STATE OF CALIFORNIA – THE RESOURCES AGENCY

EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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December 12, 2013

Ms. Kathleen Schamel, Historic Preservation Officer
Historic Preservation Office (OO3C2)
Office of Construction and Facilities Management
Department of Veterans Affairs
810 Vermont Avenue, NW
Washington DC 20420

Subject: **Marinship Machine Shop — Sausalito, Marin County, California**
National Register of Historic Places Nomination

Dear Officer Schamel,

Enclosed please find the **Marinship Machine Shop** nomination to the National Register of Historic Places.

I concur that the Marinship Machine Shop is eligible for listing in the National Register at the local level under Criterion A for its association with the rapid expansion of Homefront industries during World War II. Shipbuilding was the San Francisco Bay Area's most important contribution to the war effort and to expedite the construction of much-needed freighters and tankers, the U.S. Maritime Commission sponsored six Emergency shipyards in the Bay Area, including W.A. Bechtel Corporation's Marinship in Sausalito. The period of significance is 1942 to 1946, from the building's construction to Marinship's closure.

Also eligible for listing at the local level under Criterion C, the Machine Shop embodies World War II era wartime construction and is the best surviving example of a World War II era emergency shipyard building at Marinship and in the greater Bay Area. The Criterion C period of significance is 1942, the year of construction.

I have signed the signature page as commenting official and retained a copy of the nomination and photographs for our records.

If you have any questions regarding the nomination, please contact Amy Crain of my staff at (916) 445-7009.

Sincerely,

Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer

Enclosure

OMB No. 1024-0018

NPS Form 10-900
United States Department of the Interior
National Park Service

1123

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: Marinship Machine Shop
Other names/site number: Building 11
Name of related multiple property listing:
N/A
(Enter "N/A" if property is not part of a multiple property listing

2. Location

Street & number: 25 Liberty Ship Way
City or town: Sausalito State: California County: Marin
Not For Publication: ☐ Vicinity: ☐

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___national ___statewide ___local

Applicable National Register Criteria:

___A ___B ___C ___D

Signature of certifying official/Title: **Date**

State or Federal agency/bureau or Tribal Government

In my opinion, the property X meets ___ does not meet the National Register criteria.

Dec. 12, 2013

Signature of commenting official: **Date**

Carol Roland-Nawi, Ph.D., State Historic Preservation Officer

California State Office of Historic Preservation

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	☐
Public – Local	☐
Public – State	☐
Public – Federal	X

Category of Property

(Check only **one** box.)

Building(s)	X
District	☐
Site	☐
Structure	☐
Object	☐

Marinship Machine Shop
Name of Property

Marin, California
County and State

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing	Noncontributing	
1		buildings
		sites
		structures
		objects
1		Total

Number of contributing resources previously listed in the National Register _____

6. Function or Use
Historic Functions
(Enter categories from instructions.)
INDUSTRY/PROCESSING/EXTRACTION/manufacturing facility

Current Functions
(Enter categories from instructions.)
VACANT/NOT IN USE

7. Description

Architectural Classification
(Enter categories from instructions.)
MODERN MOVEMENT/Moderne

Materials: (enter categories from instructions.)
Principal exterior materials of the property: Plywood

Narrative Description
(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

The Marinship Machine Shop is located in north Sausalito, a utilitarian industrial building displaying modest characteristics of the Streamline Moderne style. The two-story building of approximately 27,400 square feet is on a 136' x 202' concrete slab foundation that rests atop wood pilings driven into the mud and fill of Richardson Bay. It is a heavy timber frame building clad in painted plywood sheathing. The exterior walls, punctuated by groupings of double-hung wood windows on the first floor level and wood ribbon windows on the upper levels, have no ornament. The building is massed as two sections: the machine shop of three equally sized bays, each measuring 40' wide (north-south) by 201' long (east-west), capped by an undulating barrel-vaulted roof, and the two-story, shed-roofed office wing. The roof is clad in rolled asphalt. The roof and the exterior walls are punctuated by metal vent pipes, chimneys, ventilators, and plumbing and electrical conduit. MACHINE SHOP is painted on the northeast and southwest façades in large red letters. The building sits amid an asphalt paved parking lot and storage area with volunteer trees and shrubs growing untended around the perimeter of the building. Like the exterior, the interior of the building is divided into two sections: the machine shop and the office wing. In the office wing the flooring is concrete on the first floor and wood on the upper floor and both floors are divided into rooms by wood plank and plywood demising walls. The glulam bowstring trusses are exposed throughout the interior of the machine shop. The Marinship Machine Shop has excellent integrity. Although in poor condition, it has the best integrity of the surviving Marinship buildings.

Narrative Description

Site

The Marinship Machine Shop occupies less than one acre of an approximately 13 acre parcel in the southeastern portion of the Marinship shipyard. To the northwest, on the same parcel, is Building 29, which houses the U.S. Army Corps of Engineers' Bay Model, the Marinship museum, and the Army Corps' Construction and Operations offices. Northeast of the Machine Shop are a paved parking lot, a narrow unpaved driveway, and several small buildings housing boat repair, rigging, painting, and other maritime businesses. To the southwest is a smaller commercial building containing a plumbing business housed in a World War II era Marinship warehouse (Building 17 – Paint and Oil Shop). Southeast of the Machine Shop is Liberty Ship Way and across the street is the 30 Liberty Ship Way office park complex, which incorporates two remodeled Marinship buildings. The property is enclosed within a chain-link fence topped by barbed wire. The site is mostly paved, with grass and trees planted along the southeast between the building and the street. A row of volunteer trees and shrubs is growing along the northeast fence line.

Exterior: General

The concrete slab foundation of the Machine Shop, which was built atop wood pilings driven into the bay mud, was designed to accommodate dead loads of up to 300 pounds per square foot. Like nearly all of the production buildings at Marinship, the Machine Shop is a heavy timber frame building clad in plywood sheets. Similar to the other production buildings, the Machine Shop has an undulating roof formed by parallel barrel vaults supported by prefabricated glulam bowstring trusses. Plywood sheets and prefabricated glulam trusses were revolutionary new products that rapidly caught on during World War II. Their prefabricated, modular characteristics allowed buildings to be built more quickly, more cheaply, and with less skilled labor than traditional wood construction. Plywood was also good for avoiding the use of rationed materials like steel.

Although not explicitly designed in a defined architectural style, the modernist principle of form follows function directed the design of the Machine Shop and other major Marinship buildings. The materials and the usage of the building largely dictated its appearance. Although there are no overtly decorative elements, the curvilinear barrel-vaulted roof forms and horizontal ribbon windows appear to reference the Streamline Moderne style, a 1940s era modernist style that celebrated the machine aesthetic.

Exterior: Southeast Façade

As a utilitarian industrial building, the Machine Shop's primary façade is the southeast, that which faces the public street and contains the primary pedestrian entrance. The office wing comprises the bulk of the primary façade. Originally one-story in height, the office wing was enlarged to two stories within a few months of the building's completion in 1942. The

southeast façade is ten bays long, clad in painted plywood, and punctuated by an asymmetrical arrangement of double-hung wood windows, horizontal wood ribbon windows, and several pedestrian entrances. Richard Grambow, Chief Engineer and Naval Architect of the Marinship Corporation, compiled building plan drawings and specifications in 1945 in preparation for shutting down the yard.[1] A comparison of the existing building with Grambow's documentation **(Figure 1)** indicates that some changes have been made to the southeast façade since World War II. In a few areas, double-hung windows have replaced the original ribbon windows. The double-hung windows match those used on other parts of the building and do not detract from the original design. A water tank mounted to the roof of the office wing during the war was removed sometime after 1949.

Beginning at the left corner of the southeast façade, the left bay contains a group of four double-hung wood windows at the first floor level and a band of four ribbon windows at the second floor level. A boarded-up pedestrian entrance is located at the right side of this bay, at the first floor level. To the east, the second bay contains tripartite ribbon windows at both the first and second floor levels. Continuing east, the third bay features a tripartite ribbon window at the first floor level with an identical window at the second floor level. The fourth bay contains another pair of ribbon windows and the main pedestrian entrance to the building. The entrance is recessed within an integral porch paneled in unpainted plywood and it is sheltered beneath a flat wood canopy cantilevered out over a concrete walkway leading to the street.

The porch is enclosed behind a non-historic steel security gate. Above the entrance is a four-light awning sash window. The fifth bay features a tripartite ribbon window and a four-light awning sash window at the first floor level and a tripartite band of double-hung wood windows at the second floor level. After this point, the southeast façade becomes more regular in appearance. The sixth and seventh bays each contain groups of four double-hung wood windows. The eighth bay features a tripartite ribbon window at the first floor level and a group of four double-hung windows at the second floor level. One boarded-up pedestrian entrance and one historic two-panel wood door flank the ribbon window at the first floor level. The ninth bay has groups of four double-hung wood windows at both the first and second floor levels. The tenth bay has pairs of matching windows on both floors.

The entire southeast façade is clad in 4' x 8' plywood sheets originally painted a light gray color. The office wing is capped by an overhanging eave consisting of wood rafter ends concealed behind a wood fascia painted tan. Metal ventilator pipes extend up along the walls through the roof soffit. Sheet metal HVAC equipment is mounted on the roof of the office wing. A portion of the southeast wall of the machine shop is exposed to view above the office wing roof. This section is clad in non-historic T-111 plywood siding.

[1] Richard Grambow, *Marinship at the Close of the Yard* (Sausalito, CA: U.S. Maritime Commission, 1946).

Exterior: Northeast Façade

The northeast façade of the Machine Shop comprises the machine shop, as well as the southernmost bay of the office wing. A comparison of the 1945 Grambow drawings and existing conditions reveal very few changes have been made to this elevation since World War II. The northeast façade is four bays wide and faces the asphalt-paved parking lot/staging area. The southernmost bay consists of pairs of double-hung wood windows at the first and second floor levels of the office wing. The next three bays consist of large barrel-vaulted bays articulated by vehicular openings and double-hung wood windows at the first floor level and two bands of ribbon windows above. There are slight differences between the three bays of the machine shop; the southernmost bay features an additional pedestrian entrance to the left of the vehicular entrance and the vehicular entrance does not have sliding metal fire doors in front of the overhead roll-up door. Occupying the spandrel panels between the ribbon windows in the central bay are the words MACHINE SHOP painted in capitalized red letters. The northeast façade terminates in a band of wood trim and metal flashing outlining the barrel-vaulted roof.

Exterior: Northwest Façade

The northwest façade of the Machine Shop is nearly identical to what is shown on the 1945 Grambow drawings. In comparison with the southeast façade, the northwest façade is entirely symmetrical, with each of the ten bays consisting of groups of four double-hung wood windows at the first floor level and two bands of wood ribbon windows above. Each ribbon window consists of four, four-light sashes that appear to be fixed in place, although some may be operable awning sashes. The northwest façade is clad in 4' x 8' plywood sheets and terminates in a cornice consisting of exposed 2" x 6" rafter ends linked together by recessed fascia boards. The northwest façade is punctuated by several large ventilation ducts.

Exterior: Southwest Façade

The southwest façade of the Machine Shop is partially obscured behind trees and nearby buildings. The 1945 Grambow drawings indicate that it originally mirrored the northeast façade in terms of its massing and fenestration pattern. Since 1945, the southwest façade appears to have undergone several alterations, including the infilling of three vehicular entrances at the first floor level, probably after the adjoining property to the southwest was sold, thereby cutting off vehicular access to this part of the building. Another post-1945 change was the construction of a metal staircase on the exterior of the office wing. Above the first floor level the southwest façade appears unchanged, retaining all of its original plywood cladding, wood ribbon windows, and painted signage reading: MACHINE SHOP.

Exterior: Roof

The roof of the Machine Shop is composed of three parallel barrel-vaulted sections, with each barrel vault corresponding to one of the three machine shop bays. The vaults are supported by large glulam bowstring trusses that allow for 40' clear spans inside the building. The vaults are clad in redwood sheathing covered in asphalt rolled roofing materials. The asphalt roofing has

failed and has been removed in several areas, exposing portions of the interior to the elements. The office wing has a shed roof that is covered in built-up materials and rolled roofing. The roof of the Machine Shop is punctuated by original sheet metal ventilators and wire-glass skylights.

Interior: General

According to the 1945 Grambow drawings, the interior of the Machine Shop was historically divided into two sections: the machine shop and the two-story office wing. The machine shop itself was originally divided into three equal bays with wood demising walls separating them. Not much information is provided on the plans regarding the specific use of each bay, but as a machine shop, it was most likely intended to be a flexible space where machinery and materials could be easily moved around the building for particular jobs. Each bay contained overhead traveling cranes for lifting heavy machinery and parts, including one three-ton and three 10-ton bridge cranes and four jib cranes. The building was heated with overhead blower units.[2] The much smaller office wing included support facilities. A second story was completed in 1943 to accommodate an influx of female workers.

Interior: North Bay

The northernmost bay of the machine shop was labeled on the 1945 Grambow drawings as the "Operating Gear Bay." This bay contained a small office and a fenced-in area defined by workbenches. The rest of the bay was open without any partitions. Several separately partitioned offices and laboratories were constructed within the interior by the U.S. Army Corps of Engineers after 1945. The north bay has a concrete slab floor and wood framing exposed throughout. Along the northwest, northeast, and southwest perimeter walls, the wood framing and the inside face of the exterior plywood cladding are exposed. The southeast wall is an interior partition wall; it is clad in horizontal wood planks. Large wood doors punctuate this wall, providing communication between the north and center bays. An overhead traveling crane runs along steel tracks lining the long walls of the north bay. The crane is supported by steel columns that align with the longitudinal bay divisions. Full-height steel moment frames are located midway along the northwest and southeast walls of the north bay; these were added after the 1989 Loma Prieta Earthquake. The exposed roof framing consists of wood glulam bowstring trusses and exposed purlins, rafters, and bridging. Incandescent light fixtures are attached to the underside of the trusses. These fixtures can be hoisted up or down by cables attached to the walls. Rectangular skylights line the inside section of the north bay's roof. Several 1940s era enameled sinks are located throughout the north bay.

Interior: Center Bay

According to the 1945 Grambow drawings, the center bay of the machine shop was undifferentiated work space. The only specialized area was at the northeast corner, where steel racks and parts bins were located. In addition, there were several workbenches located along the interior partition walls and a square manhole is shown on the drawings next to the steel

[2] Ibid.

racks. The racks and the manhole are still extant. Today the center bay has a partial mezzanine level at the southwest corner; this feature was constructed by the U.S. Army Corps of Engineers in the 1950s. The mezzanine is wood-framed and clad in horizontal wood planks. The mezzanine contains materials testing laboratories, offices, and a compressor room. These spaces all feature wood floors and wood and/or gypsum board walls and ceilings. The rest of the center bay is the same as the north bay. It has an overhead traveling crane and a steel moment frame installed after the 1989 Loma Prieta Earthquake.

Interior: South Bay

According to the 1945 Grambow drawings, the south bay was mostly undifferentiated work space, though it had a partitioned finish bay containing parts bins and service counters at the northeast corner, and a tool room located midway along the southeast wall. In addition, a welding booth extended into the south bay from the office wing. Today the southwest section of the south bay is built out with wood-framed partitions containing laboratories and offices and a mezzanine above. The northeast corner of the south bay remains unobstructed, though the tool room shown on the 1945 drawings remains. The unenclosed section of the south bay is finished the same as the north bay. However, in contrast to the north and center bays, the south bay does not have an overhead traveling crane. It does have steel moment frames installed midway along its south and north walls.

Interior: Office Wing

According to the 1945 drawings, the first floor level of the office wing housed the superintendent's office, business office, boiler room, tool and die department, men's toilet room, men's locker rooms, and welding booth. The second floor featured a small drafting room, a lunch room, women's quiet room, women's toilet room, and women's locker room. Though the uses of these rooms changed after the Army Corps took over the building in the late 1940s, the original floor plan and finishes appear to have survived intact. The office wing has concrete floors on the first floor and wood floors on the second floor, wood plank and plywood walls, and plywood ceilings. Wood doors with glazed upper panels line the corridors and the offices are illuminated by suspended fluorescent strip light fixtures. Exposed mechanical, plumbing, and electrical conduit is attached to the walls and ceilings throughout the office wing.

Alterations

The U.S. Army Corps of Engineers acquired the building in 1946. Documented exterior changes after 1949 included the application of asbestos (Transite) shingles over the plywood exterior, the removal of a water tank from the roof, the addition of an exterior staircase, and the enclosure of the vehicular entrances along the west side of the building. After the Loma Prieta Earthquake of 1989, the Army Corps installed steel moment frames inside the building.

The U.S. Department of Veterans Affairs (VA) took over the property in 2006. Initially the VA intended to remodel the building, and removed the asbestos shingles and roofing. After a

decision to demolish the building and construct a smaller facility on the site, the VA reconsidered and rehabilitation is anticipated in 2014.

Integrity

Of the approximately 15 remaining World War II era buildings at Marinship, the Machine Shop retains the highest degree of integrity. In contrast to the other surviving Marinship era buildings, most of which have been reclad in more permanent materials, the exterior of the Machine Shop is still clad in its original painted plywood sheathing. Until 2006 the plywood sheathing was protected behind asbestos shingles. Their removal revealed the exterior as it would have appeared during World War II, including the large hand-painted signs on the northeast and southwest façades. Other exterior elements that remain intact include the double-hung wood windows and wood ribbon windows, the two metal-clad barn doors on the northeast façade, and several of the wood panel pedestrian doors along the southeast façade. Several post-World War II changes to the exterior of the Machine Shop include the removal of a water tank from the roof of the office wing, the infilling of three vehicular openings along the southwest façade, the addition of an exterior steel stair on the southwest façade, and the recladding of a small portion of the southeast façade above the office wing in T-111 plywood siding circa 2006.

The interior is quite intact. Its concrete flooring, exposed wood framing, bowstring glulam trusses, wood plank interior walls, and overhead traveling cranes remain intact. The center bay has undergone some alterations, including the addition of several small freestanding shops containing kilns and other equipment used by the Army Corps. These alterations, additive in nature, could be removed easily. They do not detract from the open volume of the Machine Shop's interior. The south bay has been more heavily altered, including the enclosure of its southwestern section. The interior of the office wing appears to remain essentially unchanged.

Location: The Machine Shop has never been moved. The property retains integrity of location.

Design: The building retains its historic plan, form, massing, and most of its historic site layout. The property retains integrity of design.

Setting: The Machine Shop was historically part of Marinship's Outfitting Zone, where vessels that had been launched were outfitted with furnishings, decking, masts, equipment, and machinery. Though all of the surrounding buildings of the Outfitting Zone have been reclad in stucco, they are all still extant and easily recognizable by virtue of their barrel-vaulted roofs and industrial aesthetic. In addition, no incompatible new buildings were erected around the Machine Shop after 1945, preserving its historical relationship to its neighbors. The property retains integrity of setting.

Materials: In contrast to the other major Marinship buildings, most of which have been reclad in stucco or other materials, the Machine Shop retains its original plywood exterior cladding, wood ribbon windows, pedestrian and vehicular doors, and wood trim. In addition, the interior retains its original wood glulam trusses and wood partitions. Because the Machine Shop, as well as the rest of the shipyard, had to be built quickly and was only intended to be of temporary usage for the duration of the war, the use of plywood and other mass-produced and inexpensive processed and modular wood materials is reflective of the period in which it was constructed. Because Sausalito has a mild climate and most of these buildings were adapted for new uses, most survived, though not without being reclad in more durable materials. Protected by asbestos shingles for 60 years, the survival of the Machine Shop's historic plywood sheathing in near original condition is fortuitous. The property retains integrity of materials.

Workmanship: This utilitarian, industrial building of inexpensive and machine-made, modular materials contains no traditional hand-crafted elements. Built for a World War II era Emergency shipyard, its construction is emblematic of the need for efficiency and speed. The materials and construction techniques used reflect the increasing preference for mass-produced, modular features and materials, including 4 x 8 plywood sheets, ribbon windows, and prefabricated glulam trusses. The property retains integrity of workmanship.

Feeling: With its newly exposed plywood exterior, hand-painted signage, cavernous interior bays, and remaining machinery, the Machine Shop conveys its historic industrial usage. Its undulating barrel-vaulted roof, ribbon windows, and Spartan detailing are also reminiscent of the modernist, machine age aesthetic current in the age in which it was built. The property retains integrity of feeling.

Association: From 1942 until 1945, the Marinship Machine Shop fulfilled its purpose as an integral part of Marinship's Outfitting Zone. From 1949 until 1996, it served as the U.S. Army Corps of Engineers' materials testing facility. The building required few changes for its new use. The machinists and other staff who worked in the building during World War II would easily recognize their former workplace. Though the interior has undergone some changes, approximately 75 percent of the machine shop bays remain intact from the period of significance and the office wing remains largely unchanged. The property retains integrity of association.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

[X] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.

[ ] B. Property is associated with the lives of persons significant in our past.

[X] C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

[ ] D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

[ ] A. Owned by a religious institution or used for religious purposes

[ ] B. Removed from its original location

[ ] C. A birthplace or grave

[ ] D. A cemetery

[ ] E. A reconstructed building, object, or structure

[ ] F. A commemorative property

[ ] G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance
(Enter categories from instructions.)
INDUSTRY
ENGINEERING

Period of Significance
A: 1942-1946
C: 1942

Significant Dates
1942

Significant Person
(Complete only if Criterion B is marked above.)
N/A

Cultural Affiliation
N/A

Architect/Builder
Engineering Department, W.A. Bechtel Corporation

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The Marinship Machine Shop is eligible for listing in the National Register at the local level under Criterion A for its association with the rapid expansion of Homefront industries during World War II. Shipbuilding was the San Francisco Bay Area's most important contribution to the war effort and to expedite the construction of much-needed freighters and tankers, the U.S. Maritime Commission sponsored six Emergency shipyards in the Bay Area, including Henry J. Kaiser's Richmond Yards 1-4, Barrett & Hilp's Belair Shipyard in South San Francisco, and W.A. Bechtel Corporation's Marinship in Sausalito. Together these yards, in combination with existing Bay Area yards, built approximately 1,400 vessels between 1939 and 1946. During World War II, the Bay Area became the largest shipbuilding complex the world had ever seen. Its freighters and tankers were critical to victory in the European Theater and played an important role in the island hopping expeditions against the Japanese Empire in the Pacific Theater. The period of significance is 1942 to 1946, from the building's construction to Marinship's closure. The Marinship Machine Shop has changed minimally since the World War II era. Also significant at the local level under Criterion C, the Machine Shop embodies World War II era wartime construction and is the best surviving example of a World War II era emergency shipyard building at Marinship and in the greater Bay Area. The Criterion C period of significance is 1942, the year of construction.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Criterion A

The Marinship Machine Shop is a rare property type associated with one of the most important events in the history of the United States during the twentieth century, World War II, and in particular, the American Homefront. The building played a critical role in the outfitting of the Liberty Ships, T-2 tankers, and oilers built by the yard, vessels that were critical to the Allied war effort and that assured eventual victory. There appear to be no other extant World War II era shipyard machine shops in the San Francisco Bay Area that retain this degree of significance or integrity. The Machine Shop is the only remaining building at Marinship that retains such a high degree of integrity.

U.S. Maritime Commission

In the late 1930s and early 1940s, the United States had not yet entered World War II. It actively supported Britain and its Allies in the struggle with Nazi Germany. During this time the Roosevelt administration also became increasingly alarmed over Japanese aggression in East Asia. In 1936, President Franklin D. Roosevelt and Congressional Democrats passed the

Merchant Marine Act, part of which involved the creation of the U.S. Maritime Commission. The new commission's mandate was,

> "to develop and maintain a merchant marine sufficient to carry a substantial portion of the water-borne export and import foreign commerce of the United States on the best-equipped, safest and most suitable type of vessels owned, operated and constructed by citizens of the United States, manned with a trained personnel and capable of serving as a naval and military auxiliary in time of war or national emergency."[3]

Seeking to avoid being caught off guard as it had during the First World War, one of the commission's first acts was to authorize a long range construction program to build 50 vessels a year over the next ten years.[4]

By early 1941, President Roosevelt doubled the U.S. Maritime Commission's goal.[5] Meanwhile, after suffering stunning losses at the hands of the German U-boat fleet, the British government commissioned 60 freighters to be constructed in American yards. Following a decades-long slump in shipbuilding, private American shipyards could not cope with the growing demand for new freighters. In a bid to meet its new goals, the Maritime Commission began encouraging private industry to construct and operate modern shipyards. Incentives included providing the upfront construction costs and guaranteeing a seemingly limitless number of commissions. One of the first companies to respond was construction magnate Henry J. Kaiser's Kaiser Corporation. A member of the influential Six Companies consortium – builders of Hoover, Grand Coulee, and Bonneville dams – Kaiser joined forces with Todd Shipyards in 1940 to found the Seattle-Tacoma Shipbuilding Corporation. The Maritime Commission promptly awarded the new company a commission to build five C-1 freighters. Around the same time, the Kaiser-Todd partnership won a contract to build 30 freighters for the British government.[6]

Unable to build all these ships in its Seattle yard, Kaiser began looking for a site for a new state-of-the-art shipyard elsewhere on the West Coast. He found it on the mudflats of Richmond, California. In April 1941, Kaiser constructed Richmond Yard No. 1 to build the British freighters. Impressed with the speed with which Kaiser built this yard, the Maritime Commission requested that he build a second yard at Richmond expressly for Liberty Ships. Kaiser's Richmond Yard No. 2 was ready by September 1941.[7]

The Liberty Ship, nicknamed the "Ugly Duckling" by President Roosevelt, was one of the most important American weapons in the fight against Nazi Germany. Based on the common 10,000-

[3] Wayne Bonnett, *Build Ships!* (Sausalito, CA: Windgate Press, 1999), 24.
[4] Ibid.
[5] Charles Wollenberg, *Marinship at War: Shipbuilding and Social Change in Wartime Sausalito* (Berkeley: Western Heritage Press, 1990), 19.
[6] Bonnett, 32.
[7] Ibid., 128.

pound British tramp steamer, the Liberty Ship was modified to meet U.S. specifications. Known officially as the EC2-S-C1, the Liberty Ship was designed to carry virtually any cargo. It featured a simple layout for ease of construction, durability, maximum cargo capacity, and speed. Its hull was slab-sided, perfect for all-welded sub-assemblies. The superstructure consisted of a boxy deckhouse and standardized masts and booms. Over 2,700 Liberty Ships were built in the U.S. during the war, nearly 450 of which were completed in the Bay Area.[8]

The U.S. Maritime Commission believed that the Bay Area was the best location for shipbuilding in the United States, mainly because of its remote location on the Pacific Ocean, away from the Atlantic patrolled by German U-boats. Its narrow harbor entrance could be protected from submarine, surface, and air attack. Its long tradition of shipbuilding brought with it a large workforce of well-trained shipwrights, shipfitters, boilermakers, and affiliated tradesmen. The Bay Area had several major private and military shipyards, including Bethlehem Shipbuilding Company's San Francisco and Alameda Yards, the U.S. Navy's Mare Island Naval Shipyard in Vallejo, the Hunters Point Drydocks (later Hunters Point Naval Shipyard) in San Francisco, Moore Shipbuilding in Oakland, Western Pipe & Steel Company's South San Francisco Yard, and dozens of smaller yards along the Oakland-Alameda Estuary, San Francisco's India Basin, and as far inland as Stockton. Though other western cities saw major shipbuilding activity during the war, including Los Angeles/Long Beach, Portland, and Seattle/Tacoma, none approached the scale of the San Francisco Bay Area's shipbuilding complex. Between 1939 and 1946, Bay Area shipyards launched approximately 1,400 vessels, not counting the hundreds of small landing craft built by area yards. Liberty Ships constructed by Kaiser and Marinship were the most numerous. While most larger warships, including aircraft carriers, battleships, and heavy cruisers were built in eastern yards, western yards specialized in destroyers (Bethlehem Steel's San Francisco Yard) and submarines (Mare Island).[9]

By 1941, the Maritime Commission's shipbuilding program had yielded over one million tons of new shipping capacity, nearly tripling its 1939 figure. Nonetheless, the combined output of American and British shipyards still did not equal the tonnage lost to German U-boats that year. This factor, combined with the Japanese attacks on Pearl Harbor and other Pacific island bases on December 7, 1941, compelled President Roosevelt to increase the quota for 1942 from one to five million tons. To meet this goal even more shipyards would be necessary. In January 1942, Admiral Emory S. Land of the Maritime Commission asked Henry Kaiser to build a third yard at Richmond, which would build C-4 troop transports. Two months later, on March 2, 1942, Admiral Land wired Kenneth Bechtel at the headquarters of the W. A. Bechtel Corporation in San Francisco to request that he establish a shipyard to build Liberty Ships.[10]

[8] Ibid., 46-7.
[9] Ibid., 154.
[10] Wollenberg, 3.

W.A. Bechtel Corporation seized the opportunity to expand as Kaiser had done into shipbuilding. Founded in 1925 by W.A. "Dad" Bechtel, the company had gotten its start building roads in California. In 1931, Kaiser and Bechtel formed a consortium of construction companies to bid on public works projects in the West, in particular the Bureau of Reclamation's planned dams on the Colorado River. The consortium consisted of eight companies, but at the suggestion of Felix Kahn of MacDonald & Kahn, the consortium called itself Six Companies in reference to the famous benevolent societies of San Francisco's Chinatown.[11] Six Companies won the contract to build Hoover Dam with the low bid of $49 million. This project catapulted Kaiser, Bechtel, and the other members of the consortium into the top rank of western construction companies.[12]

Design and Construction of Marinship

Fewer than 24 hours after receiving the cable from Admiral Land, the Bechtel brothers selected Richardson Bay in Sausalito as the site for their new shipyard. They chose this particular site because it was level, mostly undeveloped, and close to the Golden Gate. Just as important, it had excellent rail and highway access, thanks to the Northwestern Pacific Railroad and the Redwood Highway (U.S. 101), both of which ran through the site. A week after the cable, Kenneth Bechtel and other company executives traveled to Washington, D.C. with a detailed proposal. On March 10, 1942 – just ten days following Admiral Land's request – Bechtel signed a contract with the Maritime Commission to build and operate the proposed facility and to complete 34 ships by the end of 1943.[13]

The proposed 210-acre site was not entirely vacant. Although most of it was partially submerged tidelands belonging to the Northwestern Pacific Railroad Company, the site also contained several industrial operations and a small residential community of about 30 families living on a tree-clad promontory called Pine Hill. In March 1942, the United States government initiated condemnation proceedings against the local landowners, forcing the residents of Pine Hill to leave. They were given two weeks to relocate, and some were able to move their houses to nearby parts of Sausalito.[14]

The design, drafting, and engineering work for the new shipyard was handled in-house by Bechtel's engineering department. Quarters were made available in Bechtel's offices in the Mills Building in downtown San Francisco. Fifty people were employed to design the shipyard, including several brought up from the company's Los Angeles office. The men and women worked seven days a week, from eight in the morning until ten at night.[15] A rendering created

[11] Ibid., 8.
[12] Ibid.
[13] Richard Finnie, *Marinship: the History of a Wartime Shipyard* (San Francisco: Marinship, 1947), 1-4.
[14] Wollenberg, 1.
[15] Finnie, 14.

by Bechtel's engineering and drafting staff shows the appearance of the planned shipyard. With a few exceptions it was built as depicted **(Figure 2)**.

Bechtel's staff designed what was probably the most efficient shipyard ever built in the Bay Area. Although not as large as Kaiser's yards in nearby Richmond, the Marinship complex was better-suited to reduce inefficiencies and speed production. Freely borrowing from assembly line techniques long used by auto manufacturers, Marinship was what was known as a turning flow yard. By the early 1940s, shipyards typically fell into one of two categories: straight line or turning flow yards. In straight line shipyards, raw materials entered the site at one point and then proceeded toward the waterfront shipways along a straight assembly line, with sorting, cutting, and preassembly occurring in sequence, until meeting the shipways at the water's edge. Here, the subassemblies were assembled into a vessel, which was then launched and outfitted with fittings, equipment, and furnishings at the outfitting docks. The straight line approach was oriented perpendicular to the water and therefore required a lot of depth between the shoreline and the landward side of the yard. If a site did not have that kind of space available, the turning flow process was used. This mode worked the same way as the straight line process except that the assembly line operated parallel to the water until the subassembly process was completed. At this point the flow made a ninety degree turn to meet the shipways.[16]

With little space between Richardson Bay and the highway and rail lines to the west, Marinship was designed as a turning flow yard. As designed, Marinship was split into four main zones: administration/preassembly, subassembly, assembly, and outfitting **(Figure 3)**. The administration/preassembly zone was located in the northernmost part of the shipyard, near the primary rail and highway entrances. In addition to the main office building, this area is where all incoming materials were accepted, sorted, and stored prior to production. Raw materials, including thousands of steel plates for hulls and deckhouses, as well as prefabricated engines, shafts, propellers, rudders, and other machinery and equipment entered the facility.

Just south of the administration/preassembly zone was the subassembly zone. Here, the raw steel plates were burned (cut) in the Plate Shop (Building 20) before sent southward to the Subassembly Shop (Building 25) to be welded together into subassemblies. The Mold Loft/Yard Office (Building 30), where full-sized drawings and templates for each part were made, was also here, located just east of the Plate Shop and the Subassembly Shop for easy communication.

Just south of the subassembly zone was the assembly area. Upon completion of the subassemblies (deck houses, stern and bow assemblies, bulkheads, etc.), they would be transported by truck, crane, or rail to the staging area just west of the shipways. High-capacity, self-propelled whirley cranes that operated along tracks would then lift and carry the completed subassemblies from the staging area to the shipway where they were needed and

[16] Bonnett, 50.

welded into place. The extensive use of subassemblies meant that only about 100 individual pieces went into each vessel prior to launching. Limiting the amount of time in the assembly zone meant that more vessels could pass through the shipways in a given amount of time. This technique was much quicker and more efficient than traditional shipbuilding, where each vessel would be painstakingly built, piece by piece, on the shipway.

Although to a casual observer, a ship may have appeared complete following its launching, there were typically several more weeks of outfitting prior to delivery. After being launched a vessel was towed to the outfitting zone, which was located south of the assembly zone. Here, an entirely separate section of the shipyard sorted, produced, machined, and installed all of the smaller components, including electrical, plumbing, navigational instruments, weaponry, insulation, ventilation, joinery, flooring and decking, etc. Buildings serving the outfitting zone included the Outfitting Docks (Structure 14), the Outfitting Shops (Building 15), the Subcontractors' Building (Building 26), the Main Warehouse (Building 29), the Machine Shop (Building 11), the Paint and Oils Warehouse (Building 17), the General Shops (Building 10), and the Blacksmiths' Shop (Building 4). For the most part these buildings were located opposite the Outfitting Docks, allowing items to be easily transported to the docks as they were needed.

Marinship contained many buildings that were not directly involved in the production process, including administration, training and workforce development, emergency care, canteens, and transportation. Marinship's designers located these ancillary buildings away from the main production line in order to avoid causing congestion within critical parts of the yard. On the opposite side of the highway was a complex of buildings dedicated to training new hires (Buildings 27 and 28), salvage operations (Buildings 6 and 21), and the cafeteria (Building 8). Various storage facilities, garages, and other non-production related facilities were located at the far southeastern and northwestern parts of the yard. There was also a clinic (Building 19) near the shipways to treat injured workers. Just north of the ways, a ferry slip transported workers to and from San Francisco. Canteens serving cold lunches and coffee were interspersed throughout the yard to allow workers to eat quickly during their brief lunch breaks.

Even before the engineers had completed their drawings, site work was underway. Soil tests revealed that bedrock was closest to the surface at the central portion of the site, so it was decided to place the shipways at this point. All structures, including the ways, were built atop 25,000 redwood pilings that were driven through the mud and fill until they hit bedrock.[17]

Bechtel broke ground on March 28, 1942. In early April 1942, Pine Hill was blasted away and the 838,763 cubic yards of debris used to fill the tidal marshes between the highway and the railroad causeway. Suction dredges were used to dredge mud from the bay floor and deposit it onto the site. These dredges also created a deep water channel to the Golden Gate. After the filling was done, plumbers installed a network of oxygen, compressed air, and acetylene lines

[17] Finnie, 15.

throughout the site. Electricians also installed an 11,000-volt electrical cable to power the yard. Highway 101 and the Northwestern Pacific rail line were relocated outside the shipyard.[18]

Following the completion of site work and infrastructure, work began on more than 30 buildings, six shipways, two outfitting docks, and thousands of feet of track. The Administration Building (Building 3) was the first building completed, finished on June 17, 1942. The 122,000-square-foot Outfitting Warehouse (Building 29) was completed next on July 28, 1942. The 107,000-square-foot Mold Loft (Building 30) was completed on August 23, 1942. Also completed during this time were the six shipways, seven gantry cranes, 7,360 feet of crane ways, two outfitting docks with a connecting dock and ramps, and a ferry slip for transporting workers to and from San Francisco.[19] By the end of 1942, the yard was essentially complete and employing 19,000 workers.[20]

Construction and Operation of the Machine Shop

The Machine Shop was the sixth building constructed in the new yard. Pile driving began on June 20 and was completed nine days later. W.A. Bechtel Corporation's Construction Division laid the concrete foundation and footings June 24-30, 1942. Building construction began on July 4 and was completed on August 8, 1942. Construction of a second floor office addition began on October 30, 1942 and was completed March 22, 1943. The Machine Shop contained 27,400 square feet when completed, making it the sixth-largest building on the site.[21]

The Machine Shop was under the jurisdiction of Marinship's Machinery Section, which was responsible for handling the outfitting of each vessel, including installing the engines, boilers, rudders, shafts, and other machinery. The Machine Shop operated with three shifts of machinists working every day of the week. Unlike much of the shipyard, which relied on unskilled and semi-skilled workers, the Machine Shop was staffed by trained machinists, many of whom had previous experience in other shipyards. The work was difficult and required extensive experience to operate the complicated machinery used to produce parts with precise tolerances, such as propeller shafts. Other parts manufactured or modified in the Machine Shop included tail shafts, line shafts, all types of bearings, stern tubes and liners, coupling bolts, stern frames, rudders, fitted bolts and chocks, as well as taper pins and other hardware.[22] A photograph from the 1945 Grambow study shows the interior of the Machine Shop with the machinery in use **(Figure 4)**.

The machinists operated many specialized tools, including dies, cutters, and jigs. Machine Shop staff members were also charged with repairing broken machinery used in the yard, work that

[18] Ibid., 11-22.
[19] Ibid., 18.
[20] Wollenberg, 4.
[21] Finnie, 20.
[22] Ibid., 322.

often required fabricating new parts from scratch.[23] The work process typically involved the receipt of a shop order form from a member of the administration staff. The shop order form included the materials to be used or the parts to be repaired, the time required to complete the job, the date of the order, the date the part was to be completed, a sketch or plan, hull number, and a charge for the work for accounting purposes. Once the part was completed, it was routed to its proper department via courier.[24]

Marinship: 1942 to 1945

Though Kenneth Bechtel was ultimately in charge of the new Marinship facility, the General Manager of the yard was a man named William Waste. Waste had previously been the manager of Marinship's sister yard, Calship, in Los Angeles. Other management figures at Marinship had similar experience at other Bechtel and Six Companies ventures, including Construction Manager Ted Panton and Chief Engineer Bruce Vernon.[25]

At first Marinship was administered as the Marin Shipbuilding Division of the W.A. Bechtel Company. It was a joint venture that also included Six Companies partners Bechtel-McCone, J.H. Pomeroy & Co., Raymond Concrete Pile, MacDonald & Kahn, and Morrison-Knudsen. These other firms primarily participated in the construction of the yard and had little to do with shipbuilding operations, and all shared in the considerable profits generated by the yard. In the fall of 1942, Marinship became a separate corporation, with W.A. Bechtel & Co. and Bechtel-McCone each owning one-third of the total 4,500 shares and Kenneth Bechtel personally owning 500 shares, meaning that the Bechtel Group owned three-quarters of the stock. The rest of the shares were apportioned among the junior partners. The Board of Directors included Kenneth Bechtel (president), Steve Bechtel (vice president), and John McCone (vice president). Other board members included B.M. Eubanks, William Waste, and Robert Digges. Representatives of the partner companies were on the board as well.[26]

The yard, originally called the W.A. Bechtel Co., Marin Shipbuilding Division, was renamed Marinship in keeping with Calship, the company's other yard in Los Angeles. Before the Marinship was even 50 percent complete, the first keels were laid on June 27, 1942. Initially, to save time, the steel for the first six ships was prefabricated at Calship and then shipped north to Sausalito for assembly.[27]

Marinship was the first of the six post-Pearl Harbor Emergency yards to approach completion. Consequently, in the spring of 1942, Captain Vickery of the Maritime Commission asked Marinship to produce Liberty Ships with "all possible speed."[28] Marinship launched its first

[23] Ibid.
[24] Ibid.
[25] Wollenberg, 14.
[26] Ibid., 15.
[27] Bonnett, 35.
[28] Finnie, 193.

Liberty, the *USS William H. Richardson,* 51 days ahead of schedule and delivered it in just 126 days, nearly half the average time of other Bay Area yards. Although the Maritime Commission had requested only three Liberty Ships by the end of 1942, Marinship built five. Even though Marinship did receive some help from Calship, the yard's production was impressive, especially given that the yard was still under construction.[29]

After Marinship delivered its first 15 Liberty Ships, the U.S. Maritime Commission decided that the other Bay Area shipyards could handle this segment and asked Marinship to build T-2 tankers and oilers for the Navy. The conversion to tankers presented problems for Marinship, which had been designed to build Liberty Ships. Unlike Liberty Ships, which were built using relatively few subassemblies, the T-2s were specialized vessels that required hundreds of subassemblies and thousands of extra welds. Furthermore, each tanker required 16 miles of internal piping connecting each of the oil tanks.[30] Additional challenges included the fact that some of the tankers were to be modified as oilers according to separate Navy specifications. In addition to having to retool the yard and extend the shipways, the resulting losses in efficiency caused Marinship to fall behind schedule on T-2 production, completing only 11 in 1943 – half the quota assigned to it by the Maritime Commission.[31]

Exacerbating Marinship's early production problems was that management had been experimenting with a new low-inventory production system. This innovative strategy – the predecessor to today's just-in-time inventory logistics – depended on very efficient procurement staff experienced with managing an attenuated supply chain. On-time delivery of necessary supplies, materials, and parts was essential if this method was to work but unfortunately Marinship management was not up to the task. Its failure resulted in production delays, idled labor, and increasing tensions between labor and management.[32]

By 1944, management had resolved the procurement and supply chain issues, a significant feat considering most of the yard's steel plating, machinery, and other supplies had to be shipped to Sausalito from steel mills on the East Coast or in the Midwest. In a bid to further accelerate the yard's efficiency, management instituted several new policies, including switching production from seven to six days a week, allowing maintenance and repair work to occur on the seventh day so that these tasks would not impede production.

Management also learned how to more efficiently deploy its labor force. Because the switchover to tankers complicated the outfitting stage, Marinship decided to reassign more staff to the Outfitting Department, removing a major bottleneck in the post-launch production

[29] Liberty Ships built at Marinship were all named after Californians prominent in the state's history. Tankers were named for California missions and later, California oil fields.
[30] Wollenberg, 32.
[31] Ibid., 36.
[32] Ibid.

process. In addition, the management created flying squads of workers who were especially good at a particular task, moving them from way to way to finish important tasks instead of remaining at one shipway.[33]

Marinship's workforce, which numbered almost 22,000 at its high point, was recruited from all over the San Francisco Bay Area, California, and eventually the United States. Outside California the largest contingents came from Texas, Louisiana, Arkansas, Oklahoma, Iowa, Minnesota, and Missouri. The workforce included large numbers of non-traditional workers, including draft-exempted senior citizens, women, and members of ethnic and racial minorities. Some were Dustbowl refugees from the Great Plains and the Southwest, including the famous Okies of John Steinbeck's *Grapes of Wrath*, as well as thousands of African Americans seeking to escape the Jim Crow South. By 1944, Marinship was so desperate for workers that it began paying relocation costs for every worker who agreed to relocate to California. Significantly Marinship was the most integrated shipyard on the West Coast: African Americans made up 10 percent of the workforce and women 25 percent.[34]

Once recruited, workers had to be processed and issued a draft deferment, if an age-eligible male. Because nearly 90 percent of the new workers had never worked in a shipyard before, nearly all had to be trained. Welders were in biggest demand and novice welders trained for about three weeks before receiving certification as journeymen welders. Training was provided at the Training Shop (Building 28) and also at local high schools, colleges, and other off-site facilities.[35] Workers who demonstrated advanced capabilities rose quickly through the ranks, often becoming leadermen or gang bosses in a matter of a few months.

Except for African Americans, all workers were covered by collective bargaining agreements and were represented by a union.[36] Unions included the Teamsters, Building Service Workers, Electrical Workers, Printing Specialists, Technical Engineers, and Machinists. Most yard workers were represented by metal trades unions, including the Metal Trades Department of the American Federation of Labor.[37] They were also covered by a Master Agreement brokered by the Roosevelt Administration between the unions and the Pacific Coast shipbuilders. The Master Agreement governed wages ($1.20 per hour for journeymen), bonuses for swing and graveyard work, and overtime for any work over 40 hours per week. In addition, the agreement maintained a closed shop and established Joint Labor-Management committees. In 1944, a dayshift journeyman earned around $270 per month and a graveyard worker with overtime could earn $365 per month.[38] These wages were quite good, especially for minorities and

[33] Ibid., 37.
[34] Ibid., 42.
[35] Ibid., 46.
[36] Initially African Americans were not allowed to join the main shipyard workers' unions, instead being forced to join auxiliary locals that did not have the right to vote.
[37] Wollenberg, 41.
[38] Ibid., 56.

women who had traditionally been excluded from industrial work, as well as for the poor whites who had survived the Depression working as migrant agricultural laborers.

Although labor disputes did occur occasionally, as well as recurring tensions between white and black workers, morale remained reasonably good at Marinship throughout the war. The Employee Relations department was founded to build morale, and they did so with talent shows, painting exhibits, fishing derbies, sports tournaments, and performances by famous entertainers such as Bing Crosby and Marian Anderson. The Employee Relations department also published the *Marin-er*, a monthly newsletter from June 1942 onward. The 9 x 12, three-color, glossy magazine was initially edited by Marin County journalist Fred Drexler. It contained photo essays, news, gossip, and a column by General Manager Bill Waste. Workers eventually produced their own newsletter called *The Stinger,* a muckraking publication edited by yard employee John Connolly. *The Stinger* was soon co-opted and printed as part of the *Marin-er.*

Although most workers lived in San Francisco, others lived in Sausalito and in surrounding communities in Marin County. At first many lived in hastily arranged rented quarters, including empty rooms in local residents' houses, trailers, tents, and sometimes in converted agricultural buildings. To ease the pressure on Sausalito, the National Housing Authority, in cooperation with Bechtel, began constructing a defense workers' housing project called Marin City in June 1942. By the end of 1943, nearly 6,000 people lived in the 1,500-unit development located in a rural valley just north of Marinship.[39]

Good morale and changes in management strategy paid off and by early 1944, Marinship was launching a tanker every 10 days. In April 1945, Marinship delivered the *USS Ellwood Hills* in a record-breaking 59 days. Two months later, it built the *USS Huntington Hills* in just 33 days – 28 days on the ways and five days at the outfitting docks. By the spring of 1944, improvements in efficiency meant that Marinship was building T-2 tankers at a faster rate than any other shipyard.[40]

As the war wound down in Europe in 1945, and as invasion of the Japanese homeland appeared imminent, the U.S. Maritime Commission requested Marinship to build a special mini-shipyard to construct dozens of 104-foot invasion barges for landing vehicles and other equipment on the Japanese mainland.[41] The bombing of Hiroshima and Nagasaki in August 1945 put an end to Japanese resistance and on September 2, 1945, the Japanese government surrendered to the United States and its allies aboard the *USS Missouri* in Tokyo harbor.

Up until the day that the Japanese surrendered, Marinship was still building tankers as quickly as it could, completing the final one, the *USS Mission San Francisco*, on September 8, 1945.

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[39] Ibid., 52.
[40] Ibid., 37.
[41] Bonnett, 148.

Initially contracted by the Maritime Commission to build 100 ships, the final seven were cancelled in September 1945. During the three-and-a-half years of its existence, Marinship built 93 vessels (not counting barges and launches), including 15 Liberty Ships and 78 T-2 tankers and oilers.[42] Only one Marinship vessel – the Liberty Ship *USS Sebastian Cermeno* – was lost to enemy action.[43]

Marinship had been very profitable for Bechtel and its partners. Because the Maritime Commission owned the yards, paid all capital costs, and purchased major machinery and supplies, Bechtel had almost nothing at stake. During postwar congressional hearings it was estimated that Marinship earned total pre-tax profits of $11,871,394 on Commission contracts of $280,941,573. In three-and-a-half years, Bechtel and its partners earned more than a 2,000 percent return on their original investment of $500,000.[44] Because it was so profitable, many hoped that Marinship would remain open after the war. Though management frequently hinted that it would remain open, Marinship was unceremoniously closed in 1946, a victim of the post-war recession. Author Charles Wollenberg described Marinship as "a military-industrial comet, briefly lighting up the Bay Area economic skyline."[45]

Postwar Period

On May 16, 1946, the Maritime Commission conveyed the decommissioned Marinship yard to the U.S. Army Corps of Engineers, which needed a large base on San Francisco Bay to stage its construction and conservation projects – both locally and throughout the entire South Pacific region.[46] The Army Corps did not need the entire shipyard. In 1949, they subdivided it and sold off over 56 acres, retaining only 11 acres in the outfitting zone, including one of the Outfitting Docks, the Outfitting Shops (Building 15), the Outfitting Warehouse (Building 29), and the Machine Shop (Building 11).[47] The 1950 Sanborn maps indicate that the rest of the yard had been sold off or leased to various building contractors, manufacturers, and smaller boat yards, with the massive Plate and Subassembly Shops demolished and replaced by smaller buildings serving the new businesses.

The U.S. Army Corps of Engineers made some changes to its property after 1949, including rebuilding the Outfitting Docks in concrete and converting the three buildings on the site for new uses. The Army Corps assigned the Outfitting Shops (Building 15) to its Navigation Department, which was responsible for dredging and removing floating hazards from San Francisco Bay and surrounding navigable waterways. In 1949, this building was raised a full story to accommodate vessels and equipment on trailers. The Outfitting Warehouse (Building

[42] Ibid., 5.
[43] Ibid., 35.
[44] Wollenberg, 36.
[45] Ibid., 6.
[46] Finnie, 371.
[47] Telephone conversation with Chris Gallagher, Manager of the San Francisco Bay Model, U.S. Army Corps of Engineers, March 14, 2011.

29) remained in use as general-purpose warehouse. Meanwhile, the Army Corps converted the Machine Shop (Building 11) into a laboratory for testing clay, soil, concrete, and other materials used in dam and levee construction. Kilns were built inside the building where materials could be subjected to different temperatures and conditions to assess their efficacy in various environments. Other testing methods were used, including compaction, and facilities were installed inside the building to conduct these tests as well. Other laboratory spaces were set up in the office wing to conduct chemical analyses of various soil and concrete types. [48]

In 1956, in the Outfitting Warehouse (Building 29), the U.S. Army Corps of Engineers built a three-dimensional model of San Francisco Bay in response to the Reber Plan, a proposal to dam San Francisco and San Pablo Bays and convert them into large fresh water reservoirs. The Army Corps wanted to test the viability of the project, and before computers the only way to do this was to create a three-dimensional hydraulic model. The Bay Model revealed that the Reber Plan would not work. Its usefulness proven, the Bay Model was put to use testing the effects of various dredging and filling projects, as well as tracing oil spills. Between 1966 and 1969, the Army Corps expanded the Bay Model to include Suisun Bay and the Sacramento/San Joaquin Delta.[49]

In 1980, the Army Corps built a visitor center at the Outfitting Warehouse to accommodate the general public who wished to view the 1.5-acre model. As part of the project, the exteriors of Buildings 15 and 29, the Outfitting Shops and Outfitting Warehouse, were reclad in stucco to give them a uniform appearance. In 1990, with the Sausalito Historical Society, the Army Corps opened *MARINSHIP 1942*1945*, a small museum in the Bay Model Visitors Center.

The Army Corps continued to use the Machine Shop as a materials testing laboratory until 1996. That year the Army Corps decided that it did not need the building anymore and declared it surplus property. The General Services Administration handled the sale, which was not finalized until 2006 when the U.S. Department of Veterans Affairs (VA) took over the property. Initially the VA intended to remodel the building, then altered course and decided to demolish the building and build a smaller facility on the site. The VA later decided to retain the building.

Criterion C

The Marinship Machine Shop is also eligible as a an example of World War II era wartime construction that makes use of what were then advanced building materials and technologies, including 4 x 8 sheets of plywood, glulam trusses, and mass-produced ribbon windows. With time of the essence, Marinship's main production buildings were designed and built to be erected very quickly using inexpensive, lightweight, modular materials that required little skilled labor. Aside from the overhead traveling cranes and other equipment, the building used

[48] Ibid.
[49] Ibid.

very few war rationed materials, especially steel or other metals. Though it and the other Marinship buildings that resemble it were apparently not specifically designed in any particular style, the materials used resulted in the Marinship Machine Shop embodying characteristics of the Streamline Moderne style. Features that embody the style include the sinuous curves of the barrel-vaulted roof, the horizontal lines of the ribbon windows, the simple bezel moldings around the windows and doors, and the flat canopies sheltering the entrances.

Streamline Moderne Style

The Streamline Moderne style was not purely the outgrowth of Depression era austerity. Ultimately it was a modernist aesthetic related to the Art Deco style which gained popularity during the late 1930s and early 1940s. The Streamline Moderne style's parent style, Art Deco, gained worldwide attention as a result of the 1925 *Exposition Internationale des Arts Decoratifs et Industriels Modernes.* The Art Deco style consciously broke from the past and sought to chart a new stylistic vocabulary based primarily on low-relief geometric designs—including parallel lines, chevrons, zig-zags, stylized vegetation, circles and linear motifs. By the end of the 1930s, the idealization of the machine, in particular the airplane and ocean liner, led toward the refinement and abstraction of the Art Deco style. Called Streamline Moderne or simply Moderne, this new style evolved in several different paths ranging from a literal application of the curved, aerodynamic vocabulary of airplanes, ocean liners, and automobiles to a stripped classicism popular with government institutions. In the United States this latter version of the Streamline Moderne style became the dominant mode endorsed by Depression era New Deal agencies, particularly the Works Progress Administration, leading to the style being identified as WPA Moderne.

Conclusion

Pending evaluation of integrity, the entire Marinship yard in Sausalito may be eligible for listing in the National Register under Criterion A for its association with the expansion of Homefront industries in the San Francisco Bay Area during the Second World War. Evaluated under the National Park Service's *World War II and the American Home Front, National Historic Landmark Theme Study*, it appears that most surviving property types associated with Homefront industries, shipbuilding in particular, may qualify for National Register listing. Shipbuilding was the Bay Area's most important contribution to the war effort.

After World War II, the Bay Area's colossal shipbuilding complex gradually declined. With thousands of surplus vessels available, there was no need for the additional capacity and the Emergency yards were all closed by the end of 1946. Little remains of these yards. The vast Richmond yards were all demolished after the war, with only a handful of buildings and docks surviving at Kaiser Yard No. 3. Only the outlines of the Belair graving docks survive in the tidelands of South San Francisco.

Most of the historic pre-war yards closed between the late 1950s and the mid-1990s, casualties of cheaper and more efficient overseas shipyards and the post-Cold War peace dividend.

Although Bethlehem Shipbuilding Company's San Francisco Yard survives, several of the World War II era buildings and structures were demolished. At Bethlehem's Alameda Yard, only the power house survives and it is a pre-World War II building. Oakland's Moore Drydock closed in the 1960s and the entire yard was cleared to make way for expansion of the Port of Oakland. Vallejo's Mare Island Naval Shipyard closed in 1996. Though some of the yard survives, its future is uncertain and much of it has been redeveloped with suburban-style tract housing. Closed in 1974, Hunters Point Naval Shipyard retains World War II era construction. One of the most intact of the World War II era yards, nearly all of Hunters Point Naval Shipyard may soon be demolished to make way for new residential and mixed-use development.

In contrast to other historic Bay Area shipyards, and all of the post-Pearl Harbor Emergency yards, more than half of Marinship's original buildings and shipways survive. However, since it was decommissioned and transferred to the U.S. Army Corps of Engineers in 1946, the shipyard was incrementally converted into an industrial park. The large, open span World War II era shipyard buildings were readily adaptable for a full range of light industrial, warehousing, office, and craft/art uses. Because all of these buildings were built quickly using inexpensive and lightweight materials, most of Marinship's historic buildings have been extensively remodeled to make them suitable for other uses. Though most are still recognizable by virtue of their vaulted bowstring-truss roofs, most Marinship buildings have been re-clad in stucco, given new aluminum windows and doors, and had their interiors built out with office space. The Marinship Machine Shop is a notable exception, retaining its original appearance.

Developmental history/additional historic context information

Sausalito

What is now Sausalito was originally a Bay Miwok settlement known as *Liwanelowa*. The first known European visitor to *Liwanelowa* was the Spaniard Don José de Cañizares, who arrived aboard the *San Carlos* on August 5, 1775. Cañizares reported on the abundant lumber, fresh water, and ample populations of deer, elk, bear, and sea lions. He also remarked on the suitability of the area for shipbuilding, citing the sheltered deep-water cove (Shelter Cove) just inside the Golden Gate, as well as the extensive stands of mature redwoods nearby. In 1776, the Spanish crown established a military garrison called *El Presidio de San Francisco* directly across the Golden Gate from what is now Sausalito. The Spanish resettled the Bay Miwok who lived at *Liwanelowa* at the missions of *Misíon San Francisco de Asís*, and later, *Misíon San Rafael de Arcangel*.[50]

The first permanent European inhabitant of Sausalito was an Englishman named William A. Richardson (1795-1856). Born in London, Richardson was a sailor aboard the British whaler *Orion*. He knew enough Spanish to be able to communicate with the locals when the vessel arrived in San Francisco Bay in 1822. Richardson apparently liked the remote frontier settlement of Yerba Buena enough that he decided to jump ship. Within three years he

[50] Bonnie J. Peterson, *Dawn of the World: Coast Miwok Myths* (San Rafael, CA: Marin Museum Society, 1976).

converted to Catholicism, became a naturalized Mexican citizen, and married María Antonia Martinez, daughter of Don Ignacio Martinez, the *Commandante* of *El Presidio de San Francisco*.

As a Mexican citizen, Richardson was eligible to petition for land, and around 1826 he requested a 20,000-acre *rancho* in the Marin Headlands. A little over a decade later he acquired the land. He named his holding *Rancho de Saucelito* in recognition of a small grove of willows that grew around a freshwater spring near Shelter Cove. Richardson built an adobe hacienda for his family near what is now the intersection of Pine and Caledonia streets in New Town. He built a wharf close by and used it to trade lumber, hides, and tallow with visiting traders. He also outfitted whalers that dropped anchor in San Francisco Bay and sold fresh water to the residents of the growing settlement of Yerba Buena, renamed San Francisco in 1847.[51]

The American conquest of the Southwest in 1847 put an end to the idyllic *rancho* culture of Mexican California. Many of the Anglo American newcomers who flooded the territory during the Gold Rush were contemptuous of Spanish and Mexican laws and defiantly squatted on the *ranchos*. *Rancheros* were forced to defend title to their lands, a process that quite literally ruined many. By the 1860s, most of the *ranchos* in the San Francisco Bay Area had been broken up into smaller landholdings, including *Rancho de Saucelito,* which was gradually sold off to pay Richardson's legal bills. By the time of his death in 1856, Richardson's lawyer Samuel Throckmorton had gained control of nearly all of the *rancho*.[52]

In 1868, a consortium of 20 San Francisco businessmen purchased 1,164 acres from Samuel Throckmorton and a year later, they established the Sausalito Land & Ferry Company. The company's directors subdivided the steep hillsides and the narrow shelf of level land along Richardson Bay into blocks and lots and established regular ferry service to San Francisco. Although within view of the fast-growing metropolis of San Francisco, Sausalito remained a tiny village throughout most of the nineteenth century. It experienced a growth spurt following the opening of the North Pacific Coast Railroad in 1874. Connected to San Francisco via regularly scheduled ferry service, Sausalito became the gateway to Marin County and the North Coast.[53] In 1887, the spelling of the town's name was officially changed to Sausalito and in 1893, it incorporated as a town.[54]

During the nineteenth century, Sausalito attracted several hundred Portuguese immigrants from the Azores. Many of the Portuguese earned their livelihoods as fishermen and dairymen, forming the backbone of Sausalito's working class. Meanwhile, the hills above the ferry terminal, protected from the rain and fog, became the favored haunt of wealthy San

[51] Jack Mason, *Early Marin* (Petaluma, CA: House of Printing, 1971), 26.
[52] Margaret Badger, Phil Frank, et al, *Sausalito* (Charleston, SC: Arcadia Publishing, 2005), 10.
[53] Gilbert H. Kneiss, *Redwood Railways* (Berkeley, CA: Howell-North, 1956).
[54] David L. Durham, *California's Geographic Names: A Gazetteer of Historic and Modern Names of the State* (Fresno, CA: Quill Driver Books, 1998).

Franciscans seeking summer sunshine and privacy. During this time Sausalito acquired the nickname "Monte Carlo of the West."[55] Meanwhile, Downtown, Old Town, and New Town became bastions of working-class railroad workers, fishermen, and tradesmen.

Conditions in late nineteenth century Sausalito continued to define the community well into the twentieth century. In 1903, the North Shore Railroad opened an electrified interurban line to Mill Valley and San Anselmo, opening up interior sections of Marin County to weekenders and commuters. Growth in private automobile ownership did not initially lessen the importance of Sausalito as a transit hub, with new auto ferries springing up between San Francisco and Sausalito. Hotels, saloons, and other attractions sprang up to cater to weekend day trippers and others passing through the city.[56] The opening of the Golden Gate Bridge and the Waldo Grade that bypassed Sausalito in 1937 marked the beginning of the end of Sausalito's role as an important transit node. Passenger rail service ended in February 1941 and regular ferry service ended soon after.[57]

The U.S. entry into World War II transformed Sausalito just as its importance as a transit center had begun to slip away. The opening of Marinship north of New Town led to the doubling of the city's population as thousands of shipyard workers made their way to Sausalito to take jobs building Liberty Ships and tankers.

[55] William Chapin et al, *Suburbs of San Francisco* (San Francisco: Chronicle Books, 1969), 130.
[56] Badger, Frank, et al, 23.
[57] Ibid., 48.

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Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested
____ previously listed in the National Register
____previously determined eligible by the National Register
____designated a National Historic Landmark
____ recorded by Historic American Buildings Survey #_____
____recorded by Historic American Engineering Record # _____
____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

____ State Historic Preservation Office
____ Other State agency
____ Federal agency
____ Local government
____ University
__X__ Other
Name of repository: Sausalito Historical Society

Historic Resources Survey Number (if assigned): _____

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10. Geographical Data

Acreage of Property Less than one acre

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)

1. Latitude: 37.863191 Longitude: -122.493847

Verbal Boundary Description (Describe the boundaries of the property.)
As indicated by the heavy black line around the Marinship Machine Shop on the Sketch/Location Map, the boundary encompasses less than one acre at the southeast end of the approximately 13 acre parcel (063-100-11) shown on the Context Map. The nominated property contains only the building and a small, L-shaped, asphalt-paved parking/staging area north of the building that was historically used to stage equipment, store materials, and maneuver vehicles in and out of the building.

Boundary Justification (Explain why the boundaries were selected.)
The larger parcel is owned by the U.S. Army Corps of Engineers, who sold the Marinship Machine Shop and paved area north of the building to the U.S. Department of Veterans Affairs. The northeast boundary is adjacent to a pedestrian and bike trail, edged by a chain link fence and eucalyptus trees. The southeast boundary is the same as that of the larger parcel. The southwest boundary is immediately adjacent to the building. The northwest boundary runs parallel to the neighboring Bay Model Visitor Center, alongside a narrow driveway, inside a chain link fence.

11. Form Prepared By

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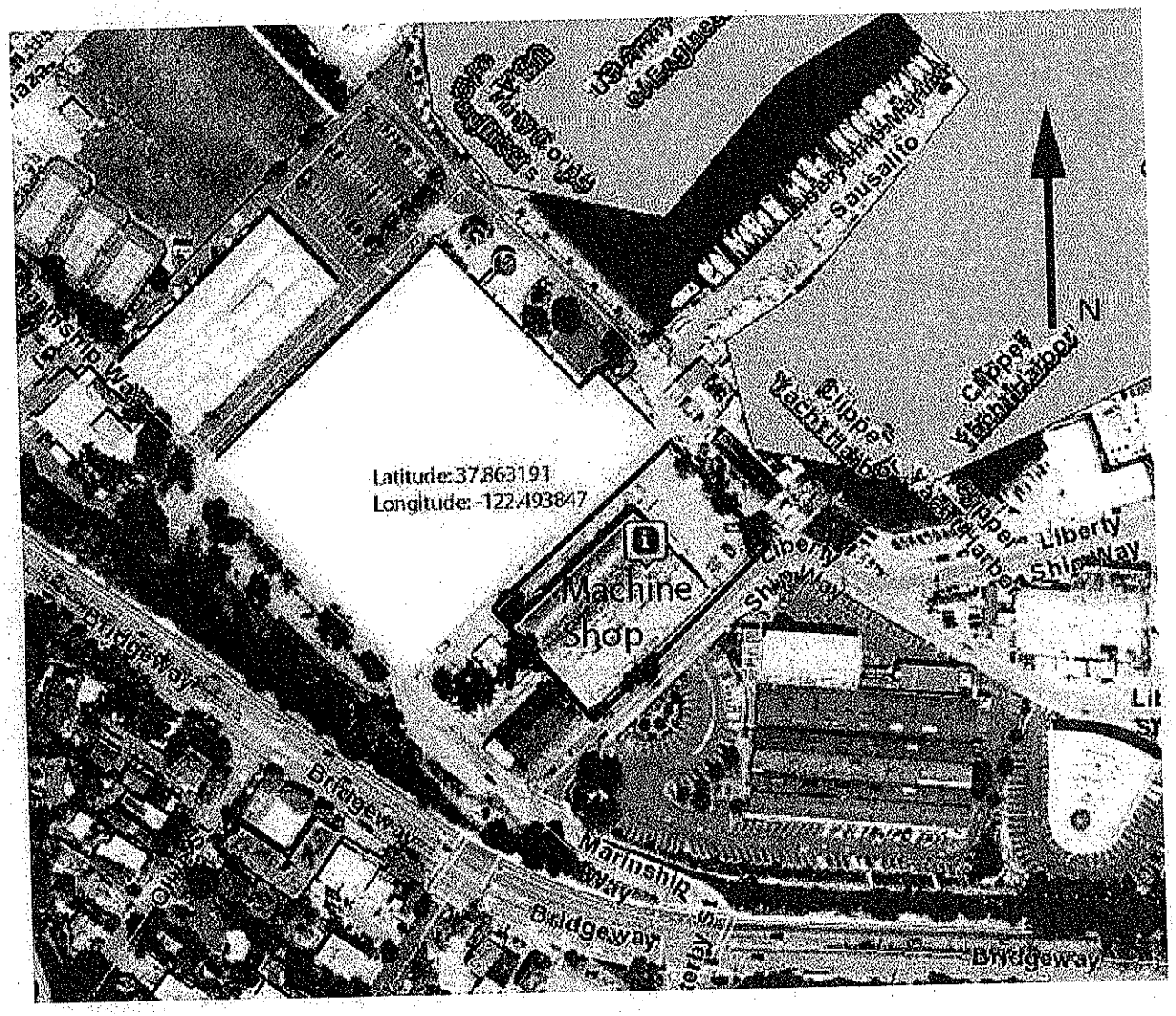
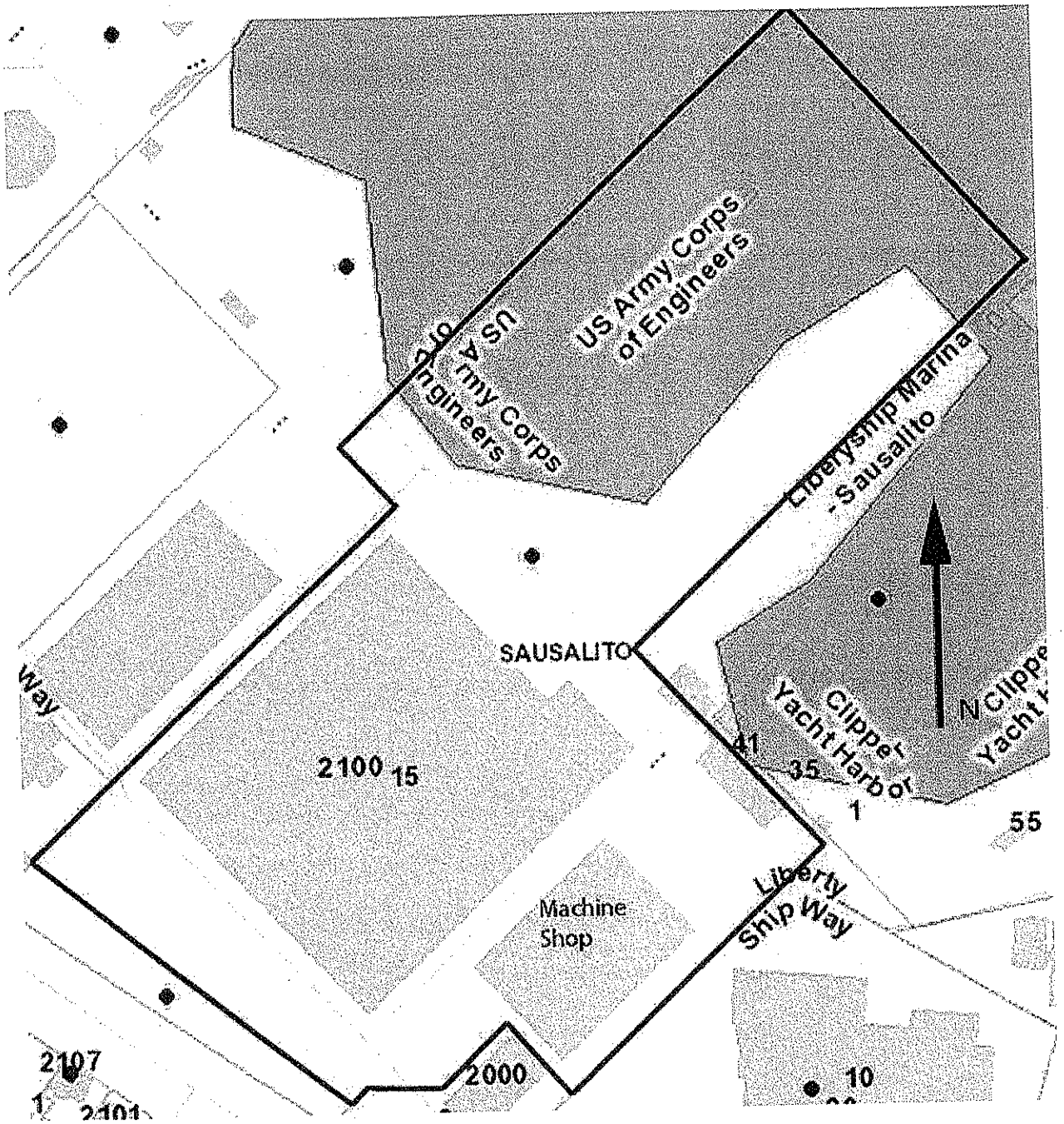
date: October 11, 2013; Revised November/December 2013

Sketch/Location Map



Marinship Machine Shop location; nominated property includes parking/staging area north of building
Source: Marin Map; annotated by Christopher VerPlanck

Context Map



Marinship Machine Shop on less than one acre owned by U.S. Department of Veterans Affairs within approximately 13 acre parcel owned by U.S. Army Corps of Engineers
Source: Marin Map; annotated by Christopher VerPlanck

Figure 1.

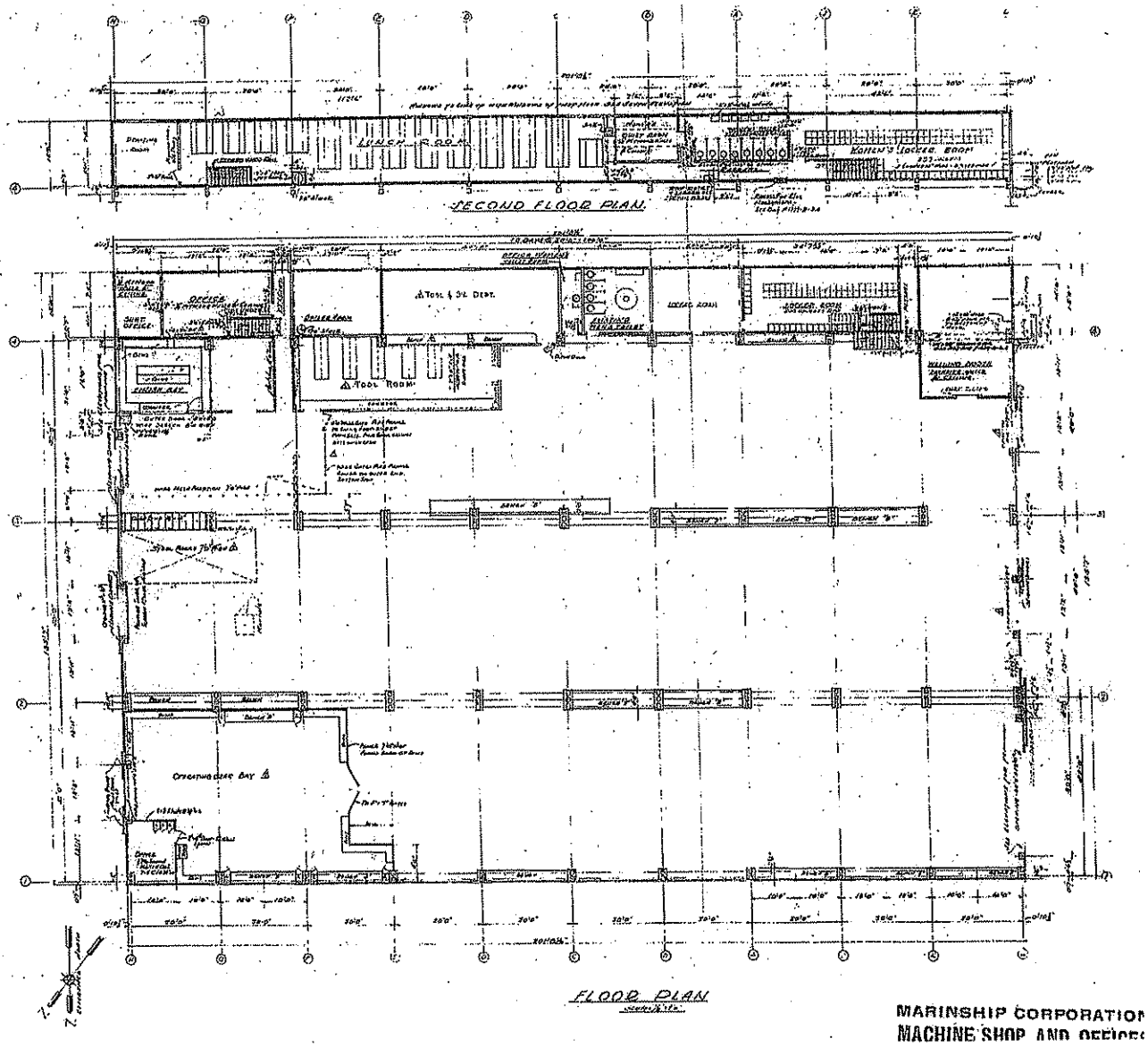


Figure 1. Machine Shop floor plans
Source: Richard Grambow, *Marinship at the Close of the Yard*

Figure 2.

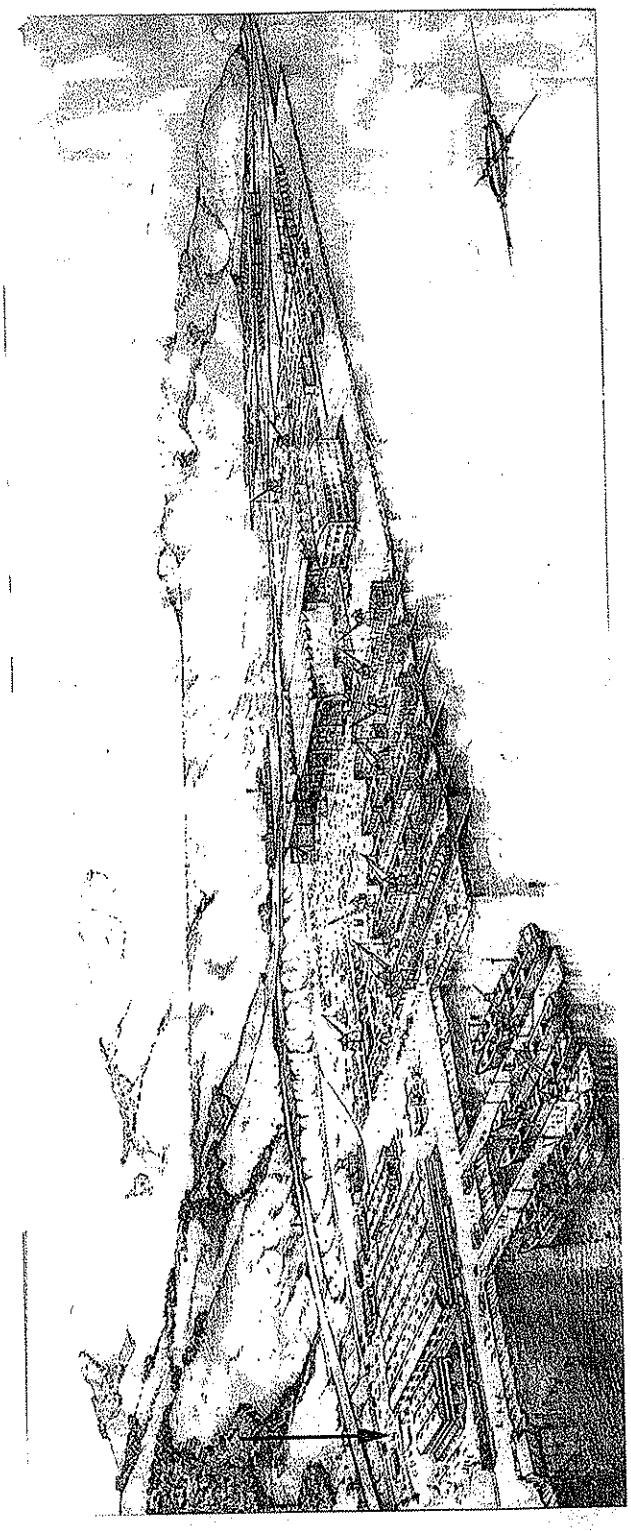


Figure 2. Rendering showing the proposed Marinship Shipyard; Machine Shop designated by arrow
Source: W. A. Bechtel Corporation

Figure 3.

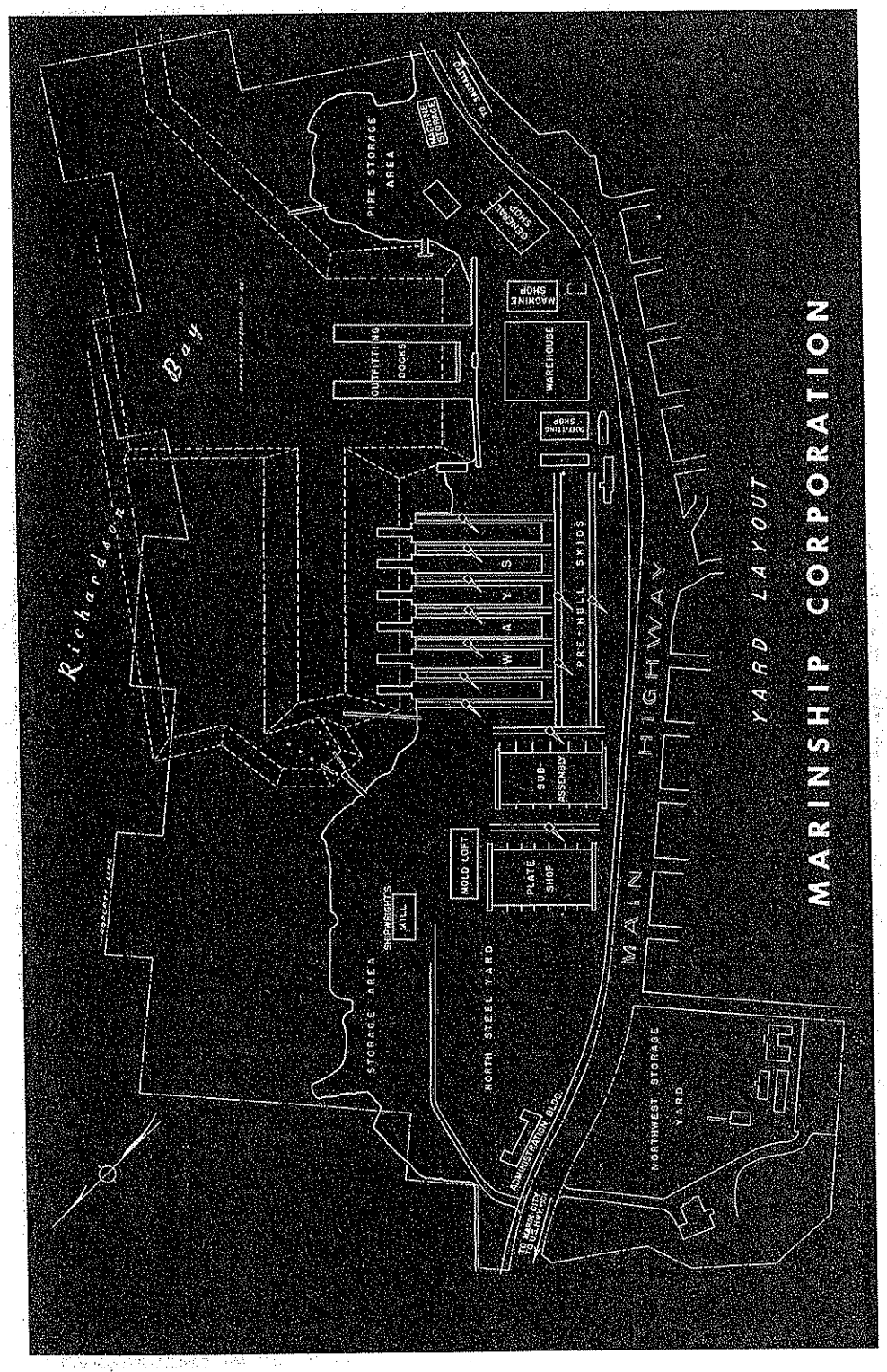


Figure 3. Site Plan of Marinship, with arrows depicting workflow and major zones
Source: Richard Finnie, *Marinship: The History of a Wartime Shipyard;* annotated by Christopher VerPlanck

Figure 4.

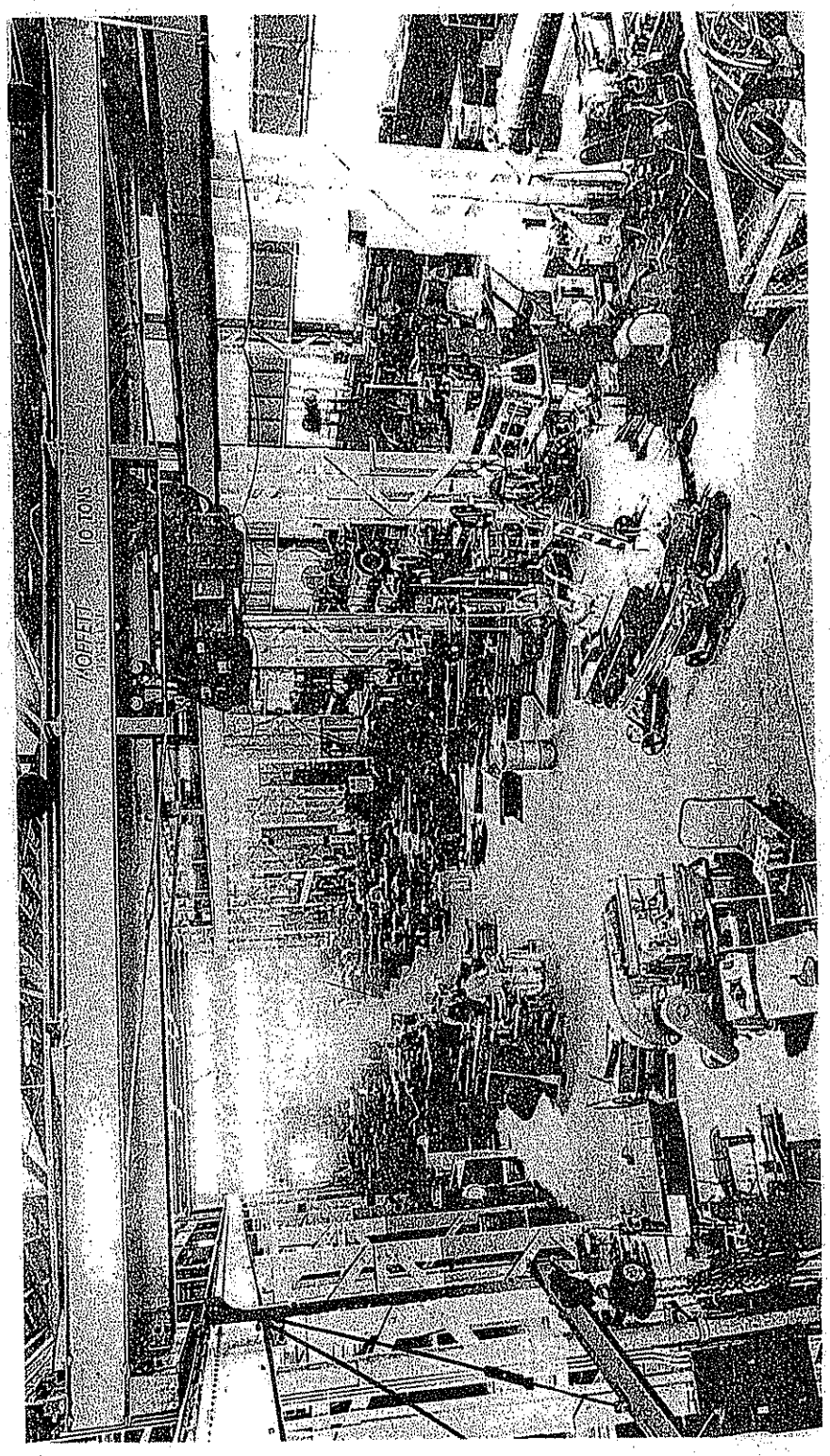
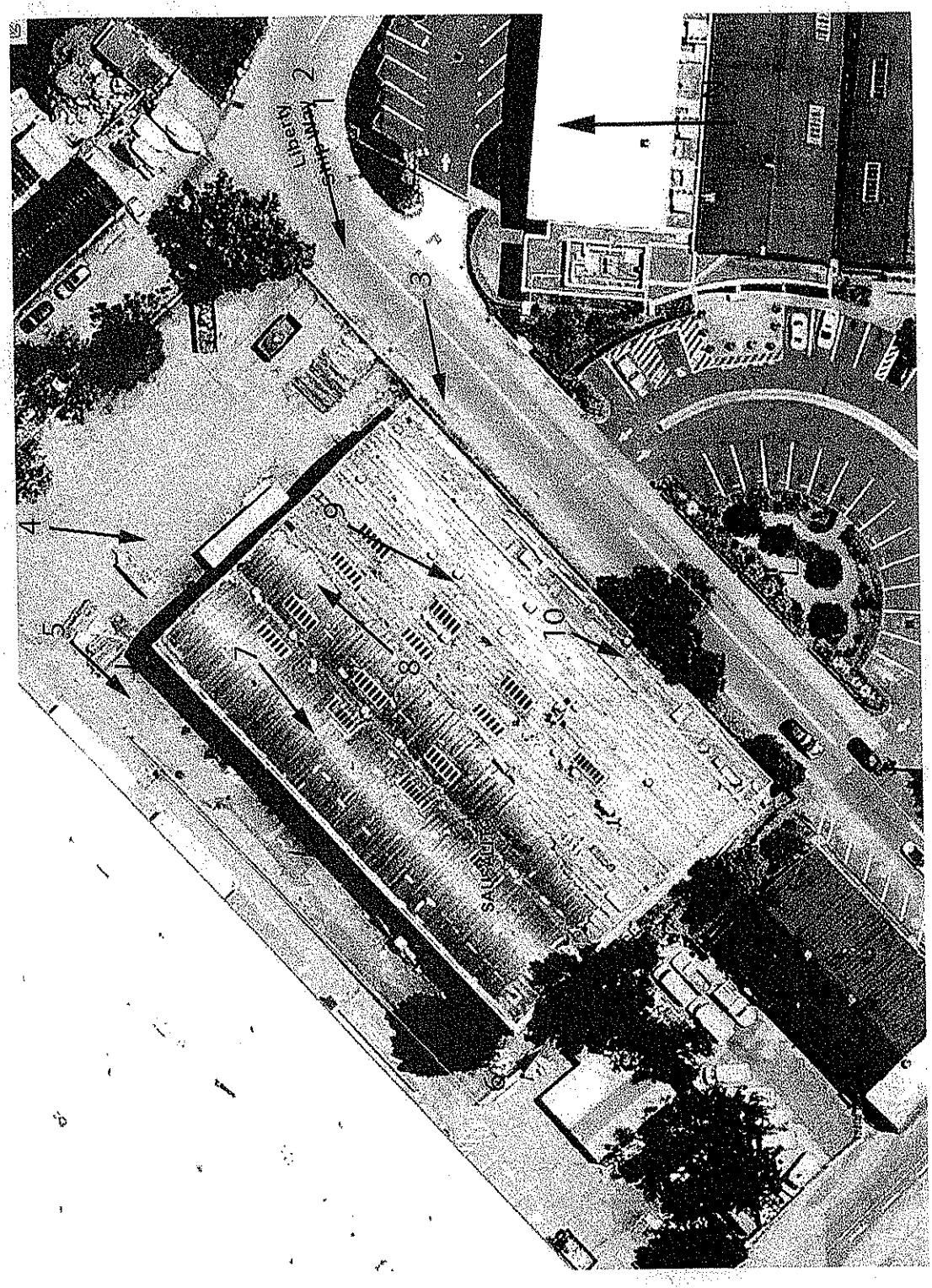


Figure 4. Machine Shop interior, circa 1945; Source: Richard Grambow, *Marinship at the Close of the Yard*

Photograph Key



Source: Marin Map; annotated by Christopher VerPlanck

Photograph Log

Name of Property	Marinship Machine Shop
City:	Sausalito
County:	Marin
State:	California
Name of Photographer:	Christopher VerPlanck
Date of Photographs:	March 8, 2011
Location of Original Digital Files:	57 Post Street, Suite 512, San Francisco, California 94104
Number of Photographs:	10

Photo #0001
Overall perspective, camera facing west

Photo #0002
Northeast façade, camera facing west

Photo #0003
Southeast façade, camera facing southwest

Photo #0004
Overall perspective, camera facing southwest

Photo #0005
Northwest façade, camera facing southwest

Photo #0006
Southwest façade, camera facing southeast

Photo #0007
Interior, north bay, camera facing southwest

Photo #0008
Interior, center bay, camera facing northeast

Photo #0009
Interior, center and south bays, camera facing southwest

Photo #0010
Interior, office wing, camera facing south