provisions of the National Historic Preservation Act and the Archeological Resources Protection Act.

Preparation

The United States National Park Service, Golden Gate National Recreation Area, Division of Cultural Resources and Museum Management (CRMM) is the agency responsible for preparation of this report. Abby sue Fisher, Chief, and Stephen Haller, Branch Chief and Park Historian, directed the preparation of the report. Leo Barker, Archeologist and Peter Gavette, Archeologist, prepared the Archeological Assessment and Treatment Report; Amy Hoke, Historical Landscape Architect prepared the Cultural Landscape Report and Jason Hagin, Historical Architect prepared the historic structure documentation. Stephen Haller and Jason Hagin arranged the report for publication.

Relevant Documents

The Fort Barry Balloon Hangar is one of many cultural resources within the Forts Baker, Barry and Cronkhite Historic District located within the Marin Headlands section of the Golden Gate National Recreation Area. The *Draft General Management Plan/Environmental Analysis* of August 2011 provides the planning context for the area.

The 1973 National Register of Historic Places form, expanded in 1979, lists the Fort Barry Balloon Hangar as a contributing feature to the Forts Baker, Barry and Cronkhite Historic District. When a National Historic Landmark nomination for the Seacoast Fortifications of San Francisco Bay is completed, the hangar will be listed as a contributing structure. The hangar, building FA-905, is also included on the List of Classified Structures.

Two documents written about the Golden Gate National Recreation Area contain sections about Fort Barry and the Balloon Hangar. The Historic Resource Study entitled *Seacoast Fortifications San Francisco Harbor* was written by Erwin Thompson and published by the National Park Service, Denver Service Center, in May 1979. Shortly after this document another Historic Resource Study, *History of*

Forts Baker, Barry and Cronkhite, was written by Erwin Thompson and published by the Denver Service Center in November 1979.

There are four primary sources of research materials:

- 1) The Historic Document Collection of the Golden Gate National Recreation Area, located at the Park Archives and Records Center at the Presidio of San Francisco;
- 2) The Historic Document Collection of the Golden Gate National Recreation Area housed at the Park Archives and Records Center;
- 3) The Sierra Pacific Area branch of the National Archives and Records Administration (NARA), located at San Bruno; and
- 4) The Main branch of NARA located in Washington, D.C.

This Report is written in response to the 2012 *Marin Equestrian Plan Environmental Analysis*, which used “Choosing By Advantages” to establish an adaptive reuse concept for the Golden Gate Dairy site, which is the action alternative. At the time of this writing, a Finding of No Significant Impact and Errata for the *Marin Equestrian Plan Environmental Assessment* is being finalized in alignment with the new park *General Management Plan* (GMP), currently in review of public comments stage, which will be approved in the near future. It is intended that project treatments that are informed by the analysis and follow the guidelines in this document will result in no adverse effect to historic properties.

Executive Summary

The NPS has prepared this Report both to document and to provide Rehabilitation treatment recommendations for the site in compliance with Section 106 of the National Historic Preservation Act as it pertains to the Marin Equestrian Stables Plan Environmental Assessment of October 2011.

Statement of Significance

The Balloon Hangar, Motor Vehicle Sheds, and Rifle Range Camp area is a portion of the Forts Baker, Barry and Cronkhite National Register Historic District, which is historically and architecturally significant because of its role in the seacoast defenses of San Francisco Bay, one of the largest, most strategically important, and most beautiful harbors in the world.

Administrative Data

Building name(s): Balloon Hangar (FA-907), Motor Vehicle Sheds (FA-905 and FA-906), and Utility Building (FA-814).

Date Eligible for National Register: March 26, 1973

Location: Fort Barry, Sausalito, California, 94963

Date Built: 1920-1940

Use: Hangar for aerial observation balloons, later repair facility for Nike anti-aircraft missiles; motor vehicle sheds, and utility

Plan Type: Loose campus

Property Owner: United States National Park Service, Golden Gate National Recreation Area, Fort Mason Building 201, San Francisco, California 94123

Proposed Preservation Treatment of Buildings: Rehabilitation for adaptive reuse as equestrian boarding and riding program offices and stables, park horse patrol and heavy equipment storage for park maintenance purposes.

Proposed Preservation Treatment of Landscape: Preservation and rehabilitation in association with the adaptive use of the site for equestrian operations and related NPS use.

NOTE: The area with adjacent and related buildings and features are protected by the Archaeological Resources Protection Act of 1979, as amended, and preservation actions are subject to review for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

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Historic Significance

The balloon hangar at Fort Barry is a surviving element of the U.S. Army's brief experimentations with using tethered balloons as part of the nation's system of coastal defenses. Constructed and abandoned the same year, the structure is the only surviving hangar of its type that actually housed an army balloon, and one of only two examples of its type known to survive in the country. As such, it has a national level of significance for its part in the evolving stories of both coastal defense and

The U.S. Army began experimenting with using lighter-than-air craft during the Civil War when, in 1861 the Union Army contracted with civilian balloon company for relaying signals, spotting artillery fire and watching enemy troop movements. An official Air Division was organized in 1864 as a replacement for the civilian Balloon Corps, and the division was made part of the Signal Corps or Signal Service, names that were used interchangeably from 1864 to 1891. Tethered to the ground and inflated with hydrogen, the balloons were considered to be less than successful in their embryonic role. In 1908, The U.S. Army's Board of Ordnance and Fortifications authorized \$25,000 for the purchase of a dirigible, and a new Aeronautical Division was created. In August that year, the single hydrogen-filled airship constituted what would eventually become the US Air Force. Shortly thereafter, the Division was headquartered at Fort Omaha, Nebraska, the home of the Signal Corps School.¹

World War I and 1920s

During World War I, both the Allies and the Germans experimented with using balloons in combat, both in the familiar "fixed" role of tethered spotting platforms and also in the form of powered dirigibles, which were capable of carrying out long-distance bombing sorties. When the United States entered the war in 1917, only three

U.S. balloon companies existed: the 2nd, 14th and 24th. General John J. Pershing, realizing the value of the balloons, repeatedly requested 125 balloon companies for his Allied Expeditionary Force. However, only 26 companies arrived in France and of these only 17 were sent to the front.²

The Americans did not have much of their own equipment, though, and instead adopted the French army's "Caquot Type R" observation balloons. Measuring 92 ft. long and 32 ft. diameter, the Type R could stay aloft in winds as high as 70 mph. These airships (sometimes derisively called "sausage balloons" because of their bulbous

C3 Army Balloon at San Francisco City Hall, circa 1929. (San Francisco Public Library: SFPL AAB-7399)



shape) consisted of a hydrogen-filled body equipped with fins that provided stability in rough air, and a suspended wicker basket that held a two-man crew. Communication between the observers and the ground crew was via a telephone cable spliced onto the mooring line. Before long, the Americans began manufacturing their own version of the French balloons, which the army designated the Type C-3. During 1918-1919, nearly a thousand C-3s were manufactured in the U.S.³

The Caquot design proved durable, and the sausage balloons continued to be manufactured up through World War II, where they frequently saw use as unmanned “barrage balloons” designed to ward off low-flying aircraft. (Only one Caquot Type R / C-3 is known to exist today, and is on display at the U.S. Air Force Museum in Dayton, Ohio.)

In 1920 the Air Service decided to dispatch several balloon companies to the Pacific Coast to carry out experiments with the Coast Artillery in coordinating fire control between aerial observers and fixed shore batteries. The 14th and 24th companies arrived in San Francisco on April 10, 1920, and were assigned respectively to Fort Funston in San Francisco and Fort Baker in the Marin Headlands. At the time of its arrival at Fort Baker, the 24th Company was under the command of First Lieutenant F. J. Durrschmidt, Air Service. During their three weeks at San Francisco the balloons did little flying. Instead, the companies’ mission during this early phase

was to identify locations for future hangars and billets, and in a study of existing coastal artillery systems and the nature of the work involved.⁴

Each company’s equipment consisted of a Type C-3 tethered observation balloon, a type A-7 spherical “free” balloon, a portable hydrogen generator, numerous vehicles, mooring winches, and a maze of ground tackle and rigging equipment. At this time there were no buildings specifically designed for the balloon companies’ use, either for housing the troops and their equipment or for storing the balloons, so the balloons were apparently deflated when not in active service.

The 24th was briefly detached to Fort Worden in Washington State in May 1920 where they carried out similar duties planning future balloon sites in the Harbor Defenses of Puget Sound. An idea of the amount of equipment allocated to the balloon companies is indicated by a report filed upon the arrival of the 24th at Fort Worden, which stated the company’s equipment filled eight railroad cars.⁵

The company returned to San Francisco later that summer and on November 24, 1920, the Coast Artillery carried out the first balloon-assisted firings of a major caliber gun battery, when a crew from the 24th Balloon Company moored at Fort Barry directed the fire of the two 12-inch guns near Point Bonita at Fort Barry. According to the *Air Service Newsletter*:

Ft. Funston Balloon Hangar, San Francisco, 1942 (now demolished). (PARC, GOGA)



*Battery Mendell (12 inch disappearing guns) fired 22 shots at a pyramidal target with an approximate range of 14,000 yards, the target being towed by a tug with a tow line of 500 feet. The tracking and spotting were done by balloons and the data obtained from the Balloon Plotting Room. No direct hits were obtained on the pyramidal but had it been actual service conditions with a ship as the target at least five of the shots would have been direct hits. ... these results have laid a foundation upon which future improvements can be built with lasting and definite advantage to the Service.*⁶

The army was apparently satisfied that the balloons were going to be a permanent part of the Coast Artillery's arsenal, and in mid-1920 authorized the construction of permanent balloon hangars and associated "generator house" buildings at eight army posts around the country. Work subsequently began on the hangars at Fort Barry and Winfield Scott on 27 July 1920, and both were completed by 26 June 1921 at a total combined cost of \$199,787.⁷ (Shortly afterwards a third hangar was constructed at Fort Funston⁸, but it was of a different design from the Scott and Barry hangars.⁹)

Experiments continued during the latter part of 1920 and into 1921 on various techniques for directing artillery fire. The first method was the simplest, consisting of a single balloon with two observers in the wicker basket watching for the splash (called "the fall of shot") when a shell landed near a target, and relaying corrections back to the battery. One observer used a simple telescope to track the moving target and watched

for the splash. When he saw the splash he verbally relayed his observations and corrections to the second crewman, who was connected via telephone to switchboard on the ground and from there to the plotting room at the battery. These corrections, usually stated succinctly as "Up 200 yards" or similar, would then be factored into the aiming directions relayed to the gun crew.

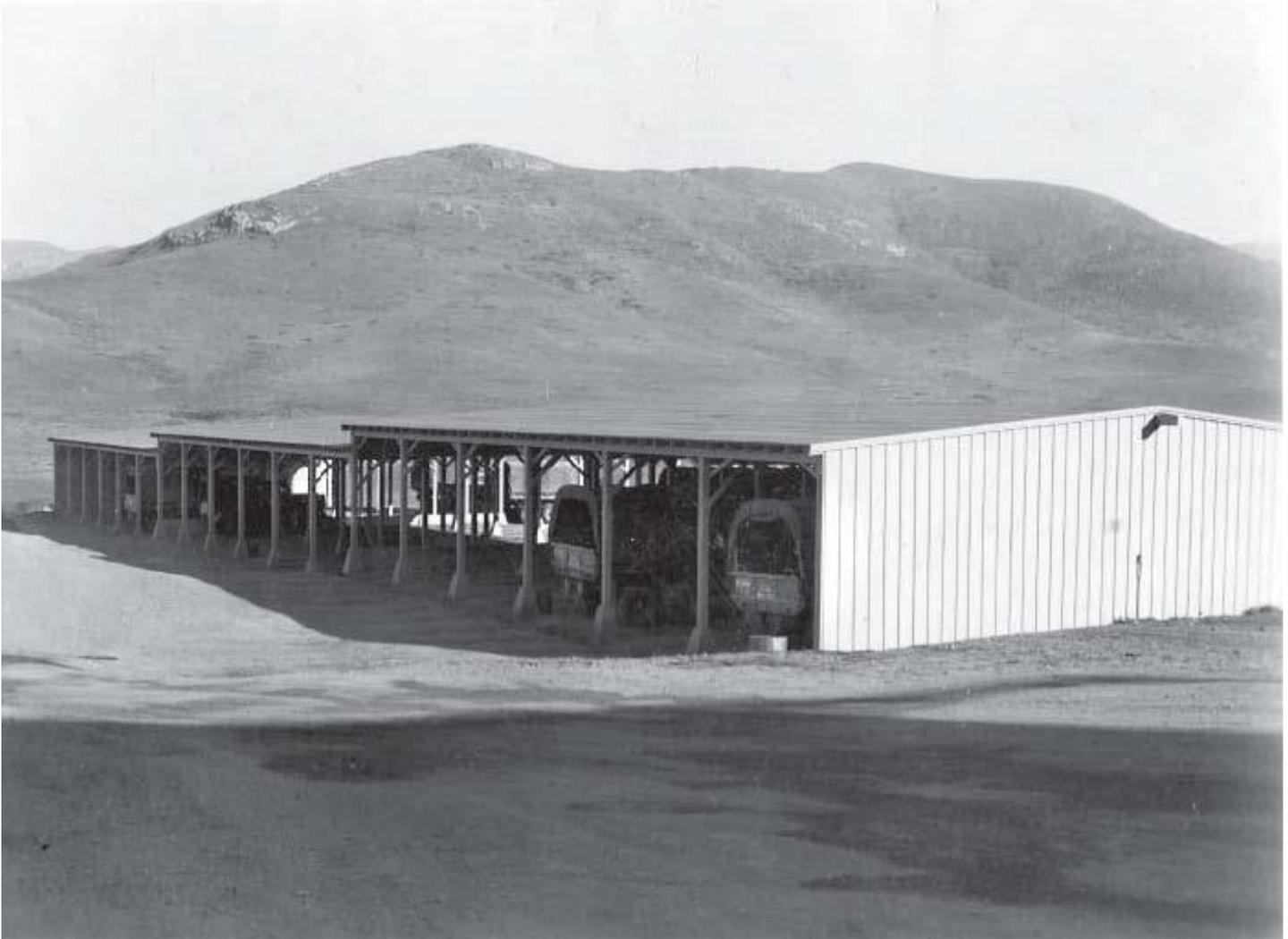
The second technique was more complex, consisting of observers in two tethered balloons simultaneously taking bearings on a moving target and having a ground crew calculate the range to the target. Since the two balloons were moored a known distance apart their positions formed a "base line", and their differing angles of view towards the target could be used to calculate the distance to the target using simple trigonometry. At the San Francisco experiments, one balloon from the 24th Balloon Company was tethered at Fort Barry while a balloon from the 14th Company was moored above Fort Miley, providing a baseline the width of the Golden Gate.

Of course, innumerable variables and complications had to be thrown into this seemingly simple bit of math work, not the least of which was the fact that the baseline was constantly changing its length due to the wind-tossed motion of the balloons.

Wind was a constant problem for the balloons, and during January 1921 both of the companies in San Francisco lost a balloon due to high winds. Nevertheless, the army felt that experiments

Ft. Scott Balloon Hangar, San Francisco, circa 1939 (now demolished). (PARC, GOGA 32422)





East Vehicle Shed, Ft. Barry, California, 1940. (PARC, GOGA 32423)

in the base line range finding merited continued refinement, and work continued on the permanent hangars.¹⁰

As noted above, the balloon hangar at Fort Barry was completed on June 27, 1921. Although it was not officially recorded, it is believed the 24th Balloon Company moved its balloon into the new structure not long afterwards. It is known they were still on-site at Fort Baker in late June, though, because the monthly report states that on the 25th the entire company had been engaged in fighting grass fires “which raged on with the high winds.” In addition, the company was engaged in a class in “Balloon Fabric work and Rigging”, presumably in the new hangar building.¹¹

However, their occupancy would not be a long one; before the end of 1921 both balloon companies were removed from the Harbor Defenses of San Francisco. (The companies never returned to Puget Sound, despite the fact that an identical hangar to the one at Fort Barry had been completed at Fort Worden in 12 December 1921. That hangar never did house a balloon.)¹²

World War II Era

The use of the Fort Barry hangar is not recorded from the time of the Balloon Companies’ departure in late 1921 until the start of World War II, but likely it was held in reserve for the future return of an army balloon. The building was still listed in the post quartermaster’s records as ‘Hangar (Balloon), Capacity: 1 Balloon’ as late as 1939.¹³ Also, the hangar still retained its towering sliding doors until well into 1942. Recognizing the army’s penchant for putting empty spaces to use, though, it’s likely the hangar’s interior served as a convenient warehouse for Forts Baker, Barry and Cronkhite – a use that could be quickly changed back into hangar space on short notice.

In 1941 the Marin Headlands forts experienced a massive buildup of troop strength as the army prepared for possible war with Japan and Germany. During this “Mobilization” period the army must have realized the obsolescence of the balloon hangar, and its landing field north of the hangar doors was converted into a motor pool area with covered sheds for trucks and vehicles. The capacious interior of the hangar was likely

converted to workshop spaces at the same time. In 1943 the hangar experienced its first major remodeling when the sliding doors were removed and the balloon entrance enclosed with siding material salvaged from the big doors, and shops and offices were constructed along the hangar's side bays.¹⁴

the Presidio Stables, the 1940s vehicle sheds in front of the hangar were enclosed and turned into horse stalls and tack rooms, while the hangar's interior was converted into an indoor riding rink.

Nike Missile Era

At the outbreak of the Cold War, the hangar was once more converted to a new use; this time as an Ordnance Repair Shop for anti-aircraft surface-to-air missiles emplaced beginning in early 1953 in the Marin Headlands at the end of the Korean War. During the period 1953-1959, the balloon hangar continued to be used as a maintenance facility for routine missile repairs for nearby Nike launch sites SF-87 at Fort Cronkhite and SF-88 at Fort Barry. (Higher-level repairs and servicing of the missiles took place at the Presidio.) This role would continue until at least 1959 when the larger Nike-Hercules missiles came into service and specially-designed assembly and test buildings were built at every Hercules battery, thus lessening the need for the central assembly and test facility located in the hangar.¹⁵

Presidio Riding Stables

In 1966, the Presidio Riding Stables were granted the use of the former vehicle sheds and the hangar building. The stables were part of the "quality of life" recreational facilities provided by the U.S. Army for its Presidio garrison and their dependents, and it operated as part of the military's "non-appropriated funding activities." As part of

Ft. Worden Balloon Hangar, Port Townsend, Washington, 2001. McCurdy Pavillion/Littlefield Green. (Michael Shopenn)



Application of Criteria of Evaluation

1. Balloon Hangar

Despite its various uses and modifications, the Fort Barry Balloon Hangar still maintains a high degree of integrity, retaining significant characteristics from its three defensive roles: first, as an Air Service facility that aided in the coastal defense system and experimentation during the period 1920-1921; second, as a World War II motor pool site that supported the Harbor Defenses of San Francisco from 1940-1945; and finally as a Cold War anti-aircraft and missile maintenance facility from 1953 to sometime after 1959.

The balloon hangar takes on an added degree of significance given that it is the only remaining example of two identical hangars built around San Francisco during the early 1920s. Also, it is the only surviving example on the West Coast of a hangar that actually housed an observation balloon. By contrast, the Fort Worden balloon hangar was completed many months after the last Balloon Company departed the Puget Sound area, and its interior has been completely remodeled for use as a theater.

It is considered to have National Level significance under both National Register Criteria A and C, and Local Level Significance under Criterion A.

Criterion A (National): The Fort Barry Balloon Hangar has association with the U.S. Army's tentative yet important experiments following World War I utilizing aerial balloons for spotting enemy targets. This embryonic mission would in time evolve to include fixed-wing and rotary-wing aircraft, reconnaissance "spy planes" (such as the U-2 and SR-71 Blackbird) and even satellites for gathering information on enemy location and movements. It is also the only example of its type in the nation that actually housed an army Air Service reconnaissance balloon.

Criterion A (Local): The Fort Barry hangar served two important defense-related missions following its balloon use with important relevance to the local story of San Francisco harbor defense. First, beginning in 1940, the hangar and its adjacent vehicle sheds served as a central motor pool for vehicles assigned to the Coast Artillery units in the Marin Headlands during World War II. Second, during the Cold War, the hangar was converted into a central Ordnance Repair Shop that supported the two Nike missile launch sites constructed in Forts Barry and Cronkhite.

(The launch site at Fort Barry has been restored to its appearance c1960.) Its interior still contains many small-scale features relating to this later Nike use, including three lean-to office additions, electrical and compressed air utility connections, and various wall stencils.

Criterion C (National): As mentioned above, the Fort Barry Balloon Hangar is a rare surviving example of an Air Service airship hangar. The basic gambrel-roof design and dimensions of the original hangar remain unchanged, and its interior layout still retains the open, airy feeling of an aircraft hangar. Although other Air Service *aircraft* hangars are known to exist around the country, this is the only example of an *airship* hangar that retains its important interior configuration in an unaltered state. (Of the eight identical hangars built under the original 1920 program only the hangars at Forts Barry and Worden survive, and as noted above, the one at Worden is highly modified.)

2. Vehicle Sheds.

The two frame vehicle sheds in front of the hangar are rare examples of "Series 700" design structures erected by the army on the eve of World War II. Once common at Bay Area military posts, these nondescript yet functional vehicle sheds have all been demolished except for the pair at Fort Barry. Their subsequent role as a motor pool facility for the Coast Artillery and Air Defense Artillery makes them important elements of the story of the defense of San Francisco Bay during World War II and the Korean War. Even though altered by enclosing most of their originally open bays, the sheds' exterior dimensions and rooflines remain in their original configuration. Also, the entire northern third of Bldg 902 remains in its original open bay configuration, complete with bare earth floors.

The sheds are considered to have Local Level Significance under Criterion A and Regional Level significance under National Register Criterion C:

Criterion A (Local): The Fort Barry vehicle sheds served two important defense-related missions relevant to local story of San Francisco harbor defense. First, beginning in 1940, the sheds and adjacent hangar served as a central motor pool for storage and maintenance of vehicles assigned to the Coast Artillery units in the Marin Headlands during World War II. Second, during the Cold War, the sheds continued as vehicle storage for the Air Defense Units and Nike sites in the Marin Headlands.

Criterion C (Regional): As mentioned, above

the vehicle sheds are the sole surviving examples in the San Francisco area of once-common style of military building. The National Park Service has made a commitment to preserving other Series 700 building examples remaining in Forts Baker, Barry, and Funston, and these functional structures contribute significantly to that preservation effort.

In short, the Fort Barry hangar complex is an extremely significant area. The hangar is already included as an element of the Forts Baker, Barry, and Cronkhite National Register District. The complex' three buildings are also contributing elements to a potential National Historic Landmark district on the Harbor Defenses of San Francisco.

(Endnotes)

¹ Keepers At the Gate, by V.J. Gregory, Port Townsend Publishing Co, Port Townsend, WA.

1976. pg 206-207 ² Gregory, pg 204 ³ USAF

Museum website <http://>

www.wpafb.af.mil/museum/early_years/ey5a.htm

⁴ "Caquot Type R Observation Balloon" Air Service Newsletter, "14th and 24th Balloon Companies to Cooperate with Coast Artillery", 27 April 1920 ⁵

Gregory, pg 203 ⁶ Air Service Newsletter, "For the First Time in History of the World Problem Fired In Which All Data Was Supplied From the Air By Balloon." 29 December 1920. ⁷ Lt. Col. I.L.

Fredendall, Construction QM, June 30, 1921, "Completion Report of Balloon Hangars at Forts Barry and W. Scott." Completion Reports, Ft. Winfield Scott, RG77, Office of the Chief of Engineers, NARA

⁸ Historic Resource Study: Seacoast Fortifications San Francisco Harbor. National Park Service: Denver, 1980. pg 288 ⁹

See aerial photo of Fort Funston taken February 1942 in the Kenneth Cooper Collection, PARC, GOGA ¹⁰

Thompson, pg 288 ¹¹ Air Service Newsletter, "24th Balloon Company, Fort Baker, Calif." June 25, 1921 ¹²

Gregory, pg 207 ¹³ "Post Building Book, Fort Barry, California," entry for Bldg. No. 141, PARC ¹⁴ Drawing, "Alterations to Balloon Hangar, Fort Barry," 24 August 1943.

Drawer 213, Folder 1, PARC, GOGA ¹⁵ Oral History interview with Peter Bohan, U.S. Army (ret.). GOGA-2647. Mr. Bohan served as Chief Warrant Officer at Nike Site SF88L, Fort Barry, from 1958 until 1963.

Timeline

1920 April. The 24th Balloon Company arrives at Fort Baker to begin operations with Coast Artillery units. August. Plans prepared for “Standard Dirigible Balloon Hangars for Aviation Stations”

1921 Hangar completed on 27 June 1921. Total cost: \$99,893.50 (including cost of adjacent hydrogen generating building.)

1939 30 June 1939. Building Book entry: “Total expenditures to date [1921-1939]: \$1,903.22

1940 Building Book entry: “Total expenditures F.Y. 40: \$7.49”-Two vehicle sheds constructed on former balloon landing field north of hangar. OQMG general plan #700-329. [Bldgs. 901 & 902]

1942 Building Book entry: “M.R. [Misc. Repairs?] F.Y. 42: \$94.81 / \$2,205.52”

1943 Hangar converted to Motor Pool uses-Plan dated 24 August 1943 “Alterations to Balloon Hangar”. Large roller doors and supports removed. Door opening framed-in and covered with salvaged corrugated asbestos. Two 10’x12’ warehouse-type hanging doors installed. 3’x6’8” swing-in personnel doors built into the larger doors.-Plan dated 10 November 1943. “Offices for Fort Barry Motor Pool inside Balloon Hangar.” 16’x40’ building with shed roof constructed inside hangar against east wall. Contains three rooms. -Plan dated 26 November 1943 “Latrine at Bldg. 141, Fort Barry, Motor Pool for the 6th CAC”. Latrine room added at south end of offices shown on earlier drawing.

1944 Portion of motor vehicle shed no 143 (present Bldg. 901) converted to paint shop by enclosing southern third of structure with board siding with new windows and vehicle doors. Windows added to existing southern wall.

1946 Aerial photo taken in October shows completed motor pool complex. However, former hydrogen generator house is no longer present.

1953 Hangar converted to Antiaircraft Artillery (AAA) maintenance facility.-Plan dated 20 June 1953 “Rehabilitation of Balloon Hangar to Heavy Armament Shop. Shows numerous alterations and new construction including new offices and latrine; new floor slab; new roller door and personnel door at north end; upgraded utility systems; new surrounding walkways and con

crete apron on north side. - Notations regarding siding and roof: “Deteriorated roofing to be replaced with 22 ga. Galvanized corrugated metal”; “Existing corr. Siding to remain”; “Remove existing corr. Asbestos coated sheet iron all around bldg and replace w/ corrugated cement asbestos siding”; “Colored corrugated glass fiber sheets” to be added to existing window openings. - Both courses of windows apparently enlarged in height, and additional plexiglass windows added on remodeled north facade. - Cinderblock transformer vault added to west side of structure.

1954 Plan dated 21 May 1954 “Bldg 907 – Ft. Barry / Nike Assembly Area”. Shows interior with missile assembly and test equipment in place, including ten disassembled Nike-Ajax missile bodies and warheads

1959 Plan dated 15 September 1959 “Bldg 907 – Fort Barry. Housing for Air Receivers”. Shows new wood structure for air compressor and reservoir tanks to be constructed adjacent to south exterior wall of hangar.

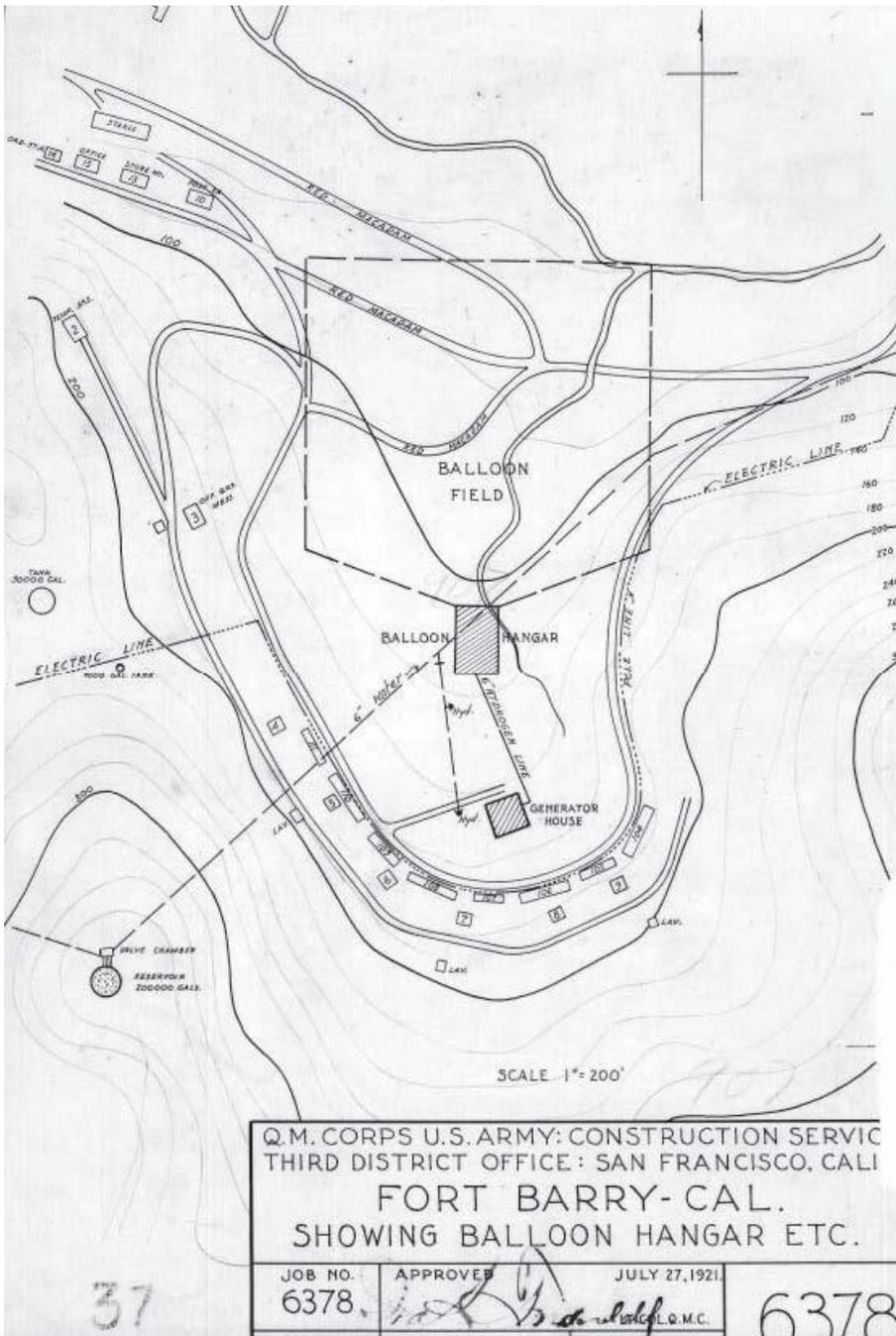
1966 Presidio Riding Stables receive permit from army to use old vehicle sheds and hangar for riding stables.

1982 New concrete ramp added alongside west side of Bldg. 901 to improve drainage in adjacent paddock.

1984 Fire alarm system installed in Bldgs 901 and 902

1985 Electrical systems upgraded in Bldgs 901 and 902 by removing existing electrical lights and power distribution and installing new.

1994 Presidio Stables given year-to-year Special Use Permit by National Park Service to continue their operations in hangar and vehicle sheds.



Site plan of Balloon Hangar and landing field showing buildings associated with the temporary camp site for the Departmental Rifle Range, July 27, 1921. (Drwr. 213, Folder 1, PARC, GOGA)

Developmental History

Although the Balloon Hangar housed coastal defense balloons for only a short period of time, it has demonstrated its usefulness in many different ways throughout its 85-year history.

Pre-Hangar Era

The site of the future Fort Barry Balloon Hangar was originally part of the sprawling Rancho Saucelito, a Mexican land grant given by the Mexican government in 1833 to William Antonio Richardson, a naturalized British citizen. In 1866 Richardson's successor owner, William Throckmorton, sold much of Rancho Saucelito to the U.S. Government for defensive purposes. The newly acquired military post was initially dubbed "Lime Point Military Reservation" but in 1892 the area was renamed Fort Baker in honor of Edwin Baker, a former senator and Union officer who had been killed during the Civil War. The boundary between the new military post and Throckmorton's land to the north was a zigzag boundary that roughly followed the course of the small stream that drained westward to today's Rodeo Beach.

The Balloon Hangar area was not developed for the first 38 years the army controlled Fort Baker. The site in its natural state was a U-shaped valley opening towards the north, drained by a small rivulet that eventually merged with the larger Rodeo Creek running down the middle of the valley. Sheltered from the prevailing westerly winds, the small valley was reminiscent of other bowl-shaped valleys still surviving in today's Marin Headlands, such as the former Chiolli ranch site north of Rodeo Beach and the Gerbode Preserve directly across the valley from the hangar site.

The military first developed the unnamed valley in 1904-1905 as part of a large-scale project to establish a "Departmental Rifle Range" in Fort Baker. At this time, every army post had its own target range where troops would train with a variety of rifles and small arms. However, the quality of these ranges varied widely and the army decided that, in the interests of uniformity of training, soldiers should travel to centralized, properly designed ranges for their periodic marksmanship qualifications. Constructed by military convicts ferried over from Alcatraz Island, the Departmental Range at Fort Baker was designed as central training facility where troops from around the western states could come for annual rifle and small arms qualifications. Work began in November 1904 and was substantially completed by May 1905.¹ (In December 1904 the

army subdivided Fort Baker into two smaller forts — Baker and Barry — and the proposed rifle range became part of Fort Barry.)

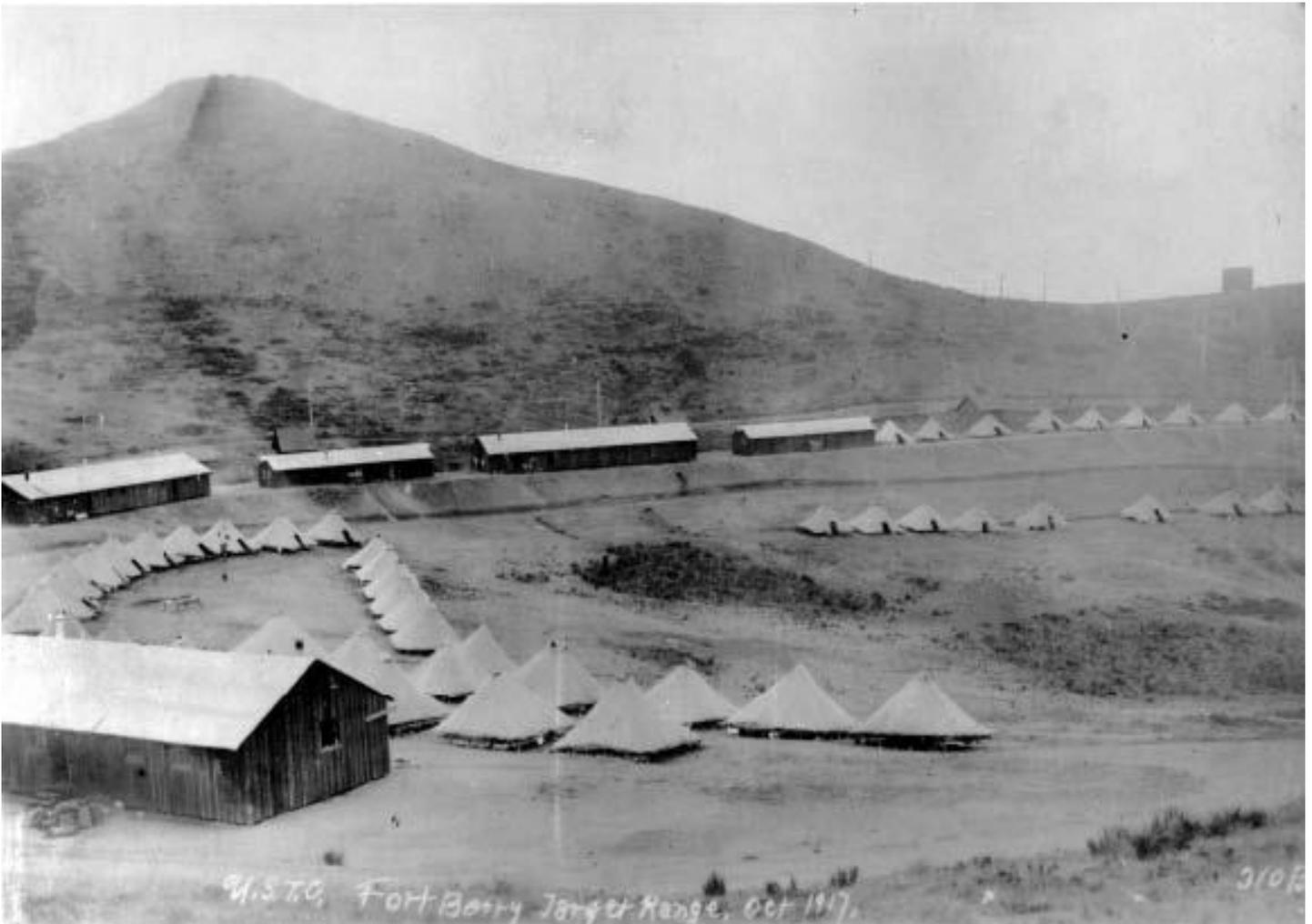
The future balloon hangar site initially served as the temporary camp site for enlisted men and officers assigned to the Departmental Range, and during the course of constructing the range the curving perimeter of the valley was carved into two parallel benches or terraces for the quarters. The upper terrace held permanent (albeit crudely built) mess halls, latrines, and living quarters for officers while the lower bench held prepared platforms where enlisted men and NCOs would pitch tents for the duration of their stay at the range.²

Several companies at a time could be accommodated at the encampment valley, and a small detachment of soldiers remained on-site at all times to provide what might be called administrative overhead. By 1910, the temporary frame structures consisted of a barn, an office, a storehouse, a cookhouse, a post exchange, an officers' quarters, and six mess kitchens.³ (See figure "USTC [U.S Training Camp] Fort Barry Target Range")

This housing area saw regular (if intermittent) use during the 1900s and 1910s while the adjacent Departmental Range served as a centralized firearms qualification area for soldiers on the Pacific Coast. However, during World War I the range's housing areas were pressed into service as a full-time cantonment for troops undergoing training at the Presidio and other nearby military posts before being shipped overseas. Following the war, the valley briefly assumed the additional role of housing ROTC cadets assigned to the San Francisco area.

Balloon Company Era

On April 14, 1920, the 24th Balloon Company arrived at Fort Baker to begin its training and coordination activities with the Coast Artillery. However, as noted previously, little in the way of actual flying was done during the first few weeks as the company spent most of its time "choosing suitable locations for permanent buildings for balloon garrisons, and in the study of Coast Artillery Systems and the nature of the work involved."⁴ At that time, their equipment consisted



Departmental Rifle Range Camp, 1917. (PARC, GOGA 3045)

of a Type C3 tethered observation balloon, a spherical or “free” balloon, a portable hydrogen generator, mooring winches, numerous vehicles, and ground support equipment.

Shortly afterward, the 24th was dispatched to the defenses of the Columbia River but returned later that summer, and on November 24, 1920 the Company participated in target ranging exercises at Battery Mendell, Fort Barry.⁵ Presumably, since there was no permanent hangar, the balloons were inflated for training missions such as this one and then deflated for stowage – a time consuming and probably frustrating situation for the soldiers.

It was quickly realized that the balloon companies, if they were to become a permanent adjunct to the Coast Artillery companies, needed permanent structures both for the men and their balloons. In late 1920 the army authorized the construction of permanent balloon hangars and associated “generator house” buildings at eight army posts around the country. The locations selected were as follows: Forts McKinley and Williams in Portland, ME; Forts Nahant and Andrew in Boston; Forts Barry and Winfield Scott in the

Presidio of San Francisco;⁶ and Forts Worden and Casey on Puget Sound.

In August and September 1920, the Construction Division of the War Department approved standardized plans for “Dirigible Balloon Hangars for Aviation Stations”⁷ to be used for the eight coast defense locations.

The specifications for each hangar complex were identical, calling for a steel hangar covered with galvanized iron, 120 by 76 feet, rising to an elevation of 60 feet; a generator house of steel construction on a concrete foundation, 80 feet square; a frame storehouse, 30 by 70 feet; and a frame garage 30 by 60 feet. In addition, each group of buildings required six acres of surrounding land, much of it for use as a landing field and staging area for the ground support and mooring equipment.⁸

In the meantime, the 24th Balloon Company continued to work with the artillerymen of the Marin forts. The need for a hangar was emphasized when a southwester blew into the Marin Headlands in early 1921 and nearly tore loose a balloon tethered in the open in “a valley pro

ected on all sides but the north”, presumably the future site of the hangar. During the storm the wind got beneath the balloon, lifted it up, and “pulled some two dozen screw anchors from the ground, which had been softened by the previous rains. In spite of the hard fight put up by the balloon guards, amid entangling rigging and flying screw anchors and sand bags, the balloon pulled away and was wrecked.”⁹

Another balloon must have been acquired, though, because in March the 24th Company reported they had been assisting in range finding for the 6-inch guns at Battery Guthrie, Fort Barry. However, progress on a permanent hanger was being made, and the Company’s entry in the *Air Service Newsletter* for that month noted:

*Rain has prevented much flying on the part of the Twenty-fourth Balloon Company and has softened the balloon bed of the organization to such an extent that it had to be abandoned. A new bed is being made on a good hillside location which is well drained. It is reported that the material for a new balloon hangar has been shipped and it is expected that the Twenty-fourth Company will soon be well housed. Because of the bad weather in early February there was not much flying, but the Company finished its new balloon bed, laid out new field telephone lines, and carried out drills and recruit instruction.*¹⁰

According to the “Completion Report” on the hangars at Forts Barry and Scott filed by the Constructing Quartermaster, actual construction on the Fort Barry hangar began on 27 July 1920, with site preparation work carried out by contract laborers. The location of the balloon hangar was described as “stiff blue clay overlaid by a layer of adobe, approximately by 2 feet in thickness”, and preparatory to construction work the area was cleared off grass and burned, and a 12-inch tile drain laid and the field rough graded.¹¹

Primary work on the hangars at both Forts Barry and Scott was carried out by Lange & Bergstrom of San Francisco and McClintic-Marshall Co. of Pittsburgh, PA, who supplied the steelwork for the Fort Barry hangar and the other seven hangars to be constructed around the country. The work was performed under the direction of the Constructing Quartermaster, Lt. Colonel Ira L. Fredendall, and his assistants, and was directly under a civilian Superintendent of Construction and a civilian Inspector as assistant for a period of about ten weeks.¹²

The Completion Report is cited here at length because of the information it yields about the

construction of the hangar:

*Excavations were made with steam shovel and material was moved with 5 ton motor trucks. The field was surfaced with red rock from a local quarry. Grading was completed August 20th [1920]. ... Work on foundations and concrete floors was started January 3, 1921, and completed April 27th – a 10-foot gasoline driven mixer was used. Steel erection was started March 21st and completed April 21st – a guy derrick and steam hoist were used. Painting was started April 22nd and was completed June 27th. Covering was started April 25th and completed June 25th. Electric wiring was started April 26th and completed May 7th. Finish grading was started May 3rd and completed June 25th. Contractors had to furnish transportation between San Francisco and Fort Barry and all materials had to be hauled about 5 miles. The rainy season delayed concrete work considerably.*¹³

According to the Fort Barry “Building Book” maintained by the fort’s quartermaster, the Balloon Hangar was officially completed on 27 June 1921 and initially designated Bldg No 141. Total cost was listed as \$99,893.50¹⁴

In its original form, the Balloon Hangar was a rectangular building measuring 77’ x 120’ with sloping sides and a peaked roof, reaching a maximum interior height of approximately 65’ 10”. The most notable feature of the building was a pair of sliding doors on its north façade, each measuring approximately 22’9” wide x 44’9” high, which slid open a supporting gantry to allow entry of an inflated balloon.¹⁵ Original completion drawings for the hangar have not been located, but apparently the interior was entirely open in this initial configuration. With its 120’ interior clear space, the hangar was easily large enough to accommodate simultaneously an inflated Type C3 observation balloon and a smaller free balloon.

In addition to the hangar proper, the new balloon complex included a generator house located approximately 200 feet southeast of the hangar where the highly flammable hydrogen gas for inflating the balloons was located. A buried 6” gas pipe connected the generator house to the hangar.

The final element of the complex was a spacious “balloon field” located north of the hangar where the airships could be launched and retrieved, and their ground tackle laid out. The field encompassed a square area roughly 500 feet on a side that dropped in elevation roughly 40’ from south to north. The field was also crisscrossed by several roads and creeks, and does



Fort Barry Balloon Hangar, 1939.
(PARC, GOGA 32423)

not appear to have been a prepared landing surface in the modern sense of an airfield. Instead, it was likely just a designated open area that was to be kept free of future construction to allow room for the safe handling of the balloons.¹⁶

It is not known how long the 24th Balloon Company used the new hangar at Fort Barry, but according to the *Air Service Newsletter* both the 24th and the 14th Companies had relocated to Crissy Field in the Presidio by November 1921. Again, the records are mute on when the two companies finally left San Francisco since no reference to either of them has been found in the *Newsletter* after that time.¹⁷

Coast Artillery Use

The looming but empty balloon hangar became a fixture on the Fort Barry landscape during the 1920s and '30s. Although the Quartermaster's building book still referred to the structure as a hangar as late as 1939, the building was merely kept in reserve for the possible eventual return of a balloon outfit. Up through the end of FY1939, expenditures on the hangar totaled \$1,903.22 for unspecified improvements and maintenance.¹⁸ However, recognizing the army's penchant for putting empty spaces to use, it is

likely the hangar's interior served as a warehouse for Forts Baker and Barry – a use that could quickly revert to hangar space on short notice. (A supporting fact for this theory is that the hangar still retained its towering sliding doors until well into 1943.)

In 1940 the United States began to mobilize its military forces for possible involvement in the expanding European war, and yet another coast artillery fort was established in the Marin Headlands to augment Forts Baker and Barry: Fort Cronkhite, located on the north side of Rodeo Lagoon. This new fort comprised several artillery emplacements and a cantonment area for several companies of the 6th and 56th Coast Artillery Regiments.

During this period, the old balloon field area north of the hangar became the site of two expansive vehicle sheds hastily constructed to house the growing fleet of vehicles assigned to the posts. These sheds were virtually identical, each measuring 46' x 216' and consisting of 18 covered bays arranged in three stair-stepped sections of six bays each. The sheds were constructed according to standardized drawing #700-329, and were completed in September

The most notable feature of the building was a pair of sliding doors on the front facade, each measuring approximately 22'9" wide x 44'9" high, which slid open a supporting gantry to allow entry of an inflated balloon.

1940 at a total cost of \$8,976.28.¹⁹ (See figure "Vehicle Sheds Ft. Barry (Balloon Hgr) August 1940")

At the same time the vehicle sheds were completed the old hangar also seems to have been recruited for a new use as a maintenance building for the trucks and jeeps parked in the adjacent sheds, because the Building Book bears a handwritten notation under the hangar photo stating it was "used for Cronkite [sic] Motor Pool."²⁰ Whether this new function was the result of intentional planning by the army or personal initiative on the part of Coast Artillery GIs is unknown.

Midway through World War II, the hangar began to be modified from its original 1920 configuration as its use as a motor pool became firmly established. The first major alteration occurred in August 1943 when the sliding balloon doors were removed and their opening enclosed with materials salvaged from the doors. Vehicle access to the interior was now to be provided by two 10'x 12' sliding doors and personnel access was via two 3'x 6'8" doors, one in each of the larger doors. As part of the remodeling, the steel gantry frames supporting the rolling doors, technically known as bents,²¹ were also demolished. In November, a two-room office with adjacent latrine for the motor pool was constructed in the northeast corner of the building, just inside one of the new vehicle doors. Built of tarpaper covered board-and-batten walls with an angled roof, the

no frills office was probably similar to "emergency" construction buildings erected elsewhere by the army about the same time.²²

In 1944 the vehicle sheds underwent their first alteration when the southern third of today's Bldg 901 was enclosed to create a paint shed, probably for painting motor pool vehicles. To accomplish this, six stalls at the end closest to the hangar were enclosed on three sides with wood framing and plank walls. (The fourth side was already enclosed by the existing shed end.) Vehicle doors and windows were included in the new walls, and new windows added to the existing end wall.²³ This area today serves as a combination office/break room and tack room for the Presidio Stables.

Post-War and Cold War Eras

The army records contain no information on uses of the balloon hangar following World War II but likely the structure was left empty, as were dozens of other buildings in Forts Baker and Barry when the army demobilized following the war. This era of quiet was to be short-lived, however, because in 1951 the army began to re-arm the Headlands forts at the outbreak of the Korean War. This time the anticipated threat was from enemy aircraft rather than warships, and radar directed anti-aircraft guns began to be emplaced on hilltops throughout Forts Baker, Barry and Cronkhite.

In 1953 the army began to upgrade its anti-aircraft

West Vehicle Shed, Ft Barry, 1942. (PARC, GOGA 32423)



gun batteries with radar directed surface-to-air Nike missiles. These missiles were state-of-the-art in the early 1950s and required highly trained artillery crews to operate and maintain their complex electronics and propulsion systems. The army planned to construct permanent launch sites at two locations in the Headlands for the storage and maintenance of the missiles, but their completion dates wouldn't be until 1955. When the first missiles arrived in the Headlands in mid-1953, their emplacements were earthwork field positions located in the vicinity of the not-yet constructed permanent launch sites. Maintenance would have to be carried out elsewhere.

As part of the support system for the new Nikes, the former motor pool in the Fort Barry balloon hangar was converted into a "heavy armament repair shop" where the missiles could be serviced and repaired. For a second time the building was altered for a new use, but this time with more radical results. As part of the renovations the following actions took place:

- New 4" concrete floor slab poured atop existing 6" concrete floor throughout the interior
- Both vehicle doors removed and replaced with a single, larger roll-up door in the location of the former eastern door.
- Installation of gas heaters, compressed air lines and water lines
- New electrical service and light fixtures
- Addition of a concrete apron along the north end of the building for use as a wash stand
- Replacement of corrugated roof
- Replacement of existing glass windows with double-wide courses of translucent plexiglass windows
- Replacement of lowest course of corrugated siding on all four sides with heavier gauge corrugated cement asbestos siding
- Construction of a three small structures within the hangar: a new latrine in the northwest corner; a new tool room and parts room structure in the southwest corner; and a new office in the northeast corner that replaced the 1943 structure.²⁴

By 1954 the use of the building was clearly known, and a floor plan prepared on 21 May that year clearly labeled the structure "Nike Assembly

Area." This drawing shows the interior of the hangar totally converted to missile servicing activities, with the bays on both sides being used as test areas for assembled missiles and various missile subassemblies and components.²⁵ (See figure "Bldg 907 – Ft Barry / Nike Assembly Area" 21 May 1954).

In 1955 the two permanent launch sites in the Marin Headlands were completed and designated SF-87 at Fort Cronkhite and SF-88 at Fort Barry. Despite the fact that each site was equipped with its own assembly and test buildings, the hangar continued to serve as a central maintenance facility for the two sites. In a 1998 interview, former Chief Warrant Officer Peter Bohan of SF-88 stated that the hangar operated as a first-level maintenance facility where repairs were carried out that couldn't be handled at the launch sites but that didn't require transport to the higher-level maintenance facility at the Presidio.²⁶

Repairing missiles in the Fort Barry hangar seems to have been preferable to sending the weapons to the Presidio for another reason: in order to transport a missile across the Golden Gate Bridge, it had to be disassembled and placed in containers ("canned") for security reasons. By contrast, the Nike-Ajax missiles could be hauled intact to the hangar without risk of compromising security (or alerting civilians) since they never had to leave the military-controlled area.

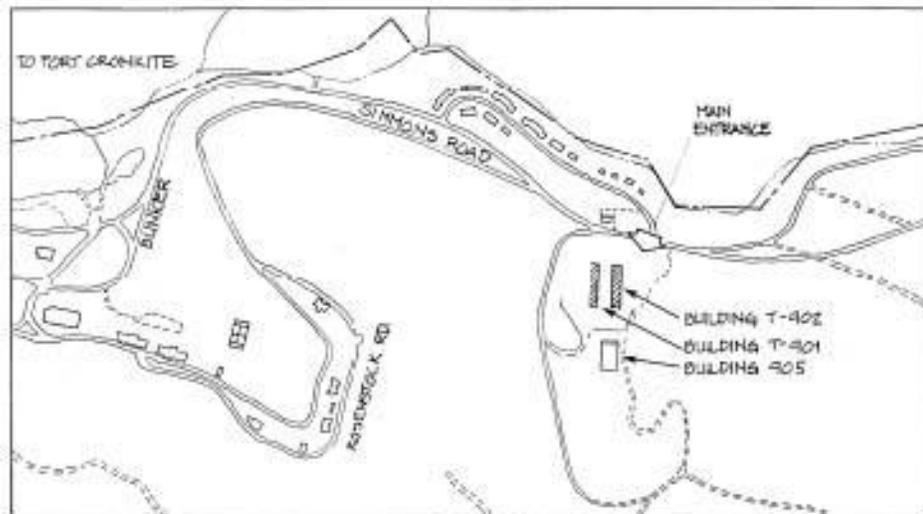
Here's how Bohan described the hangar's use:

[The hangar] was not a full-time operation, either. So if a missile had to be tested by their people [i.e., technicians from Fort Baker] according to their manuals, OK, we'd take the missile and we'd bring it on over to the hangar. Now, let me put it this way. We did not 'can it' when we took it to the hangar. We weren't out in a public area. But if we went down to Fort Baker or anyplace else, OK, then they canned it there at the balloon hangar or we canned it at the site because we knew it was leaving the area altogether.²⁷

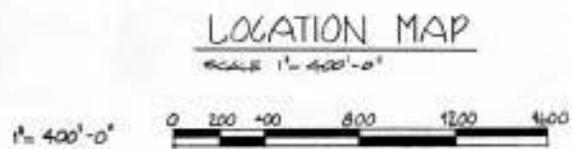
It is not known exactly when missile repairs ceased to take place at the hangar, but it must have continued well after 1959 because in September that year, a small frame building was constructed on the south side of the hangar for an air compressor and two air receivers, replacing the portable air compressors that had served the building since 1953. The compressed air was piped from the new building to the various assembly and test stations lining the sides of the hangar, where it was used to test hydraulic and



Above: Ft. Barry Aerial, circa 1970. (U.S. Navy)



Ft. Barry Location Map, 1985. (NPS)



compressed air systems inside the missile bodies.²⁸ This date also corresponds to the period when the original Nike-Ajax missiles were being replaced at the two Headlands launch sites by the much larger Nike-Hercules missiles, and the new air compressors were likely needed to provide additional pressure for the Hercules' more robust systems.

Riding Stable Era

As stated above, it is not known exactly when the Nike service facility was phased out, but in 1966 the Presidio Riding Stables assumed control of the balloon hangar complex. Operating under a permit from the Sixth U.S. Army, the stable members converted the former vehicle sheds into tack rooms and horse stalls, and constructed paddocks and corrals adjacent to the sheds.²⁹ Inside the balloon hangar itself, a riding rink was created by lining the perimeter of the central open area with stout wooden planks and filling it with clean dirt and sand. The former office building at the northeast corner was turned into an informal storage area, and the tool room/ supply room at the opposite corner was left abandoned in place. The missile assembly and test bays located outside the rink served as additional 'dead storage' for the stable operation. The only physical alteration to the hangar seems to have been the demolition of the 1953 latrine located in the northwest corner of the hangar and the creation of two emergency exits along the side of the hangar. (The latter were made by the simple expedient of removing several corrugated panels and installing paper "EXIT" signs over the resulting openings.)³⁰

²³ Drawing "Paint Shed in Motor Shed No 143, Regimental Motor Pool, 6th CA", Plan 7143-E182, 17 January 1944. Drawer 213, Folder 1, PARC, GOGA. Drawings "Conversion of Balloon Hangar for Use as Armament Shop" (4 sheets), 30 June 1953. Drawer 213, Folder 1, PARC, GOGA. Drawing, "Bldg 907 - Fort Barry / Nike Assembly Area", 21 May 1954. Drawer 213, Folder 1, PARC, GOGA. Oral History interview with CWO Peter Bohan, U.S. Army (ret.). 1998. GOGA-2647. PARC, GOGA. Bohan Drawing, "Bldg 907 - Fort Barry, Housing for Air Receivers". 15 September 1959. Drawer 213, Folder 1, PARC, GOGA. Public information handout sheet prepared by the Presidio Stables, n.d. On-site inspections of Fort Barry Balloon Hangar, January and April 2004. "Progress Report: Installation of Septic Tank at Leaching Field, Horse Stables, Bldg 901, Fort Barry", 6 July 1977. ADPWE-2, Box 14, Folder "Installation Septic Tank", PARC, GOGA. At the time this report was prepared the project had been temporarily halted awaiting unspecified NPS actions. "Report of Proceedings of the Governing Council for the Presidio Riding Club", 17 October 1984. ADPWO-3, Box 5, Folder "PSF Riding Stable", PARC, GOGA. "Report of Proceedings of the Governing Council for the Presidio Riding Club", 17 December 1984 and 1 February 1985. ADPWO-3, Box 5, Folder "PSF Riding Stable", PARC, GOGA. Drawing, "Rewire Stable Facilities at Fort Barry, Buildings T-901 and T-902", 30 July 1985. Drawer 213, Folder 1, PARC, GOGA. Letter, Supt. Brian O'Neill, GOGA, to Lt. Col. Davis, HQ 6 U.S. Army, 5 July 1994. ADPCA, Box 3, Folder "Riding Club", PARC, GOGA. Interview with Jay Eichenhorst, GOGA Business Office, 6 July 2004.

Throughout their occupancy of the hangar complex the Riding Stables have continued to carry out periodic upgrades to the structures, albeit primarily the former vehicle sheds, to deal with problems such as poor drainage, sanitation, and security upgrades. These actions have included installation of a septic tank and leeching field in 1976³¹; re-roofing the sheds and installing fire detector systems in 1984³²; installing additional wooden flooring in the stalls along with an exterior ramp to deal with bad drainage in the west paddock in 1985³³, and replacing the existing power distribution and electrical lighting systems in 1985.³⁴

In 1994, with the closing of the Presidio imminent, the Presidio Stables formally incorporated themselves as the "Presidio Riding Club". Following base closure of the Presidio, the stables were issued a renewable year-to-year Special Use Permit by the Golden Gate National Recreation Area to carry out the programs.³⁵

At the time of this writing, the Presidio Riding Club still continue their operations in the three historic structures, and are still negotiating with the National Park Service for a long-term lease on the complex.³⁶

(Endnotes)

¹ "Historic Resource Study: Forts Baker, Barry, Cronkhite, Golden Gate National Recreation Area", by Erwin Thompson, Denver Service Center, NPS, 1979. Pg 93-94

² Photographs, "USTC Fort Barry Target Range October 1917" and "ROTC No. 62 Fort Barry", both in GOGA-3045, PARC, GOGA

³ Thompson, pg 94. ⁴ Air Service Newsletter, 29 December 1920. ⁵ Air Service Newsletter, 29 December 1920. Drawing "Standard Dirigible Balloon Hangar for Aviation Station", 1920, Park Archives & Records Center (hereafter PARC), Drawer 213, Folder 3

⁷ Blueprints, "Dirigible Balloon Hangars for Aviation Stations, Construction Division, War Department, Washington, D.C.", Contract 9528. Dated 8/20/1920 and 9/29/1920. Drawer 213, Folder 1, PARC, GOGA

⁸ Gregory, pg 204. ⁹ Air Service Newsletter, 12 January 1921. ¹⁰ Air Service Newsletter,

15 March 1921. ¹¹ "Completion Report On Construction of Balloon Hangars, Generator Houses, etc. at Forts Barry and Winfield Scott, Calif. Under Lump Sum Contracts by Lange & Bergstrom and McClintic-Marshall Co.", by Lt. Col. Ira L. Frendendall, Constructing Quartermaster, Q.M. Corps, 30 June 1921. Construction Completion Reports, Entry 391, Box 286, Record Group 77, Office of the Chief of

¹⁴ Engineers, NARA. "Completion Report", page 9-10. "Completion Report" page 8. "Historic Record of Buildings, Fort Barry, California". Entry for Bldg 141 "Hangar (Balloon)". Park Archives & Records Center (PARC), Golden Gate National Recreation Area (GOGA).

¹⁵ "Historic Record of Buildings, Fort Barry" Drawing, "Fort Barry - Cal. Showing Balloon Hangar Etc.", 27 July 1921. Drawer 213, Folder 1, PARC, GOGA.

¹⁷ "Historic Resource Study: Seacoast Fortifications, San Francisco Harbor", by Erwin Thompson, Denver Service Center, NPS, 1980. Pg 288. "Historic Record of Buildings, Fort Barry"

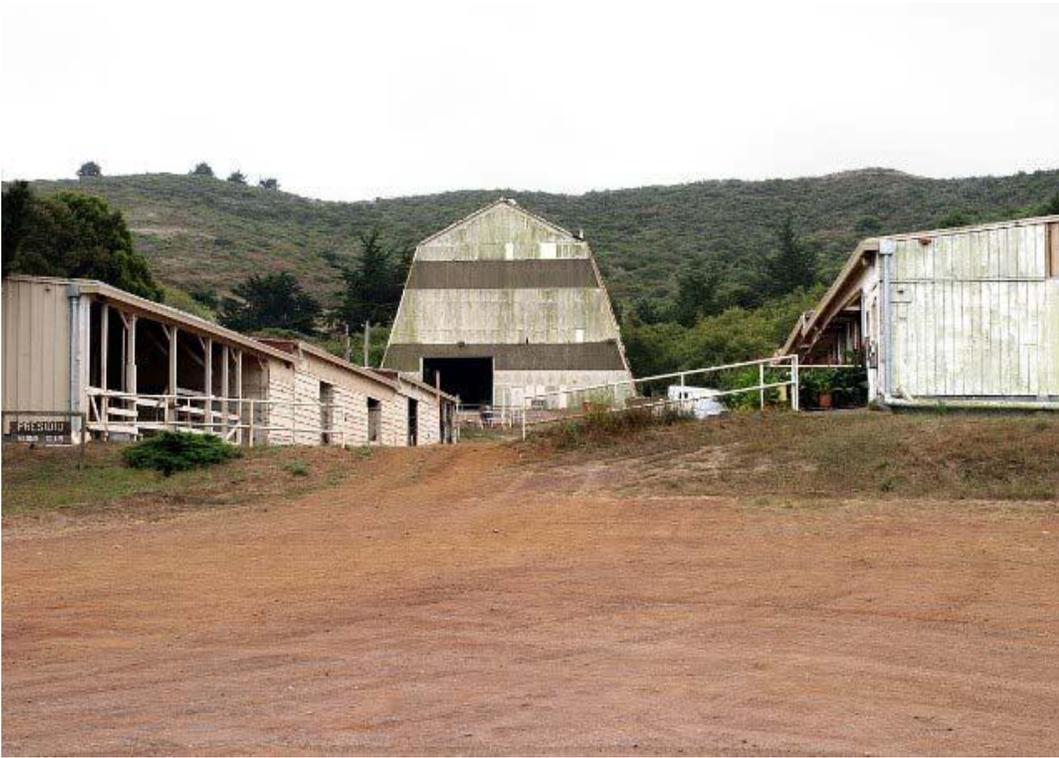
¹⁹ "Historic Record of Buildings, Fort Barry, California". Entry for Bldgs T-142 and T-143 "Motor Vehicle Shed (Temporary)". PARC, GOGA.

²⁰ "Historic Record of Buildings, Fort Barry, California". Entry for Bldg 141 "Hangar (Balloon)". Park Archives & Records Center (PARC), Golden Gate National Recreation Area (GOGA). The handwriting beneath the photo matches handwriting used to make entries elsewhere on the page dated 1940.

²¹ Drawing, "Alterations to Balloon Hangar, Fort Barry," 24 August 1943. Drawer 213, Folder 1, PARC, GOGA.

²² Drawings "Offices for Fort Barry Motor Pool Inside Balloon Hangar, Bldg #141, Fort Barry, California", 10 November 1943, and "Latrine at Bldg No. 141,

¹⁶ Ft Barry, Motor Pool for the 6th C.A.", 26 November 1943. Both, Drawer 213, Folder 1, PARC, GOGA



Rodeo Valley Stables
(Balloon Hangar, Motor Vehicle Sheds and Rifle Range Camp)
Forts Baker, Barry and Cronkhite National Register Historic District

Cultural Landscape Report

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Introduction

Management Summary

Contributing features located within the boundaries of Fort Barry Balloon Hangar and Motor Vehicle Sheds landscape meet management criteria under Category B: Should be Preserved and Maintained. The landscape meets the necessary requirements for management under this category as a result of its compatibility with Golden Gate National Recreation Area's legislated significance and its continuing purpose or function that is appropriate to its traditional function or use.

Excerpted from the upcoming *General Management Plan*:

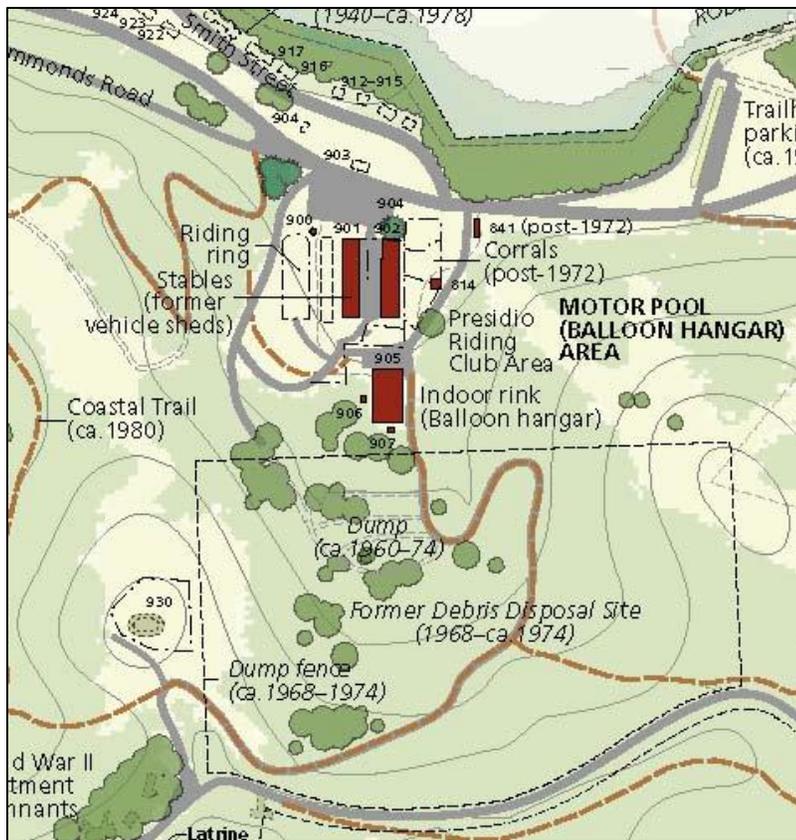
Diverse Opportunities Zone (lower elevations of Rodeo Valley along Bunker Road and Fort Barry and Fort Cronkhite) This zone would be managed to provide visitors with a variety of recreational, educational, and stewardship activities consistent with the protection of the nationally significant cultural resources in the area. Visitor amenities could be expanded to include improved trailheads, accessible trails, camping, picnicking, and orientation. These facilities would welcome visitors and give access to the adjacent natural areas. Fort Cronkhite would become the visitor portal to the Headlands. This alternative would build upon the nucleus of existing programs offered by the park and its partners that contribute to the concept of a "Center for the Environment." Rehabilitated structures and limited new construction would continue to be used by the park and its partners to provide visitors with an expanded menu of opportunities that are strongly linked to the park's purpose. Programs would focus on environmental education, science, history and culture, recreation, healthy lifestyle activities, and special events. Housing for staff, interns, and volunteers of the park and its partners would be provided. Equestrian facilities would be supported in this area of the Headlands. This zone would also continue to provide for park operational needs including maintenance, public safety, staff offices, and a plant nursery facility. The chapel at Fort Barry could be adapted as a multiuse meeting and program facility.

Scope of Work and Methodology

This document relies on the scholarship of existing documents, namely the Fort Barry Balloon Hangar and Motor Vehicle Sheds Historic Structure Report, completed in 2004; Preliminary Cultural Landscape Report for the Departmental Rifle Range, completed in 2010; and the Site History section of the Draft Forts Baker, Barry, Cronkhite Cultural Landscape Report, 2011. Limited historic research conducted to complete this effort. The front matter for this report includes site history information.

Study Boundaries

The Area of Potential Effect, as defined by the *Marin Equestrian Stables Plan and Environmental Assessment* (MESP) is the entire Baker, Barry, Cronkhite historic district. The focus for analysis and treatment is the U-shaped valley bounded by Bunker road across the top (north) of the U and the 200-foot contour line that defines the ridge of the U and within which the effects of the MESP are concentrated and visible.



Summary of Findings

Although the resources were not evaluated as a landscape, the 1973 National Register of Historic Places form, expanded in 1979, lists the Fort Barry Balloon Hangar as a contributing feature to the Forts Baker, Barry and Cronkhite Historic District. When a National Historic Landmark nomination for the Seacoast Fortifications of San Francisco Bay is completed in the near future, the hangar will be listed as a contributing structure. The hangar, building FA-905, is also included on the List of Classified Structures.

Two documents written about the Golden Gate National Recreation Area contain sections about Fort Barry and the Balloon Hangar. The Historic Resource Study entitled *Seacoast Fortifications San Francisco Harbor* was written by Erwin Thompson and published by the National Park Service, Denver Service Center, in May 1979. Shortly after this document another Historic Resource Study, *History of Forts Baker, Barry and Cronkhite*, was written by Erwin Thompson and published by the Denver Service Center in November 1979. Additional documentation is found in the Preliminary Cultural Landscape Report for the Departmental Rifle Range, Chris Rurik 2010 and the draft Cultural Landscape Report for Forts Baker, Barry and Cronkhite by John Aurwaerter.

The extant contributing resources include three buildings including the Balloon Hangar and two Vehicle Sheds, internal unpaved circulation systems, and topographic benches. The landscape characteristics that define the character of the site include spatial organization, natural systems and features, topography, circulation, buildings and structures, and archeological sites. Collectively, these resources and landscape characteristics help convey the overall design and function of the landscape Balloon Hangar and Vehicle Sheds.

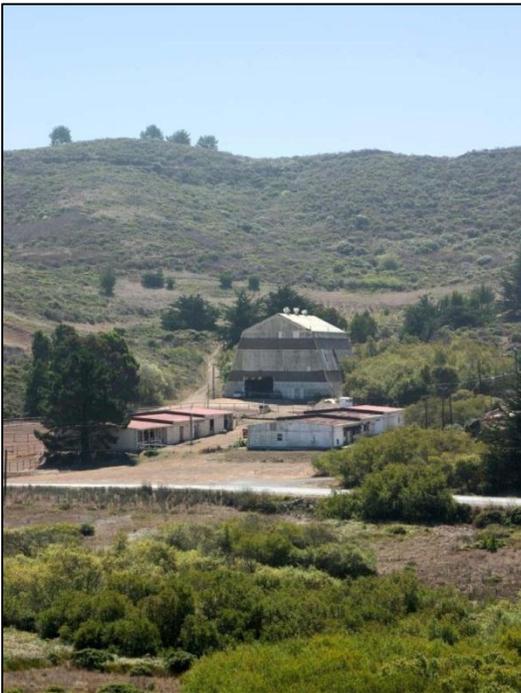
Existing Conditions

The Balloon Hangar and Vehicle Sheds are located along Bunker Road, south of Rodeo Valley in the Marin Headlands. The area is within the boundaries Fort Barry, a part of the Baker, Barry, Cronkhite National Historic District of the Golden Gate National Recreation Area.

Strategically located in a rural natural setting near the head of Rodeo Valley, the building complex is shielded by adjacent hillsides from the prevailing winds, an important consideration when siting a balloon hangar. The Balloon Hangar easily dominates the site, located on a slight rise and towering above the adjacent two structures. The flanking landscape has evolved away from the grassy pastureland it was when first inhabited by the Army starting in 1904. It has grown in with a mix of indigenous and non-native woody species; Monterey cypress escaped from nearby military plantings, willows grown up along a perennial stream and coyote brush are the principal canopy types found today. A large Monterey pine hovers above the north face of the eastern Vehicle Shed. The areas adjacent the Vehicle Sheds and north of the Balloon Hangar, the essential working area of the stable operation, remain clear of any woody material.

Since 1966, prior to the close of the period of significance in 1974, the Presidio Riding Club has operated a riding and stables facility in this area, initially utilizing the surplus Army structures and land and later, operating under an agreement with the National Park Service. The changes in use from military to civilian have equated to few and minor changes in the landscape. Segments of the circulation system, seen in photos from circa 1970, have become obscured by vegetation in the years since. Elsewhere, the gravel roads exist in much the same configuration as they have since the National Park Service took over the area.

The decades long use as an equestrian center has had few impacts on the already heavily-used landscape, so that most of the character defining features are intact and legible. Alterations to the buildings – both the Vehicle Sheds and the Balloon Hangar, have been the biggest change in the landscape and these changes are considered reversible. The historic character is intact due to the remaining features and landscape characteristics that have persisted since the end of the period of significance.



The Balloon Hangar, completed in 1921, towers over the adjacent landscape features. Though uses of the facility changed over the years, the landscape has retained its historic character.

Analysis and Evaluation of Landscape Characteristics

The focus of the analysis and evaluation is on the cultural landscape characteristics and features that support treatment recommendations.

Landscape characteristics that contribute to the designed landscape of the Balloon Hangar area are described in the following sections:

- Natural Systems and Features – Describes the response of the development to the conditions of the environment including topography, water, and native vegetation.
- Spatial Organization - Describes the relationship between site features.
- Topography - Describes the man-made earth forms.
- Buildings and Structures—Describes the structures as an expression of an utilitarian military architectural style.
- Circulation—Describes the designed systems that allow movement through the site, connecting to adjacent areas.
- Archeology—Both pre-historic and historic archeological remains are known to be on the property.

For each of these characteristics, the physical integrity is documented and evaluated in order to identify the landscape features and attributes that contribute to the significance and define the historic character. While Archeology is also considered a landscape characteristic that contributes to the historic character, neither archeology-specific evaluations nor treatment recommendations are made in this CLR. Please refer to the Archeological Assessment and Treatment Report included in this set of cultural resource reports.

Natural Systems and Features

The site in its natural state was a U-shaped valley opening towards the north, drained by a small rivulet that eventually merged with the larger Rodeo Creek running down the middle of the valley. Sheltered from the prevailing westerly winds, the small valley was typified by low growing, herbaceous vegetation. The distinctly steep topography separated the site from the bay to the north, the Rifle Range to the east and the Fort Barry cantonment and Pacific Ocean to the west. The geology is also revealed in the ruddy chert, which was heavily quarried for road surfaces throughout the Headlands. Early maps indicate the presence of a wetland adjacent the site.

Natural systems and features continue to influence the appearance and form of the site and contribute to the historic character of the landscape and its overall setting. The creek has been channelized and, in some cases, piped underground, as it runs through the site. Its path remains clearly delineated by wet areas and wetland vegetation along its course. Although the vegetation character has evolved over the years, changes in vegetation types do not compromise the integrity of the response to natural systems and features and it is a landscape characteristic that contributes to the significance and helps defines the historic character.



Golden Gate NRA, Park Archives, TASC Negatives Collection, GOGA 35301.0963

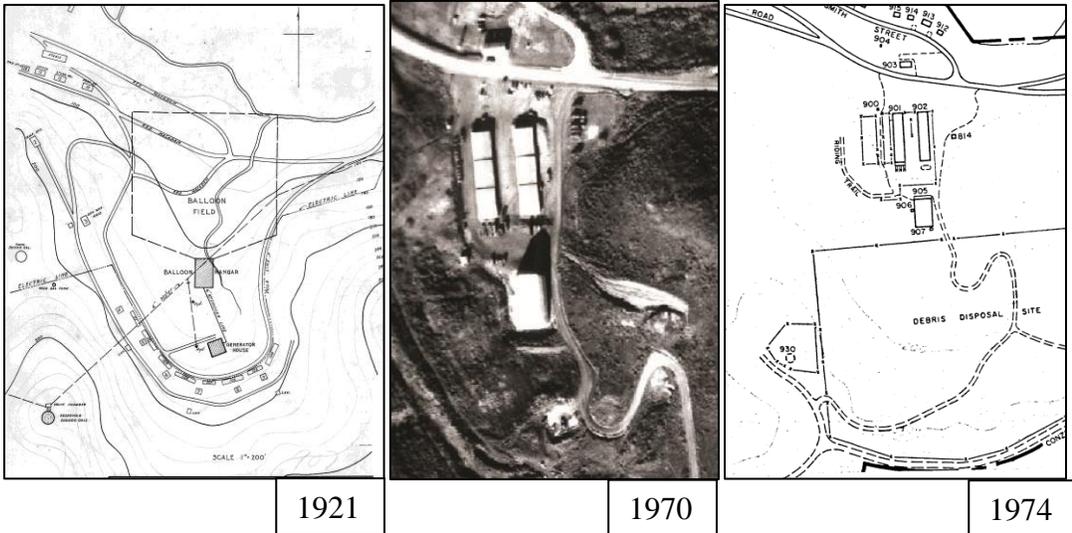
During the military era, low growing vegetation emphasized the steep topography. Fort Barry cantonment, surrounded by planted Monterey cypress and pines, is located at the bottom of the frame; the rifle range is seen just above the Balloon Hangar and Vehicle Sheds. Circa 1963

Spatial Organization

The landscape retains its overall organization, defined in large measure by the topography that was manipulated during the Army's initial construction on the site in 1904. The constructed landforms emphasized the naturally occurring U-shaped valley, and established the location for the "ring road" which provided access to the Rifle Range barracks once located along the upper terrace. The central area was left open, possibly due to drainage.

The Balloon Hangar was sited within this central area, and a roadway extended both east and west from just north of the building. Later, the Vehicle Sheds were located just to the north, in the area that had been the Balloon Field. By the close of the period of significance, the Presidio Riding Club had moved in and constructed a riding ring on the plateau to the west of the Vehicle Sheds formerly occupied by Rifle Range buildings and began to stable horses within the Vehicle Sheds. The area to the east of the Sheds was adapted as a horse turn out (corral).

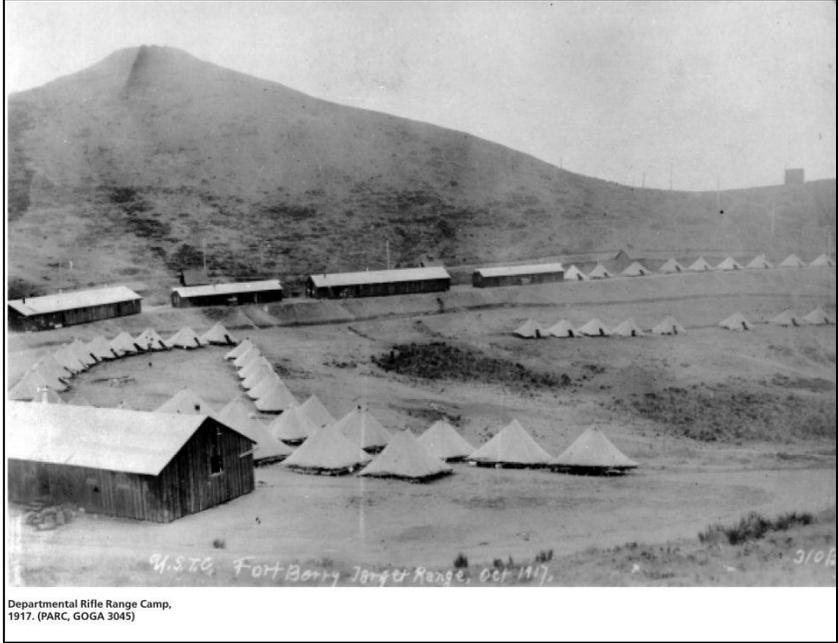
The spatial organization of the site remains intact and processes a high degree of integrity. The modifications made to accommodate the equestrian facility since the end of the period of significance are minor, reversible and do not compromise the historic character.



The Army granted use of the Motor Pool area to the Presidio Riding Club in 1966; the riding ring was installed by 1974.

Topography

As seen in photographs, the future balloon hangar site initially served as the temporary camp site for enlisted men and officers assigned to the Departmental Range, and during the course of constructing the range the curving perimeter of the valley was carved into two parallel benches or terraces for the quarters. The upper terrace held permanent (albeit crudely built) mess halls, latrines, and living quarters for officers while the lower bench held prepared platforms where enlisted men and NCOs would pitch tents for the duration of their stay at the range.



Departmental Rifle Range Camp, 1917. (PARC, GOGA 3045)

Though it has been somewhat modified over the years, the earliest topographic changes made to the site are still evident and contribute to the historic character.

Buildings and Structures

Excerpted from the *Fort Barry Balloon Hangar and Motor Vehicle Sheds Historic Structures Report*:

Balloon Hangar

The specifications for each hangar complex were identical, calling for a steel hangar covered with galvanized iron, 120 by 76 feet, rising to an elevation of 60 feet; a generator house of steel construction on a concrete foundation, 80 feet square; a frame storehouse, 30 by 70 feet; and a frame garage 30 by 60 feet. In addition, each group of buildings required six acres of surrounding land, much of it for use as a landing field and staging area for the ground support and mooring equipment.

In its original form, the Balloon Hangar was a rectangular building measuring 77' x 120' with sloping sides and a peaked roof, reaching a maximum interior height of approximately 65' 10". The most notable feature of the building was a pair of sliding doors on its north façade, each measuring approximately 22'9" wide x 44'9" high, which slid open a supporting gantry to allow entry of an inflated balloon. Original completion drawings for the hangar have not been located, but apparently the interior was entirely open in this initial configuration. With its 120' interior clear space, the hangar was easily large enough to accommodate simultaneously an inflated Type C3 observation balloon and a smaller free balloon.

Though it has undergone changes including removal of the doors to accommodate the Nike missile repairs and conversion to an indoor riding rink, the building has retained its integrity.



During the ramp up to World War II, the old balloon field area north of the hangar became the site of two expansive vehicle sheds hastily constructed to house the growing fleet of vehicles assigned to the posts. These sheds were virtually identical, each measuring 46' x 216' and consisting of 18 covered bays arranged in three stair-stepped sections of six bays each. The sheds were constructed according to standardized drawing #700-329, and were completed in September 1940 at a total cost of \$8,976.28. Slight modifications have occurred, but the Vehicle Sheds retain their basic form and are considered to contribute to the historic character of the site.



West Vehicle Shed, Ft Barry, 1942.
(PARC, GOGA 32423)

Circulation

The circulation system has evolved with changing site uses over the years. Earliest maps and photographs suggest the systems of movement were limited to ring roads on the upper and lower terraces within in the site, providing access to mostly barracks and tents, and none of the roads were ever named. The Balloon Hangar introduced a different kind of role. Though the function of the balloon itself was actually very short lived, the structure was likely used for storage, which would have introduced movement of trucks in and out of the site and possibly even required a different layout. The Vehicle Sheds implied even more intense activity in and around those structures, blurring the lines between parking areas, roadway and open space. Roads to Balloon Hangar, converted to a missile repair facility, and then an indoor riding ring, have remained fairly fixed.

The exact location and width of original paths and roadways has become blurred with the encroachment of woody vegetation across the site. The construction material of the paths, roads, and associated parking areas has remained a constant, however. The locally quarried chert, used widely through the Headlands, has been a sustaining characteristic of this site as well as well as the un-designed, rural quality.

It is assumed that all roads on site today are contributing features of the circulation system, as evidenced by the circa 1970 photograph below.



Treatment

Treatment is based on *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (1996). Consideration was given to the historical significance and physical integrity of the resources as well as to the actions proposed within the *Marin Equestrian Stables Plan and Environmental Assessment* (2011). To best accommodate these factors, the preferred treatment for above-grade landscape characteristics is rehabilitation which focuses on contemporary use of the cultural landscape and historic structures.

Rehabilitation is defined by the *Secretary's Standards* as, "the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features which convey its historical, cultural, or architectural values."

Treatment of archeological resources is not detailed in this Cultural Landscape Report. Specific treatments for these resources have been addressed elsewhere in this set of cultural resource reports.

Based on the existing National Register documentation, the period of significance for the Baker, Barry, Cronkhite Historic District is from 1866 to 1974. However, resources associated with the balloon complex fall within a period beginning in 1920, with the construction of the Balloon Hangar, and ending with the decommissioning of the fort and Nike systems in 1974. With such a long period of significance, no attempt is made to “freeze” the landscape in a single year; rather the goal is to retain character-defining features that contribute to the integrity of the site and to guide future improvements to ensure modifications are compatible. Treatment focuses on the general attributes and appearances of the landscape and strives to preserve the features and qualities of the 1920 to 1974 setting, to enhance the character.

The *Marin Equestrian Stables Plan and Environmental Assessment* identifies alterations to the cultural landscape needed for programmatic, environmental, life/safety, and to rehabilitate the site as an equestrian operation, park horse patrol and heavy-vehicle / maintenance storage site (in the Balloon Hangar). The purpose of this Treatment section is to set parameters for modification of historic features and provide guidance for the introduction of new features into the landscape in a manner that improves the condition of, is compatible with, and results in no adverse effect to the historic district. This section provides both general preservation principles, and specific recommendations for treatment of cultural landscape resources. Recommendations are topically formatted into categories following the landscape characteristics presented in the analysis and evaluation. Specific design guidelines are presented to address resources identified within the *Marin Equestrian EA* and the associated Errata and Finding of No Significant Impact and are intended to guide the design decision-making process for implementation of the final action alternative. .

These recommendations build on and borrow from the *Design Guidelines for the Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan*. Additional guidance may be found in the forthcoming *Cultural Landscape Report for Forts Baker, Barry and Cronkhite*.

Treatment Principles

Secretary of the Interior’s Standards for Rehabilitation

1. *A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.*
2. *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.*
3. *Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.*
4. *Changes to a property that have acquired historic significance in their own right will be retained and preserved.*
5. *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*
6. *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*
7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*
8. *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*

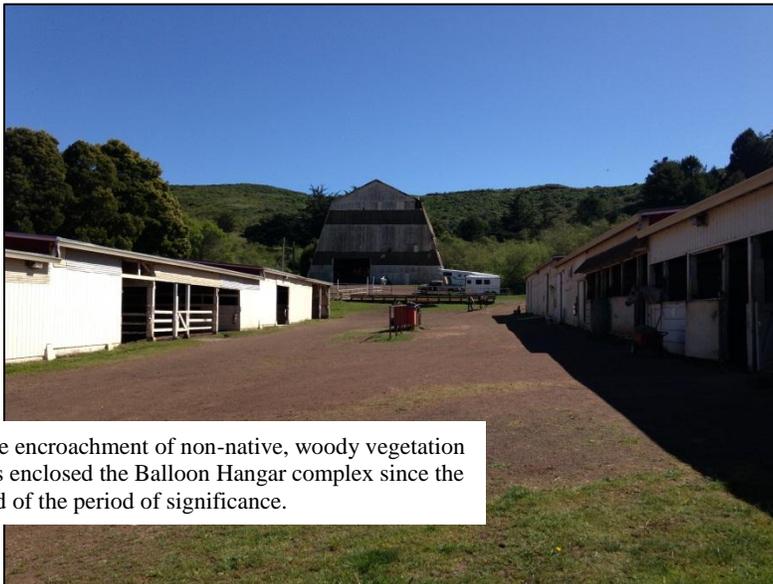
9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*
10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Treatment Recommendations

The following Treatment Recommendations are provided by landscape characteristic, with an emphasis given to preserving the utilitarian, military character.

Natural Systems and Features

- Preserve and maintain the natural systems and features that include specific vegetation types.
 - Remove non-native species in consultation with natural resources.
 - Manage open grasslands and coastal scrub plant communities that surround the developed area and contribute to the historic character of the site.
 - Insure that all resident and guest horses are fed only weed-free feed to reduce the risk of invasive plant introduction.
 - As volunteer trees reach the end of their lifespan, do not replace, except where they create a screen from non-historic additions.



The encroachment of non-native, woody vegetation has enclosed the Balloon Hangar complex since the end of the period of significance.

Spatial Organization

- Preserve and maintain historic development patterns where feasible, including: the limited development, the orientation, and the shape and rectilinear spaces formed by spaces between the buildings, the open nature of the space surrounding the historic buildings.
- Attempt to locate compatible existing or new program uses within existing historic structures, respecting the recommendations found within the Historic Structure Reports.
 - If it is not possible to re-use existing buildings, avoid siting new structures within the historic cluster of buildings, or on within historic circulation routes.

- Avoid addition of new buildings, structures, utilities or circulation features within the historic core to the degree possible.
 - If new buildings or structures are required, ensure they reflect a compatible, contemporary design that is distinguishable from the historic, but employ materials, massing, and the military vocabulary found throughout Fort Barry.
 - New buildings or structures should be as non-intrusive as possible while allowing for utility, functionality, accessibility, and safety.
 - New buildings or structures should recede visually into the landscape, unless they reinforce historic patterns of spatial organization.



The spatial organization has remained intact since the end of the period of significance and contributes to the historic character of the site.

Imagery ©2013 Data CSU, S. SFML, CA OPC, DigitalGlobe, U.S. Geological Survey, USDA Farm Service Agency -

Buildings and Structures

- When accommodating programmatic needs, it is preferable to reuse existing historic structures rather than construct new facilities. Any modifications must be approved by the park’s historical architect.
- Retain the overall rural character by designing new features to appear minimally intrusive and to be compatible, yet distinguishable, from the historic resource.
- New features should match the historic elements of design, color, texture, scale, massing, orientation and materials.
- Any new development should be compatible and reversible.

- For example, painting or staining the bleachers so they have less visually impact. A neutral shade that blends into the vegetation to the west is recommended.

Circulation

- Maintain the historic circulation features in their understated character including specifically the alignment, paving surface, and absence of asphalt and striping, except where there is no feasible alternative for necessary compliance with universal accessibility guidelines.



The circulation system is a character defining feature that should be maintained.

- If a hardened surface is required, consider use of road base with a binding agent, such as Perma-Zyme®, TerraHold or a triple shot of chip seal, as has been proposed for Satterlee Road at Fort Baker.
- Do not define parking spaces with stripes.
- New circulation features should be located outside of the historic building core, where feasible.

If wheel stops are required, the use of dimensional lumber, 8X8 or larger, is appropriate.

Small Scale Features

- Maintain historic utilities, as feasible.
 - Introduction of contemporary utilities and facilities associated with operations should be visually compatible with historic structures within the core.
- Conduct historical archeological investigations to document remnant historic small scale features throughout the historic district such as dump sites, fence lines, utilities and infrastructure, the location of non-extant structures and foundation ruins.
- Limit the addition of new small scale site features for contemporary use. If new small scale features are required, the following guidelines apply:
 - New features should be designed in keeping with the historic character of the district and reflect a general utilitarian military style in terms of materials, style, color, and simplicity of design.
 - Simple, unadorned fences constructed from wood or metal are appropriate.
- Please also refer to *GGNRA Signage and Graphics Guidelines* (also known as the Hunt Guidelines), *GGNRA Parkwide Site Furnishings Standards* for additional guidance.

Topography

- Maintain the historic topographic benches in good condition throughout the landscape.
- To the degree possible, avoid retaining structures.
 - Should retaining structures be required, keep them as minimal as possible, with a focus on utilitarian aesthetic.



Topographic benches remain from the earliest military activity at the site and should be preserved intact.

Design Treatments

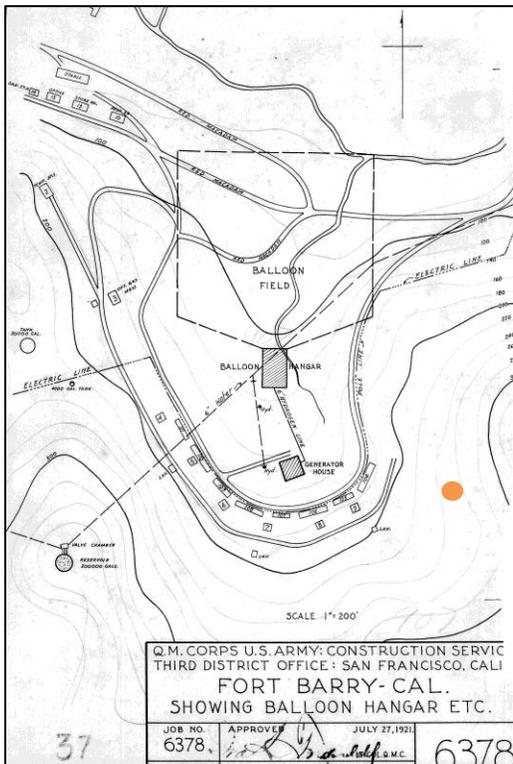
The following guidelines have been developed for specific landscape features that are anticipated to be altered through the actions proposed in the *Marin Equestrian Stables Plan*. These guidelines are intended to ensure that new landscape features are designed in a manner compatible with the historic character of the project area.

Recommendations for new uncovered turn-outs or lunging ring include:

- Turn-out may be located south of the riding ring.
- The fence and gate should be utilitarian in character, with no ornamentation.
 - Unpainted wood posts and rails are the preferred material.
 - Metal fencing may be used, provided the metal is either painted or stained a dark color.

Locate an accessible toilet within an existing structure, as feasible. If this cannot be accomplished, refer to the Treatment Recommendations for Spatial Organization / Cluster Arrangement for guidance.

A new water tank with emergency pump and generator are required. (The tank may be eliminated if it is shown that sufficient firefighting water is available from pressurized water mains or the nearby reservoir west of the site.) Consideration should be given to re-establishing a tank in the historic location, seen in a site plan dated July 27, 1921 with a pump and generator housed in either of the small buildings west or south of the Balloon Hangar. If this proves impractical, locate facilities west of the existing riding ring, outside of the core.



Historic location of the water tank is highlighted.

Compatible locations for new covered manure shed include:

- Inside the ruined FA-814, provided a roof is re-installed. Alternately, this building could be removed and a new structure could be located here for this purpose.
- Along the south end of the East or West Motor Pool buildings (FA-901 and FA902) provided the adjacent constructed terraces are not impacted.

Compatible locations for horse trailer parking include:

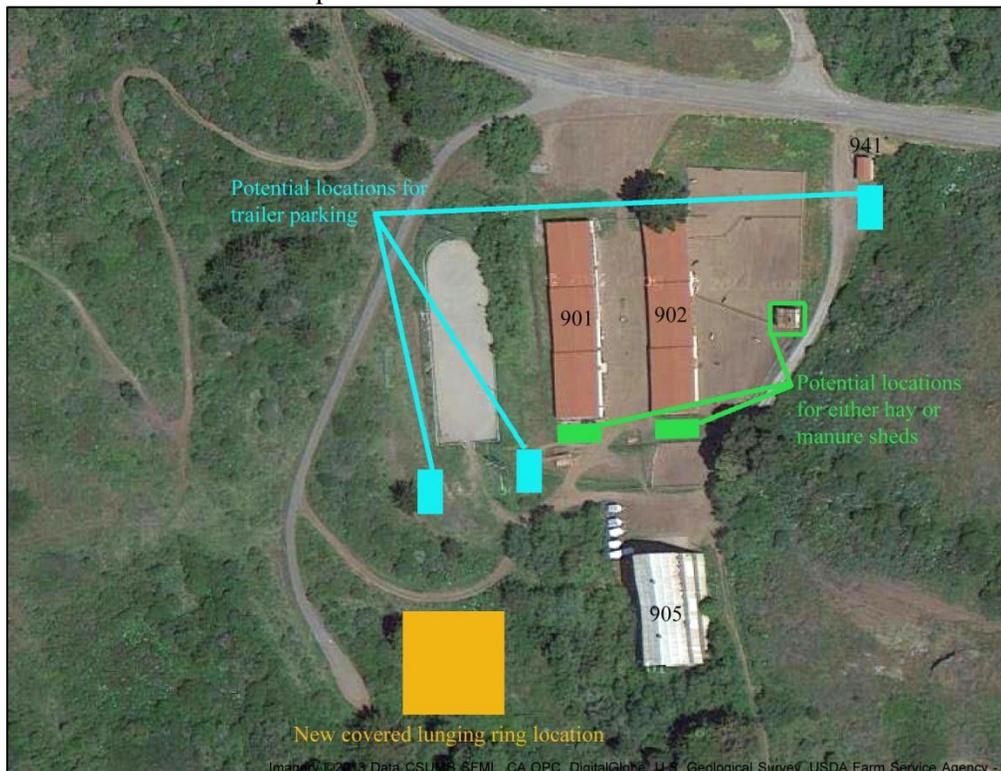
- To the degree possible, the horse trailers should be located outside of the historic building core, most especially away from the Balloon Hangar.
- South of the existing riding ring.
- South-west of the riding ring, provided there is no modification to the topographic bench.
- South of building FA-841, just south of Bunker Road .
- Overflow horse trailer parking may be considered to the south of the Motor Pool buildings if the locations are not used for hay or manure sheds.

Compatible locations for a new covered lunging ring include the existing level terrace west of the Balloon Hangar, or inside the footprint of building FA-901. (For specific guidance on locating the ring within the historic building, see the Historic Architect Jason Hagin’s Revised Site Visit, 1/10/2013.) If the ring is to be located outside, the following design guidelines apply:

- To keep the historic building pattern intact, cover the new lunging rink (typically oval in shape) with a rectangular or square canopy or roof.
- Special consideration should be given to the color and material of the canopy as it will be visible from the adjacent trails. Matte colors that easily blend into the hillside during the dry months are preferred, and the material should be absent of any sheen or reflective quality.
- Posts or bracing for the canopy should be non-reflective and fit in the character of the adjacent historic buildings.

If operator cannot provide approved fire safety plan for storage of feed and hay within the building FA-901, an alternate facility must be provided. Recommendations for compatible locations include:

- Inside the ruined FA-814, provided a roof is re-installed. Alternately, this building could be removed and a new structure could be located here for this purpose.
- Along the south end of either the East or West Motor Pool buildings, provided the adjacent constructed terraces are not impacted.



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**Rodeo Valley Stables
(Balloon Hangar, Motor Vehicle Sheds and Rifle Range Camp)
Forts Baker, Barry and Cronkhite National Register Historic District**

Historic Structure Reports

The complete historic structure report is available under separate cover as the *Fort Barry Balloon Hangar and Motor Vehicle Sheds Abbreviated Historic Structures Report*.

The following section contains a *Site Visit Summary*, prepared in April 2012 to assess the effects of the Marin Headlands Equestrian Stables Plan on, and provide treatment recommendations for, the Motor Vehicle Sheds

This section also contains *Memorandum* of July 2012, with documentation and treatment recommendations for the Balloon Hangar Utility Building, FA-814.

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Site Visit Summary

By: Jason N. Hagin, Historical Architect
Date of Report: 04/10/2012 (Revised 01/10/2013)
Park: GGNRA
Site: Fort Barry
Resource: FA 902 (east) & 901 (west)
Date/Time of Survey: 04/11/2012 at 10:00AM
Weather: Sunny and windy

Background

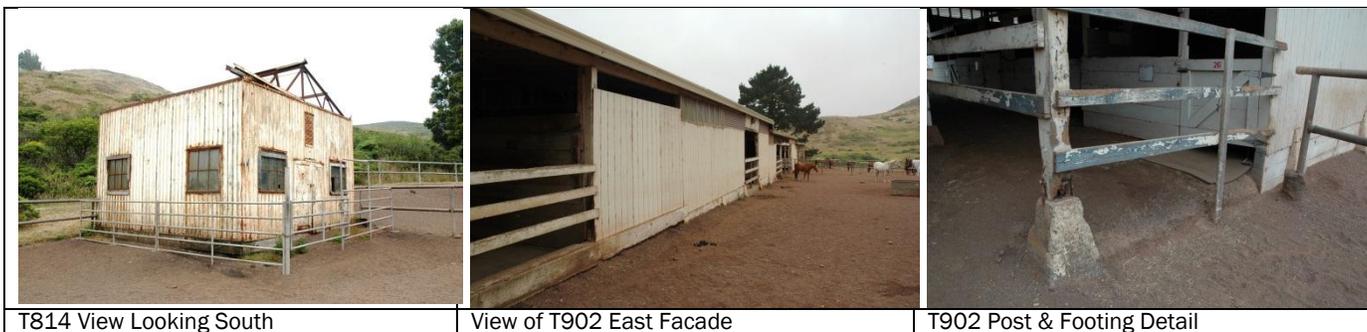
The Vehicle Shed Buildings 901 and 902 at Fort Barry, are contributing features of the Forts Baker, Barry and Cronkhite National Register Historic District. The buildings are 700 Series Mobilization Buildings built from United States Army OQMG Plan Number 700-372, have not been significantly altered over the years and retain a fair amount of character relative to that design. The buildings generally are in fair condition, although use since 1966 as riding stables has created a jumbled and mismatching vernacular treatment to the building layouts and site, a general lack of recurring and preventive maintenance and generally shoddy workmanship on repairs has attributed to general deterioration of the building envelopes and structural elements. Stable use is clearly a compatible one since Plan Number 700-372.2 shows stable details; although these do not appear to have been used in 1966. I was asked to provide preservation treatment recommendations in response to a recent equestrian use planning undertaking, as well as specific proposals from the “Presidio Riding Club” (PRC) for the adaptive reuse of the Motor Vehicle Sheds.

Condition Summary

The overall condition of the buildings is fair; there are early signs of wear and deterioration in wood load-bearing 6x6 posts and sections of many posts are weakened from repairs; the roof is deteriorated, has been patched and may be leaking in spots. Spiked metal straps anchoring the wood 6x6 posts to pyramidal concrete footings have been removed in many cases. The overall form and structure of the buildings is still readable and is in fair condition. The plywood siding and asphalt roof are modern replacements. The pyramidal concrete footing profiles do not match the revised details of the Quartermaster Plan (Revision B dated April 17, 1940) and are unique. Building 902 (on the east) tends to be in slightly better condition overall than building 901 (on the west), retains open bays at the north and by that has more historic character and is fully used for horse pens and stalls, feed storage and animal care. Building 901 has a recreation room at the south end, hay storage and horse stables but is open and abandoned on the northwest, it appears because the adjacent wetlands flood the horse stalls in this part of the building. The northwest façade of Building 901 is in poor condition overall with roof awnings, siding and stall doors deteriorated and rotted. Although the roof of Building 901 shows evidence of repairs in the form of interior sheathing patches painted white (existing roof sheathing is unpainted), a corrugated plastic “inner roof” has been installed over one horse stall, it appears, in an effort to avoid a repair to the shingle roof above.

Character Defining Elements

Building character is defined by a sparse and utilitarian appearance. Piping in the building is exposed and includes abandoned gas piping (propane) for ceiling mounted heaters and in-use water piping for potable water and fire sprinkler systems. Light fixtures are modern fluorescent replacements and do not match originals. However, any original exterior vertical board and batten siding, interior structural elements, RLM or pendant light fixtures, historic doors and windows, interior partitions and remnants of historical furnishings or finishes that are extant are significant historic features that help define the historic character of the buildings. The exposed wood structural system dominates the experience of the historic building interiors.



Preliminary Treatment Recommendations

Every feasible effort should be made to restore lost or missing historic features of the buildings and care shall be taken to avoid damage or alteration to “significant features” of the vehicle sheds as defined in the *Fort Barry Balloon Hangar And Motor Vehicle Sheds Abbreviated Historic Structures Report*, which include: a) rural setting, b) the overall building form, c) visible interior structure and d) the open (northern) bays of Building T902 (AHSR pg 32). Additive elements that are not compatible and have a negative cumulative effect on the significant features, such as the residential door on the north end of T901, should be removed or replaced more compatible elements. Exterior paint schemes should be consistent with the historic period of significance for the site (which is from 1920 through 1945). Gabled ends of the buildings should retain vertical siding: 1x8 vertical board and batten siding is preferred to textured plywood. Infill between 6x6 posts should be 2x4 (or similar) tongue and groove horizontal siding with 1x8 end boards as required. Ideally, doors could be swinging type or rolling type, could be modeled on the historic and horse stalls could be laid out such that they are oriented in the north-south direction along a common interior passageway (as is the case in T902 - refer to Plan Number 700-372.2 for army plan and section stable details).

The buildings also need to be evaluated individually from the point of view of any changes in occupancy from horse stables and storage to housing and assembly uses. If either of the buildings is to be used for gatherings of any kind consisting of more than ten persons, then fire/life safety, access/egress and structural elements will need to be analyzed according to the new (mixed) occupancy. Since the proposed uses in the Equestrian Plan are considered compatible, at a minimum a building code and structural analysis should provide the background for the improvement of access/egress, fire/life safety and structural components to meet the California Historical Building Code (CHBC).

A survey of damaged and deteriorated structural elements should be included in an overall assessment for seismic stability using the CHBC. Original structural elements that need to be repaired, either in part or as a whole shall be replaced with like materials such that all 6x6 wood posts, 2x4 bracing and 2x6 ties shall be replaced in kind where necessary with lumber of the same profile. Concrete piers, where needed to be replaced shall match the existing shape, color and texture and be inconspicuously date-stamped. Any additional new concrete shall be of a color and texture matching the existing and be inconspicuously date-stamped. Repairs to stabilize the northwest portion of building 901 should be immediately undertaken in consultation with the park hydrologist such that a berm, gutter and drain or French drain is installed to ameliorate any flooding issue. Prior to the start of the repairs recommended above, determinations of use and occupancy, requirements for fire/life safety, access/egress and structural repairs or improvements shall be assembled by the PRC and submitted to the park Preservation Assessment Group for Section 106 Review.

Regarding the specific recommendations in the *Marin Equestrian Stables Plan Environmental Assessment* and the installation of an indoor arena within the footprint of building T901, the challenge for the designers will be inserting a new compatible structural system (essentially strengthening the bearing walls and installing trusses that allow removal of the three internal column lines to create a clear span high-bay space) within the existing building envelope to achieve the necessary clearances without physical and visual impact to the existing structural system and visual character of the interior. Impacts must be mitigated by the design and installation of a modern structural system that minimally impacts historic fabric, allows the careful removal, cataloguing and storage of the effected structural elements (posts, bracing and ties) on site, such that they all can be easily re-installed in the future; in this way making the alterations completely reversible with a negligible amount of physical and visual impact. This approach is the only feasible Rehabilitation and adaptive reuse approach solution for the covered arena program element, since an appropriate new addition cannot be sensitively added onto the gabled ends of the building. These design constraints may also dictate that the floor level of the southernmost or central gabled section of the building be lowered to allow for a high bay riding ring entered from the north. Since the two shed buildings are composed of three sections that step down the hillside in regular intervals, raising the roof of one section of one building must be avoided and this structural “rhythm” preserved. There should be no unusual preservation challenges with the installation of an apartment within one of the buildings, although the site might accommodate better a small 20 foot square gabled dwelling in the form of the ruined guard building T814. Cost for a separate prefabricated building compatible to T814 may be a cost effective solution to the need for caretaker’s quarters. Prior to finalizing designs for any of the improvements described in this Site Visit Summary, scoping discussions between the park’s Preservation Assessment Group and the PRC should be held and the outcome of the scoping sessions entered into the administrative record.

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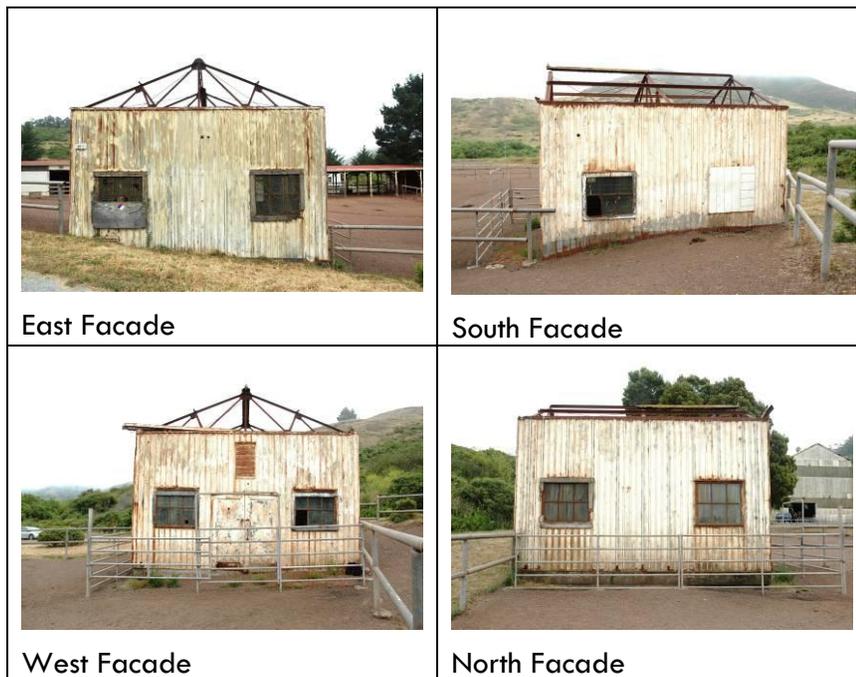
MEMORANDUM

TO: Paul Scolari, Park Historian
FROM: Jason Hagin, Historical Architect
DATE: 07/02/2012
SUBJECT: GOGA FA - 0814 – Fort Barry Balloon Hangar Utility Building

In response to your request to provide background on the subject building and determine its potential as a contributing feature of the Forts Baker, Barry and Cronkhite National Register Historic District, I visited the site on 30 May and again on 02 July to perform a visual assessment of the structure in addition to carrying out the historical research that is set out in this report.

GENERAL DESCRIPTION AND CONDITION:

The building is one-story 20x20 ft., 12 ft. tall manufactured steel building with gable roof. The break-formed metal exterior wall panels have 2” wide standing seams on 6” centers and panels are 24 inches wide and 12 feet tall. Roof trusses are riveted assemblies and are bolted to columns formed from two steel channels bolted together. Wall panels are attached with flat head bolts to girt angles at top and bottom of the walls. The building has a 2x10 wood floor that is set onto incised heavy pressure treated wood timber (common since the 1950s) foundation. No manufacturer's plate could be located and the manufacture date of the building is unknown.



The roof is no longer extant although the ridge flashing remains; it was likely made of standing seam panels matching the walls. The interior ceiling is rusted and failing, interior walls are rusted and damaged and appear to be the back sides of the exterior standing seam wall panels. The interior ceiling was finished at the top of the wall/bottom of roof truss with standing seam panels facing up, for a smooth finish. The interior paint coating has delaminated and failed and there is graffiti on the walls. The wood floor is rotted and has failed in several locations. Windows are 42” square steel sash 3 over 3

divided lights with wire glass in poor condition and are located on all four sides of the building (unusual for a storage building). The building is being used to store flammable liquids.

The structure is in a ruined state but is stable, according to LCS criteria. The building itself is in very poor condition with significant damage to all character features of the simple gabled metal storage building: loss of the roof, broken and missing windows, damaged doors, damaged and deteriorated metal wall panels, and rotted heavy timber floor/foundation. Overall the steel structural frame appears to be in fair condition and appears to be coated with "red lead" primer. This attribute and the fact that it has riveted connections and is bolted together with square head bolts seems to convey a World War II era manufactured building that may have been relocated to the Motor Vehicle Sheds in the early 50s (the development of manufactured steel storage buildings that could easily be assembled on site without welding were a result of war mobilization needs).

HISTORICAL BACKGROUND:

It is difficult to establish and follow the historical background to the building. The supposition that the structure could have been part of a Fort Barry Civilian Conservation Corps Camp cannot be substantiated. The CCC Camp was built in 1935 on the eastern boundary of Fort Barry and until 1941 operated as a program of the Work Projects Administration doing painting and other maintenance projects for the Office of the Quarter Master General. In the Historic Resource Study (HRS) for the site, Erwin Thompson notes that the CCC buildings were painted dark gray with black sash/trim in 1937 and the camp included two shower and toilet buildings and three storage sheds (HRS pg 60). Building 814 appears to have been painted "Presidio White" over a more yellow cream color. The metal panels appear to be galvanized steel, although one exclusive area on the south wall does appear to exhibit a gray paint coating. Similarly, one window on the west side exhibits black painted window sash and small portions on the interior show a gray wainscot with black base. This does not in itself confirm the idea that the building was part of the nearby CCC Camp, although a galvanized steel building with black window sash would fit Thompson's description.

On page 101 of the HRS, Thompson notes that reactivation of the post in "1939 resulted in an increase in construction activity and building maintenance" which coincided with the construction of 2 temporary motor vehicle sheds (T145 and T147) and a temporary guardhouse and dispatcher's office (T144) in 1940 (HRS pg. 101). Aerial photos and building maps from the 1940s do not show any building resembling 814, and although it is widely known that the Army changed building numbers often, it appears that T144 (guardhouse and dispatcher's office) was a larger wood frame building that sat across the road to the north of the sheds. This building appears in the attached 1954 aerial photo across Bunker Road opposite the Motor Vehicle Sheds.

A structure of the same relative form and size as 814 appears first at the Motor Vehicle Sheds in aerial photos taken in 1954. From this evidence, the structure then seems to be associated with the Nike period use of the site and a comparison with recent aerial photos appears to show that 814 may have been moved from its 1954 site approximately 100 yards to the northeast to its present location; perhaps to make room for the equestrian corrals on the east side of vehicle sheds after 1966, which is the origin of equestrian use of the site (See attached comparison sketch). If the structure was relocated in the 1960s, then any function related to the adjacent shed bay was lost. Its exact Nike use and early equestrian uses are unknown.

RECOMMENDED TREATMENT:

An economical stabilization effort may not be feasible due to the loss and advanced decay of the structural steel wall and roof panels and the presence of lead-based paint and pressure treated lumber throughout the structure. Because the building 1) appears to have been moved in the 1960s and lacks integrity of location, 2) may lack integrity of setting (since it appears to be 1940s construction and could have been relocated to the site in the Nike Era) 3) is a marginal support structure of indeterminate origin and function according to research and available historical data, and 4) has been severely impacted by material degradation, insect and storm damage, thus causing loss of integrity of materials (and of workmanship), the structure should not be considered a qualified historic building contributing to the Forts Baker, Barry and Cronkhite National Register Historic District. This finding corroborates the Park's List of Classified Structures survey finding, which did not include the building as contributing to the Historic District. I recommend photo documenting what remains of the building with black and white 35mm photography as a permanent record.

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**Rodeo Valley Stables
(Fort Barry Balloon Hangar and Motor Vehicle Sheds)**

Archeological Assessment and Treatment Report

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Archeological Assessment and Treatment Report (AATR)

Rodeo Valley Stables (Fort Barry Balloon Hangar and Motor Vehicle Sheds)

Fort Baker, Barry, and Cronkhite Historic District Golden Gate National Recreation Area Marin County, California

Confidentiality Statement

Cultural resource information is protected from public disclosure under Section 304 of the National Historic Preservation Act of 1966, as amended, the Archaeological Resources Protection Act of 1979 (43 CFR 7.18 – Confidentiality of archaeological resource information), and Director's Order 28, (Cultural Resource Management). These authorities authorize park managers to restrict information relating to the location or character of archeological resources, when the disclosure of such information may create a substantial risk of harm, theft, or destruction to resources or to the place where resources are located. Sensitive locational information regarding archaeological resources shall be either redacted from general public access, or separated into a restricted appendix.

Context

Studies which provide a contextual framework for understanding the potential archaeological resources expected at this project location can be found in the front section of this study, as well as the following sources (Barnaal and Barker 2003; Haller and Borjes 1994; Lehman, Martini, et al. 2004; Meyer 2003; Stewart and Praetzellis 2003; and Thompson 1979).

Sensitivity

Precontact archaeological sites are expected in association with landforms like the alluvial fan that the Rodeo Valley Stables were constructed on. A GIS-based archaeological sensitivity model constructed by the National Park Service in 2003 identifies the location as sensitive to the discovery of precontact sites (Barnaal and Barker 2003).

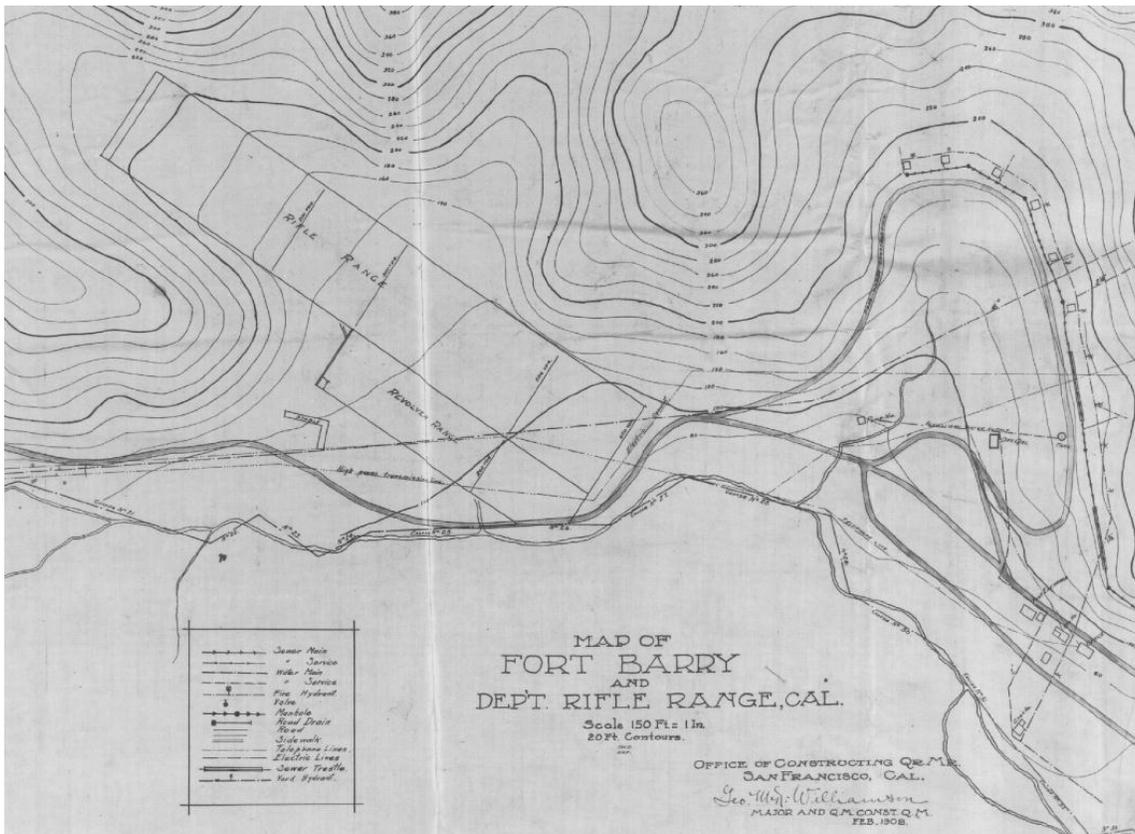
Historic archeological features associated with troop encampments for the Fort Barry Departmental Rifle Range (1904-1975) are expected within the pocket valley that the Fort Barry Balloon Hangar, Motor Vehicle Sheds, and later Rodeo Valley Stables were constructed.

Military prisoners from Alcatraz constructed the Departmental Rifle Range between 1904 and 1905.

"The future balloon hangar site initially served as the temporary camp site for enlisted men and officers assigned to the Departmental Range, and during the course of constructing the range the curving perimeter of the valley was carved into two parallel benches or terraces for the quarters. The upper terrace held permanent (albeit crudely built) mess halls, latrines, and living quarters for officers while the lower bench held prepared platforms where enlisted men and NCOs would pitch tents for the duration of their stay at the range.

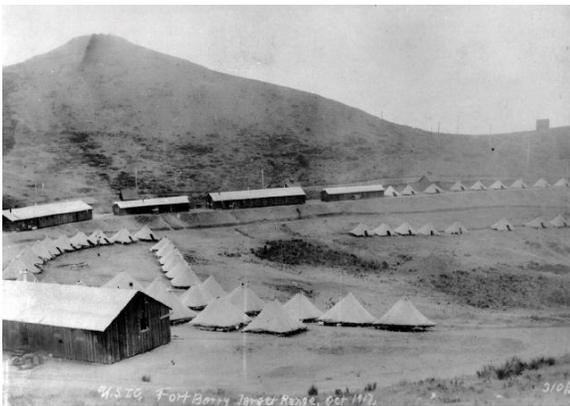
Several companies at a time could be accommodated at the encampment valley, and a small detachment of soldiers remained on-site at all times to provide what might be called administrative overhead. By 1910, the temporary frame structures consisted of a barn, an office, a storehouse, a cookhouse, a post exchange, an officers' quarters, and six mess kitchens.

This housing area saw regular (if intermittent) use during the 1900s and 1910s while the adjacent Departmental Range served as a centralized firearms qualification area for soldiers on the Pacific Coast. However, during World War I the range's housing area were pressed into service as a full-time cantonment for troops undergoing training at the Presidio and other nearby military posts before being shipped overseas. Following the war, the valley briefly assumed the additional role of housing ROTC cadets." (Lehman, Martini, et al. 2004:17)

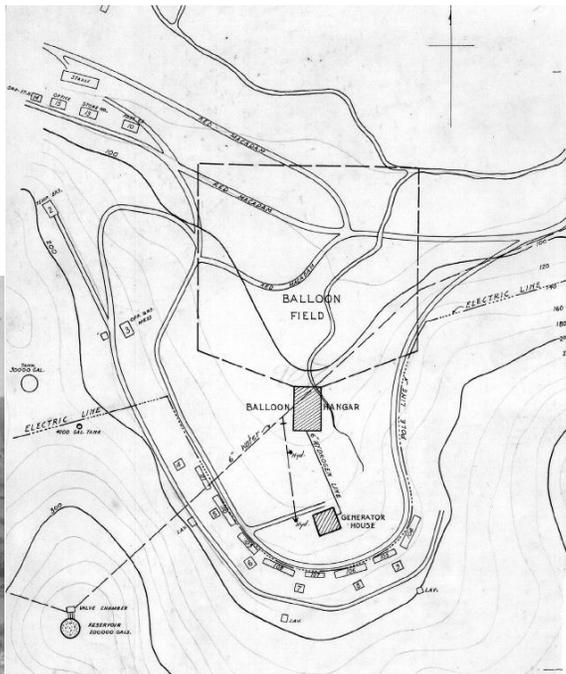


1908 Map of Fort Barry Departmental Rifle Range and adjacent Range Camp

The Departmental Rifle Range Camp was still in use when the Balloon Hangar was constructed in early 1921. A map of the period shows the access road between the Rifle Range and the Camp skirted the edge of the Field defined for maneuvering the balloon (PARC 1921). The balloon companies were transferred to the Puget Sound in late 1921. After the closure of the balloon hangar subsequent plans for use of the valley included a new cantonment for the California National Guard. The Rifle Range Camp's continued use is obscure following 1921, with closure and demolition of the barracks and other structures before 1938.



1917 View of Target Range encampment



1921 Plan showing of encampment with Balloon Hangar

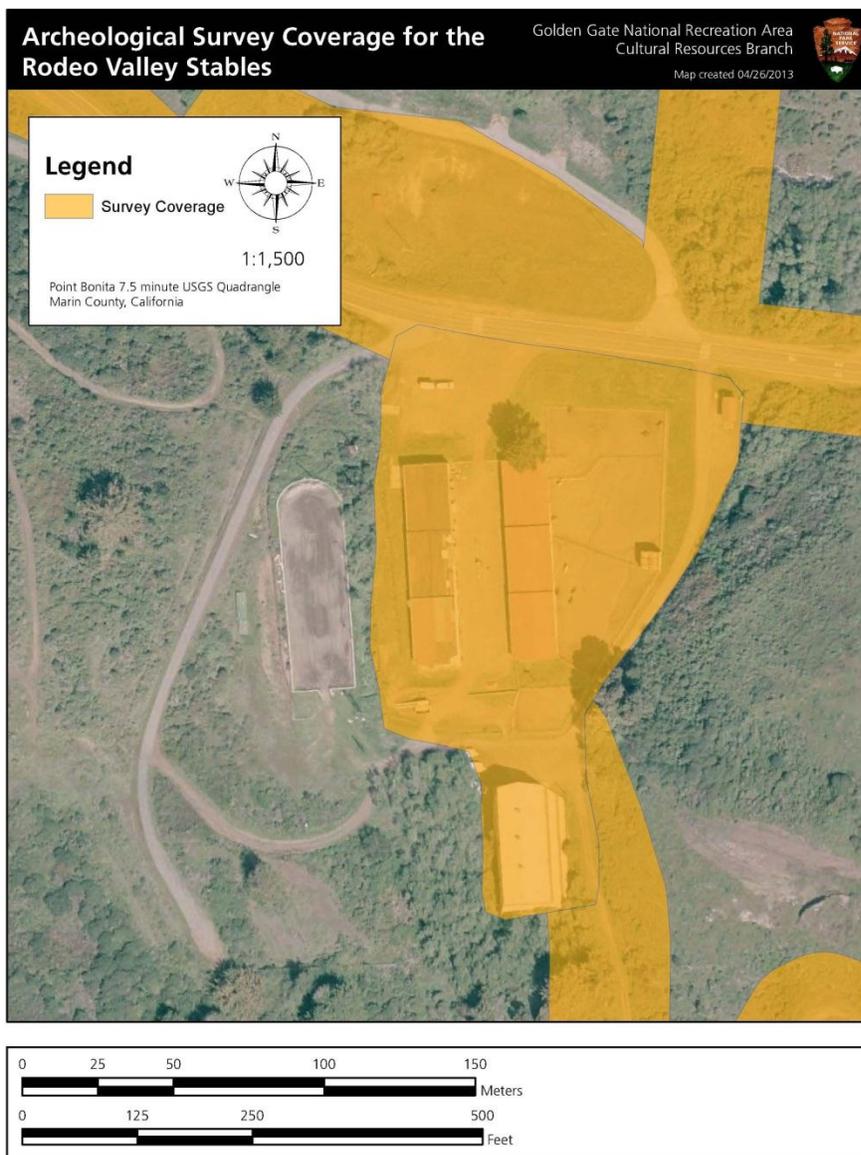
Aerial photographs from 1938 show that the Rifle Range Camp are in a ruinous and unused state, but the construction of the balloon hangar and auxiliary buildings have not disturbed the area around where these structures were. Older ground disturbances remain visible around the hangar and to the north across Bunker Road, including road and path scars, barracks foundations, earthworks, and target backstops. Between 1940-1956 some of the area north of Bunker Road has been disturbed during the construction of a new cantonment (Smith Street). During this time the Motor Vehicle Sheds were constructed.

If archeological remains from the Rifle Range Camp exist, they may have also been impacted by the post World War II construction of a large dumpsite south of the Balloon Hangar and its Hydrogen Generator building. Referred to as the "Debris Disposal Area" it remains a subject of soil remediation in the general location of the primary structures of the Rifle Range Camp (Beach Associates 1970).

Survey

The area around the current Rodeo Valley Stables and Balloon Hangar have been partially surveyed over the past decade in response to stables management actions and a water main replacement at the Balloon Hangar. Some of this work exposed much of the ground around the Motor Vehicle Sheds. No archeological properties were found during these surveys.

Approximately 60% of the Rodeo Valley Stables APE has not been surveyed. More than half of that area is heavily vegetated and unsurveyable at this time.



Identification

There are currently no documented archeological sites within the Area of Potential Effect (APE) for the Marin Equestrian Plan at Rodeo Valley Stables.

Plan Actions and Effects

The purpose of the Marin Equestrian Plan is to provide for comprehensive improvement of equestrian sites, facilities, programs and stables management at the Golden Gate Dairy (Lopes Brothers Dairy, Ranch M), the Tennessee Valley Stables (DaCunha/Rapozo Ranch, Ranch A/B) and the Rodeo Valley Stables (Fort Barry Balloon Hangar and Motor Vehicle Sheds) in order to improve visitor services and to preserve, protect and enhance cultural resources therein.

At the Rodeo Valley Stables, buildings will be stabilized and the landscape will be protected. The equestrian program will continue at a part of the site, augmented by the addition of the park volunteer horse patrol. The park will rehabilitate the Balloon Hangar for long-term operational use, and the Motor Vehicle Sheds for stalls, storage, office space, and an optional covered riding ring. The covered riding ring may also be constructed outdoor on a bench west of the Balloon Hangar with an adjacent turnout paddock. A new manure shed will be constructed, and a non-contributing Utility Building will be rehabilitated or replaced.

No archeological properties are currently identified at the Rodeo Valley Stables, however survey of the APE remains incomplete because of heavy vegetation and because a resource survey was not conducted within this APE as a part of the cultural resource studies for the Marin Equestrian Plan. Nonetheless, any archeological resources identified by future project survey, monitoring, or discovery, will not be adversely affected by planned actions. The park and any future lessee of the property will manage any archeological resources of the property by specific conditional processes and treatments (listed below). These conditions are designed to allow continued assessments of actions as they are clarified, designed, and implemented, providing for long-term monitoring, additional surveys, inventory, review, and avoidance of physical damage and/or deterioration to significant archeological features

All work areas subject to ground disturbance, such as grading, trenching and installation of foundations or footings, will be archeologically surveyed prior to work being performed, and monitoring and/or further testing as appropriate will be required in the vicinity of known archeological sites or areas of archeological sensitivity, in accordance with the recommendations of archeological assessments. Such monitoring will include representation from and/or consultation with the Federated Indians of the Graton Rancheria whenever ground-disturbing activities are within 100 feet of known pre-contact archeological sites, or in areas of high sensitivity to the discovery of such resources.

Archeological Treatments and Protocols

The following protocols, conditions, and treatments shall be incorporated into management of the Rodeo Valley Stables historic property:

- All actions or future plans that remove vegetation or disturb the ground surface will be assessed for their effect on archeological resources. Appropriate actions will be taken (survey, monitoring, design alteration, etc.) to identify, evaluate, and avoid adverse effect to significant archeological properties;
- Building, structure, and landscape stabilization and rehabilitation shall follow the Secretary of the Interiors Standards at 36 CFR 67.7 (b)(8): Significant archeological resources affected by a project shall be protected and preserved;
- Inability to avoid adverse effect to any significant archeological feature or site will require separate consultation with the SHPO under 36 CFR 800.4 (Identification of historic properties) or 36 CFR 800.13 (Post-review discoveries) depending on the circumstances;
- Portions of the Rodeo Valley Stables APE remain unsurveyed. An intensive archeological survey of areas subject to ground disturbance will be conducted as project designs become defined. Survey should occur when actions on the site provide the best opportunity for ground visibility.
- During any construction or vegetation clearance, work will stop around any archeological sites or features discovered until the park archeologist and project manager can determine best treatment options in accordance with laws including the National Historic Preservation Act (NHPA) (36 CFR 800.13 - Post-review discoveries), and the Native American Graves and Repatriation Act (NAGPRA) (43CFR10.4 - Inadvertent Discoveries). A discovered site shall be documented to NPS ASMIS and State CHRIS standards, and assessed for its value and the effects expected from the relevant action.
- Discovery of, or work within 100' of, a precontact archeological properties will require consultation with the Federated Indians of Graton Rancheria.
- Archeological site records and documentation shall be treated in conformance with 43 CFR 7.18 (Protection of Archeological Resources; Confidentiality of archeological resource information) and in consideration of reporting guidelines developed by the State of California (California Office of Historic Preservation 1990).

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GOLDEN GATE

