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United States Department of the Interior
National Park Service

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 *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an 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. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer to complete all items.

1. Name of Property

historic name Storehouse #2, U.S. Navy Fleet Supply Base

other names/site number _____

2. Location

street & number 850 Third Avenue [] not for publication

city or town Brooklyn [] vicinity

state New York code NY county Kings code 047 zip code 11232

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 as 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 [] nationally [] statewide locally. ([] see continuation sheet for additional comments.)

Ruth A. Pierpont ISHPO

12/27/12

Signature of certifying official/Title

Date

New York State Office of Parks, Recreation & Historic Preservation
State or Federal agency and bureau

In my opinion, the property [] meets [] does not meet the National Register criteria. ([] see continuation sheet for additional comments.)

Signature of certifying official/Title

Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

- entered in the National Register [] see continuation sheet
- [] determined eligible for the National Register [] see continuation sheet
- [] determined not eligible for the National Register
- [] removed from the National Register
- [] other (explain) _____

Signature of the Keeper

date of action

in *Alyssa Liberman*

2/20/13

Storehouse #2, U.S. Navy Fleet Supply Base

Brooklyn, New York

Name of Property

County and State

5. Classification

Ownership of Property

(check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property

(Check only one box)

- building(s)
- district
- site
- structure
- object

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing

2

Noncontributing

2

0

buildings
sites
structures
objects
TOTAL

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions

(enter categories from instructions)

DEFENSE/ Military Facility

INDUSTRY/ PROCESSING/ EXTRACTION/

Energy Facility

Current Functions

(Enter categories from instructions)

WORK IN PROGRESS

7. Description

Architectural Classification

(Enter categories from instructions)

Classical Revival

Materials

(Enter categories from instructions)

foundation Concrete

walls Concrete, Brick

roof Asphalt

other

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets)

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Storehouse #2, U.S. Navy Fleet Supply Base

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Narrative Description of Property

Storehouse #2 occupies the entire block bounded by Second and Third avenues and 30th and 31st streets in the Sunset Park area of Brooklyn. It is surrounded by Third Avenue and the elevated Gowanus Expressway to the east, the Metropolitan Detention Center Brooklyn to the north, a parking lot and Gowanus Bay to the west, and the former U.S. Navy Fleet Supply Base steam plant and a parking lot to the south (Figure 1). It was once part of the U.S. Navy Fleet Supply Base that was commissioned in response to World War I and located between 29th and 32nd Streets, between Second and Third Avenues, and between 29th and 38th streets, west of Second Avenue. This complex included Storehouse #2, Storehouse #1 (largely demolished and replaced by a federal detention center), a 3,000 horsepower coal-fired steam plant, two timber-framed warehouses with stuccoed hollow-tile walls, two 1-story "Navy Provision" storehouses, two 1-story, steel-framed, brick-and-tile airplane storehouses, an internal railroad system and railyard with a capacity to hold 465 railcars, a Marine barracks, an office, assorted sheds, two piers, and two float bridges. The majority of these buildings and structures, except for Storehouse #2 and the steam plant, have been demolished and/or irrevocably altered. The nomination includes two contributing buildings.

Storehouse #2 is a purpose-built, 8-story warehouse measuring 700' by 200', designed in a Neo-Classical style. It is characterized on all four elevations by a rectilinear grid comprised of a reinforced concrete skeleton with slightly recessed bays (Photos 1-3). The building's elevations are divided horizontally into three sections consisting of a concrete base featuring a combination of doors, windows, loading bays, and open entrances (floor 1); concrete pilasters, lintels, and sills with Fisklock brick (after the manufacturer) spandrels under multi-light windows in the mid-section (floors 2 thru 7); and rusticated concrete walls with multi-light windows in the uppermost story (floor 8). Each section is further delineated by molded concrete cornices that run the length of each elevation. The base and mid-section of the building follow a consistent grid pattern with horizontally oriented openings, while the uppermost story features three vertically oriented window openings within each bay. The building's elevations are also divided vertically into three sections through the incorporation of end, or corner bays, comprised of concrete walls containing single units of multi-light windows that bracket the rectilinear grids between them. The roof features a series of reinforced concrete structures that include: elevator bulkheads, small storerooms with embrasures, and large frameworks, which formerly served as the bases for the building's water towers.

Windows units have been removed due to deterioration but originally consisted of the following: In the mid-section, windows consisted of 16-light metal-sash units with 4-light tilt-unit insets flanking 20-light metal-sash with 6-light tilt-unit insets. End bays of the mid-section consisted of fixed 12-light metal sash units. In the uppermost story, windows consisted of 12-light metal-sash units with 4-light tilt-unit insets. Windows and other openings on the first-floor level are discussed below.

Facade

The façade is located on the east elevation of the building along Third Avenue and features 10 bays. The entrance is located in bay 6 and contains a c.1960 metal-and-glass replacement door flanked by rusticated pilasters. The entrance is in turn flanked by an array of irregularly configured c.1940 glass block replacement

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windows set within concrete infill. Twelve-light aluminum replacement sash units are located in the upper floors of bay 6 and were most likely introduced during a c.1960 renovation.

North Elevation

The north elevation of the building, along 31st Street, features 35 bays. Another entrance is located in bay 8 and contains a pair of c.1960 metal-and-glass replacement doors flanked by metal-and-glass replacement sidelights under a metal-and-glass replacement transom. In addition, service entrances containing single metal doors are located in bays 1, 12, 24, and 35. Windows have been removed but consisted of 16-light metal-sash units with 4-light tilt-unit insets flanking 20-light metal-sash with 6-light tilt unit insets, along with 12-light aluminum replacement sash units most likely introduced during a c.1960 renovation.

South Elevation

The south elevation of the building, along 30th Street, features 35 bays. Another entrance is located in bay 21 and consists of an opening (missing its doors) under a transom with wood infill, which was flanked by single, fixed 8-light metal-sash window units (removed), all set within a concrete framework. Service entrances containing single metal doors are located in bays 1, 12, 24, and 35. Other openings along this elevation contained 16-light metal-sash replacement units with 4-light tilt-unit insets flanking 20-light metal-sash with 6-light tilt-unit insets, loading bays with roll-up wood-and-glass doors, and wood, concrete, or concrete block unit infill in place of windows and roll-up doors. In contrast to the north elevation, both window openings and loading bays are randomly placed within the south elevation.

West Elevation

The west elevation of the building, along Second Avenue, features 10 bays. This elevation features slightly recessed concrete walls that previously contained fixed 12-light metal sash units (removed) in bays 1 and 10, a former opening for train access in bays 2-3, a double-sized opening containing a recessed loading bay in bays 3-4, window openings containing wood infill in bays 5-7 and 9, and a former entrance containing a roll-down metal door under a transom with wood infill, flanked by window openings containing wood infill, all set within a concrete framework in bay 8.

Interior

Storehouse #2's infrastructure consists of flat-slab construction with reinforced concrete mushroom columns spaced on 20' centers throughout (Figures 2-5; Photos 4, 10-12). The diameters of the columns diminish from floor to floor, with the first-floor columns measuring 3' and the eighth-floor columns measuring 1'8". Stairways with metal pipe handrails are located along the building's perimeter at the main entrance on Third Avenue and at bays 1, 12, 24, and 35 along the north and south walls (Photo 5). Passenger elevators are paired with stairways, while freight elevators are located along the center core of the building in pairs at bays 7, 18, and 29, and individually just inside the north and south walls at bays 7, 18, and 29; there are 23 elevator banks in all (Photo 6). Bathrooms line the outer north and south walls of the freight elevators at these bays on each floor (Photo 7).

Storehouse #2, U.S. Navy Fleet Supply Base

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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.)

- A** Property 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.
- C** Property embodies the distinctive characteristics of a type, period, or method of construction or that 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 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 of age or achieved significance within the past 50 years

Areas of Significance:

(Enter categories from instructions)

Military History

Architecture

Period of Significance:

1917-1960

Significant Dates:

1917

Significant Person:

N/A

Cultural Affiliation:

N/A

Architect/Builder:

Captain R.C. Hollyday

Howard Chapman

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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 Building Survey # _____
- recorded by Historic American Engineering Record # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal Agency
- Local Government
- University
- Other repository: _____

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Statement of Significance:

Storehouse #2 is significant under Criterion A in the area of military history for its association with the former U.S. Navy Fleet Supply Base, which was one of two purpose-built, intermodal supply storage complexes commissioned by the U.S. Navy under the Preparedness Act of August 29, 1916. Once encompassing a complex that included two main storehouses, a steam plant, other assorted warehouses and storehouses, an internal railroad system and railyard, a Marine barracks, an office, assorted sheds, two piers, and two float bridges along the Gowanus Bay waterfront, the U.S. Navy Fleet Supply Base was planned and designed to capitalize on the freight potential afforded by water, rail, and truck. This freight potential would in turn facilitate the transport, storage, and disbursement of supplies for the Third Naval District, whose location, together with other U.S. military port operations in New York Harbor, constituted the most important area of embarkation in the United States for cargo and troop ships bound for Europe during World War I. Although the majority of the features of the supply base have been lost or irrevocably altered, the two colossal storehouses were the largest and most significant buildings on the site. The massive size and scale of the surviving Storehouse #2 conveys the enormity and significance of the endeavor and the US Navy's expectations for the facility. Storehouse #2 is also significant under criterion C in the area of architecture as a distinctive intact example of an early 20th century reinforced concrete World War I military building which was constructed by Turner Construction Company, the leading contractor for the construction of reinforced concrete industrial complexes in the period. Tasked with constructing three of the largest U.S. military complexes in the country while also continuing to work on a variety of sizable private commissions, Turner repeatedly proved itself to be a model of expertise and efficiency in the realm of reinforced concrete construction, thus distinguishing itself as a nationwide leader. Today, Storehouse #2 possesses conveys its historical and architectural/engineering associations with World War I and the strategic role that supply bases were anticipated to play in support of naval combat. The nomination also includes a contributing steam plant, the only other intact feature related to the supply base, also constructed by Turner Construction during the period of significance

Storehouse #2, U.S. Navy Fleet Supply Base

Storehouse #2 was the product of an ambitious plan by the U.S. Navy during World War I to capitalize on the freight potential afforded by water, rail, and truck for the transport, storage, and disbursement of supplies for the Third Naval District, established in 1903 and comprised of New York, Connecticut, and the northern half of New Jersey (Showve 1967:2). Planned, designed and constructed as a purpose-built storehouse, Storehouse #2 was introduced as part of a larger complex known as the U.S. Navy Fleet Supply Base of the Third Naval District to "receive, store and issue mechanical and general supplies to the escort, troop and emergency vessels" (Bowers 1991:7). This was especially important, given the fact that New York Harbor was the primary point of departure for both cargo and troop ships bound for Europe during the war. Commissioned in accordance with the Preparedness Act of August 29, 1916, this complex was one of two purpose-built intermodal supply storage complexes in the United States and part of a larger nationwide naval building campaign during World War I that resulted in the construction of 30 large scale permanent buildings and over 100 temporary buildings and structures of various sizes (Bowers 1991:7). Taken together, these developments constituted approximately 15 million square feet of storage area for the U.S. Navy at a cost of over \$30 million (Bowers 1991:7). Although many of these facilities were constructed to store specific items such as parts related to military transport or

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materials, general storehouses such as Storehouse #2 were built to house a variety of items ranging from "a giant crank shaft or propeller down to a shoemaker's awl or a can of peas" (Turner Construction Company 1918a:40).

Site Selection

The selection of South Brooklyn for the U.S. Navy Fleet Supply Base for the Third Naval District was attributable to several factors: One, the strategically located Brooklyn Navy Yard in Wallabout Bay, which had been operating effectively for over a century as a naval base for military vessel construction and operations, possessed "neither the storage space nor the requisite room for expansion" to house a fleet supply base (U.S. Department of the Navy 1921:317). In fact, an article in the *Brooklyn Daily Eagle* following the construction of the South Brooklyn supply base stated:

The situation at New York last spring was especially urgent. For obvious reasons, the New York station [Brooklyn Navy Yard] is the chief naval distributing center. The accumulation of supplies threatened to smother the industrial activities of the yard. Perishable commodities were housed in every available nook, but at best there was much undesirable exposure to weather. Property such as ships, boats, metals, paints and even valuable machinery had to be stored in the open where, they were suffering deterioration and obstructing the grounds. The completion of the permanent general storage building at this yard, which is now being occupied, is doing much to remedy conditions (*Brooklyn Daily Eagle* 1919:n.p.).

Second, the proposed site, bounded by Second and Third avenues, and 29th and 32nd streets, offered a sizable tract of land to erect custom-built storehouses with access to waterfront transport. Third and perhaps most important, the site already included infrastructure along the waterfront consisting of publicly owned piers and privately owned warehouses and railroad lines, which could enable the Navy to transport its supplies to and from its main storehouses, thereby minimizing infrastructure expenses while maximizing transport and storage operations.

Bush Terminal

The privately owned warehouses and railroads lying to the west and south of the proposed naval supply base storehouses were developed by Irving T. Bush between 1905 and 1915 as the Bush Terminal complex, the first of its kind in the United States to harness water, rail, and land for the transportation, temporary storage and distribution of commercially manufactured goods. Among the amenities that Bush Terminal offered were large concrete warehouses along the Gowanus Bay waterfront that were linked to an internal railroad network that in turn linked to rail lines of the Long Island Railroad and to car floats, or railcar barges, carrying raw and manufactured goods to and from rail lines in New York Harbor's other ports. In addition, Bush constructed deep-water piers to enable large cargo vessels to dock there, thus further ensuring smooth water transport of goods. Citing both the urgency of construction and the availability of waterfront amenities, one Navy spokesman remarked:

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To create the transit facilities, both rail and water, which would have been necessary to insure the efficient operation of a plant of this magnitude would have been both impracticable and extravagant as a war emergency. It was therefore decided to tie in with the large industrial storage terminal already operating with a full equipment of piers, railroad facilities, motor trucks and general traffic arrangements (U.S. Department of the Navy 1921:317).

Beyond the advantages enumerated above, the federal government had the opportunity to acquire the land east of Second Avenue for its proposed storehouse complex, and also to obtain exclusive rights to both Bush's railroad network and two city-owned piers located at 35th Street and 36th-38th streets, the latter of which featured two car float connections to Bush's railroad. In 1918, the Navy purchased the lots between Second and Third Avenues and 29th and 32nd Streets from Bush, while also leasing the two piers from the city for "exclusive Naval use" (U.S. Department of the Navy 1921: 311-12; Hollyday et al. 1921).

Reinforced Concrete

Although the earliest concrete structures have been attributable to the ancient Romans, it was not until the 1840s and 1850s in Europe that experiments with iron-bar reinforcement occurred. In 1860, American S.T. Fowler patented a reinforced concrete wall and in the early 1870s, American William E. Ward constructed a reinforced concrete dwelling in Rye Brook, New York. American engineer Thaddeus Hyatt wrote a revolutionary book on the subject entitled *Some Experiments with Portland Cement Concrete, Combined with Iron, as a Building Material* in 1877 which highlighted refinements of Fowler's original patent that included the reinforced beam technology and employing bent iron bars "to achieve more controlled and more complete interactions between reinforcement and concrete than had been possible before" (Jester 1995:94). By the 1880s, reinforced concrete was being primarily used for piers, walls, footings, and paving in the United States. Moreover, early reinforced concrete construction imitated post-and-beam frameworks until it was discovered that floor slabs could sit directly on columns without the need for joists, thereby allowing for a greater number of floors within a building envelope and unobstructed ceilings. In 1892, French engineer François Hennebique created a method of pouring reinforced concrete beams, columns, and slabs, while also patenting a system in which bending reinforcing bars counteracted tension at load points.

Advances in the technology during the early twentieth century were developed by Ernest L. Ransome, Albert and Julius Kahn, C.A.P. Turner, Robert Maillart, and Orlando W. Norcross. Between 1900 and 1902, Ernest L. Ransome developed a system to cast the floor slabs in place after the girders, beams, and columns were erected, and replacing load-bearing exterior walls with reinforced concrete skeletal grid systems that allowed for larger windows, thereby maximizing natural light into the work space. Robert Maillart and C.A.P. Turner in particular were notable for eliminating the girders and beams altogether in favor of flared-top mushroom columns with substantial reinforcement, thereby augmenting the spatial volume within a building. By 1900, metal netting had been developed for slab reinforcement, and bars and cables had been refined for column and beam reinforcement, earning the various names of armored concrete, ferro-concrete, concrete steel, steel concrete, and reinforced concrete—the latter of which became the accepted term by 1910 (Jester 1995:96). Reinforced concrete technology not only informed industrial building technology, but also bridge and skyscraper technology

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as well. The first reinforced skyscraper was the Ingalls Building in Cincinnati, designed by Elzner and Anderson in 1903, which incorporated Ransome's flat-slab unit system.

As construction technologies evolved for reinforced concrete industrial buildings between the 1890s and early 1900s, so did their designs from simple and unadorned utilitarian structures to more elaborate and complex factory warehouses. Originally touted in the 1890s for a host of attributes that included ease and speed of construction, low-cost construction and maintenance, fireproof qualities, and vibration resistance, early reinforced concrete industrial buildings were typically the work of engineers and not architects. However, the material strengths of the technology, coupled with an economy of application, enabled a new type of design that offered opportunities for large windows facilitating natural light and ventilation. As recounted by Arthur J. McEntee in *Architecture*:

In order to emphasize the economy of this type of construction, the columns, beams, and other structural units were reduced to the minimum sizes required by the conditions. This resulted in the necessity of using large window areas, which condition eventually caused a decided change in the planning and designing of this type of building, for clients were quick to realize the value of the increased lighting...It was during this phase of the development that the architect received consideration, and the many fine examples of industrial buildings of to-day are the result of co-operation between the architect and engineer (McEntee 1921:18).

McEntee further noted that "The indiscriminate use of decoration and color should be avoided in the design of an industrial building, for if the treatment of such a building is kept along simple lines the result is always more satisfactory" (McEntee 1921:18). Beyond his recommendation that reinforced concrete industrial buildings should convey an "impression of simplicity and utility," McEntee also noted the practical aspects of the material, which prevented the incorporation of numerous corners in architectural ornamentation and the need to "obtain a type of form which will permit of its being 'stripped' in such condition as to allow it to be reassembled and reused" (McEntee 1921:21).

Design

The designs for Storehouses #1 and #2 largely adhered to plans that had already been developed by the Navy for "permanent general storehouses" (Smith 1918). These plans recommended the use of reinforced-concrete columns and flat-slab construction, which was touted as the "most desirable from the standpoints of economy, speed of construction, floor headroom, lighting" and "more desirable and economical than steel construction from the standpoint of fireproofing" (U.S. Department of the Navy 1921:322). Although Storehouse #2 was designed expressly for storage, Storehouse #1 was designed to maximize natural light into the building through a U-shaped plan for clothing manufacturing use following the war (U.S. Department of the Navy 1921:343). In accordance with established plans, storehouses were to be typically four to eleven stories high with ceiling heights averaging 15' on the first floor and 10'6" on the upper floors, and columns set 20' to 21' on center apart from one another. In addition, the first floor was to be approximately four feet above street level and feature ramps from the tracks/street for rail car/truck loading and unloading. This was consistent with a programmatic

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mandate that "materials shall remain on wheels from the time they are taken from cars until they reach their final destination and vice versa" (Turner Construction Company 1918a:41). Regarding elevators, plans specified for them to be located in fireproof wells for "maximum efficiency in operation and routing of supplies" and large enough to accommodate storage-battery trucks to avoid manual loading and unloading of the elevator car (U.S. Department of the Navy 1921:322). Other means of conveyance included lowerators (conveyor belt elevators for vertical transport), pneumatic tubes, and spiral chutes. Plans not only focused on the utilitarian aspects of general storehouse design but also included a recommendation that they be designed "in good taste, and with such architectural treatment as is consistent with the construction use," (Smith 1918:37, 39; U.S. Department of the Navy 1921:322, 327). It bears noting that although the designs of Storehouse #1 and #2 and its steam plant were completed by U.S. Navy Public Works Officer Captain R.C. Hollyday of the New York Navy Yard, Howard Chapman, Principal of Timmis and Chapman, New York, provided supplemental schematics for the "architectural treatment" of the buildings (Turner Construction Company 1918a:54). Construction of Storehouses #1 and #2 generally followed these type specifications and preliminary studies were begun in late December 1917 (Turner Construction Company 1918a:47).

Turner Construction Company

The Navy awarded construction contract #2818 to Turner Construction Company of New York after the firm had successfully completed a medical supply storehouse and chemical laboratory at the Brooklyn Navy Yard the previous year (Turner Construction Company 1918a:13, 47). Turner Construction Company was founded in 1902 by engineers Henry C. Turner and DeForrest H. Dixon and specialized in the design and construction of reinforced concrete buildings and structures. Previous to forming their partnership, both Turner and Dixon worked for Ernest L. Ransome, and acquired the latter's patent for the twisted square metal reinforcing bar, which the company incorporated into its reinforced concrete building designs. Beginning in 1904, Turner received a commission by the Robert Gair Company of Brooklyn to construct a 9-story, 170,000-square-foot building for the latter's printing presses which resulted in the largest reinforced concrete building in the United States of its time (Turner Construction Company 1918a:127). It was also during this time that the company received the contract to construct stairs in New York City's first subway station. The following year Turner began work on the Bush Terminal complex for developer Irving T. Bush, which was to entail the construction of 22 reinforced-concrete buildings along the Gowanus Bay in South Brooklyn. As noted, Bush Terminal was the first large-scale commercial enterprise in the United States to harness water, rail, and land for the transportation, temporary storage and distribution of manufactured goods, utilizing the burgeoning reinforced concrete building technology. Combined, Turner built a total of 173 acres of concrete floor space for Gair and Bush alone (Turner Construction Company 1939a:n.p.).

In 1916, Turner Construction opened its Boston office to respond to expanding textile and metal industries in the Northeast. By 1918, the company had become a leader in the construction of large-scale, reinforced concrete industrial buildings throughout the eastern United States and elsewhere and boasted a volume of over \$35,000,000 of construction work (Turner Construction Company 1939a:n.p.). Among the company's biggest clients by 1939 were the American Can Company (15 contracts), American Woolen Company (22 contracts), Bush Terminal Company (22 contracts), Arborundum Company (14 contracts), Colgate-Palmolive-Peet Company (8 contracts), Collins & Aikman Corporation (11 contracts), Ford Motor Company (5 contracts),

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Robert Gair Company (16 contracts), Great Atlantic & Pacific Tea Company (26 contracts), National Biscuit Company (9 contracts), New York Telephone Company (9 contracts), Otis Elevator Company (10 contracts), Sanford Mills (9 contracts), Scovill Manufacturing Company (11 contracts), Sears, Roebuck & Company (12 contracts), Vacuum Oil Company (24 contracts), Standard Oil Company of New Jersey (18 contracts), and Western Electric Company (11 contracts) (Turner Construction Company 1939a:n.p.).

In the public sector, Turner was equally distinguished for its government-sponsored monumental commissions completed during World War I. These included the Navy and War Office Buildings in Washington, D.C. and the U.S. Army Supply Base (aka Brooklyn Army Terminal) in South Brooklyn—in addition to the U.S. Navy Fleet Supply Base. Constructed in 7 months, the Navy and War Office Buildings featured a comb-shaped plan entailing 17 wings and a building perimeter totaling 4 miles, making it the largest building in the United States of its time. The U.S. Army Supply Base was the largest Quartermasters Supply Base in the United States, consisting of 100 acres of reinforced concrete floors built in 100 calendar days. In 1919, Turner opened its Philadelphia office, and by 1920 demand had grown so great that the company acquired and chartered a fleet of tugboats and barges on the Hudson River and Erie Canal for the delivery of cement to its construction sites (Turner Construction Company 1939a:n.p.).

Construction

By the time Turner had signed its contract with the Navy for the construction of U.S. Navy Fleet Supply Base on March 5, 1918, its sub-contractor, Raymond Concrete Pile Company, had already completed site preparation. Consequently, on the day the contract was signed, Raymond began driving twelve-foot piles into the ground for Storehouse #1 and completed its work on the building within one month. The roof for Storehouse #1 was completed on July 16 and the Navy began occupying a portion of the building on July 19 (Turner Construction Company 1918a:47-48). The roof for Storehouse #2 was completed on August 10, enabling the Navy to use both buildings within 7½ months of the contract signing; progress on the two buildings essentially amounted to the completion of half an acre of floor per 10-hour day (Turner Construction Company 1918a:45, 49). Storehouse #1 was commissioned on September 22 and Storehouse #2 was commissioned on October 23 in accordance with the firm's contract with the Navy (Turner Construction Company 1918a:48).

Turner's model expediency and efficiency on this particular project was attributable to its ingenuity in facilitating construction operations coupled with its ability to harness the water, land, and railroad infrastructure introduced by Bush's development along the Gowanus Bay waterfront; the latter being a pre-cursor to the Navy's own intent to harness the same upon the base's completion. As detailed by Turner employee, George S. Nobles, in the trade journal *Concrete* in December 1918:

The block adjoining [Storehouse #2]...was vacant, affording excellent storage space, while, just south, ran five spur tracks of the Bush Terminal Railroad, capable of storing about forty-five cars, and connecting directly with the Long Island Railroad...At the river, less than 1,000' away, 600' of open bulkhead provided accommodations for unloading directly from scows.

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[Sand, cement and stone] were delivered alongside by scow, and the stone and sand raised by clamshell bucket to hoppers on shore, under which large five-ton auto trucks drove to receive their loads by gravity discharge. For the cement a belt conveyor was employed from scow to auto truck on shore. A man on the boat untied the cement sack and placed it on the belt, another man dumping this sack as it reached him into a motor truck.

About 12,000 bags of cement, 1000 cu. yds. of sand and 2000 cu. yds. of gravel were received every day during the time when heavy construction was in full swing. Between [Storehouse #1 and Storehouse #2] a runway was placed on a grade from Third avenue up to the height of the second story, thence running level several hundred feet and finally down again to Second Avenue. Under the level portion of this runway the storage bins were constructed...The motor trucks which ran over this trestle with sand and stone dumped their contents...directly into them. The sand and gravel was fed by a gravity chute from these bins into the mixers, of which there were three on each side of this runway, and one pair of mixers was fed out of each bin. Each mixer discharged directly into a 1-cu. yd. bucket carried by hoisting engine up the conventional tower to the story where needed. Thirty auto trucks were required to haul these materials. On the floor, Ransome buggies were used for transferring the concrete, there being about 125 of these in use.

The greater part of all other general materials were delivered by truck, or being dispatched by freight, arrived on the storage tracks adjoining Thirty-Second street, where they transferred by team and truck to the hoists. Two of these latter, for [Storehouse #1] were located in Twenty-Ninth Street, three in the court; while four for [Storehouse #2] were in Thirty-First street, thus completely segregating the receiving stations for the two buildings, as well as keeping separate the two general classes of material required in each structure. Thirty trucks, with teams, were kept on the job constantly for this work. Some of the more important materials handled were reinforcing steel, structural iron and lumber. In addition there was a hoist in an elevator shaft of each building, in which was raised the brick, tile and mortar (Nobles 1918:176-7).

Complementing the streamlined efficiency of construction material delivery, Turner employed a sizable work force for the project consisting of company employees, general contractors, and subcontractors, which averaged 2,150 men during the project and 2,480 men at the peak of operations on July 10 (Turner Construction Company 1918a:51-53). As noted, Turner was also involved in two other substantial military projects in 1918 that included the Navy and War Office buildings in Washington, D.C. and the U.S. Army Terminal south of Bush Terminal (Turner Construction Company 1918a:51-53, 111; *Engineering News-Record* 1919). Turner's internal program of developing young engineers into junior executives enabled it to respond effectively to its

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unprecedented private- and public-sector demands, and it was not uncommon for these relatively inexperienced practitioners to be thrust into the role of project manager for the company's large construction projects during peak operations just before, during, and after World War I (Turner Construction Company 1939a:n.p.).

In order to sustain the morale of almost 14,000 workers combined on these government-sponsored projects, Turner created posters highlighting the importance of the work in support of the war effort; a newsletter entitled *The Mixer* chronicling individual and trades team accomplishments (beginning in August 1919); sponsored competitions among various crews for "eagle and broom" honor flags, and pins and badges; and held regular onsite mass meetings. Regarding the latter, "mass meetings were preceded by parades, led by bands, formed according to trades. The speakers were usually officers who had seen active service overseas, English, Italian and American. These mass meetings were very enthusiastic [and] mass singing of popular war songs...aided materially in getting the right spirit across" (Turner Construction Company 1918a:111). Among the various trades teams (aka "gangs") involved in the construction of the U.S. Navy Fleet Supply Base were "mixer gangs, floor concrete gangs, gangs receiving steel on street, carpenters, steel lathers, brick layers, structural iron gangs, cement finishers, plasterers, material unloading gangs, strippers, clean-up gangs, general workmen, hoisting engineers, and excavation" (Nobles 1918:179). Based on the fact that all three of Turner's military projects during this time were completed on or ahead of schedule suggests that "stimulating the interest of labor played an important part in bringing about such satisfactory performances" (Turner Construction Company 1918a:112).

Subcontractors on the U.S. Navy Fleet Supply Base project included: Anchor Post Fence Company (fencing and gates), Automatic Sprinkler Company (sprinklers), Barker Painting Company (painting), Bates & Company (fire alarm system), Cornell Company (plumbing), Detroit Steel Products Company (sash), Elias & Company (glazing), Fordham Cornice Works (roofing), Friedman Marble and Slate company (Marble and Slate), Hatzel & Buchler (electric wiring), Lamson & Company (pneumatic tubes), Lowerator Company (lowerators), Minnesota Manufacturing Company (spiral chutes), McLaurey Tile Company (special floor and glazed wall tile), James H. Merritt & Company (heating), Otis Elevator Company (elevators), Peelle Doors Company (elevator doors), Raymond Concrete Pile Company (concrete piles), W. & J. Sloane Company (linoleum), and Stromberg Electric Company (time clocks) (Turner Construction Company 1918a:53).

U.S. Navy Fleet Supply Base

The U.S. Navy Fleet Supply Base encompassed Storehouse #1 and #2, which consisted of 2.6 acres and 3.25 acres of total floor area per floor, respectively; a 3,000 horsepower coal-fired steam plant; two 350-square-foot, timber-framed warehouses with stuccoed hollow-tile walls with 5- and 50-ton cranes; two 1-story "Navy Provision" storehouses; two 1-story, steel-framed, brick-and-tile airplane storehouses; an internal railroad system and railyard with a capacity to hold 465 railcars; a Marine barracks; an office; assorted sheds; two piers; and two float bridges (U.S. Navy n.d.). Storehouse #1 and #2 were purpose-built, 8-story warehouses measuring 700' by 200', designed in a Neo-Classical style. Although Storehouse #1 was designed in a U-shaped configuration and Storehouse #2 was designed in a rectangular plan, both buildings were predominantly characterized on all four elevations by a rectilinear grid comprised of a reinforced concrete skeleton with slightly recessed bays. Storehouse #2's elevations were divided horizontally into three sections consisting of a concrete base featuring a combination of doors, windows, loading bays, and open entrances (floor 1); concrete

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pilasters, lintels, and sills with brick spandrels under multi-light windows in the mid-section (floors 2 thru 7); and rusticated concrete walls with multi-light windows in the uppermost story (floor 8). Each section was further delineated by molded concrete cornices that ran the length of each elevation. The base and mid-section of the building followed a consistent grid pattern with horizontally oriented openings, while the uppermost story featured three vertically oriented window openings within each bay. The building's elevations were also divided vertically into three sections through the incorporation of end, or corner bays, comprised of concrete walls containing single units of multi-light windows, that bracketed the rectilinear grids between them. The roof featured a series of reinforced concrete structures that included: elevator bulkheads, small storerooms with embrasures, and large frameworks which formerly served as the foundations for the buildings' water towers. Windows consisted of 16-light metal-sash units with 4-light tilt-unit insets flanking 20-light metal sash with 6-light tilt-unit insets. End bays of the mid-section consisted of fixed 12-light metal sash units. In the uppermost story, windows consisted of 12-light metal-sash units with 4-light tilt-unit insets. It is unclear as to the original configurations of entrances leading into the building since, they were most likely replaced during the mid twentieth century and no information has been uncovered about their designs.

Directly to the south of Storehouse #2 was the 3,000 horsepower coal-fired steam plant (aka powerhouse), which was also constructed of steel-reinforced concrete and cost \$600,000 to build (Photo 8). The steam plant measured 162 feet by 65 feet and was constructed between June 22 and November 12, 1918 (Turner Construction Company 1918a:47-48). It also featured a 2,000-ton coal bunker over the boilers with a flue connecting these boilers to a 275-foot smokestack that was 12 feet in diameter. In addition to providing heat for the two main storehouses, the steam plant also provided heat for the two piers as well as other naval buildings along the waterfront. Railroad improvements to support the supply base operations included the introduction of "two timber pontoons to support the float bridges, heavy structural steel bridge trusses, dredging and dock work, and 10 miles of complicated track work and 115 switches with stands, targets and lamps" with work commencing on July 12 and the first bridge completed on November 8 (Turner Construction Company 1918a:47). The total cost of supply base improvements, excluding land, was \$7,400,000.00 (Turner Construction Company 1918a:54).

Press

Turner promoted both its work on the U.S. Navy Fleet Supply Base and the use of reinforced concrete for industrial complexes with in-depth chronicles that highlighted the magnitude of its labor force and materials, as well as the company's efficiencies concerning budget, process, and schedule. These accounts were featured in the trade journal, *Concrete* (1918), authored by a Turner employee, and the Turner publication, *A Record of Wartime Activities* (1918). Turner also featured the South Brooklyn supply base in its annual project sheet entitled "'Turner for Concrete' – Work Done During the One Year 1918," which featured an illustration of the complex among others for the year (Figure 3; Turner Construction Company 1918b). Beyond its in-house promotions, the U.S. Navy Fleet Supply Base was also profiled in *Architecture* in 1921. In an article entitled "Recent Development in the Architectural Treatment of Concrete Industrial Buildings" the writer praised the supply base storehouses for their "effective use of brick curtain walls," while also expounding on the design attributes of other reinforced concrete industrial buildings such as the Brooklyn Army Terminal, Austin-Nichols Warehouse, and Mint Products Company and American Chiclet Company buildings (McEntee 1921:21).

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Program

The core operations of the supply base were to receive, store and disburse materials and equipment for the Third Naval District's "men-of-war, fuel ships, colliers, transports and other auxiliary vessels" (Turner Construction Company 1918a:40). However, once construction was under way, its program was expanded to include the supply for the naval overseas transportation service comprised of 700 vessels (Turner Construction Company 1918a:40). Supplies were typically stored for six to eight months at a time with a total value of \$25,000,000-\$40,000,000, and included "6 million pounds of rope, 4 million sheets and pillowcases (each), 600,000 assorted plates, 400,000 each of knives, forks, spoons and other eating utensils," and 5 million pounds of soap and acids, among 30,000 different items at any given time (Turner Construction Company 1918a:40, 54). Spurs running into the two main storehouses connected to the Bush Terminal rail network, which in turn linked to the Long Island Railroad and via float bridges to rail lines at other ports in New York Harbor. The city's deep-water piers extending from 35th Street and 36th-38th streets provided for the offloading of materials from ships, while other supplies could be transported to and from the site in either horse-drawn carriages or gasoline-powered trucks. Supplies destined for the two main storehouses were either brought by carriage or truck to the loading docks along the perimeters of each building, or by rail to the interior platform of Storehouse #2 or the court of Storehouse #1 via one of four steam locomotives manufactured by H.K. Porter (Goldstein 2011:28-29). The materials were then loaded onto hand- or storage-battery trucks, where they were kept until they were to be conveyed to their assigned storage areas; the reverse held true for the disbursal of supplies from the storehouses. For example, banning temporary truck storage, a car-load of nails could take as little as 40 minutes to get from truck to storage area. Extraordinarily large and heavy items weighing up to 30 tons were transported by rail to one of the two timber-framed warehouses lying west of the storehouses along Second Avenue, one of which was equipped with 5- and 50-ton cranes (Turner Construction Company 1918a:54). Beyond its core operations, Storehouse #1 featured offices on its eighth floor allocated for the supply officer. As a means of navigating its vast expanse, office boys working for the supply officer wore rubber-wheeled roller skates (Turner Construction Company 1918a:41).

Post World War I Activities

Ironically, by July 1918 when the U.S. Navy Fleet Supply Base, Navy and War Office Buildings, and U.S. Army Supply Base were either nearing completion or completed, the tide of World War I had changed in favor of the Allies, diminishing the role that these military complexes played in the overall war effort. By November of that year, an armistice had been signed that led to the Treaty of Versailles six months later (Wolf 2002:87-88). Following World War I, the Navy had limited use for the U.S. Navy Fleet Supply Base, largely due to the fact that its transport ships had been returned to their commercial owners, resulting in supply operations once again being relegated to the Brooklyn Navy Yard (*New York Times*, October 30, 1919:18). Accordingly, the Navy systematically divested itself of some of its holdings: first, with the return of the piers that had been leased from the city in 1921, and second, by the sale of the two timber-framed warehouses lying west of Second Avenue in 1929. By the 1930s, the two main storehouses and coal-fired steam plant had been "reassigned to the U.S. Naval Clothing Depot, for the manufacture and distribution of uniforms to the entire Naval service, and a post office had been opened on the first floor of Storehouse #1" (Bowers 1991:13). In 1936, the Navy lent the second floor of Storehouse #2 to the Women's Division of the Works Progress Administration (WPA) for use as "a supply base for a chain of sewing shops" (*New York Times*, March 19, 1936). Consisting of a warehouse and a cutting

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plant, the WPA-sponsored operation initially employed 30 men and 18 women who cut approximately 20,000 yards of cloth a day for use at WPA sewing shops located in Manhattan and Queens (*New York Times*, March 19, 1936). The following week the *New York Times* reported that all the traces of the former navy supply buildings lying west of Second Avenue between 33th and 35th streets had "vanished long ago, after the land reverted to the Department of Docks at the close of hostilities" (*New York Times*, March 24, 1936).

During World War II, the Navy employed approximately 2,000 civilians to manufacture over 14,000 articles of clothing within the storehouses, while also inspecting foodstuffs supplied by private contractors and supervising coffee roasting for the entire naval branch (*New York Times*, March 25, 1942:16). In 1951, clothing depot operations were merged into a new command called U.S. Naval Supply Activities, New York (*New York Times*, July 16, 1951:6). Also by the 1950s, the remaining naval supply base holdings, consisting of the two storehouses and the steam plant, had been relegated to the status of "annex" to the supply depot at Bayonne, New Jersey. In 1960, the complex was transferred to the U.S. General Services Administration (US-GSA), though the Navy continued to use the buildings for limited activities such as a publications and printing office in Storehouse #1 (Bowers 1991:13). It was most likely during this time that the original main entrances along the façade and the north elevation were replaced with metal-and-glass units and a mechanical room was introduced in the northwestern portion of the building's first floor to replace the steam plant's operations. In 1991, Storehouse #1 was largely demolished and replaced with the federally run Metropolitan Detention Center. Portions of Storehouse #2 continued to be used by the Food and Drug Administration for laboratories and other federal agencies, as well as by the New York City Police Department for its gang unit up (until 2000 when it was shuttered). Storehouse #2 is currently being rehabilitated using the federal investment tax credit. Contract stipulations for the sale, among others, state that the building must be rehabilitated within two years of the contract signing, and at least 85 percent of the building must be used for light industrial purposes, while the remaining 15 percent may be used for other purposes such as retail for at least 30 years (*The Real Deal* 2011).

Conclusion

Almost one hundred years after its construction, Storehouse #2 of the former U.S. Navy Fleet Supply Base embodies an ethic of U.S. military preparedness, expressing the monumental effort of a dedicated group of government workers and professionals to maximize efficiencies of location, infrastructure, materials, and process through the most promising construction technology of the early twentieth century.

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Verbal Boundary Description

All of the property contained in Block 671, Lot 1 and Block 675, Lot 10 of the Borough of Brooklyn, New York City, Kings County, New York.

Boundary Justification

The nomination boundary encompasses the two lots associated with the storehouse and steam plant as these are the only surviving resources from the original U.S. Navy Fleet Supply base that retain integrity.

Storehouse #2, U.S. Navy Fleet Supply Base
Name of Property

Brooklyn, New York
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10. Geographical Data

Acreage of Property 3.61 acres

UTM References

(Place additional UTM references on a continuation sheet.)

1 18 584144 4501419
Zone Easting Northing

3 18
Zone Easting Northing

2 18

4 18

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Gregory Dietrich, Principal

organization Gregory Dietrich Preservation Consulting date 8/22/1922

street & number 615 West 113th, #3 telephone 917.828.7926

city or town New York state NY zip code 10025

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items

(Check with SHPO or FPO for any additional items)

Property Owner (Complete this item at the request of the SHPO or FPO)

name Martin Schein

street & number 5178 2nd Avenue telephone

city or town Brooklyn state NY zip code 11220

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Estimated Burden Statement: public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, D.C. 20503

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Section 11 Page 1

Additional Information

Photographer(s): * David Rusi / ** Willy Zambrano / ***Gregory Dietrich

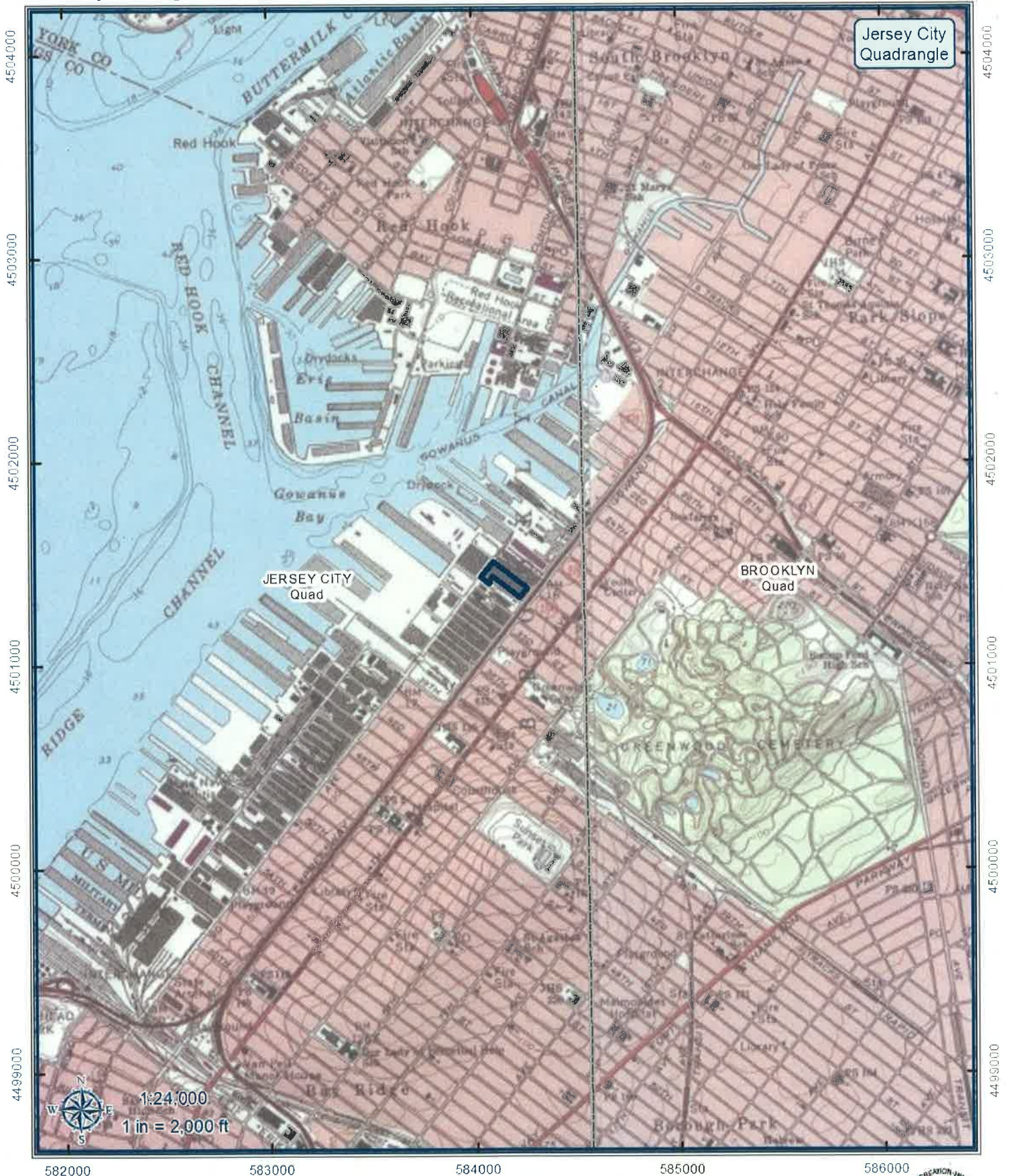
Dates Photographed: *4/19/2011 / **7/1/2011 / ***1/19/2012

Description of Photograph(s) and number:

1. Facade and North Elevation with Gowanus Expressway overpass at left.*
2. South Elevation.*
3. West Elevation with Metropolitan Detention Center at left.*
4. Interior showing mushroom columns, third floor.**
5. Pipe railing detail, third floor.**
6. Freight Elevator bank, third floor.**
7. Bathroom, third floor.**
8. Steam Plant.*
9. First floor.***
10. Fifth floor.***
11. Eighth floor.***
12. Eighth floor mushroom column detail.***



Storehouse #2, US Navy Fleet Supply Base
Brooklyn, Kings County, NY

850 Third Avenue
Brooklyn, NY 11232-1513



Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter

0 600 1,200 2,400 Feet

 Storehouse #2
 Quad Index

USGS Topo Quadrangle from:
Services@arcgisonline.com



Storehouse #2, US Navy Fleet Supply Base
Brooklyn, Kings County, NY

850 Third Avenue
Brooklyn, NY 11232-1513



Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter



 Storehouse #2

Tax Parcel Data:
NYC RPS
<http://gis.nyc.gov/doitt/nycitymap>















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EFFICIENCY ENTERPRISES









