US Army Corps
of Engineers
HUNTSVILLE ENGINEERING
AND SUPPORT CENTER

FINAL

ORDNANCE AND EXPLOSIVES

ARCHIVES SEARCH REPORT

FINDINGS

FORT HAMILTON

BROOKLYN, NEW YORK

SEPTEMBER 1998

PREPARED BY
US ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

TABLE OF CONTENTS

SECTION		PAGE
1.0	**INTRODUCTION**	
1.1	AUTHORITY	1-1
1.2	SUBJECT	1-1
1.3	SCOPE	1-2
2.0	**SITE DESCRIPTION**	
2.1	LAND USAGE/REAL ESTATE	2-1
2.2	CLIMATIC DATA	2-1
2.3	GEOLOGY AND SOILS	2-3
	2.3.1 GEOLOGY AND PHYSIOLOGY	2-3
	2.3.2 SOILS	2-4
2.4	HYDROLOGY	2-4
	2.4.1 SURFACE WATER	2-4
	2.4.2 GROUND WATER	2-5
2.5	ENDANGERED SPECIES	2-5
2.6	DEMOGRAPHICS	2-6
	2.6.1 CENTER OF ACTIVITY	2-6
	2.6.2 POPULATION DENSITY	2-6
	2.6.3 TYPES OF BUSINESSES AND INDUSTRY	2-6
	2.6.4 TYPES OF HOUSING	2-6
	2.6.5 NEW DEVELOPMENT IN THE AREA	2-6
3.0	**RECORDS REVIEWED**	
3.1	NATIONAL ARCHIVES AND RECORDS ADMINISTRATION	3-1
	3.1.1 NATIONAL ARCHIVES I--WASHINGTON DC	3-1
	3.1.2 NATIONAL ARCHIVES II--COLLEGE PARK, MARYLAND	3-11
	3.1.3 WASHINGTON NATIONAL RECORDS CENTER--SUITLAND, MARYLAND	3-14
	3.1.4 NATIONAL PERSONNEL RECORDS CENTER--ST. LOUIS, MISSOURI	3-14
	3.1.5 NATIONAL ARCHIVES, NORTHEAST REGION--NEW YORK, NEW YORK	3-19
	3.1.6 FEDERAL RECORDS CENTER, NEW YORK--BAYONNE, NEW JERSEY	3-26
3.2	MILITARY ARCHIVES, LIBRARIES, AND INFORMATION SOURCES	3-26
	3.2.1 U.S. ARMY CENTER OF MILITARY HISTORY	3-26
	3.2.2 U.S. ARMY CORPS OF ENGINEERS, OFFICE OF HISTORY--ALEXANDRIA, VA	3-26
	3.2.3 U.S. ARMY MILITARY HISTORY INSTITUTE--CARLISLE, PA	3-27
	3.2.4 U.S. ARMY CHEMICAL AND BIOLOGICAL DEFENSE AGENCY--ABERDEEN PROVING GROUND, MARYLAND	3-28

3.3 FORT HAMILTON SOURCES 3-28
3.3.1 HARBOR DEFENSE MUSEUM 3-28
3.3.2 PUBLIC WORKS OFFICE 3-30
3.4 NATIONAL AIR AND SPACE MUSEUM--WASHINGTON, D. C. 3-32
3.5 U. S. ARMY CORPS OF ENGINEERS--NEW YORK DISTRICT 3-32
3.6 LOCAL LIBRARIES AND HISTORICAL SOCIETIES 3-32
3.6.1 NEW YORK PUBLIC LIBRARY 3-32
3.6.2 NEW YORK HISTORICAL SOCIETY--NEW YORK, NEW YORK 3-33
3.6.3 BROOKLYN PUBLIC LIBRARY 3-33
3.7 AERIAL PHOTO SOURCES 3-34
3.7.1 U.S. ARMY MILITARY HISTORY INSTITUTE 3-34
3.7.2 DEFENSE INTELLIGENCE AGENCY (DIA) 3-34
3.7.3 U.S. GEOLOGICAL SURVEY EROS DATA CENTER--SIOUX FALLS, SD 3-34
3.7.4 KEYSTONE AERIAL--PHILADELPHIA, PA 3-34
3.7.5 UNITED STATES DEPARTMENT OF AGRICULTURE--SALT LAKE CITY, UT 3-35

4.0 HISTORICAL ORDNANCE USAGE
4.1 GENERAL HISTORY OF FORT HAMILTON 4-1
4.2 ORDNANCE AND EXPLOSIVE/CHEMICAL WARFARE MATERIAL CONCERNS 4-3
4.2.1 ARMAMENT AT FORT HAMILTON 4-3
4.2.2 TARGET RANGES AND TRAINING AREAS 4-4
4.2.3 MAGAZINES 4-5
4.2.4 CHEMICAL WARFARE MATERIAL 4-5
4.2.5 FOUND MUNITIONS AND EOD INCIDENTS 4-6
4.3 INTERVIEWS 4-6
4.4 PHOTOGRAMMETRY AND MAPPING 4-6
4.4.1 MAP ANALYSIS 4-6
4.4.2 AERIAL PHOTO INTERPRETATION 4-12

5.0 SITE INSPECTION 5-1

6.0 TECHNICAL DATA OF ORDNANCE 6-1
6.1 TYPE OF ORDNANCE 6-1
6.1.1 GUNS PRESENT THROUGH THE 1800S 6-1
6.1.2 GUNS PRESENT THROUGH THE 1900S 6-1
6.1.3 OTHER ITEMS 6-1
6.2 ORDNANCE FOUND ON THE INSTALLATION 6-2
6.3 DESCRIPTION OF ORDNANCE 6-2
6.4 REFERENCES 6-2

7.0 AREAS OF INTEREST

7.1	FORTIFICATIONS	7-1
	7.1.1 THE OLD FORT	7-1
	7.1.2 BATTERIES	7-1
	7.1.3 REDOUBT	7-1
7.2	ORDNANCE RELATED BUILDINGS	7-2
7.3	TRAINING AREAS AND RANGES	7-2
	7.3.1 TRAINING AREAS	7-2
	7.3.2 RANGES	7-2
7.4	CHEMICAL WARFARE ACTIVITIES	7-3
7.5	FOUND MUNITIONS	7-4

REPORT PLATES

PLATE	DESCRIPTION
1	VICINITY MAP
2	1944 AERIAL PHOTO
3	1953 AERIAL PHOTO
4	1966 AERIAL PHOTO
5	1995 AERIAL PHOTO

APPENDICES

A	REFERENCES/REFERENCES CITED
B	ACRONYMS
C	INTERVIEWS
D	PRESENT SITE PHOTOGRAPHS
E	HISTORICAL PHOTOGRAPHS
F	HISTORICAL MAPS/DRAWINGS
G	SITE SAFETY AND HEALTH PLAN/SITE INSPECTION REPORT
H	ORDNANCE DATA SHEETS
I	REPORT DISTRIBUTION LIST

1.0 INTRODUCTION

1.1 BACKGROUND AND AUTHORITY

In July 1973, Fort Hamilton was released from the control of the First United States Army and placed under U.S. Army Forces Command (FORSCOM). Two years later, the New York Area Command was established as a subordinate command of Fort Dix, New Jersey, and its Headquarters was placed at Fort Hamilton. Also, at this time, the command jurisdiction for Fort Hamilton was transferred from FORSCOM to U.S. Army Training and Doctrine Command (TRADOC). In 1992, Fort Dix was transferred from TRADOC to FORSCOM, and Fort Hamilton was included in the transfer.

Headquarters, Forces Command (HQ, FORSCOM) requested Headquarters, Department of the Army (HQDA) realign New York Area Command (NYAC) and Fort Hamilton to another Major Army Command (MACOM). This request was based on the missions of NYAC and Fort Hamilton, which do not fit FORSCOM's or the U.S. Army Reserve Center (USARC) missions. This realignment was approved by the Secretary of the Army on 12 December 1996.

On 1 October 1997, the command and control of NYAC and Fort Hamilton were transferred from FORSCOM to Military District of Washington (MDW), and Fort Dix was transferred to USARC. Fort Totten and Bellmore Logistics Activity were included in the transfer of NYAC and Fort Hamilton to MDW.

On 5 April 1990, U.S. Army Engineering Support Center, Huntsville (USAESCH) was designated as the USACE Center of Expertise (MCX) and Design Center for Ordnance and Explosive (OE). USAESCH will also design and implement OE remediation programs for other branches of the Department of Defense when requested.

In cooperation with USAESCH, New York District Corps of Engineers, MDW, and Fort Hamilton, the U.S. Army Corps of Engineers St. Louis District has been assigned the task of preparing an Archives Search Report for Fort Hamilton, Brooklyn, New York, detailing ordnance, ammunition, and explosives, suspected chemical warfare materials (CWM) and any other warfare materials (i.e. radiological, biological).

1.2 SUBJECT

Fort Hamilton, presently consisting of approximately 177 acres, was established in 1825 for the defense of New York Harbor. Currently, Fort Hamilton is used as an administrative center supporting military activities throughout the metropolitan

New York area. The fort is located on the southwestern edge of Long Island (Brooklyn), New York, at the base of the Verrazano Narrows Bridge.

1.3 SCOPE

Fort Hamilton was investigated through searches at various archives and records holding facilities for the types, quantities, and probable locations of ordnance items, possible disposal areas, and any unknown training areas. Information contained herein is based on the review of existing historical documents and maps, interviews with individuals associated with the site or its operations, and personal visits to the site. The information collected during this process is used in developing recommendations for further actions at the site.

2.0 SITE DESCRIPTION

2.1 LAND USAGE/REAL ESTATE

In 1814, the City of New York conveyed 60.2875 acres to the United States for the establishment of Fort Hamilton, and the cornerstone for the fort was laid in 1825. One year later, 17.1092 acres were acquired by condemnation. In March 1852, a private interest exchanged 11.90625 acres in the Redoubt area (currently high rise buildings) for the same amount on the northerly end of the fort. Ten years later, an additional 21.6612 acres were purchased from Julia Delaplaine. In 1892, a deed from Dyker Meadow Land & Improvement Company, et al. conveyed 65.522 acres (56.537 acres land and 8.985 acres under water) adjacent to the southwest boundary. These transactions increased the size of Fort Hamilton to 155.6 acres land and 8.985 acres under water (n.a. 1892; Quartermaster General 1931; Quartermaster General 1932; War Department 1941).

Seventeen (17) acres were transferred to the Veterans Administration (VA) in March 1945. In 1957, the New York City Triborough Bridge and Tunnel Authority (TBTA) and Fort Hamilton entered into a contract for the construction of the Verrazano-Narrows Bridge. TBTA would demolish buildings and rebuild them in designated areas, and the authority would add 10.82 acres along the post's eastern boundary. At the time of the contract, Fort Hamilton consisted of 138.95 acres. After the bridge was constructed, the installation consisted of 112.92 acres; 36.85 acres were lost, and 10.82 acres were gained. Between 1960 and 1962, the State of New York donated 14 acres to Fort Hamilton (Assistant Secretary of Defense for Installations & Logistics 1973; n.a. 1963).

By 1973, Fort Hamilton was utilizing approximately 117 of 177 acres. The 60 acres not utilized consisted of a 37 acre easement for the TBTA, a 3 acre buffer zone, an excess of 4 acres, and 16 acres of water (Assistant Secretary of Defense for Installations & Logistics 1973).

Currently, Fort Hamilton consists of approximately 177 acres.

2.2 CLIMATIC DATA

Fort Hamilton, adjacent to Gravesend Bay in Brooklyn, New York, is close to the path of most storm and frontal systems which move across the North American Continent. Weather conditions most often approach from a westerly direction.

Fort Hamilton can experience higher temperatures in summer and lower temperatures in winter than would otherwise be expected in a coastal area.

However, the frequent passage of weather systems often helps reduce the length of both warm and cold spells and is also a major factor in keeping periods of prolonged air stagnation to a minimum.

During the summer local area sea breezes often moderate the afternoon heat. The relatively warm water temperatures also delay the advent of winter snows. Conversely, the lag in warming of water temperatures keeps spring temperatures relatively cool. July and August are the hottest months with an average monthly temperature of 75° F and 74°F, respectively. The record high temperature occurred in July 1966 with a temperature of 104°F. January is the coldest month with an average monthly temperature of 31.3°F. The record low temperature of -2°F occurred in January 1985.

Precipitation is moderate and distributed fairly evenly throughout the year. Most of the rainfall from May through October comes from thunderstorms which are usually brief in duration and sometimes intense. During the other months of the year, precipitation is more likely to be associated with widespread storm areas, so that day long rain or snow is more common. Coastal storms most often occur in the fall and winter months. These storms have been responsible for record rains, snows, and high winds. The average annual rainfall total is 41.76 inches. The wettest month is August with an average monthly precipitation of 4.1 inches. The maximum monthly precipitation of 17.41 inches and the maximum 24 hour precipitation of 6.59 inches occurred in August 1955. The average annual wind velocity is 11.9 mph. March is the windiest month with an average velocity of 13.7 mph.

Climatological data for this area are summarized in TABLE 2-1. Data were collected at the National Weather Service meteorological station at JFK International Airport, New York.

TABLE 2-1
CLIMATOLOGICAL DATA FOR
J.F.K. INTERNATIONAL AIRPORT, NEW YORK

Month	Temperature		Precipitation	Wind	
	Average Minimum (°F)	Average Maximum (°F)	Average (Inches)	Average Speed Miles/Hour	Average Direction
January	25.1	37.5	2.93	13.3	W
February	25.9	39.1	3.20	13.5	NW

March	33.2	46.6	3.99	13.7	NE
April	42.3	58.3	3.76	13.0	E
May	51.7	67.7	3.40	11.6	N
June	61.0	76.9	2.98	10.8	NW
July	67.2	82.7	3.56	10.3	SW
August	66.3	81.7	4.10	10.1	W
September	59.2	75.2	3.51	10.5	W
October	48.7	64.7	2.98	11.1	NW
November	39.6	53.2	3.73	12.3	W
December	29.6	41.8	3.62	12.8	E
Average	45.8	60.5	41.76	11.9	N

2.3 GEOLOGY AND SOILS

2.3.1 GEOLOGY AND PHYSIOLOGY

Fort Hamilton is located on the southwestern edge of Long Island, New York. Long Island is located in the Embayed section of the Coastal Plain physiographic province.

The bedrock under the county varies in depth from 200 to 1000 feet below sea level. The crystalline bedrock slopes southward at about 55 to 60 feet per mile. The bedrock is overlain by Cretaceous sediment called the Raritan Formation and the Magothy Formation. The Raritan Formation, which rests on the bedrock, is subdivided into the Lloyd Sand member and the clay member, the uppermost part. The Raritan Formation is below sea level and the Magothy Formation crops out in only a few places in the county (Olcott 1995).

The Magothy is overlain by a marine clay identified as Gardiners' clay. This formation is thought to be an interglacial deposit, possibly of the Sangamon interglacial stage. The Jameco Gravel is also present under the site. In other areas, the Magothy is overlain directly by upper Pleistocene deposits. The Pleistocene Epoch is divided into four major glacial stages, the Nebraskan, Kansan, Illinoisan, and Wisconsin. The youngest, the Wisconsin, produced Long Island Sound and most of the topographic features of the county as it is known today.

During the earlier part of the Wisconsin stage, the ice sheet moved to about the middle of the county and stopped, leaving before it the central ridge or terminal moraine. The glacier retreated from this point back to north of Long Island and the readvanced. The last advance terminated along the north shore; and again, a hilly terminal moraine was formed.

2.3.2 Soils

The surface of the site is largely covered by concrete, asphalt and buildings. The soils underlying these areas have been greatly altered from their original state. Within the site there are also areas of very deep, nearly level, and well drained areas interspersed throughout the site. This soil is typically covered by a thin layer of leaf litter or partly decomposed organic material. The soil is composed of brown sandy silty organic clay. The material grades to lighter shades of yellow and brown as the depth increases. The soil is rapidly permeable, and has a moderate water capacity. The surface runoff is slow, producing only a slight hazard of erosion. The soil is very acidic throughout (Wulforst 1987).

2.4 HYDROLOGY

2.4.1 SURFACE WATER

Fort Hamilton is affected by semidiurnal tides, which are two nearly equal high waters and two nearly equal low waters each tidal day. The site is affected by the Labrador Current Extension from the Atlantic Ocean. In the vicinity of Fort Hamilton, the ocean current has an average speed of 0.5 knots in the summer and 0.7 knots in the winter. The mean temperature of the surface water is about 70°F in the summer and 40°F in the winter. There is a 10% chance of having waves of 5 feet or higher in the summer and 30% chance in the winter.

Surface water drains directly into the bay. No major streams are located at this site and no flood data is available. If flooding would occur it would be of short duration from localized heavy rainfall or from tidal flooding.

The average depth of frost penetration is about 15 inches while the depth of extreme frost penetration is about 48 inches.

The following tidal data for Fort Hamilton is from The Battery, which is slightly north of the site area on the Hudson River in the reach known as The Narrows. Elevations of tidal datums are in mean lower low water (MLLW) of 0.00 feet.

Highest observed water level.....10.23 feet

Mean higher high water.....5.12 feet
Mean high water.....4.78 feet
Mean tidal level.....2.50 feet
Mean low water.....0.22 feet
Mean lower low water.....0.00 feet
Lowest observed water level.....-4.07 feet

Add 1.88 feet to the tide table elevations to get the elevation in National Geodetic Vertical Datum (N.G.V.D.).

2.4.2 GROUND WATER

The water supply in Kings County is supplied by the Northern Atlantic Coastal Plain aquifer system. This system is composed of three main aquifers; the upper Pleistocene, the Magothy, and the Lloyd Sand member of the Raritan Formation. These aquifers are made up of sand and gravel and small amounts of silt and clay. This type of aquifer yields very large quantities of water with little pumping. Most wells are driven into upper Pleistocene or Magothy formations. Ground water flows south and east towards the Atlantic Ocean.

The site is also underlain by the Jameco aquifer which is composed of the Jameco Gravel. The Jameco formation ranges from a fine sand to gravel with some lenses of clay and silt. The Jameco Gravel is approximately 50 feet thick in this area (Olcott 1995).

2.5 ENDANGERED SPECIES

The information provided for this site was compiled from the U.S. Fish and Wildlife Service (USFWS) and the New York Department of Environmental Conservation (NYSDEC).

The only state and federally listed endangered species that is known to occur in the vicinity of Fort Hamilton is the peregrine falcon (*Falco peregrinus*). A nesting site is located on the Verrazano-Narrows Bridge.

No additional information on the occurrence of rare or endangered species or natural communities is known at this time. This does not mean that other state or federally listed species may not be present within the areas of interest. An on site inspection by appropriate state and federal personnel may be necessary to verify the presence, absence or location of listed species, or natural communities if remedial action is recommended as part of the final ASR.

2.6 DEMOGRAPHICS

2.6.1 CENTER OF ACTIVITY

Fort Hamilton is located near Brooklyn Borough in Kings County, New York City, New York.

2.6.2 POPULATION DENSITY

CITY/COUNTY	AREA (SQ. MI.)	POPULATION	POP. DENSITY
Brooklyn Borough	71	2,300,664	32,633.5
New York City	308.9	7,322,564	23,705.3

2.6.3 TYPES OF BUSINESSES AND INDUSTRY

The number of business establishments and percentage of people employed in each in Kings County can be broken down as follows: manufacturing 8.1%; agriculture .4%; trade 35.6%; services and financial 42.5%; other 11.7%; and unclassified 1.7%. Foregoing percentages are from mid-March 1992.

2.6.4 TYPES OF HOUSING

Housing in the Brooklyn Borough is composed of both single family and multi-family dwellings. The median value of 74,134 specified owner-occupied housing units is $196,100.

2.6.5 NEW DEVELOPMENT IN THE AREA

New development in the area is both commercial and residential.

3.0 RECORDS REVIEWED

This Archives Search Report (ASR) compiles information obtained through historical research at various archives and records holding facilities, interviews with individuals associated with the site or its operations, and personal visits to the site. All efforts were directed towards determining types of munitions used at the site, possible disposal areas, and any unknown training areas. Information obtained during this process was used in developing recommendations for further actions at the site.

Below is a listing of the repositories visited, records searched, and documents pertaining to Fort Hamilton. Denoted in parentheses after the description of each document is that reference's citation as it is used in the report and APPENDICES.

3.1 NATIONAL ARCHIVES AND RECORDS ADMINISTRATION

3.1.1 NATIONAL ARCHIVES I--WASHINGTON DC
700 PENNSYLVANIA AVE., NW
WASHINGTON, D. C. 20408-0001
(202) 501-5400

Record Group 77: Office of the Chief of Engineers
Entry 64: Letters Received, 1871-86
Box 3: 1871: 466-639
File: #507

1. Correspondence from Office of Boards of Engineers for Fortifying Army Building regarding the batteries at Fort Hamilton, dated 2 August 1871. (Board of Engineers 1871)

File: #618

2. Annual Report listing the armament at Fort Hamilton. (n.a. c1886)

Box 14
File: #783

1. Report to the Chief of Engineers, dated 11 December 1873, on the distribution of 13-inch mortars at Fort Hamilton and Willets Point. (Ordnance Office 1873)

Box 34: 1878: 2-196
File: #49

1. H.R. Bill 2881 regarding damages to land and buildings by the firing of an experimental gun at nearby Fort Hamilton, dated 29 January 1978. (U.S. House of Representatives 1878)

Box 53
File: #450
1. Annual Report for Fort Hamilton for fiscal year 1882. (Benhaur 1882)

Box 62: 1884: 241-422
File: #335
1. Correspondence from the American Torpedo Company to Major General Winfield Hancock, Governors Island regarding experiments being made with pneumatic guns at Fort Hamilton, dated 24 April 1884. (American Torpedo Company 1884)

Box 64: 1884: 556-642
File: #611
1. Annual Report for Fort Hamilton and Additional Batteries, New York Harbor for the fiscal year ending 30 June 1884. (Corps of Engineers 1884)

Box 67: 1885: 1-205
File: #11
1. Correspondence from Ordnance Office to Chief of Engineers regarding two 8-inch converted rifles ordered for Fort Hamilton, dated 3 January 1885. (Ordnance Office 1885)

Box 68
File: #280
1. Report of Armament for Fort Hamilton for 1885. (U. S. Engineer Office, New York 1885a)

Box 69
File: #500
1. Report of platforms and parapets for 1885. (U. S. Engineer Office, New York 1885b)

Box 72
File: #862
1. Annual Report from Major Gillespie for 1885. (Gillespie 1885)

Box 73
File: #959
1. Annual Report for Fort Hamilton, dated 19 September 1885. (U. S. Engineer Office, New York 1885c)

Entry 66:
Box 38:
File: #304
1. Annual Report for Fort Hamilton and Additional Batteries, New York Harbor during the fiscal year ending 30 June 1879. (Engineer Office 1879)

Entry 76:
Box 8: 1887: 400-594
File: #466
1. Annual Report for fiscal year ending 30 June 1887. (Engineer Office 1887)

Entry 87: Letters Received (A-file), 1888-89
Box 19
File: #330-A
1. Armament Report for December 1888. (Gillespie 1888)

Box 30
File: #3032-A
1. Annual Report, dated 30 June 1889. (Gillespie 1889)

Box 37: 1899: 4738-4991
File: #4937A
1. Correspondence from Engineer Office U.S. Army to Chief of Engineers, dated 6 November 1889, regarding preparing platforms at Fort Hamilton for target practice. (Engineer Office, U.S. Army 1889)

Entry 391: Construction Completion Reports, 1917-43
Box 114
File: Fort Hamilton Vol. 2
1. "Completion Report of WPA Project OP 13-249: Repairs to Buildings and Utilities at Fort Hamilton, NY." Signed by J. Arthur Weeks and Kenneth P. Lord. (Weeks and Lord n.d.)

Entry 393: Historic Record of Buildings at Active Army Posts
Box 74
File: Fort Hamilton, 1 of 7
1. "Record of Equipment and Condition of Buildings," dated 30 June 1939. (n. a. 1939)

2. "Annual Report of Construction and Repair FY ending June 30, 1941." (n.a. 1941)

File: Fort Hamilton, 7 of 7

1. "War Department Q. M. C. Form No. 117," Building Description for Building 173, dated 23 April 1936. Description of indoor rifle range buildings. (n.a. 1936)

Entry 394: Historic Record of Buildings at Abandoned Posts

No file on Fort Hamilton

Entry 1003: New York Harbor Defense

Box 93:

File: 660.282

1. Correspondence from U.S. Engineer Office, Second District to the Chief of Engineers, U.S. Army, dated 10 September 1918, subject: Anti-aircraft Guns. (U.S. Engineer Office, New York 1918)

2. Correspondence from U.S. Engineer Office, Third District to the Chief of Engineers, U.S. Army, dated 23 August 1921, subject: Transfer of Anti-aircraft Emplacement. (U.S. Engineer Office, New York 1921)

Entry 1006: Harbor Defense Files, 1918-45

Box 83: 676.1 Newfoundland-600.914 New York

File: 400.93 New York

1. Memorandum from Brig. General H.C. Minton and Lt. Col. C. L. Austin for Chief of Ordnance, Chief Signal Officer and Chief of Engineers, dated 27 November 1943, subject: Salvage of Fixed Batteries in the Harbor Defenses of New York. (Minton, H. C. and C. L. Austin 1943)

2. Letter from Major Charles T. Woods,War Department, U.S. Engineer Office, New York District to Commanding General, Second Service Command, Army Service Forces, dated 29 September 1943, subject: Transfer of New Construction, Fortification Projects - Harbor Defenses of New York. (War Department 1943a)

3. Letter from Lt. Colonel Charles K. Panish, War Department, U.S. Engineer Office, New York District to Chief of Engineers, U.S. Army, Washington, D.C., dated 30 September 1943, subject: Report of Completed Works-Seacoast Fortifications. (War Department 1943b)

Box 156

File: 600.914 (Southern NY)

1. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Harvey Brown. (n.a. 1920a)

2. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Johnson. (n.a. 1920b)

3. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Gillmore. (n.a. 1920c)

4. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Burke. (n.a. 1920d)

5. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Piper. (n.a. 1920e)

6. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Doubleday. (n.a. 1920f)

7. "Report of Completed Works--Seacoast Fortifications," dated 01 July 1920. Details of Battery Wm. Neary. (n.a. 1920g)

8. "Report of Completed Works--Seacoast Fortifications," dated 01 December 1921. Details of Anti-Aircraft Battery. (n.a. 1921)

9. "Report of Completed Works--Seacoast Fortifications," dated 02 February 1922. Details of Battery John Mendenhall. (n.a. 1922b)

10. "Report of Completed Works--Seacoast Fortifications," dated 02 February 1922. Details of Battery Griffin. (n.a. 1922a)

11. "Report of Completed Works--Seacoast Fortifications," dated 27 February 1930. Details of Battery Spear (Dismantled). (n.a. 1930)

12. "Report of Completed Works--Seacoast Fortifications," dated 10 November 1943. Details of Battery Livingston. (n.a. 1943b)

13. "Report of Completed Works--Seacoast Fortifications," dated 10 November 1943. Details of Battery Griffin. (n.a. 1943a)

Entry 1007: Harbor Defense Files, 1918-45
Box 84
File: 660 NY Harbor
1. Map of Fort Hamilton, revised 17 April 1925. (n.a. 1925)

Box 85: 662 New York-665 New File II
No useful information.

Box 87: 660 New York-413.68 Oahu
No useful information.

Box 157: 660 Southern New York-665 Southern New York
1. Report regarding the proceedings of a Board of Officers for the purpose of recommending the details of installation of defensive elements within the Harbor Defenses of Southern New York, dated 30 July 1941. (Headquarters, Second Corps Area 1941)

Entry 1008: Harbor Defense Files, 1918-45
Box 3
File: 662A
1. "Statement of Guns, Transferred and Listed for Transfer," dated 18 July 1918. (n.a. 1918)

Entry 1009: Harbor Defense Files, 1918-45
Box 90: 660 New Orleans - 319.1 New York
No useful information

Box 91: 319.12 New York Part I - 537.1 New York
No useful information.

Box 92: 556 New York - 660P New York
1. Document 600.93, Fort Tilden: Description of the Metes and Bounds of Fort Hamilton, New York, as furnished by the Quartermaster General, dated 12 March 1928. (War Department 1928)

2. Document 660P: Correspondence from Office of the Engineers providing a description of Fort Hamilton in February 1869, dated 12 March 1923. (Corps of Engineers 1923)

Box 93: 660.282 New York - 684. New York
1. Correspondence from the District Engineer, dated 23 August 1921, to the Chief of Engineers regarding anti-aircraft weapons at Fort Hamilton. (District Engineer, Third District 1921)

Box 158: 6624 Savannah - 319.12M Southern New York
No useful information.

Box 159: 333.1 Southern New York - 660C Southern New York
No useful information

Box 160: 660K Southern New York part I - Southern New York

1. Correspondence from U.S. Engineer Office, Third District to Chief of Engineers, U.S. Army, dated 28 April 1928 subject: Harbor Defense of Southern New York. (U.S. Engineers Office, Third District 1928)

Box 161-162

Contained information on Fort Hamilton, but it was nothing of value.

Record Group 92: Records of the Quartermaster General

Entry 1891: Geographic File 1922-35

Box 632: 632. Fort Hamilton - 825.1 Fort Hamilton

Box 730: 600.1 Hamilton Field - 600.1 Hamilton Field

Box 723: 319.1 Gumaca - 230.365 Fort Hamilton

Box 724

File: 333.1 Fort Hamilton (1924-1928)

1. Correspondence from Second Corps Area Commander to the Inspector General, dated 18 June 1925, forwarding extracts from the inspection of Fort Hamilton. (Second Corps Area Commander 1925)

2. Correspondence from the Inspector, Eastern Department to the Commanding General, Second Corps Area, dated 14 May 1927, regarding the inspection of Fort Hamilton. (Office of the Inspector, Eastern Department 1927)

3. Correspondence from the Second Corps Area Inspector to the Commanding General, Second Corps Area, dated 23 April 1928, relating the results of an inspection of Fort Hamilton. (Second Corps Area Inspector 1928)

File: 333.1 Fort Hamilton (1929, 1930) Inspection June 8-20, 1929

1. Correspondence from the Second Corps Area Inspector to the Commanding General, Second Corps Area, dated 03 August 1929, relating the results of an inspection of Fort Hamilton. (Second Corps Area Inspector 1929)

File: 333.1 Fort Hamilton Inspection Dec. 5-11, 1934

1. Correspondence from the Second Corps Area Inspector to the Commanding General, Second Corps Area, dated 14 December 1934, relating the results of an inspection of Fort Hamilton. (Second Corps Area Inspector 1934)

Box 725: 353.8 Fort Hamilton - 600.913 Fort Hamilton
No useful information.

Box 726
File: 600.93--Fort Hamilton (1926-28)
1. Metes and Bounds for Fort Hamilton from Quartermaster General. (Quartermaster General 1928)

File: 600.93--Fort Hamilton (1929)
1. "Description of the Metes and Bounds of Fort Hamilton, New York, as furnished by the Quartermaster General, May 27, 1932." (Quartermaster General 1932)

File: 601.1 Fort Hamilton (1931)
1. Correspondence from the Quartermaster General to Representative Patrick J. Carley, dated 18 August 1931, regarding the real estate acquisition at Fort Hamilton. (Quartermaster General 1931)

Entry 1974: Construction Completion Reports 1917-19
Box 118: Hamilton Field to Hampton, VA
No file on Fort Hamilton

Entry 1998: Real Estate Records, Subseries 1
Box 105: 601.1 Gulfport, MS - 601.0 Hancock, GA
No useful information.

Entry 1998: Real Estate Records, 1917-22, Subseries Two
Boxes 517-520: New York
No files on Fort Hamilton.

Record Group 153: Office of the Judge Advocate General
Entry 56: Reservation File, Subseries One, 1809-1948
Box 59: New York--Bloomindale Road Arsenal to Fort Lafayette
No files on Fort Hamilton

Record Group 175: Records of the Chemical Warfare Service
Entry 3: Special Files, 1922-43
Box 574:
File: Second Corps Area
1. "Report of Activities, 2nd Corps Area, for Month of January," dated 02 February 1923. (Headquarters, Second Corps Area, Chemical Warfare Office 1923a)

2. "Report of Activities, 2nd Corps Area, for Month of March," dated 02 April 1923. (Headquarters, Second Corps Area, Chemical Warfare Office 1923b)

3. "Report of Activities, 2nd Corps Area, for Month of July," dated 31 July 1923. (Headquarters, Second Corps Area, Chemical Warfare Office 1923c)

4. "Report of Activities, 2nd Corps Area, for Month of August," dated 04 September 1923. (Second Corps Area, Chemical Officer 1923)

5. "Report of Activities, 2nd Corps Area, for Month of July," dated 07 August 1925. (Headquarters, Second Corps Area, Chemical Warfare Office 1925)

6. "Report of Activities, 2nd Corps Area, for Month of October," dated 04 November 1927. (Headquarters, Second Corps Area, Chemical Warfare Office 1927)

7. "Report of Activities, 2nd Corps Area, for Month of July, dated 03 August 1929. (Headquarters, Second Corps Area, Chemical Warfare Office 1929a)

8. "Report of Activities, 2nd Corps Area for November," dated 09 December 1929. (Headquarters 2nd Corps Area 1929b)

9. "Report of Activities, 2nd Corps Area, for January," dated 09 February 1933. (Headquarters, Second Corps Area, Chemical Officer 1933)

10. Document 319.1: Letter from Major, Adrian St. John, Corps Area Chemical Officer to The Chief, Chemical Warfare Service, USA, Washington, D.C. , dated 6 April 1934, subject: Report of Activities, 2nd Corps Area for March. (Headquarters 2nd Corps Area 1934)

Record Group 177: Chief of Arms
Entry 33: Index to Correspondence in Entry 34 (1917-44)
Boxes 161-63
No record files for Fort Hamilton.

Record Group 394: Records of the U. S. Continental Commands, 1920-1942

Entry 33: Second Corps Area, Training Circulars, 1925-29

Box 1

Nothing of value on Fort Hamilton.

Entry 40: Second Corps Area Chemical Officer, Mobilization Plans, 1930-41

Box 1:

1. Memorandum from Colonel C.W. Exton, Headquarters 2nd Corps Area, Chemical Warfare Office, dated 13 December 1929, regarding Chemical Supplies - (Masks & Ammunition). (Headquarters 2nd Corps Area, Chemical Warfare Office 1929c)

Box 2

File: Emergency Supply of CW Munitions

1. Interoffice Reference Sheet for correspondence, dated in 1939, regarding chemical munitions for protection of plants and other facilities. (Chemical Officer 1939)

2. Correspondence from Chief, Chemical Warfare Service, dated 10 January 1931, to Chief of Ordnance regarding emergency reserve of Ordnance Ammunition. (Chief, Chemical Warfare Service 1931)

Entry 44: Second Corps Area, Fortifications Section, 1930-44

Boxes 1-11

Nothing of value on Fort Hamilton.

Entry 50: District Engineer Office, NYC, Harbor Defense of Southern New York

Box 76

File: Inspections of Military Posts

1. Correspondence from Headquarters, Second Coast Artillery District, dated 30 June 1930, to Commanding General, Second Corps Area regarding the annual inspection of coast artillery units at Fort Hamilton. (Headquarters, Second Coast Artillery District 1930)

2. Correspondence from Headquarters, Second Coast Artillery District, dated 09 September 1931, to Commanding General, Second Corps Area regarding the annual inspection of coast artillery units at Fort Hamilton. (Headquarters, Second Coast Artillery District 1931)

Entry 61: Second Corps Area Quartermaster Construction Requirements, 1936

Box 1

Nothing of value on Fort Hamilton.

Record Group 407: Records of the Adjutant General's Office, 1917-
Entry: Central Decimal Files, Project Files, 1917-25
Box 1183: Fort Griswold 602.2- Camp Hancock 600.11
No useful information.

3.1.2 NATIONAL ARCHIVES II--COLLEGE PARK, MARYLAND
8601 ADELPHI ROAD, MD
COLLEGE PARK, MD 20740-6001
(301) 713-6800

3.1.2.1 TEXTUAL REFERENCE BRANCH

Record Group 77: Chief of Engineers
Entry 1011: Security-Classified Subject Files
Box 453
File: 600.1 Fort Hamilton

1. Correspondence from Army Service Forces, dated 09 May 1945 to Commanding General, Second Service Command regarding post-war construction at Fort Hamilton. (Army Service Forces 1945a)

2. Correspondence from Army Service Forces, dated 25 May 1945, to Chief of Engineers regarding the permanent development of Fort Hamilton. (Army Service Forces 1945b)

Record Group 92: Records of the Office of the Quartermaster General
Entry 1892A: General Correspondence, Geographic Files, 1936-1945
Box 181: 600.93 Fort Hamilton - 671 Hamilton Field
No useful information.

Entry 1892B: General Correspondence, Geographic Files, 1946-1948
Boxes 186 and 188: Fort Hamilton
No useful information.

Record Group 168: Record of the National Guard Bureau
Entry 344: Army NGB Decimal Files 1925-45
Box 478: 684.4 - 684.1
No useful Information.

Record Group 338: U. S. Army Commands, 1942-
Entry 1: First Army Adjutant General Section: Admin Subject File 1951-
Box 6: Continental Army, CONUS Armies

1. Letter from Colonel F.J. Pearson to Colonel Francis F. Steers, Veteran Corps of Artillery, dated 27 June 1951, regarding firing of Cal. .45 pistol range at Fort Hamilton, New York. (Pearson 1951)

2. Report: Report of Training Facilities, Fort Hamilton, New York, dated 17 August 1951 (Rudell 1951).

Entry: Second Service Command, Engineer's Office, Decimal File 1929-41
Box 21: 300.5 - 319.1
No useful information.

Entry: Second Service Command
Box 32
File: Minutes of Meetings of Director of Supply and Service
1. "Weekly Supply and Service Journal," minutes of meeting on 10 November 1944. (Office of the Director of Supply 1944a)

2. "Weekly Supply and Service Journal," minutes of meeting on 17 November 1944. (Office of the Director of Supply 1944b)

Entry: Second Service Command, Decimal Files 1941-45
Box 35: 337. - 352. Signal Corps - Schools
No useful information.

Box 36: 352. - 353. Halloran General Hospital - Training Aids
No useful information.

Box 37: 353.01 to 729.
No useful information

Entry: 1st U. S. Army Adjutant General's Office
Box 7
File: 354.1 ORC
1. Correspondence from Headquarters, New York-New Jersey Subarea, dated 20 April 1951, to Commanding General, First Army regarding Organized Reserve Corps Weekend Training Centers. (Headquarters, New York-New Jersey Subarea 1951)

Record Group 429: Records of Organizations in the Executive Office of the President
Entry 12
Box 36
File: Fort Hamilton

1. "Installation Survey Report," dated 11 October 1973, on Fort Hamilton, Fort Wadsworth, and the Bellmore Support Maintenance Facility. (Assistant Secretary of Defense for Installations and Logistics 1973)

3.1.2.2 CARTOGRAPHIC BRANCH
ROOM 3050
POC: JENNIFER NELSON (FOR AERIAL PHOTOS)
(301) 713-7040 EXT. 230

Record Group 57 (Records of the U.S. Geographical Service)
No aerial photos on Fort Hamilton

Record Group 77
Fortifications File
Drawer 250
Sheet 13-2
1. Armament Sheet for Fort Hamilton, dated 30 June 1866. (n.a. 1866)

Sheet 13-5
1. Armament Sheet for Fort Hamilton, dated 30 June 1867. (Newton 1867c)

Sheet 13-6
1. Armament Sheet for Fort Hamilton Redoubt, dated 30 June 1867. (Newton 1867a)

Sheet 13-7
1. Armament Sheet for Battery near Fort Hamilton, dated 30 June 1867. (Newton 1867b)

Sheet 13-8
1. Information taken from Major Gillespie's Annual Report, 1890. (Gillespie 1890)

Sheet 13-14
1. "Sketch of Fort Hamilton, New York Harbor, consisting of Fort Hamilton, old fort; Battery No. 1; New Battery and Mortar Battery, showing armament on April 1, 1892." (U. S. Engineer Office, New York 1892)

Sheet 13-19 1/2

1. Changes in Armament since April, 1892. Taken from a report of operations from Colonel Gillespie, July 1896. (Gillespie 1896)

Sheet 13-47

1. "Armament Report for year ending December 31, 1901." (n.a. 1901)

Record Group 114 (Records of the Soil Conservation Service)
No aerial photos on Fort Hamilton

Record Group 145 (Records of the U.S. Agricultural and Stabilization Service)
No aerial photos on Fort Hamilton

Record Group 373 (Records of the U.S. Defense Intelligence Agency)
Entry Aerial Photography

1. Can Information, Can Number 4A845, 16DPU-4M716, Frame Numbers: 38, 39, 40, 41, 82, 83, 84, 85, 86, 7, 98, 99, 100, 140, 141, 142, 143, 144 dated 07 December 1944

2. Can Information, Can Number C7515, Frame Numbers: 9, 10, 11, 12, 83, 84, 85, 86 dated 08 June 1953

3.1.2.3 STILL PICTURES BRANCH

The finding aids consulted did not indicate there were any useful photographs of Fort Hamilton.

3.1.3 WASHINGTON NATIONAL RECORDS CENTER
4205 SUITLAND ROAD
SUITLAND, MD 20409-0002
(301) 457-7000

The finding aids were consulted, but they did not indicate that there was any useful information concerning the fort.

3.1.4 NATIONAL PERSONNEL RECORDS CENTER
MILITARY PERSONNEL RECORDS
9700 PAGE AVENUE
ST. LOUIS, MO 63132-5100
(314) 538-4085

Record Group 338: Records of U.S. Army Continental Command, 1942-

Accession: 338-56A-3020
Box 1 of 1
File: Table of Distribution, April 1952
1. Description of the mission and operations of Fort Hamilton. (1275 ASU Station Complement 1952)

Accession: 388-56A-6049
Box 2 of 9
File: Unnumbered Memoranda 1951
1. Memorandum, dated 23 April 1951, concerning annual ordnance inspection. (Headquarters, Fort Hamilton 1951a)

File: Training Memos
1. Training Memorandum Number 3, dated 07 July 1951, "Range Firing." (Headquarters, Fort Hamilton 1951b)

Accession: 338-56B-6049
One box containing correspondence during 1952.
No useful information.

Accession: 338-56C-6049
Box 1 of 1
File: Daily Bulletins 1952
1. Daily Bulletin for 16 June 1952. (Headquarters, Fort Hamilton 1952a)

2. Daily Bulletin for 21 July 1952. (Headquarters, Fort Hamilton 1952b)

3. Daily Bulletin for 08 August 1952. (Headquarters, Fort Hamilton 1952c)

Accession: 338-56A-6136
One box containing battery orders, general orders and hospital records.
No useful information.

Accession: 338-58A-4188
Box 4 of 4
File: 384.5
1. Map identifying air raid shelters from box four, dated 04 November 1949. (War Department 1949)

2. Map: Department of the Army, Fort Hamilton, New York, "Post Map," dated 24 September 1953. (Department of the Army 1953)

3. Map: War Department, Fort Hamilton, Post Engineer Office, "Casements Located at Fort Hamilton," dated 23 April 1950. (War Department 1950)

File: 471 Ammunition

1. Correspondence from Fort Hamilton's Adjutant's Office to Commanding General, First Army, dated 04 January 1954, regarding blank ammunition for saluting from box four. (Fort Hamilton Adjutant 1954)

File: 474 Small Arms

1. Unnumbered Memorandum, dated 17 May 1954, "Small Arms Instruction," from box four. (Headquarters, Fort Hamilton 1954)

Accession: 338-58B-4188

One box containing correspondence.

No useful information.

Accession: 338A-59A-4110

Box 1 of 1

File: Adjutant's Section

1. Daily Bulletin for 15 November 1955. (Headquarters, Fort Hamilton 1955b)

File: Training Memos

1. Training Memorandum Number 1, undated, to furnish a Training Directive to activities of the installation. (Headquarters, Fort Hamilton 1955c)

Accession: 338-60A-6016

Box 3 of 3

File: 353 Training 1956

1. Annex C to Training Memorandum Number 2, Headquarters Fort Hamilton, 19 September 1956, signed by Major R.F. Bubier, n.d. Subject: Open Classification Marksmanship Competition. (Fort Hamilton 1956)

2. Correspondence from Brigadier General Richard T. Henshaw, Jr. Headquarters, 77th Division Arty to Commanding Officer, Fort

Hamilton, New York, dated 8 December 1956. Subject: Multiple Drill Training. (Headquarters, 77th Division Arty 1956)

3. Training Memorandum Number 2, dated 26 March 1956. (Headquarters, Fort Hamilton 1956a)

4. Correspondence from Captain Rudolph K. Mund, Headquarters Fort Hamilton to All Officers, Fort Hamilton, dated 8 June 1956. Subject: Familiarization Course-Pistol Cal. .45. (Headquarters, Fort Hamilton 1956c)

File: Training 1956

1. Correspondence from R.F. Bubier, Headquarters Fort Hamilton to First Army Advisory Group, Cooper Station New York, New York, dated 12 September 1956. Subject: Unit Marksmanship, Pistol, Automatic, Cal. .45, and Revolver Cal. .38. (Headquarters, Fort Hamilton 1956d)

File: National Shooting Matches

1. Correspondence from Captain Stanton K. Lee to Commanding Officer, Fort Hamilton, dated 21 May 1956. Subject: First Army Rifle and Pistol Team (Lee 1956).

Accession: 338-60B-6016

Box 1 of 1

File: 471 Ammunition 1956

1. Correspondence from Headquarters, Fort Hamilton to Commanding General, First Army, dated 18 April 1956, concerning suspended ammunition lots. (Headquarters, Fort Hamilton 1956b)

2. Correspondence from 69th AAA Battalion to Commanding Officer, Fort Hamilton, dated 23 October 1956, concerning the storage of ammunition. (69th AAA Battalion 1956)

File: 602 Disposition of Real Property

1. "Summary of Real Property Study," dated 11 January 1956. (Fort Hamilton Adjutant 1956)

Accession: 338-60C-6016

Box 1 of 1

1. Daily Bulletin for 13 November 1956. (Headquarters, Fort Hamilton 1956e)

Accession: 338-61A-3178
Box One: Special orders, daily bulletins and general orders.
Box Two: Correspondence.
No useful information.

Accession: 338-61B-3178
One box of correspondence.
No useful information.

Accession: 338-61C-3178
One box containing special orders, daily bulletins and general orders.
No useful information.

Accession: 338-62A-4083
Two boxes containing correspondence from 1958.
No useful information.

Accession: 338-62B-4083
Box 1 of 1
File: Letters on Satellization Plan
1. Correspondence from Major, C. T. Bardenhagen, Fort Hamilton to Commanding Officer, Fort Totten, New York, dated 25 March 1958. Subject: Logistical Support of Fort Hamilton Army Reserve Training Center. (Bardenhagen 1958a)

File: 474 Small Arms
1. Correspondence from Major C. T. Bardenhagen, Fort Hamilton to First United States Army, Governors Island, New York, New York, dated 23 April 1958. Subject: Match Weapons. (Bardenhagen 1958b)

Accession: 338A-63A-6090
Box 1 of 1
File: Training Publications
1. Training Memorandum Number 2, dated 19 January 1959. (Headquarters, Fort Hamilton 1959)

Accession: 338-64A-0220
Box 1 of 1
File: Newspaper Files 1959
1. Article from post newspaper on the founding of Fort Hamilton. (*Fort Hamilton Post* 1959)

File: Newspaper Files 1960

1. Article from post newspaper concerning the construction of new barracks. (*Fort Hamilton Post* 1960a)

2. Article from post newspaper on the demolition of buildings. (*Fort Hamilton Post* 1960b)

Accession: 338-64C-3223

Box 1 of 1

1. Explosive Ordnance Incident Report #542-321-60, dated 13 June 1960. (132nd Ordnance Detachment 1960a)

2. Explosive Ordnance Incident Report #542-636-60, dated 15 November 1960. (132nd Ordnance Detachment 1960b)

Accession: 338-65A-0071

Box 1 of 1

File: Newspaper Files

1. Article from post newspaper on history of Fort Hamilton. (*Fort Hamilton Post* 1961)

File: Numbered Memoranda

2. Memorandum Number 14, dated 06 July 1961, "Security and Control of Weapons and Ammunition." (Headquarters, Fort Hamilton 1961)

Accession: 338A-66A-45

Two boxes containing publication record sets, special orders and unit orders. No useful information.

Accession: 338-66C-6121

Box 1 of 1

1. Explosive Ordnance Incident Report #542-199-62, dated 18 April 1962. (66th Ordnance Detachment 1962)

3.1.5 NATIONAL ARCHIVES-NORTHEAST REGION
201 VARICK STREET
NEW YORK, NY 10014
(212) 337-1300

Record Group 77: Office of the Chief of Engineers

Entry 756: Letters Received, December 1870 to December 1884

All Civil Works projects.

Entry 757: Letters Received, May 1880 to March 1888
All Civil Works projects.

Entry 762: Letters Sent, U. S. Engineer Office, NY--East River, Hellgate, Fort Hamilton 1873-74
Volume 3 of 9: Fort Hamilton

1. Correspondence from U. S. Engineer Office, NY, dated 19 August 1873 to Chief of Engineers reporting that Magazines 1 and 2 had been completed. (U. S. Engineer Office, New York 1873a)

2. Correspondence from U. S. Engineer Office, NY, dated 06 December 1873, to Chief of Engineers reporting that armament consists of 5-15 inch guns and the new battery is virtually complete. (U. S. Engineer Office, New York 1873b)

3. Correspondence from the U. S. Engineer Office, NY, dated 01 August 1874, to Chief of Engineers reported that Magazines 3 and 4 were complete. (U. S. Engineer Office, New York 1874)

Entry 779: Letters Received, U. S. Engineers Office, New York, 1871-1889
Volume 1: 1871-1873
Nothing of value found.

Volume 2: 1873-1879
Nothing of value found.

Volume 3: 1879-1886
Nothing of value found.

Volume 4: 1886-1889
Nothing of value found.

Entry 795: Letters Sent, Fortifications 1879-1886
Volume 1: 1879-82
Nothing of value found.

Volume 2: 1882-83
Nothing of value found.

Volume 3: 1883-84
1. Annual Report of operations in fiscal year 1884. (Gillespie 1884)

Volume 4: 1884-86
Nothing of value found.

Entry 795: Miscellaneous Letters 1889-1906
Volume 1: 1889-1902
Nothing of value found.

Volume 2: 1902-1906
Nothing of value found.

Entry 802: Correspondence of New York City District Engineer
Box 26: Fort Hamilton #1-4
File: Fort Hamilton #2

1. Correspondence from New York City District Engineer to Commanding Officer of the Coast Defenses of Southern New York, dated 16 February 1925, regarding the fire control at Forts Wadsworth and Hamilton. (U. S. Engineer Office, Third District 1925)

2. Map: "U.S. Military Reservation, Fort Hamilton, New York, Filled Area at Easterly End of Reservation," dated 9 August 1927. (U.S. Engineers, New York 1927)

3. Map: "U.S. Government Land at Fort Hamilton, New York, compiled under the direction of Lt. Col. W.L. Marshall, Corps of Engineers, U.S. A., from previous maps and present data," dated 1905. (U.S. Army Corps of Engineers, New York 1905)

Box 27: Fort Hamilton #4-7
File: Fort Hamilton #7

1. "Memo for New York [District Engineer] Office," dated 24 March 1924, from William R. Lee, Foreman regarding an estimate for work on the batteries at Fort Hamilton. (Lee 1924)

2. Correspondence from Headquarters, Harbor Defenses of Southern New York, dated 03 September 1926, to the U. S. Engineer Office, Third District regarding the drainage of Battery Piper. (Headquarters, Harbor Defenses of Southern New York 1926)

Box 28: Fort Hamilton #8-20
File: Fort Hamilton #10

1. Map File No. B-42-13-1, dated 15 October 1929. (n.a. 1929)

2. Untitled Map received on 03 June 1910 in U. S. Engineer Office, New York City. (n.a. n.d.d)

3. Map: "Fort Hamilton, New York, Proposed Locations of New Buildings," dated 31 October 1918. (Commanding General, Second Engineer District 1918)

File: Fort Hamilton #14

1. Correspondence from United States Military Academy to the Adjutant General's Office, dated 09 October 1907 regarding the transfer of the armaments at Battery Livingston to West Point. (United States Military Academy 1907)

2. Correspondence from the Chief of Engineers to District Engineer Office, New York City, dated 27 June 1913 regarding the removal of two 4.7" Armstrong guns. (Chief of Engineers 1913)

Box 29: Fort Hamilton #20-50

File: Fort Hamilton #21

1. Correspondence from Headquarters, Department of the East, dated 02 March 1908, to the Commanding Officer, Fort Hamilton regarding an inspection of the post. (Headquarters, Department of the East 1908)

2. Executive Document No. 216 of the 49th Congress, 1st session. Letter from the Acting Secretary of the Treasury regarding additional land at Fort Hamilton. (Acting Secretary of the Treasury 1886)

3. Reproduction of "Description of Fort Hamilton," dated 01 February 1869, typed by A. M. Miller, Corps of Engineers. (n.a. 1869)

Entry 810: Letters Received, Fort Hamilton and New Battery

Volume 1: January 5, 1866 to December 5, 1867

Nothing of value found.

Volume 2: December 16, 1867 to July 21, 1869

1. Operations plan for fiscal year 1868, submitted by the U. S. Engineer Office, New York, dated 19 August 1867. (U. S. Engineer Office, New York 1867)

Volume 3: July 13, 1869 to March 22, 1871

Nothing of value on Fort Hamilton.

Entry 811: Letters Sent, U. S. Engineer Office, NY

Volume 2: May 22, 1889 to May 5, 1894

1. "Annual Report for Fiscal Year ending June 30, 1891. Fort Hamilton and additional Batteries, N. Y. Harbor." (Gillespie 1891)

2. Correspondence from New York Engineer Office, dated 18 October 1892, to the Chief of Engineers regarding projected construction at Fort Hamilton. (New York Engineer Office 1892)

Volume 3: May 3, 1894 to July 29, 1896

1. Correspondence from the New York Engineer Office, dated 03 July 1894, to 1st Lt. Barley regarding a description of land at Fort Hamilton acquired in 1891. (New York Engineer Office 1894)

2. Correspondence from the U. S. Engineer Office, NY, dated 29 October 1895, to Quartermaster General, NYC requesting shipment from Sandy Hook NJ to Fort Hamilton of one 10 inch seacoast B.L. rifle. (U. S. Engineer Office, New York 1895)

3. Correspondence from Post Commander, Fort Hamilton, dated 19 December 1895, to the Adjutant General, Department of the East, relaying the current condition of Fort Hamilton. (Post Commander 1895)

Entry 823: Letters Received, Fort Hamilton

Volume 1: 28 June 1889 to 29 June 1893

1. Statement, dated 25 January 1889, written by E. L. Zalinski announced that Fort Hamilton would fire its 15-inch gun. (Zalinski 1889)

2. Letter dated 20 June 1890 from J. Egarr of the 4th Artillery to Fort Hamilton saying that the removal of 15-inch guns had started. An additional letter on 24 June reported the work as complete. (4th Artillery 1890)

Volume 2: December 31, 1893 to October 05, 1896

Nothing of value found.

Entry 826: Letters Sent, U. S. Engineer Office, February 20, 1862 to March 1871

Volume 1: 1862-1867

Nothing of value found.

Volume 2: 1867-1871
Nothing of value found.

Entry 827: Letters Sent, Fort Hamilton Batteries, 1867-1874
Nothing of value found.

Entry 829: Letters Received, New York City District Office
Box 26: Woodbridge and Fort Hamilton 1901-1906
Filed by date

1. Correspondence from the Engineer Office at Fort Hamilton to New York City District Office, dated 15 February 1901, regarding construction at Fort Hamilton. (U. S. Engineer Office, Fort Hamilton, NY 1901)

2. Correspondence from Watervliet Arsenal, dated 21 September 1905, to New York District Engineer regarding the shipment of guns to Fort Hamilton. (Watervliet Arsenal 1905a)

3. Correspondence from Watervliet Arsenal, dated 27 November 1905, to New York District Engineer regarding the shipment of guns to Fort Hamilton. (Watervliet Arsenal 1905b)

4. Correspondence from the Chief of Ordnance, dated 25 September 1905, to Major Abbot, Engineer Corps, regarding the shipment of guns to Fort Hamilton. (Chief of Ordnance 1905a)

5. Correspondence from the Chief of Ordnance, dated 29 November 1905, to Major Abbot, Engineer Corps, regarding the shipment of guns to Fort Hamilton. (Chief of Ordnance 1905b)

Entry 851: Letters Sent
Volume 1: 1897-1904
Nothing of value found.

Volume 2
Civil Works projects.

Record Group 392: U. S. Army Coast Artillery Districts and Defenses, 1901-1942
Entry 221: Battery Emplacement Books, Fort Hamilton 1901-42, 4 Volumes
Volume 1: Battery Harvey Brown

1. Detailed description of the emplacements of this battery. (Fort Hamilton 1942a)

Volume 2: Battery Doubleday

1. Detailed description of the emplacements of this battery. (Fort Hamilton 1942b)

Volume 3: Battery Griffin

1. Detailed description of the emplacements of this battery. (Fort Hamilton 1942c)

Volume 4: Battery Livingston

1. Detailed description of the emplacements of this battery. (Fort Hamilton 1942d)

Entry 361: Harbor Defenses of Southern NY, Registers of Correspondence

Box 1

Nothing of value found.

Entry 362: General Correspondence

Box 1

Nothing of value found.

Entry 363: General Orders

Box 1

Nothing of value found.

Entry 364: Special Orders

Box 1

Nothing of value found.

Entry 365: Special Court Martials

Box 1

Nothing of value found.

Entry 366: Confidential Orders

Box 1

Nothing of value found.

Entry 367: Verbal Orders

Box 1

Nothing of value found.

Entry 368: Duty Rosters

Box 1

Nothing of value found.

Entry 369: Service Records Extracts
Box 1
Nothing of value found.

3.1.6 FEDERAL RECORDS CENTER-NEW YORK
BUILDING 22
MILITARY OCEAN TERMINAL
BAYONNE, NJ 07002
(201) 823-7161

The finding aids were consulted, but they did not indicate there was any useful information on Fort Hamilton.

3.2 MILITARY ARCHIVES, LIBRARIES, AND INFORMATION SOURCES

3.2.1 U. S. ARMY CENTER OF MILITARY HISTORY
1099 14TH STREET, NW
WASHINGTON, D. C. 20005-3402
(202) 761-5416

1. Two Historic Points Linked by Bridge, written by Stewart Kampel. *New York Post*. Folder: HRC 331 Posts, NY Post, State of New York. (Kampel n.d.)

2. History: Fort Hamilton, undated. Folder: HRC 331 Posts #15-HA-HA2. (n.a. n.d.c)

3. Circular No. 8, A Report on the Hygiene of the United States Army with Descriptions of Military Posts, by War Department, Surgeon-General's Office, Washington, dated 1 May 1875. (War Department 1875)

3.2.2 U. S. ARMY CORPS OF ENGINEERS
OFFICE OF HISTORY
7701 TELEGRAPH ROAD
ALEXANDRIA, VA 22310-3865
(202) 355-3558

1. "A Fort Grew in Brooklyn: The Story of Fort Hamilton Army Base," by Cyrus Galletta, *Trading Post*, vol. 37, no. 4, July-Sept 1978, Pg. 17-18. (Galletta 1978)

2. "Touring Historic Fort Hamilton." (n.a n.d.b)

3.2.3 U. S. ARMY MILITARY HISTORY INSTITUTE
CARLISLE BARRACKS
CARLISLE, PA 17013-5008
(717) 245-3601

3.2.3.1 LIBRARY

The library contained brief annual history summaries for 1970 through 1973; they were not copied as they contained only general information obtained at other repositories.

Other information obtained in the library include:

1. Report from Headquarters Fort Hamilton to Commanding General, dated 14 February 1955, subject: Historical Report, Command Program NR 11A - Administrative Services. (Headquarters Fort Hamilton 1955a)

2. Microfilm: Reel 139: Fort Dix Post - Fort Hamilton Post 22 December 1942-29 October 1943.
    1. Photograph from The Fort Hamilton Post, dated 29 October 1943, showing the Post Chemical Warfare Officer demonstrating the control of incendiary bombs. (*Fort Hamilton Post* 1943)

3. Microfilm: Reel 140 Fort Hamilton 12 November 1943 - 21 January 1948
    No useful information on Reel 140.

3.2.3.2 ARCHIVES

The archives did not contain any pertinent information on Fort Hamilton.

3.2.3.3 STILL PICTURES BRANCH
POC: MR. DENIS DITOK

File: 1005 Forts, 2nd Corps Area.
    Five oblique aerial photographs of Fort Hamilton, dated 23 March 1923.
        1. Photo of the old fort, the waterline, and Batteries Johnson, Brown, Griffin, and Gillmore.

        2. Photo of the Redoubt, with old fort in the background.

        3. Photo of the Redoubt, Batteries Piper, Spear, Gillmore, Griffin, Brown, Burke, and Johnson, and the old fort.

4. Photo of the old fort, Batteries Burke, Johnson, Brown, and Griffin.

5. Photo of the old fort and the other batteries in the background.

3.2.4 U. S. ARMY CHEMICAL AND BIOLOGICAL DEFENSE AGENCY HISTORICAL DIVISION BUILDING E5183 ABERDEEN PROVING GROUND, MD 21010-5423 (410) 671-4430

1. "Defense Against Chemical Attack," by Chemical Warfare School, March 1944. (Chemical Warfare School 1944)

2. Finding aid for the vertical files in the History Office. (History Office, CBDA n.d.)

3.3 FORT HAMILTON SOURCES

3.3.1 HARBOR DEFENSE MUSEUM FORT HAMILTON BROOKLYN, NY 11252 POC: Ms. Vicky Davis (718) 630-4349

1. *Guarding America's Front Door*: *Harbor Forts in the Defense of New York City* by Russell S. Gilmore. Published by the Fort Hamilton Historical Society, 1983. (Gilmore n.d.)

2. Drawing: "Redoubt," dated 10 September 1864. (n.a. 1864b)

3. Landmarks Preservation Commission, dated 8 March 1977. (Landmarks Preservation Commission 1977)

4. "New Officers' Club and Mess at Fort Hamilton." (n.a. n.d.f)

5. Operations Brochure, Fort Hamilton, dated 1 January 1963. (n.a. 1963)

6. Memorandum for Record from John Artes, Department of the Army, Headquarters Fort Hamilton, subject: Military Fortifications on Fort Hamilton, circa 1778, dated 14 April 1975. (Artes 1975)

7. Memorandum for Record from Department of the Army, Headquarters New York Area Command and Fort Hamilton, subject: British Occupation of Fort Hamilton

Area, Revolutionary War 1778 - 1782, dated 19 August 1975. (Department of the Army 1975)

8. Vertical File, Newspaper and Magazine Articles folder: "Fort Hamilton Official Makes a Discovery," by Dennis C. McMahon, *Home Reporter and Sunset News*, 14 January 1977. (McMahon 1977)

9. Vertical File, Newspaper and Magazine Articles folder: "Girl, 6 Finds Cannonball of '76," *Daily News*, 9 June 1960. (Daily News 1960)

10. Vertical File, Newspaper and Magazine Articles folder: "From Indian Post to Baby Sitter, Ft. Hamilton's Been a Good Soldier," by Art Williams, *World Telegram and Sun*, 9 September 1955. (Williams 1955)

11. Map: Hand drawn map submitted with General John Newton's Letter of 1 April 1871. (n.a. n.d.g)

12. Brief History of Fort Hamilton with historical notes from 1776 to 1987. (n.a.n.d.h)

13. History of Fort Hamilton, dated 10 February 1975. (n.a. 1975)

14. Chronology of the Site of Fort Hamilton from 1524 to 1943. (n.a. n.d.i)

15. Historical and Architectural Resources with chronology from 1524 to 1945 and building chronology from 1825 to 1911. (n.a. n.d.j)

16. Fort Hamilton Mission Manual, dated May 1969. (Fort Hamilton 1969)

17. Fort Hamilton Mission Manual, dated 1 July 1971. (Fort Hamilton 1971)

18. Map: New York Harbor, Fort Hamilton, revised 15 March 1935. (n.a. 1935)

19. History of Fort Hamilton. (n.a. n.d.l)

20. Memorandum Sketch of the History of Fort Hamilton, New York Harbor. Information came from National Archives, Record Group 94, Reservation Files, Box 28, "Unpublished History of Fort Hamilton, Circa 1884. (n.a. c1884)

21. Map showing various batteries at Fort Hamilton, including the training area behind Battery Livingston, undated. (n.a. n.d.a)

22. Sketch by Joseph Becker of experiments with the dynamite gun at Fort Lafayette and the effects at Fort Hamilton. (Becker n.d.)

23. Map: Site Plan of Fort Hamilton, Brooklyn, New York, dated April 1962. (Engineer Intelligence Branch 1962)

24. Map: Site Plan of Fort Hamilton. (n.a. n.d.k)

25. Drawing 40 Sheet 43, Fort Hamilton, dated 10 September 1864. (n.a. 1864a)

26. Untitled History, dated July 1892. (n.a. 1892)

3.3.2 FORT HAMILTON
PUBLIC WORKS OFFICE
BUILDING 129
BROOKLYN, NY 11252
POC: MR. PETER KOUTROUBIS
(718) 630-4485

1. Report: "Cultural Resource Management Plan for Fort Hamilton, Draft Report-Volume I," prepared by Panamerican Consultants, Inc., Depew, New York for U.S. Army Corps of Engineers, New York District, dated March 1997. (Panamerican Consultants, Inc. 1997)

2. Report: "Pollution Prevention Plan, Fort Hamilton/Fort Totten, New York, Draft," prepared by Geophex, Ltd, Raleigh, North Carolina for U.S. Army Corps of Engineers, Baltimore District, dated October 1995. (Geophex, Ltd. 1995)

3. Report: "Site Investigation for Soil Contamination at Fort Totten and Fort Hamilton," prepared by Hill Environmental, Inc, New York, New York for Director of Public Works, Brooklyn, New York, dated June 1995. (Hill Environmental, Inc. 1995)

4. Report: "Analytical Report Fort Hamilton Brooklyn, New York and Fort Wadsworth, Staten Island, New York." (Fort Hamilton Complex n.d.)

5. Report: Analytical Report, Fort Hamilton Brooklyn, New York and Fort Wadsworth, Staten Island, New York." (Fort Hamilton Complex c1968)

6. Report: Analytical Report, Fort Hamilton, Brooklyn, New York," dated September 1968. (Fort Hamilton Complex 1968)

7. Map: "Real Estate, Fort Hamilton - New York, (Military Reservation)," dated 27 August 1964. (Office of the New York District Engineer 1964)

8. Map: Basement Plan of bowling alley (building 402) showing rifle range, undated. (n.a. n.d.e)

9. Map: "Site Plan of Fort Hamilton, Brooklyn, New York," dated April 1962. (First U.S. Army Engineer 1962)

10. Map: Fort Hamilton, "Master Plan for Redevelopment, General Site Plan," dated 09 January 1958. (U.S. Army Corps of Engineers New York 1958)

11. Map: No legend to provide information or date.

12. Map: Department of the Army, Post Engineers Office, "General Site Plan, Scheme K-2," dated 19 February 1959. (Fort Hamilton 1959)

13. Map: Department of the Army, Headquarters New York Area Command, Office of the Facility Engineer, "Grimes Road Realignment and Parking Extension," undated. (Office of the Facility Engineer n.d)

14. Map: Fort Hamilton, "Alignment and Location Plan, Area 1," Triborough Bridge and Tunnel Authority, Replacement of Facilities Displaced by the Narrows Bridge, dated 08 October 1963. (Madigan-Hyland Engineers 1963)

15. Map: Fort Hamilton, "Electrical Gymnasium, Bldg No. 402, Plan & Details," dated 08 August 1961. (Lorimer and Rose 1961)

16. Map: Fort Hamilton, "Ammunition Bldg No. 232, Plan, Elevations, Sections & Details," dated 12 April 1963. (Lorimer and Rose 1963)

17. Map: Fort Hamilton, "Master Plan for Redevelopment, Scheme K, Master Plan Superimposed on Existing Facilities," dated 1 Jun 1956. (U.S. Army Corps of Engineers 1956a)

18. Map: Fort Hamilton, "Master Plan, Basic Information, General Site Map," dated 31 August 1988. (U.S. Army Corps of Engineers New York 1988)

3.4 NATIONAL AIR AND SPACE MUSEUM
SMITHSONIAN INSTITUTION
WASHINGTON DC 20560
(202) 357-3133

No useful photographs of Fort Hamilton were found at this repository.

3.5 U. S. ARMY CORPS OF ENGINEERS-NEW YORK DISTRICT
REAL ESTATE DIVISION
26 FEDERAL PLAZA
ROOM 2007
NEW YORK, NY 10278-0090
(212) 264-4336

1. "Department of the Army Easement for Road, Street and Bridge: Fort Hamilton, Brooklyn, NY and Fort Wadsworth, Staten Island, NY," granted by the Secretary of the Army, dated 14 November 1964. (Secretary of the Army 1964)

2. "Military Reservations, New York," 29 October 1941, for Fort Hamilton. (War Department 1941)

3. Map: "Fort Hamilton, Basic Information, Reservation Boundary Map," dated 1 June 1956. (U.S. Army Corps of Engineers, New York 1956b)

4. Map: Fort Hamilton, New York, "Master Plan, Basic Information Maps, General Site Plan," dated 1 July 1982. (U.S. Army Corps of Engineers, New York 1982)

5. Map: Fort Hamilton, New York, "Post and Boundary Map," dated 13 July 1942 (map copied on two sheets and is very dark and difficult to read). (U.S. Army Corps of Engineers, New York 1942)

3.6 LOCAL LIBRARIES AND HISTORICAL SOCIETIES

3.6.1 NEW YORK PUBLIC LIBRARY
MANUSCRIPTS AND ARCHIVES DIVISION
5TH AVENUE AND 42ND STREET
NEW YORK, NY 10018
(212) 930-0801

1. *The WPA Guide to New York City* by the Guild's Committee for the Federal Writers Project. Random House, New York: 1939, reprint 1992. (Guild's Committee 1992)

2. *The Encyclopedia of New York City* edited by Kenneth L. Jackson. Yale University Press, New Haven: 1995. (Jackson 1995)

3. "Ft. Hamilton: It's No Flag Stop," *New York Times*, Sunday July 09, 1972. Located in the Clippings File: Forts, Hamilton. (*New York Times* 1972)

4. "History of Fort Hamilton," by Lt. Asa R. Runyon, 1928, unpublished. (Runyon 1928)

3.6.2 NEW YORK HISTORICAL SOCIETY
MANUSCRIPT DEPARTMENT
170 CENTRAL PARK WEST
NEW YORK, NY 10024
(212) 873-3400

We reviewed several histories of the Borough of Brooklyn, but they did not contain any significant information on Fort Hamilton:

When Brooklyn Was The World, 1920-1957 by Elliot Willensky (1986).
Brooklyn Neighborhood Book by the Borough of Brooklyn (1985).

3.6.3 BROOKLYN PUBLIC LIBRARY
SPECIAL COLLECTION BRANCH
GRAND ARMY PLAZA
BROOKLYN, NEW YORK
(718) 780-7883

1. Clippings File, Fort Hamilton: "A Battle to Preserve City History," *New York Times*, 7 July 1996. (New York Times 1996)

2. Clippings File, Fort Hamilton: "Fort Hamilton Has a Rich History," *Home Reporter and Sunset News*, 30 May 1975. (*Home Reporter and Sunset News* 1975)

PHOTOGRAPH COLLECTION:

1. Aerial View of Fort Hamilton, New York, 21 June 1968.

2. Fort Hamilton Guns, 20 October 1935.

3. Barracks with gun racks, 1964.

4. Fort Hamilton, 1982 as appeared in the Eagle, 3 November 1946.

5. Hamilton Armory at Fort Hamilton, 9 September 1951.

6. Fort Hamilton, 1908.

7. Twelve-inch Guns, Fort Hamilton, 26 June 1932.

8. Fort Hamilton, 15 June 1932.

9. Fort Hamilton, 15 June 1938

3.7 AERIAL PHOTO SOURCES

3.7.1 U.S. ARMY MILITARY HISTORY INSTITUTE

See **SECTION 3.2.3.3--STILL PICTURES BRANCH** for information.

3.7.2 DEFENSE INTELLIGENCE AGENCY (DIA)

See **SECTION 3.1.2.3--NATIONAL ARCHIVES II, COLLEGE PARK, STILL PICTURES BRANCH** for information.

3.7.3 U.S. GEOLOGICAL SURVEY EROS DATA CENTER

SIOUX FALLS, SD 57198
P.O.C.--CUSTOMER SERVICE
(605) 594-6151

Photos ordered and analyzed are listed in **SECTION 4.3.2--AERIAL PHOTO INTERPRETATION**.

3.7.4 KEYSTONE AERIAL

NE PHILADELPHIA
P.O. BOX 21059
PHILADELPHIA, PA 19114
P.O.C.--PHOTO SALES
(215) 677-3119

Photos ordered and analyzed are listed in **SECTION 4.3.2--AERIAL PHOTO INTERPRETATION**.

3.7.5 UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY (ASCS)
AERIAL PHOTOGRAPHY FIELD OFFICE
2222 W 2300 S
SALT LAKE CITY , UTAH 84119-2020
P.O.C.--CUSTOMER SERVICE
(801) 975-3503

Photos ordered and analyzed are listed in **SECTION 4.3.2--AERIAL PHOTO INTERPRETATION**.

4.0 HISTORICAL ORDNANCE USAGE

4.1 GENERAL HISTORY OF FORT HAMILTON

Fort Hamilton occupies a very strategic area in the defense of New York City. The Narrows, at the opening of Upper New York Bay, is only about a mile wide. The United States placed three fortresses at this location: Fort Wadsworth on Staten Island, Fort Hamilton in Brooklyn, and Fort Lafayette on an island in between. At the beginning of the Revolutionary War, Henry Knox placed several artillery pieces on the land now occupied by Fort Hamilton. This battery engaged the British warship *Asia* in July 1776, but the *Asia* quickly silenced the American cannons. The Battle of Long Island followed, and the Americans were pushed out of New York City for the rest of the conflict. The British also established two earth and timber forts at the Narrows to deter the French Navy from entering the bay (Gilmore n.d.).

As war between the Americans and British began again in 1812, a temporary earth and timber fortress, Fort Lewis, protected the Brooklyn side of the Narrows. This fortress was abandoned, and the site remained unprotected until 1824 when workers broke ground on Fort Hamilton. The cornerstone of the fort was placed during the following year. In November 1831, Battery "F" of the Fourth Artillery occupied the fort. In 1835, the defenses of Fort Hamilton consisted of fourteen 32-pounder cannons and forty other cannonades, encased in the fortress, and twenty-six 42-pounder pieces, twenty-two 32-pounder cannons and eight mortars, mounted on the roof (barbette) (Gilmore n.d.; n.a. 1892; Engineer Office 1879).

After the Civil War, Fort Hamilton strengthened its defenses with the construction of new batteries. An 1879 document reported plans for the construction underway at the time. A new battery (No. 1) was under construction between the waterline and the old fort; it would house eight 15-inch guns. The "New Battery," located directly south of the old fort, was built to house twenty-six 15-inch guns, one 20-inch gun, and one 10-inch gun. Behind the "New Battery," a facility for fourteen mortars was underway (Engineer Office 1879). This construction continued well into the 1880's. The armament report for 1891 shows the development of the new batteries or, in the case of Battery No. 1, the lack of development. The stone fort's armament had been reduced to six 24-pounder flank howitzers, three 10-inch mortars, and two 8-inch mortars. "New Battery" mounted sixteen 15-inch cannons, one 11-inch converted rifle, four 8-inch converted rifles, and one 20-inch cannon. The mortar battery had four 13-inch mortars, and Battery No. 1 was empty (Gillespie 1891).

As time and technology progressed, so did the way man made war, and in the last decade of the nineteenth century, Fort Hamilton experienced another period of modernization. In 1891, Fort Hamilton acquired an additional fifty-six acres of land southwest of and adjoining the reservation (Gillespie 1891; n.a. 1892). The initial stage of this work, a modern concrete battery with disappearing guns, replaced the "New Battery." Twenty-five feet of concrete protected the guns, and over forty feet of concrete covered the magazine. The old magazines were converted to casemates for rapid-fire guns that protected the fort from an amphibious assault and the submarine mines of the Narrows (New York Engineer Office 1892). This modernization reached its peak in the early twentieth century when Fort Hamilton had eleven modern batteries defending the approach to the Narrows (n.a. 1925).

Once again, modern techniques of amphibious assault and aviation made the defenses of Fort Hamilton archaic. In World War I, Fort Hamilton installed two anti-aircraft guns. By World War II, all of the seacoast guns had been removed, and replaced with three-inch and .50 caliber guns for use against enemy aircraft (U.S. Engineer Office, New York 1918; Headquarters, Second Corps Area 1941).

During the Second World War, Fort Hamilton was part of the New York Port of Embarkation. Units and individuals replacements assembled at Fort Hamilton before going overseas. Fort Hamilton later served as a reception center for troops returning from the European Theater. At this time many of the temporary buildings needed at the beginning of hostilities were replaced by permanent structures. In 1949, Fort Hamilton became a Class I installation whose primary mission was the movement of military personnel and dependents to and from overseas stations (Army Service Forces 1945b; Headquarters, Fort Hamilton 1955a).

The last major construction program at Fort Hamilton occurred in the late 1950's and early 1960's. The Triborough Bridge and Tunnel Authority began to build the Verrazano-Narrows Bridge, connecting Staten Island and Brooklyn. The bridge greatly altered the military's presence at the Narrows. Portions of Fort Hamilton were transferred to the authority, and the facilities on this land had to be replaced elsewhere on the post. Much of this construction required the demolition of the turn of the century batteries on the fort. The bridge was completed in 1964 (*Fort Hamilton Post* 1960a, 1960b, 1961; Assistant Secretary of Defense for Installations and Logistics 1973).

Fort Hamilton continues to be an important administrative Army facility. At times, Fort Hamilton's responsibility included its sub-installations Forts Totten, Tilden and Hancock, Miller Army Airfield, and Bellmore Support Maintenance Activity. Fort Hamilton had sixty-nine tenants and satellites, and it supported thirty-four

reserve centers and nineteen Reserve Officer Training Corps (ROTC) units. The importance of Fort Hamilton's mission continues to grow as more military facilities in the New York Metropolitan Area close (Assistant Secretary of Defense for Installations and Logistics 1973).

4.2 ORDNANCE AND EXPLOSIVE/CHEMICAL WARFARE MATERIAL CONCERNS

4.2.1 ARMAMENT AT FORT HAMILTON

Researchers found evidence of the following types of coastal defense artillery at Fort Hamilton. Most of the information comes from the fort's annual reports (n.a. 1864a, 1866, 1918, 1925; Newton 1867a, 1867b; Engineer Office 1879; Gillespie 1891; Chief of Engineers 1913).

By weight:
- 42-pounders
- 32-pounders
- 24-pounder flank howitzers
- 6-pounder field guns

By size:
- 8-inch seacoast howitzer
- 20-inch
- 15-inch
- 11-inch converted rifles
- 8-inch converted rifles
- 4.7-inch Armstrong guns

Mortars:
- 10-inch
- 13-inch
- 8-inch

The following is the armament for the batteries constructed at the beginning of the twentieth century (n.a. 1918, 1925).

Piper: 12-inch mortars
Doubleday: 12-inch
Brown: 12-inch
Neary: 12-inch
Gillmore: 10-inch
Spear: 10-inch
Burke: 6-inch

Livingston: 6-inch
Mendenhall: 6-inch
Johnson: 6-inch
Griffin: 3-inch

For anti-aircraft purposes (Headquarters, Second Corps Area 1941):

37mm (two located in Battery Piper)
3-inch batteries
.50 caliber machine guns

The field artillery weapons (n.a. 1892):

light 12-pounder
3-inch wrought iron guns
Gatling guns

Lastly, in the 1880's, an experimental gun was tested initially at Fort Hamilton before full-scale tests were run at Sandy Hook. This pneumatic gun used bursts of air to propel high explosives (American Torpedo Company 1884).

4.2.2 Target Ranges and Training Areas

According to a document from 1892, Fort Hamilton had a target range in the southeastern portion of the reservation. The range could accommodate 500-yard firing, but due to the proximity of civilian houses behind the backstop, firing was reduced to 300 yards. Artillery practice may have also occurred on the range. A field artillery unit at the post was equipped with one light 12-pound piece, four 3-inch wrought iron guns, and two Gatling guns (n.a. 1892). An inspection conducted in 1928 noted that Fort Hamilton possessed a 1000" range, but the soldiers had to use the more elaborate range at Camp Dix to fire for record (Second Corps Area Inspector 1928). In the 1930's, buildings 173, 174, and 175 were listed as rifle ranges (n.a. 1936, 1939). An "Annual Report of Construction and Repair" shows that Fort Hamilton had a "bore range" in 1941 (n.a. 1941). This range, which was converted into a small arms range at this time, may have been located in the abandoned Pit "A" of Battery Piper (Headquarters, Second Corps Area 1941). A 1968 report said that there was an indoor firing range in Building 402 along with bowling lanes and the gymnasium. The 1000" range had eight firing lanes (Fort Hamilton Complex c1968).

According to the inspection in 1928, mentioned above, the post also had a training area. It was used for close order drill, and was insufficient for any kind of tactical

training. An undated map showed a training field behind Battery Livingston (Second Corps Area Inspector 1928; n.a. n.d.a.)

4.2.3 MAGAZINES

Storage facilities existed for both the artillery rounds and the propellant in each of the fort's defenses, including the original fortress and its auxiliary batteries, and the modern batteries built at the turn of the century. In 1956, the use of Buildings 611 and 71 as small arms magazines was approved; these buildings had previously been supply rooms (69th AAA Battalion 1956). A 1968 report said that Building 234, the original ammunition magazine, was still being used for that purpose. However, denoted on several maps dated during the time frame of the report, is Building 232 which is currently being used for ammunition storage. Therefore, Building 234 mentioned in the report may be Building 232 (Fort Hamilton Complex 1968; First U.S. Army Engineer 1962).

4.2.4 CHEMICAL WARFARE MATERIAL

Research uncovered several references to the use or storage of chemical warfare material at Fort Hamilton. In 1923, unexpended chemical items from that summer's training schedule were stored at Fort Hamilton's Chemical Warfare Magazine. The documentation did not provide a building number for this magazine, and it could not be found on any Fort Hamilton maps consulted (Second Corps Area Chemical Officer 1923). In July 1929, a chemical demonstration was staged at Fort Hamilton. Twenty smoke substitute candles and four CN candles were expended. The officers of the 308th Infantry walked through the smoke cloud. A similar demonstration occurred in November as well (Headquarters, Second Corps Area, Chemical Warfare Office 1929a, 1929b). In 1929, the Chemical Warfare Magazine contained 400 smoke substitute candles, 400 CN candles, 288 CN hand grenades, and 288 CN rifle grenades (Headquarters, Second Corps Area, Chemical Warfare Office 1929c). Ten years later, the Second Corps Area Chemical Officer recommended that all of the chemical warfare reserves in the corps area be stored at Fort Hamilton because of the ease of surveillance and distribution afforded by that central location (Chemical Officer 1939). According to the finding aid at the History Office of the Chemical Biological Defense Command at Edgewood Arsenal, Fort Hamilton was the site of a chemical warfare school in March 1943. Over a two week period, this school taught hospital personnel the use of gas masks, decontamination, and field identification of chemical agents. For this training a gas chamber was set up in the old fort area. The primary source for this information, however, could not be located by the researchers or the office archivist (Chemical Warfare School 1944; History Office, CBDA n.d.)

4.2.5 FOUND MUNITIONS AND EOD INCIDENTS

Research uncovered only three references to EOD incidents at Fort Hamilton. In 1960, EOD personnel found an inert nose fuze (AN-M110A1) and two White Phosphorus grenades. The location for the grenades was the "new construction site." During this time period, Fort Hamilton was experiencing a great deal of construction due to the placement of the Verrazano-Narrows Bridge. Two years later, EOD recovered a variety of small arms and M80 firecrackers from the Provost Marshall on post (132nd Ordnance Detachment 1960a, 1960b; 66th Ordnance Detachment 1962).

4.3 INTERVIEWS

Summaries of interviews with personnel familiar with Fort Hamilton are included in APPENDIX C.

4.4 PHOTOGRAMMETRY AND MAPPING

4.4.1 MAP ANALYSIS

Copies of most of the following historical maps can be found in APPENDIX F.

n.a.
1864b "Redoubt," dated 10 September 1864

Locations and types of eight guns (24 pdr. cast 1829 mounted on wooden carriage front pintle) mounted on the Redoubt are denoted.

n.a.
1864a Drawing 40, Sheet 43, Fort Hamilton, dated 10 September 1864.

Locations and types of thirty-eight guns mounted at the Main Fort are denoted. The Guns listed consist of fourteen 24-pounder and twenty-two 32-pounder. Two locations denote, "All Ready for Gun and Carriages."

U.S. Engineer Office, New York
1892 "Sketch of Fort Hamilton, New York Harbor, consisting of Fort Hamilton, old fort; Battery No. 1; New Battery and Mortar Battery showing armament on April 1, 1892."

This sketch identifies the number, locations, and types of guns at the Old Fort, Battery No. 1, New Battery, and Mortar Battery. According to the sketch, the Old Fort consists of fifty gun locations, but only a few 24 pounder guns have been

mounted; Battery No. 1 consists of eight gun locations which are ready for 15-inch guns to be mounted; New Battery consists of twenty-eight gun locations and guns mounted ranging from 8-inch to 20-inch; and Mortar Battery consists of thirteen gun locations and mortars mounted ranging from 8-inch to 13-inch.

U.S. Army Corps of Engineers, New York
1905 "U.S. Government Land at Fort Hamilton, New York, compiled under the direction of Lt. Col. W.L. Marshall, Corps of Engineers, U.S.A., from previous maps and present data," dated 1905.

This map identifies the Redoubt and all Batteries (Burke, Johnson, Brown, Griffin, Gillmore, Piper, Neary, Doubleday, Livingston, and Mendenhall). Other buildings are shown, but are not labeled.

Commanding General, Second Engineer District
1918 "Fort Hamilton, New York, Proposed Locations of New Buildings," dated 31 October 1918.

The post is bound by Ft. Hamilton Parkway on the northwest, Gravesend Bay on the southwest, Warehouse Avenue on the southeast and Dahlgren Place on the northeast. The plan shows permanent and proposed buildings. Ordnance related features include the Redoubt and two permanent buildings; No. 71 - Ordnance Office and Store Room and No. 85 - Ordnance Shops. None of the Batteries are identified.

n.a.
1925 Map of Fort Hamilton, revised 17 April 1925.

All Batteries (Burke, Johnston, Brown, Griffin, Gillmore, Spear, Neary, Doubleday, Livingston, Mendenhall, and Piper) and the types of guns emplaced at each are identified. The Redoubt and two ordnance related structures, Building 17 - Maneuver Shed and Building 30 - Ordnance Office and Storehouse, are also identified.

U.S. Engineers, New York
1927 "U.S. Military Reservation, Fort Hamilton, New York, Filled Area at Easterly End of Reservation," dated 9 August 1927.

This map shows the southeastern portion of Fort Hamilton between Gravesend Bay and what is now McArthur Avenue. Batteries Piper, Wm. Neary, Doubleday, Manning Livingston, and John Mendenhall are denoted. Approximately 950 feet

north of Battery Mendenhall is an area where, "Filling to El. 258 in Progress," is noted. Located on the eastern edge of the installation is a marsh with the note "rubbish dump."

n.a.
1929 Map File No. B-42-13-1, dated 15 October 1929.

This contour map identifies all but two of the eleven Batteries; Livingston and Mendenhall. It also denotes that anti-aircraft guns have been installed at the Redoubt.

n.a.
1935 New York Harbor, Fort Hamilton, revised 15 March 1935.

All Batteries (Burke, Johnston, Brown, Griffin, Gillmore, Spear, Neary, Doubleday, Livingston, Mendenhall, and Piper) and the types of guns emplaced at each are identified. A note indicates that the anti-aircraft guns located at the Redoubt are being dismounted by Ordnance. One ordnance related structure, Building 30 - Ordnance Office and Storehouse, is also identified.

War Department
1949 Map identifying air raid shelters from box four, dated 04 November 1949.

This map is the same as above, except a hand written building schedule identifying the locations of Air Raid Shelters is denoted.

War Department
1950 War Department, Fort Hamilton, Post Engineers Office, "Casemates Located at Fort Hamilton," dated 23 April 1950.

The installation layout (streets and buildings) is depicted on this map. The buildings are numbered, but no legend identifies their use. Several buildings have been constructed and others have been razed. Buildings No. 71 and No. 85 are noted on the map. All eleven Batteries are denoted. OE related material may have been dumped near Denyse Wharf during loading/unloading operations. In the northern corner of the fort along Fort Hamilton Parkway, 2.5 acres of land is identified as "leased."

Department of the Army
1953 Department of the Army, Fort Hamilton, New York, "Post Map," dated 24 September 1953.

The installation layout (streets and buildings) is depicted on this map. The buildings are numbered, but no legend identifies the use. The Batteries are no longer denoted and Fort Hamilton Manor has replaced the Redoubt area. Notes on the lower right hand corner include, "Total Acreage: 160.5 acres," and "Leased: 8 acres."

U.S. Army Corps of Engineers

1956a Fort Hamilton, "Master Plan for Redevelopment, Scheme K, Master Plan Superimposed on Existing Facilities," dated 1 June 1956.

Depicted on this map are existing and converted permanent, existing temporary, demolished, and new buildings, real estate acquisitions, and outgrants. Also listed are a "New Schedule of Buildings" and a "Schedule of Existing Buildings." Identified on the new schedule is Building 232 - Ammo Storage. Identified on the existing schedule is Fort Ammo Storage and 619 - Range. This Range is located in the vicinity of the former Battery Piper. Historical documentation states that a small arms range was constructed in Pit A of Battery Piper. This may be the location of this range. The use of Building No. 85 has been changed to 'Provost Marshall.'

U.S. Army Corps of Engineers New York

1956b "Fort Hamilton, Basic Information, Reservation Boundary Map," dated 1 June 1956.

Identified on this map is land recommended for acquisition (15.48 acres), not recommended for acquisition (2.18 acres), no interest (8.48 acres), and land possibly obtained by Commerce Grant (9.18 acres). A Training Area is located east of Fort Hamilton Parkway. Shown on this training area is a baseball diamond. A Schedule of Metes and Bounds is located in the upper right hand corner. Below this is a description of the existing area at Fort Hamilton. The present usable area (June 1956) is stated to be 138.49 acres.

U.S. Army Corps of Engineers New York

1958 Fort Hamilton, "Master Plan for Redevelopment, General Site Plan," dated 09 January 1958.

Existing and converted permanent, existing temporary, and new buildings are depicted on this map. Listed on the Schedule of Buildings is Building No. 232 - Ammo Storage. It is located along the Narrows west of the Main Fort.

Fort Hamilton

1959 Department of the Army, Post Engineers Office, "General Site Plan, Scheme K-2," dated 19 February 1959.

This site plan consists of numbered buildings which correspond to the "Schedule of Buildings that are to Exist Upon Completion of Scheme K-2." Building No. 232 - Ammunition Bunker, is denoted on the map. According to the schedule, the building number on the Main Fort will change from No. 91 to No. 207 and be used for "Officers Mess."

Lorimer and Rose

1961 Fort Hamilton, "Electrical Gymnasium, Bldg No. 402, Plan & Details," dated 08 August 1961

Depicted on this map are a 1st Floor Plan and Basement Plan for Building No. 402. The Basement Plan includes a Bowling Alley adjacent to a Rifle Range.

First U.S. Army Engineer

1962 "Site Plan of Fort Hamilton, Brooklyn, New York," dated April 1962.

A building schedule and the Fort's boundary, roads, buildings and numbers are denoted. Building No. 232 - Ammo Storage, is the only ordnance related building identified. The Redoubt area has been converted to Fort Hamilton Manor high rise buildings.

Madigan-Hyland Engineers

1963 Fort Hamilton, "Alignment and Location Plan, Area 1," Triborough Bridge and Tunnel Authority Replacement of Facilities Displaced by the Narrows Bridge, dated 08 October 1963.

Existing buildings to remain and new buildings are identified. Building 232 - Ammunition Storage is also identified. The Main Fort is labeled, "Building No. 207 - Officers Club."

Lorimer and Rose

1963 Fort Hamilton, "Ammunition Bldg No. 232, Plan, Elevations, Sections & Details," dated 12 April 1963.

As the title suggests, plans, elevations, sections, and details of Building No. 232 are depicted on this map. Building 232 consists of 3 underground magazines.

Office of the New York District Engineer

1964 "Real Estate, Fort Hamilton - New York, (Military Reservation)," dated 27 August 1964.

Identified on this map is the boundary of Fort Hamilton, described in latitude, longitude, and feet. Also shown is the 17.10 acres transferred to the Veterans Administration on 4 October 1945. Another parcel, consisting of approximately 5 acres in the northeastern portion of the post, is pending disposal at this time. A three acre tract adjacent to the Shore Parkway was acquired from the State of New York in 1960. The City of New York deeded 10.82 acres adjacent to the southeastern portion of the installation to the Army in 1961.

U.S. Geological Survey

1981 The Narrows, New York-New Jersey Quadrangle, 7.5 Minute Series (topographic), dated 1966 edition, photorevised 1981.

The USGS quad shows both planimetric and topographic features. Fort Hamilton lies along the Hudson River on relatively flat terrain. Many buildings are located within the Fort boundaries.

U.S. Army Corps of Engineers, New York

1982 Fort Hamilton, New York, "Master Plan, Basic Information Maps, General Site Plan," dated 1 July 1982.

This site plan shows the layout of streets and buildings located within the boundaries of Fort Hamilton. Buildings are numbered, but no legend which identifies each building's use is listed.

U.S. Army Corps of Engineers New York

1988 Fort Hamilton, "Master Plan, Basic Information, General Site Map," dated 31 August 1988.

Permanent, semi-permanent, and temporary buildings, building numbers and street names within Fort Hamilton boundaries, are identified. However, there is no legend which lists each building's use. Also identified on the plan, are the boundaries of the water rights area Grant of 1812, the approximate boundary of the 1880 patent, and parcels A (Verrazano-Narrows Bridge and a portion of the Shore Parkway) and B (area adjacent to the sea wall) outgrant areas. Building No. 85 (historically listed as an Ordnance Shop and then Provost Marshall) has been changed to Building No. 237. The current use of this building is not listed.

Office of the Facility Engineer

n.d. Department of the Army, Headquarters New York Area Command, Office of the Facility Engineer, "Grimes Road Realignment and Parking Extension," undated.

Composite drawings of the installation in 1825 and 1946 are shown. A plan for a Traffic Island at the intersection of Lee Avenue and Grimes Road is also shown.

n.a.

n.d.a Map showing various batteries at Fort Hamilton, including the training area behind Battery Livingston, undated.

The Redoubt, several of the Batteries (Livingston, Doubleday, Brown, Griffin, and Johnson) and size of guns are denoted. North of Battery Livingston is a Training Field. The map also identifies, "Shore Road Extension Under Construction."

4.4.2 AERIAL PHOTO INTERPRETATION

Government and contractor personnel conducted an aerial photography search to find available imagery which covers the site. Generally, the search was limited to imagery with less than 1:24,000 scale and provided stereo viewing, but acquired others as needed. Photographic analysis and land use interpretation were performed using the following photographic sources:

PHOTOGRAPHY DATE	APPROXIMATE SCALE	SOURCE	FRAME IDENTIFIER(S)
23 March 1923	Oblique	ARCHIVES II	n/a
07 Dec 1944	1:9,000	NATIONAL ARCHIVES	Can # 4A854: 4M716 38 thru 41 4M716 82 thru 86 4M716 97 thru 100 4M716 140 thru 144
8 Jun 1953	1:23,500	NATIONAL ARCHIVES	C7515 9 thru 12 C7515 83 thru 86
18 Feb 1954	1:20,000	EROS	VB10 3-36 thru 38
22 Feb 1966	1:24,000	EROS	VBV 11-94 thru 95 VBV 14-22 thru 25
08 Apr 1994	1:40,000	ASCS	NAPP 8003-67

13 Mar 1995	1:40,000	ASCS	NAPP 8643-050

Photos were referenced using the 1:24,000 USGS The Narrows, New York-New Jersey Quadrangle, 7.5 Minute Series (topographic), dated 1966 edition, photorevised 1981, and historical maps listed in Section 4.4.1.

23 MARCH 1923 OBLIQUE AERIAL PHOTOS (COPIES ARE LOCATED IN APPENDIX E)**:** Five oblique aerial photos were analyzed. Each photo is of the northwestern corner of the installation, from different directions and angles. Features seen are the Main Fort, Redoubt, and Batteries Piper, Griffin, Spear, Gillmore, Brown, Johnson, and Burke. Each is identified on **PLATE 2**.

PLATE 2--07 DECEMBER 1944 AERIAL PHOTO: Batteries Manning Livingston and John Mendenhall **(1)**, Batteries Wm. Neary and Doubleday **(2)**, Batteries Spear and Gillmore **(3)**, Batteries John Brown, Abraham Johnson, and Burke **(4)**, Battery Griffin **(5)**, and Battery Piper **(6)** are identified and labeled as shown on the historical map titled, "Casemates Located at Fort Hamilton," dated 06 September 1947. Located west of Battery Griffin is Denyse Wharf **(7)**. Ordnance may have been dumped in this area during loading/unloading operations. Located along the west side of Grimes Road and identified on the historical map titled, "Fort Hamilton, New York, Proposed Locations of New Buildings," dated 31 October 1918 are Building No. 85 - Ordnance Shop **(8)** and Building No. 71 - Ordnance Office and Storehouse **(9)**. The Redoubt is also seen on these photos **(10)**. Located east of Batteries Livingston and Mendenhall is a small area approximately 40 feet wide containing four parallel lines which resemble a small arms or pistol range **(11)**. A Training Area **(12)** identified on the historical map with citation, n.a. n.d.a., is located near Battery Livingston in the southeastern portion of the installation. No ground disturbances were seen in this area. There were no other areas which indicated past ordnance activity may have occurred.

PLATE 3--08 JUNE 1953 AERIAL PHOTO: Three changes from the 1944 photos were seen on the 1953 aerial photography. The Redoubt has been replaced with Fort Hamilton Manor high rise buildings **(10)**. Four buildings **(13)** southwest of Batteries Neary, Doubleday, Livingston, and Mendenhall were constructed between 1944 and 1953. By this time, the Veterans Hospital has been constructed. All former buildings have been razed and replaced with one large building and three smaller buildings **(14)**. No other areas of possible OE usage was detected.

NO PLATE--18 FEBRUARY 1954 AERIAL PHOTO: There were no discernible changes seen compared to the 1953 photography.

PLATE 4--22 FEBRUARY 1966 AERIAL PHOTO: Many changes have occurred since 1953. All Gun Batteries have been razed and completely removed. No remnants remain. Building 232 - Ammunition Storage Building **(15)**, located on the historical map titled, "Site Plan of Fort Hamilton, Brooklyn, New York," dated April 1962, and Building 402 **(16)**, where an Indoor Rifle Range was located, are identified. New construction of barracks has occurred in the southern portion of the installation. Also, by the time of this photo, the Verrazano-Narrows Bridge and Interstate 278 have been constructed adjacent to the northwestern portion of the installation.

NO PLATE--04 SEPTEMBER 1994 AERIAL PHOTO: Not many changes have occurred since the previous photos. Trees are located around the buildings which were constructed in place of the Batteries.

PLATE 5--13 APRIL 1995 AERIAL PHOTO: There are no discernible changes from the 1994 photography. Locations of past ordnance related features are denoted on this plate.

5.0 SITE INSPECTION

The site inspection included only visual and non-intrusive methods of inspection. The team followed a site safety and health plan (SSHP) prohibiting digging or handling of potential OE/CWM. The SSHP defined standard operation procedures to ensure safety and to prevent accidents. APPENDIX G contains a copy of the SSHP. The inspection team consisting of Rochelle Ross (Team Leader) and Randy Fraser (Safety Officer), St. Louis District Corps of Engineers personnel, conducted a site survey of Fort Hamilton on 8 and 9 January 1998.

We arrived at Fort Hamilton in the afternoon of the 8th. After checking in with Peter Koutroubis and Andy Rupert, Public Works, we drove to the current ammunition magazine, Building 232. We then drove where the former batteries had been. Only a few guns exist. Housing is in the location of the former Batteries Mendenhall, Livingston, Doubleday, Neary, and Spear; tennis courts are in the location of Battery Gillmore; a childcare facility is in the location of Batteries Brown and Johnson; the location of Battery Burke is on FUDS property; and Shore Parkway is in the location of a portion of Battery Griffin. Hamilton Manor Housing was constructed in the former location of the Redoubt. Building 301 occupies the location of Battery Piper. Ammunition Storage Buildings 71, 85, and 611 no longer exist. Based on historical maps, it appears that the majority of "training field" in the southeastern portion of the installation is occupied by the VA Hospital (FUDS).

Per Peter and Andy, the VA Hospital was constructed in the early 1950's. The installation's current indoor range is located in Building 213. The indoor range in Building 402 is no longer in use.

No ordnance was found during the site inspection.

APPENDIX G contains a copy of the Site Inspection. APPENDIX D includes current site photographs.

6.0 TECHNICAL DATA OF ORDNANCE

6.1 TYPE OF ORDNANCE

Fort Hamilton has been an active coastal defense activity since 1825 and has been equipped with artillery of various sizes until the second World War. Below is listed the major armament which documentation indicated had been present. Every gun is not included, however, the size of the pieces present is represented.

6.1.1 GUNS PRESENT THROUGH THE 1800S

3-inch Gun
4 ½ -inch Siege Guns
15-inch Rodman
20-inch Rodman
12-Pounder
24-Pounder Field Howitzer
8-inch Siege Howitzer
10-inch Siege Mortar
13-inch Siege Mortars
8-inch Converted Rifles
Gatling Gun

6.1.2 GUNS PRESENT THROUGH THE 1900S

Caliber .50 Machineguns
37mm Guns
3-inch Anti-aircraft Guns, AAM1917
4.7-inch Armstrong Guns
6-inch Rapid Fire Guns
6-inch Guns, M1897, M1900, M1903
10-inch Guns, M1880, M1895, & M1888
12-inch Guns, M1888
12-inch Mortars

6.1.3 OTHER ITEMS

In addition to the mounted guns, a variety of Infantry style weapons should be assumed to have been present. This includes rifles, carbines, machineguns, pistols, revolvers, and shotguns. Documents also indicate hand and rifle Tear Gas and Irritant Smoke grenades and candles were stored at Fort Hamilton.

6.2 ORDNANCE FOUND ON THE INSTALLATION

Fuze, Bomb, AN-M110A1, (inert) Ammunition items designated as INERT have no explosive filler and are normally used for training and/or display.
Grenade, White Phosphorous, M15
Small-arms (no specifics as to the caliber of the ammunition were mentioned)
M80 Fireworks, commercial

6.3 DESCRIPTION OF ORDNANCE

The types of ordnance used and/or stored at Fort Hamilton are included in APPENDIX H - Ordnance Data Sheets.

6.4 REFERENCES

TM 9-1300-200, Ammunition General, October 1969
TM 9-1904, Ammunition Inspection Guide, March 1944
Department of Ordnance, Complete Round Chart, No 5981, December 1940
TM 9-1901, Artillery Ammunition, September 1950
TM 43-0001-28, Army Ammunition Data Sheets, Artillery Ammunition, April 1977
No. 2036, Service Markings of Ammunition and Ammunition Containers, 1929
NAVSEA OP 1664, U.S. Explosive Ordnance, 28 May 1947
West Point Text Book, "Ordnance and Gunnery", copyright 1907
U.S.N. Bomb Disposal School, Projectiles and Fuzes, April 1943
TM 43-0001-29, Ammunition Data Sheets for Grenades, October 1977
TM 3-300, Miscellaneous Chemical Munitions, March 1944
TM 3-330, Miscellaneous Chemical Munitions, March 1950
Army Extension Courses, Special Text No. 24, Defense Against Chemical Warfare, 1933
Heavy Artillery Projectiles of the Civil War, Kerksis & Dickey, copyright 1972
Cannons, an Introduction to Civil War Artillery, Thomas Dean, copyright 1985
Civil War Explosive Ordnance 1861-1865, U.S. Naval School, EOD, June 1972

7.0 AREAS OF INTEREST

Areas listed below are associated with past ordnance related activity. Locations of are denoted on PLATE 5--1995 AERIAL PHOTO. The number in parentheses corresponds to the number on the plate.

7.1 FORTIFICATIONS

7.1.1 THE OLD FORT

The cornerstone of Fort Hamilton was laid in 1825. In 1835, the defenses of Fort Hamilton consisted of fourteen 32-pounder cannons and forty other cannonades, encased in the fortress, and twenty-six 42-pounder pieces, twenty-two 32-pounder cannons and eight mortars, mounted on the roof (barbette) (Gilmore n.d.; n.a. 1892; Engineer Office 1879). By 1891, the stone fort's armament had been reduced to six 24-pounder flank howitzers, three 10-inch mortars, and two 8-inch mortars (Gillespie 1891).

7.1.2 BATTERIES (1 through 6)

After the Civil War, three batteries were constructed near the old fort. These were the "New Battery," Battery No. 1, and a Mortar Battery. "New Battery" mounted sixteen 15-inch cannons, one 11-inch converted rifle, four 8-inch converted rifles, and one 20-inch cannon. The mortar battery had four 13-inch mortars, and Battery No. 1 was empty (Gillespie 1891).

These three were replaced with more modern defenses in the early twentieth century. At this time, eleven batteries were constructed at Fort Hamilton. These were named Mendenhall, Livingston, Doubleday, Neary, Spear, Gillmore, Brown, Johnson, Burke, Griffin, and Piper. The armament of each battery consisted of 6-inch, 6-inch, 12-inch, 12-inch, 10-inch, 10-inch, 12-inch, 6-inch, 6-inch, 3-inch, and 12-inch mortars; respectively. By World War II, all seacoast guns had been removed and replaced with three-inch and .50 caliber guns for use against enemy aircraft.

According to aerial photo interpretation, all batteries had been removed by 1966.

7.1.3 REDOUBT (10)

In 1864, the armament at the Redoubt, a secondary defense fortification, consisted of eight 24-pounder guns. Historical maps indicate that anti-aircraft guns had been installed by 1929 and dismounted in the mid 1930's. According to aerial photos and

historical maps, the Redoubt had been replaced with Fort Hamilton Manor high rise buildings by 1953.

7.2 ORDNANCE RELATED BUILDINGS (8, 9, 15)

Each battery had its own storage facility. Storage facilities would have been used for both the artillery rounds and the propellant in each of the fort's defenses, including the original fortress and its auxiliary batteries, and the modern batteries built at the turn of the century. In 1956, the use of Buildings 611 and 71 as small arms magazines was approved; these buildings had previously been supply rooms (69th AAA Battalion 1956). Denoted on several historical maps is Building 85 which was used as an Ordnance Shop. On a 1925 map were Building 17, a Maneuver Shed, and Building 30, an Ordnance Office and Storehouse. Building 17 was only denoted on this particular map and was located just north of Battery Livingston.

A 1968 report said that Building 234, the original ammunition magazine, was still being used for that purpose. However, denoted on several maps dated during the time frame of the report, is Building 232 which is currently being used for ammunition storage. Therefore, the 1968 report may have a typographical error; and Building 234 should read Building 232 (Fort Hamilton Complex 1968; First U.S. Army Engineer 1962).

7.3 TRAINING AREAS AND RANGES (11, 12, 16)

7.3.1 TRAINING AREAS (12)

An inspection conducted in 1928 noted that the post had a training area. It was used for close order drill, and it was insufficient for any kind of tactical training. An undated map showed a training field behind Battery Livingston (Second Corps Area Inspector 1928; n.a. n.d.a.).

7.3.2 RANGES (11 AND 16)

Aerial photo interpretation identified four parallel lines which resemble a small arms range. Feature number 11 is denoted on the above referenced plate.

According to a document from 1892, Fort Hamilton had a target range in the southeastern portion of the reservation. The range could accommodate 500-yard firing, but due to the proximity of civilian houses behind the backstop, firing was reduced to 300 yards. Artillery practice may have also occurred on the range. A field artillery unit at the post was equipped with one light 12-pound piece, four 3-inch wrought iron guns, and two Gatling guns (n.a. 1892). The direction of artillery

firing would most likely have been toward the bay, away from the installation and surrounding community.

An inspection conducted in 1928 noted that Fort Hamilton possessed a 1000" range, but the soldiers had to use the more elaborate range at Camp Dix to fire for record (Second Corps Area Inspector 1928). In the 1930's, buildings 173, 174, and 175 were listed as rifle ranges (n.a. 1936, 1939). An "Annual Report of Construction and Repair" shows that Fort Hamilton had a "bore range" in 1941 (n.a. 1941). This range, which was converted into a small arms range at this time, may have been located in the abandoned Pit "A" of Battery Piper (Headquarters, Second Corps Area 1941).

A 1968 report said that there was an indoor firing range in Building 402 along with some bowling lanes and the gymnasium. This 1000" range had eight firing lanes (Fort Hamilton Complex 1968). Feature number 16 represents the location of Building 402.

According to personnel at the installation, an indoor range is currently located in Building 213, the Armory.

7.4 CHEMICAL WARFARE ACTIVITIES

Research uncovered several references to the use or storage of chemical warfare material at Fort Hamilton. In 1923, unexpended chemical items from that summer's training schedule were stored at Fort Hamilton's Chemical Warfare Magazine (location unknown) (Second Corps Area Chemical Officer 1923). In 1929, the Chemical Warfare Magazine contained 400 smoke substitute candles, 400 CN candles, 288 CN hand grenades, and 288 CN rifle grenades (Headquarters, Second Corps Area, Chemical Warfare Office 1929c). Ten years later, the Second Corps Area Chemical Officer recommended that all of the chemical warfare reserves in the corps area be stored at Fort Hamilton because of the ease of surveillance and distribution afforded by that central location (Chemical Officer 1939).

In July 1929, a chemical demonstration was staged at Fort Hamilton. Twenty smoke substitute candles and four CN candles were expended. The officers of the 308th Infantry walked through the smoke cloud. A similar demonstration occurred in November as well (Headquarters, Second Corps Area, Chemical Warfare Office 1929a, 1929b).

According to the finding aid at the History Office of the Chemical Biological Defense Command at Edgewood Arsenal, Fort Hamilton was the site of a chemical warfare school in March 1943. Over a two week period, this school taught hospital personnel the use of gas masks, decontamination, and field identification of

chemical agents. For this training a gas chamber was set up in the old fort area. The primary source for this information, however, could not be located by the researchers or the office archivist (Chemical Warfare School 1944; History Office, CBDA n.d.)

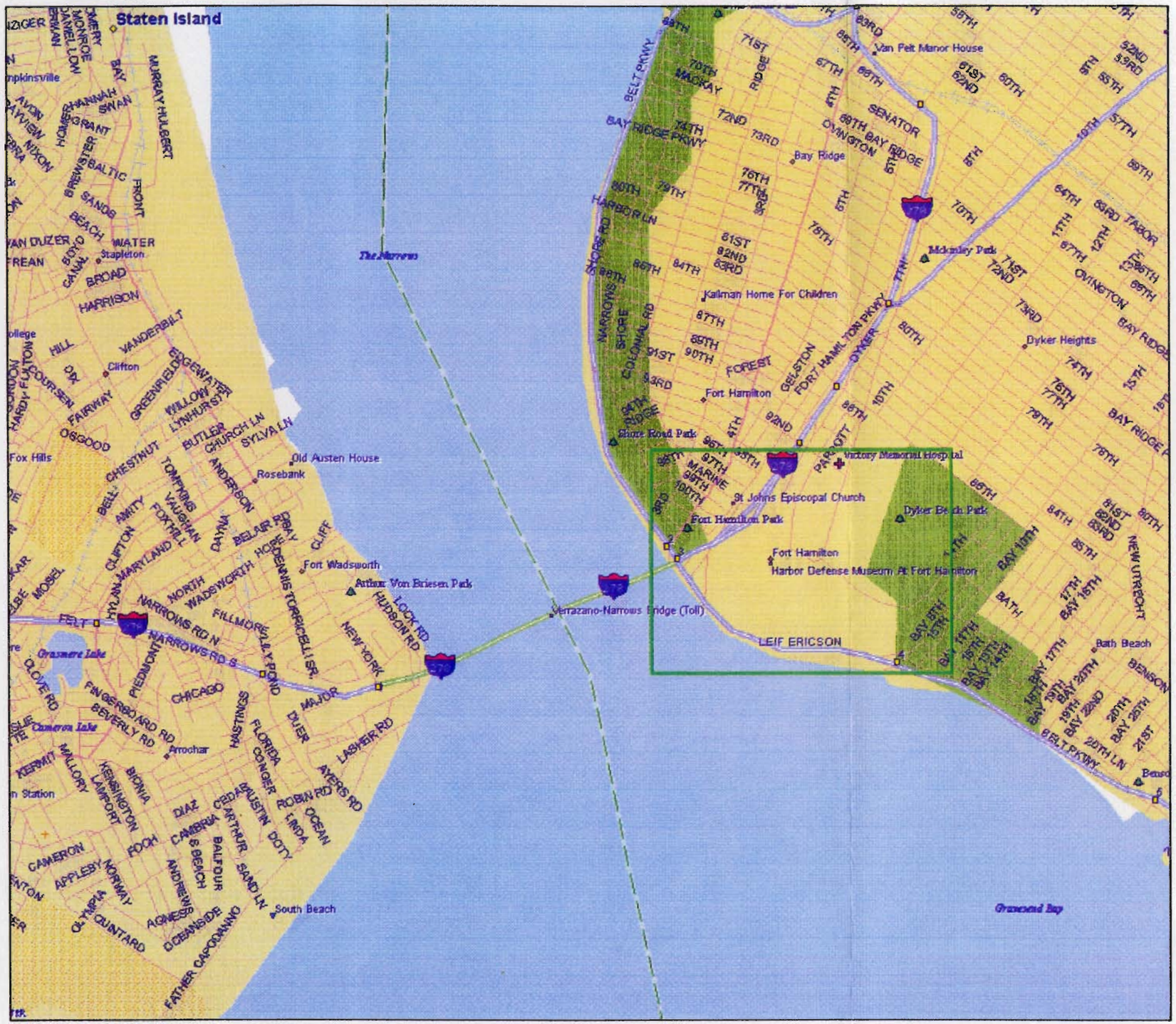
7.5 FOUND MUNITIONS

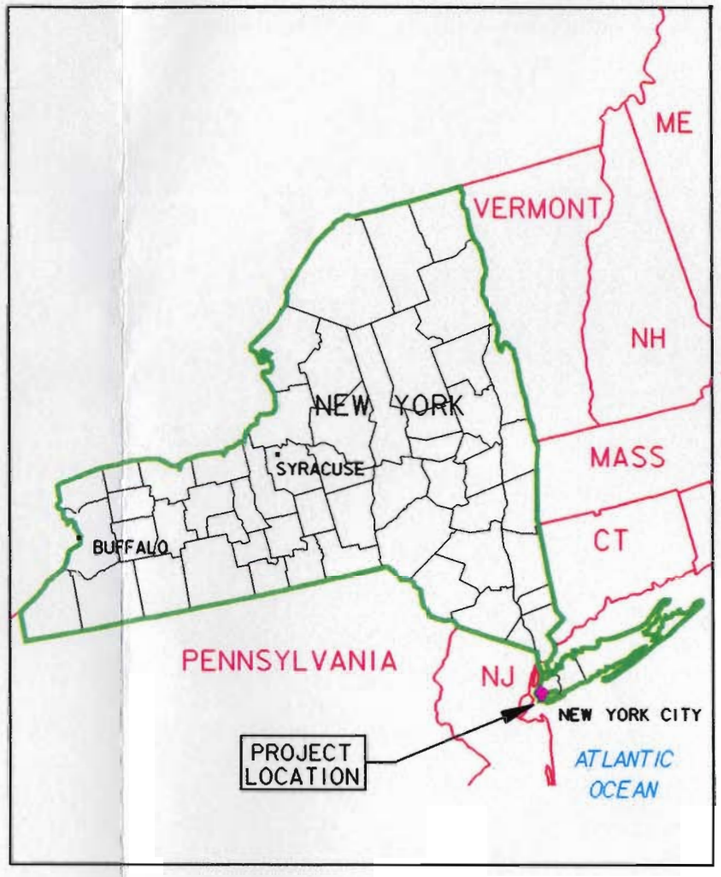
Research uncovered only three references to EOD incidents at Fort Hamilton. In 1960, EOD personnel found an inert nose fuze (AN-M110A1) and two White Phosphorus grenades. The location for the grenades was the "new construction site." During this time period, Fort Hamilton was experiencing a great deal of construction due to the placement of the Verrazano-Narrows Bridge. Two years later, EOD recovered a variety of small arms and M80 firecrackers from the Provost Marshall on post (132nd Ordnance Detachment 1960a, 1960b; 66th Ordnance Detachment 1962). The exact location of where these items were found is unknown.

REPORT PLATES

REPORT PLATES

PLATE	DESCRIPTION
1	VICINITY MAP
2	1944 AERIAL PHOTO
3	1953 AERIAL PHOTO
4	1966 AERIAL PHOTO
5	1995 AERIAL PHOTO





LEGEND

SITE LOCATION

N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

FORT HAMILTON
BROOKLYN BOROUGH, NEW YORK
KINGS COUNTY

VICINITY MAP

PROJ. DATE: JAN. 1998	DATE OF MAP: 1997	PLATE NO. 1
15-JAN-1998 12:27	n:\oew97b\nyork\sif\hamltn\map\hamvic.dgn	



KEY TO FEATURES:

FEATURE NUMBER	FEATURE DESCRIPTION
1	BATTERIES LIVINGSTON AND MENDENHALL
2	BATTERIES NEARY AND DOUBLEDAY
3	BATTERIES GILLMORE AND SPEAR
4	BATTERIES BURKE, JOHNSON AND BROWN
5	BATTERY GRIFFIN
6	BATTERY PIPER
7	DENYSE WHARF
8	ORDNANCE SHOP
9	ORDNANCE OFFICE AND STOREHOUSE
10	REDOUBT
11	FOUR PARALLEL LINES, RESEMBLES POSSIBLE SMALL ARMS RANGE
12	TRAINING AREA

LEGEND

- CURRENT BOUNDARY
- FEATURE LOCATION
- FORMER BOUNDARY

0 850 1700

APPROXIMATE SCALE IN FEET

N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

FORT HAMILTON
BROOKLYN BOROUGH, NEW YORK
KINGS COUNTY

1944 AERIAL PHOTO

PROJ. DATE: JAN. 1998	DATE OF PHOTO: 1944	PLATE NO. 2
20-JAN-1998 06:40	n:\oew97b\nyork\ai\ftham1n\photo\ftham44.dgn	



KEY TO FEATURES:

FEATURE NUMBER	FEATURE DESCRIPTION
10	REDOUBT HAS BEEN REPLACED BY HIGH RISE BUILDINGS
11	POSSIBLE PISTOL RANGE NO LONGER SEEN
13	FOUR NEW BUILDINGS, NCO QUARTERS
14	ALL BUILDINGS SEEN IN 1944 HAVE BEEN RAZED

LEGEND

- CURRENT BOUNDARY
- FEATURE LOCATION
- FORMER BOUNDARY

NOTE: FEATURE NUMBERS NOT LISTED INDICATE NO CHANGE FROM PREVIOUS PLATE

0 750 1500

APPROXIMATE SCALE IN FEET

N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

FORT HAMILTON
BROOKLYN BOROUGH, NEW YORK
KINGS COUNTY

1953 AERIAL PHOTO

PROJ. DATE: JAN. 1998	DATE OF PHOTO: 1953	PLATE NO. 3
20-JAN-1998 09:12	re:\oew97b\nyork\is\ft\ham\fnsphoto\ft\ham53.dgn	



KEY TO FEATURES:

FEATURE NUMBER	FEATURE DESCRIPTION
1	BATTERIES LIVINGSTON AND MENDENHALL HAVE BEEN RAZED
2	BATTERIES NEARY AND DOUBLEDAY HAVE BEEN RAZED, NCO AND OFFICERS QUARTERS HAVE BEEN BUILT
3	BATTERIES GILLMORE AND SPEAR HAVE BEEN RAZED, OFFICERS QUARTERS HAVE BEEN BUILT
4	BATTERIES BURKE, JOHNSON AND BROWN HAVE BEEN RAZED
5	BATTERY GRIFFIN HAS BEEN RAZED
6	BATTERY PIPER HAS BEEN RAZED
15	AMMUNITION STORAGE; BUILDING NO. 232
16	INDOOR RIFLE RANGE; BUILDING NO. 402
17	NEW BARRACKS AREA

NOTE: FEATURE NUMBERS NOT LISTED INDICATE NO CHANGE FROM PREVIOUS PLATE

LEGEND

- CURRENT BOUNDARY
- FEATURE LOCATION
- FORMER BOUNDARY

0 900 1800

APPROXIMATE SCALE IN FEET

N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

FORT HAMILTON
BROOKLYN BOROUGH, NEW YORK
KINGS COUNTY

1966 AERIAL PHOTO

PROJ. DATE: JAN. 1998	DATE OF PHOTO: 1966	PLATE NO. 4
20-JAN-1998 06:32	rs:oew97b\nyork\gis\ftham\tm\photo\ftham66.dgn	



KEY TO FEATURES:

FEATURE NUMBER	FEATURE DESCRIPTION
1	LOCATION OF FORMER BATTERIES LIVINGSTON AND MENDENHALL
2	LOCATION OF FORMER BATTERIES NEARY AND DOUBLEDAY
3	LOCATION OF FORMER BATTERIES GILLMORE AND SPEAR
4	LOCATION OF FORMER BATTERIES BURKE, JOHNSON AND BROWN
5	LOCATION OF FORMER BATTERY GRIFFIN
6	LOCATION OF FORMER BATTERY PIPER
8	LOCATION OF FORMER ORDNANCE SHOP
9	LOCATION OF FORMER ORDNANCE OFFICE AND STOREHOUSE
10	REDOUBT HAS BEEN REPLACED BY HIGH RISE BUILDINGS
11	LOCATION OF FORMER POSSIBLE PISTOL RANGE
12	LOCATION OF FORMER TRAINING AREA
15	AMMUNITION STORAGE; BUILDING NO. 232
16	INDOOR RIFLE RANGE; BUILDING NO. 402

LEGEND

- CURRENT BOUNDARY
- FEATURE LOCATION
- FORMER BOUNDARY

0 800 1600

APPROXIMATE SCALE IN FEET

N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

FORT HAMILTON
BROOKLYN BOROUGH, NEW YORK
KINGS COUNTY

1995 AERIAL PHOTO

PROJ. DATE: JAN. 1998	DATE OF PHOTO: 1995	PLATE NO. 5
20-JAN-1998 09:16	n:\oew97b\nyork\st\fthamltn\photo\fthom95.dgn	

APPENDICES

A References/References Cited
B Acronyms
C Interviews
D Present Site Photographs
E Historical Photographs
F Historical Maps/Drawings
G Site Safety and Health Plan/Site Inspection Report
H Ordnance Data Sheets
I Report Distribution List

APPENDIX A

REFERENCES / REFERENCES CITED

REFERENCE DOCUMENTS

Acting Secretary of the Treasury.

1886 "Executive Document No. 216 of the 49th Congress, 1st Session. Record Group 77; Entry 802; Box 29. National Archive-North Atlantic Region, New York, NY.

American Torpedo Company.

1884 Correspondence to Major General Winfield S. Hancock, dated 24 April, regarding the testing of the pneumatic gun. Record Group 77; Entry 64; Box 62; File: 335. National Archives I, Washington D. C.

Army Service Forces.

1945a Correspondence to Commanding General, Second Service Command, dated 09 May, regarding post-war construction at Fort Hamilton. Record Group 77; Entry 1011; Box 453; File: 600.1 Fort Hamilton. National Archives II, College Park, MD.

1945b Memorandum for the Chief of Engineers, dated 25 May, regarding the future development of Fort Hamilton. Record Group 77; Entry 1011; Box 453; File: 600.1 Fort Hamilton. National Archives II, College Park, MD.

Artes, John.

1975 Memorandum for Record, dated 14 April, regarding historical information on Fort Hamilton, circa 1778. File: Revolutionary War, Harbor Defense Museum, Fort Hamilton, NY.

Assistant Secretary of Defense for Installations and Logistics.

1973 "Installation Survey Report," dated 11 October, for Forts Hamilton and Wadsworth, and Bellmore Maintenance Activity. Record Group 429; Entry 12; Box 36; File: Fort Hamilton. National Archives II, College Park, MD.

Bardenhagen, C. T.

1958a Correspondence to Commanding Officer, Fort Totten, dated 25 March, regarding logistical support of Fort Hamilton Army Reserve Training Center. Accession: 338-62B-4083; Box 1 of 1; File: Letters of Satellization Plan. National Personnel Records Center, St. Louis, MO.

1958b Correspondence, dated 23 April, regarding match weapons. Accession: 338-62B-4083; Box 1 of 1; File: 474 Small Arms. National Personnel Records Center, St. Louis, MO.

Becker, Joseph.

n.d. Sketch of the experimental dynamite gun tests. File: Photographs (Xerox), Harbor Defense Museum, Fort Hamilton, NY.

Benhaur, H. W.

1882 "Annual Report of Operations at Fort Hamilton and additional batteries, NY for the year ending June 30, 1882." Record Group 77; Entry 64; Box 53; File: 450. National Archives I, Washington D. C.

Board Of Engineers.

1871 Correspondence to Chief of Engineers, dated 02 August regarding the batteries at Fort Hamilton. Record Group 77; Entry 64; Box 3; File: 507. National Archives I, Washington D.C.

Chemical Officer.

1939 Interoffice Reference Sheet for correspondence regarding chemical munitions for protection of plants and other facilities. Record Group 394; Entry 40; Box 2; File: Emergency Supply of CW Munitions. National Archives I, Washington D. C.

Chemical Warfare School.

1944 "Defense Against Chemical Attack," dated March. History Office, U. S. Army Chemical and Biological Defense Agency, Edgewood Arsenal, MD.

Chief of Engineers.

1913 Correspondence to New York District Engineer, dated 27 June, regarding the removal of armament. Record Group 77; Entry 802; Box 28; File 14. National Archives-North Atlantic Region, New York, NY.

Chief, Chemical Warfare Service.

1931 Correspondence to Chief of Ordnance, dated 10 January, regarding emergency reserve of ordnance ammunition. Record Group 394; Entry 40; Box 2; File: Emergency Supply of CW Munitions. National Archives I, Washington D. C.

Chief of Ordnance.

1905a Correspondence to Major Abbot, dated 25 September, regarding 6-inch guns. Record Group 77; Entry 829; Box 26. National Archives-North Atlantic Region, New York, NY.

1905b Correspondence to Major Abbot, dated 29 November, regarding invoices for guns at Fort Hamilton. Record Group 77; Entry 829; Box 26. National Archives-North Atlantic Region, New York, NY.

Commanding General, Second Engineer District.

1918 Map: "Fort Hamilton, New York, Proposed Locations of New Buildings," dated 31 October. Record Group 77; Entry 802; Box 28; File: Fort Hamilton #10. National Archives-North Atlantic Region, New York, NY.

Corps of Engineers.

1884 "Annual Report for Fort Hamilton and additional batteries," dated 30 June. Record Group 77; Entry 64; Box 64; File: 611. National Archives I, Washington D. C.

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1873b Correspondence to Chief of Engineers, dated 06 December, regarding the "new battery." Record Group 77; Entry 762; Volume 3. National Archives-North Atlantic Region, New York, NY.

1874 Correspondence to Chief of Engineers, dated 01 August, regarding the completion of magazines at Fort Hamilton. Record Group 77; Entry 762; Volume 3. National Archives- North Atlantic Region, New York, NY.

1885a Correspondence to General John Newton, dated 20 March, conveying a report on Fort Hamilton. Record Group 77; Entry 64; Box 68; File: 280. National Archives I, Washington D. C.

1885b Correspondence to General John Newton, dated 08 May, conveying a report on Fort Hamilton. Record Group 77; Entry 64; Box 69; File: 500. National Archives I, Washington D. C.

1885c Correspondence to General John Newton, dated 19 September, conveying a report on Fort Hamilton. Record Group 77; Entry 64; Box 73; File: 959. National Archives I, Washington D. C.

1892 Map: "Sketch of Fort Hamilton, New York Harbor, consisting of Fort Hamilton, old fort; Battery No. 1; New Battery and Mortar Battery, showing armament on April 1, 1892." Record Group 77; Fortifications File; Drawer 250, Sheet 13-14. Cartographic Branch, National Archives II, College Park, MD.

1895 Correspondence to the Quartermaster General, dated 29 October, requesting shipment of one 10-inch seacoast rifle from Sandy Hook. Record Group 77; Entry 811; Volume 3. National Archives-North Atlantic Region, New York, NY.

1918 Correspondence to Chief of Engineers, dated 10 September, regarding the installation of anti-aircraft guns at Fort Hamilton. Record Group 77; Entry 1003; Box 93; File: 660.282 NY Harbor Defense. National Archives I, Washington D. C.

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U. S. Engineer Office, Third District.

1925 Correspondence to Commanding Officer, Coast Defenses of Southern New York, dated 16 February. Record Group 77; Entry 802; Box 26; File 2. National Archives-North Atlantic Region, New York, NY.

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Watervliet Arsenal.

1905a Correspondence to Lt. Col. William L. Marshall, dated 21 September, regarding the shipment of guns to Fort Hamilton. Record Group 77; Entry 829; Box 26. National Archives-North Atlantic Region, New York, NY.

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REFERENCES CITED

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1941 "Annual Report of Construction and Repair, FY ending June 30, 1941." Record Group 77; Entry 393; Box 74; File: Fort Hamilton, 1 of 7. National Archives I, Washington D. C.

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New York Engineer Office.

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132nd Ordnance Detachment.

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1928 Correspondence to Commanding General, Second Corps Area, dated 23 April, concerning the annual inspection of Fort Hamilton. Record Group 92; Entry 1891; Box 724; File: 333.1 Fort Hamilton (1924-1928). National Archives I, Washington D. C.

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1956 Correspondence to Commanding Officer, Fort Hamilton, dated 23 October, regarding the storage of ammunition. Accession 338-60B-6016; Box 1 of 1; File: 471 Ammunition 1956. National Personnel Records Center, St. Louis, MO.

66th Ordnance Detachment.

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U. S. Engineer Office, New York.

1918 Correspondence to Chief of Engineers, dated 10 September, regarding the installation of anti-aircraft guns at Fort Hamilton. Record Group 77; Entry 1003; Box 93; File: 660.282 NY Harbor Defense. National Archives I, Washington D. C.

American Torpedo Company.

Correspondence to Major General Winfield S. Hancock,
dated 24 April 1884,
regarding the testing of the pneumatic gun.
Record Group 77; Entry 64; Box 62; File: 335.
National Archives I, Washington D. C.

Copy 335 – F. – 1884.

New York.
April 24. 1884.

Winsor,
N. D.,
American Torpedo Co.,

In connection with the experiments being made with the Pneumatic Gun at Fort Hamilton, requests permission to continue the experiments at Fort Lafayette preparatory to submitting the gun for trial at Sandy Hook.

See 361 F. 1884.

original returned to A. G., May 6. 1884.

SOURCE: National Archives I
RG: 77
SERIES: Entry 64
BOX: 62
FOLDER: document # 335

H. D. Wilson,
G. D. Roberts,
J. M. H. Patrick,
H. L. Taylor.

Office of
American Torpedo Co.
157 Broadway,
P. O. Box 352, New York, April 24th, 1884.

Major Genl Winfield S. Hancock,
Governors Island,
New York Harbor.

Sir:

I have the honor to state that the ballistic experiments with the Pneumatic Gun at Fort Hamilton for throwing the higher explosives have progressed favorably.

I have been limited in the pressure used to 500 lbs. per square inch, but am about to secure the necessary boilers and engine to work with pressures up to 2000 lbs. per square inch.

I desire to continue the experiments with the higher pressures for the ballistic elements, and also ascertain by careful graduated experiments the modifications necessary, if any, to ensure throwing safely the higher explosives. I wish to perfect all details before submitting the Gun for trials at Sandy Hook.

I am therefore desirous of obtaining permission to occupy Fort Lafayette, and if this is granted I will move the entire plant of guns, and compressor over there. I propose placing a thin layer of the explosive to be used in the projectiles, and subject them to gradually increasing pressures until the maximum has been attained with safety.

A number of different modifications are feasible should it be found by the experiments that the present arrange-

ments are not the best. This can only be ascertained experimentally, and I wish the opportunity for this before submitting the gun for trial at Sandy Hook. There is no powder or explosives stored at Fort Lafayette, in fact no property of any kind. The Gun will be manipulated by automatic valves, and accident of any kind is almost impossible. The isolation of Fort Lafayette, the accessibility to my machine shop and place of business, the convenience for Lieutenant V. L. Lalinske who is in charge of the experiments are special reasons why the work should be finished there, which can be done in a few weeks time.

Very Respectfully,
Your obedient servant,
(Signed) H. O. Wilson

1st Indorsement.

April 30, 1884. Referred to Comdg. Officer, Fort Hamilton,

2d Indorsement.

May 1, 1884. Returned by Col. John Hamilton, Comdg. Fort Hamilton, to A.A.G. Hdqrs. Dept. of the East. Knows of no objection to use of Fort Lafayette for the purpose: no large dangerous amount of explosives shall be accumulated there, Govt. not responsible for accidents to interested parties, Visitors take their own risk. Would like to see the experiments conducted, for benefit of self and command.

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3d Indorsement.

May 2, 1884. Forwarded for consideration of higher authority, by Gen. Hancock.

4th " Indorsement.

May 5, 1884. Referred to Chief of Engrs. by Adj. Gen.

Army Service Forces.

Memorandum for the Chief of Engineers,
dated 25 May 1945,
regarding the future development of Fort Hamilton.
Record Group 77; Entry 1011; Box 453; File: 600.1 Fort Hamilton.
National Archives II, College Park, MD.

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DECLASSIFIED
Authority NNA 9447556
By CP NARA Date 11/17

ARMY SERVICE FORCES
OFFICE OF THE CHIEF OF TRANSPORTATION
WASHINGTON 25, D. C.

25 MAY 1945

SPTOF-BC 600.1

130370

MEMORANDUM FOR CHIEF OF ENGINEERS:

SUBJECT: Permanent Development, Fort Hamilton, New York.

1. Reference is made to your letter to this office, 15 May 1945, file SPEEP (15 May 1945) subject: "Permanent Construction at Installations Chosen for Post-war Retention," and to informal conference 16 May 1945, attended by representatives of this and your office, during which the post-war development of Fort Hamilton, New York, was discussed.

2. The New York Port of Embarkation, of which Fort Hamilton is a part, is a permanent port of embarkation. During the present emergency, operating personnel of the Port have been housed at Fort Hamilton and and in leased facilities in the vicinity of the Port Terminals. In addition, Fort Hamilton has been utilized for the staging of units and casuals bound overseas. At the termination of the present emergency, the leased facilities in New York will be vacated. It is proposed to then utilize Fort Hamilton for the housing of Port personnel and as a Staging Area or Overseas Discharge and Replacement Depot. Consequently, there will be a permanent need for this installation.

3. Existing facilities at Fort Hamilton are not suitable or readily adaptable for a permanent Army installation. Types of construction vary from permanent to mobilization and a combination of both. Facilities are not advantageously located, on the basis of post-war requirements, for efficient or economical operation. The solution is a completely new installation based on future operations without regard for existing facilities, the majority of which will have outlived their usefulness.

4. Tab #1, attached, outlines the personnel who, it is contemplated, will be housed at this installation, or for whom provisions should be made, in connection with staging requirements. The Tab also includes a list of facilities which, in the opinion of this office, should be made available.

5. It is considered that construction of Fort Hamilton as a post-war project is justified by the needs of the New York Port of Embarkation and that the development is necessary in order that the Port may accomplish its mission efficiently and economically.

NARA-College Park
RG 77
E 1011
B 453
F 600.1 Fort Hamilton

file
6/7/45

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By CW NARA Date 11/17

TAB I

130370

I. Personnel.

	Off.	W/O	E.M. 1st 3 Grs.	E.M.
Operating, including station comp.	45	5	15	135
TC Units	6	2	20	330
Service Units	10		5	45
Staging	300		300	3500
Totals	361	7	340	4010

II. General.

Facilities to be provided to be predicated on requirements of personnel indicated above. Existing War Department construction criteria to be used in determination of needs. Construction to be permanent type.

III. Housing and Related Facilities.

a. Administrative.

Post Headquarters
OD & RD Headquarters

b. Housing - Officers.

Commander (Port)
Family Quarters (for all officers and warrant officers, except those being staged) *
BOQ - for 75% of officers being staged
Officers Club and Mess - for 100% of all officer personnel.

c. Housing - EM (1st 3 grades).

Family Quarters - for all E.M., 1st 3 grades, shown in Section I, except those being staged
NCO Club - for proper percent of total E.M.
NCO Quarters - transient (BOQ type) - for 75% of those being staged

d. Housing - E.M.

Post Barracks - for all E.M. except those being staged
1 Mess - 510 capacity
OD & RD Barracks - for all E.M. to be staged (to include 20 class rooms for 50 men each and unit storehouse)
1 Mess - consolidated - 3500 capacity - design for partial use
1 Band Barracks

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Tab I (Continued)

e. Recreation.

130379

1 Gymnasium - all purpose
1 Library
1 Post Exchange (include civilian mess)
1 Chapel
1 Theater - 650 seats
1 Service Club
1 Guest House **

f. Warehousing.

At 8 sq.ft. per man, plus salvage warehouse.

g. Storehousing.

PX Storehouse
Unit Storehouses - post - locate near post barracks
Unit Storehouses - CD & RD - in barracks building

h. Special Buildings.

1 C & E Shop
1 Infirmary - CD & RD area***
1 Dental Clinic - CD & RD area***
1 Guard House
1 Fire Station
1 Post Office
1 Processing and Med. Exam. Building (to be located with hospital group)
1 Photo Laboratory
1 Telephone Building
1 Signal Building - radio, telegraph, teletype

i. Service Facilities.

1 Central Heating Plant
1 Incinerator
1 Laundry
1 Bakery - Bread and Pastry
1 Cold Storage Plant, including meat cutting room
1 Sales Commissary

j. Motor Park Facilities - 50 Vehicles.

1 Repair Shop
1 Oil House
1 Wash Rack

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1 Grease Rack
1 Dispatcher's Office
1 Rec. Room for Drivers
Gasoline tanks
Pumps and nozzles

130370

k. Miscellaneous Facilities.

1 Flag Pole
1 Parade Ground - to include polo field

l. Hospital Facilities.

Complete, bed size based on policy of OSG

m. Post Engineer Facilities.

1 Utility Office
1 Utility Shop
1 Carpenter Shop
1 Lumber Shed
1 Plumbing Shed
1 Paint Shop
1 Electric Shop
1 Equipment Shed
1 Storehouse
Fencing

n. General Utilities.

Grading and Drainage
Roads and Parking
Water, electricity, and sewer systems
Coal Storage
Dump

o. Stabling.

1 Stable (48 animals) including Vet. Office
1 Blacksmith Shop
1 Hay and Grain Shed
1 Corral

Notes:

* In providing of family quarters, consideration is to be given the construction of apartment type facilities.

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Tab I (Continued)

130270

Notes:

** Guest House to provide for 150 families of 4 persons each. Structure should be complete, including bedrooms, dining rooms and lounges for both officers and enlisted men. Provision to be made also for finance officer, and baggage checking and handling.

*** In addition to similar facilities in hospital.

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Incl 1 (Continued)

130370

TAB II

I. Personnel.

	Off.	W/O	E.M. 1st 3 Grs.	E.M.
Operating and trainers	67	8	8	67
OCS and Enlisted Spec.				250
Truck Units				300
Trainees				800
Totals	67	8	8	1417

II. Housing.

Barracks, messes and attendant facilities to provide adequately for the above personnel.

III. Training Facilities.

1 Shed for storage of cranes, fork lifts, etc., including repair shop
1 Training ship - at Brooklyn Army Base Terminal
Berths for 20 boats - various sizes - at Brooklyn Army Base Terminal
Parking for 20 Dukws
1 Field House for winter training
1 Gas chamber
1 Obstacle course
1 Bayonet course
1 Consolidated building to provide:
Class rooms
1 Welding shop
1 Rigging shop
1 Blacksmith shop
1 Automotive shop
1 Carpenter and cooper shop
Harbor Craft School
Amphibian Truck School

Assistant Secretary of Defense for Installations and Logistics.

"Installation Survey Report,"
dated 11 October 1973,
for Forts Hamilton and Wadsworth, and Bellmore Maintenance Activity.
Record Group 429; Entry 12; Box 36; File: Fort Hamilton.
National Archives II, College Park, MD.

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DEPARTMENT OF DEFENSE

Dated 11 October 1973

EXECUTIVE ORDER [redacted] 11724

INSTALLATION SURVEY REPORT

FORT HAMILTON AND FORT WADSWORTH
NEW YORK, NEW YORK
BELLMORE SUPPORT MAINTENANCE
ACTIVITY
LONG ISLAND, NEW YORK

OFFICE, ASSISTANT SECRETARY OF DEFENSE
FOR INSTALLATIONS AND LOGISTICS

NARA-College Park
RG429
E 12
B 36
F Ft Hamilton

FOR OFFICIAL USE ONLY

E.O. 12356 Determined

SECTION III

AREA DATA AND VICINITY MAP

LOCATION

Fort Hamilton, comprising 177 acres, is located in the Borough of Brooklyn, city of New York, New York. (See Section X, Tab A.)

Fort Wadsworth, comprising 226 acres, is located in the Borough of Richmond, city of New York, New York.

Bellmore Support Maintenance Activity, comprising 16 acres, is located in Nassau County, Long Island, New York.

COMMUNITY DATA

Borough of Brooklyn population in the 1970 census was 2,627,319, which was a one percent increase over the 1960 census of 2,601,852. Brooklyn is one of the five boroughs of New York City and is the largest in population. The borough is located in the southeastern part of the city. Brooklyn is primarily residential in nature, and the land area surrounding Fort Hamilton adheres to the basic pattern. The installation, overlooking lower New York harbor, is located at the east end of the Verrazano Bridge which connects the boroughs of Brooklyn and Richmond. At the other end of the bridge is Fort Wadsworth. The land used for the bridge approaches on both sides is an easement to the city of New York from the Department of the Army. The other boroughs of New York

City, with their respective 1970 populations are as follows: Bronx, 1,472,216; Manhattan, 1,524,541; Queens, 1,973,708; and Richmond, 295,443.

Borough of Richmond population in the 1970 census was 295,443, which was a 33 percent increase over the 1960 census of 221,991. Richmond is one of the five boroughs of New York City and is the smallest in population. The borough is located in the southwestern part of the city. Richmond is primarily residential in nature, and the land area surrounding Fort Wadsworth adheres to the basic pattern. The installation, overlooking lower New York harbor, is located at the west end of the Verrazano Bridge.

Nassau County population in the 1970 census was 1,428,838, which was a nine percent increase over the 1960 census of 1,300,171. Bellmore Support Maintenance Activity is located in the south central part of Nassau County, approximately 30 miles east of Fort Hamilton. The area surrounding the activity is residential.

WEATHER AND CLIMATE

The climate in the general area of all installations is sunny and moderate. The average annual rainfall is about 45 inches and the average annual snowfall is about 30 inches. Temperature ranges from an approximate low of five degrees in winter to an approximate high of 95 degrees in summer. The area is a temperate climate with four distinct seasons.

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TRANSPORTATION

Public transportation to Fort Hamilton is provided by New York City subway trains and buses. The nearest subway station is approximately seven city blocks from the installation entrance. The nearest bus stop is approximately one-half a city block from one of the installation entrances. Modern highway connections direct to the installation are available through the Belt Parkway, the Brooklyn-Queens Expressway and the Verrazano Bridge. There are three commercial airports, which are served by all major airlines, which can be used in travel to and from the installation. These are John F. Kennedy International, La Guardia, and Newark, New Jersey.

The Borough of Richmond is an island and is connected to the State of New Jersey by three bridges: the Goethels, the Outerbridge Crossing, and the Bayonne. It is also connected to the Borough of Brooklyn by a fourth bridge, the Verrazano. Public transportation to Richmond and within the borough is provided by New York City surface transportation (rail and bus) and by New York City ferries. However, public transportation direct to Fort Wadsworth is only provided by bus. Highway connections direct to the installation are available over modern roadways leading to and from the aforementioned four bridges. The installation is also accessible from the three major airports: Newark, Kennedy, and LaGuardia.

Bellmore Support Maintenance Activity is not easily accessible by public transportation. The nearest train connection (Long Island Railroad) is

(2) Impro
(3) Date I
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approximately two miles away and is not supported by a bus service. The nearest train connection supported by bus service is seven miles away at Hempstead. Modern highway connections to the activity are available via Southern State Parkway and Sunrise Highway. These highway connections can be used in travel to and from two major airports, Kennedy and LaGuardia.

PARKS AND RECREATION AREAS

The following local parks and recreational areas are located near Fort Hamilton: Dyker Beach Park, Dyker Beach Golf Course, Bensonhurst Park, Dreier-Offerman Park, Coney Island Amusement Area, New York Aquarium, Owls Head Park, Prospect Park, Marine Park and Sunset Park. The major state parks and recreational areas within a 100 mile radius of the complex are at Section X, Tab B.

Local parks and recreational areas located near Fort Wadsworth are as follows: Silver Lake Park, Clove Lakes Park, South Beach Park, Richmond County Country Club, Brady's Park and Great Kills Park.

Local parks and recreational areas located near the Bellmore Maintenance Support Activity are as follows: Nassau County Park, Hempstead Town Park, Point Lookout Park, Cantiague Park and Roosevelt Raceway.

TENANTS

Fort Hamilton

Chaplain School
Armed Forces Examination and Entrance Station
United States Army Criminal Investigation Detachment
U.S. Army Reserve Center

(2) Improvements

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Fort Wadsworth

2nd Base Post Office

Veterinarian Field Office

Recruiting Main Station

United States Army Advisor Group

Bellmore Maintenance Support Activity

None

INSTALLATION DATA

Fort Hamilton is under the command of Headquarters First U.S. Army located at Fort George G. Meade, Maryland. The installation is presently comprised of 177 acres, with an initial acquisition cost of $312,000. Of this total acreage, the installation utilizes 117 acres. The balance is utilized as follows: New York City Triborough Bridge and Tunnel Authority (TBTA), Easement, 37 acres, for Verrazano-Narrows Bridge approaches; three acres, buffer zone, New York City, for Belt Parkway; Denyse Wharf, 16 acres, being reverted to New York State, and four acres being excessed. (See Section X, Tab C.)

There are 85 buildings, of which 76 are permanent, one semi-permanent, and eight temporary. Family housing consists of 703 units in 24 buildings serving 2,460 dependents.

Adequate utilities are assured by 34,385 linear feet of electric distribution lines, 3,200 linear feet of steam lines, 17,500 linear feet

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of gas distribution lines, 43,352 linear feet of sewage lines, and 40,219 linear feet of potable water distribution lines, and seven miles of communication lines. In addition, there are five miles of improved roads.

The total acquisition cost of the land and all improvements thereon is $23,373,600.

Fort Wadsworth is a sub-installation of Fort Hamilton. The installation is comprised of 226 acres, at an acquisition cost of $1,033,800. Of this total acreage, the installation contains 200 usable acres. The balance of 26 acres is utilized by the city of New York on easement for approaches to the Verrazano-Narrows Bridge. (See Section X, Tab C.)

There are 132 buildings, of which 122 are permanent, and 10 are temporary. Family housing consists of 116 units in 53 buildings serving 406 dependents. Adequate utilities are assured by 28,514 linear feet of electric distribution lines, 6,160 linear feet of gas distribution lines, 19,376 linear feet of sewage lines, 34,100 linear feet of potable water distribution lines, and 15 miles of communication lines. In addition, there are four miles of improved roads.

The total acquisition cost of the land and all improvements thereon is $23,645,500.

Bellmore Support Maintenance Activity is under the jurisdiction of Fort Hamilton with the responsibility for maintenance and supply functions. The activity is comprised of 16 acres, at an acquisition cost of $32,000.

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Of this total acreage, the activity utilizes 15 acres. The remaining one acre is on license to Northeast Region Civil Air Patrol to operate a radio transmitter. (See Section X, Tab C.)

There are eight buildings, all of which are permanent type. Adequate utilities are assured by 2,490 linear feet of electric distribution lines, 1,170 linear feet of gas distribution lines, 2,845 linear feet of sewage lines and septic tank, 5,875 linear feet of potable water distribution lines, and 150 linear feet of steam lines, and approximately one mile of communication lines. In addition to the above, there is one mile of improved roads.

The total acquisition cost of the land and all improvements thereon is $2,515,000.

IMPROVEMENTS

Fort Hamilton

Approved/Under Construction

The existing facilities are being augmented by the following approved and funded construction projects:

Project		Cost
FY 70	Separation of Sanitary and Storm Sewer	$1,225,000
FY 71	Rehab and Install Air Conditioning and Electric Wiring, Bldg. 111	260,000
FY 71	Upgrade and Air Condition EM Barracks, Bldg 407	380,000
FY 72	Alterations Noncommissioned Officers Club	108,000
FY 72	Replace Refrigerator Equipment Commissary	241,000
	Total	$2,214,000

(2) Improvements

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In addition, the installation has planned improvements for Fiscal Year 1973 through Fiscal Year 1979, which total approximately $4,434,000.

Fort Wadsworth

Approved/Under Construction

The existing facilities are being augmented by the following approved and funded construction project:

Project	Cost
FY 73 Upgrade Administration Bldg. 210	$290,000

In addition, the installation has planned improvements for Fiscal Year 1973 through Fiscal Year 1979, which total approximately $1,493,000.

There are no construction projects underway at Bellmore Maintenance Support Activity or planned for the next five years.

LAND DISPOSAL

Fort Hamilton is in the process of releasing approximately 20 acres of land, 16 acres to be reverted to New York State, and four acres to be excessed. (See Section X, Tab C.)

There is no land disposal contemplated for Fort Wadsworth or Bellmore Maintenance Support Activity.

INSTALLATION POPULATION

The following is a compilation of assigned personnel for Fort Hamilton headquarters and installation support activity, all assigned tenant activities, and nonappropriated fund personnel:

(2) Improvements

(3) Date Determ...

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Activity	Officer	Enlisted	Civilian Permanent	Civilian Temporary	Totals
U.S. Army Garrison	60	322	557	31	970
563rd Military Police Company	5	60	0	0	65
Armed Forces Postal Office	0	89	0	0	89
109th Military Intelligence Group	2	10	1	0	13
Armed Forces Examination and Entrance Station	7	36	39	0	82
Chaplain School *	47	63	36	0	146
U.S. Army Reserve Center (USAR) **	1	2	13	1	17
Health & Dental Clinics	19	24	29	0	72
Family Housing	238	465	0	0	703
Dependents	0	0	2,460	0	2,460
Nonappropriated Funds	0	0	104	157	261
Totals	379	1,071	3,239	189	4,878

* The average student load is 172 officers and enlisted personnel.

** Approximately 955 reservists utilize the USAR Center each month.

Fort Wadsworth

Activity	Officer	Enlisted	Civilian Permanent	Civilian Temporary	Totals
U.S. Army Garrison	3	146	72	1	222
26th Army Band	2	15	0	0	17
563rd Military Police Company	3	14	0	0	17
Dental Clinic	1	2	0	0	3
Recruiting Main Station	6	21	8	0	35

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Fort Wadsworth (Cont'd)

Activity	Officer	Enlisted	Civilian Permanent	Civilian Temporary	Totals
U.S. Army Advisor Group	4	6	5	0	15
Coast Guard	0	2	0	0	2
Veterinary Field Office	1	1	1	0	3
2nd Base Post Office	4	43	0	0	47
Family Housing	47	69	0	0	116
Dependents	0	0	406	0	406
Nonappropriated Funds	0	0	21	28	49
Totals	71	319	513	29	932

In addition to the above figures, the new Reserve Center, which will open in May of this year, will be utilized by approximately 1,000 reservists each month.

Bellmore Maintenance Support Facility

Activity	Officer	Enlisted	Civilian Permanent	Civilian Temporary	Totals
U.S. Army Garrison	1	4	154	2	161
563rd Military Police Company	0	4	0	0	4
Totals	1	8	154	2	165

COMMUNITY SUPPORT

The facilities of Fort Hamilton are used by various local, state and federal government agencies as well as local civic groups. For example, the National Guard of New Jersey and New York, the ROTC, U.S. Naval

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Reserve, U.S. Air Force Reserve, Boy Scouts, Rod and Gun Clubs utilize the indoor range and outdoor field facilities and during inclement weather, use the gymnasium.

At Fort Wadsworth, the Explorer Program of the Boy Scouts of America receive instruction in the veterinarian facilities. Youths belonging to the Police Athletic League utilize the gym facilities. Patients from a local hospital use the gym and arts and crafts facilities.

Bellmore Maintenance Support Facility is not utilized for any community activities other than the Civil Air Patrol radio transmitter.

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SECTION IV

HISTORY

Fort Hamilton

Fort Hamilton, New York, New York is one of the oldest of the historically significant permanent Army Posts in the country.

Not long after Giovanni da Verrazano, the explorer sailing under the French flag in 1524, set eyes on the site that is now Fort Hamilton, the Nyack Indians engaged in building a "long-house" for protection at a place about fifty yards within the present main gate. Hudson arrived nearly a century later and took possession for the Dutch. In 1652 the Dutch West India Company acquired title to the land on the east shore of the harbor, including the present site of Fort Hamilton, from the Nyack Indians. They transferred their patent to Cornelius Van Werckhoven, who in 1657 turned it over to Jacques Cortelyou. He proceeded to lay out the town of New Utrecht. A blockhouse was built to protect this new community against Indians, smugglers, and pirates. With this move the present Post began to take shape.

In 1663 the blockhouse fell to the English when John Shott, a resident of New Amsterdam, seized the fortification, fired one of his guns and proclaimed his Britannic Majesty, Charles the Second, lawful sovereign of New Utrecht. In response to this signal, four

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galleys bearing 450 British troops dropped anchor and then demanded that Governor Peter Stuyvesant surrender. Signalized by a single shot on the site of Fort Hamilton, the Dutch Colony of New Netherlands became the English colony of New York.

Two small fortifications were built to cover the Narrows in 1773. In 1776 General Henry Knox (later Major General and Secretary of War) assumed command of the fortifications with two 12-pounders. He opened fire on Lord Howe's British forces, in the Narrows and "His Majesty's Ship Asia" was sunk. The British forces, having landed on Staten Island, crossed the Narrows and took the fortifications as a prelude to the Battle of Long Island.

In the years following the Revolution this site remained a factor in military planning for the United States. In 1819 Army and Navy officials drew plans for the construction of a suitable post. Funds were appropriated by Congress and on June 11, 1825 the corner stone was laid for a new fort. Today this original construction houses the Officers' Open Mess. In 1825 the fort was officially established as a part of the inner defense fortification of the New York Harbor. The original tract consisted of 181 acres at an initial acquisition cost of $312,045.00.

The military value of Fort Hamilton continued to be a subject of much interest. From 1841 to 1848 Captain Robert E. Lee (later Commanding General, Confederate States of America) was Fort Hamilton's Post Engineer, occupying the quarters about 200 yards northeast of the

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Officers' Open Mess at the intersection of Lee and Schum Avenues, Quarters 117. Other individuals to become prominent in American history who have had duty at this station are Thomas "Stonewall" Jackson (1849) and Major General (then Lieutenant) Abner Doubleday, the founder of American baseball.

In 1938 the installation was named Fort Hamilton by General Orders Number 2, War Department, in honor of Alexander Hamilton, first Secretary of the Treasury.

During World War I and World War II, Fort Hamilton continued its role as an important military post. Countless numbers of American troops were sent to European battle zones through this station to serve their country. A considerable number of United Nations troops also went forth from here. Included in these United Nations troops were many from the British Empire. In March of 1945, Department of Army transferred 17 acres of Fort Hamilton land to the Veterans Administration. Between the years 1960 and 1962 the State of New York donated 14 acres to Fort Hamilton at no cost to the Department of Army. Thus, when construction of the Verrazano-Narrows Bridge commenced the fort consisted of 177 acres. As a result of the bridge construction a vast reconstruction program at Fort Hamilton was inaugurated.

In 1962, the United States Army Chaplain School moved to Fort Hamilton.

On August 23, 1965, Department of the Army, General Order Number 28, effective August 1, 1965, Fort Wadsworth was redesignated a

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subinstallation of Fort Hamilton. This was the beginning of the "Fort Hamilton Complex" concept, and was later followed by the redesignation of Forts Totten, Tilden, Hancock, Miller Army Airfield and the Fillmore Support Maintenance Activity as subinstallations. In addition, Fort Hamilton provides various forms of support to approximately 69 tenant and satellite activities, as Army Air Defense Command (ARADCOM) units, 34 U.S. Army Reserve Centers, 19 Reserve Officer Training Corps (ROTC) units and 51 other units or agencies by interservice and intraservice agreements. In addition, the recent Department of the Army Reorganization Plans affecting the metropolitan New York area has resulted in the assignment to Fort Hamilton of all the residual missions formerly connected with other posts.

Fort Wadsworth

Fort Wadsworth, New York, New York, is one of the oldest of the historically significant permanent Army post in the country. At the beginning (1847), the installation was known as Fort Richmond, and later as Fort Tompkins. In 1865 the fort received its present name Fort Wadsworth by General Orders, Number 161, Headquarters of the Army, Adjutant General Office, in honor of Brigadier General James S. Wadsworth, United States Army.

For 300 years Fort Wadsworth has looked to the sea. Its guns were trained on the Narrows, defending the approaches to New York Harbor and the vast industrial complex that lies at the water's edge. This defensive mission was basically the same in 1636, when a couple of men

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SECTION V

MISSION

MISSION OF FORT HAMILTON

To provide administrative and logistical support to the tenant units, all First U.S. Army units and activities and United States Army Air Defense Command units, and for 32,500 troops and approximately 500 troop program units at 57 U.S. Army Reserve Centers in the states of New York and New Jersey. In addition to the support mission, Fort Hamilton provides command, training and operation maintenance of assigned units and activities and as directed, prepares, coordinates and implements emergency, mobilization and local defense plans.

FORT HAMILTON TENANT MISSIONS

U.S. Army Chaplain School (USACHS)

To provide resident and nonresident education, training and administration for selected military Chaplains (Military Occupational Specialty 001) and Enlisted Chaplain Assistants (Military Occupation Specialty 71M) from all components and services of the armed forces. USACHS also provides for the administration and training of a staff and faculty composed of active duty and Reserve component personnel assigned or attached.

Armed Forces Examination and Entrance Station (AFEES)

The Armed Forces Examining and Entrance Station is a military installation established by the Assistant Secretary of Defense (Manpower) and under

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control of the Commanding General, U.S. Army Recruiting Command, through the Recruiting District Commander. Its primary responsibilities are to:

B

Conduct mental and medical examinations and determine moral, mental and medical qualifications of applicants; allocate, process and ship applicants to reception or duty station.

C

109th Military Intelligence Group

As a field element of Region V, 109th Military Intelligence Group, the Brooklyn Field Office is responsible for the conduct of counter-intelligence (CI) functions within the area of responsibility, which includes the boroughs of Brooklyn, Queens, and Staten Island. The CI functions performed are: Personnel Security Investigation, Security Services, liaison with counterparts of federal, state and local agencies and providing CI support for military installations and units as requested.

D

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VI

Fort Hamilton U.S. Army Reserve Center (USAR)

Fort Hamilton USAR Center provides: training facilities, supply, storage, administrative and maintenance space for ten USAR units with assigned strength of 1,050 reservists.

VII

MISSION OF FORT WADSWORTH

VIII

To provide administrative and logistical support, as directed by the Commanding General, Fort Hamilton, to the tenant units and family housing occupants at Fort Wadsworth.

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SECTION VII

DISCUSSION

FORT HAMILTON

Fort Hamilton provides command, training, operation and maintenance of all assigned units and activities, to include those assigned to Fort Hamilton and its sub-installations and activities. It also provides administrative and logistical support to the tenant units and activities, to include 1,427 family housing units, and to all Regular Army, Army Air Defense Command, Army Reserve and Reserve Officer Training Corps units and activities located in the assigned geographical area of responsibility. This area includes the five boroughs of New York City and other geographic areas specifically assigned in the states of New York, New Jersey and Connecticut.

The geologic history of the area indicates that Fort Hamilton is located in the Atlantic coastal plain. The coastal plain is not clearly apparent in the vicinity of New York City because it is exposed only beneath the ocean where it extends for 100 miles off shore to form the continental shelf. The rocks that constitute the plain have been buried by a drift overburden of unconsolidated earthy and stony material. This mantle is made of clay, sand, gravel and boulders, sometimes separated from one another but more often comingled in varying proportions. The later surface deposits are mostly of glacial origin and occur in two distinct

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topographic features. One is found in the high and irregular ridge of Long Island and Staten Island; the other is found in the frontal plain lying south and southwest of the ridge.

Despite the nearness of Fort Hamilton to the Atlantic Ocean, the climate resembles the continental type more closely than the maritime type. This is because the weather conditions affecting the area usually approach from the west, not from the ocean on the east. However, oceanic influence is not entirely absent. During the fall and winter months coastal storms accompanied by easterly winds may bring considerable amounts of wind, rain or snow.

The entire port of New York affords inland, coastal and ocean transportation for Fort Hamilton. The Hudson River provides an inland waterway to the north. Docks in New York and Brooklyn are equipped to handle foreign and domestic ships with drafts between 25 and 30 feet at mean low water. These facilities are also available to Fort Wadsworth.

The waters surrounding Fort Hamilton and Fort Wadsworth are subject to strong tidal currents. This condition plus the fact that raw sewage is emptied into these waters precludes their use except for transportation and docking facilities.

Fort Hamilton consists of 177 acres, of which 117 acres are being used. Fifty-two acres are used for family housing, 15 acres for troop housing, four acres for training, eight acres for recreation and 38 acres are

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ined for administrative purposes to include the U.S. Army Chaplain School. (See Section X, Tab D.)

The housing of families and troops uses the largest parcel of land on the post. A total of 67 acres is used for this purpose. Family housing is located in various areas throughout the post. The noncommissioned officers and officers family quarters, in the vicinity of Sterling Drive, command the most attractive locations due to their location overlooking the Narrows.

The two Wherry housing projects, permanent housing facilities, are situated as follows: Dayton (157 units), Fort Hamilton Parkway, between 92nd and 94th Streets; Fort Hamilton Manor (428 units), Poly Place and Battery Avenue. These projects provide housing for 585 families and became Government-owned on December 15, 1960. Officer family housing areas are located in the vicinity of Lee Avenue on the westerly side of the post. Included in this area is the General Robert E. Lee residence. This older family housing area is attractive due to the established tree cover, although the proximity of the Verrazano-Narrows Bridge approaches has detracted from the original "residential appearance" of this area. The excessing of Miller Field contains a requirement that the acquiring agency provide 20 new sets of quarters at a site selected by the Army. These are sited at Fort Hamilton.

Bachelor Officers Quarters (BOQ) area, located on Pence Street and White Avenue, is convenient to community and operational facilities and is

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adjacent to the Officers Mess in the Officers Club. Due to increased mission requirements, the BOQ area requires additional space. Open land for this purpose is available directly to the south of the present site, and a proposed 42 man BOQ has been approved by the Fort Hamilton Master Planning Board for submission to higher headquarters.

Enlisted personnel are billeted in two areas. Enlisted women quarters are located to the east of White Avenue, paralleling Battery Avenue. Enlisted men are housed in a permanent building situated on a site at the eastern end of the post, adjacent to the U.S. Army Chaplain School.

Four acres of the post are used for the Fort Hamilton U.S. Army Reserve (USAR) Center. This center provides supply, storage, administrative and maintenance space for ten USAR units. A training area, directly west of the parade ground and the Automotive Mechanic School (Building 313) provides training facilities for approximately 955 reservists each month.

Recreational/community activities utilize eight acres on Fort Hamilton. These activities include two swimming pools, a gymnasium, parade ground and the Post Exchange/Commissary complex.

Thirty-eight acres of the post are taken up by administrative functions, which includes the U.S. Army Chaplain School.

The parcel discussed below is depicted at Section X, Tab E-3.

(2) Improvements:

(3) Date D

There are fifty-two acres, identified as Parcel A (see Section X, Tab E-3), on Fort Hamilton that are not utilized and are not required to support any mission effort at the post. Parcel A is composed of three areas. The first area of 29 acres (northern portion) is outgranted to the city of New York for roads, streets and bridge purposes.

In a letter to the Secretary of Defense, dated November 8, 1954, the Triborough Bridge and Tunnel Authority requested that favorable consideration be given to the use of lands at Fort Hamilton and Fort Wadsworth for the construction of the Narrows Bridge and its approaches because of the nonfeasibility of constructing a bridge elsewhere, and because it could be effected without reducing the actual defense facilities of Fort Hamilton or Fort Wadsworth. Ground breaking for right of way clearing was begun August 13, 1959. Construction of the main bridge was begun on January 13, 1960. The bridge was completed November 21, 1964.

In late 1972 the Secretary of Defense announced Army reorganization plans which included moving the U.S. Army Chaplain School from Fort Hamilton to Fort Wadsworth. The move is scheduled to begin in early 1974. The movement of the Chaplain School from building 408, Fort Hamilton, into an area and building at Fort Wadsworth eliminated a potential U.S. Army Reserve (USAR) Center envisioned in the Metro Stationing plan for New York. Currently, the Commanding General, Fort Hamilton, is considering an as yet unfunded program to construct a new USAR Center on Fort Hamilton. The planned site for the new center is where buildings 109 and 110 now

(2) Improvements: _____

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[illegible]. (See Section X, Tab A). These buildings have been declared uneconomically repairable and are scheduled for demolition . The proposed USAR Center would also displace building 107 which is a World War II mess hall. The plan also invisions using about eight acres of land located under the Narrows Bridge (on bridge right-of-way), west of buildings 109, 110, 115 and 116 for a parking area for the USAR Center equipment pool and the proposed Commissary store and warehouse.

On this same area of 29 acres the city of New York, without permission or authority, has constructed a playground, a park and a Senior Citizens Center with parking area. These city facilities take up approximately one-half of the 29 acres.

The second area is a three acre easement outgranted to the city of New York for a buffer zone along the Shore Road and Shore Road extension on the south side of the post.

The third and last area of Parcel A is 20 acres of water rights and Denyse Wharf located on the southwest corner of the post. Four of these acres, those in the wharf area, are in the process of being excessed by Fort Hamilton. Sixteen acres of water rights are in the process of being reverted to the State of New York.

FORT WADSWORTH

Fort Wadsworth is situated in the northeast portion of Richmond County (Staten Island), New York, at the entrance to New York Harbor. More specifically, Fort Wadsworth is situated on the westerly shore of the

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(3) [illegible]: / /

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SECTION VIII

FINDINGS AND CONCLUSIONS

All land at Fort Hamilton, Fort Wadsworth, Bellmore Support Maintenance Activity is fully utilized in direct support of assigned missions and future programmed requirements, except for:

Fort Hamilton

Fifty-two acres, identified as Parcel A (see Section X, Tab E). This acreage is composed of three areas: 29 acres outgranted to the City of New York for roads, streets and bridge purposes; three acres outgranted to the City of New York for a buffer zone; 20 acres of water rights and Denyse Wharf which Fort Hamilton is in the process of excessing. This fee-owned land is not utilized and could be released.

Fort Wadsworth

Seventy-seven acres, identified as Parcels B, C and D (see Section X, Tab E). This acreage is made up of three areas: Parcel B, 26 acres outgranted to the City of New York for roads and bridge purposes; Parcel C, 32 acres of water front land which contains old fortifications; Parcel D, 19 acres water front land which contains the old Battery Weed and other old fortifications. This fee-owned land is underutilized and could be released.

The comments and recommendations of the General Services Administration representative during the on-site visit are contained in Section X, Tab F.

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NEW YORK MODEL VIDEOTAPE

SECTION IX

RELINQUISHED AREAS

There is one parcel of land at Fort Hamilton and three parcels of land at Fort Wadsworth totaling 129 acres of fee owned land (see Section X, Tabs E-3 and E-4) which could be released by the Department of Defense subject to restrictions required to protect the integrity of Army operations at Fort Hamilton and Fort Wadsworth, subject to normal screening procedures and also subject to the following conditions:

Fort Hamilton

Parcel A, 52 acres, could be released as soon as present negotiations with the city of New York have been concluded for the Army to obtain toll free use of the Verrazano Narrows Bridge, but in no event, later than January, 1975. The Army will also retain in fee the pump station number 231, ingress and egress thereto, and road right-of-way to 101st Street Main Gate to Fort Hamilton.

Fort Wadsworth

Parcel B, 26 acres, could be released immediately provided the Government retains the existing road right-of-ways under the Verrazano Narrows Bridge and that a new boundary fence be erected at no expense to the Army.

Parcel C, 32 acres, could be released immediately provided that a new boundary fence be erected at no expense to the Army and that the rights

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OUTGRANTS

Instrument	Grantee	Acres	Rental	Term From	Term To	Purpose
Lease	Army-Wherry	8.59 AC	0	9Mar50	8Mar2025	Land for Housing Project
Lease	Army-Wherry	5.63 AC	0	15Aug50	14Aug2025	Land for Housing Project
License	Daughters of American Revolution, National Society, Women of '76 Chapter	0	0	9Apr29	Indefinite	Boulder w/bronze marker
Easement	City of New York	strip of land 135' wide along entire water frontage of Reservation 3 ACRES.	0	10Jun27	Indefinite	R/W of extending a public highway known as the Shore Road in the Borough of Brooklyn, New York, on the land and land under water in and along the shore of The Narrows and Bay adjoining the Fort Hamilton Military Reservation, strip of land 135' wide along entire water frontage of Reservation.
Easement	City of New York	3,600 LF	0	23Nov36	Perpetual	Erect fence along R/W for Shore Road Extension and Landscape - a portion of Fort Hamilton Army Garrison.
Easement	New York, City of	2.41 acres.	0	1Apr70	12Apr2020	For installation, construction, operation repair, replacement and/or removal of sanitary sewer pipeline.

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G F E D

OUTGRANTS

Instrument	Grantee	Acres	Rental	Term From	Term To	Purpose
Easement	City of New York	36.95 AC	0	12Nov64	Perpetual	R/W for roads, street and bridge purposes over, across, in and upon lands of the United States and described as follows: All those certain lots, pieces, or parcels of land situate, lying and being in the County of Kings, City and State of New York, being a part of the Fort Hamilton Military Reservation and containing 36.95 AC of land more or less. This contract also covers outgrant at Fort Wadsworth, Installation No. 176
License	City of New York, Commissioner of Police	0	0	14Oct24	Indefinite	Police telephone service to the Fort Hamilton Dock (Denyse Wharf), Installation of a Police Signal box on iron fence adjacent to the dock.
Lease	Community National Bank	.[illegible] AC	$7,461.00	23Jun69	1Jun84	For conversion, improvement, use, operation & maintenance as a commercial branch bank building 401

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Chemical Officer.

Interoffice Reference Sheet for correspondence regarding chemical munitions
for protection of plants and other facilities,
dated 1939.
Record Group 394; Entry 40; Box 2; File: Emergency Supply of CW Munitions.
National Archives I, Washington D. C.

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SHEET #1

INTEROFFICE REFERENCE SHEET—SECOND CORPS AREA

AGO-39-60M

Chemical Officer — File CWS 300.6 (Confidential) CWS 471 (Confidential)

Chemical Munitions for use in Protection of Plants and other Facilities. — Suspend date .....

DECLASSIFIED E.O. 12958, Sec. 3.6 NND 760018 By mtd NARS, Date 11/17/11

Date	To	
1-13-39	1 CAOO 2 G-3 3 G-4 4 AG	) For remarks and recommendations) for signature
2 Incls.	1 Memo to G-3 2 Ltr to C.Oc.	A.G. C.A.C.O
1-24-39	G-3	1. The hand grenades referred to are Ordnance items and in the past distribution to Corps Area has been controlled by the War Department. In view of the numerous and sometimes uncoordinated actions which have been taken in the past by the Corps Area a thorough review of these actions is in order prior to again starting action. Previous action is summarized as briefly as possible in the following paragraphs. References to Puerto Rico have been omitted, both because the situation there was reviewed and adjusted within the past year and because the island is now a separate department.

November 14, 1933. (COO 471.6/105). The War Department authorized replacing a previous corps area reserve of 1,000 lachrymatory candles (CN) with 1,000 grenades, hand, tear, (CN) M-7. This is the first recorded appearance of the M-7 grenade in the Corps Area. No record of any change in this reserve can be found.

December 22, 1933. (COO 471.6/98-3). The War Department established a Corps Area reserve of 500 irritant CN-DM Grenades M-6. No record of any change in this reserve can be found.

2. The two actions indicated above give a definite starting point for cinsidering the two types of munitions under discussion. The Corps Area distribution at the time appears to have been as follows:

Post	CN M7	CN-DM M6
Jay	300	100
Wadsworth	100	100
Hamilton	200	100
Plattsburg	100	50
Madison Barracks	100	50
Ontario	100	50
Niagara	100	50

October-November 1934 (COO 471.6/122-5) This deals primarily

UNCLASSIFIED SECRET SECURITY ORDER SEC ARMY BY TAG PER 9KF 117

INSTRUCTIONS FOR USE

a. This sheet will remain attached to all papers bearing on this subject.
b. Additional sheets of this form only, will be added as required; blank additional sheets will not be used.
c. Each separate memo will be consecutively numbered, in space provided, to completion of action.
d. Full width of sheet will be employed with separating line drawn full width below each memo.
e. Official designation of officer authenticating memo will be shown in each case, e.g. G-1, A.G., etc.

INSTRUCTIONS.—When papers on a subject become numerous they will be numbered serially and other entries made

NARA-DC
RG 394
E40
D2
RG Emergency Supplement

REPRODUCED AT THE NATIONAL ARCHIVES

with special training recommended by the 1st Division in compliance with Corps Area orders. Final action by the War Department reads: "Moreover, the allowances prescribed in A.R. 775-10 provide in the aggregate considerably more of these grenades than the total requested. It would appear therefore that the personnel of the 1st Division must have already received training in the use of hand granades, or that the prescribed allowances are still available for that purpose."

January 21, 1935 (COO 353/146). Tables were submitted to the War Department showing possible requirements for riot equipment, which included among other things 7832 CN-M7 grenades and 3073 CN-DM M6 grenades in addition to stocks on hand in Corps Area. It was recommended that 300 of each type of grenade be placed in storage at Raritan Arsenal. The recommendation was not approved by the War Department. (Letter of May 6, 1935 COO 353/146-3). Regional storage at strategic points was stressed by the War Department.

September 23, 1936 (COO 471.6/138). This is a letter from the War Department which is related to the general subject but not relevant to the grenades under discussion. It states "The War Department no longer contemplates the maintenance of a corps area reserve supply of smoke munitions for use in the suppression of civil disturbances and no additional smoke munitions will be furnished for this purpose."

April 17, 1937 (COO 353/146-7). Commanding General over personal signature (McCoy) wrote War Department referring to the letter of January 21, 1935 and Disapproval of May 6, 1935 and renewed recommendations. Over the personal signature of the Acting A.G. (Burnett) there was a very definite turn down referring to past War Department action; also "Attention is invited to A.G. 400.231, dated April 22, 1937, which covers in general the current provisions for the subject purpose."

April 22, 1937 (COO 353/146-10). This is a War Department letter definitely stating War Department policy. Ther pertinent portion insofar as these grenades are concerned reads:

"2. There has been established in each corps area a corps area emergency reserve of chemical grenades (Ordnance issue) for emergency use within the corps area at the discretion of the corps area commander. The distribution and employment of these emergency reserves are limited only as follows:

"a. Distribution should not be general and in the nature of issue, but should be limited in future distribution to location in storage

INSTRUCTIONS.—When papers on a subject become numerous they will be numbered serially and brief entries made on this sheet.

REPRODUCED AT THE NATIONAL ARCHIVES

Chemical Munitions for use in Protection of Plants and other Facilities.

G-3 Cont'd from Sheet #2

at not to exceed three strategical points from which the most likely need and issue will be facilitated, the use controlled, and necessary surveillance accomplished."

"C. Issue, loan, or sale of these emergency reserves to State authorities will be only by specific authority of the War Department in each request."

No record can be found of corps area instructions at the time concentrating the corps area reserve in compliance with War Department instructions.

December 16, 1937 (COO 353/146-11). General McCoy (G-3 non concurring) again wrote the War Department along previous lines over his personal signature and requested that his letter be brought to the personal attention of the Chief of Staff. Reply was made January 14, 1938 (COO 353/146-12) over the personal signature of the A.G. (Conley) to the effect that "Your letter has been given careful study by the War Department and an increase in the reserve of chemical munitions now available to you is not favorably considered." Attention was infited to the previous correspondence.

Training: Annual allowances are sufficient to turn over the present authorized corps area reserve. If the reserve is concentrated per current War Department instructions, issue for training can be readily controlled to insure the old being used first and the reserve replenished with new stock.

Surveillance: These grenades are more liable to deterioation than any other Ordnance munition. Experience indicates that small quantities scattered about a corps area are rarely properly cared for and that serviceability is best insured by having them where they can be technically inspected by this Department at least twice a year.

Conclusions:

a. That the authorized corps area emergency reserve is 1,000 CN M-7 grenades and 500 CN-DM M-6 grenades. Any change therein requires War Department approval.

b. That there is a definite and fairly recent War Department policy that repeated (three recommendations for increases in reserves

INSTRUCTIONS.—When papers on a subject become numerous they will be numbered serially and brief entries made on

REPRODUCED AT THE NATIONAL ARCHIVES

C-3 Cont'd from Sheet #3

or changes in policy have been definitely disapproved by the War Department. The last disapproval was after the personal consideration of the Chief of Staff of the Army.

c. That the present War Department policy is sound and that there is no adequate reason for change.

d. That the present reserve is scattered about the corps area in violation of War Department instructions that the reserve be "at not to exceed three strategical points."

e. That the "necessary surveillance" required by War Department policy is difficult due to the above scattering.

Recommendations.

a. That this matter be not again taken up with the War Department.

b. That the present corps area reserve be concentrated in compliance with War Department instructions.

c. That the entire reserve (except possibly a portion at Fort Jay) be concentrated at Fort Hamilton. Fort Hamilton is recommended for the following reasons:

(1) It is a center from which distribution by air, water, or truck can easily be made. The nearby large commercial air fields would be particularly advantageous in case supplies were required at the more distant points in the Corps Area.

(2) It is near the Metropolitan Area.

(3) The chemical rifle grenades remaining in the Corps Area are already concentrated at Fort Hamilton.

(4) This Department can readily surveillance the grenades to insure that they are at all times fit for use.

d. That this office be directed to take necessary administrative action to concentrate the reserves.

L.B.M.
CA CO

2 Incl. n/c

INSTRUCTIONS.—When papers on a subject become numerous they will be numbered serially and office symbol

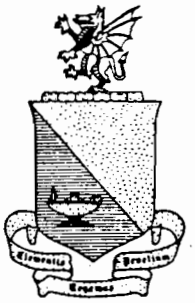
Chemical Warfare School.

"Defense Against Chemical Attack,"
dated March 1944.
History Office, U. S. Army Chemical and Biological Defense Agency,
Edgewood Arsenal, MD.

FM 21-40
Tentative
~~Restricted~~

Chemical Warfare Service
Basic Field Manual

Defense Against Chemical Attack



March 1944

For use at the Chemical Warfare School only

Army Service Forces
Chemical Warfare School
Edgewood Arsenal, Maryland

USACBDC-110
Edgewood Arsenal

Appendix I

Courses of Instruction in Chemical Defense

The programs outlined below are offered only as a general guide for the instruction of unit gas personnel. They cover a wide range of subject matter and include a suggested number of hours for each subject. The time, however, must be varied to meet particular conditions.

Unit Gas Officers' Course

The object of this course is to give instruction to unit gas officers so that they will be qualified to perform their duties.

SUBJECTS AND TIME:

(1)	Agents. Properties; application of elementary chemistry and physics; identification	9 hr.
(2)	General subjects. Course orientation; course summations; current applications; examination	4 hr.
(3)	Weapons and munitions. Chemical weapons; munitions; technique of releasing agents	6 hr.
(4)	Operations. Chemical service units; terrain appreciation; tactical employment; field exercises	8 hr.
(5)	Protection. Individual and collective; gas mask drill, inspection, and repair; physiological effects of combat gases and smokes; first aid; decontamination materials and methods	22 hr.
(6)	Training. Materials; methods; application exercises; conduct of unit training	8 hr.
(7)	Weather. Meteorology fundamentals; forecasting; effect upon agents	3 hr.
	Total	60 hr.

Chief of Engineers.

Correspondence to New York District Engineer,
dated 27 June 1913,
regarding the removal of armament.
Record Group 77; Entry 802; Box 28; File 14.
National Archives-North Atlantic Region, New York, NY.

U. S. ENGINEER OFFICE
NEW YORK DISTRICT No. 2
RECEIVED JUN 30 1913
Ham 14 13
EB-RWI

WAR DEPARTMENT.
OFFICE OF THE CHIEF OF ENGINEERS,
WASHINGTON.

90251

June 27, 1913.

From: The Chief of Engineers.

To: The District Engineer Officer, U. S. Engineer Office, SECOND DISTRICT, NEW YORK CITY.

Subject: Removal of armament.

1. The Chief of Staff has directed the dismounting and shipment to Honolulu, Hawaii, of two 4.7-inch Armstrong guns and carriages now at Fort Hamilton, N. Y.

2. You are requested to confer with the Coast Defense Commander with a view to rendering any needed assistance in connection with the removal and shipment of this armament. It is especially desired that you advise this office promptly, on completion of the work, whether the mounts are removed complete or whether any material such as anchor bolts must be replaced in mounting the guns elsewhere, giving a list of any parts that must be replaced.

By command of the Chief of Engineers:

Colonel, Corps of Engineers.

NARA-NYC
RG77
E 802
Box 28
File 14

Ham 14/14

SWR/TMM

WAR DEPARTMENT
UNITED STATES ENGINEER OFFICE
NEW YORK DISTRICT NO. 2
ROOM 707, ARMY BUILDING
NEW YORK, N. Y.

June 30, 1913.

U.S. ENGINEER OFFICE
NEW YORK
RECEIVED
Ham 14 14

From: The District Engineer Officer, SECOND DISTRICT, New York City.

To: The Commanding Officer, Coast Defenses Southern New York.

Subject: Removal of armament.

1. I am advised by the Chief of Engineers that the two 4.7-inch Armstrong guns and carriages now at Fort Hamilton are to be dismounted and shipped to Honolulu, Hawaii.

2. He has also requested me to confer with you with a view to rendering any special assistance required in connection with the removal and shipment of this armament.

3. It is very important that a careful check be made on every part of the mount so as to make sure that there will be nothing missing when they come to re-erect at Honolulu.

4. Kindly advise me what special assistance you may be in need of.

S. W. ROESSLER.

Colonel, Corps of Engineers.

U.S. Engineer Office, New York City.
Received JAN 7 1911
File Ham | Case 14 | No. 12

January 6, 1911.

The 4.7" rifle, BATTERY GRIFFIN, Fort Hamilton, originally numbered 9031 was found to bear the wrong number. The original number plate was changed and is now No. 9081. This information was furnished this office by Mr. Kennedy, Elec.Engineer, on this date.

A.L.DeMund

Clerk.

NARA-NYC
R677
Entry 802
Box 28
File 14

Fort Hamilton Complex.

"Analytical Report, Fort Hamilton and Fort Wadsworth,"
c1968.
Public Works Office, Fort Hamilton, NY.

Ft Hamilton NY
Environmental Office

Phase III

ANALYTICAL REPORT

FORT HAMILTON
BROOKLYN, NEW YORK

AND

FORT WADSWORTH
STATEN ISLAND, NEW YORK



FORT HAMILTON COMPLEX

ANALYTICAL REPORT

FORT HAMILTON COMPLEX

FORT HAMILTON
BROOKLYN, NEW YORK

FORT WADSWORTH
STATEN ISLAND, NEW YORK

TABLE OF CONTENTS

Section	Description	Page
I	General	
	Location and Description	1
	Mission	3
	Area Requirements	4
	Off-Post Housing	4
	Health Conditions	4
	Recreational Facilities	5
	General	5
II	Operational	7
	Firing Range	7
	Training Areas	7
	Magazine Storage Areas	7
III	Built-Up Cantonment Area	9
	Troop Housing Area	9
	Quarters Area	10
	Administrative Areas	11
	Community Areas	11
	Schools	15
	Recreation Areas	16
	Infirmaries and Dental Clinics	16
	Ordinance Storage Area	16
	Warehouse - Utility - Supply Area	17
IV	Transportation and Traffic Control	19
	Roads, Access and Interior	19
	Railroads	20
	Water Access	20
	Air Access	20
V	Utilities Systems	22
	Water System	22
	Gas System	22
	Storm and Sanitary Sewer System	22

SECTION II - OPERATIONAL

1. Firing Range

a. Fort Wadsworth

The outdoor range is located in the southeastern part of Fort Wadsworth, near the waterfront. The area is approximately 60 yards by 60 yards and consists of 17 firing points. Weapons authorized for use at this range are cal .22 rifle and pistol, cal. .30 carbine and cal .45 pistols. No plans, at the present time, are envisioned for any change to this area.

The indoor range is located in the basement of Bldg. No. 210, near the center of Fort Wadsworth and consists of 6 firing points. Weapons authorized for use at this range are cal. .22 rifle and pistol. There are no plans at the present time for any change to this area.

b. Fort Hamilton

The range facilities are located in the basement of Bldg. 402 and consist of a 1000" range with 8 firing points. It use is limited to .22 cal rifle and pistol. See Section III-6 Bldg. 402 for additional comments.

2. Training Areas

A reserve training area is located directly west of the parade ground at Fort Hamilton. It contains the Army Reserve Training Center and Auto Mechanic School.

The USA Chaplains School is located at the extreme east end of the installation. Part of Bldg. 110 and one BOQ is used for housing support of the school.

3. Magazine Storage Areas

a. Fort Hamilton

Bldg. 234, the original ammunition magazine, is currently utilized for the storage of ammunition.

b. Fort Wadsworth

The original ammunition magazine is currently used for the storage of ammunition. This facility is damp and presents security problems.

at one time, the locker space available is insufficient. The shower facilities are adequate, but the poor condition of the waste lines causes the drains to back up and create flooding.

The General Site Plan shows an expansion of the bath house to satisfy both current and long range needs.

7. Officers Open Mess

The Officers Open Mess is housed in historically significant "Fort Hamilton" (Bldg. 207), a "U" shaped, two story fortress of gray granite, the corner stone of which was laid on June 11, 1825.

8. PX Service Station

The PX Service Station (Bldg. 200) is a modern permanent structure on the west side of Lee Avenue. At peak periods, traffic along Lee Avenue is delayed by cars waiting for service. This could be relieved by increasing the hardstand area to permit cars to get off the street and by the installation of high speed gas pumps.

9. Gymnasium

The Gymnasium, Bldg. 402, located on McArthur Road, is centrally located to both the EM barracks and family housing. A brick building of one floor and a basement, it was completed in 1961. The first floor houses the gymnasium and the Special Services Office. The basement contains a four lane bowling center and a firing range.

The operation of this activity is handicapped by a lack of adequate storage space. Athletic equipment and bowling shoes are stored in unventilated rooms in the basement, causing their rapid deterioration. The bowling center is unable to provide the proper facilities required by AR 28-56 due to a lack of space.

The firing range is very seldom used by the installation as it is restricted to .22 cal. firearms. It is utilized almost exclusively by authorized private civilian organizations. The range should be converted to provide proper facilities for the bowling center and for additional storage space. The effect on the installation's mission would be negligible.

5. Schools

Dependent children attend the New York City School System or the parochial school of their choice. The director of General Education

Fort Hamilton Post.

"Demolition of Bunkers Makes Way for the 'New Fort Hamilton,'"
dated March 1960.
Accession 338-64A-0220; Box 1 of 1; File: Newspaper File 1960.
National Personnel Records Center, St. Louis, MO.

NPRC
338-64A-220 1071
Newspaper Files 1960

FORT HAMILTON POST

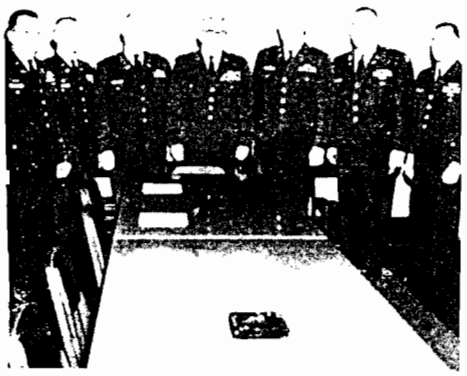
GATEWAY TO THE WORLD

VOLUME VI NUMBER 3 MARCH 1960

Lt. General O'Neill, New FUSA CG, Visits Fort

Lt Gen Edward J. O'Neill, CG of FUSA, visited this Fort on March 18, to inspect this historic Fort's facilities. He was escorted throughout the visit by Colonel John K. Daly, Post Commander.

His itinerary included a conference with Col Daly and his staff, visits to the Overseas Replacement and Returnee-Reassignment Stations, Finance and Transportation, Transfer Station, the Washington Mess, Transient Detachment, Jefferson Guest House and the Post Consolidated Mess.



LT. GEN. O'NEILL AND COL. DALY with members of his staff.

Gen O'Neill displayed special interest in the welfare of the military and their families who are housed here going to and from overseas military installations. He made it a point to see that these families are provided with the best in housing and mess facilities during their stay.

(Continued on Page 2, Col. 1)



BABY JOHNNY WATCHES INTERESTEDLY WITH MOM, DAD, TWIN SISTERS and ARC Nurse as Pvt. Joseph Borek donates blood for him.

A GIFT OF LIFE FOR BABY HEMOPHILIAC

The doctors told little Johnny Cuneo's Mom and Dad when he was nine months old that he was a bleeder. The slightest cut could result in profuse bleeding that would be almost impossible to control. The doctors in their medical terminology call him a hemophiliac.

Mr. and Mrs. John A. Cuneo, 957-67th Street, Brooklyn, were told that their son John was not a normal little baby boy. He would need blood transfusions if he were to survive. This was his only hope. Did they have enough friends and relatives who were willing to give some of their blood --- a part of themselves --- to help save Johnny?

The response of friends and relatives willing to give blood to save the life of Johnny was enough--in the beginning. Nine months later Johnny's supply of blood that he so desperately needed reached the danger point.

When the plight of Johnny became known here at Ft. Hamilton the military and civilian personnel stationed here immediately offered to donate their share of blood. The drive at this Fort was initiated by Mr. Joseph Sciametta, civilian bus driver at the Post Motor Pool, and Sp4 George W. Maddock also a driver at the Motor Pool.

Johnny's story was also told to the soldiers by SFC Jack Drickey, Training NCO, at the weekly Troop Information class and brought excellent results. (Continued on Page 3, Col. 1

CATHOLIC EASTER SERVICES

Chaplain (Major) Albert S.. Marchiano, Post Catholic Chaplain, will be the celebrant at Easter Vigil Service and Midnight Mass of the Resurrection at the Post Chapel Saturday, April 16. The Vigil service which begins at 11:30 p.m.will include the Blessing of the Easter Fire, Blessing of the Paschal Candle, Blessing of the Baptismal Water and Renewal of Baptismal Vows. Mass will begin at 12 midnight.

"DO IT YOURSELF" PHOTO LAB



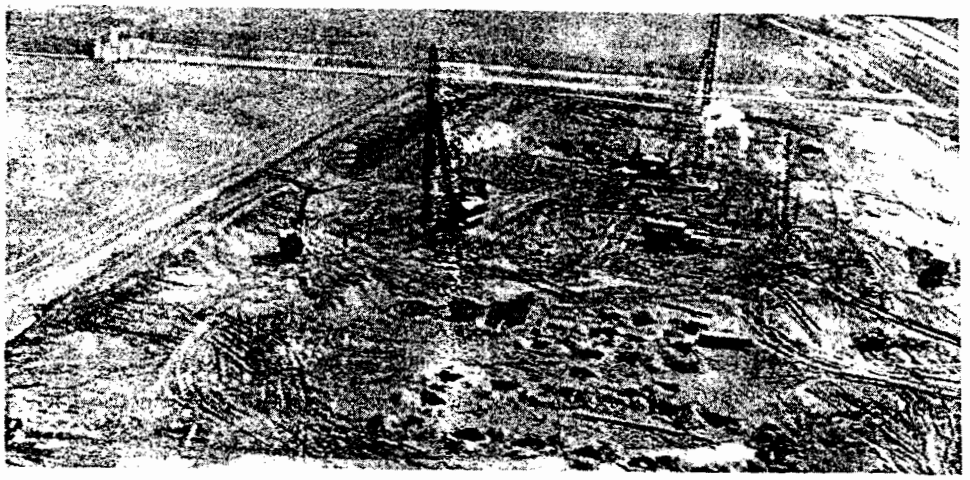
Mrs. Theresa Holt, Photo Lab Instructor at the new Photo Lab Section of the Post Special Services Army Crafts Shop, explains a film processing technique to Pvt James Courville, Educational Instructor, Education Center.

The recent opening of this photo lab offers to the Serviceman and his dependents an opportunity to learn and apply the techniques of film processing, printing, enlarging, tinting, toning and portraiture.

Formerly a WAC Signal photographer, Mrs. Holt was stationed in Japan for over three years. Prior to entering the WAC she was an elementary school teacher. Married to Sp4 George Holt who is stationed at Fort Jay, they have one son, Keven, age 13 months.

Crafts Shop Director, Miss Helen Cuyjet, has announced that the operational hours of the photo lab located at Building 231B, Post Crafts Shop, will be Tuesday through Friday evenings from 6 to 9, and on Saturday from 10 a.m.

DEMOLITION OF BUNKERS MAKES WAY FOR THE "NEW FORT HAMILTON"



PILEDRIVING FOR FOOTINGS NEAR DYKER PARK AREA--SITE OF NEW EM barracks--another phase of the Fort's reconstruction program.

The old fortifications at Fort Hamilton, which have stood guard over the "Narrows" in the coastal defense of the New York Harbor since the turn of the century have been demolished. Of the seventy-four (74) family housing units to be constructed, fifty-eight (58) are being built on the site of the olf "Fort." Among the buildings being constructed are those which have been designated as residences for the Commanding General, USATTCA and the Commanding Officer, Fort Hamilton.

The view from these homes overlooking the "Narrows" can be considered one of the most picturesque in the world. Ships coming and going to European shores plowing through the "Narrows" as they leave or enter New York Harbor offer a relaxing view for the occupants of these dwellings.

Despite the heavy snow storms that fell on Fort Hamilton during March, building contractors continued with their work. To date, excavation has been started on utility rooms and foundations for some of the dependent housing and the contractors have started pouring concrete for the foundation of one of the two Bachelor Officers Quarters which will be constructed to house permanent party and transient bachelors.

In addition piles are being driven for the two 326-man barracks in the Dyker Park area for the assigned enlisted men and unaccompanied transients.These buildings will have all the comforts of home in

ently occupied by the EM which were built and used during the World War II period.

Contractors have also started putting in new water mains throughout the Post.

"From time to time there may be disruption of electrical and water service for short periods of time," said Lt Col Edward R. J. Comerford, Post Engineer. "However all personnel will be notified well in advance so that only minor discomfort and inconvenience should be experienced."

He pointed out that making way for progress causes many inconveniences for all, but the end product is worth the trouble.

With the advent of the construction season it is expected that the building program will be speeded up so that the new buildings will be occupied according to plan.

Assisting Colonel Comerford in coordinating the building program with the civilian contractors is Major Harvey H. Severson, "Narrows Bridge" Li-

Fort Hamilton Post.

"This Building to be Demolished,"
dated April 1960.
Accession 338-64A-0220; Box 1 of 1; File: Newspaper File 1960.
National Personnel Records Center, St. Louis, MO.

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338-64A-220 1of1
Newspaper Files 1960



FORT HAMILTON POST

"GATEWAY TO THE WORLD"

VOLUME VI NUMBER 4 APRIL 1960

"OPEN HOUSE" TO FEATURE ARMED FORCES DAY

May 21 will mark the eleventh annual observance of Armed Forces Day by all branches of the military service. On this day installations throughout the world will be open to demonstrate to the public that the United States is pledged to and continually striving for "Power for Peace!"

It will be observed at Fort Hamilton in several ways. In addition to an "Open House," men of the Post will demonstrate with the local Reserve Center that the Army is truly "One Army" in all respects.

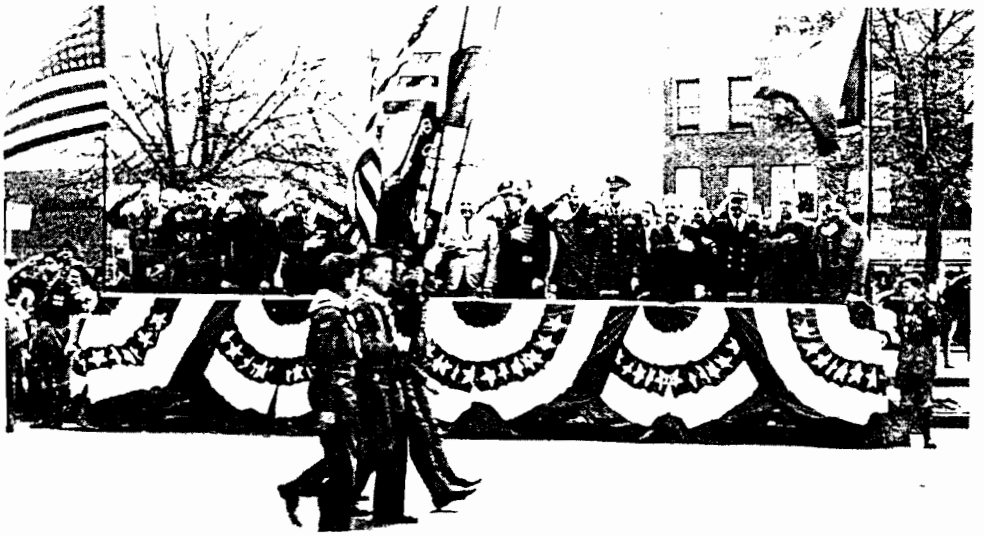
The Service Club will invite visitors to see the featured work of the winners of the Eighth Interservice Photo and Art contest.

The Chaplains will display equipment issued to conduct religious services for men "in the field" as well as garrison.

Throughout the day training facilities of the Army Reserve Center will be open. Here the public will be offered the opportunity of seeing military specialists taught their "trades." Among interesting displays within the Armory will be one featuring cooks and bakers at work. Outdoors near the "pole farm" the linemen will be in action. A short walk to the mechanics training area will illustrate how the tax dollar invested in vehicles is protected through the use of proper maintenance to

(Cont. on Page 2, Col. 3)

Scouts Attend Spring Camporee at Fort Hamilton



SCOUTS ON THEIR WAY TO HAMILTON TO BEGIN THEIR CAMPOREE MARCH by the reviewing stand on Fourth Ave. Colonel Daly and other military and civic dignitaries witness the parade.

Tenting on the old parade ground was the adventure enjoyed by some thousand Boy Scouts of America on April 23-24. The scouts, of the Atlantic District, held their Camporee at Fort Hamilton celebrating the Fiftieth Anniversary of scouting in America.

Participating troops, augmented by other scout groups, began the Camporee with a parade down Fourth Ave. Passing in review they were inspected by 50 dignitaries including Colonel John K. Daly, Post Commander, and Captain Davis W. Olney, representing Rear Admiral James C. Dempsey, MSTS Commander of the Atlantic Area.

Although the skies were overcast, scout spirits were high. Pitching multihued tents and proudly flying their flags they soon transformed the parade ground into a dazzling village.

Throughout the afternoon the youths engaged in tests of ability and skill ranging from archery to races. Troop cooks prepared meals over charcoal stoves. To highlight the day's activities a campfire and community sing was held.

At the closing ceremonies on Sunday afternoon, a plaque embossed with the Boy Scout Oath was presented to Col Daly by the Camporee's General Chairman, Mr. George R. Tollefsen.

Col Daly in accepting the plaque said, "I thank you for organizing this splendid Camporee. We enjoyed it as much as you."

Mr. Francis W. Teel, Scout Executive, was coordinator of the Camporee assisted by District Scout Leaders. (SEE PICTURE STORY ON PAGES 4 & 5)

INTERNATIONAL DOGS EN ROUTE TO GERMANY

An international family of Pedigreed Boxers arrived at Fort Hamilton last week with their owners, CWO Paul Chong and his wife Adelheid, who arrived here from Fort Sill, Oklahoma, where CWO Chong was enrolled at the U. S. Army Artillery and Missile School. They were enroute to Mannheim, Germany.

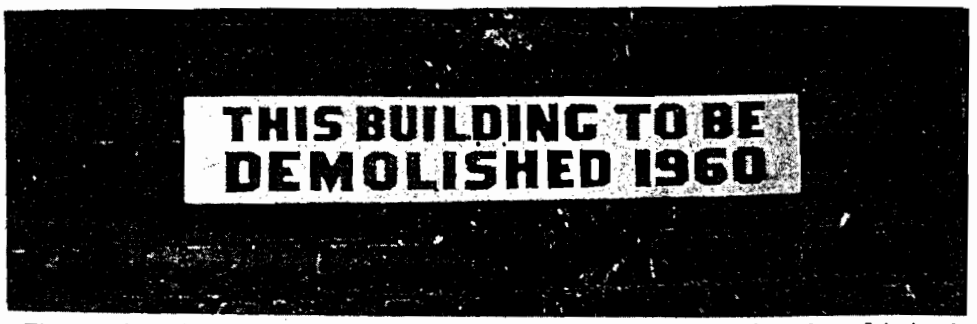
The mother boxer and her two sons, all members of the American Kennel Club were all born and raised in different parts of the world. Barbara, the mother, 10 years old, was born in Japan in 1950. She had a son Ajax, 7 years old, in San Francisco in 1953, and another son, Sepple 4, in Germany in 1956. This will be Barbara's second trip to Germany.

"The dogs are just normal happy members of the family and behave like members of the family should," say the Chong's.

Unfortunately, they are not tax deductable.



GET ALONG LITTLE DOGGIE! PAUL and Adelheid Chong take a rest after walking their dogs.



This sign has been posted on all buildings to be demolished during the reconstruction of Fort Hamilton in preparation for construction of the "Verrazano-Narrows" Bridge which will span the Narrows from Staten Island to Brooklyn.

These signs are the direct result of a sincere desire on the part of the Post Commander to offset any impression by transients processing through Fort Hamilton, as well as visitors, that this beautiful and historic Post is deteriorating from lack of maintenance.

"Occupants of these dwellings can be reassured that their families will suffer no avoidable hardships during this redevelopment program," said Colonel Daly. "Every precaution for the welfare and safety of all has been considered."

Married officers and enlisted personnel authorized Post housing will reside in new quarters in what is now the 700 area. Movement of personal occupying present Post housing scheduled for destruction will be accomplished when new, permanent brick quarters are completed.

Notice of vacating will be sent to each family well in advance of moving dates. Professional movers will be provided by the Triborough Bridge and Tunnel Authority to expedite the move of personnel in quarters at no expense to the individual or government.

Demolition work will be handled checker-board fashion. The TBTA will complete a new building before the Army will let them tear an old one down. The same plan also applies to the demolition of the administrative buildings for Post operations.

Throughout the reconstruction program the Post will remain completely operational as a processing center for military personnel and their dependents on the way to or from overseas posts, and for transfer or discharge of Army personnel.

ARMED FORCES DAY

CONTINUED FROM PAGE 1, Col. 1

prevent vehicle breakdown and costly repairs.

A recruiting display on the parade ground will illustrate the opportunities offered men in the Army in training, education and travel.

"One Army" will again be emphasized at a retreat parade. Members of the Reserve units training at Fort Hamilton, Brooklyn Army Terminal and on Long Island as well as personnel from Fort Hamilton will participate.

In the evening an interservice command reception will be held at the Officers' Open Mess.

Dining and dancing will also be held in the NCO Open Mess.

Go to Church, Sunday.

THE FORT HAMILTON POST is an authorized publication by and for the military personnel of Fort Hamilton under the supervision of the Information Officer at no expense to the government. It is published monthly and is distributed on a basis of one copy per twenty-five persons.

This newspaper receives Armed Forces Press and Radio Service material.

Contributions for print may be delivered by mail or in person. Publication depends upon space and interest value as judged by the editorial staff.

COMMANDING OFFICER
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The views and opinions expressed in this publication are not necessarily those of the Department of Defense or Department of the Army.

Fort Hamilton Post.

"Hallowed Remains of Fort to be Preserved for Posterity,"
dated August 1961.
Accession 338-65A-0071; Box 1 of 1; File: Newspaper Files.
National Personnel Records Center, St. Louis, MO.

NPRC
338-65A-71 1/1 Newspaper Files



POST Fort Hamilton

VOLUME VII, Number 6 AUGUST 196

Gen. O'Neill Lays Cornerstone of New Hq.

Several Other Distinguished Guests Take Part In Dedicatorial Ceremony

A significant phase in the reconstruction of Fort Hamilton which is currently being re-located to make way for the Verrazano-Narrows Bridge, was marked by a cornerstone-laying ceremony for the new Post Headquarters building August 11.

Attending the history-making event were several prominent military and civic officials and an audience of approximately 300 persons, who braved a cloudburst during the opening moments of the ceremony, which failed, however, to dampen the spirit of the occasion.

Among leading civic and military personages who were present as platform guests were the Honorable James F. Hayes Brooklyn Borough President; Lt Gen Edward J. O'Neill, Commanding General of the First US Army; Brig Gen Charles W Tank, CG, US Army Transportation Terminal Command, Atlantic, and Mr. James A. Kelly, Deputy County Clerk and Borough Historian of Brooklyn, who delivered the principle address.

The distinguished guests were introduced and welcomed to the Fort by Col John K. Daly, Post Commander.

In opening remarks Col Daly stated that it was ironic that features of the site which made it the most desirable spot for the location of the Verrazano Bridge, were

Cont. Page 2, Col. 1



COLONEL DALY DELIVERS ADDRESS AT CEREMONY (1). LT GEN EDWARD J. O'NEILL, CG, FIRST ARMY, LAYS CORNERSTONE AT NEW POST HQS.

Headquarters Building

The Georgian style building which has served as Post Headquarters for Fort Hamilton since 1878 is soon to be replaced by a modern two-story, brick veneer building.

The graceful old structure, which has been a familiar landmark at Fort Hamilton is scheduled for destruction in conjunction with the construction of the Verrazano-Narrows Bridge and its approaches.

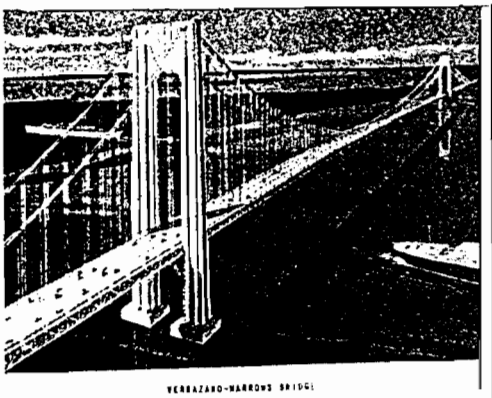
The new headquarters building will be centrally located in the area of the reconstructed post. A driveway leading from the main gate will provide direct access to the main entrance of the building. Adjacent to the headquarters building will be a reviewing stand, facing onto the new parade ground.

In addition to the Post Commander's office, the second floor will have offices for



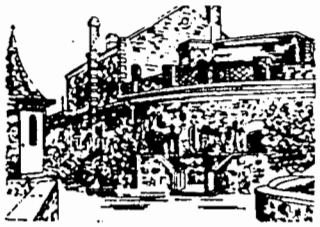
This old Post Hq. Bldg., constructed in 1878, is soon to be replaced by a modern two-story brick veneer building, for which the cornerstone was laid recently. (See pictures above.)

★★★★ Hallowed Remnants Of Old Fort



VERRAZANO-NARROWS BRIDGE

Upon completion in 1965, the Verrazano - Narrows Bridge, which will link Staten Island and Brooklyn, will be the world's longest suspension bridge. Construction of the bridge has necessitated the re-location of Fort Hamilton, which is soon to be one of the most modern, as well as important, installations in the US Army.



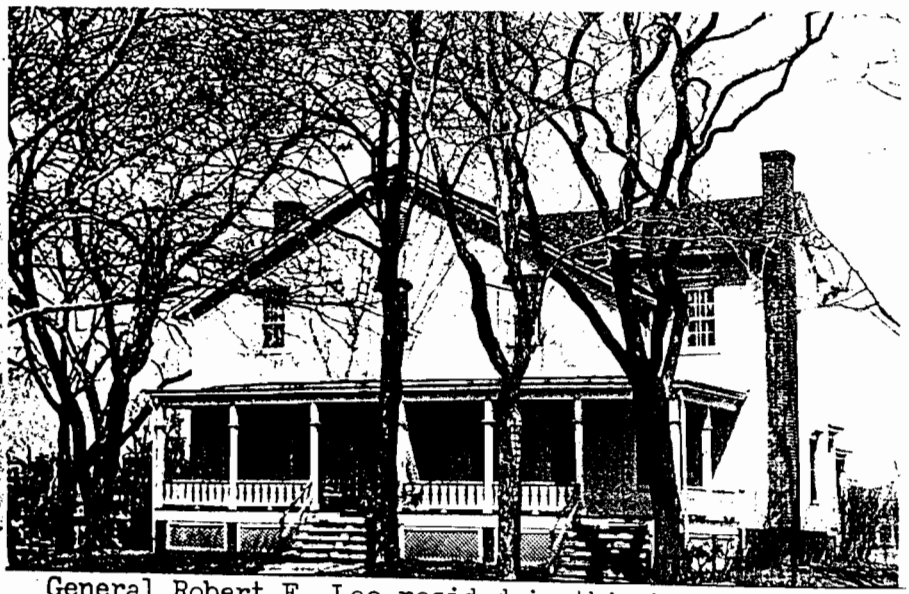
AS THE RAMPARTS and historic old buildings of the once formidable Fort Hamilton pass into oblivion, it is fitting that they should expire as they existed--in the service of mankind, for a better world in which to live. But though these honored old structures shall not exist any longer physically, it is not proper to say that they have perished, for as long as men cherish liberty and freedom--all that the Old Fort once stood for--the memory of Fort Hamilton shall endure.

Along with the memory, however, also to remain are a few hallowed old remnants, some of which are pictured on these pages:

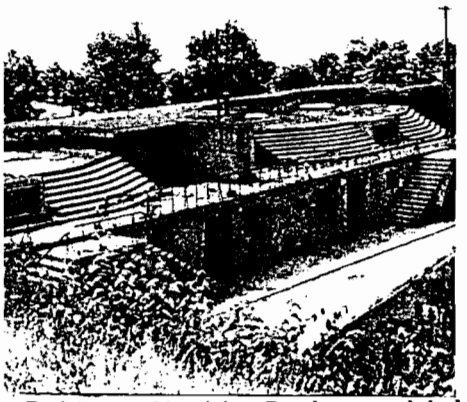


The original Old Fort is in present use as the Post's Officers Open Mess. After Army and Navy officials drew up plans for the construction of the Fort in 1819, funds were appropriated by the Congress, and, on June 11, 1825, the cornerstone for Fort Hamilton was laid.

In the years following the Revolution, the "Old Fort" remained an important factor in the defense planning of the United States.



General Robert E. Lee resided in this house from 1841 to 1846, when he was a captain in the Corps of Engineers. The age of the house is not known, however, it was in 1854 that it was remodeled in its present form. This house is also to be preserved.



Battery Martin Burke, which was formerly located in the rear of the Old Fort, was constructed during World War I for defense of the Narrows. Like the other fortifications of the Post, it has passed into oblivion to make way for the new bridge.

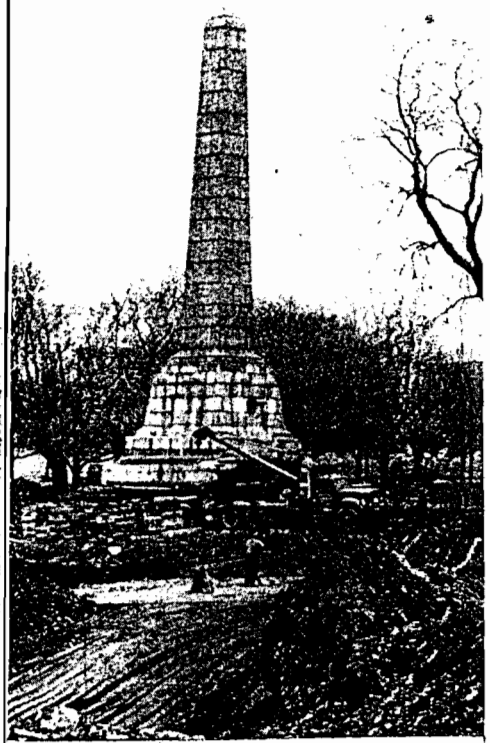
To Be Preserved For Posterity ★★★★



St. John's Episcopal Church, familiarly known as the "Church of the Generals," is located on Fort Hamilton Parkway, immediately across from the Fort. Formerly the place of worship of personnel of Fort Hamilton, before the establishment of a chapel on the Post, at least 28 generals have attended services since its erection in 1897.



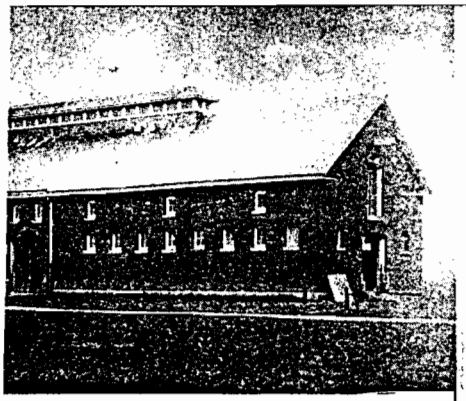
A colorful story involving Nyack Indian who built a "Long House" on this site as protection against the "invader" Giovanni d Verrazano, who sailed into New York harbor 1524, is recalled by Mr. James A. Kelly, Bo ough Historian of Brooklyn. Mr. Kelly stand with two "Order of the Arrow" Scouts in cer monial dress, in front of the bronze plaq which marks the site on which the "Lo House" was located.



This memorial obelisk, which was erected by Great Britain in 1917, commemorates the feats of the men of the Dover Patrol during World War I. Previously located in a park adjacent to the Fort, the monument is being relocated to a different site.



The Adams and Jefferson Guest Houses provide accommodatio for transient personnel and their dependents who are returni from, or going, overseas. The houses, which have recently u dergone extensive renovations, are among a few of the ol buildings to remain.



Formerly a stable for horses of the Post's Cavalry troops, this old building, after extensive remodeling, is being used as the Post Motor Pool.



The main gate of Fort Hamil ton, located off the Fort Ham ilton Parkway, will be re placed by a new main entranc on Seventh Avenue.

Gillespie, George L.

"Annual Report for Fiscal Year ending June 30, 1891."
Record Group 77; Entry 811; Volume 2.
National Archives-North Atlantic Region, New York, NY.

Engineer Office, U. S. Army,
Room "F" 7, Army Building, 39 Whitehall St,
New York, N. Y., July 3, 1891.

Col. L. L. Langdon,
1st Artillery, U. S. A.
Comdg. Fort Hamilton,
N. Y.

Colonel:

I have the honor to forward herewith check No. 186056, on the Assistant Treasurer at New York, to the order of James Savage, for $46.00 to pay him for services rendered during the month of June, 1891, at Fort Hamilton and Batteries, N. Y.

Please return the rolls signed, in duplicate, at your convenience.

The signature of one commissioned office will be sufficient to witness Savage's mark on the pay-roll, but on the check two witnesses will be required to enable him to cash it at the Treasury.

Very respectfully,
Your obedient servant,
(Sgd) G. L. Gillespie,
Lt. Col. of Engineers.

Annual Report for Fiscal Year ending June 30, 1891.

Fort Hamilton and Additional Batteries, N. Y. Harbor.

In charge of Brevt. Col. G. L. Gillespie, Corps of Engineers.
First Lieut. Harry Taylor, Corps of Engineers, Assistant.

These works, begun in 1824, are situated at the Narrows of New York Harbor upon the Long Island side, and consist of a casemated stone fort with a redoubt (for land defense) on the north side of the reservation, and three outlying batteries (two barbette batteries for 15-inch smooth-bore guns, and one mortar battery for 13-inch muzzle-loading mortars)

NARA-NY
RG 77
E 811
Volume 2
Filed by date

Two platforms are of wood, and all the others are of stone.

Mortar Battery.

This battery, begun in 1871, is practically completed. It contains 13 emplacements for 13-inch mortars, and three traverse magazines.

The parapets, magazines, and all the platforms except one are completed. The platforms are all of wood, and the completed ones are ready for armament.

The mortars are arranged in pairs, separated by traverses, along a continuous parapet closed on the east by a large traverse; four 13-inch mortars on iron carriages, are mounted upon platforms 1, 2, 3, and 4, numbered from east to west; the platforms 5 to 12 inclusive, are without mortars, and there is no platform for No. 13.

The parapet and platforms are in good order, and the magazines are dry and serviceable.

The numbers and kind of guns actually mounted are as follows:

Fort Hamilton; In Work and Main Epaulements.

Six 24 pounder Howitzers	6
Three 10-inch and two 8-inch mortars on Terreplein	5
15-inch Gun Battery.	
Three center pivots and thirteen front pivots 15-inch guns.	16
One 11-inch & four 8-inch front pivots converted rifles.	5
One front pivot 20-inch gun.	1
Mortar Battery.	
Four 13-inch mortars	4
Total Guns and Mortars	37

In addition to these guns there are on hand, not mounted the following guns:

15-inch Rodman	16
24-pounder Howitzers	8
	24

Plans have been prepared for the new works of defense proposed for this site, but no appropriation has been available for beginning their construction.

The new works will be principally located on land not now the property of the United States, but steps are being taken to acquire by condemnation the land required which consists of about 54.4 acres southwest of and adjoining the present reservation. The land will be paid for out of the appropriation of $500,000 for the Purchase of land for Defensive Purposes, made by act of Congress approved August 18, 1890.

Money Statement:

July 1, 1890, Balance unexpended from appropriation for Preservation and Repairs of Fortifications, Act March 2, 1889.	$ 372.64	
Allotted from appropriation for Preservation and Repair of Fortifications, Act Sept. 22, 1888	300.00	
Transferred from allotment for Fort at Sandy Hook from appropriation for Preservation and Repair of Fortifications, Act March 2, 1889	200.00	
Allotted from appropriation for Preservation and and Repair of Fortifications Act Aug. 18, 1890.	500.00	
Allotted from appropriation for Preservation and Repair of Fortifications, Act February 24, 1891	450.00	$ 1,822.64
June 30, 1891, Amount expended during fiscal year		890.54
July 1, 1891, Balance unexpended		932.10
July 1, 1891, Outstanding liabilities		46.00
July 1, 1891, Balance available		886.10

Amount recommended for these works for the fiscal year ending June 30, 1893. $1,000,000.

Summary.

Annual Report for the Fiscal Year ending June 30, 1891.

Fort Hamilton and Additional Batteries, N. Y. H.

In charge of Lt. Col. G. L. Gillespie, Corps of Engineers.

First Lieut. Harry Taylor, Corps of Engineers, Assistant.

These works, begun in 1824, are situated at the Narrows of New York Harbor upon the Long Island side, and consist of a casemated stone fort with a redoubt (for land defense) on the north side, and three outlying batteries (two barbette batteries 15-inch smooth bore guns and one mortar battery for 13-inch muzzle loading mortars) on the south and east sides.

No specific appropriation was made for the fiscal year ending June 30, 1891.

The slopes were cut and repaired and a wire fence built along the county road adjacent to the two outlying 15" gun batteries.

The slopes, revetments, and platforms of all the several works are in good repair, and the magazines are dry and serviceable.

Money Statement

July 1, 1890, Balance unexpended from appropriation for Preservation & Repair of Fortifications, Act Mch. 2, 1889.	$372.64	
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July 1, 1891. Outstanding liabilities		46.00
July 1, 1891. Balance available		886.10

Amount recommended for this work for the fiscal year ending June 30, 1893. $1,000,000.

on the south and east sides.

Under allotment aggregating $1,450, from appropriations of 1888, 1887, 1890, and 1891, for Preservation and Repair of Fortifications, the slopes were cut and repaired and a wire fence having a total length of 2,814 feet was built along the county road adjacent to the line outlying 15-inch gun batteries, the latter at an expense of $295.40

No specific appropriation was made for the last fiscal year.

Armament.

These works, inclusive of the mortar battery, when completed according to the present improved plans, will furnish platforms for guns and mortars as follows:

Fort Hamilton:

38 front-pintle 32-pounders, and 14 - 24-pounder Howitzers.	52
3-10-inch and 2-8-inch mortars.	5
New 15-inch Gun Battery:	
3-center pintle, and 23 front-pintle 15-inch guns.	26
1 front-pintle 20-inch, and one front-pintle 10-inch gun.	2
Battery No. 1, 8 front-pintle 15-inch guns.	8
Mortar Battery, 13 - 13-inch mortars.	13
Total.	106

New 15-inch Gun Battery.

Four platforms have been altered in this battery so that they will receive either 15-inch guns or 8-inch converted R. B. rifles. In 1885 Nos. 11 and 12 were altered and in 1890 Nos. 8 and 9. The 20-inch gun is No. 10.

Battery No. 1.

Platforms are arranged for 8 front-pintle 15-inch guns. The parapets are not finished, and no guns are mounted.

The
Chief of Engineers,
United States Army,
Washington, D. C.

Engineer Office, U.S. Army,
Room 62, Army Building, 39 Whitehall St.,
New York, N. Y., July 15, 1891.

General:

I have the honor to submit herewith the following reports for the month of June, 1891, relative to Fortifications in my charge, viz:

One Armament Report.
Three Reports of Operations.
Four Returns of Officers and Hired Men.

Very respectfully,
Your obedient servant,
(Sgd) G. L. Gillespie,
Lt. Col. of Engineers.

(8 inclos.)

Armament Report, June, 1891.

No changes have occurred in the armament of the works of defense under my charge at Fort Hamilton and Additional Batteries, New York, since my report for July 1890.

Respectfully Submitted,
(Sgd) G. L. Gillespie,
Lt. Col. of Engineers.

Lt. Col.

Report of Operations for the month of June, 1891.

Preservation and Repair of Fortifications.

Fort Hamilton and Batteries, N. Y.

Work was continued cutting the slopes of the outlying Batteries.

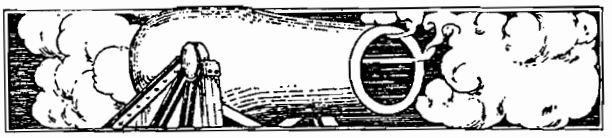
Gilmore, Russell S.

"Guarding America's Front Door,"
no date.
Published by the Fort Hamilton Historical Society.
Harbor Defense Museum, Fort Hamilton, NY.



Harbor Defense Museum

"No sailor but a fool attacks a fortress."
—Admiral Lord Fisher



GUARDING AMERICA'S FRONT DOOR

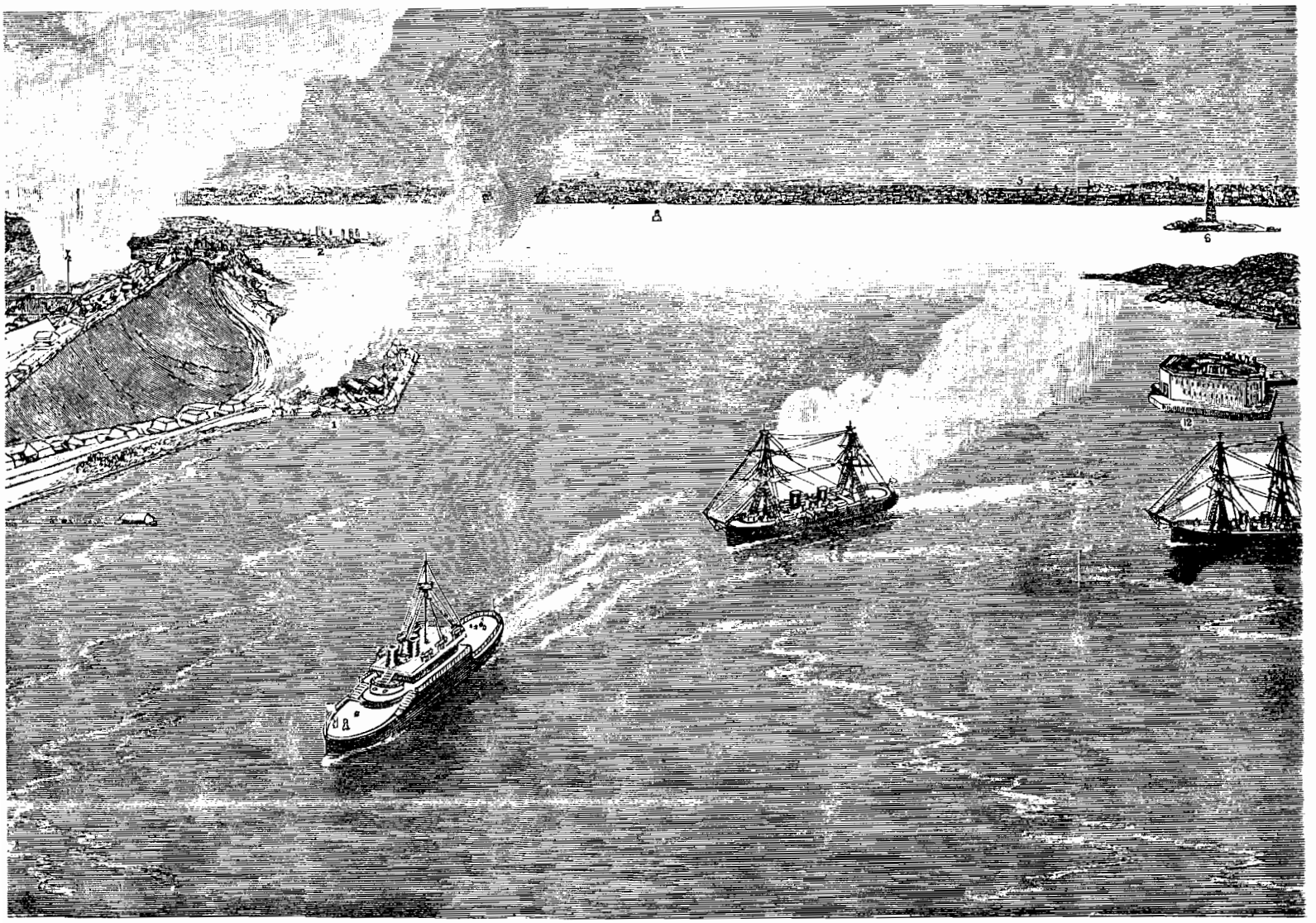
Harbor Forts in the Defense of New York City

with a guide to the surviving structures

Russell S. Gilmore

The Fort Hamilton Historical Society

The nightmare that brought recurring rounds of technical improvements in harbor defense: an 1886 illustration from Frank Leslie's Illustrated Newspaper *depicts a successful attack on New York City.*



1. FORTS WADSWORTH AND RICHMOND. 2. TOMPKINSVILLE, STATEN ISLAND. 3. ELIZABETH, N. J. 4. NEWARK, N. J. 5. JERSEY CITY, N. J.

The publisher

The Fort Hamilton Historical Society, Fort Hamilton, Brooklyn, New York 11252, is a new organization on an old site. The society is in fact still enrolling charter members. This publication is made possible in part by a grant from the Fort Hamilton Officers' Wives Club, several of whose members have been active in the society. Thanks are due to Diane Brand, Debra Bryant, Sherley Channing, Jane Flythe, Judy Folsom, Sue Frank, Martha Nell, Marcia Johnstone, Claudia Perron, Teresa Rowley, Jacqueline Rose, and Mary Jane Shafer. The society's first vice-president, John Artes, provided leads to a number of illustrations and worked on the map drawn by Fred Kunzler. LTC Oscar Harney, USA, Retired, the second vice-president, helped with much research. The society's membership secretary, Phil Melfi, offered many valuable suggestions. Also thanks to the several colleagues who read the text and to the individuals and institutions providing pictures from their collections. Special thanks to three cultural resources: Mike Gladstone, Lucy Ferriss, and Julie Jackson.

The author

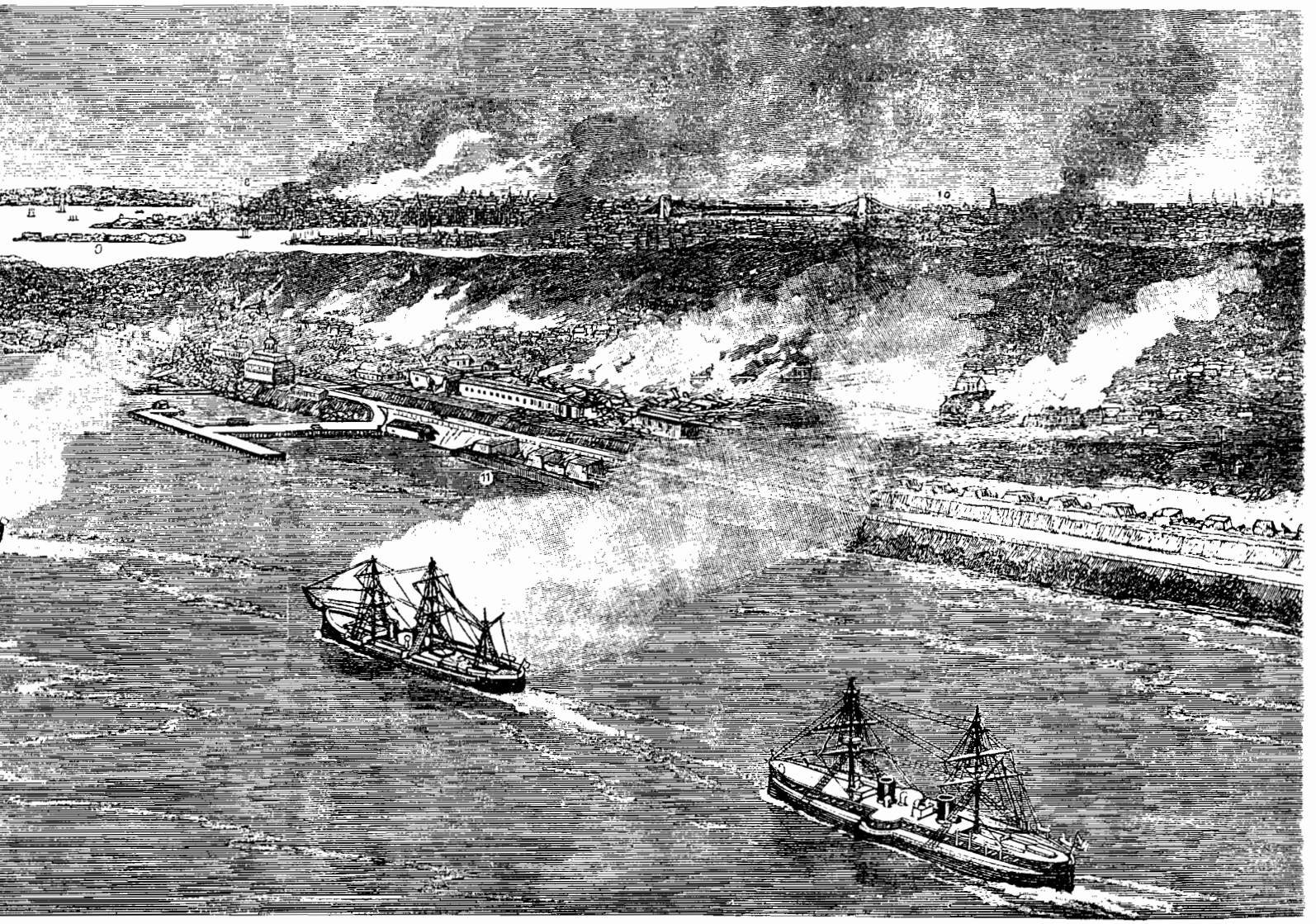
Russell S. Gilmore, curator of the Harbor Defense Museum of New York City, received his Ph.D. from the University of Wisconsin. He is a fellow of the Company of Military Historians and a recipient of the Moncado historical prize of the American Military Institute.

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OF LIBERTY. 7. HOBOKEN, N. J. 8. NEW YORK CITY. 9. GOVERNOR'S ISLAND. 10. BROOKLYN. 11. FORT HAMILTON. 12. FORT LAFAYETTE.

For further reading

Unfortunately, the basic works are not always readily available.

Batchelor, John, and Ian Hogg. Artillery. *New York: Charles Scribner's Sons, 1972. This study emphasizes twentieth-century weapons and gives some attention to coast defense guns and mortars.*

Hogg, Ian V. Fortress: A History of Military Defense. *New York: St. Martin's Press, 1977. Also Hughes, Quentin,* Military Architecture. *London: Hugh Evelyn, 1974. Each of these books attempts to trace the entire history of fortification from earliest times, with little space allotted to American examples.*

Lewis, E. R. Seacoast Fortifications of the United States. *Annapolis, Maryland: Leeward Publications, 1979. Distributed by Presidio Press, 31 Pamaron Way, Novato, CA 94947. This unique and excellent book offers insightful treatment of the structures, the weapons, and even the cultural context of U.S. seacoast defense.*

Peterson, Harold L. Round Shot and Rammers. *Harrisburg, Pennsylvania: Stackpole Press, 1969. Detailed drawings illustrate this "introduction to muzzle-loading land artillery in the United States."*

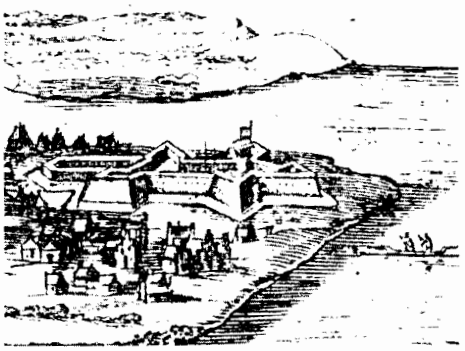
Robinson, Willard. American Forts: Architectural Form and Function. *Urbana, Illinois: University of Illinois Press, 1977. It was never easy to obtain this scholarly study of the structures, and now, sadly, it is out of print.*

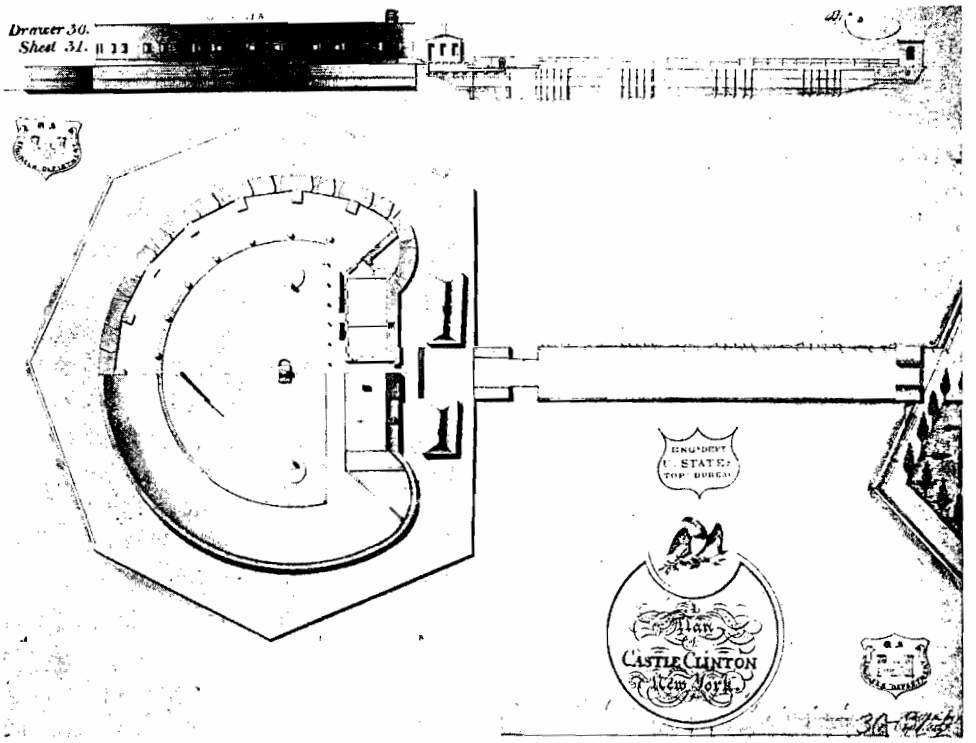
Front cover

In this World War I poster, German bombers fly over the shattered Statue of Liberty while a partially submerged U-boat passes through the devastated harbor. (Private collection)

Harbor Forts in the Defense of New York City

Below: Fort Amsterdam, 1660. (From Joost Hartger's Beschrijringhe Van Virginia, *Amsterdam 1651, reproduced in Edmund Smith,* Governors Island: Its Military History under Three Flags, *New York: 1923.) Right: Architect John McComb's plan for Castle Clinton. (Castle Clinton National Monument)*





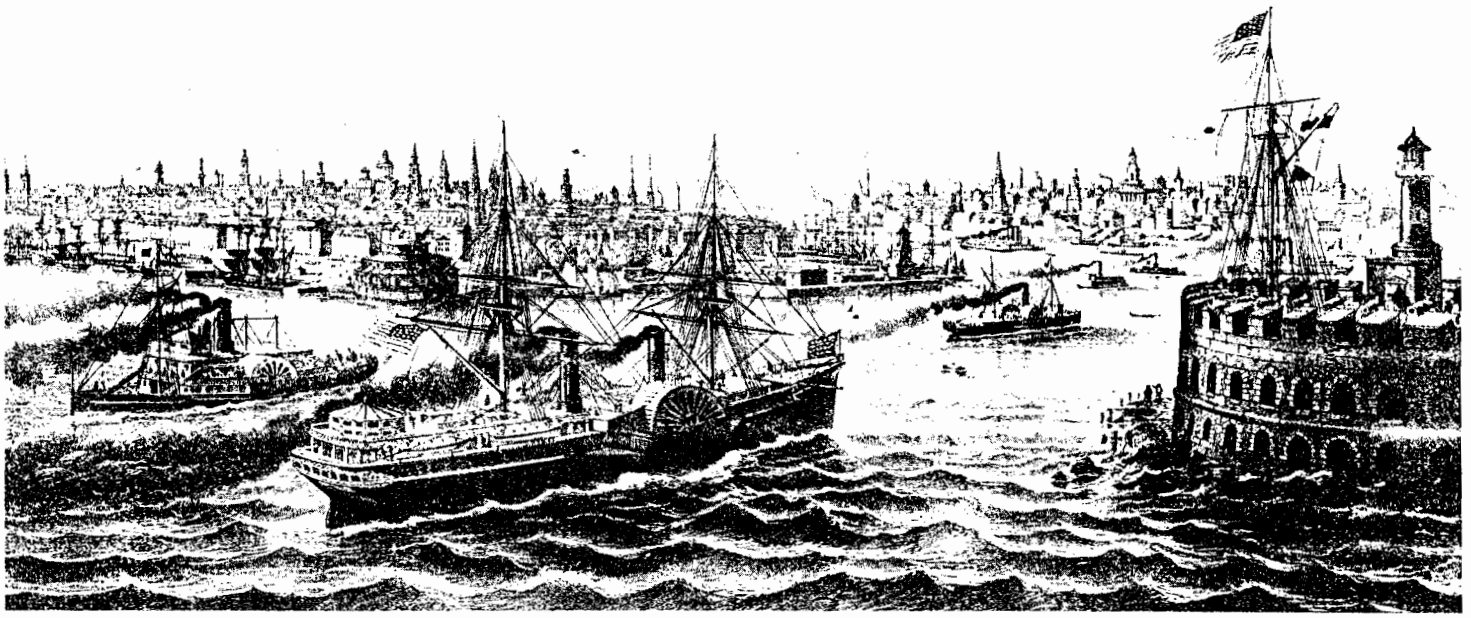
The City's Protection

New York City's shoreline is dotted with old forts, some deserted, others serving today as a museum, a club, a college—even as the base of the Statue of Liberty. The presence of these squat, powerful stone structures in a towering city of glass and steel is a reminder that part of the story of a great harbor is the story of its defense.

The defense of New York harbor began with the city's founding. One of the first things the Dutch settlers did was to erect Fort Amsterdam on a site now occupied by the old Customs House at the foot of Broadway in Manhattan. Soon thereafter they built small blockhouses at strategic points, such as the Narrows. When the colony changed hands in 1664, England altered little in the city's defenses except the name of Fort Amsterdam, which eventually changed to Fort George; but during the first half of the eighteenth century additional guns at the shore near the old fort created a redoubtable defense in the area we still call the Battery. The Revolutionary War spread effective anti-ship fortifications beyond Manhattan. In the nineteenth century improved technology made it possible as well as necessary to engage an enemy ever farther out on the water. Later defenses therefore lay in rings progressively more distant from the original settlement.

The first half of the nineteenth century was a time of massive masonry forts, only one of which remains in Manhattan. The State of New York began Castle Clinton in 1807 as tension with England appeared to be building toward another war. Nearby Governors Island still bears defenses of the same period—Fort Jay (called for a time Fort Columbus), Castle Williams, and South Battery. Fort Wood, on what is today Liberty Island, also stood ready for the War of 1812. The federal government began Fort Hamilton at the Narrows in 1825 and the earliest surviving defense on Fort Wadsworth in 1847. Also at midcentury the federal government undertook a never-completed granite work ten miles south at Sandy Hook, New Jersey, to replace the 1812-

A not entirely accurate view of two pre-1812 forts as they appeared in 1870. (Castle Williams in the foreground actually has one more tier.) Castle Clinton, on the Manhattan shore, was New York City's immigrant depot in 1870. (New-York Historical Society)



era Fort Gates. Fort Hancock would later rise on the same sand spit since it was too important a site to ignore. Until the dredging of the Ambrose Channel early in the twentieth century, Hancock offered the best first shot at an enemy ship nearing New York City's main harbor entrance.

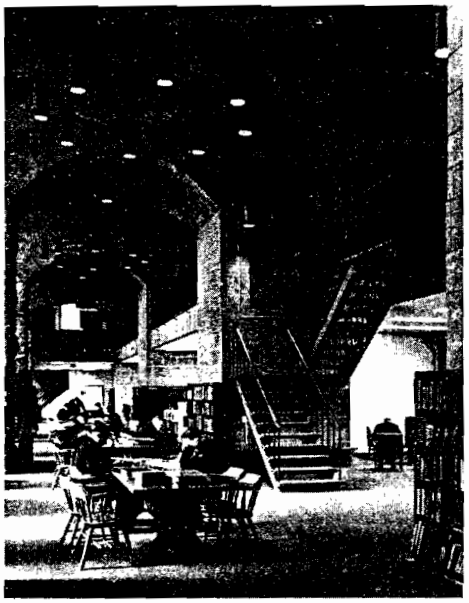
In 1856, at the East River entrance to New York harbor, army engineers finished Fort Schuyler—now the home of the State University of New York Maritime College—and later began Fort Totten across the Sound at Willets Point. Hell Gate's treacherous waters had provided a great deal of natural protection against an enemy fleet under sail; the paired forts were intended to deal with steamships. The granite work at Willets Point, like the one at Sandy Hook, became obsolete before it was finished. At the turn of the century, however, when equipped with new long-range guns, Fort Totten emerged as chief protector of New York harbor's back entrance—with help from Fort Schuyler and Fort Slocum, just south of New Rochelle on Long Island Sound.

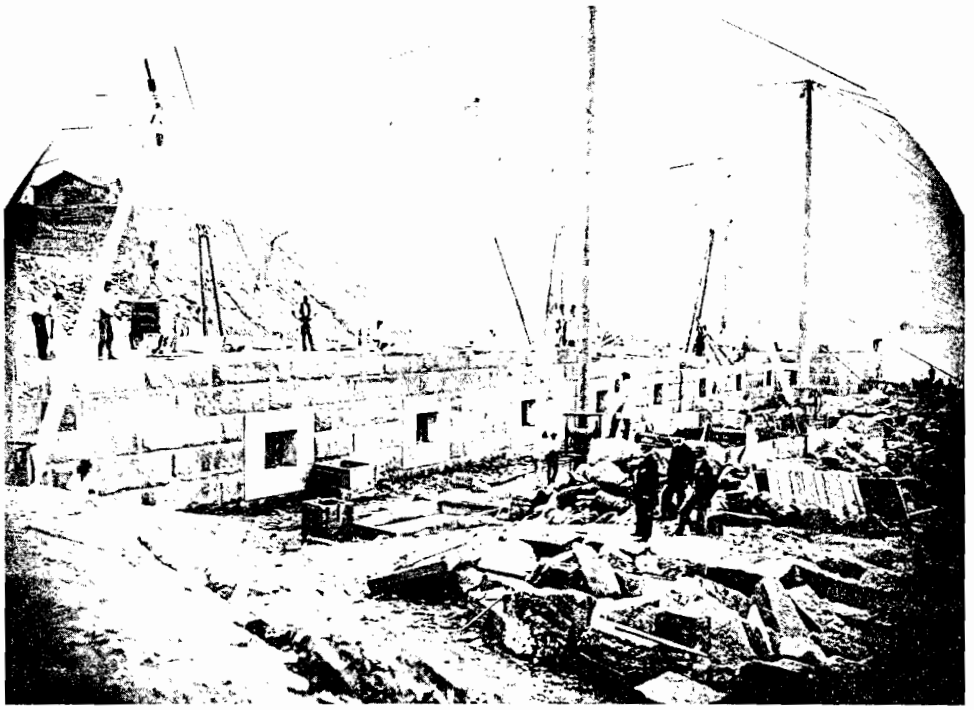
Similar long-range guns armed Fort Hancock, rearmed Forts Hamilton and Wadsworth, and pushed first-line defenses to dots of land beyond the eastern tip of Long Island, a hundred miles from the city. Battleships also had been improved, but the new batteries were more than a match for them. By the mid-1920s Fort Tilden in the Rockaways covered a thirty-mile fan of ocean with two of the most powerful U.S. coastal guns ever made, sixteen-inch rifles firing a projectile as heavy as a small car. Later, interlocking fire came from a similar battery completed during World War II on the Navesink Highlands near Fort Hancock.

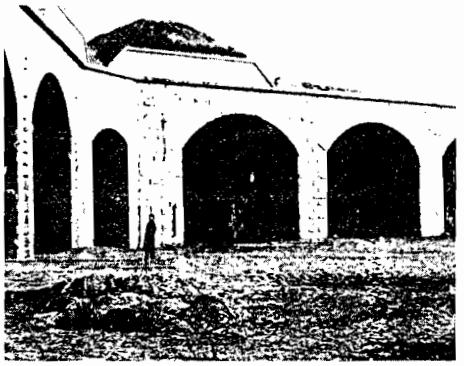
After World War I, aircraft brought another dimension to New York's defense, with bases at both Fort Hamilton and Miller Field, just south of Fort Wadsworth. The navy built several local airdromes. (From Rockaway Naval Air Station—today Jacob Riis Park—the first airplane to fly the Atlantic took off in 1919.) After a decade as New York's first municipal airport, Floyd Bennett Field

Left and center: Several large casemates of Fort Schuyler, each of which originally housed two guns, would later become the library of the State University of New York Maritime College. The adaptive work won an American Institute of Architects historical preservation award for William A. Hall Associates in 1970. (State University of New York Maritime College, John R. Kennedy)

Right: The fort at Willets Point, later called Fort Totten, shown during construction in 1862. (U.S. Army) The granite work (lower right) became obsolete during the Civil War and was never completed. (John F. Artes)









became a naval air station in 1941.

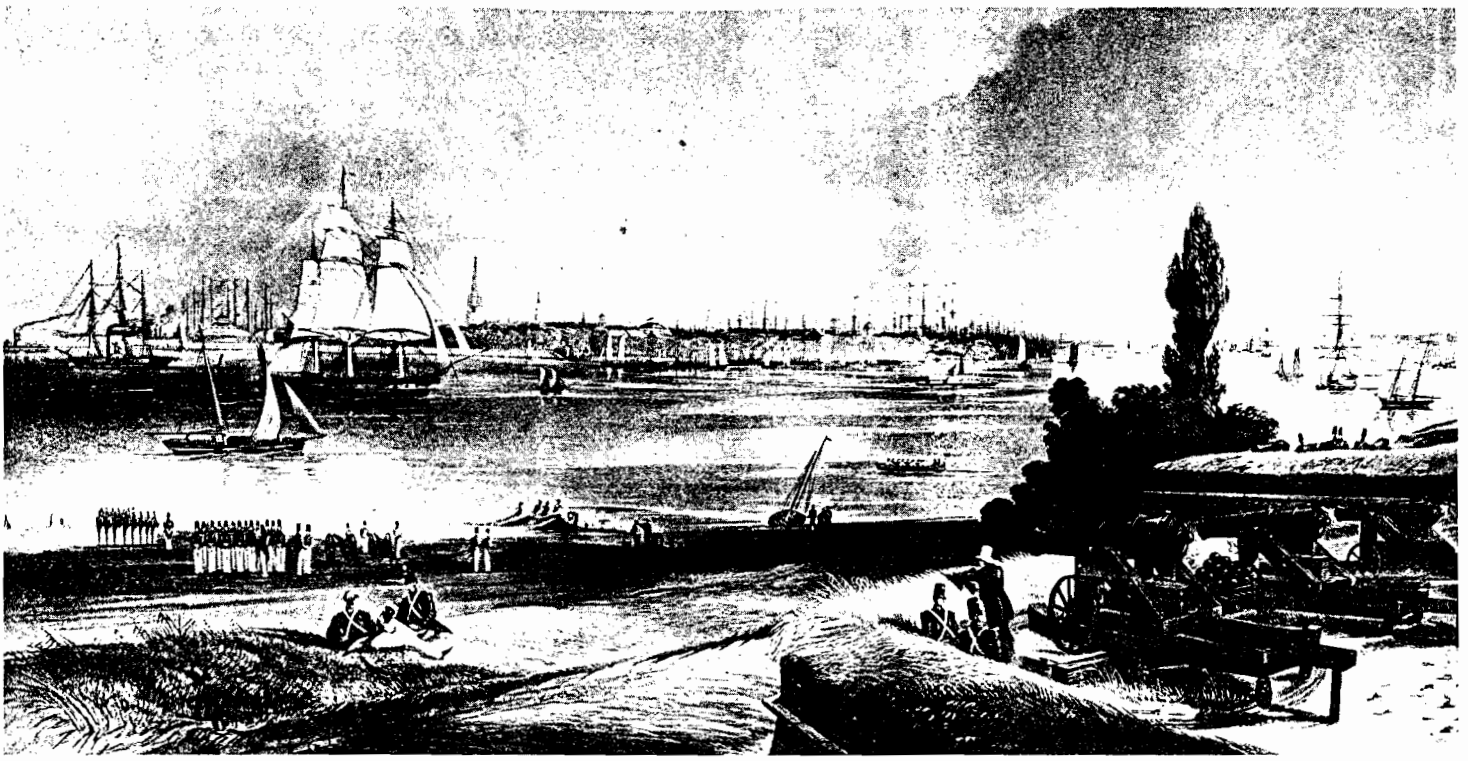
Warplanes brought a new defensive mission to the harbor forts. In 1922 the 62nd Coast Artillery at Fort Totten set up the prototype U.S. antiaircraft installation. During World War II Fort Totten served as antiaircraft artillery headquarters for the Eastern Defense Command, coordinating guns throughout New York and New Jersey for the city's defense. Nike antiaircraft missiles replaced antiaircraft guns in 1954 and stood guard for the next twenty years. Today defense of New York rests with the air force and the navy and is designed to be conducted at great distances from the city.

Early Forts at the Narrows

Of all the fortified sites, none proved so useful for so long as those at the main entrance to the upper bay. A memo attributed to Baron Von Steuben, and quoted in the *New York Evening Post*, on December 22, 1807, thirteen years after his death, called the Narrows "the place pointed out by nature for the defense of the harbor." The neck of water spanned today by the Verrazano Bridge is barely a mile wide, affording even early muzzle-loading guns an opportunity to engage an approaching fleet long before it could harm the city. The first forts at the Narrows, however, were tiny blockhouses incapable of challenging ships. Possession of these sites shifted back and forth between the Dutch and the English during the seventeenth century before finally falling to England. During the whole colonial period, despite several proposals for more formidable fortifications, the Narrows served chiefly not as a military strong point but as a lookout and signaling station.

In the late summer of 1776 General Howe's troops massed near the site of present-day Fort Wadsworth as they prepared to subdue the rebellious colonies. Howe attacked across the Narrows, landing many of his redcoats and German mercenaries on what is today Fort Hamilton, and defeated the Americans in the Battle of Long Island. Only the sacrifices

Top: 1846 view of the harbor from Fort Jay (then called Fort Columbus). (New-York Historical Society) Bottom: Troops outside their quarters at Bedloes (now Liberty) Island, 1864. (American Museum of Immigration)





of a determined rear guard and a skillful withdrawal saved Washington's army to fight again and eventually to win. The British held New York City to the last, a strong force garrisoning earth and timber forts on both sides of the Narrows until Evacuation Day, November 25, 1783. The guns of these forts, intended to deter the ships of America's French ally, were the first capable of denying the Narrows to a foe.

Artillery at the Narrows had officially opened and unofficially closed the Revolutionary War. On the day that the Declaration of Independence was being signed in Philadelphia, a tiny American battery at what is now Fort Hamilton began the coast defense of the newborn republic in an unequal contest with the British warship *Asia*, inflicting both damage and casualties before being silenced. (In the fall of 1776 much more elaborate shore batteries at Fort Washington in northern Manhattan and Fort Lee in New Jersey, aided by a barrier of sunken ships, proved no more able to resist British sea power. Though a reconstruction and therefore not covered in this guide to surviving structures, Fort Lee, at the New Jersey end of the George Washington Bridge, is well worth a visit.) Seven years later the departing British fired the last cannon shot of the war at a crowd of patriots that gathered to jeer them from the Staten Island shore. The shot fell short.

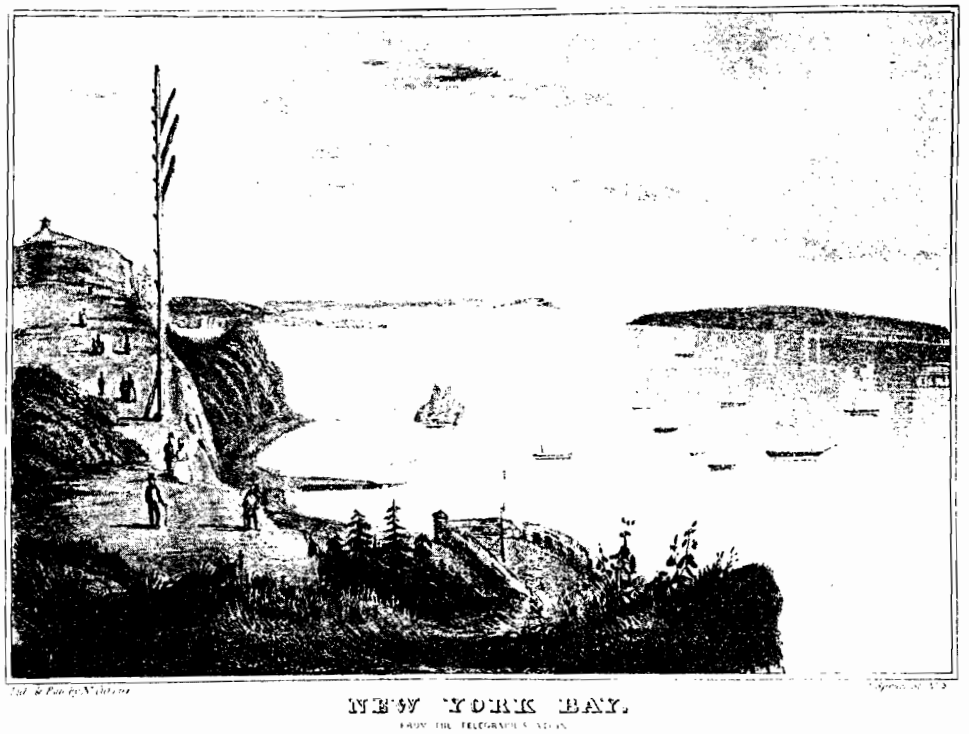
Uneasy Peace and Renewed War

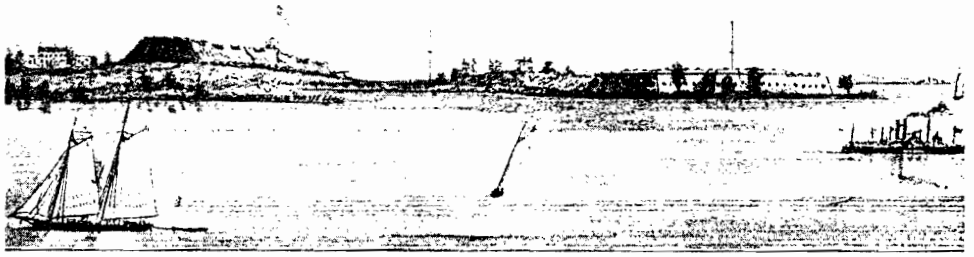
The British left without fully accepting either defeat or America's independence. Tense relations with Britain, and for a short while France, kept the new nation aware of the importance of harbor defense. In the early years of the nineteenth century an earthwork called Fort Lewis guarded the Brooklyn shore, but the leap in defense construction at the Narrows came on the Staten Island side, where the State of New York built masonry forts after 1807. The designer of those forts was Lieutenant Colonel Jonathan Williams, first chief engineer of the U.S. Army, who also built the technically advanced Castle Williams on Governors

Below: Lieutenant Colonel Jonathan Williams, first chief engineer of the Army and first superintendent of West Point, who oversaw the construction of a complex of stone harbor fortifications for New York City in the years leading up to the War of 1812. (Museum of the city of New York)



Top right: A Currier print c. 1850 depicts the three 1812-era stone forts at the Narrows: Fort Tompkins on the hill. Fort Richmond at the water, and Fort Lafayette (earlier called Fort Diamond) in the distance near the Brooklyn shore. (Harbor Defense Museum)





Fort Schuyler (toward the center with gun embrasures) painted by R. K. Sneden in 1883. (New-York Historical Society)

Island. Colonel Williams had been set to work by Daniel Tompkins, then governor of New York, later vice president under Monroe. Both Williams and Tompkins foresaw the importance of powerful forts at the Narrows in any showdown with the world's greatest seapower. Their sandstone fortifications probably deterred a British attack on New York City and perhaps saved it from the fate of the nation's capital, burned by the invaders during the War of 1812.

During the war the federal government began building Fort Diamond—later renamed Fort Lafayette—on a reef near the Brooklyn shore, the first stone fort on the east side of the Narrows and in some ways an anticipation of what has been called the "Third System" of U.S. coast defense. This classification is detailed by E. R. Lewis in *Seacoast Fortifications of the United States*: a construction program of the 1790s produced the First System, the forts of 1807-12 constituted a Second System, while Third System forts date from 1817 to just after the Civil War. The next stone work on the Brooklyn side was Fort Hamilton. (The name almost certainly honored Alexander Hamilton, though no contemporary record of that seems to have survived.) Fort Hamilton was a thorough Third System fort—carefully designed, constructed of granite, and built leisurely in peacetime. Its cornerstone went into place June 11, 1825.

Strength at the Narrows

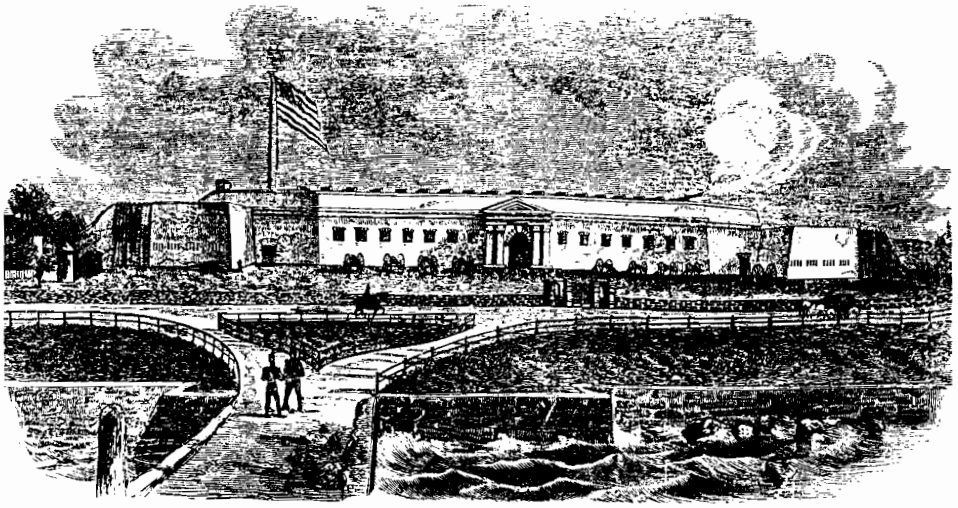
During construction the powerful new fort encountered problems familiar in our own day—delays, cost overruns, and shortages of skilled labor. An officer overseeing the project complained that canal building and downtown construction lured workers away from the site. Finally, on November 1, 1831, Battery F of the 4th Artillery marched in as the first garrison. With the completion of Fort Hamilton, the locus of New York City's defense shifted decisively from the islands around lower Manhattan to the Narrows.

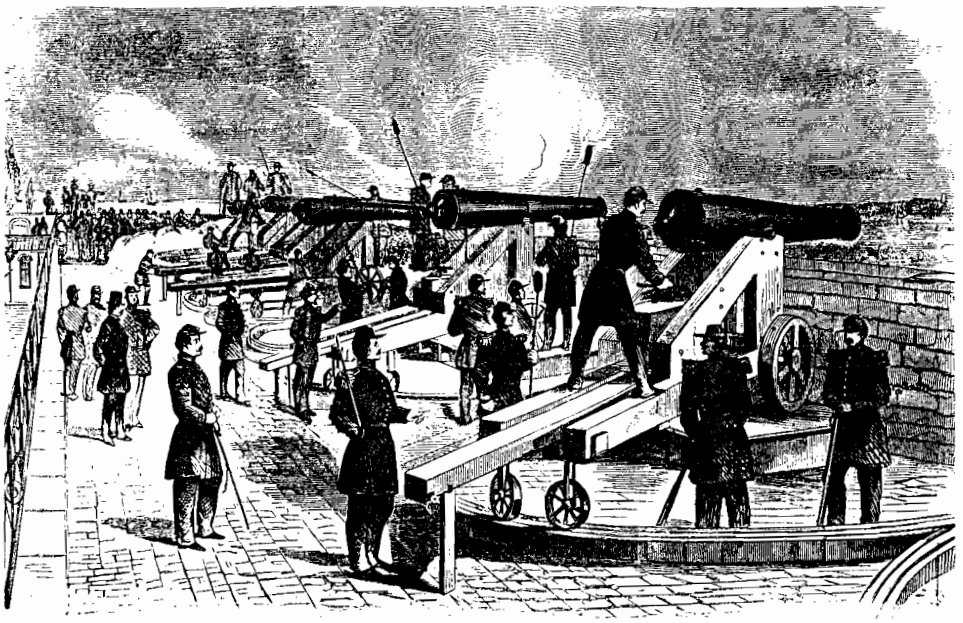
In the following decades army engineers improved the fort and its counterparts on Staten Island. During 1841-42,

Top left: Fort Hamilton as it appeared in 1854. (Harbor Defense Museum)

Bottom left: Fort Hamilton armed: militia train on the big guns of the barbette tier in 1860. (Harbor Defense Museum)

Right: This is believed to be Captain Robert E. Lee and his son William Henry Fitzhugh ("Rooney") Lee, photographed in 1845 during the senior Lee's service as post engineer at Fort Hamilton. Rooney would return to the Narrows two decades later as a Confederate prisoner of war. (Virginia Historical Society)







for example, Captain Robert E. Lee supervised the waterproofing of Fort Hamilton and the construction of new gun emplacements. Across the Narrows he strengthened one battery and proposed complete rebuilding of the two major Staten Island works. Acting on Lee's suggestion, the federal government eventually undertook a massive Third System fort and water battery. Though incomplete, the complex was ready for action during the Civil War. The fort was named for Daniel Tompkins and the water battery was called Fort Richmond —later renamed Battery Weed, for Brevet Brigadier General Steven Weed, who died at Gettysburg in battle against a Confederate army commanded by Lee.

The Civil War produced many ironies.

The Staten Island works were the latest thing in military architecture but became obsolete even before they were finished. Federal attacks on Confederate-held forts soon proved that new rifled ordnance had made the defenses at the Narrows inadequate, along with all other vertical-walled masonry fortifications. The spin imparted by a rifled barrel could keep long, heavy projectiles point-on and stable in flight; the new projectiles sliced through the air better than round shot, were more destructive, and their uniform spin made them more accurate as well. Though Battery Weed continued to mount a few of its huge muzzleloaders into the first years of the twentieth century, reliance had shifted to smaller batteries of earth and concrete, reminiscent of some eighteenth-century earth and timber works. The guns, however, were very different.

The Old Gives Way

After hundreds of years in which artillery used iron balls and black powder, technical breakthroughs in the last quarter of the nineteenth century produced powerful smokeless powder and new breech-loading rifled steel weapons of vastly greater range and accuracy. Most of the larger seacoast guns were mounted on "disappearing" carriages which when fired recoiled behind concrete walls for

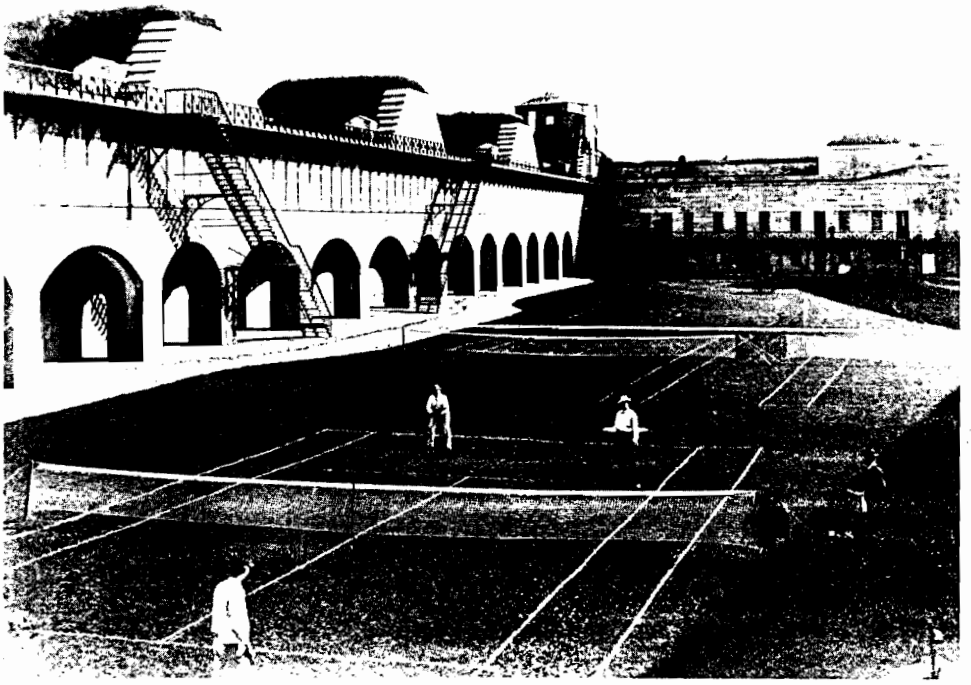
Top right: Obsolete as a military structure after the Civil War, the second Fort Tompkins (part of Fort Wadsworth on Staten Island) was for a long time converted to the more peaceful ways of lawn tennis. (Staten Island Historical Society)

Bottom right: The men behind the guns when they weren't behind the guns: barracks life at Fort Hamilton, circa 1900. (U.S. Army)

Top left: A mobile searchlight at Fort Hancock, circa 1915. Searchlights were used first in illumination of minefields but by this period were mostly auxiliary to the big guns. (George H. Moss, Jr.)

Bottom left: A U.S. Army vessel lays mines in New York waters, c. 1890. In the background is Fort Slocum on Davids Island off New Rochelle, one of several forts protecting Long Island Sound. (U.S. Army)









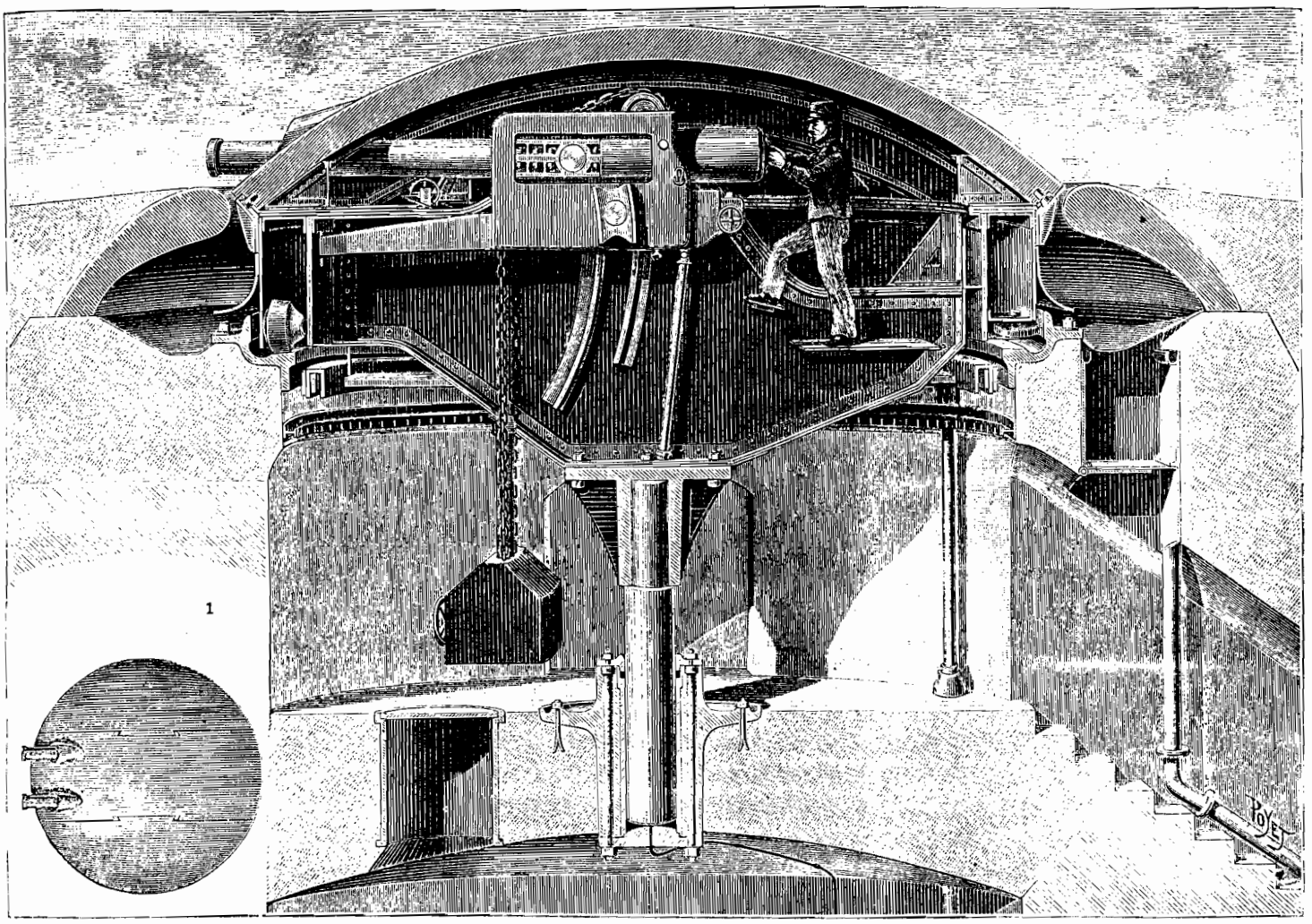
protection. These weapons used projectiles weighing 100 to over 1,000 pounds, and were supplemented by rapid-fire guns of smaller caliber, huge mortars, underwater mines, and—later—anti-aircraft guns and submarine nets. The sensor-equipped barrier of World War II was preceded by barriers of chain, floats, and cables stretched across the Narrows during the Civil War and World War I. By the early years of this century Forts Hamilton and Wadsworth ranked among the most powerful coast defense complexes in the world. During that period, according to one estimate, an enemy ship attempting to run the Narrows would have taken one hundred hits per minute.

The installation of new equipment did violence to the old structures. At the turn of the century Fort Hamilton lost its seaward wall to make way for disappearing guns, and the water battery at Fort Wadsworth became lopsided with concrete poured to protect a new control center for harbor mines. (Worse was to come a half-century later when construction of the Verrazano Bridge erased Fort Lafayette and other historic structures.)

Though reequipped with modern guns and at the height of their power, the Narrows forts were at the end of a century of dominating New York City's defense. Just as they supplanted the forts surrounding lower Manhattan in the early decades of the nineteenth century, they were themselves supplanted in the third decade of the twentieth century by forts still farther from New York's center. Even before the completion of the sixteen-inch emplacements at Fort Tilden in 1924, only caretaker detachments of artillerymen were assigned to the Narrows. Forts Hamilton and Wadsworth became infantry posts following World War I. (For the first time New York City had lost harbor defense strength during a war. Some weapons had been taken for use in France and others for new strong points along our coast—Forts Totten, Schuyler, and Slocum were nearly stripped. And the city did not receive back its guns when the war ended.)

Fort Hancock continued to anchor the southern defenses of New York. When

European harbor defenses of the late nineteenth century sometimes had much more elaborate protection than their American counterparts. Both German and French firms offered armorplate and revolving turrets. (Frank Leslie's Illustrated Newspaper)



World War II loomed, Hancock's most modern twelve-inch emplacements were still important enough to casemate in concrete. By 1943 a pair of casemated sixteen-inch guns on nearby Navesink Highlands overlapped Fort Tilden's field of fire in lower New York bay.

But even the great guns of Tilden and Navesink were removed as obsolete a few years after World War II. Air power and new amphibious techniques which allowed landings practically anywhere on a coast line had changed all the rules. Fort Hamilton lost many of its heavy guns before 1941; those at Wadsworth were cut up for scrap during the war. Shortly after war's end the last antiship artillery was gone from the Narrows, where guns had been emplaced for a hundred and seventy years. In all that time, except for the rounds which the small American battery fired at H.M.S. *Asia* before she turned to deliver a terrible broadside, no cannon shot from either shore had ever challenged a foe. But the forts had served their purpose nonetheless; they guarded the city and at least once, during theWar of 1812, they stood between it and a powerful enemy.

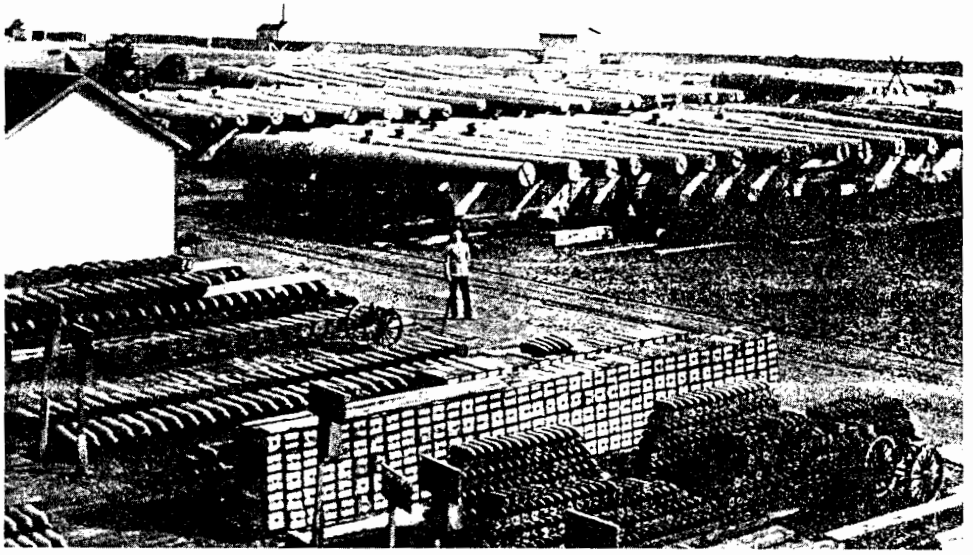
Further Missions

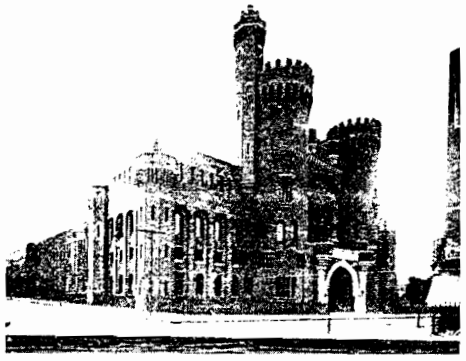
New York area installations also helped to perfect the hardware of harbor defense. The army's ordnance proving grounds before it moved to Aberdeen, Maryland in 1919 shared the peninsula of Sandy Hook, New Jersey, with Fort Hancock. Technicians tested early disappearing guns and breechloading seacoast mortars at Sandy Hook, as well as such curiosities as a giant airgun which fired dynamite projectiles. (Twenty years after this ordnance testing ended, the signal corps carried out important developmental work with radar at Fort Hancock.) Not all experimentation occurred at the proving ground. Fort Hamilton was selected as

Right: Turn-of-the-century views of the ordnance workshop and depot at Sandy Hook, New Jersey. (George H. Moss, Jr.)

Below: The armory of the 13th Regiment, NGSNY, one of the National Guard units whose soldiers were to reinforce regular army coast artillerymen in an emergency. Today the structure, which covers an entire block in Brooklyn on Sumner Avenue between Putnam and Jefferson Avenues, is a community center.







the site for an elaborate counterpoise battery that, like many projects, came to nothing. More significant was the work with electric mines and searchlights carried on at Fort Totten, the army's School of Submarine Defense, until 1907.

The harbor forts have served in many capacities besides seacoast defense. Those of Governors Island constituted an important administrative headquarters during much of their history—for two periods before the Civil War General Winfield Scott ran the whole army from New York City. Several harbor forts provided troops to help put down New York's Draft Riot of 1863. Both Fort Lafayette, "the Brooklyn Bastille," and Castle Williams served as Civil War prisons; Castle Williams continued as a prison for nearly a century.

New York forts have also been the duty stations of famous soldiers: Ulysses S. Grant (Governors Island) and Robert E. Lee (Fort Hamilton), as well as Thomas "Stonewall" Jackson (Fort Hamilton). Sometimes martial fame has been eclipsed by other accomplishments. Both Walter Reed (Fort Totten), credited with the discovery that mosquitos carry yellow fever, and Abner Doubleday (Fort Hamilton), often called the father of baseball, had notable military careers.

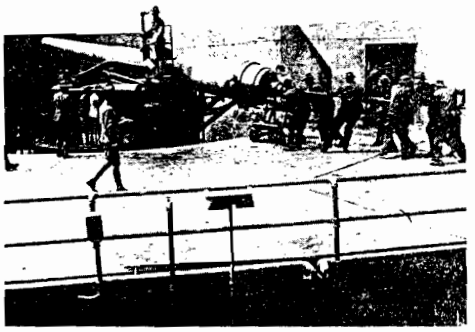
Coast artillerymen of fifty years ago would find New York harbor an odd sight today. Probably not one of them anticipated a time when powerful cannon would no longer be needed to protect the nation's richest port. Of all the defensive sites only Fort Hamilton is still an active army base. Its cannon are restricted to historical specimens and saluting guns, since the fort is now an administrative center.

But one thing remains unchanged from the days when big guns roared (breaking neighborhood windows, incidentally, and dislodging pictures and mirrors): a close cooperation between regular and citizen soldiers. In the summer of 1839 Fort Hamilton played host to a training exercise of the unit that became New York's famous 7th Regiment, which was probably the first peacetime encampment by militia on a federal mili-



A soldier poses with a sixteen-inch shell and the powder to send it on its way. (George H. Moss, Jr.)

During target practice soldiers struggle to load a twelve-inch disappearing gun in the defenses of eastern Long Island. This weapon also represents turn-of-the century heavy armament at Forts Hamilton, Wadsworth, Totten, and Hancock. (U.S. Army)



tary base. The relationship between the fort and the citizen soldier was reciprocal. Fort Hamilton usually had about half the troops required to man its guns and depended on National Guardsmen, such as Brooklyn's 13th Regiment, to bring the defenses to readiness in an emergency. Though no longer charged with the protection of the harbor, Fort Hamilton today cooperates with and assists over three hundred National Guard and reserve units. That collaboration, at least, would be familiar to an old seacoast soldier.

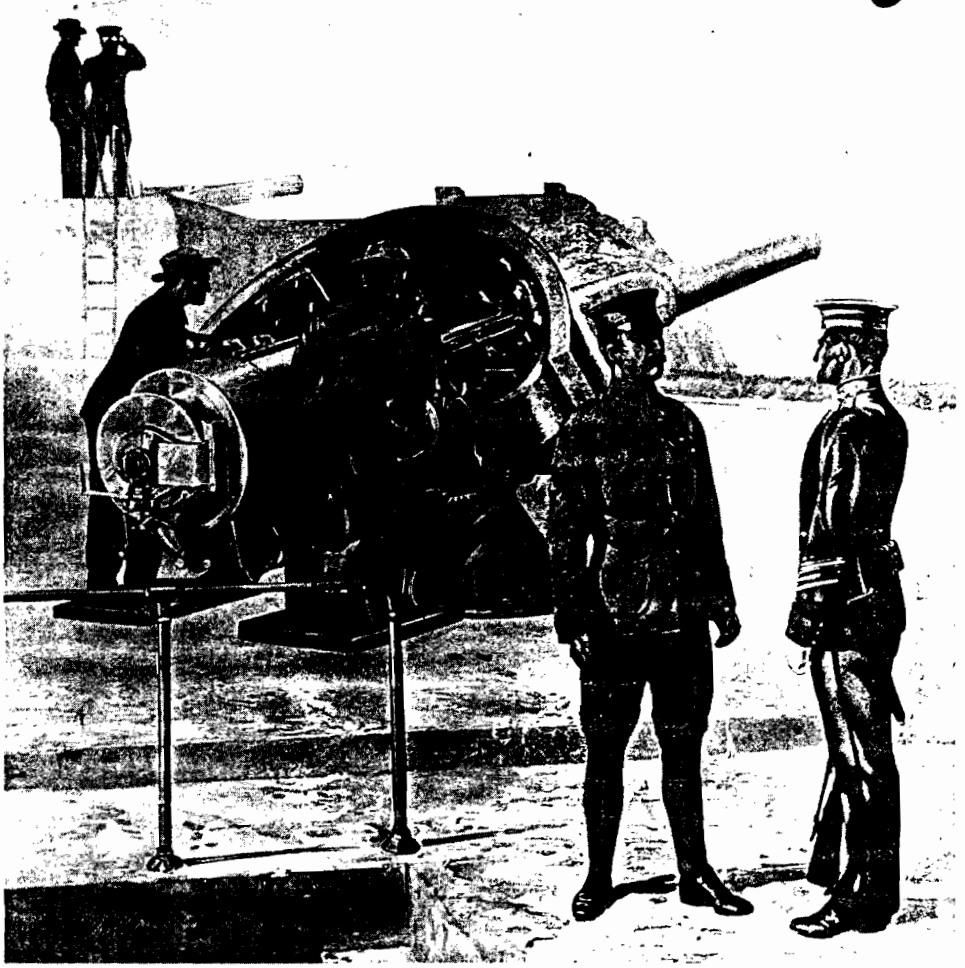
Seeing the Sites

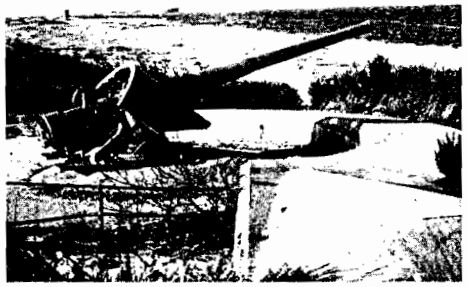
Call the numbers in parentheses for current information on access. Unless otherwise indicated all are area code 212, though New York City, outside Manhattan and the Bronx, will probably change to 718 during 1984.

This account has focused on the Narrows forts, long central to the city's protection; in recent years each has served as home to the Harbor Defense Museum (630-4349), which moved from Staten Island to Brooklyn in 1980. Most of what remains of New York's first granite defensive work, the original Fort Hamilton, is a members-only club, but the section accessible to the public as a museum is representative and almost unaltered. The exhibits include an 1841 flank howitzer, part of the original armament. Old Fort Hamilton is a New York City Landmark and on the National Register of Historic Places. The house in which Captain Robert E. Lee lived during part of his 1841-45 tour of duty stands just inside the Fort Hamilton Parkway entrance to the post; it is still a private dwelling and may be viewed only from the outside. Walking from the Lee house to the museum takes one past cannon dated as early as 1786 and as late as the 1950s. On city land outside the post's Fort Hamilton Parkway entrance is the largest gun of the Civil War—a bottle-shaped muzzle-loader of twenty-inch

Right: A recruiting poster (c. 1905) depicts the M1900 six-inch rapid-fire gun. (U.S. Army) Below: An M1900 currently in place at Battery Gunnison, Fort Hancock. (Gateway National Recreation Area)

Men Wanted for the Army



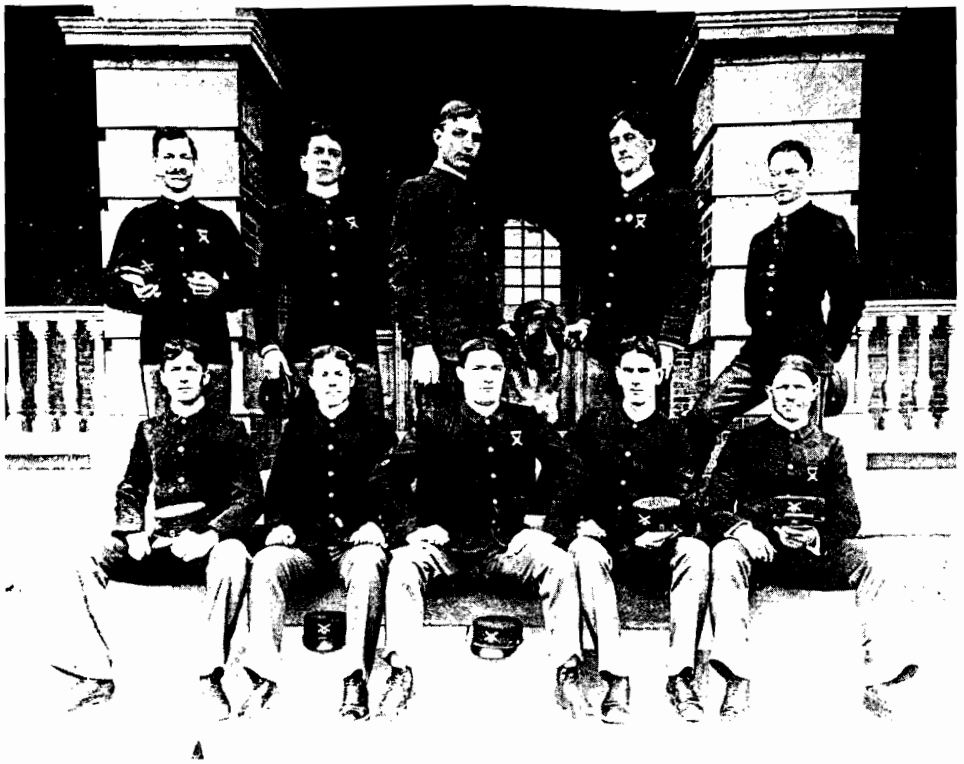


bore designed by Thomas J. Rodman. The balls which surround it weigh a thousand pounds apiece. Flanking the post's Seventh Avenue gate, two sixteen-inch projectiles of the type used by the army's largest breech-loading seacoast guns (and by the navy's largest battleships) represent the twentieth-century equivalent of those giant iron balls. Fort Wadsworth at the Staten Island side of the Verrazano Bridge contains good examples of mid-nineteenth and early twentieth century defenses—minus their guns—but is not generally accessible to visitors. Call the Public Affairs office of the army's New York Area Command to learn of any scheduled tours (630-4371).

At the tip of Manhattan and on nearby islands stand the surviving forts of the 1812 period. Castle Clinton (344-7220) on the Battery is cared for by the National Park Service, as is star-shaped Fort Wood (732-1286) beneath the Statue of Liberty. Castle Clinton's eight-foot-thick sandstone walls today enclose none of its original cannon, but exhibits include a fiberglass model of a typical thirty-two pounder. Only the exterior of Fort Wood may be viewed, and its sandstone is obscured by granite facing added in 1841.

Important 1812-era defenses on Governors Island are Fort Jay (called Fort Columbus 1809-1904) and Castle Williams. They are nearly contemporaries, but Jay is an old-fashioned work with large bastions and space for only one level of cannon. Williams, the first fort of its type in the United States, provided for four tiers of heavy guns on less than half as much ground. The French had perfected this sort of construction, in which most cannon were fired from stone rooms called casemates. (During Castle Williams' later service as a military prison most of the casemates were converted to cells.) Also on Governors Island is the small South Battery, which originally mounted ten cannon. An officers club since 1879, it is open to members only. Many of the guns distributed over the island are trophies that have little relevance to their sites, but each of the defensive works mentioned has at least one

The seated central figure among these artillery noncommissioned officers at Fort Hancock is Tom Mix (arms akimbo to show the lozenges of first sergeant stripes), later the star of Western films. The photo may be dated by the 1899-1902 pattern fatigue uniforms. (Gateway National Recreation Area, Sandy Hook Unit)



Below: A late nineteenth-century view of the outer battery at Fort Wood on what is today Liberty Island. The cannon are Civil War-era Rodman guns. (New-York Historical Society)



Fort Schuyler on Throgs Neck, a peninsula which is nearly an island. (U.S. Army Military Historical Institute)



Rodman gun dating from the 1860s. The fifteen-inch Rodman atop Castle Williams represents the largest standard coast artillery of the Civil War. The island is a restricted Coast Guard base but is sometimes opened to the public (668-7255). Except for tours, all structures may be viewed only from the outside.

The incomplete granite work and later concrete batteries at Fort Totten in Queens are in the process of transfer from the army to the city and will probably become a park. Though guns are gone from Totten, the gateposts at the entrance are surmounted by disarmed harbor mines, symbolic of the fort's service as the army's School of Submarine Defense in the nineteenth and early twentieth centuries. For current information about access and programs, call the Public Affairs office of the army's New York Area Command (630-4371). Across Long Island Sound in the Bronx, Fort Schuyler, home of the State University of New York Maritime College, may be toured (892-3000, ext. 201). Schuyler, with its award-winning library built into casemates, is an excellent example of adaptive reuse of an historic structure. The early modifications were carried out in the 1930s by the WPA. William A. Hall Associates created the library in the 1960s. Some cannon are present at Schuyler but none is original to the site.

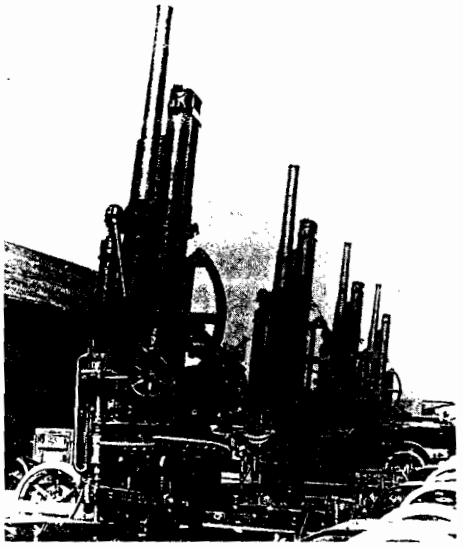
Fort Tilden and Riis Park (474-4600), Fort Hancock (201-872-0092), Floyd Bennett Field (630-0126), and Miller Field (351-8700) are all units of the National Park Service's great urban park, Gateway National Recreation Area. Fort Tilden retains the concrete casemates of its sixteen-inch guns and a Nike missile launch site. The casemates may be visited on a self-guided tour by permit, or on one of the scheduled tours led by National Park Rangers. The Sandy Hook Unit of Gateway embraces both Fort Hancock and the former ordnance proving ground for the army. Included among the historic structures are Battery Potter, the only U.S. steam-powered hydraulic lift gun battery, and one of the first U.S. emplacements for breech-loading seacoast mortars, subsequently divided into Bat-

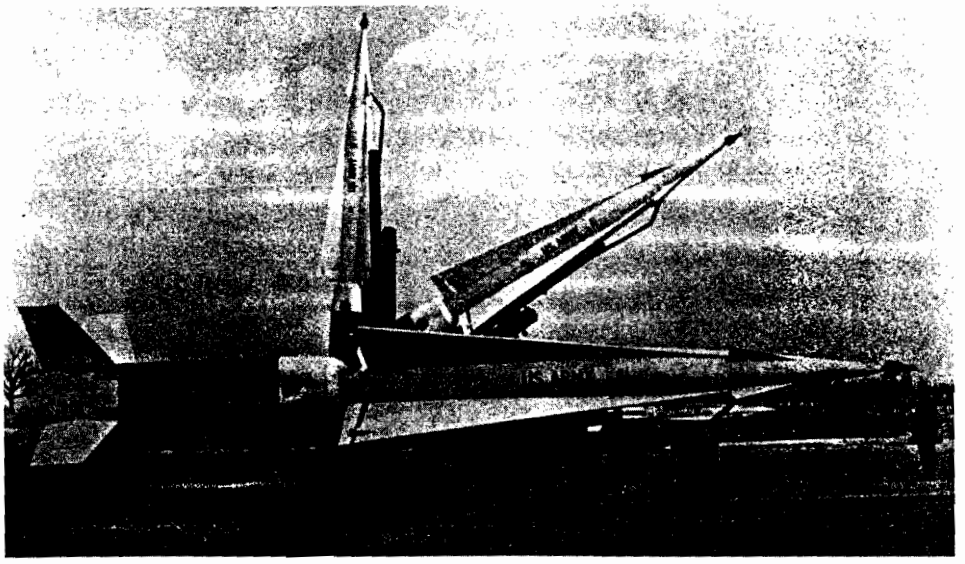
Below: Coast artillerymen, the only soldiers experienced in firing large-caliber weapons at moving targets, were given the responsibility for ground defense against airplanes during World War I. These M1918 anti-aircraft guns, adopted at the end of that conflict, served into World War II. (U.S. Army Air Defense Museum)

Top right: Fighter such as the Curtiss P2 flew from Miller Field in the 1920s. (U.S. Air Force Museum)

Bottom right: Nike ground-to-air missiles for defense of the city were based at Fort Tilden and other sites in New York and New Jersey, 1954-1974. (U.S. Air Force Museum)







teries McCook and Reynolds. No other example of a mortar pit is so easily accessible from New York City. Fort Hancock has a twenty-inch Rodman dating from 1869 (similar to the 1864 specimen near Fort Hamilton) as well as examples of the U.S. M1900 six-inch rapid-fire gun. These last are the heaviest coast defense weapons of their period surviving at a New York fort. One must travel to Florida or the West Coast to see a disappearing gun. Fort Hancock may be visited by a self-guided tour for which a leaflet is available, or on special scheduled tours conducted by park rangers. Miller and Floyd Bennett Fields, though given over partially to park administration and recreational areas, still reveal much about the first generations of New York City's air defense. The National Park Service schedules special programs on the history of Floyd Bennett Field. The hanger complex at Miller Field is not yet open to the public.

At the time of this writing, Fort Slocum on David's Island south of New Rochelle, New York, and the Navesink gun emplacements near Sandy Hook, New Jersey are inaccessible.

Organizations dedicated to preserving the remnants of New York's defenses include the Fort Hamilton Historical Society (Fort Hamilton, Brooklyn, NY 11252), which concerns itself with all New York harbor forts, the Sandy Hook Veterans Historical Society (Box 35, Fort Hancock, NJ 07732), and the Council on America's Military Past (Box 171, Arlington, VA 22210).

Headquarters, Fort Hamilton.

"History of Fort Hamilton, 1942-1955,"
dated 14 February 1955.
File: Hamilton, Fort, NY. U. S. Army Military History Institute,
Carlisle Barracks, PA.

HEADQUARTERS FORT HAMILTON
BROOKLYN 9, NEW YORK

IN REPLY REFER TO:
AHCIN

14 Febrary 1955

SUBJECT: Historical Report (Reports Control Symbol AHFAC-(OT)(64)
Command Program NR 11A - Administrative Services

TO: Commanding General
First Army
Governors Island
New York 4, New York
ATTN: AHFAC-(OT)(64)

In compliance with letter, Headquarters First Army Governors Island, New York 4, New York, File AHFAG 314.7, dated 10 November 1954, Subject as above, enclosed herewith, Historical Report of Fort Hamilton, New York, for the period 1942 to 1955.

FOR THE COMMANDING OFFICER:

H. R. MAYE
CWO, USA
Adjutant

3 Incls
1. Hist. of Fort Hamilton 1942-1955.
2. Hist of Fort Hamilton 1654-1942.
3. Site Plan, Fort Hamilton

SOURCE: U.S. Army Military History Institute
RG:
SERIES:
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FOLDER: Hamilton, Fort, NY
AG Central
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History of Fort Hamilton

1942---------1955

Historical Summary: During the interval between the Armistice of World War I and the beginning of World War II, Fort Hamilton served as the Headquarters for the First Infantry Division and as part of the Harbor Defenses of the New York area. With the beginning of World War II, Fort Hamilton was expanded tremendously to provide facilities for the assembling of units preparatory to movement, through the New York Port of Embarkation, to Europe and other overseas areas.

In January 1942 the O.D. and R. Depot, New York Port of Embarkation, one of two such Depots located in the United States, was expanded and activated as an Overseas Staging Area. The Staging area became an integral part of Fort Hamilton. During the heavy troop build up period in the European Theater of Operations, and other areas large numbers of troops and troop units were processed through Fort Hamilton.

At the close of World War II the facilities at Fort Hamilton were utilized in connection with the return to the United States of the majority of the troops of the European Theater of Operations.

On 1 July 1949, Fort Hamilton was designated a Class I, Installation by Authority of Section 1, General Order 25, Department of the Army, dated 31 May 1949, and transferred from the New York Port of Embarkation to First Army control. The primary mission of Fort Hamilton became the processing and movement to and from overseas areas, of military personnel, Department of Army personnel and their dependants, dependants of military personnel, Allied military personnel and special category personnel. Land, sea and air transportation are being utilized for the movement of personnel.

During the years 1952 to 1954 the number of personnel moved through Fort Hamilton quarterly was as follows:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1949	9,575	13,574	23,266	14,021
1950	11,180	13,684	17,992	9,113
1951	8,102	13,393	15,908	20,882
1952	30,032	32,776	38,894	30,497
1953	25,411	34,401	42,561	38,436
1954	30,160	43,032	54,917	49,269

In compliance with General Order Number 43, Headquarters First Army, dated 5 May 1943, the Transfer Point, located at Fort Jay, Governors Island, New York was transferred to Fort Hamilton. The function of the Transfer Point is the processing for separation or transfer of military personnel of

Encl #1

all grades and to accomplish final disposition of records for personnel reporting to the Transfer Point. Records of the Transfer Point reflect the total number of personnel processed from 10 May 1954 to 8 February 1955 as follows:

a. Officers	1,990
b. Enlisted	5,783

COMMANDING OFFICERS

23 October 1940	Major General H. N. Groninger
11 July 1945	Major General Clarence H. Kells
14 April 1946	Major General Frank S. Ross
15 May 1946	Major General Ewart G. Plank
(Temporary)	Colonel P. S. Lowe
1 June 1948	Colonel James C. Ruddell
16 March 1953	Colonel Edwin J. Harrington
6 July 1953	Colonel C. H. Schabacker
1 November 1953	Colonel Louis P. Leone
1 September 1954	Colonel Maurince J. Fitzgerald

UNITS CURRENTLY ON POST

Detachment #1, 1275th Service Unit (Station Complement)
Detachment #1-B, 1275th Service Unit (Medical Detachment)
9201 TSU TC Military Police Detachment
9201 TSU TC Port WAC Detachment
328th Army Band
Headquarters Battery, 69th AAA Gun Battalion
Battery "A", 69th AAA Gun Battalion
Detachment #1, 2225th Personnel Processing Group (Air Force)

CONSTRUCTION - EXPANSION - INACTIVATION

NEW CONSTRUCTION

Contract No W6511-QM222. Work started 15 June 1941
Contractor - J.A.J. Construction Co., Inc.

Number of Buildings	Type of Buildings
1	Chapel (CH-1)
51	63 Man Barracks
1	63 Man Barracks (Modified)
2	1500 Man Mess Halls
3	Warehouses (SH-18)
1	Officers A Quarters (SH-18)
1	Administration Building (A-22)
1	Recreation (RB-1)
1	Service Club (SC-3)
1	Post Exchange (E-3)
4	Hospital Wards (W-1)
1	Hospital Wards (W-2)
1	Hospital Wards (W-6)
1	Mess Hall (M-3)

Number of Buildings	Type of Buildings
2	Hospital Barracks
1	Recreation Building (RB-2)
1	Nurses Quarters & Mess HQM-11
1	Nurses Quarters (HQ-12)
1	Officers Quarters & Mess (HQM-11)
1	Boiler House (HBH-7)
	Contract completed 15 November 1941

Contract No W6125-QM12, O.I. 1308. Work started 15 July 1941
Contractor - J.A.J. Construction Co., Inc.

Number of Buildings	Type of Buildings
1	Administration Building (A-12)
1	Telephone & Telegraph building (TT-2)
2	Infirmary buildings (1-2)
1	Radio Shelter (SCR-268)
	Contract completed 31 October 1941

Contract No. W-1097-ENG 2685. Work started 20 January 1942
Contractor - Albert A. Lutz Co., Inc

Number of Buildings	Type of Buildings
1	248 Man Mess Hall
15	74 Man Barracks
5	Recreation buildings (RB-4)
5	Storehouse and company administration bldgs (SA-2)
1	Post Exchange (E-2)
1	476 Man Mess Hall
1	Bachelor Officers Quarters and Mess (BOQ M-40)
1	Administration Building (A-5)
1	Contract completed 30 Apr 1942

Contract No W-1097-Eng-2839. Work started 20 April 1942
Contractor - George Hoffman & Sons Inc.

Number of Buildings	Type of Buildings
2	Warehouse (SH-18) (Modified)
	Contract completed 31 May 1942

Contract No W1097-Eng 2853. Work started 25 April 1942
Contractor - John F. Meehan, Inc

Number of Buildings	Type of Buildings
1	Post Theater (TH-1)
	Contract completed 22 June 1942

Contract No W-1097-Eng-2901. Work started 25 May 1942
Contractor - Charles R. Krieg

Number of Buildings	Type of Buildings
1	Bachelor Officers Quarters (BOQ-40) Completed 9 July 1942

Contract No W-1097-Eng-2926. Work started 27 May 1942

Number of Buildings	Type of Buildings
1	Dental Clinic (DC-3) Contract completed 25 July 1942

Contract No. W-1097-Eng-3032. Work started 29 July 1942
Contractor - Sheppard-Pollak Inc

Number of Buildings	Type of Buildings
2	Storehouse (SA-2) 248 Man Mess Hall Contract completed 7 October 1942

Contract No. W-1097-Eng-3049. Work started 4 August 1942
Contractor - Joseph A. Lee

Number of Buildings	Type of Buildings
1	Medical Detachment Barracks (HB-63) Contract completed 2 September 1942

Contract No DA-W30-075-Eng-4063. Work started 2 Feb 1949
Dayton Project

Number of Units	Type of Buildings
181 Family Units Lease executed by Dayton Developement Inc and Assistant Secretary of the Army, 3 March 1949.	Brick Apartments (Wherry Housing types) Contract completed April 1951

Fort Hamilton Manor

Number of Units	Type of Buildings
500 Family Units	Brick apartments (Wherry Housing types) Completed C April 1953

Contract No. W-30-075-Eng-4412. Work started 2 Jan 1950
Officers and Non Commissioned Officers Quarters - Buildings 700,701,702 and 703.

Number of Buildings	Type of Buildings
4	Two story row house, Colonial Brick Veneer Construction - 8 Family unit. Completed January 1951

Army Reserve Training Center Armory. Work started 27 July 1950.

Number of Buildings	Type of Buildings
1 (Armory)	Brick Vaneer over Cinder block walls
1 (Automotive Vehicle Shop & Storage)	Brick Vaneer over Cinder block walls (both poured concrete foundations) Work completed April 1953

BUILDINGS INACTIVATED AND DEMOLISHED

Buildings	193-194-195 and 94-H Demolished for preparation of construction of the Dayton developement. Completed 1948
Buildings	164-162. Condemmed and demolished 1948.
Buildings	241to249; 251to258; 261to268; 271to278; 281to283; 291to298; 301to308; 690,691; and 1-B. Demolished for preparation of construction of the Veterans Hospital.
Buildings	23,23A, 169, 199, 300 and 350. Demolished in April andMay 1950. Authority: 3rd indorsement, Headquarters Firs Army, File, AHCEN 600. 6x 602, dated 30 Januar 1950.
Buildings	177, 181, 165 and 649. Demolished in April and May 1950. Authority: 3rd indorsement, Headquarters First Army, File AHCEN-1, 602, dated 13 Feb 1950.
Buildings	111, 112, 113. Condemmed and demolished 1953
Buildings	11, 102, 103, and 150 demolished. August and September 1954. Authority-Distr E

Headquarters, Second Corps Area.

"Proceedings of a Board of Officers convened . . . for the purpose of recommending the details of installation of defensive elements within the Harbor Defenses of Southern New York,"
dated 30 July 1941.
Record Group 77; Entry 1007; Box 157.
National Archives I, Washington, D. C.

REPRODUCED AT THE NATIONAL ARCHIVES

DECLASSIFIED
Authority NND 735 036
By NW NARA. Date 11/13/74

Fort Hamilton, New York.

July 30, 1941.

Proceedings of a Board of Officers convened pursuant to Par.1, Special Orders No. 263, Headquarters Second Corps Area, November 5, 1940, (copy of which is appended as Exhibit No. 2,) for the purpose of recommending the details of installation of defensive elements within the Harbor Defenses of Southern New York.

National Archives I
RG 77
Entry 1007
Box 157

REPRODUCED AT THE NATIONAL ARCHIVES

4. The following tabulation lists the existing and authorized seacoast batteries which will remain in the project upon completion of the modernization program.

PROJECT BATTERIES (PERMANENT)

Battery: Tactical No.	Battery: Name or Construction No.	Caliber: In.	No. of Guns	Location: Fort	Location: Exhibit	Status	Priority for TCS Batteries.
1	Const.No.218	6"	2	Wadsworth	5	TC	
2	Turnbull	3"	6	"	5	TCS	3
3	Catlin	3"	6	"	5	TCS	4
4	Griffin	3"	2	Hamilton	5	TCS	2
5	Livingston	6"	2	"	5	TCS	1

5. Sites for the following batteries have been approved by the Secretary of War.

BATTERIES TO BE CONSTRUCTED

Priority	Battery Tactical No.	Const. No.	Casemate or Shield	Exhibit	Acreage	Estimate Cost of Land
1	1	218	Shield	6	-	None (Military Reservation)

a. Site Board action was approved by Reference 15, Exhibit 1.

DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) or (E)
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By 4 NARS, Date 7/7/78

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SEACOAST GUNS

REPRODUCED AT THE NATIONAL ARCHIVES

6. The following tabulation lists the existing seacoast batteries which have been classed as outmoded under the modernization program. Current plans contemplate their exclusion from the project upon completion of all new batteries.

PROJECT BATTERIES OUTMODED

Battery			No. of	Type			
Tactical No.	Name	Caliber	Guns	Guns	Carriages		Location
6	Dix	12"	2	M1900	M1901	DC	Wadsworth
7	Mills	6"	1	M1897-M1	M1898	DC	"
8	Johnston	6"	2	M1897			
				M1897-M1	M1898	DC	Hamilton
9	Brown	12"	2	M1888-MII			
				M1888-M1½	M1897	DC	"
10	Doubleday	12"	2	M1888M1½	M1897	DC	"

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7. The following tabulation lists those batteries designated in the current basic project in the New York - Narragansett Bay Area, (Short Title CCA-P-NYNB,) as batteries "No Longer Required."

Battery	Caliber	No. of Guns	Type Guns	Type Carriages	Location
Gilmore	10	4	1&2 M1895 3&4 M1888	M1896 DC	Ft. Hamilton
Neary	12	2	M1888 MII	M1892 BC	"
Upton	10	2	M1888	M1896 DC	Ft. Wadsworth
Richmond	12	2	M1888 MII	M1896 DC	"
Hudson	12	2	M1888 MII	M1896 DC	"
Ayers	12	2	M1888 MII	M1897 DC	"
Piper	12 Mortar	4	M1890 MI	M1896M1	Ft. Hamilton
Spear	10	3	M1888	M1894 DC	"
Mendenhall	6	4	M1903	M1903 DC	"
Griffin	3		See Note j		
Burke	6	2	M1900	M1900 BC	"
Livingston	6		See Note l		
Bacon	3	2	M1898	M1898 DC	Ft. Wadsworth
	4.72)	2)	M1897	M1898 Pedestal	"
Barbour	6)	2)	M1898	Armstrong	
Duane	3	5	M1894	M1894 DC	"
Barry	10	2	M1888	M1896 DC	"
Mills	6		See Note q		

REPRODUCED AT THE NATIONAL ARCHIVES

GENERAL STATUS OF EMPLACEMENTS AND MATERIAL TABULATED ABOVE

a. BATTERY GILMORE: Classified as no longer required by Part V CCA-P-NYMB. No authority for retention for training or disposition of armament has been issued. Magazine used for storage of small arms ammunition and ordnance supplies.

b. BATTERY HENRY: Guns removed and shipped Watervliet Arsenal for storage. Mounts placed on I & I report for salvage per 7th Ind. CO 662/21 War Department November 7th, 1940. Magazines used for first aid room, for storage of small arms ammunition and ordnance supplies.

c. BATTERY UPTON: No longer required per Part V CCA-P-NYMB. No authority for retention for training or for disposition of armament is on hand. Magazines are to be used for first aid room.

d. BATTERY RICHMOND: No longer required per Part V CCA-P-NYMB. No authority for retention for training or for disposition of armament is on hand. Magazines are to be used for first aid room and for storage of AA ammunition.

e. BATTERY HUDSON: No longer required per Part V CCA-P-NYMB. No authority for retention for training or for disposition of armament is on hand. Magazines are to be used for storage of propelling charges for Battery Dix and storage of small arms ammunition.

f. BATTERY AYRES: No longer required per Part V CCA-P-NYMB. No authority for retention for training or for disposition of armament is on hand. Carriage No.1 has had parts removed for repair and modification of other carriages. Power plant is used to furnish power and light to other batteries. Magazines are to be used for storage of AA ammunition.

g. BATTERY PIPER: Mortars removed and shipped to Watervliet Arsenal for storage. Mounts placed on I & I report and salvaged in accordance with authority contained in 7th Ind. AG 662 War Department, April 29, 1940. A small arms target range has been constructed in Pit A. Magazines are to be used for storage of AA ammunition and for command post of AA Battery No.2, also for first aid room.

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h. BATTERY SPEAR: Guns removed and shipped in 1917. No information available regarding destination or authority for shipment. Carriages 1 & 3 scrapped per 2nd Ind. 473.3(Misc.Div.) War Department, May 4, 1920. Carriage 2 held in storage until 1939 when it was scrapped per 11th Ind. AG 473.3 War Department June 15, 1939. Magazines used for misc. artillary and engineer storage.

i. BATTERY MENDENHALL: Guns shipped Alliance O. No authority for shipment available. Carriages scrapped per 2nd Ind. 473.3(Misc.Div.) War Department May 4, 1920. Power Plant used for power for searchlight No.3. Can be used for power and light for active batteries. Magazines used by Post Quartermaster for storage of QMA material.

j. BATTERY GRIFFIN: Originally planned for 8 guns of which No. 5 & No.6 were never mounted. Present battery, guns 3 & 4 will be retained under project. Guns 1 & 2 were 3" M1898 on M1898 pedestal mounts. Guns shipped Watervliet Arsenal per letter 400.702 Hq. MACAD June 21, 1920. Carriages salvaged. Guns 7 & 8 were 4.72" on M1898 mounts. Guns and carriages shipped Benecia Arsenal, California, under War Department authority dated June 28, 1913. Magazines used for ammunition and equipment for two remaining guns.

k. BATTERY BURNS: Guns shipped Fort Tilden per letter Headquarters Eastern Department, February 6, 1917, and to Base Depot AEF per telegraphic instructions Chief of Ordnance December 4, 1917. Carriages shipped Fort Tilden per authority quoted above. Magazines damp, but used for Ordnance storage.

l. BATTERY LIVINGSTON: Originally consisted of 4 guns of which #1 and 2 remain in the project. Guns 3 & 4 were 6" M1903 on BC mounts M1903. Guns and mounts shipped West Point, New York per letter 578-07 Artillery District of New York April 25, 1907. Magazines used for ammunition and equipment for existing battery.

m. BATTERY BARBOUR: 4.72" guns and mounts removed and shipped. Destination and authority unknown. 1-6" gun and carriage shipped Sandy Hook Proving Ground 1908. Other 6" gun shipped Watervliet Arsenal and carriage shipped Sandy Hook Proving Ground per 8th Ind. War Department AGO May 19, 1919.

n. BATTERY BACON: Guns and carriages to Aberdeen Proving Ground per letter MACAD October 17, 1918. Magazines not in use.

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o. BATTERY DUANE: 2 guns shipped Fort Rodman, Mass., 1918. Disposition of others not known. Magazines and emplacements remodeled and used for coal storage.

p. BATTERY BARRY: Guns and mounts shipped Watervliet Arsenal per letter War Department AGO May 27, 1918. Magazines not in use.

q. BATTERY MILLS: Gun No. 1 to be retained until completion of project; Gun No. 2 shipped Sandy Hook Proving Ground per letter OO, CDSNY, May 24, 1919, and mount scrapped. Magazines used for storage for Gun No. 1.

8. The tactical organization of the harbor defense pending completion of the modernization program, hereafter referred to as the intermediate status, is shown in Exhibit 3. The tactical organization of the harbor defense upon completion of the modernization program, hereafter referred to as the ultimate status, is hown in Exhibit 4.

9. The following tabulation shows the War Reserve Allowance of Ammunition for all authorized seacoast batteries, including those to be abandoned on completion of the modernization program, together with the Battle Allowance of Ammunition recommended for Existing Batteries and for new batteries.

Name or Constr. Number	Tactical No.	No. of Guns	Caliber & Type	Type Projectile	Rounds per Btry WR	Rounds per Btry BA	Place of Storage
Constr. #218	1	2	6"	AP	1200	800	At Btry
				HE	400	400	At Btry
Turnbull	2	6	3"	15 HE	2400	1200	At Btry
Catlin	3	6	3"	15 HE	1200	1200	At Btry
Griffin	4	2	3"	15 HE	800	800	At Btry
Livingston	5	2	6"	108 AP	1200	800	At Btry
				90 HE	400	400	At Btry
Dix	6	2	12"DC	1070 AP	480	480	At Btry
Mills	7	1	6"DC	108 AP	400	400	At Btry
				90 HE	200	200	At Btry
Johnston	8	2	6"DC	108 AP	800	800	At Btry
				90 HE	400	400	At Btry
Brown	9	2	12"DC	870 AP	240	240	At Btry
Doubleday	10	2	12"DC	870 AP	240	240	At Btry

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10. The ammunition storage plan proposed in the preceding paragraph has been checked against the requirements of TM-1370-A as changed by Changes 1-7 and complies therewith in all respects. No additional bomb-proof magazine storage capacity is required for the battle allowances of ammunition recommended in paragraph 9, above, and those mentioned in paragraphs 28 and 30, below (for anti-aircraft weapons).

11. CAMOUFLAGE.

In order that camouflage may be undertaken in this Harbor Defense when methods and materials shall have been decided on, the cost estimate includes the sum of Ten Thousand Eight Hundred Dollars ($10,800).

12. Attached hereto as Exhibit 22 is the Cost Estimate and Priority Guide for the construction or procurement of items carried in the preceding 11 paragraphs. The items listed include by batteries, the fortification construction items, major items of equipment for all services as listed in Inc. No.2 to letter subject: "Modernization of Harbor Defense Projects, Continental United States", dated the office of the Adjutant General, September 27, 1940 (AG660.2(9-12-40)M-WPD-M) and land procurement items. Estimated costs of land include costs of survey and transfer. Separate Cost Estimate and Priority Guide forms have been prepared for those items pertaining to the Fire Control, Searchlight, Antiaircraft, Underwater Defense and Gas Defense Annexes as indicated in succeeding paragraphs of these proceedings.

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ANTIAIRCRAFT DEFENSE

REPRODUCED AT THE NATIONAL ARCHIVES

ANTI-AIRCRAFT ARTILLERY

28. The authorized anti-aircraft gun defense is disposed as stated in the following subparagraphs and as shown in the indicated Exhibits. For the tactical organization for anti-aircraft defense, see paragraph 8 and Exhibits 3 and 4. No land procurement is involved.

LIST OF 3-INCH FIXED ANTIAIRCRAFT GUN BATTERIES

Btry No:	No. Guns	Location: Fort	Site:	Alt.	Type Guns	Mounts	Battle Allowance Ammun.	Place Storage
1	3	Wadsworth	32	9	1-3"AAM1917 MLA2 2-3"AAM1917 A2	M1917MII	1800	Btry Ayers Btry Richmor
2	3	Hamilton	33	10	3-3"AAM1917 MLA2	M1917MII	1800	Btry Piper

a. AA Battery, No.1 requires a director and other fire control and communication equipment shown in cost estimate and priority guide.

b. AA Battery, No.2 requires a director, height finder and other fire control and communication equipment shown in cost estimate and priority guide. Of the three separate stone structures that comprise Kinney Redoubt, the easternmost should be made available for wartime storage of ammunition.

29. The authorized anti-aircraft searchlight defense is as stated in the following subparagraphs and as shown in the indicated Exhibits. Suggested initial locations are shown. No land procurement is involved.

AASL No.	Exh.	Location	Site No.	Type	On Hand	Required
1	21	Staten Is.	-	Portable	1	0
2	21	Staten Is.	-	Portable	1	0
3	21	Staten Is.	-	Portable	0	1
4	21	Staten Is.	-	Portable	0	1
5	21	Brooklyn	-	Portable	0	1
6	21	Brooklyn	-	Portable	0	1
7	21	Brooklyn	-	Portable	0	1
8	21	Brooklyn	-	Portable	0	1
9	21	Coney Island	-	Portable	0	1
10	21	Hoffman Is.	-	Portable	0	1

a. According to Reference 11 Exhibit 1, ten anti-aircraft searchlights with shelter, were under procurement, of which two searchlights have been received. No shelter has been constructed.

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30. The authorized anti-aircraft automatic weapon defense is as tabulated below and as shown in the indicated exhibits. Suggested initial locations for the intermediate status are shown in Exhibits 9 and 10.

Caliber	No. of Guns	LOCATION Fort	Site No.	Sch.	Battle Allow Ammun.	Place of Storage	On Hand	Req'd.
		ULTIMATE STATUS						
50 MG	8	Miller Field	31	8	14400	Stry Hud son		14400
50 MG	18	Wadsworth	32	9	93600	Stry Hud son		93600
50 MG	12	Hamilton	33	10	86400	Stry Ha-ary		86400
50 MG	2	Norton Point	34	7	14400	Stry Ha-ery		14400
37 MM	4	Wadsworth	32	9	7200	Stry Ay-ers		7200
37 MM	8	Hamilton	33	10	14400	Stry Pi-per		14400
		INTERMEDIATE STATUS						
50 MG	2	Miller Field	31	8	14400	Stry Hud son		14400
50 MG	8	Wadsworth	32	9	57600	Stry Hud son		57600
50 MG	6	Hamilton	33	10	43200	Stry Ha-ery		43200
50 MG	2	Norton Point	34	7	14400	Stry Ha-ary		14400
37 MM	2	Wadsworth	32	9	3600	Stry Ay-ers & Richmond		3600
37 MM	2	Hamilton	33	10	3600	Stry Pi-per		3600

31. The requirements for the Anti-aircraft Artillery Intelligence Service are as described below and as shown on Exhibit 21.

a. Location of observation posts are shown on Exhibit 21. These locations have been coordinated with those of the Harbor defenses of Sandy Hook. Location of the Anti-aircraft Artillery Intelligence Center during intermediate status: Fort Hamilton, See Exhibit 14; during ultimate status; Fort Wadsworth, See Exhibit 9.

32. Attached hereto as Exhibit 26 is cost estimate and priority guide for items covered by paragraphs 26 - 31 inclusive.

Headquarters, Second Corps Area, Chemical Warfare Office.

"Report of Activities, 2nd Corps Area, for July,"
dated 03 August 1929.
Record Group 175; Entry 3; Box 574; File: Second Corps Area.
National Archives I, Washington D.C.

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IN REPLY REFER TO:
319.1 - CWS.,

HEADQUARTERS 2ND CORPS AREA
OFFICE OF THE CHEMICAL WARFARE OFFICER

CWE:FEC
GOVERNORS ISLAND, N. Y.

Aug. 3, 1929.

WAR DEPT.
C.W.S.
AUG 6 1929

Subject: Report of Activities, 2nd Corps Area for July.

To: The Chief, Chemical Warfare Service, USA.,
Munitions Building,
Washington, D. C.,

TRAINING.

1. Colonel C. W. Exton, Tech. Sgt. Forest A. Sherman and Staff Sgt. Joseph Levin were at Camp Dix, N. J., for ten days in connection with CPX29. Six Chemical Warfare Reserve Officers were also on active duty at Camp Dix for the period of this Exercise. The six officers were assigned as follows: -

Lieut. Colonel Stephen A. Douglass	- II Corps,
Lieut. Colonel Joseph D. Sears	- XII Corps,
Major Leonard A. Maynard	- 98th Division,
Major George W. B. Witten	- 61st Cav. Div.,
Captain Chas. E. Howson	- 77th Division,
Captain Frederick Kraissl, Jr.,	- 78th Division.

SUPPLIES.

1. One Model 2 - 1 Victor Portable Stereopticon for use in giving illustrated talks was received during the month.

2. In compliance with Paragraph 9 of pamphlet, entitled - "Procedure for Development, Test and Adoption of Chemical Warfare Service Materiel" - None used.

RESERVE AFFAIRS.

1. 18 Reserve Officers were ordered to active duty at the Chemical Warfare School from July 29th to August 10th. Two Reserve Officers - Captain Alexander A. Nitikin and 1st Lieut. John G. Glover are attending this camp at their own expense.

2. The Correspondence School is closed for the summer months and will reopen October 1st.

PERSONNEL.

1. Tech. Sgt. Michael J. Gorman, (R-1002574) CWS., was ordered to Edgewood Arsenal for duty as per Paragraph 11, S. O. 164, this headquarters.

2. Sgt. Ira W. Reed, CWS., on furlough for one month, beginning August 1st.

NARA-DC
RG175
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B 574
Second Corps Area

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GENERAL.

1. Tech. Sgt. Michael J. Gorman, CWS., gave a talk and demonstration to the officers of the 308th Infantry, at Fort Hamilton, N. Y., on Thursday morning, July 18th. 20 Smoke, Substitute Candles and 4 C. N. Candles were set off and the officers passed through this screen.

/C. W. EXTON,
Colonel, C.W.S.,
Corps Area C. W. Officer.

319.1 - CWS., 1st Ind.

HEADQUARTERS 2ND CORPS AREA, Governors Island, N. Y., August 3, 1929.
To: The Chief, Chemical Warfare Service, USA., Munitions Bldg., Washington,D



Headquarters, Second Corps Area, Chemical Warfare Office.

"Report of Activities, 2nd Corps Area, for November,"
dated 09 December 1929.
Record Group 175; Entry 3; Box 574; File: Second Corps Area.
National Archives I, Washington D.C.

Headquarters, Second Corps Area, Chemical Warfare Office.

Memorandum,
dated 13 December 1929,
regarding the storage of chemical warfare material at Fort Hamilton.
Record Group 394; Entry 40; Box 1.
National Archives I, Washington D.C.

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HEADQUARTERS 2ND CORPS AREA,
CHEMICAL WARFARE OFFICE,
GOVERNORS ISLAND, NEW YORK.

MEMORANDUM: Dec. 13, 1929.

SAILER PLAN.

CHEMICAL SUPPLIES - (Masks & Ammunition)

GAS MASKS: - 500 Mk 1-3-2

1. 300 Masks are in storage - in store room of C.W.O., 2nd Corps Area - basement of Warehouse No. 1. These to be issued by direction of Commanding General, 2nd Corps Area or his proper representative. (Memo from C/S, 2d C.A., 6/25/28).

2. 200 Masks are in storage in ~~Old Guard house~~ Office of Prison officer at Fort Jay, (16th Infy). These Masks are to be issued only by direct order of C. O., Fort Jay or his personal representative in the event of Sailer Plan or other Alert Plans being put in effect.
(Letter A.G.O., 2nd C.A., 676.1/2587 #2 6/25/28).

AMMUNITION: - at Ft Hamilton
400 Candles, Smoke Sub.,
480 " C. N.,
288 Grenades, Hand - C. N.,
288 Grenades, Rifle - C. N.,

This ammunition is now in storage in Chemical Warfare Magazine at Fort Hamilton. and O.O.
It is on Stock Record Cards of C.W.C., Ft. Hamilton.
It is under the jurisdiction of the Post Commander, Ft. Hamilton.
It will be issued for Special Alert Plans - i.e. - Sailer Plan, White Plan, etc., by direction of the Commanding General, 2d Corps Area.
It will be renewed in part each year by substitution from training allowances of 18th Inf'y.
(4th Ind. W.D., A.G.O., 471.6 to 2nd C.A., 4-9-28)
(5th Ind. Hqrs. 2nd C.A., File 353.2991 A.G.O. Misc.Div., April 13, 1928)

Additional Ammunition at Fort Jay
(in old Guard house)

100 Candles, Smoke
80 Candles, Tear Gas,
96 Grenades, Hand, Tear Gas
(letter 2nd C.A., 6/25/28
8 Ind. 2nd C.A., 2-17-28)

C. W. EATON,
Colonel, C.W.S.,
Corps Area C. W. Officer.

SOURCE: National Archives I
RG: 394
SERIES: Entry 40, Second Corps Area
BOX: 1
FOLDER:

AG 471.6 2d C. Area (2-9-28) Misc.-D. 4th Ind.

War Department, AGO, April 9, 1928 - To the Commanding General, Second Corps Area.

The recommendation in the within letter is approved. The Commanding General, Second Corps Area, is requested to issue such instructions as may be required to insure that this particular material is kept in first class storage and turned over by issue to the extent permitted by authorized training allowances.

By order of the Secretary of War:

ROBERT L. COLLINS,
Adjutant General.

REPRODUCED AT THE NATIONAL ARCHIVES

HEADQUARTERS 2ND CORPS AREA,
Office of the Corps Area Commander,
Governors Island, New York.

353/2991 Feb. 9, 1928.

SUBJECT: Allowance of Chemical Warfare Ammunition.

TO: The Adjutant General, Washington, D. C.,

1. It is recommended that the following amounts of chemical warfare ammunition be authorized for this Corps Area for use in an emergency, this ammunition to be stored at Fort Hamilton under the jurisdiction of the Post Commander: -

400 Candles, Smoke,
480 Candles, Tear Gas,
288 Grenades, Hand, Tear Gas,
288 Grenades, Rifle, Tear Gas.

2. The ammunition can be renewed from year to year by issuing from it for training purposes and replacing it by new ammunition.

For the Commanding General:

WM. C. ROSE,
Major, A.G.D.,
Assistant Adjutant General.

REPRODUCED AT THE NATIONAL ARCHIVES

History Office, CBDA.

Finding Aid for the collection at the History Office,
no date.
U. S. Army Chemical Biological Defense Agency,
Edgewood Arsenal, MD.

Fort Hamilton, New York

Fort Hamilton was located between Bay Ridge and Coney Island, New York, and was in existence from the Revolutionary War days. During March of 1943, the Defense Against Chemical Attack course was presented to station hospital personnel. It was two weeks in duration and included the gas mask, gas chamber drills, decontamination operations, field identification of chemical agents, and smoke demonstrations. The gas chamber was built in the old stone fortification area.

Coastal Atry unit stationed here.

Fort Hancock, New Jersey

Gas mask drills were conducted, soldiers wore mask while performing normal duty [CWS Newsletter, 1941-1942]

General Order Number 32, 13 April 1953 places this activity in inactive status, formerly it is listed as a class I installation under the jurisdiction of the Commanding General, First Army.

Fort Hayes, Columbus, Ohio

Chlorine was shipped here; MR simulant was used for Mustard agent

Training ammunition allotments for 1945 allot the following as some of the CWS equipment for this station:

M2 instructional incendiary bombs
CN capsules
M7 CN hand grenades
AN-M8 HC smoke grenades
HC smoke pots, M1
Set, gas identification, det M1, w/det

Suballocation of CWS Credit #2745 (Training Ammunition for April 1945):
25 pounds, Cl (Chlorine gas)

Fort Huachuca, Arizona

a post chemical officer was allotted to..[october 1941, cws newsletter, p 16]

Fort Jackson, South Carolina

Location of officers of this Chemical Warfare Section were considerably enlarged when the section took over an entire building. The new location has

n.a.

Armament Sheet for Fort Hamilton,
dated 30 June 1866.
Record Group 77; Fortifications File; Drawer 250, Sheet 13-2.
National Archives II, Cartographic Branch, College Park, MD.

NARA - 602...
Cartographic Rec...
RG77
Fortification...
Drawer 250
Sheet 13-2

Fort Hamilton

		Smooth bore Guns																						Rifled Guns									
		20 inch.		15 inch.		13 inch.		10 inch.		8 inch.		8 Inch. Sea-Coast Howitzer	42 P'drs	32 P'drs	24 P'drs	18 P'drs	12 P'drs	18 P'drs Siege or Field.	12 P'drs	12 P'drs Siege guns	6 Pdr Boat Field guns		24 Pd Flank Howitzers	Mortars	300 P'drs		200 P'drs		100 P'drs		42 P'drs	32 P'drs	24 P'drs				
		⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙								⊙	○	⊙	○	⊙	○	⊙	⊙	⊙				
Guns mounted June 30, 1860	Casemate													14									10													
	Barbette											1		19	10					1	7			1												
Guns & Carriages on hand not mounted June 30/66	Casemate																																			
	Barbette			2	1																			3												

There are 3 - 15" guns on hand and 2 centre pintle carriages for 15" guns

		20 inch.		15 or 13 inch.		10 & 8 inch smooth bore 300-200- or 100 Pound Rifles		Smaller Calibres - Platforms not reinforced.	Flank Howitzer			
		⊙	○	⊙	○	⊙	○	○	○			
Platforms ready for Guns on June 30/66 exclusive of those on which Guns are mounted at that date.	Casemate								4			
	Barbette							9				
Additional Platforms probably ready by June 30/67 (exclusive those on which Guns are mounted, and those ready for Guns on June 30/66)	Casemate											
	Barbette											

		No of Platforms
Total number of platforms probably ready by June 30. 1867	Casemate	
	Barbette	
Total Armament of work when completed	Casemate	28
	Barbette	38

The 14 Casemate guns are mounted on Cast Iron Carriages, and chassis of Wood; One 10 Inch Mortar mounted, Two 8 inch and one 10 Inch Mortar not mounted.

Note - Separate and distinguish the Rodman guns & the oval Model Columbiads — Give Calibre of Mortars — distinguish wood & Iron Carriages — And state the number and Class of Guns and Carriages yet due the work (June 30/66) as per Notifications from Engineer or Ordnance Report 1866

REPRODUCED AT THE NATIONAL ARCHIVES

n.a.

Untitled history,
dated July 1892.
File: Historical Notes and Histories, Harbor Defense Museum,
Fort Hamilton, NY.

Harbor Defense Museum
Ft Hamilton, NY.
F. Historical Notes + Histories

FORT HAMILTON, NEW YORK.

Latitude, 40 37 28" North. Longitude, 3 01 35" East Wash.

Altitude 30 feet.

A United States military post, fortified, located on the southwest shore of Long Island in the harbor of New York, about six miles due south from the city of New York; and two and a half miles from and within the limits of the town of New Utrecht, in Kings County, New York.

COMMUNICATION- By steamboat and rail to New York City and Brooklyn; street cars (steam motors) leave Brooklyn for the post every twenty minutes. By steamboat to New York via Bay Ridge line or by was of New York and South Brooklyn Ferry; the Bay Ridge boats run every hour during the summer season, but make irregul trips during the winter. The New York and South Brooklyn Ferry boats run every half hour all the year round. Post office and telegraph station at the post.

SUPPLIES- Quartermaster, commissary and other stores are received principally from the depots at New York, thence by government steamer to the post. Forage and fuel are furnished by contract. A three months' supply of subsistence is always kept on hand. Autumn is the best season for supplying the post. Water of good quality is obtained from the city of Brooklyn; the government owns the water main, but pays the city for the water supply, which is thoroughly distributed throughout the post by a four

city of New York, and securing the safety of the harbor, early engaged the attention of Congress, and the debates of the 1st and 2nd Congresses show that a disposition to inaugurate a thorough system of defence of the sea board, was merely restrained by a want of sufficient means at the disposal of the Government. The journals of Congress show however, that the matter was frequently discussed, and that plans were repeatedly invited and rejected, owing to the large sums which were estimated as essential to the purposes in hand. In fact up to February, 1806, the only considerable work in that vicinity was Fort Jay (now Fort Columbus), on which to that date had been expended a sum slightly rising $100.000.

In a report from the War Office, transmitted to Congress by President Jefferson, February 18, 1806, appears a brief recital of what had been accomplished in relation to fortifying the harbor of New York. (Document 60, 9th Congress, 1st Session.) In this report the War Office discussed the impropriety of relying upon fixed batteries to command a channel of more than a mile in width, and in this connection remarked that,"This passage cannot be reduced to less than seven-eighths of a mile in width, and that only by erecting works on a reef 500 yards from the Long Island shore, where there are three feet of water at the lowest time of tide, and nine feet at high water." This reef, thus for the first time officially considered, was undoubtedly Hendrick's Reef, the subsequent site of Fort

passed an Act, which was amended and extended by Act of March 13, 1808, appointing Commissioners to cede to the United States, "the use of and jurisdiction over, lands required for the purpose of providing for the defence and safety of the city of New York", and in pursuance of these Acts, the Commissioners, on the 6th of November, 1812, ceded to the United States the use of and jurisdiction over certain land in the town of New Utrecht, Kings County, New York, on the easterly side of the Narrows, at the entrance of New York Bay, under a reef commonly called "Hendricks'Reef", and under water, containing 30 acres, 2 roods and 30 perches.

This was the site of Fort Diamond, which was commenced in the spring of 1812, as an initial and preliminary work in the system which contemplated the erection of strong fortifications on the high lands of Long and Staten Islands, to command the channel at the Narrows. It was at this point that the British troops under Lord Howe landed previous to the battle of Long Island, and had been long regarded as a strategic point of great military importance.

It was therefore immediately following the commencement of the work at Hendrick's Reef, that measures were instituted looking to securing the main land at New Utrecht Point, for military purposes, and the authorities of the city and state having offered aid and assistance a consultation was had which

the right bank of the "Narrows", distant from New York City about six miles, and within the limits of the town of New Utrecht, Kings County.

From a military point of view, the situation presented advantages that were invaluable for a work of the character contemplated, and its various stragetic points had been thoroughly discussed in every plan looking to a defense of the harbor. Commanding as it did, the narrow channel along which all vessels entering the bay and harbor must pass to reach the city, it had occupied the attention of military engineers from the beginning of the Government, and its natural advantages had been repeatedly urged upon the War Department.

The town of New Utrecht, within whose limits the site selected was located, was settled in 1654 during the Dutch rule, by some twenty families from Holland, and became a part of Kings County when organized by the English in 1683, who retained sovereignty of the soil until the war of the revolution had wrested it from their control and vested it in the sovereign states of America.

By Act approved April 29, 1824, (18th Congress, 1st Session) the sum of $50.000 was appropriated "for the purchase of a site and collecting materials for the projected work at New Utrecht Point, one of the works intended to defend the Narrows in New York Harbor", and in anticipation of this appropriation, on April 25, 1824, Lieutenant Andrew Talcott of the Corps of Engineers,

By Act approved March 2, 1825, (18th Congress 2nd Session), a further sum of $40.000 was appropriated "for the fortifications at New Utrecht Point," and on the 26th of April, 1825, ground was broken and the work inaugurated under the superintendence of Captain George Blaney, Corps of Engineers, with Lieutenant Joseph K. F. Mansfield, of same corps, in immediate charge. The corner stone was laid on June 11, 1825, and from that date the work was rapidly pushed forward toward completion.

By Act approved March 14, 1826, the sum of $75.000 was appropriated "for Fort Hamilton at New Utrecht." This being the first time that the site at that point was officially styled thus, and which designation it has retained ever since. Without definite information, regarding which the records of the War Department are singularly silent, there is little doubt that it was named in commemoration of the distinguished services of Alexander Hamilton, one of the most eminent citizens of the State of New York, and a member of President Washington's cabinet.

From this date regular annual appropriations were made by Congress for pushing the work on. In the summer of 1831, Major Rene E. De Russy, Corps of Engineers, then in charge of the construction of Fort Hamilton, reported its completion, and under date of October 17, 1831, the Chief of Engineers advised the War Department that it was ready to receive a garrison. The

Accordingly on November 1, 1831, Battery "F", Fourth Artillery, under command of Captain Levi Whiting of same regiment left Fort Columbus with two officers and fifty-two men, and occupied Fort Hamilton as its first garrison. From this time until April, 1847, the post appears to have been a sub-command of Fort Columbus or under command of the senior officer in New York Harbor. Its status as a separate, independent command, dates from the 23rd of April, 1847 when Captain William W. Tompkins, Tenth Infantry, assumed command with a garrison of seven officers and two hundred and eighty-seven enlisted men including Troop E, Third Dragoons and Companies B, C, and D, Tenth Infantry.

In May, 1847, the troops then at the post embarked for Mexico, and the post was garrisoned for a time by detachments of New York and Massachusetts Volunteers, United States Marines and California Volunteers so called (raised in Massachusetts), which were in turn were forwarded to the seat of war; until September 30, 1848, when the First Infantry returning from Mexico, took station at Fort Hamilton where it remained under command of Lieutenant Colonel Bennett Riley until November, 1848, when Colonel Riley and three companies left for California.

Again on August 22, 1851, separate returns were ordered to be discontinued, and all the posts in New York Harbor consolidated in one and the same return, and this status existed until July 24, 1852 when separate returns were again resumed.

1866; and from this period to date by artillery troops, with the exception of an interval from March, 1865 to June, 1864, During this period of the civil war the post became a rendezvous for the regular and volunteer artillery in the harbor, the aggregate strength reaching at times above one thousand enlisted men.

Fort Hamilton is a trapezoidal work, with the parallel sides more than twice as long as the others, and is fitted up for quarters for the enlisted men. In front of the main work is a water-battery, and to its left, extending along the shore, is a fifteen-inch gun battery, behind which is a mortar battery; while near the middle of the southeastern boundary of the reservation is a redoubt. Fort Hamilton, in conjunction with Fort Wadsworth, on Staten Island, commands the Narrows, and Fort Lafayette, erected on an artificial island, lies off Fort Hamilton to the east of the main ship-channel.

Congress appropriated from April 19, 1824 to February 10, 1875, for the purchase of site, construction and repairs of Fort Hamilton, New York, the sum of $1.205.000.00.

The armament of the fort consists of:

4- 4 1-2 inch siege guns.

32- 15 inch Rodman guns.

1- 20 inch Rodman gun.

14- 24 pounder F. D. Howitzers.

2- 8 inch siege Howitzers.

2- 8 inch siege mortars.

2- 10 inch siege mortars.

1- 10 inch sea coast mortar.

4- 13 inch sea coast mortars.

The works when completed according to present approved plans will furnish platforms for guns as follows:

Fort: 38 front pintle 32 pounders, and 14-24 " pounder Howitzers.

Exterior Batteries: 3 centre pintle and 31 front pintle " " 15-inch guns.

" " 1 front pintle 20-inch guns.

" " 1 front pintle 10-inch guns.

" " 13 heavy mortars.

Fort Hamilton, New York, has been continuously occupied from its establishment to date (July, 1892). The field artillery of the post consists of one light 12-pounder gun; four 3-inch wrought-iron guns; and two Gatling guns; and its present garrison of the headquarters and four batteries of the First Artillery, under the command of a field officer.

DESCRIPTION OF COUNTRY- The western shore of Long Island extends in a sort of curve from opposite the southern extremity of the city of New York, with the convexity to the west, and Fort Hamilton would form one extremity of a chord running very nearly north and south, of which New York City would form the

the outer, or maritime bay.

From Fort Hamilton is presented a fine view, not only of the Narrows, but a portion of the inner bay, and in a southerly direction, across the outer bay, the Highlands of New Jersey, are visible by day and the light-houses at Sandy Hook by night. Looking to the west, the hills of Staten Island bound the horizon covered with stately residences and patches of the primeval forest. Nothing separates Fort Hamilton on the southeast from the Atlantic but a narrow strip of sand called "Coney Island". The name Fort Hamilton is applied not only to the military work, but also to the village that has sprung up in its neighborhood.

The features of the country to the north and east of the fort are peculiar. Along the shore the banks are precipitous, and the fort itself stands on an elevation of about fifty feet above low water. Back from the shore the land becomes rolling, and exhibits a series of elevations and depressions till one arrives at Flatlands and Flatbush, names which sufficiently express the character of the surface.

This peculiar feature is the most important element, next to its insular position, in the topography of the post, the soil being alluvial, consisting for the most part of clay on top, then sand, pebbles, &c., and frequently a second stratum of clay, and the rolling character of the surface, producing numerous depressions, some round, some oblong, varying in size from thirty feet in diameter to

bottom and grassy borders; the others are surrounded with trees, and filled up with bushes and rank grasses, and covered in summer with green slime. It has been calculated that within a radius of about a mile about Fort Hamilton there are at least sixty of these ponds. East of the post, near the new battery, is a marsh of considerable extent, formed by the drainage of the higher land, and imperfectly separated by a bank of sand from tide-water.

The old reservation contains about 99 acres, and exhibits all the peculiar features of the surrounding country. There is scarcely a level spot on it; it is a series of ridges and round elevations, with depressions of every conceivable shape between them. Its general direction is northeast and southwest. The highest part is the northeast corner, which is fifty-six feet above sea-level. The hospital is built on an elevation of about forty-two feet; back of it the land rises to fifty-three feet. An extensive marsh or pond occupies the ground between the hospital and other public buildings. In 1891, a tract of land with an area of some 56 acres, and adjoining the reservation was purchased by condemnation proceedings.

The parade ground of the post is about fifty feet above low water. There are six small ponds or "wet spots" on the reserve, and one large marsh or bog. There are three small ponds east and northeast of the hospital, two or three still smaller back of it, and one of considerable size back of the redoubt.

surface formerly under water is now exposed to the influence of the sun, and intermittent fever is as prevalent now, if not more so, as before this drainage was effected.

The soil where it is not stony consists of a clayey loam with rich muck and peat beds in places, and a substratum of sand. Boulders of all sizes are scattered over the surface, and patches of pebbles and gravel crop out here and there on the sides of declivities. The boulders and blocks are principally of granite, red sandstone, greenstone, &c.

The post gardens are situated in the southeastern part of the reserve, adjoining the target range, and comprise in area about six acres. The ordinary crops- potatoes, turnips, cabbage, &c., flourish well; and the command is abundantly supplied with fresh vegetables.

Trees of various kinds are sparsely scattered over the reserve, the principal collection being a grove of oak, poplar, maple, dogwood, &c., near the northeast extremity. There is no running water, and there are no springs. The climate is variable. Meteorological data for 1891: Mean temperature, 52.9; maximum, 93; minimum, 5; total precipitation, 43.63 inches. The prevailing winds are southwest in summer, and southeast in winter.

The prevailing diseases: Summer, Acute Diarrhoea and malaria to a small extent; Winter, Bronchitis and influenza. The post is considered healthy and its sanitary condition excellent. An artificial system of drainage was introduced at

RESERVATION- The military reservation of Fort Hamilton, consists of certain tracts of land within the limits of the town New Utrecht, Kings County, New York, deeded to the United States, May 30, 1814; September 11, 1826; March 24, 1852; September 9, 1862; also a tract by condemnation proceedings, decree dated November 18, 1891.

It was immediately following the commencement of the work at Hendrick's Reef, the site of Fort Diamond (now Fort Lafayette) that measures were instituted looking to securing the main land at New Utrecht Point, and the authorities of the city and state having offered aid and assistance, a consultation was had, which resulted in securing the lands desired, in exchange for certain lands belonging to the United States, lying in the city of New York, described as follows:

"Beginning at a point in the westerly line of Whitehall Street 53 feet 6 inches on a course bearing north 83 degrees and 40 minutes west from the northeasterly corner of Whitehall Street and Bridge Street, being the continuation of a line drawn from the southwesterly corner of a three story brick house situated on the north side of Bridge Street, owned and occupied by Roger Palmele, and the southwesterly corner of a house belonging to Peter Kemble, and now in the occupancy of Josiah Muir, situated at the northeasterly corner of Whitehall and Bridge Streets aforesaid; which said point is also on a course south 20 minutes, east 123 feet and 8 inches from a point perpen-

used as a public store, and which is the northeasterly corner of Whitehall and Bridge Streets. Thence north 20 minutes, west along the west line of Whitehall Street 123 feet 8 inches to the said point under the northwesterly corner of the aforesaid store. Thence along the northerly side of said store, north 88 degrees and 20 minutes, west 254 feet and 1-2 inch to a point in the easterly side of State Street perpendicularly under the northwesterly corner of the brick wall of said store. Thence south 12 degrees 20 minutes, west along the easterly line of State Street 137 feet 4 inches to the northwesterly corner of Bridge and State Streets. Thence south 83 degrees and 40 minutes, east along the north line of Bridge Street 285 feet 6 inches to the place of beginning."

This last mentioned property came into the hands of the United States by deed dated May 6, 1808, and signed by the Governor, Lieutenant Governor, Chancellor, Chief Justice, and Mayor of the city of New York, "for the safety and defence of the city and port of New York." It was re-conveyed to the State of New York by deed dated December 20, 1814, and by the State to the Corporation of New York, August 16, 1815. While in possession of the United States it was the site of a water battery.

The land selected as the site of the contemplated work on New Utrecht Point, amounting to 60 acres, 1 rood and 6 perches, was purchased by the city of New York on April 22, 1814, from

city of New York, the property of the United States, and before described, in exchange therefor, the Mayor and Council of the city of New York conveyed the same by deed to the United States of America.

An Act of Congress approved February 15, 1851, having authorized the Secretary of War "under the direction of the President of the United States, to cause to be exchanged a lot of ground, being part of the site of Fort Hamilton, New York, for an equal quantity of ground, lying nearer to said fort, and being more valuable for military purposes", on March 24, 1852, George S. Gelston and Marie Antoinette, his wife, for and in consideration of the sum of one dollar ($1.00), and the conveyance to them of an equal quantity of land, of the military reservation of Fort Hamilton, conveyed to the United States certain lands in the town of New Utrecht, lying nearer to the fort and containing 11 acres, 3 roods and 20 perches.

The land given in exchange for this tract, and which on March 24, 1852, the United States conveyed to George S. Gelston, is described as follows:

"Beginning at the northwest corner of the land acquired by the United States from the city of New York, May 20, 1814, and running thence along the line of said lands south 39 degrees, west 21 chains, thence south 51 degrees, east 7 chains, 32 1-2 links to land of the said George S. Gelston, thence north 29

3 chains 98 links, along last mentioned land to the place of beginning, containing 11 acres 3 roods and 25 perches."

On September 9, 1862, for and in consideration of the sum of $42.000, Julia Delaplaine conveyed to the United States certain lands adjacent to Fort Hamilton in the town of New Utrecht, amounting to 24 acres, 2 roods and 25.789 perches.

The United States obtained certain lands adjacent to Fort Hamilton and within the limits of the town of New Utrecht, by condemnation proceedings (decree dated November 18, 1891), also deeds were executed by former owners; for the sum of $292.315.86. Area 56.537 acres.

Up to this date, therefore, the land belonging to the United States at Fort Hamilton, New York, may be recapitulated as follows:-

	Acres	Roods	Perches
The New York City grant of 1814,	60	1	6
By the Chancery decree of 1826,	17	0	17.47
The Gelston purchase of 1852,	11	3	25
The Delaplaine purchase of 1862,	21	2	25.789
By condemnation proceeding of 1891,	56	2	59.02
From which should be deducted	167	3	13.279
the land given Gelston in exchange	11	3	25
Leaving the area of the reservation at	155	3	28.279

JURISDICTION- The Legislature of the State of New York has ceded to the United States jurisdiction over the different tracts of land now forming the reservation of Fort Hamilton, New York, by Acts of March 20, 1807; March 16, 1808; November 27, 1824;

BUILDINGS- From report of annual inspection of public buildings at the Post of Fort Hamilton, New York, on March 31, 1892.

1. Company Officers' Quarters No. 1, single set, frame. Main building: 4 rooms on 1st floor, 18 by 16 feet; divided by hall, 7 1-2 by 36 feet, with attic. L to same, embracing kitchen, pantry and passage way, 36 by 16 feet and attic. Porches in front and rear. Cellar under kitchen 10 by 10 feet.

2. Company Officers' Quarters No. 2 and 3, double set, frame. Main building: 2 rooms in each set on 1st floor, 18 by 15 feet, with hall 7 1-2 by 36 feet, with attic. L to same embracing 2 kitchens, pantries and passage ways, 27 1-2 by 12 feet, with attic. Porches in front and rear. Cellars under both kitchens, 10 by 10 feet each.

3. Company Officers' Quarters No. 4 and 5, double set, frame Main building: 2 rooms in each set on 1st floor, 18 by 15 feet, with hall 36 by 7 feet. L to same embracing 2 kitchens, pantries, servants' rooms, and passage ways, 30 by 16 feet. Porches in front and rear. Cellar under whole house.

27. Commanding Officer's Quarters No. 6, single set, frame. Main building: 1st floor, 4 rooms; hall 40 by 8 feet. 2nd floor: 4 rooms, hall 28 by 8 feet. L to same embracing kitchen, pantry and passage way, 30 by 15 feet. Porches in front and rear. Cellar under whole house.

4. Field Officer's Quarters No. 7, single set, frame. Main

Cellar under whole house.

5. Company Officers' Quarters, No. 8 and 9, double set, frame. Main building: 4 rooms on 1st and 2nd floors, 17 1-2 by 15 feet; with hall, 36 by 7 feet. L to same embracing kitchen, servants' room, pantry and passage way, 30 by 15 feet. Porches in front and rear. Cellar under whole house.

6. Company Officers' Quarters No. 10 and 11, double set, frame. Main building: 4 rooms on 1st and 2nd floors, 17 1-2 by 15 feet; with hall 36 by 7 feet. L to same embracing kitchen, servants' room, pantry and passage way, 30 by 15 feet. Porches in front and rear. Cellar under whole house.

7. Company Officers' Quarters, No. 12 and 13, double set, frame. Main building: 4 rooms on 1st and 2nd floors, 17 1-2 by 15 feet; with hall 36 by 7 feet. L to same embracing kitchen, servants' room, pantry and passage way, 30 by 15 feet. Porches in front and rear. Cellar under whole house.

8. Company Officers' Quarters No. 14 and 15, double set, frame. Main building: 4 rooms on 1st and 2nd floors, 15 by 11 1-2 feet; with hall 24 by 7 feet. L to same embracing kitchen, servant's room, pantry and passage way, 30 by 15 feet. Porches in front and rear. Cellar under whole house.

9. Company Officers' Quarters, No. 16 and 17, double set, frame. Main building: 4 rooms on 1st and 2nd floors, 15 1-2 by 15 feet; with hall, 30 by 7 feet. L to same embracing kitchen,

11. Recreation Building, frame, 113 1-2 by 26 1-2 feet, contains Post Exchange kitchen and assembly room, and two other rooms.

12. Quartermaster's Storehouse, frame, 80 by 30 feet, 2 stories, 1st floor contains office of commanding officer, adjutant's office, divided by hall, 15 by 4 feet; and storeroom, 35 by 30 feet. 2nd floor is a storeroom, 79 by 29 feet. Porch in front and part of sides. Cellar under whole building.

13. Subsistence Storehouse, frame, 100 by 27 1-4 feet; includes office and issuing room each 10 1-2 by 18 feet, separated by a hall 4 feet wide. Porch in front and side. Cellar under whole building.

14. Quartermaster's Stables, frame, 63 5-12 by 26 5-12 feet, contains grain room, 12 by 8 5-12 feet, carriage room 30 5-12 by 8 5-12 feet, and guard room, 18 5-12 by 8 5-12 feet. There are nine stalls.

15. Old Quartermaster's Storehouse, frame, 60 1-2 by 25 1-2 feet, 2 stories. 1st floor: 2 rooms, one 40 5-6 by 24 1-2 feet; the other 18 1-2 by 24 1-3 feet. 2nd floor: 1 room, 60 by 25 feet.

16. Light Battery Stables, frame, 200 by 30 feet; with harness room, loft above for grain and hay; 6 feet under eaves, and 15 feet under comb.

17. Light Battery Gun Shed, 140 by 30 feet, and includes guard house on one end, size 15 by 18 1-2 feet.

20. Water Closet, Bath and Wash Rooms (for enlisted men), frame, 56 by 12 feet. Contains 5 rooms; privy, 33 by 12 feet; bath and wash rooms, each 11 1-2 by 12 feet.

21. School House, frame, 40 by 25 feet, 3 rooms.

22. Carpenter's Shop, frame, 30 by 25 feet.

23. Post Hospital, frame, 2 wards on lower floor, 45 by 34 feet, with administration building between them, the latter divided by hall 6 feet wide, leaving surgery and office 14 by 15 feet each, with abundant store room in rear. Upper story contains isolation wards. Dining room and kitchen are an extension to the rear. Laundry in basement underneath the kitchen. Lavatory and water closet in extension 19 by 9 1-2 feet on southeast end of building. Porches in front and rear.

24. Coal Shed, frame, 120 by 42 by 17 feet, in height in rear, and 10 feet in front.

25. Light Battery Water Closet, frame, 16 by 13 feet.

26. Light Battery Barracks, brick. Cellar: 2 rooms divided by hall. 1st Floor: 9 rooms. 2nd Floor: 2 rooms and hall. Porches in front and rear.

28. Barracks, brick. Cellar: 1 room and hall. 1st Floor: 10 rooms and hall. 2nd Floor: 2 rooms and hall. Porches in front and rear.

29. Water Closet Building (for Barracks No. 28), frame 16 by 13 feet.

30. Light Battery Blacksmith's Shop, frame, 22 by 18 feet.

32. Barracks, brick. Cellar: 1 room and hall. 1st Floor: 10 rooms, main hall and branch hall. Porches in front and rear. 2nd Floor: 2 rooms and hall.

33. Barracks. Cellar: 1 room and hall. 1st Floor: 10 rooms, main hall and branch hall. Porches in front and rear. 2nd Floor: 2 rooms and hall.

34. Water closets (for No. 32 and 33), brick, contains 3 rooms.

35. Shelter Shed (for "Fisk Range Finder"), frame, 84 by 7 feet; 6 feet 10 inches under eaves.

Casemates 1, 2, 3 and 4. Company Officers' Quarters Nos. 17 and 18 (occupied by Chief and Principal Musicians). These quarters are in the casemates of the fort, two casemates comprising one set of quarters, with small frame kitchen in the ditch, with entrance to same through entrances cut down to the floor.

----------x----------

A canteen (now Post Exchange) was established at the post on December 25, 1891. It is properly supplied and conducted in accordance with regulations and existing rules. The following extracts from the reports of the Commanding Officer of the post, will show how the operations of the Post Exchange have progressed since its establishment:

"I am not yet able to say whether the exchange is very beneficial to the discipline of the post, but since the estab-

reservation than before its establishment." (July 9, 1892.)

"The exchange has been in operation since December 25,1891, and, while laboring under great difficulties owing to want of money and suitable buildings, has, in my opinion, been conducted with great care and skill.

"Owing to the great disbursement made and the competition by outside pleasure resorts in the immediate vicinity, the receipts of the exchange are not as large as they otherwise would be. I am not yet able to say whether the exchange is very beneficial to the discipline of the post." (January 6, 1893.)

There is no cemetery at the post. The dead are interred in Cypress Hill National Cemetery, New York, about nine miles distant. The old post cemetery, formerly located in front of the present Light Battery Barracks, was discontinued in 1883 and the bodies transferred to Cypress Hill National Cemetery.

The post hospital is a "temporary hospital", built of frame, in 1869, and partly lathed and plastered inside and weather-boarded outside, with ridge ventilation in the wards. It is located near the upper northeast end of the reserve, on a moderate eminence, about 150 yards back from the State road, fronting to the northwest, its greater length being northeast and south-west. It consists of administration building, two wards with capacity for 24 beds, and a kitchen; and heated by stoves. The convalescents are afforded occupation and amusement by light

extinguisher, one force pump and 200 feet of hose attached to a tank, located in the upper story, and of a capacity of 990 gallons; also ample water can be had from fire hydrants and from three cisterns near the hospital.

The library contains one thousand volumes and is open daily from 7 A. M. to 12 M., and from 1 P. M., to 9 P. M. The enlisted men have free access to it when not on duty and are provided with eight periodicals and two daily newspapers; also they have every possible facility afforded them for reading.

The magazines are constructed of stone and earth and safely located. They are opened and aired every fine day, well ventilated, but not altogether dry.

The means for extinguishing fires at the post are as follows: Four fire hydrants on the water main in rear of the Officers' Quarters, supplied with 1275 feet of rubber-lined 2 1-2 inch hose on two Sulky hose carriages. At the Light Battery Stables, a fire hydrant supplied with 600 feet of rubber-lined 1 1-2 inch hose. There are 24 cisterns outside and 2 inside the fort. Also there are axes, buckets, fire hooks and chains, Babcocks fire extinguishers, hand engine, ladders, and 2200 feet of hose. Strict orders defining the duties of the different organizations in case of fire, are given.

An officers' school or lyceum for the study of military subjects is maintained from November 1 to April 30. The non-

maintained during the school term, taught by two enlisted men detailed as teachers and superintended by an officer.

The target range is located in the southeastern portion of the reservation. It admits firing up to 500 yards, but owing to the dangerous proximity of numerous houses, standing in rear of the catch butt and exactly in prolongation of line of fire, small arms practice above 300 yards had to be discontinued. Preliminary drills, gallery and rifle practice is had during the proper seasons and in accordance with Small Arms Firing Regulations; also artillery practice is had. An officer is present at all the firings.

There is no special physical training given the enlisted men at the post other than drills; but there is a base ball team organized by the soldiers, from which much enjoyment is derived by them.

n.a.

"Statement of Guns, Transferred and Listed for Transfer,"
dated 18 July 1918.
Record Group 77; Entry 1008; Box 3; File: 662A.
National Archives I, Washington D. C.

REPRODUCED AT THE NATIONAL ARCHIVES

Statement of Guns, Transferred and Listed for [illegible]
Coast Defenses to include July 18, 1918.

Fort	Battery	No. of Guns	Caliber	Transferred to	Listed for Transfer to
Baldwin	Hardman	1	6"	Service abroad	
	Hawley	2	6"	" "	
Preble	Chase	4	12"M	" "	
	Kearney	4	12"M	(2 " "	
				(2 WEST POINT	
	Rivardi	2	6"	Service abroad	
Lovett	Kendrick	2	10"	" "	
Williams	Sullivan	3	10"	" "	
	DeHart	2	10"		Service Abroad
	Garesche	2	6"	" "	
McKinley	Thompson	3	8"		" "
	Ingalls	4	12"M	" "	
	Honeycutt	2	8"		" "
	Weymouth	3	8"		" "
	Carpenter	2	6"	" "	
Lyon	Bayard	3	6"	" "	
Constitution	Farnsworth	2	8"	" "	
Foster	Bohlon	3	10"	" "	
Stark	Kirk	2	6"	" "	
[illegible]ks	Lincoln	4	12"M	2 " "	2 Nahant, Mass.
	Kellog	4	12"M	2 " "	2 Nahant, Mass.
STRONG	Dunn	2	4.72"	Sachuset Point	
	Hitchcock	3	10"	1 Service abroad	2 Service Abroad
	Ward	2	10"		Service Abroad
Standish	Whipple	2	6"	Service Abroad	
Warren	Bartlett	4	10"	" "	
Andrews	Whitman	2	12"M	" "	
	Cushing	4	12"M	" "	
	Rice	2	5"	Cape Henry	
	McCook	2	6"	Service Abroad	
Revere	Field	2	5"	" "	
	Sanders	3	6"	" "	
Rodman	Walcott	1	8"		Service Abroad
	Barton	1	8"		" "
	Cross	2	5"	" "	
[illegible]dams	Greene	4	12"M	" "	
	Edgerton	4	12"M	" "	
	Reilly	2	10"	" "	
Getty	House	2	6"	" "	
Greble	Sedgwick	4	12"M	" "	
	Hale	3	10"	1 " "	2 " "
	Mitchell	3	6"	Service Abroad	
Wetherill	Walbach	3	10"	" "	
	Zook	3	6"	" "	
Phil.Kearney	French	4	6"	" "	
H.G.Wright	Clinton	4	12"M	" "	
	Barlow	2	10"		Service Abroad
	Marcy	2	6"	" "	
	Hamilton	2	6"	" "	
Terry	Dimick	2	6"	" "	
	Kelly	2	5"	North Hill	
	Stoneman	4	12"M	Service Abroad	
	Stoele	2	10"	" "	
	Floyd	2	6"	" "	
Mansfield	Crawford	2	5"	" "	
	Connell	2	5"	North Hill	
	Wooster	2	8"	Service Abroad	
Michie	North	2	10"	" "	
Slocum	Kinney	2	6"	Fort Tilden	
	Fraser	2	5"	Fisherman'sIsld.	
Schuylor	Hazzard	2	10"	Service Abroad	
	Gansevoort	1	12"	" "	
	Bell	2	5"	" "	
Totten	Stuart	2	5"	" "	
	Sumner	2	6"	" "	

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File: 662A

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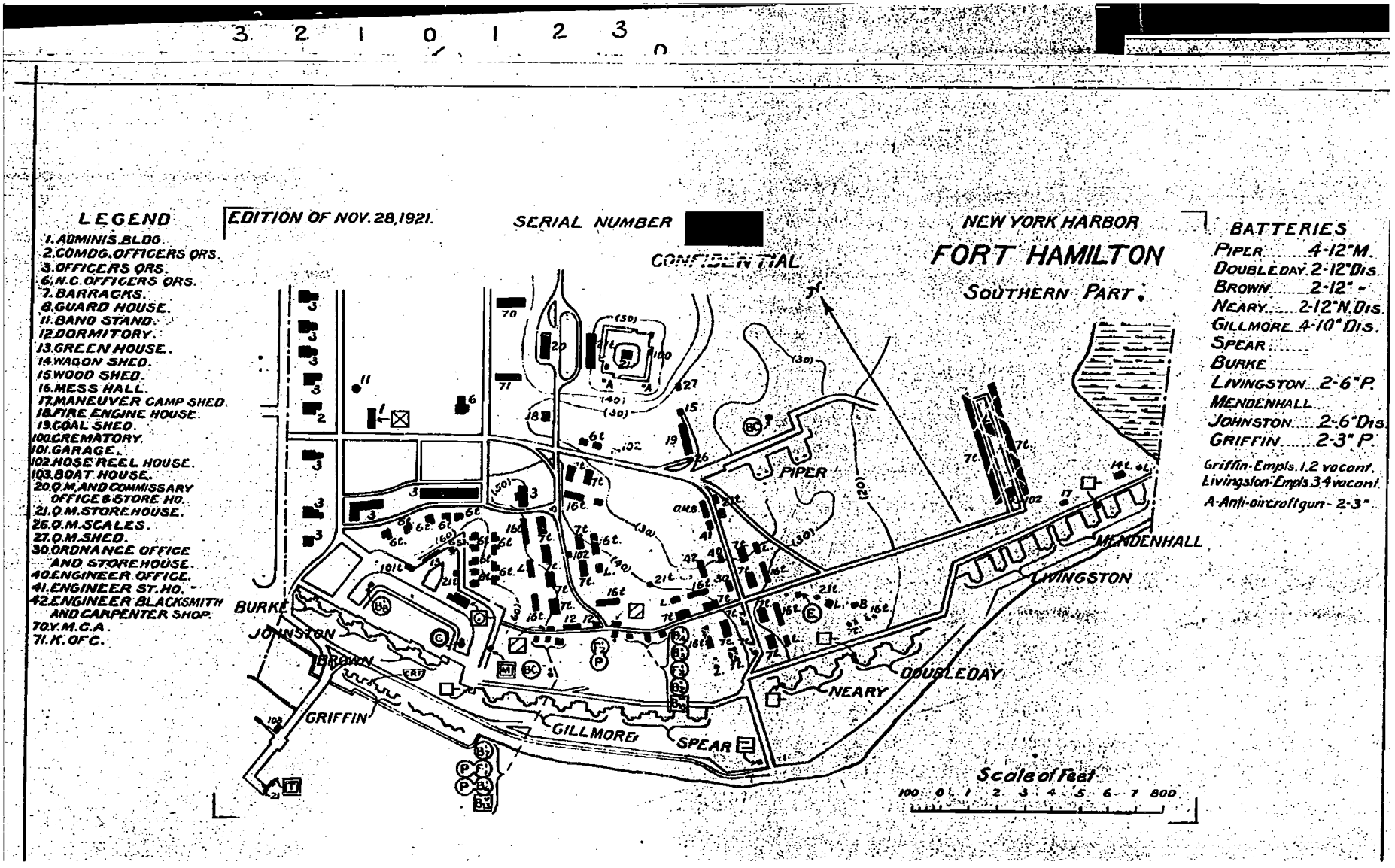
Hotton	Mahan	2	12"	Service Abroad	
	Graham	2	10"	" "	
Hamilton	Piper	4	12"M	Fort Tilden	
	Gillmore	2	10"	Service Abroad	
	Speer	3	10"	1 " "	2 Service Abroad
	Burke	2	6"	Fort Tilden	
	Livingston	4	6"	(4 Service Abroad	
	Mendenhall	4	6"	Service Abroad	
Wadsworth	Upton	2	10"		Service Abroad
	Barry	2	10"	" "	
	Duane	2	8"	Sandy Hook Prov.Gr.	
	Mills	1	6"	" " " "	
Tilden	(Not named)	2	6"	Service Abroad	
Hancock	Reynolds	2	12"M	Navesink Highlands	
	McCook	2	12"M	" "	
	Halleck	3	10"	1 Service Abroad	2 Service Abroad
	Granger	2	10"		" "
	Engle	1	5"	" "	
	Arrowsmith	3	8"		" "
Dupont	Rodney	4	12"M	Fort Rosecrans	
	Read	2	12"	Doubleday, Ft. Hamilton	
	Gibson	2	8"	Service Abroad	
	Ritchie	2	5"	Fisherman's Isl.	
Mo+	Harker	3	10"	Service Abroad	
	Krayenbuhl	2	5"	" "	
Delaware	Dodd	2	4.7"	" "	
	Stricker	2	12"	Brown, Ft. Hamilton	
	Harris	2	5"	Service Abroad	
Carroll	Towson	2	12"	Ayres, Ft. Wadsworth	
	Heart	2	5"	Service Abroad	
Armistead	Winchester	1	12"	Hudson, Ft. Wadsworth	
	McFarland	3	8"	Service Abroad	
Washington	Decatur	2	10"	" "	
	Emory	2	10"	1 Ft. Morgan & Service Abroad	1 Service Abroad
	Humphreys	2	10"	Service Abroad	
Hunt	Mt. Vernon	3	8"	Service Abroad	
	Porter	1	5"	" "	
	Robinson	1	5"	" "	
Monroe ? for	Barber	1	8"	" "	
	Eustis	2	10"		Service Abroad
	Montgomery	2	6"	Cape Henry	
	Anderson	4	12"M	Service Abroad	
	Ruggles	4	12"M	" "	
Wool	Gates	2	6"	" "	
	Dyer	2	6"	" "	
Caswell	Shipp	2	5"	" "	
	Swift	4	8"	" "	
	Madison	2	6"	" "	
Moultrie	Jasper	4	10"	2 " "	2 Service Abroad
	Gadsden	4	6"	" "	
Fremont	Jesup	3	10"	(2 " "	
				(1 Sandy Hook	
Screven	Habersham	4	12"M	Service Abroad	
	Brumby	4	8"	" "	
De Soto	Laidley	4	12"M	Fort Rosecrans	
Dade	McIntosh	2	8"		Service Abroad
	Howard	2	6"	Service Abroad	
Taylor	Seminole	4	12"M	" "	
	De Leon	4	10"	2 " "	2 " "
	Covington	2	6"	" "	
	De Kalb	2	6"	" "	
Pickens	Worth	4	12"M	" "	
?	Cullum	4	10"	2 " "	2 " "
	Van Swearingen	2	4.72"	" "	
	Cooper	2	6"	" "	
McRee	Slemmer	2	8"	" "	
Morgan	Dearborn	4	12"M	" "	
	Bowyer	4	8"	" "	
	Thomas	2	4.72"	" "	
Gaines	Stanton	1	6"	" "	

4

n.a.

Map of Fort Hamilton,
revised 17 April 1925,
showing armament of modern batteries.
Record Group 77; Entry 1007; Box 84; File: 660 NY Harbor.
National Archives I, Washington D. C.

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n.a.

"War Department Q.M.C. Form No. 117," Building Description for Building 173, dated 23 April 1936.
Record Group 77; Entry 393; Box 74; File: Fort Hamilton, 7 of 7.
National Archives I, Washington D. C.

WAR DEPARTMENT
Q. M. C. Form No. 117 (Old No. 173 A)
Revised Aug. 21, 1924

C. A.
Post Plan No. 502

O. Q. M. G.: Plan No. ..... Building No. 173

Place Fort Hamilton, N. Y.
Designation of building Temporary Rifle Range, Inf. Capacity 40 Men
Total cost, $ 1,891.46 Date completed October 11, 1935
Material: Walls Wood Foundation Wood
Roof 3-Ply Ruberoid Roll Roofing Floors Wood.
Total floor area above basement, square feet 2240
Size: Main building 20'x112' Wings ..... Basement .....
a Stoves (How heated) Height of first floor above ground 2'2"
b ..... (Type of heat) How lighted Electricity
Water connections No
c ..... (Type of domestic hot water heater) Sewer connections No
Gas connections No

COOKING RANGES INSTALLED

Coal, No. .....
Gas, No. .....
Electric, No. .....
Oil, No. .....
Steam, No. .....

METERS INSTALLED

Gas, No. .....
Electric, No. .....
Oil, No. .....
Steam, No. .....
Water, No. .....



ADDITIONS AND INSTALLATIONS

(Below enter chronologically all modifications, additions, introductions of water, sewer, lights, heating, etc.)

DATE		COST	DATE		COST
April 22, 1936	Building transferred to Quartermaster Corps per letter Hq. 2nd C.A. Governors Island, N.Y. file 634.1 dated January 14, 1936				

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n.a.

"Record of Equipment and Condition of Buildings,"
dated 30 June 1939.
Record Group 77; Entry 393; Box 74; File: Fort Hamilton, 1 of 7.
National Archives I, Washington D. C.

NARA
RG77
E 393
Box 74
Fld Ft Hamilton
1 of 7

RECORD OF EQUIPMENT AND CONDITION OF BUILDINGS

NAME OF POST Fort Hamilton, New York DATE June 30, 1939

POST BLDG. No.	DESIGNATION OF BUILDING	Laundry Stoves	HOT-WATER HEATERS: Coal	Oil	Gas	Steam	Electric	Range Boilers	RANGES OR COOKERS: Coal	Oil	Gas	Steam	Electric	METERS: Water	Gas	Oil	Steam	Electric	Toilets	Urinals	Kitchen Sinks	Washbasins	Laundry Tubs	Shower Baths	Bathtubs	Fire Extinguishers	Fire Buckets	Storm Windows	Screens	STORAGE CAPACITY (Vehicle Capacity)	REMARKS ON CONDITION OF BUILDINGS
85	Ordnance Mach.Shop																	2	1			1				1	2			1300 sq.ft.	Good
93	Truck Scales																	1												20 tons	"
94A	Gate House Btry Ave.																													136 sq.ft.	"
94B	Gate House Marine Ave.																	1	1			1				1			5	10 sq.ft.	"
94C	Post Office																										1		4	110 sq.ft.	"
94D	Gate House Seventh Ave.																													96 sq.ft.	"
95A	Fire House																	1												2 Vehicles	Fair
95B	Incinerator																	1												5 tons/da.	"
164	Supply Room		1					1										1	3			4		2		3				3600 sq.ft.	"
169	QM Shops																	2								6	8			5000 sq.ft.	"
	TEMPORARY MISCELLANEOUS BUILDINGS																														
T128	Latrine		1															1	10	1		2		7					10	120 men	Poor - 1
T136	Carpenter Shop																													700 Sq.Ft.	"
T137	Mess Hall							1	2									1			2					2			28	120 men	"
T140	Storeroom																													700 sq.ft.	"
T141	Mess Hall							1	2									1			2					2				120 men	"
T161	Supply Room																	1								1				1881 sq.ft.	Fair
T162	Supply Room																									1				1896 sq.ft.	"
T165	WPA Off.&QM Shop		1															3	5	2		7		2		6	10			5300 sq.ft.	"
T171	Buglers Practice Rm.		1																1	1			3	10						1112 sq. ft.	"
T173	Rifle Range Inf.																													2240 sq.ft.	"
T174	Rifle Range Inf.																													2240 sq.ft.	"
T175	Rifle Range Inf.																													2240 sq.ft.	"
T181	WPA Paint Shop																	1	2			2		2						1440 sq.ft.	"
	PERMANENT HOSPITAL BUILDINGS																														
31	Hosp.Stds.Qtrs.				1			1						1				1	1		1	1			1	1		11	16	1 1	Good
43	Post Hospital		1					1						1				2	15	4	5	12	1	2	4	13	27		55	36 beds	"
	TEMPORARY HOSPITAL BUILDINGS																														
T94	Isolation Ward		1		1									1				4	4	1	1	5	1	2	2	4	6		44	26 beds	Fair
	PERMANENT VETERINARY BUILDING																														
20	Veterinary Disp.		1															2	1		1	1	1	1		4	1		6	923 sq.ft.	Good

1 - Habitable or usable

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n.a.

"Annual Report of Construction and Repair,
FY ending June 30, 1941."
Record Group 77; Entry 393; Box 74; File: Fort Hamilton, 1 of 7.
National Archives I, Washington D. C.

"Annual Report of Construction & Repairs FY ending June 30, 1941"

(1) Building No.	(2) Designation of Buildings or Systems	(3) Brief Description of IMPORTANT REPAIR Work Accomplished During the Fiscal Year, Costing $100 or More	(4) Repair Expenditures for the Present Fiscal Year	(5) Total Repair Expenditures from the Date the Building or System was Constructed to June 30, Present Fiscal Year	(6) Total Original Cost, not Including Repairs, to June 30, Present Fiscal Year	(7) Cost of New Construction (Including Alterations and Additions but not Repairs) During the Present Fiscal Year	(8) Replacement Value June 30, 19..., Present Fiscal Year
		ELECTRIC & GAS SYSTEMS (continued)	$	$	$	$	$
	Electric Bells & Buzzers		259 03	2,539 17	400 00		1,000 00
	Gas System		47 93	3,849 79	1,129 38		10,000 00
	SUB TOTAL		4,647 73	31,559 43	37,033 08		51,200 00
		STOVES & RANGES					
	Stoves, Heating		382 31	11,077 06	2,525 00		5,000 00
	Ranges, Coal		147 05	7,458 37	1,860 00		2,000 00
	Ranges, Gas		368 56	5,113 07	2,205 00		2,500 00
	SUB TOTAL		913 92	23,649 00	6,590 00		7,500 00
		FIRE SCREENS					
	Fire Screens		47 93	2,026 30	45 00		45 00
	Coal Shovels		47 93	103 08	36 40		36 40
	Coal Hods		47 93	100 08	17 28		17 28
	Fire Sets		47 93	104 08	90 00		90 00
	SUB TOTAL		191 72	2,333 54	188 68		188 68
		TENTS					
	Tents		236 96	236 96	9,554 64	9,554 64	10,000 00
		RANGES					
	Bore Range				9,518 49	9,518 49	10,000 00

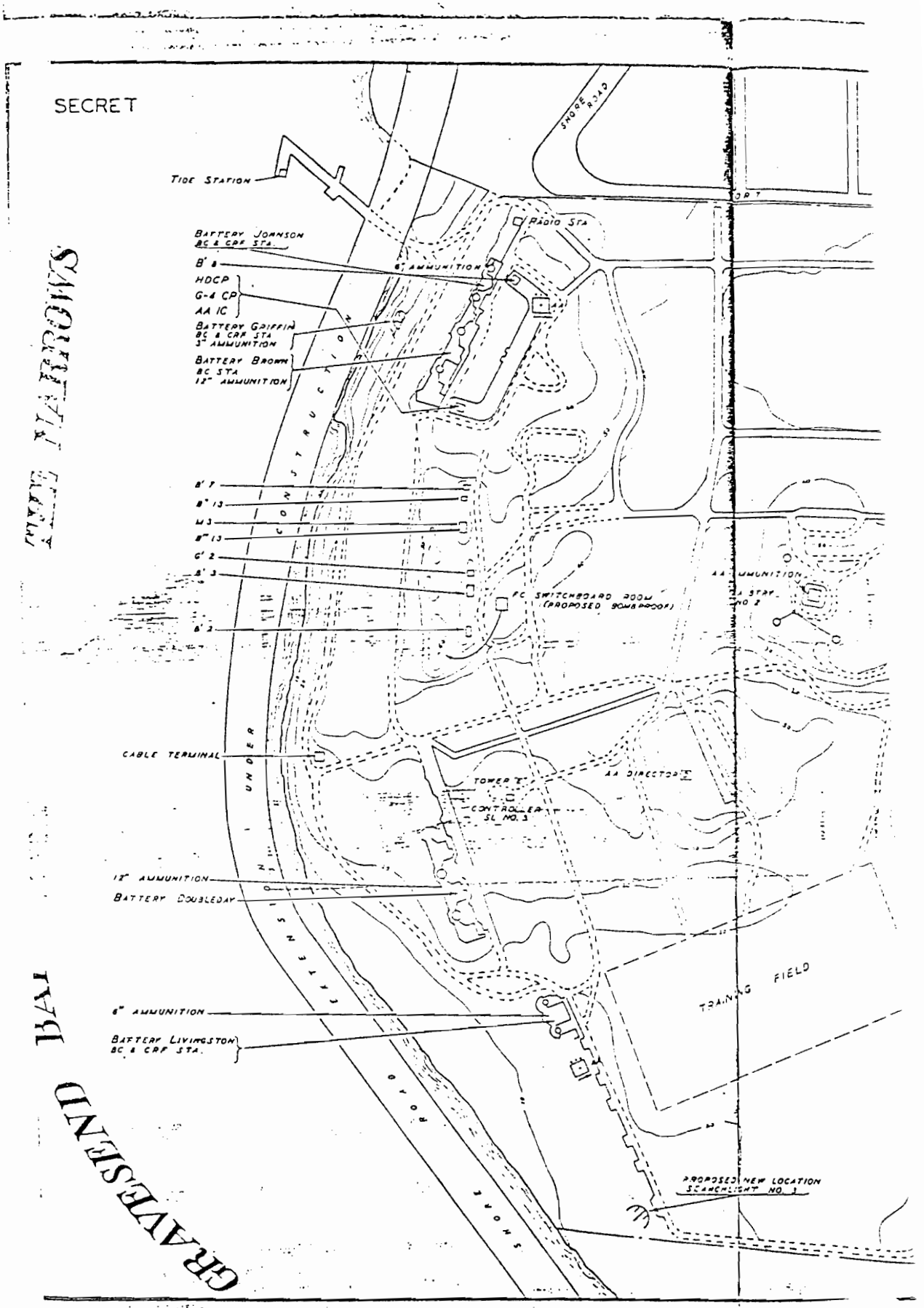
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Box 74
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n.a.

Undated, untitled map of Fort Hamilton that shows
the training field behind Battery Livingston, no date.
File: National Archives Memorandum Sketch, Harbor Defense Museum,
Fort Hamilton, NY.

SECRET



Harbor Defense Museum
St Hamilton, N.Y.
-f. National Archives -
Memorandum Sheet

New York Engineer Office.

Correspondence to Chief of Engineers,
dated 18 October 1892,
regarding the activity at Fort Hamilton.
Record Group 77; Entry 811; Volume 2.
National Archives-North Atlantic Region, New York, NY.

Please have the pay-roll properly signed, in duplicate, and return to this office at your early convenience.

Very respectfully, your obedient servant,

Adj. G. L. Gillespie,

Lt. Col. of Engineers.

(Encl.)

Chief of Engineers,

Washington, D. C.

New York, Oct. 18, 1892.

Telegram just received. Report and plans go forward tonight. No demolition required. No masonry construction possible this season but may do limited excavation, starting operations tomorrow.

DB.

Adj. Gillespie, Engineers.

Brig. Gen.

Thomas L. Casey,

Chief of Engineers,

U.S.A.,

Washington, D. C.

Engineer Office, U.S. Army,

Room 74, Army Building, 39 Whitehall St.,

New York, N.Y., October 18, 1892.

General:-

In compliance with letter from the Chief of Engineers, dated July 22, 1892 (without file number), I have the honor to submit detailed drawings and estimate of cost of construction of the most easterly emplacement in the seven 10-inch gun battery proposed to be erected upon Government lands at Fort Wadsworth, N.Y., immediately to the eastward of the existing masonry fort.

This modern battery will occupy practically the site of the existing battery containing twenty-five 15-inch guns, numbered 4 to 28 respectively from west to east, and the plans of construction are essentially those proposed by the Board of Engineers, June 21, 1889.

The interior crest of the new battery is drawn back 78 feet from the general line of the old crest, and the breast-height wall of the gun emplacement is given a thickness of 25 feet concrete, and the magazines a least thickness 41 feet concrete, corresponding to an angle of fall of 15 degrees.

NARA-NY
RG77
E 811
Volume 2
Filed by date

The earth cover in front of the breast-height wall has a least thickness of 53 feet.

The magazines in the old battery are to be converted, with slight modifications, into casemates for 10-inch guns to cover the beach against hostile boat-parties, and to protect the submarine mine fields on the approach from the lower bay.

The proposed battery will contain eight of these casemates, which will be connected with the battery in the rear by shot galleries, 6 feet wide, starting from the outer end of the transverse galleries of the new magazines, and terminating either in the entrances to the casemates directly, or in a short longitudinal gallery uniting two casemates, as shown on accompanying plans.

The Board of Engineers proposed in its report of June 21, 1889, to unite all the casemates by a longitudinal gallery 6 feet wide running eastward from the ditch of the old fort on the west side and terminating at the most easterly casemate.

Such a gallery may be so injured after a severe bombardment as to break communication between the several casemates, causing impairment of fire of the garrison and rendering guns unserviceable.

In any arrangement of these advanced casemates the connecting gallery is liable to be blown in, but by inserting the modified connections herein proposed a longer defense, during or after bombardment may be promoted.

My instructions call for an estimate of cost of construction for the most costly emplacement of the battery. As this work must be of a permanent character, capable of affording an adequate cover to the guns while awaiting the completion of the residue of the battery, it has been deemed best to recommend the construction of that portion of the battery which comprises the two easterly magazines, including

the completion of two casemates for rapid-fire guns.

The cost of construction depends in a degree upon the manner in which the materials are delivered. If the old wharf, one-half mile distant, be used, the expense of construction for the entire battery will probably be 5 per cent greater than if a new wharf be built nearly opposite the eastern end of the new battery.

The excavations for present work will furnish all needed embankments, and the cost of the latter will be limited to the expense of grading.

The following estimate provide for earth and masonry construction only.

Disappearing Gun Battery (7 guns), Fort Hamilton, N.Y.

Concrete masonry,	49,242	cubic yards, at	$ 8.00	$ 393,936.00
Excavation	55,643	" " "	30 cents.	16,707.90
Embankment	26,465	" " "	10 "	2,646.50
				413,290.40

Estimate of cost of construction of most costly emplacement including two magazines and two casemates for rapid-fire guns.

Concrete masonry	12,367	cubic yards, at	$ 8.00	$ 98,936.00
Excavation	10,416	" " "	30 cents.	3,274.80
Embankment	10,560	" " "	10 "	1,056.00
				103,266.80

In regard to the actual cost of the gun lift and mortar battery at Sandy Hook, N. J., by comparison with the allotments made for them, I have the honor to say that the allotment of $ 283,000 for the lift battery of two guns (masonry and earth construction) is ample. It is estimated that the balance available after the completion of the battery and its defensible entrances, including mounting of armament, $ 3,000, will be $ 10,000, approximately, which may be reserved for contingent expenses.

The typical half-sunken mortar battery at sites of similar exposure to that at Sandy Hook, providing for a terreplein reference of 15 feet below plane of site, should be built, omitting platforms, for an allotment of $ 200,000.

At Sandy Hook, however, owing to the lowness of the site and the saturation of the soil with water, the emplacement reference has been raised 10 feet, bringing it to within 5 feet of the plane of site.

In consequence the embankment exceeds the excavation by 135,000 cubic yards of material, and the estimated cost of construction is augmented to $230,000.

The above batteries will be furnished, by the above-stated allotments, with complete ammunition service and electric lighting, and also with such buildings as are requisite for convenient service of the battery.

Very respectfully, your obedient servant,

(Sd) G. L. Gillespie,

Lt. Col. of Engineers.

(1 drawing in separate roll.)

Engineer Office, U. S. Army,

Room 24, Army Building, 39 Whitehall St.,

New York, N. Y., October 18, 1892.

Brig. Gen.
Thomas L. Casey,
Chief of Engineers,
U. S. A.,
Washington, D. C.

General:-

I have the honor to acknowledge the receipt of the following telegram:

Washington, D. C., Oct. 18, 1892.

"To Lieut. Colonel Gillespie,

"Engineer, Army Building, Whitehall Street, N. Y. City.

"If there is any work on the Gun position at Fort Hamilton in the way of tearing down or preparing site for magazine which can be done now, the Secretary of War directs that you set a force at work immediately.

'Casey, Chief of Engineers.

Very respectfully, your obedient servant,

(Sd) G. L. Gillespie,

Lt. Col. of Engineers.

Newton, John.

Armament Sheet for Battery near Fort Hamilton,
dated 30 June 1867.
Record Group 77; Fortifications File; Drawer 250, Sheet 13-7.
National Archives II, Cartographic Branch, College Park, MD.

Drawer 250
Sheet 13

NARA - Cartographic Branch
RG 77
Fortifications File
D 250
S 13-7

Fort Battery near Fort Hamilton

		Smooth bore Guns																						Rifled Guns									
		20 inch.		15 inch.		13 inch.		10 inch.		8 inch.		8 Inch. Sea-Coast Howitzer	42 P'drs	32 P'drs	24 P'drs	18 P'drs	12 P'drs	18 P'drs. Siege or Field. 12 P'drs. Siege or Field.					24 P'd Flank Howitzers	Mortars	300 P'drs		200 P'drs		100 P'drs		42 P'drs	32 P'drs	24 P'drs				
		⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙							⊙	○	⊙	○	⊙	○	⊙	⊙	⊙				
Guns mounted June 20, 1868	Casemate																																			
	Barbette			1		2		13																												
Guns & Carriages on hand not mounted June 20/67	Casemate																																			
	Barbette					2																														

		20 inch.		15 or 13 inch.		10 & 8 inch. smooth bore Sea-Coast or 100 Pound Rifles		Smaller Calibers. Platforms not yet reinforced.	Flank Howitzer																																	
		⊙	○	⊙	○	⊙	○	○	○																													
Platforms ready for Guns on June 20/67 exclusive of those on which Guns are mounted at that date.	Casemate																																			
	Barbette			5		1 (a)																															
Additional Platforms probably ready by July 20/67 & 8 (excluding those on which Guns are mounted, and those ready for Guns on 31st Dec 20/67.)	Casemate																																			
	Barbette																																			

		No of Platforms
Total number of platforms probably ready by June 20, 1868	Casemate	
	Barbette	27
Total Armament of work when completed	Casemate	
	Barbette	27 (b)

(b) Excluding 5 platforms taken up to make room for traverses and not enumerating proposed platforms on any portion of projecting land front or return towards Land.

John Newton
Lieut Col Engrs

Endorsed D 250 Fort Battery near Fort Hamilton Sheet 13-7

Entered

(a) One barbette front finish platform for 10" Gun originally constructed with 4" finish. (See circular of 13 Dec. June 15th 1867)

(a) One 10" Gun and carriage omitted.

REPRODUCED AT THE NATIONAL ARCHIVES

Newton, John.

Armament Sheet for Fort Hamilton,
dated 30 June 1867.
Record Group 77; Fortifications File; Drawer 250, Sheet 13-5.
National Archives II, Cartographic Branch, College Park, MD.

Drawer 250
Sheet 13 - 5

Cartographic Records
RG77
Fortification Files
Drawer 250
Sheet 13-5

Fort Hamilton

		Smooth bore Guns																		Rifled Guns								
		20 inch.	15 inch	13 inch	10 inch.	8 inch.	8 inch Sea Coast Howitzer	42 P'drs	32 P'drs	24 P'drs	18 P'drs	12 P'drs	18 P'drs Siege or Field	12 P'drs Siege or Field				24 Pd Wrought Howitzers	Mortars	300 P'drs	200 P'drs	100 P'drs	42 P'drs	32 P'drs	26 P'drs			
		⊙ ○	⊙ ○	⊙ ○	⊙ ○	⊙ ○	⊙	○	⊙ ○	⊙ ○	⊙ ○	⊙ ○								⊙ ○	⊙ ○	⊙ ○	⊙ ○	⊙ ○	⊙ ○			
Guns mounted June 30, 1867	Casemate								14									10										
	Barbette								19	10									5									
Guns & Carriages on hand not mounted June 30, 1867	Casemate																											
	Barbette		2 b	2 b																								

		20 inch.	15 or 13 inch.	10 & 8 inch smooth bore 300-200- or 100 Pound Rifles	Smaller Calibres - Platforms not yet reinforced	Flank Howitzer				
		⊙ ○	⊙ ○	⊙ ○	⊙	⊙				
Platforms ready for Guns on June 30, 1867 exclusive of those on which Guns are mounted at that date.	Casemate					36 a				
	Barbette				9 a					
Additional Platforms probably ready by June 30/68 (excluding those on which Guns are mounted, and those ready for Guns on June 30/67)	Casemate									
	Barbette									

		No of Platforms
Total number of platforms probably ready by June 30/68	Casemate	60
	Barbette	35
Total Armament of work when completed	Casemate	63 c
	Barbette	38 d

Endorsement required by Engineer Dept Circular No 13 dated June 18th 1867.

No barbette front finish platforms originally constructed with wrought fastings

No casemate barbette front finish platforms unfinished or finished with wrought fastings

38 barbette front finish platforms which have not been reinforced.

John Newton
Lieut Col Engrs
Bvt Maj Genl

Drawer 250
Sheet 13-5

a) Eight additional platforms similar to these have had the finish fastenings destroyed by cutting Embrasures down to the floor for new entrance to Officers quarters

b) Of these 2 have 32 Pdr. and 5 have 24 Pdr Carriages mounted.

c) Excluding the 8 with finish fastenings destroyed

d) And including Mortars.

REPRODUCED AT THE NATIONAL ARCHIVES

132nd Ordnance Detachment.

"Explosive Ordnance Incident Report No. 542-321-60,"
dated 13 June 1960.
Accession 338A-64C-3223; Box 1 of 1.
National Personnel Records Center, St. Louis, MO.

EXPLOSIVE ORDNANCE INCIDENT REPORT	TIME AND DATE	NUMBER
	1040- 13 June 1960	542-321-60

INSTRUCTIONS

1. Reconnaissance Officer or Agent prepares four (4) copies of item 1 - 7, forward three (3) copies to Control Det through CO Post or CD Controller.
2. Control Det will retain one (1) copy and forward two (2) copies to ED Det for action.
3. ED Det will complete two (2) copies showing the action taken and return original to Control Det.
4. Control Det will note action taken on duplicate and return original to State Civil Defense or Military Channels.

NOTE: THIS REPORT MAY BE TELEPHONED BEFORE FORWARDING

1. EXACT ADDRESS OF INCIDENT *(To include landmarks, sketches, or diagrams)*

Provost Marshals Office
Fort Hamilton, New York

2. SOURCE OF INITIAL REPORT

Sgt Mercer, PMO Ft Hamilton thru Sfc Henderson 542d Ord Det (EDC) Ft Jay, NY (Governors Island)

2a.	2b. NAME OF PERSON REPORTING	2c. LOCATION OF PERSON REPORTING	2d. PHONE
☐ CIVILIAN ☒ MILITARY	Sgt Mercer	Ft Hamilton PMO	Ext 2413

3. DESCRIPTION OF ANY PART OF ORDNANCE VISIBLE

a. LENGTH	b. DIAMETER	c. COLOR	d. MARKINGS
N/A			

e. TYPE OF ITEM
☒ IDENTIFIED ☐ ESTIMATED

Fuze, Bomb, Nose M111A1 1 ea.

4. HOLE OF ENTRY

a. DIAMETER *(inches)*	b. DEPTH *(feet est)*	c. TYPE OF SURFACES	d. TYPE OF ANY BUILDINGS PENETRATED
N/A		☐ SURFACE ☐ SUB-SURFACE	

5. PROPERTY OR INSTALLATION AFFECTED *(Specify and describe briefly)*

Military Post

6. WHAT EVACUATION AND/OR PROTECTIVE MEASURES ENFORCED?

N/A

7. REMARKS: *(Reasons for suspecting UXO, Radiac reading if any, etc.)*

Item recovered was ANM 110A1, Fuze, bomb, nose (Inert)

Mileage : 28

NAME OF PERSON VERIFIED BY	RANK	ORGANIZATION
JAMES A. MINOR	MSG	132nd Ord Det (ED)
		ADDRESS: Fort Tilden 95, NY

1AA FORM 1 APR 59 368 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. (Over)

NPRC
338 64C-3223
Box 171

1st Indorsement

TO: Commanding Officer, _____ Ord Det (EDC) Date _____

FROM: _____ (Military Installation or State CD EOD Control Center)

Recommended Category _____

NAME AND RANK _____

ORGANIZATION _____

2d Indorsement

TO: Commanding Officer, _____ Ord Det (ED) Date _____

FROM: Commanding Officer, _____ Ord Det (EDC)

1. For Action
2. Approved Category _____

NAME AND RANK _____

ORGANIZATION _____

3rd Indorsement

TO: Commanding Officer, 542d Ord Det (EDC) Date 14 Jun 60

FROM: Commanding Officer, 132nd Ord Det (ED)

a. Operations Commenced Time 1040 Date 13 Jun 60 Operations Completed Time 1230 Date 13 Jun 60

b. ☒ Disposed of Item stored in umit bunker pending disposal. (Item INERT)
☐ Discredited
☐ Abandoned (If abandoned, explain)

c. Technical intelligence ☐ was ☐ was not obtained.
Report ☐ is ☐ is not attached. It will be forwarded later.

d. Clearance certificate handed to:

Name _____
Address _____
Telephone _____

NAME AND RANK Charles R. Spinner CHARLES R. SPINNER JR., 1st Lt OrdC

ORGANIZATION 132nd Ord Det (ED)

4th Indorsement

TO: _____ DATE 20 JUN 1960
(CO Military Installation or State CD EOD Control Center)

FROM: Commanding Officer, _____ Ord Det (EDC)

NAME AND RANK _____

ORGANIZATION _____

132nd Ordnance Detachment.

"Explosive Ordnance Incident Report No. 542-636-60,"
dated 15 November 1960.
Accession 338A-64C-3223; Box 1 of 1.
National Personnel Records Center, St. Louis, MO.

EXPLOSIVE ORDNANCE INCIDENT REPORT	TIME AND DATE	NUMBER
	1525 - 15 Nov 60	542-636-60

INSTRUCTIONS

1. Reconnaissance Officer or Agent prepares four (4) copies of item 1 - 7, forward three (3) copies to Control Det through CO Post or CD Controller.
2. Control Det will retain one (1) copy and forward two (2) copies to ED Det for action.
3. ED Det will complete two (2) copies showing the action taken and return original to Control Det.
4. Control Det will note action taken on duplicate and return original to State Civil Defense or Military Channels.

NOTE: THIS REPORT MAY BE TELEPHONED BEFORE FORWARDING

1. EXACT ADDRESS OF INCIDENT *(To include landmarks, sketches, or diagrams)*

Fort Hamilton, New York

(Construction Site)

2. SOURCE OF INITIAL REPORT

Major DUNHAM - S - 2 - Fort Hamilton, New York

2a.	2b. NAME OF PERSON REPORTING	2c. LOCATION OF PERSON REPORTING	2d. PHONE
☐ CIVILIAN ☒ MILITARY	Major DUNHAM	Fort Hamilton	24103

3. DESCRIPTION OF ANY PART OF ORDNANCE VISIBLE

a. LENGTH	b. DIAMETER	c. COLOR	d. MARKINGS
N/A	N/A	N/A	N/A

e. TYPE OF ITEM

☐ IDENTIFIED
☒ ESTIMATED — Fuze

4. HOLE OF ENTRY

a. DIAMETER *(inches)*	b. DEPTH *(feet est)*	c. TYPE OF SURFACES	d. TYPE OF ANY BUILDINGS PENETRATED
N/A	N/A	☒ SURFACE ☐ SUB-SURFACE	N/A

5. PROPERTY OR INSTALLATION AFFECTED *(Specify and describe briefly)*

New Construction (Bldg)

6. WHAT EVACUATION AND/OR PROTECTIVE MEASURES ENFORCED?

All Personnel ordered from Bldg. MP on Guard

7. REMARKS: *(Reasons for suepecting UXO, Radiac reading if any, etc.)*

Items recovered were two (2) WP Grenades.

Mileage: 24

Personnel: Lt Spinner
Msg Minor

NAME OF PERSON VERIFIED BY	RANK	ORGANIZATION
CHARLES R. SPINNER JR.	1st Lt Ord C	132nd Ord Det (ED)
		ADDRESS Fort Tilden 95, New York

1AA FORM 1 APR 59 368 — PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. 132 - 36 - 60 (Over)

NPRC
338A-64C-322.3
Rec'd 1981

1st Indorsement

TO: Commanding Officer, _____ Ord Det (EDC) Date _____

FROM: _____ (Military Installation or State CD EOD Control Center)

Recommended Category _____

NAME AND RANK _____

ORGANIZATION _____

2d Indorsement

TO: Commanding Officer, _____ Ord Det (ED) Date _____

FROM: Commanding Officer, _____ Ord Det (EDC)

1. For Action
2. Approved Category _____

NAME AND RANK _____

ORGANIZATION _____

3rd Indorsement

TO: Commanding Officer, 542nd Ord Det (EDC) Date 15 Nov 60

FROM: Commanding Officer, 132nd Ord Det (ED)

a. Operations Commenced Time 1530 Date 15 Nov 60 Operations Completed Time 1712 Date 15 Nov 60

b. ☒ Disposed of Returned to Fort Tilden for Disposal.
☐ Discredited
☐ Abandoned (If abandoned, explain)

c. Technical intelligence ☐ was ☒ was not obtained.
Report ☐ is ☒ is not attached. It will be forwarded later.

d. Clearance certificate handed to:

Name _____
Address _____
Telephone _____

Charles R Spinner Jr

NAME AND RANK CHARLES R. SPINNER JR. 1st Lt Ord C

ORGANIZATION 132nd Ord Det (ED) Ft Tilden 95, New York

4th Indorsement

TO: _____ DATE _____
(CO Military Installation or State CD EOD Control Center)

FROM: Commanding Officer, _____ Ord Det (EDC)

NAME AND RANK _____

ORGANIZATION _____

Second Corps Area Chemical Officer.

"Report of Activities, 2nd Corps Area, for August,"
dated 04 September 1923.
Record Group 175; Entry 3; Box 574; File: Second Corps Area.
National Archives I, Washington D.C.

REPRODUCED AT THE NATIONAL ARCHIVES

Sept. 4th, 1923.

Report of Activities, 2nd Corps Area, for Month of August.

The Chief, Chemical Warfare Service, USA.,
Munitions Building,
Washington, D. C.,

1. TRAINING, REGULAR ARMY.

No attempt has been made to continue training of the Regular Army troops during the month of August as all the available personnel is busily engaged in training the units of the National Guard, Reserves and C.M.T. Camps.

Plans are being made to conduct schools at the various Regular Army Posts upon the return of the Chemical Warfare Officer from the Edgewood School.

2. MATERIELS.

Materiels for summer training, which were previously distributed have been expended during the month; arrangements have been made to reassemble all unexpended materiel not used at these camps at the Chemical Warfare Magazine, Fort Hamilton, N. Y. After the distribution of materiels for summer training the unexpended allowance of last year was used first and replaced by fresh materiel shipped from Edgewood for this summer's training.

Report of emergency Chemical Warfare Service munitions, per letter from the Chief, Chemical Warfare Service Office, will be made as soon as the unexpended materiels have arrived from the summer camps.

3. NATIONAL GUARD.

The summer training period of the National Guard has progressed during the month; - Lieut. Barrett at Peekskill and Major Mason at Sea Girt and Camp Dix and Lieut. Stokes of the 3rd Corps Area at Tobyhanna. Reports of these officers are attached herewith. Further distribution of mimeographed lectures on Chemical Warfare have been made.

The Chemical Warfare Officer made an inspection of the camp of the New York Guard at Peekskill during the month.

4. PROCUREMENT PLANNING.

In order to complete the Procurement Planning in this Corps Area, Major Pearce - CW-ORC., has been placed on active duty for two weeks. A full report of Major Pearce's activities will be made direct to the Chief of the Chemical Warfare Service.

5. RESERVES.

Applications and examinations for commissions, promotions,

ARA-DC
G-175
3
574
Second Corps Area

REPRODUCED AT THE NATIONAL ARCHIVES

and transfers of Reserve Officers have been acted on during the month. Excellent men, such as Colonel Wm. M. Chadbourne and Colonel Raymond Bacon have been added to our Reserve Officers' list.

GENERAL.

One enlisted man, with a museum set, was assigned to a recruiting party attending the various fairs in New York State.

One demonstration was given to the C.M.T.C. Candidates at Plattsburg Barracks. This was followed by two other demonstrations on the Fair Grounds at Plattsburg during the Clinton County Fair.

The Chemical Warfare Officer made a study of the Mobilization Plans with Appendices G-1, G-3 and G-4.

Captain C. S. Moyer will take the course in Chemical Warfare at the Edgewood Arsenal beginning September 15th. Captain C. W. Yuill, ADC., to General Bullard will be Acting Chemical Warfare Officer during Captain Moyer's absence.

Lieut. Barrett will complete the summer training about the 5th of September and return to proper station at Edgewood Arsenal. Major Mason has completed his temporary duty at these headquarters and proceeded to Fort Leavenworth to the General Service School.

Miss Connery, who has been acting as Stenographer to the Commanding Officer, Plattsburg Barracks, during the month has returned to duty at this office.

C. S. MOYER,
Captain, Chemical Warfare Service,
Corps Area Chemical Warfare Officer.

(Incls.)

Second Corps Area Inspector.

Correspondence to Commanding General, Second Corps Area,
dated 23 April 1928,
concerning the annual inspection of Fort Hamilton.
Record Group 92; Entry 1891; Box 724; File: 333.1 Fort Hamilton (1924-1928).
National Archives I, Washington D. C.

NARA DC
RG: 98
Entry: 1891
Box: 724
File: 333.1 Ft Hamilton 1928 - 1929

IN REPLY REFER TO: HEADQUARTERS SECOND CORPS AREA GOVERNORS ISLAND, N.Y.
OFFICE OF THE CORPS AREA INSPECTOR

(I.O.)
600.91 1st Div. and
Ft.Hamilton. April 23, 1928.

Subject: Annual Inspection and Survey of Headquarters First Division and Fort Hamilton, New York.

To: Commanding General, Second Corps Area.
(Through Commanding General, Fort Hamilton, N.Y.)

1. This inspection and survey of Headquarters First Division, Fort Hamilton, N. Y., and Fort Hamilton, N. Y., was made March 25-April 12, 1928, in compliance with letter orders Commanding General, 2nd Corps Area, dated January 13, 1928.

I. GENERAL.

1. Names: (a) Headquarters First Division, Fort Hamilton, New York.
(b) Fort Hamilton, New York.

2. Target Range: The post has suitable 1000 inch, pistol and .22 caliber ranges. The target range at Camp Dix, New Jersey, is used for record target practice. This range has ample facilities, but is about 80 miles from Fort Hamilton. This necessitates a split-up of the Fort Hamilton garrison during several months each year, which interferes materially with other regimental training. The area of Fort Hamilton and its location do not permit installation of a target range.

3. Training Areas. About 80 acres of open and level ground is available for training purposes. This area is sufficient for close order drill and ceremonies, but does not permit essential tactical training.

4. Organizations and Detachments Present:

	Officers.	Enlisted Men.
Headquarters and Headquarters Detachment, First Division	13	33
Medical Detachment	4	20
Veterinary Detachment	1	4
Ordnance Detachment		3
Quartermaster Detachment	2	27
5th Coast Artillery	1	15
18th Infantry (less Hq.2nd & 3rd Bns. and Cos. E, F, G, I, K and L)	28	537
Animal Transport School		57
Casual Detachment		43
Total	49	737

SENTRY MOUNTED BY 6TH COMPANY

5. Special Duty:

Duty.	Numbers.
Animal Transportation School	2
Garage (Chauffeur and mechanic)	5
Quartermaster (plumbers, electricians, carpenter, teamsters)	17
Fire Marshal	3
Prison and police officer	3
Signal Officer (telephone operators)	4
Post Headquarters (orderlies and clerks)	4
Post Exchange	4
Indoor Target Range	1
Librarian	1
Band	1
Firemen	5

These men do not receive military instruction while on special duty. They are changed from time to time and given military instruction. In view of the limited number of Quartermaster Corps men on duty, the size of the post and its activities, the number of men on special duty is believed to be reasonable.

6. Commutation of Quarters:

Five thousand four hundred eighty-one dollars and thirty-two cents ($5,481.32) was paid to officers during the fiscal year 1927, as commutation of quarters. At the time of this survey, five officers were on a commutation status. All buildings at Fort Hamilton are utilized to their full capacity for necessary purposes. None can be made available for conversion into quarters, so, the construction of additional quarters is the only way to reduce this expenditure. Fort Hamilton adjoins a desirable residential section of Brooklyn. Officers on commutation are, therefore, as readily available for duty as though they lived on the post. It is more economical to pay commutation than to supply quarters in kind. The average cost of a set of officers' quarters, under the present limits of cost, is $11,000.00, and, therefore, the cost of supplying quarters in kind is approximately as follows:

Interest on $11,000.00 at 5% (should be considered)	$ 550.00.
Insurance (must be considered whether government carries its own risk or not)	55.00.
Yearly repair (estimated)	125.00.
Deterioration (2% per year)	220.00.
Fireman (based on private's pay and allowances during part of year, only, and one man firing about four furnaces	60.00.
Fuel (based on old type captains' sets)	480.00.
Light	24.00.
Overhead (administration, utilities, etc.)	15.00.
TOTAL	$1529.00.
Commutation (average of all officers in every grade colonel to 2nd lieutenant included,) approx.	960.00.
Yearly difference, or saving by paying commutation	$ 569.00.

It is believed that additional officers' quarters should not be const

REPRODUCED AT THE NATIONAL ARCHIVES

69th AAA Battalion.

Correspondence to Commanding Officer, Fort Hamilton,
dated 23 October 1956,
regarding the storage of ammunition.
Accession 338-60B-6016; Box 1 of 1; File: 471 Ammunition 1956.
National Personnel Records Center, St. Louis, MO.

HQ. MASTER FILE
FT. HAMILTON, N.Y.

HEADQUARTERS
69th AAA Battalion (90mm Gun)
Fort Hamilton, New York

23 October 1956

SUBJECT: Storage of Ammunition

TO: Commanding Officer
Fort Hamilton,
Brooklyn 9, New York
Attn: Executive Officer

In compliance with paragraph 8, Memorandum Number 57, your Headquarters, dated 15 October 1956 permission is requested to store small arms ammunition in Buildings 611 and 71 presently used as unit supply rooms by Headquarters Battery and Battery A respectively.

FOR THE COMMANDER:

D. K. RITCHIE
CWO USA
Adjutant

AHCAG 471.88 (23 Oct 56) 1st Ind

HEADQUARTERS FORT HAMILTON, Brooklyn 9, N. Y., 25 October 1956

TO: Commanding Officer, 69th AAA Bn. (90 mm Gun), Fort Hamilton, N. Y.

Approved, providing all reasonable precautions are taken for safeguarding material as provided for in AR 700-945.

FOR THE COMMANDER:

R. F. BUHLER
Major, AGC
Adjutant

NPRC
338-60B-6016
11
F&O 471 1956
Ammunition

66th Ordnance Detachment.

"Explosive Ordnance Incident Report No. 542-199-62,"
dated 18 April 1962.
Accession 338A-66C-6121; Box 1 of 1.
National Personnel Records Center, St. Louis, MO.

EXPLOSIVE ORDNANCE INCIDENT REPORT	TIME AND DATE	NUMBER
	1015 Hrs. 18 April 1962	542-199-62

INSTRUCTIONS

1. Reconnaissance Officer or Agent prepares four (4) copies of item 1 - 7, forward three (3) copies to Control Det through CO Post or CD Controller.
2. Control Det will retain one (1) copy and forward two (2) copies to ED Det for action.
3. ED Det will complete two (2) copies showing the action taken and return original to Control Det.
4. Control Det will note action taken on duplicate and return original to State Civil Defense or Military Channels.

NOTE: THIS REPORT MAY BE TELEPHONED BEFORE FORWARDING

1. EXACT ADDRESS OF INCIDENT *(To include landmarks, sketches, or diagrams)*

Office of Provast Marshall
Fort Hamilton, New York
Building # 130
7th Ave. Gate

2. SOURCE OF INITIAL REPORT

Sgt. Putman address above Ext. 22187 or 24203

2a.	2b. NAME OF PERSON REPORTING	2c. LOCATION OF PERSON REPORTING	2d. PHONE
☐ CIVILIAN ☒ MILITARY	Sp5 Donohue	542nd Ord Det (EDC)	2466

3. DESCRIPTION OF ANY PART OF ORDNANCE VISIBLE

a. LENGTH	b. DIAMETER	c. COLOR	d. MARKINGS
N/A	N/A	N/A	N/A

e. TYPE OF ITEM
☒ IDENTIFIED — M80 Firecrackers
☐ ESTIMATED — Various Small Arms

4. HOLE OF ENTRY

a. DIAMETER *(inches)*	b. DEPTH *(feet est)*	c. TYPE OF SURFACES	d. TYPE OF ANY BUILDINGS PENETRATED
N/A	N/A	☐ SURFACE ☐ SUB-SURFACE	N/A

5. PROPERTY OR INSTALLATION AFFECTED *(Specify and describe briefly)*

N/A

6. WHAT EVACUATION AND/OR PROTECTIVE MEASURES ENFORCED?

N/A

7. REMARKS: *(Reasons for suspecting UXO, Radiac reading if any, etc.)*

Below listed items held for disposal at Fort Tilden, Bunker

33 ea M80 Firecrackers, 15 ea Cal. 30 (carbine) cartridges, 1 ea Cal. 5((tracer) cartridge, 1 ea Cal. 30 (M1) cartridge, 2 ea 7.62 MM (M14) cartridge, 1 ea Cal. 45 cartridge, 1 ea Cal. 30 grenade launcher cartridge.

Lt Couillard
Sp5 Hemminger

NAME OF PERSON VERIFIED BY	RANK	ORGANIZATION
JOSEPH T. COUILLARD	2nd Lt OrdC.	66th Ord Det (ED)
		ADDRESS: USA Comb Fld Maint Shops Bellmo

1AA FORM 1 APR 59 **368** PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. *(Over)*

NPRC
338A-66C-6121

1st Indorsement

TO: Commanding Officer, _____ Ord Det (EDC) Date _____

FROM: _____ (Military Installation or State CD EOD Control Center)

Recommended Category _____

NAME AND RANK _____

ORGANIZATION _____

2d Indorsement

TO: Commanding Officer, _____ Ord Det (ED) Date _____

FROM: Commanding Officer, _____ Ord Det (EDC)

1. For Action
2. Approved Category _____

NAME AND RANK _____

ORGANIZATION _____

3rd Indorsement

TO: Commanding Officer, 542nd Ord Det (EDC) Date 20 April 1962

FROM: Commanding Officer, 66th Ord Det (ED)

a. Operations Commenced Time 1015 Date 18 Apr 62 Operations Completed Time 1245 Date 18 Apr 62

b. ☐ Disposed of X Held for disposal
☐ Discredited
☐ Abandoned (If abandoned, explain)

Mileage: 74
Man Hours 5

c. Technical intelligence ☐ was ☒ was not obtained.
Report ☐ is ☒ is not attached. It will be forwarded later.

d. Clearance certificate handed to:

Name _____
Address _____
Telephone _____

NAME AND RANK DONALD K HAGAR 1st Lt OrdC.

ORGANIZATION 66th Ord Det (ED)

COMMANDING
66th ORDNANCE DETACHMENT (ED)
Maple Avenue
Bellmore, Long Island, N. Y.

4th Indorsement

TO: _____ DATE 8 MAY 1962

(CO Military Installation or State CD EOD Control Center)

FROM: Commanding Officer, _____ Ord Det (EDC)

NAME AND RANK BRUCE L. MARSH ~~2D Lt OrdC~~

ORGANIZATION Asst Opn Officer

U. S. Engineer Office, New York.

Correspondence to Chief of Engineers,
dated 10 September 1918,
regarding the installation of anti-aircraft guns at Fort Hamilton.
Record Group 77; Entry 1003; Box 93; File: 660.282 NY Harbor Defense.
National Archives I, Washington D. C.

REPRODUCED AT THE NATIONAL ARCHIVES

ADDRESS REPLY TO
THE DISTRICT ENGINEER
U. S. ENGINEER OFFICE, SECOND DISTRICT
ROOM 1231, SOUTH FERRY BUILDING
NEW YORK, N. Y.

WAR DEPARTMENT
UNITED STATES ENGINEER OFFICE
SECOND DISTRICT, NEW YORK CITY
ROOM 1231, SOUTH FERRY BUILDING
44 WHITEHALL STREET
NEW YORK, N. Y.

HNB/TMM

REFER TO FILE No.

NF 61/251.25

September 10, 1918.

WAR - O.C.E. - DEPT.
SEP 11 1918
660.282 (NYC) F41
1 Incl - accompg.

FROM: THE DISTRICT ENGINEER, SECOND DISTRICT, NEW YORK, N. Y.

TO: The Chief of Engineers, U. S. Army.

SUBJECT: Anti-aircraft Guns.

1. In reply to telegram of the 9th inst.from the Chief of Engineers:

"Wire number antiaircraft bases completed and guns mounted comma emergency project"

reply was sent:

"Total of eighteen pairs of antiaircraft bases completed and one pair guns mounted Fort Hamilton period Details by special delivery letter tonight."

2. It is not understood clearly which series of guns is to be regarded as an emergency project. The letter of September 4, received September 6, was entitled "Emergency anti-aircraft defense." Of those, the Fort Wadsworth bases were built in the spring; the others are new sites, and the precise localities are being located.

3. The only anti-aircraft guns mounted are two at Fort Hamilton, which were mounted prior to orders to await proof-firing. No other guns are in possession of the District Engineer.

4. It is hoped that the inclosed print, which is up to date, will supply the information wanted.

Theo. A. Bingham

THEO. A. BINGHAM
Brig. Gen., U. S. Army.

1 Inclos. accompg.
print.

SOURCE: National Archives I
RG: 77
SERIES: 1003
BOX: 93
FOLDER: 660.282 NY Harbor Defenses

REPRODUCED AT THE NATIONAL ARCHIVES

660.282(NY)F JMW/BA

June 17, 1918.

660.282(N Y)FL4

From: The Chief of Engineers.

To: The District Engineer, Second District, New York City.

Subject: Antiaircraft defense of New York City.

1. The Secretary of War has recently approved a project submitted to him as a result of joint action by the Chief of Engineers, the Acting Chief of Ordnance and the Acting Chief of Coast Artillery, which provides for the assignment of such 3-inch antiaircraft guns on pedestal mounts as are now available, for the defense of important utilities near the eastern seaboard of the United States. This project calls for the assignment to New York City of 15 of these guns and it is contemplated that another will be added as soon as it becomes available.This is expected to occur shortly after July 10, 1918. It is desired to mount the 16 guns assigned to New York City in pairs in accordance with previous practice regarding emplacements for antiaircraft guns. The eight locations chosen for the 16 guns assigned to New York City are as follows:

(a) 2 guns on Rikers Island. The exact location for these guns should be selected by you and reported to the Chief of Engineers for his approval.

(b) 2 guns on Castle Point, Hoboken. Emplacements for these guns are understood to have been completed.

(c) 2 guns at Tompkins Square, Manhattan. Emplacements for these guns are understood to have been completed.

(d) 2 guns in Calvary Cemetery, Brooklyn. The exact location for these guns should be selected by you and reported to the Chief of Engineers for his approval.

(e) 2 guns on Governors Island. These emplacements are understood to have been completed.

(f) 2 guns at Fort Hamilton. One emplacement at this point is understood to be under construction while the other has not yet been commenced.

(g) 2 guns at Bergen Point, Bayonne. The exact location for these emplacements should be selected by you and reported to the Chief of Engineers for his approval.

REPRODUCED AT THE NATIONAL ARCHIVES

(h) 2 guns a short distance southeast of Harrison, N.J., to protect the terminals, railway yards and depots which have been established between Newark and Jersey City in connection with the utilization of Newark Bay on a large scale as a shipping point, and also the industrial utilities in that neighborhood. Exact locations for these two emplacements should be selected by you and reported to the Chief of Engineers for his approval.

2. The Chief of Ordnance advises that his scheme of distribution contemplates the supply at the present time of 15 guns and 15 mounts to New York City. These guns and mounts are at present located as follows:

3 guns at Fort Totten
12 guns at Fort Hamilton
2 mounts at Fort Schuyler
4 mounts at Fort Totten
1 mount at New York Arsenal
4 mounts at Fort Wadsworth
4 mounts at Fort Tilden

It is desired that you get in touch with the Department Ordnance Officer and any local authorities who may be interested and arrange to secure the guns and mounts above listed as rapidly as they are required by you, for emplacement.

3. The Artillery District Commander is being directed today, by the Chief of Coast Artillery, to arrange for the supply of adequate guards for the guns above mentioned at the positions in which they are emplaced.

4. It is desired that you proceed immediately with the emplacement of these guns for which platforms have been prepared and that you report promptly to this office for approval, the exact locations of those platforms which remain to be constructed.

By command of the Chief of Engineers:

J.M.WRIGHT
Lieut.Col., Corps of Engineers.

APPENDIX B

ACRONYMS

ACRONYMS

AA	Anti-Aircraft
AEC	Army Environmental Center
AGO	Adjutant General's Office
AP	Armor Piercing
ARCOM	Army Reserve Command
ASR	Archives Search Report
Aux	Auxiliary
BD/DR	Building Demolition/Debris Removal
BRAC	Base Realignment And Closure
CADD	Computer-Aided Design/Drafting
Cal	Caliber
CBDA	Chemical and Biological Defense Agency
CBDCOM	Chemical and Biological Defense Command
CBR	Chemical, Biological, Radiological
CCC	Civilian Conservation Corps
CDR	Commander
CE	Corps of Engineers
CEHNC	Corps of Engineers, Huntsville Division
CEMVS	Corps of Engineers, St. Louis
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CMTC	Citizens Military Training Camps
CN	Tear Gas
COE	Chief of Engineers
COMP	Composition
CPRO	Closure Project Resident Office
CTG	Cartridge
CSM	Chemical Surety Material
CSM	Command Sergeant Major
CWM	Chemical Warfare Material
CWS	Chemical Warfare Service
DA	Department of the Army
DARCOM	Development and Readiness Command
DERA	Defense Environmental Restoration Account
DIA	Defense Intelligence Agency
DoD	Department of Defense
EBS	Environmental Baseline Survey

ACRONYMS

EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EOD	Explosives Ordnance Disposal
EPA	Environmental Protection Agency
ERDA	Environmental Restoration Defense Account
EROS	Earth Resources Observation Systems
FORSCOM	(U.S. Army) Forces Command
FRC	Federal Records Center
FS	Feasibility Study
FUDS	Formerly Used Defense Site
FWS	(U.S.) Fish and Wildlife Service
GIS	Graphic Information System
GSA	General Services Administration
HABS/HAER	Historic American Buildings Surveys/Historic American Engineering Record
HC	High Capacity
HE	High Explosive
HQ	Headquarters
HQDA	Headquarters, Department of the Army
HTRW	Hazardous Toxic and Radioactive Waste
HTW	Hazardous and Toxic Waste
IAS	Initial Assessment Study
IRP	Installation Restoration Program
LCDR	Lieutenant Commander
MCX	Mandatory Center of Expertise
mg	Machine Gun
MG	Major General
MHI	Military History Institute
MLLW	Mean Lower Low Water
mm	Millimeter
NARA	National Archives and Records Administration
NBC	Nuclear Biological Chemical
NCDC	National Climatic Data Center
NCP	National Contingency Plan
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NOFA	No Further Action
NPRC	National Personnel Records Center
NRC	National Records Center
NYAC	New York Area Command

ACRONYMS

NYSDEC	New York State Department of Environmental Conservation
MACOM	Major Army Command
MDW	Military District of Washington
OE	Ordnance and Explosives
OSHA	Occupational Safety and Health Act
PA	Preliminary Assessment
PL	Public Law
POE	Port of Embarkation
POW	Prisoner of War
RA	Removal Action
RAC	Risk Assessment Code
RACE	Realignment and Closure Execution
RD	Remedial Design
RG	Record Group
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasability Study
ROTC	Reserve Officer Training Corps
SARA	Superfund Amendments and Reauthorization Act
S.B.	Smooth Bore
SCS	Soil Conservation Service
SLD	St. Louis District, Corps of Engineers
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
TBTA	(New York City) Triborough Bridge and Tunnel Authority
TECOM	Test Evaluation Command
TEU	Technical Escort Unit
TF	Training Field
TP	Target Practice
TRADOC	(U.S. Army) Training and Doctrine Command
USA	United States of America
USACE	U.S. Army Corps of Engineers
USADACS	U.S. Army Defense Ammunition Center and School
USAED	U.S. Army Engineer District
USAESCH	U.S. Army Engineering and Support Center, Huntsville, Alabama
USARC	U.S. Army Reserve Center
USATHMA	U.S. Army, Corps of Engineers, Toxic and Hazardous Materials Agency
USC	United States Code

ACRONYMS

USCG	U.S. Coast Guard
USDA	U.S. Department of Army
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
VA	Veterans Administration
WAA	War Assets Administration
WD	War Department
WNRC	Washington National Records Center

APPENDIX C

INTERVIEWS

Included in this Appendix are summaries of interviews of individuals who provided us with additional and useful information regarding ordnance and explosives (OE) and chemical warfare material (CWM) on Fort Hamilton. Summaries of interviews of other individuals who did not provide us with any additional information were not included.

NAME	PHONE NUMBER
Peter Koutroubis Public Works Fort Hamilton, NY	718-630-4485

Name: Peter Koutroubis
Public Works
Fort Hamilton

Phone: 718-630-4485

Date: 9 January 1998

The VA Hospital was constructed in the early 1950's. The installation's current indoor range is located in Building 213. The indoor range in Building 402 is no longer in use. Building 232 is currently being used by the MP's as their ammunition magazine. He has not heard of anyone finding any unexploded ordnance on the installation.

APPENDIX D

PRESENT SITE PHOTOGRAPHS

PRESENT SITE PHOTOGRAPHS

Page D-2

PHOTO #1 BUILDING 232 (Facing Northwest)

PHOTO #2 LOCATION OF BUILDING 71 (Facing North)

Page D-3

PHOTO #3 LOCATION OF REDOUBT (Facing North/Northeast)

Page D-4

PHOTO #4 LOCATION OF BATTERY PIPER (Facing North)

PHOTO #5 LOCATION OF BUILDING 611 (Facing South)

Page D-5

PHOTO #6 FORMER TRAINING FIELD (Facing North to East)

Page D-6

PHOTO #7 BATTERIES LIVINGSTON AND MENDENHALL (Facing Southeast)

PHOTO #8 BATTERIES BROWN AND JOHNSON (Facing Northwest/West)

Page D-7

PHOTO #9 OLD FORT



PHOTO #1
BUILDING 232 (Facing Northwest)



PHOTO #2
LOCATION OF BUILDING 71 (Facing North)



PHOTO #3
LOCATION OF REDOUBT (Facing North/Northeast)



PHOTO #4
LOCATION OF BATTERY PIPER (Facing North)



PHOTO #5
LOCATION OF BUILDING 611 (Facing South)



PHOTO #6
FORMER TRAINING FIELD (Facing North to East)



PHOTO #7
BATTERIES LIVINGSTON AND MENDENHALL (Facing Southeast)



PHOTO #8
BATTERIES BROWN AND JOHNSON (Facing Northwest/West)



PHOTO #9
OLD FORT

APPENDIX E

HISTORICAL PHOTOGRAPHS

HISTORICAL PHOTOGRAPHS

U. S. Army Military History Institute, Still Pictures Branch, Carlisle Barracks, Carlisle, PA. File 1005 Forts, 2nd Corps Area.

1923 Photo of the old fort, the waterline, and Batteries Johnson, Brown, Griffin, and Gillmore, dated 23 March 1923.

1923 Photo of the Redoubt, with old fort in the background, dated 23 March 1923.

1923 Photo of the Redoubt, Batteries Piper, Spear, Gillmore, Griffin, Brown, Burke, and Johnson, and the old fort, dated 23 March 1923.

1923 Photo of the old fort, Batteries Burke, Johnson, Brown, and Griffin, dated 23 March 1923..

1923 Photo of the old fort and the other batteries in the background, dated 23 March 1923.

U. S. Army Military History Institute,
Still Pictures Branch,
Carlisle Barracks, Carlisle, PA.
File 1005 Forts, 2nd Corps Area.

Photo of the old fort, the waterline, and Batteries Johnson, Brown, Griffin, and Gillmore,
dated 23 March 1923.



U. S. Army Military History Institute,
Still Pictures Branch,
Carlisle Barracks, Carlisle, PA.
File 1005 Forts, 2nd Corps Area.

Photo of the Redoubt, with old fort in the background,
dated 23 March 1923.



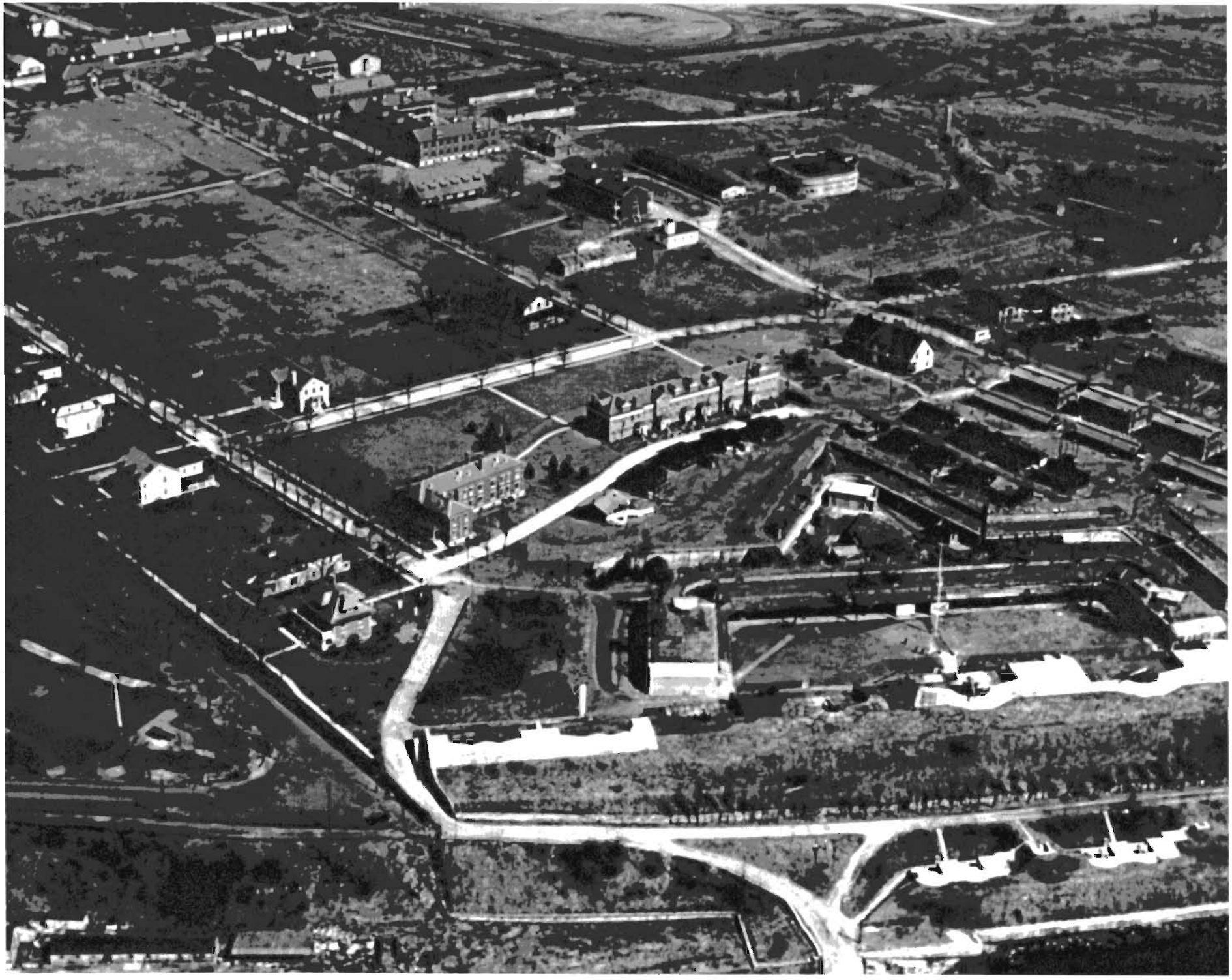
U. S. Army Military History Institute,
Still Pictures Branch,
Carlisle Barracks, Carlisle, PA.
File 1005 Forts, 2nd Corps Area.

Photo of the Redoubt, Batteries Piper, Spear, Gillmore, Griffin,
Brown, Burke, and Johnson, and the old fort,
dated 23 March 1923.



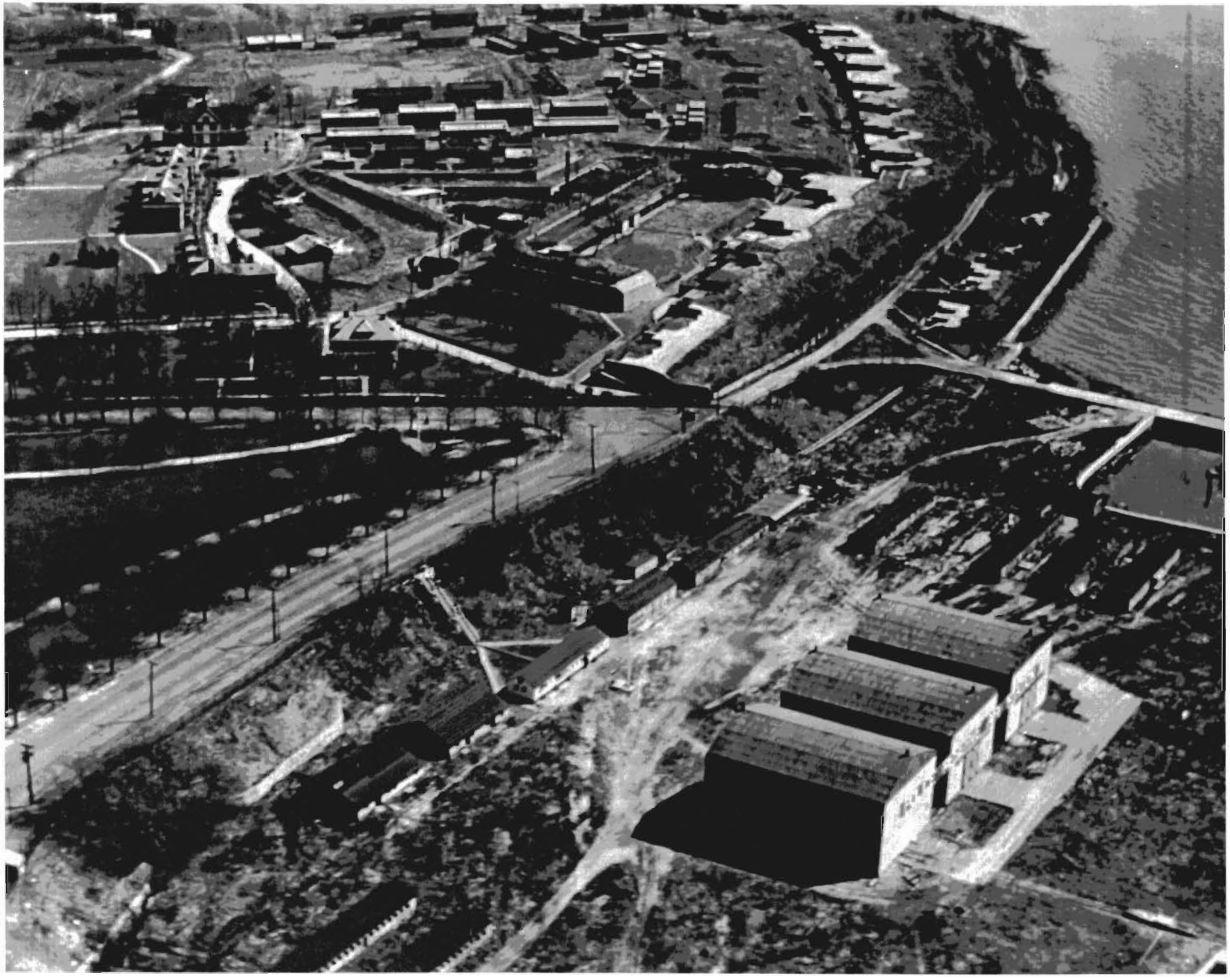
U. S. Army Military History Institute,
Still Pictures Branch,
Carlisle Barracks, Carlisle, PA.
File 1005 Forts, 2nd Corps Area.

Photo of the old fort, Batteries Burke, Johnson, Brown, and Griffin, dated 23 March 1923.



U. S. Army Military History Institute,
Still Pictures Branch,
Carlisle Barracks, Carlisle, PA.
File 1005 Forts, 2nd Corps Area.

Photo of the old fort and the other batteries in the background,
dated 23 March 1923.



APPENDIX F

HISTORICAL MAPS/DRAWINGS

Full size originals are on file at
U.S. Army Engineer District, St. Louis,
CEMVS-ED-P

HISTORICAL MAPS/DRAWINGS

Commanding General, Second Engineer District.

1918 Map: "Fort Hamilton, New York, Proposed Locations of New Buildings," dated 31 October. Record Group 77; Entry 802; Box 28; File: Fort Hamilton #10. National Archives-North Atlantic Region, New York, NY.

Department of the Army.

1953 "Post Map," dated 24 September. Accession 338-58A-4188. Box 4 of 4; File: 384.5. National Personnel Records Center, St. Louis, MO.

Engineer Intelligence Branch.

1962 Map: "Site Plan of Fort Hamilton, Brooklyn, New York," dated April. File: Operational Brochures (1963), Harbor Defense Museum, Fort Hamilton, NY.

First U. S. Army Engineer.

1962 Map: "Site Plan of Fort Hamilton, Brooklyn, New York," dated April. Public Works Office, Fort Hamilton, NY.

Fort Hamilton.

1959 Map: "General Site Plan, Scheme K-2," dated 19 February. Public Works Office, Fort Hamilton, NY.

Lorimer and Rose.

1961 Map: "Electrical Gymnasium, Bldg. No. 402, Plan and Details," dated 08 August. Public Works Office, Fort Hamilton, NY.

1963 Map: "Ammunition Bldg. No. 232, Plan, Elevations, Sections & Details," dated 12 April. Public Works Office, Fort Hamilton, NY.

Madigan-Hyland Engineers.

1963 Map: "Alignment and Location Plan, Area 1," dated 08 October. Public Works Office, Fort Hamilton, NY.

n.a.

1864a Sketch of Armament in old Fort Hamilton, dated 10 September. Lease Map Files, Harbor Defense Museum, Fort Hamilton, NY.

HISTORICAL MAPS/DRAWINGS

1864b Sketch of Armament of the Redoubt at Fort Hamilton, dated 10 September. Lease Map Files, Harbor Defense Museum, Fort Hamilton, NY.

1925 Map of Fort Hamilton, revised 17 April, showing armament of modern batteries. Record Group 77; Entry 1007; Box 84; File: 660 NY Harbor. National Archives I, Washington D. C.

1929 Untitled map of Fort Hamilton, dated 15 October. Record Group 77; Entry 802; Box 28; File 10. National Archives-North Atlantic Region, New York, NY.

1935 Map of Fort Hamilton, revised 15 March. Map Collection, Harbor Defense Museum, Fort Hamilton, NY.

n.d.a Undated, untitled map of Fort Hamilton that shows the training field behind Battery Livingston. File: National Archives Memorandum Sketch, Harbor Defense Museum, Fort Hamilton, NY.

n.d.d Untitled map of some of the batteries at Fort Hamilton. Record Group 77; Entry 802; Box 28; File 10. National Archive-North Atlantic Region, New York, NY.

n.d.e "Basement Plan," Building 402. Public Works Office, Fort Hamilton, NY.

n.d.g Hand drawn map submitted with General John Newton's letter of 01 April 1871. File: Redoubt, Harbor Defense Museum, Fort Hamilton, NY.

n.d.k Site Plan of Fort Hamilton, Brooklyn, New York. Harbor Defense Museum, Fort Hamilton, NY. (no copy)

Office of the Facility Engineer.

n.d. Map: "Grimes Road Realignment and Parking Extension." Public Works Office, Fort Hamilton, NY.

HISTORICAL MAPS/DRAWINGS

Office of the New York District Engineer.

1964 Map: "Real Estate, Fort Hamilton-New York (Military Reservation)," dated 27 August. Public Works Office, Fort Hamilton, NY.

U. S. Army Corps of Engineers, New York.

1905 Map: "U. S. Government Land at Fort Hamilton, New York, compiled under the direction of Lt. Col. W. L. Marshall, Corps of Engineers, U. S. A., from previous maps and present data." Record Group 77; Entry 802; Box 26; File: Fort Hamilton #2. National Archives-North Atlantic Region, New York, NY.

1942 Map: Fort Hamilton, New York, "Post and Boundary Map," dated 13 July. Real Estate Division, U.S. Army Corps of Engineers, New York District, NY (no copy)

1956a Map: "Master Plan for Redevelopment, Scheme K, Master Plan Superimposed on Existing Facilities," dated 01 June. Public Works Office, Fort Hamilton, NY.

1956b Map: "Fort Hamilton, Basic Information, Reservation Boundary Map," dated 01 June. Real Estate Division, U. S. Army Corps of Engineers, New York District, NY.

1956c Map: "Fort Hamilton, Basic Information, Reservation Boundary Map," dated 01 June. Real Estate Division, U. S. Army Corps of Engineers, New York District, NY.

1958 Map: "Master Plan for Redevelopment, General Site Plan," dated 09 January 1958. Public Works Office, Fort Hamilton, NY.

1982 Map: "Master Plan, Basic Information Maps, General Site Plan," dated 01 July. Real Estate Division, U. S. Army Corps of Engineers, New York District, NY.

1988 Map: "Master Plan, Basic Information, General Site Map," dated 31 August. Public Works Office, Fort Hamilton, NY.

HISTORICAL MAPS/DRAWINGS

U. S. Engineer Office, New York.

1892 Map: "Sketch of Fort Hamilton, New York Harbor, consisting of Fort Hamilton, old fort; Battery No. 1; New Battery and Mortar Battery, showing armament on April 1, 1892." Record Group 77; Fortifications File; Drawer 250, Sheet 13-14. Cartographic Branch, National Archives II, College Park, MD.

U.S. Engineers, New York.

1927 Map: "U.S. Military Reservation, Fort Hamilton, New York, Filled Area at Easterly End of Reservation," dated 9 August. Record Group 77; Entry 802; Box 26; File: Fort Hamilton #2. National Archives-North Atlantic Region, New York, NY.

War Department.

1949 Map of Fort Hamilton, showing the air raid shelters, dated 04 November. Accession 338-58A-4188; Box 4 of 4; File: 384.5. National Personnel Records Center, St. Louis, MO.

1950 Map: "Casemates Located at Fort Hamilton," dated 23 April. Accession 338-58A-4188; Box 4 of 4; File: 384.5. National Personnel Records Center, St. Louis, MO.

Commanding General, Second Engineer District.

Map: "Fort Hamilton, New York, Proposed Locations of New Buildings," dated 31 October, 1918.
Record Group 77; Entry 802; Box 28; File: Fort Hamilton #10.
National Archives-North Atlantic Region, New York, NY.

FORT HAMILTON PARKWAY

NARROWS

DAHLGREN PLACE

7TH AVE.

7TH AVE.

PROPOSED LOCATIONS
OF
NEW BUILDINGS

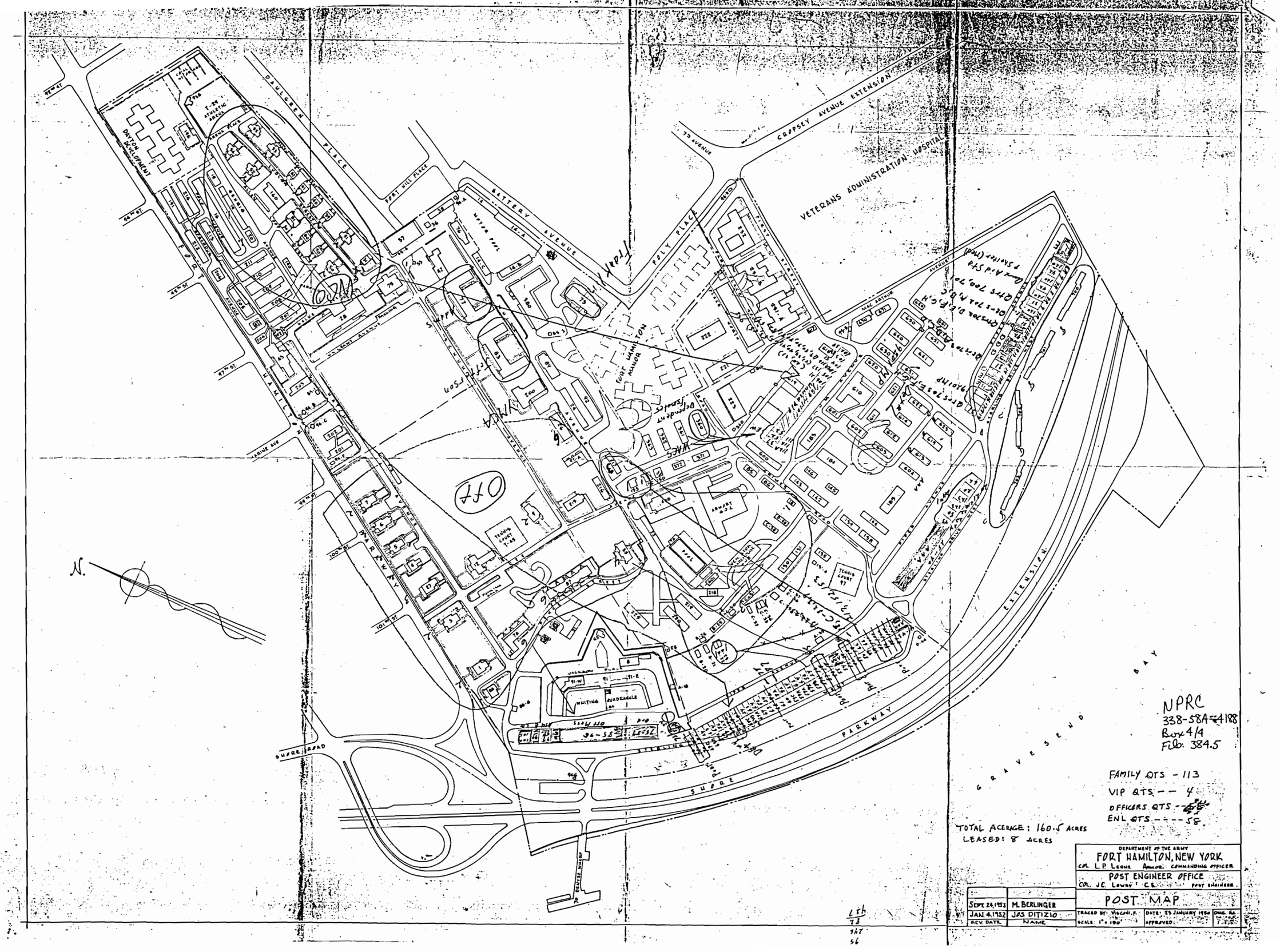
LEGEND

GRAVESEND BAY

MAP OF
FORT HAMILTON, N.Y.

Department of the Army.

"Post Map,"
dated 24 September 1953.
Accession 338-58A-4188. Box 4 of 4; File: 384.5.
National Personnel Records Center, St. Louis, MO.



NPRC
338-58A-4188
Box 4/4
Fldr: 384.5

FAMILY QTS - 113
VIP QTS -- 4
OFFICERS QTS -- 5
ENL QTS ---- 58

TOTAL ACREAGE: 160.5 ACRES
LEASED: 8 ACRES

DEPARTMENT OF THE ARMY
FORT HAMILTON, NEW YORK
COL. L.P. LEONE ARMOR COMMANDING OFFICER
POST ENGINEER OFFICE
COL. J.C. LOWRY C.E. POST ENGINEER

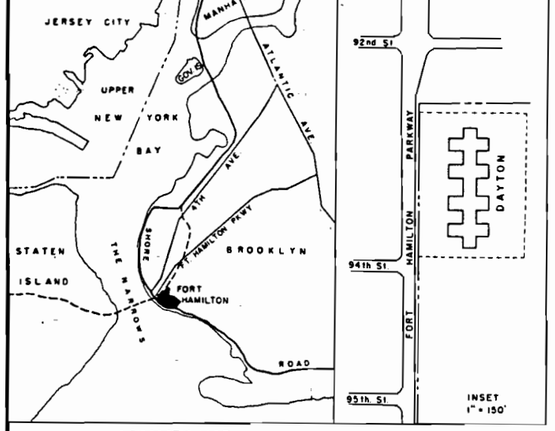
POST MAP

SEPT 26, 1953	M. BERLINGER	
JAN 4, 1952	JOS DITIZIO	
REV. DATE	NAME	

TRACED BY: VISCONTI, P. DATE: 25 JANUARY 1950 DWG. NO.
SCALE: 1" = 100' APPROVED:

Engineer Intelligence Branch.

Map: "Site Plan of Fort Hamilton, Brooklyn, New York,"
dated April 1962.
File: Operational Brochures (1963),
Harbor Defense Museum, Fort Hamilton, NY.



LOCALITY MAP

BLDG. NO	ACTIVITY
T-33	POST EXCHANGE GASOLINE STATION
36	MOTOR POOL GASOLINE STATION
101	NEW YORK CONSOLIDATED EXCHANGE
102	MOTOR POOL SEDAN GARAGE
85	YOUTH CLUB
T-104	MOTOR POOL GARAGES
T-14-B	MOTOR POOL GARAGES
T-14-C	MOTOR POOL GARAGES
105	MOTOR POOL DISPATCHER AND OFFICE
106	MOTOR POOL SHOPS AND SUPPLY OFFICE
109	ADAMS HOTEL
110	JEFFERSON HOTEL
111	FRANKLIN HOTEL (WAC BARRACKS)
113	YOUTH CENTER
114	MEDICAL BUILDING
116	OPERATIONS BUILDING
117	GENERAL ROBERT E. LEE RESIDENCE
118	SENTRY BOOTH AT 101st. STREET
123	POST EXCHANGE
124	POST COMMISSARY
125	WAREHOUSES
126	POST ENGINEER PAINT STORAGE
127	POST ENGINEER HEAVY EQUIPMENT SHOP
128	POST ENGINEER SHOPS
129	POST ENGINEER OFFICE AND SHOPS
130	PROVOST MARSHAL
131	SENTRY BOOTH
200	PX GAS STATION
133	SUB STATION
D-44	CABLE HUT

BLDG. NO	ACTIVITY
201	OFFICERS QUARTERS
202	OFFICERS QUARTERS
S-203	CAR GARAGES
205	CAR GARAGES
206	POST SIGNAL OFFICE
207	OFFICERS CLUB
208	SIGNAL SUPPLY AND MAINTENANCE
209	B.O.Q.
210	B.O.Q
S-211	CAR GARAGES
S-212	THEATER
213	ARMORY
214	FILTER PLANT
216	AUTO MECHANIC SCHOOL
218	POST NURSERY
219	CHAPEL
221	OFFICERS QUARTERS
222	OFFICERS QUARTERS
223	OFFICERS QUARTERS
224	OFFICERS QUARTERS
225	OFFICERS QUARTERS
227	FLAG POLE
228A-B	TENNIS COURTS
229	DENYSE WHARF
231	PUMP HOUSE
232	AMMO STORAGE
301	ADMINISTRATION BLDG
302	POST HEADQUARTERS
303	REVIEWING STAND
215	BATH HOUSE
217	CAR GARAGES
226	POOL

BLDG. NO	ACTIVITY
304	OFFICERS QUARTERS
305	NCO QUARTERS
306	NCO QUARTERS
307	NCO QUARTERS
310	OFFICERS QUARTERS
311	OFFICERS QUARTERS
312	OFFICERS QUARTERS
313	NCO QUARTERS
314	NCO QUARTERS
315	NCO QUARTERS
316	NCO QUARTERS
317	FLAG POLE -175' HIGH
318	HARD BALL DIAMOND
319	SOFT BALL DIAMOND
413	TENNIS COURTS
S-360	TRANSIENT BARRACKS
S-361	TRANSIENT BARRACKS
S-362	TRANSIENT BARRACKS
S-363	TRANSIENT BARRACKS
S-380	TRANSIENT MESS
401	BROOKLYN FIELD OFFICE 108TH CIC
402	GYMNASIUM
404	LIBRARY
405	NCO CLUB
407	EM BARRACKS
408	EM BARRACKS
409	EM CLUB
410	BASKET BALL COURT
411 A-B	HANDBALL COURTS
412 A-B-C-D	VOLLEY BALL COURTS

VETERANS ADMINISTRATION HOSPITAL AREA

SITE PLAN OF FORT HAMILTON

BROOKLYN, NEW YORK

APRIL 1962

SCALE

PREPARED UNDER THE DIRECTION OF THE FIRST U.S. ARMY ENGINEER BY THE ENGINEER INTELLIGENCE BRANCH GOVERNORS ISLAND NEW YORK, N.Y.

Harbor Defenses Museum
Ft Hamilton, N.Y.
Vertical Files: Operational Brochures (1963)

First U. S. Army Engineer.

Map: "Site Plan of Fort Hamilton, Brooklyn, New York,"
dated April 1962.
Public Works Office, Fort Hamilton, NY.

BLDG NO	ACTIVITY
T 33	POST EXCHANGE GASOLINE STATION
36	MOTOR POOL GASOLINE STATION
101	NEW YORK CONSOLIDATED EXCHANGE
102	MOTOR POOL SEDAN GARAGE
85	YACHT CLUB
T-14	MOTOR POOL GARAGES
T-14 B	MOTOR POOL GARAGES
T-14 C	MOTOR POOL GARAGES
105	MOTOR POOL DISPATCHER AND OFFICE
106	MOTOR POOL SHOPS AND SUPPLY OFFICE
109	ADAMS HOTEL
112	JEFFERSON HOTEL
-	FRANKLIN HOTEL WAC BARRACKS
113	YOUTH CENTER
114	MEDICAL BUILDING
116	OPERATIONS BUILDING
117	GENERAL ROBERT E LEE RESIDENCE
118	SENTRY BOOTH AT 101st STREET
123	POST EXCHANGE
124	POST COMMISSARY
125	WAREHOUSES
126	POST ENGINEER PAINT STORAGE
127	POST ENGINEER HEAVY EQUIPMENT SHOP
128	POST ENGINEER SHOPS
129	POST ENGINEER OFFICE AND SHOPS
130	PROVOST MARSHAL
131	SENTRY BOOTH
200	PX GAS STATION
133	SUB STATION
D 44	CABLE HUT

BLDG NO	ACTIVITY
2	OFFICERS QUARTERS
202	OFFICERS QUARTERS
203	CAR GARAGES
205	CAR GARAGES
206	POST SIGNAL OFFICE
207	OFFICERS CLUB
208	POST SUPPLY AND MAINTENANCE
211	BOWLING
212	BOWLING
S-213	THEATER
213	ARMORY
214	WATER PLANT
216	AUTO MECHANICS SCHOOL
218	POST NURSERY
219	CHAPEL
221	OFFICERS QUARTERS
222	OFFICERS QUARTERS
223	OFFICERS QUARTERS
224	OFFICERS QUARTERS
225	OFFICERS QUARTERS
227	FLAG POLE
229A	TENNIS COURTS
229	DENISE WHARF
232	PUMP HOUSE
232	AMMO STORAGE
301	ADMINISTRATION BLDG
302	POST HEADQUARTERS
303	REVIEWING STAND
315	BATH HOUSE
317	CAR GARAGES
226	POOL

BLDG NO	ACTIVITY
304	OFFICERS QUARTERS
305	NCO QUARTERS
306	NCO QUARTERS
307	NCO QUARTERS
310	OFFICERS QUARTERS
311	OFFICERS QUARTERS
312	OFFICERS QUARTERS
313	NCO QUARTERS
314	NCO QUARTERS
315	NCO QUARTERS
316	NCO QUARTERS
317	FLAG POLE 75 H SH
319	HARD BALL DIAMOND
319	SOFT BALL DIAMOND
413	TENNIS COURTS
S 362	TRANSIENT BARRACKS
S-362	TRANSIENT BARRACKS
S 362	TRANSIENT BARRACKS
S 363	TRANSIENT BARRACKS
S-380	TRANSIENT MESS
40	BROOKLYN FIELD OFFICE 68TH CO
402	GYMNASIUM
404	LIBRARY
405	NCO CLUB
407	EM BARRACKS
408	EM BARRACKS
410	BASKET BALL COURT
411A-B	HANDBALL COURTS
424-B-C-D	VOLLEY BALL COURTS

VETERANS ADMINISTRATION

HOSPITAL AREA

LOCALITY MAP

AREA FIRE MARSHALS

1 TRANSPORTATION OFFICER
2 SIGNAL OFFICER
3 CC ARMY RESERVE CENTER
4 DIR OF INTELLIGENCE & TRAINING
5 FAMILY BILLETING
6 COMPANY COMMANDER
7 PROVOST MARSHAL
8 ASST FAMIL BILLETING OFFICER HAMILTON MANOR
9 ASST FAMILY BILLETING OFFICER DAYTON MANOR

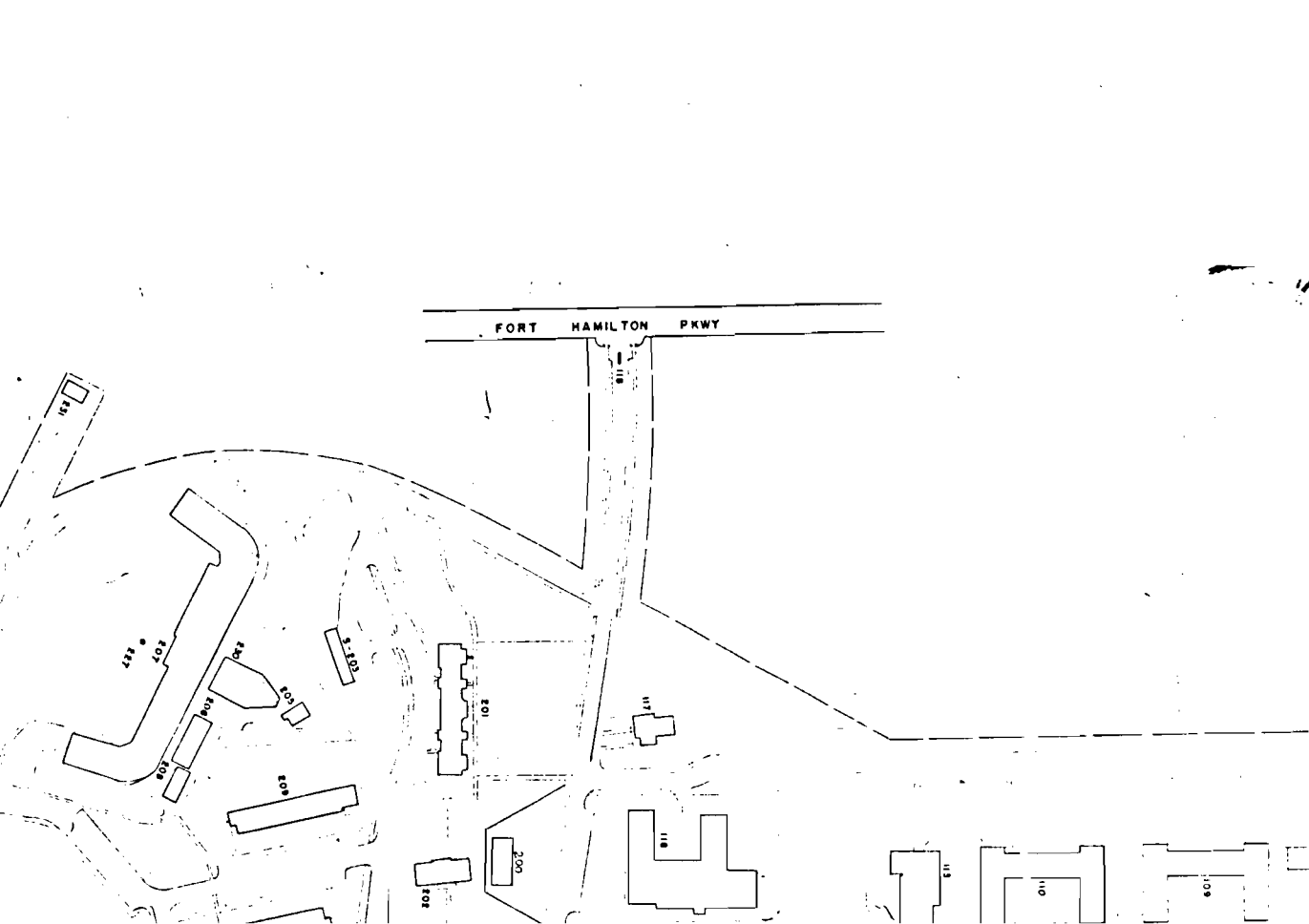
SITE PLAN OF
FORT HAMILTON
BROOKLYN, NEW YORK

APRIL 1962
SCALE

PREPARED UNDER THE DIRECTION OF THE
FIRST U.S. ARMY ENGINEER
BY THE
ENGINEERING INTELLIGENCE BRANCH

Fort Hamilton.

Map: "General Site Plan, Scheme K-2,"
dated 19 February 1959.
Public Works Office, Fort Hamilton, NY.


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SCHEDULE OF BUILDINGS TO EXIST UPON COMPLETION OF SCHEME R-2

BLDG NUMBER OLD	BLDG NUMBER NEW	USE	AREA SQ FT
T-14B		GARAGE SHOP	4387
T-14C		GARAGE SHOP	2879
T-33		OIL STORAGE	937
T-104		STORAGE	877
101		HEADQUARTERS	44,248
102		BARRACKS	43
103		BARRACKS	43
104		OIL HOUSE	1,000
105		BARRACKS	43
106		BARRACKS	43
107		BARRACKS	43
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133		BARRACKS	43
S-380		STORAGE	4,000
S-381		STORAGE	4,000
S-382		STORAGE	4,000
S-383		STORAGE	4,000
200		POST EXCHANGE	12,000
201		BARRACKS	43
202		BARRACKS	43
S-203		STORAGE	4,000
204		BARRACKS	43
205		BARRACKS	43
206		BARRACKS	43
207		BARRACKS	43
208		BARRACKS	43
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210		BARRACKS	43
S-211		STORAGE	4,000
212		BARRACKS	43
213		BARRACKS	43
S-214		STORAGE	4,000
215		BARRACKS	43
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FORT HAMILTON MANOR DEVELOPMENT

A	[illegible]	[illegible]
B	[illegible]	[illegible]
C	[illegible]	[illegible]
D	[illegible]	[illegible]

TOTAL AREA OF STRUCTURES, SQUARE FEET: [illegible]

TOTAL AREA OF STRUCTURES, SQUARE FEET: [illegible]

Fort Hamilton
Public Works
Brooklyn NY

DEPARTMENT OF THE ARMY
FORT HAMILTON, BROOKLYN, NEW YORK
CE, [illegible] CONSULTING
POST ENGINEER OFFICE
CE, [illegible], POST ENGR.

GENERAL SITE PLAN, SCHEME R-2

DRAWN BY [illegible]
APPROVED BY [illegible], CE
DATE: [illegible]
SCALE: 1" = 100'

FILE NO. [illegible]
BLDGS. [illegible]

Lorimer and Rose.

Map: "Electrical Gymnasium, Bldg. No. 402, Plan and Details,"
dated 08 August 1961.
Public Works Office, Fort Hamilton, NY.

TWIN BOROUGH BRIDGE AND TUNNEL AUTHORITY

NARROWS BRIDGE

REPLACEMENT OF FACILITIES

FORTS HAMILTON AND WADSWORTH

CONTRACT NO. N-2

LOUIS A. ROSE — FORT HAMILTON

ELECTRICAL

GYMNASIUM - BLDG. NO. 402

PLAN & DETAILS

BROOKLYN, N.Y.

FIRST FLOOR PLAN

SCALE 1/8" = 1'-0"

TELEPHONE RISER DIAGRAM

NO SCALE

FIRE ALARM SYSTEM RISER DIAGRAM

NO SCALE

ELECTRIC RISER DIAGRAM

NO SCALE

LOAD SUMMARY

DESCRIPTION	LOAD	DEMAND
LIGHTING		
POWER		
HEATING		
TOTAL		

MAIN DISTRIBUTION PANELS

SYMBOL	LOCATION	FROM	REMARKS
MDP-1	PANEL "A"	SWBD. 1200A. 277/480V.	
MDP-2	PANEL "B"	SWBD. 1200A. 277/480V.	
MDP-3	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-4	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	
MDP-5	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-6	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	
MDP-7	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-8	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	
MDP-9	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-10	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	
MDP-11	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-12	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	
MDP-13	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-14	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	
MDP-15	MAIN SWITCHBOARD	SWBD. 1200A. 277/480V.	
MDP-16	EMERGENCY PANEL	SWBD. 1200A. 277/480V.	

LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	DESCRIPTION	MOUNTING	REMARKS
A	2'-0" x 4'-0"	RECESSED TROFFER	CEILING	
B	2'-0" x 2'-0"	RECESSED TROFFER	CEILING	
C	1'-0" x 4'-0"	SURFACE STRIP	CEILING	
D	1'-0" x 1'-0"	RECESSED DOWNLIGHT	CEILING	
E	1'-0" DIA.	RECESSED DOWNLIGHT	CEILING	
F	1'-0" DIA.	SURFACE DOME	CEILING	
G	1'-0" DIA.	EXIT SIGN	CEILING	
H	1'-0" DIA.	EMERGENCY LIGHT	CEILING	
J	1'-0" DIA.	WALL MOUNTED	WALL	
K	1'-0" DIA.	WALL MOUNTED	WALL	
L	1'-0" DIA.	WALL MOUNTED	WALL	
M	1'-0" DIA.	WALL MOUNTED	WALL	
N	1'-0" DIA.	WALL MOUNTED	WALL	
P	1'-0" DIA.	WALL MOUNTED	WALL	
Q	1'-0" DIA.	WALL MOUNTED	WALL	
R	1'-0" DIA.	WALL MOUNTED	WALL	
S	1'-0" DIA.	WALL MOUNTED	WALL	
T	1'-0" DIA.	WALL MOUNTED	WALL	
U	1'-0" DIA.	WALL MOUNTED	WALL	
V	1'-0" DIA.	WALL MOUNTED	WALL	
W	1'-0" DIA.	WALL MOUNTED	WALL	
X	1'-0" DIA.	WALL MOUNTED	WALL	
Y	1'-0" DIA.	WALL MOUNTED	WALL	
Z	1'-0" DIA.	WALL MOUNTED	WALL	

NOTES:

1. ALL DISCONNECTS TO BE 30 AMP, 3 POLE, 600 VOLT, FUSED AS SHOWN.
2. ALL DISCONNECTS TO BE NEMA 1 GENERAL PURPOSE ENCLOSURE.
3. ALL DISCONNECTS TO BE LOCATED WITHIN 30 FEET OF EQUIPMENT.
4. ALL DISCONNECTS TO BE LOCKABLE.
5. ALL DISCONNECTS TO BE HEAVY DUTY TYPE.
6. ALL DISCONNECTS TO BE 600 VOLT CLASS.
7. ALL DISCONNECTS TO BE 30 AMP, 3 POLE, 600 VOLT, FUSED AS SHOWN.
8. ALL DISCONNECTS TO BE NEMA 1 GENERAL PURPOSE ENCLOSURE.
9. ALL DISCONNECTS TO BE LOCATED WITHIN 30 FEET OF EQUIPMENT.
10. ALL DISCONNECTS TO BE LOCKABLE.
11. ALL DISCONNECTS TO BE HEAVY DUTY TYPE.
12. ALL DISCONNECTS TO BE 600 VOLT CLASS.

PLEASE NOTE:

ALL DISCONNECTS TO BE 30 AMP, 3 POLE, 600 VOLT, FUSED AS SHOWN.

ALL DISCONNECTS TO BE NEMA 1 GENERAL PURPOSE ENCLOSURE.

ALL DISCONNECTS TO BE LOCATED WITHIN 30 FEET OF EQUIPMENT.

ALL DISCONNECTS TO BE LOCKABLE.

ALL DISCONNECTS TO BE HEAVY DUTY TYPE.

ALL DISCONNECTS TO BE 600 VOLT CLASS.

ALL DISCONNECTS TO BE 30 AMP, 3 POLE, 600 VOLT, FUSED AS SHOWN.

ALL DISCONNECTS TO BE NEMA 1 GENERAL PURPOSE ENCLOSURE.

ALL DISCONNECTS TO BE LOCATED WITHIN 30 FEET OF EQUIPMENT.

ALL DISCONNECTS TO BE LOCKABLE.

ALL DISCONNECTS TO BE HEAVY DUTY TYPE.

ALL DISCONNECTS TO BE 600 VOLT CLASS.

Lorimer and Rose.

Map: "Ammunition Bldg. No. 232, Plan, Elevations, Sections & Details,"
dated 12 April 1963.
Public Works Office, Fort Hamilton, NY.

PLAN OF BUILDING No. 232

SECTION A

SECTION B

LOCATION PLAN

LEGEND

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

NARROWS BRIDGE

CONTRACT NO. NA-8

REPLACEMENT OF FACILITIES

FORTS HAMILTON AND WADSWORTH

FORT HAMILTON

MAGAZINE

AMMUNITION BLDG. No. 232

PLAN, ELEVATIONS

SECTIONS & DETAILS

LOUIS A. ROSE

ASSOCIATE ENGINEER

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS

CONSULTING ENGINEERS

NEW YORK

DRAWING No. A-7

2 OCTOBER 1940

16 NOVEMBER 1940

FILE No. 5821.106

Madigan-Hyland Engineers.

Map: "Alignment and Location Plan, Area 1,"
dated 08 October 1963.
Public Works Office, Fort Hamilton, NY.

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY
REPLACEMENT OF FACILITIES DISPLACED BY
THE NARROWS BRIDGE

FORT HAMILTON

MADIGAN-HYLAND
ENGINEERS
NEW YORK, N.Y.

ALIGNMENT AND LOCATION PLAN
SARE

SCALE: 1" = 50'-0"

DRAWING NO.

DESIGNED BY	DATE
CHECKED BY	
TRACED BY	
PAPER NO.	
CONTRACT NO.	

REVISION NO	DESCRIPTION	DATE
12	RECORD. AS BUILT	8 OCT 63
11	ADDED PUMP HOUSE ACCESS ROAD & DRAINAGE EASEMENT	JULY 9, 1961
10	REVISED ALIGNMENT DATA OF ACCESS TO PUMP HOUSE	NOV. 7, 1960
9	ADDED ALIGNMENT DATA OF ACCESS DRIVEWAY TO PUMP HOUSE	NOV. 1, 1960
8	REVISED ACCESS NO. 99 OFFICERS CLUB DRIVEWAY & SIDEWALK (PARKING BAYS TO BLDGS. 228 & 1330)	SEPT. 12, 1960
7	REVISED DRIVEWAY TO BLDG. 228	MAY 16, 1960
6	REVISED ENTRANCE TO BLDG. 218 & ADDED FENCE	JAN. 8, 1960
5	REVISED DRIVEWAY TO PUMP HOUSE	JAN. 5, 1960
4	REVISED ALIGNMENT DATA	NOV. 12, 1959
3	ADDED ENTRANCE AT BLDG. 218	OCT. 16, 1959
2	ADDED DIMENSIONS	SEPT. 21, 1959
1-A	REVISED SIDEWALK AROUND BLDGS. 221 & 222	AUG. 14, 1959
1	REVISED ACCESS DRIVEWAY TO PUMP HOUSE	AUG. 14, 1959
1	REVISED LOCATION OF BLDG. # 217 (GARAGE)	AUG. 14, 1959
1	ADDED WALKS TO BASEMENT BLDGS. 208 & 210	AUG. 14, 1959
1	REVISED PROFILES AND GRADING	AUG. 1, 1959
1	ADDED TENNIS COURTS	AUG. 1, 1959
1	ADDED ACCESS DRIVEWAY TO PUMP HOUSE	AUG. 1, 1959
1	DEEPENED DRIVEWAY TO GARAGE & T-BOX	AUG. 1, 1959
1	ADDED ACCESS RD. FROM STARTING DR. TO OFFICERS CLUB	AUG. 1, 1959

ALIGNMENT DATA

POINT	NORTH	EAST
PC.1	4 794.219	5 009.295
CC.1	4 766.351	4 936.015
PRC.2	4 740.642	5 010.137
CC.2	4 697.892	5 089.427
PCC.3	4 670.764	5 004.216
CC.3	4 693.782	5 085.001
PRC.3	4 637.172	5 022.942
PC.4	4 644.875	4 958.885
CC.4	4 703.383	4 991.274
PT.4	4 683.634	4 924.686
5	4 606.723	5 116.640
6	4 633.867	5 021.052
7	4 640.199	5 047.874
8	4 593.647	5 111.638
PC10	4 600.185	5 216.138
PT.10	4 557.382	5 151.119
CC10	4 544.149	5 082.692
CC.12	4 440.786	5 223.809
(A)	4 428.134	5 289.136

POINT	NORTH	EAST
NOSE	4 655.824	5021.465
PC.11	4 647.920	5171.765
PRC.11	4 409.125	5210.031
PT. 11	4 407.143	5253.536
CC. 11	4 490.308	5269.227
CC. 12	4 539.481	5 029.351
PC.9	4 619.430	5 032.216
CC.9	4 539.481	5 029.351
PC.8	4 621.259	4 981.169
CC.8	4 601.272	4 980.452
PC.8	4 592.031	4962.704
PT.7	4 606.392	5065.443
CC.7	4 794.863	5063.260
PC.7	4 776.021	5059.691
PT.6	4 761.936	5043.362
CC.6	4 697.893	5099.427
PCC.6	4 674.602	5017.681
CC.5	4 693.783	5083.001
PCC.5	4 690.708	5269.227

ACCESS DRIVEWAY TO PUMP HOUSE

CURVE DATA

CURVE NO	R	Δ	L
1	60.00'	52°-02'-34.00"	325.46
2	99.00'	41°-29'-11.00"	71.63
3	84.00'	28°-28'-04.00"	36.80¢
4	60.00'	86°-40'-00.00"	61.43
5	70.00'	52°-09'-13.00"	64.93
6	85.00'	66°-48'-31.00"	96.14
7	25.00'	76°-22'-14.00"	33.33
8	20.00'	119°-30'-15.00"	41.75
9	80.00'	18°-53'-26.00"	26.37
10	60.00'	46°-07'-12.90"	38.76
11	100.00'	41°-27'-16.76"	72.14
12	39.00'	66°-06'-37.15"	45.00

LEGEND

- Existing Curb to remain
- New Curb
- Existing Building to remain
- New Building
- Boundary

NOTE
ALL SIDEWALK SHALL BE 4FT WIDE UNLESS OTHERWISE SHOWN

REF. TO DRAWING

OUTGRANT A LIMIT
BULKING LIMIT
EDGE OF W.B. SHORE PARKWAY
PROFILE LINE
REV #1
REV #2
AMMUNITION STORAGE
DOUBLE CHAIN LINK CAGE WITH BARBED WIRE
PUMP HOUSE
NARROWS BRIDGE
COMMANDING OFFICER RESIDENCES
225
224
223
222
221
OFFICERS QUARTERS
8 OFFICERS QUARTERS
NURSERY
217
GARAGE
AUTO MECH SCHOOL
216
BATHHOUSE
215
POOL
Swimming
ARMORY
214
MALE 210
209
FEMALE
208
ART SHOP
207
SIGNAL OFFICE
206
OFFICERS CLUB
230
205
GARAGE
203
TENNIS COURTS
228
229
TRACK
N 197,000
E 1,009,000

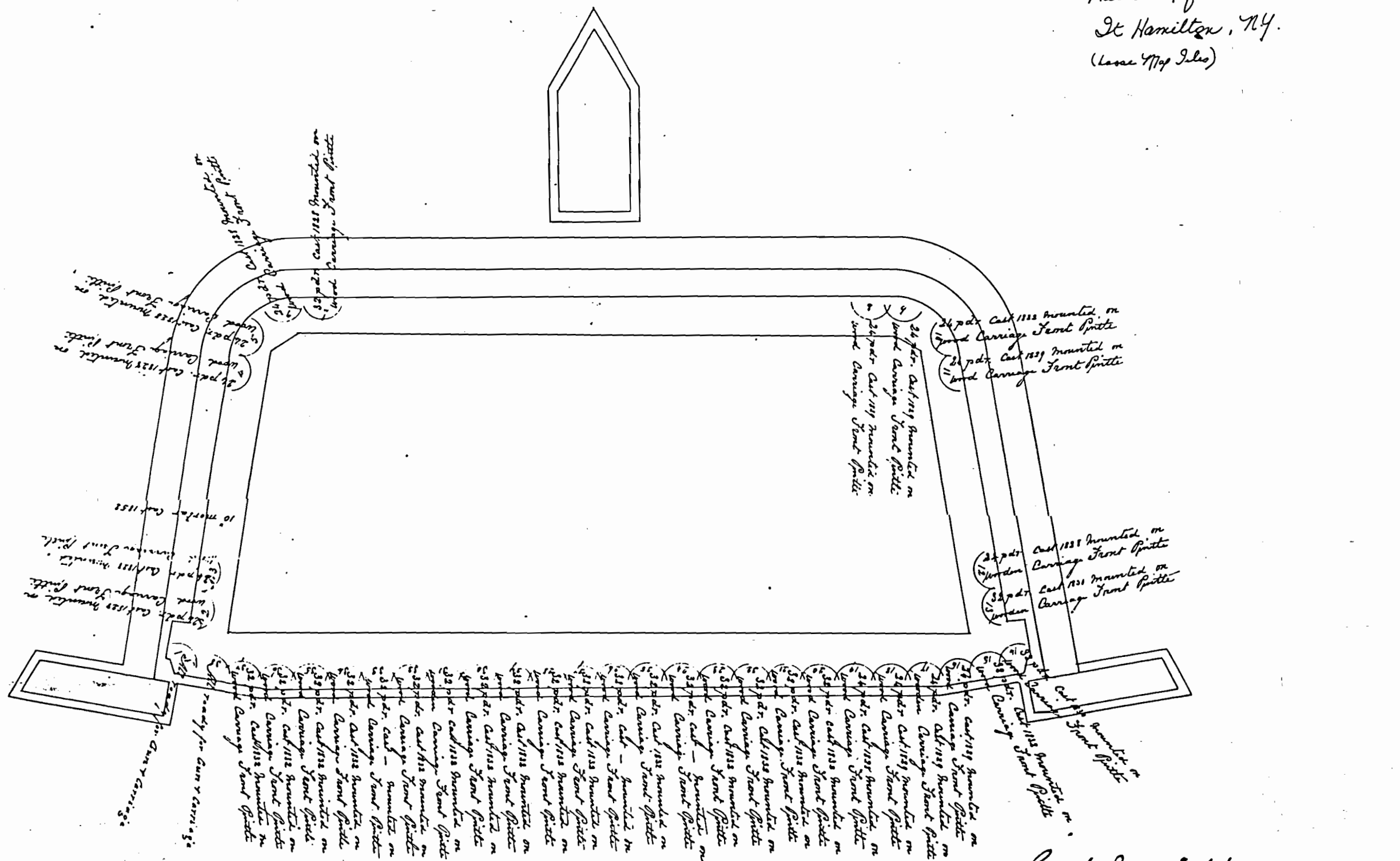
n.a.

Sketch of Armament in old Fort Hamilton,
dated 10 September 1864.
Lease Map Files, Harbor Defense Museum, Fort Hamilton, NY.

Drawer 40.
Sheet 43 d

Harbor Defense Museum
Ft Hamilton, N.Y.
(Loose Map Files)

FORT HAMILTON.


24 pdr. Cast 1828 Mounted on Iron Garrison Sea Coast Pintle
24 pdr. Cast 1828 Mounted on Iron Garrison Sea Coast Pintle
24 pdr. Cast 1828 Mounted on Iron Garrison Sea Coast Pintle
24 pdr. Cast 1828 Mounted on Iron Garrison Sea Coast Pintle
10 inch Mortar Cast 1858
Cast 1831 Mounted on Iron Carriage Front Pintle
Cast 1831 Mounted on Iron Carriage Front Pintle
Cast 1831 Mounted on Iron Carriage Front Pintle

n.a.

Sketch of Armament of the Redoubt at Fort Hamilton,
dated 10 September 1864.
Lease Map Files, Harbor Defense Museum, Fort Hamilton, NY.

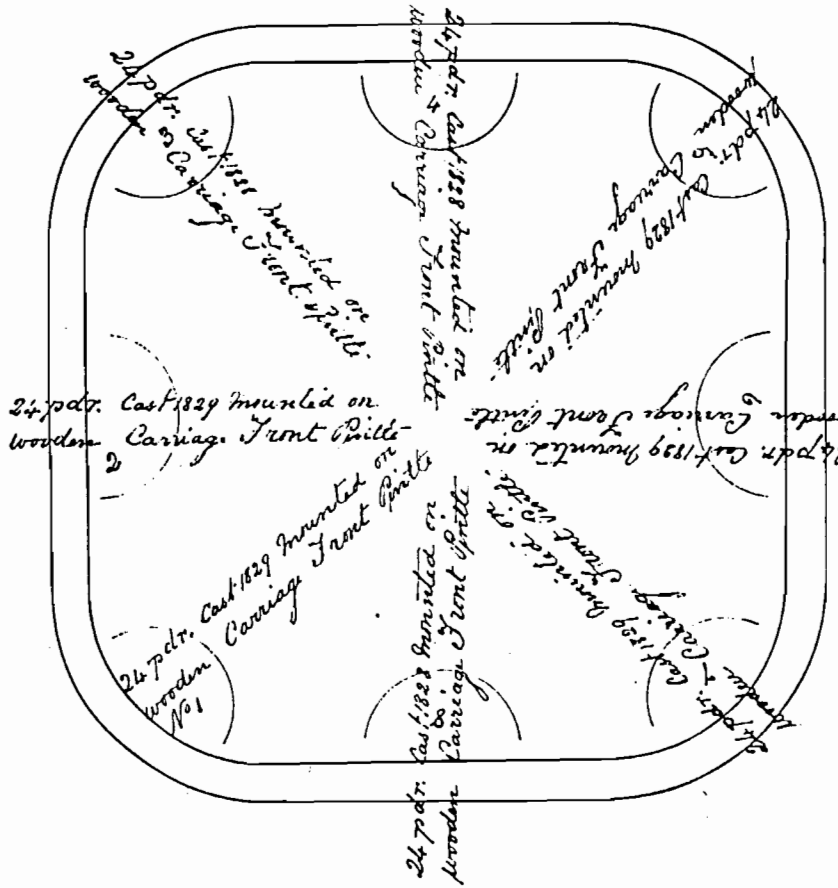
REDOUBT

OF

FORT HAMILTON.

C.M. 1864.

Drawer
Sheet.



Sent to Engr Dept with letter of this date (Sept 1870)
13th Sept 1864. Frederick R Prime
Capt of Engrs

Harbor Defense Museum
Ft. Hamilton N.Y.

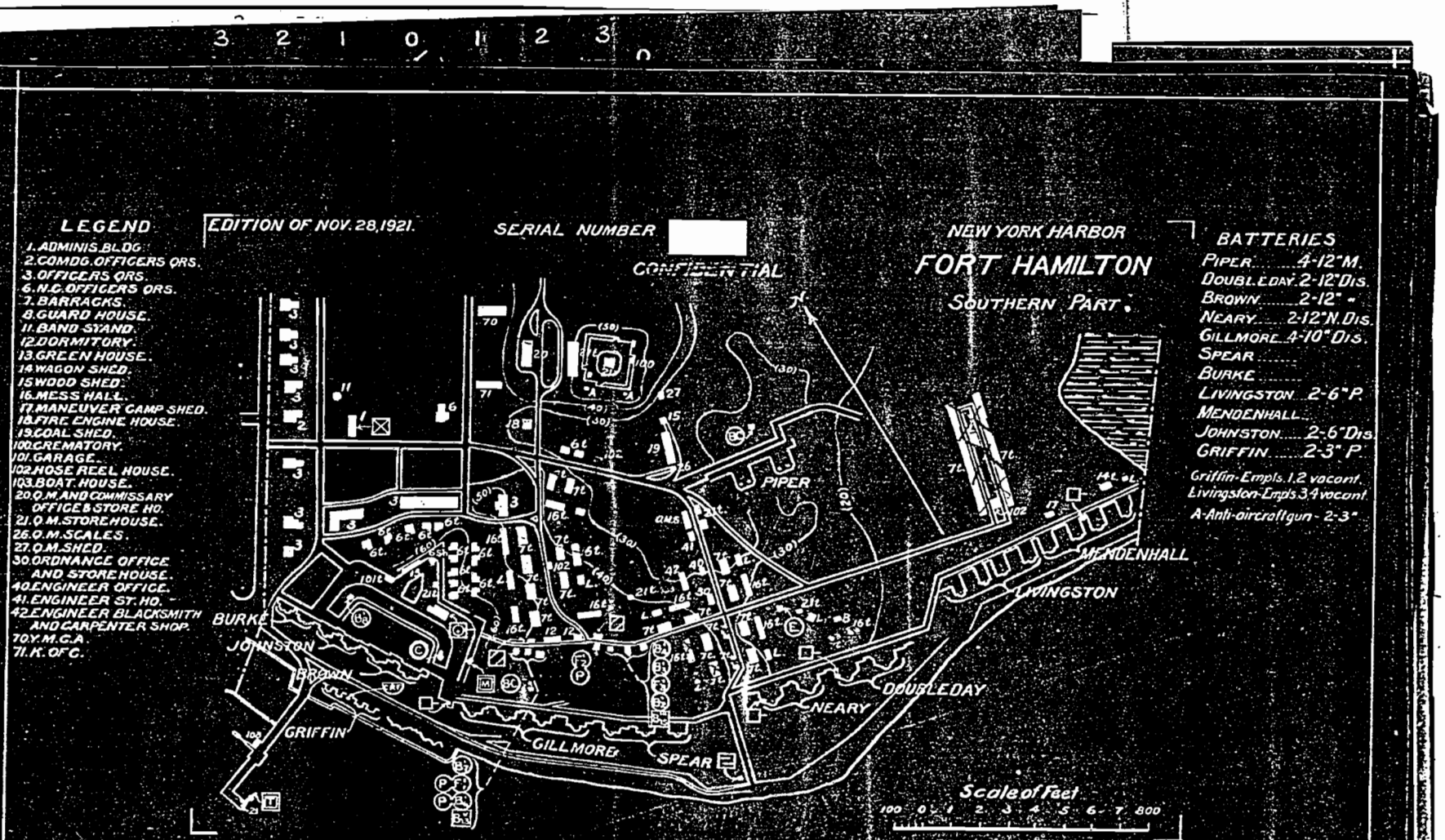
n.a.

Map of Fort Hamilton,
revised 17 April 1925,
showing armament of modern batteries.
Record Group 77; Entry 1007; Box 84; File: 660 NY Harbor.
National Archives I, Washington D. C.

JARA-DC
G77
E 1007
B 84
Fib: 660
NY Harbor

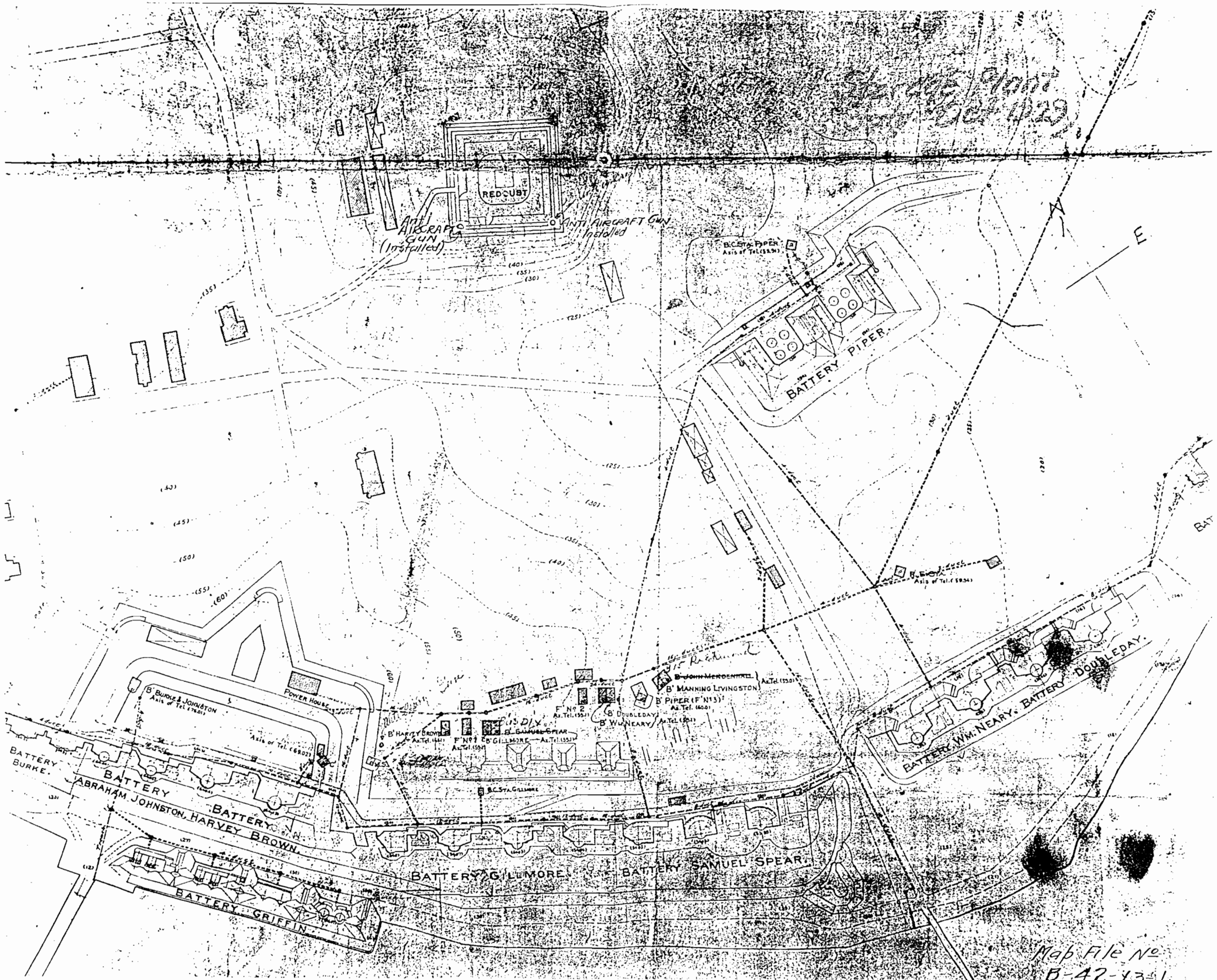
REPRODUCED AT THE NATIONAL ARCHIVES

REVISED 4/17/25



n.a.

Untitled map of Fort Hamilton,
dated 15 October 1929.
Record Group 77; Entry 802; Box 28; File 10.
National Archives-North Atlantic Region, New York, NY.



(Stamped 15 Oct 1929 on back of original)

NARA-N4C
RG-77
Entry 802
~~Box~~ Box 28
File ~~9~~ 10

Map File No. B-42-43-1

n.a.

Map of Fort Hamilton,
revised 15 March 1935.
Map Collection, Harbor Defense Museum, Fort Hamilton, NY.

146239

LEGEND

3. OFFICERS QRS.
4. HOSPITAL.
4a. HOSPITAL PAVILION.
5. HOSPITAL STWDS. QRS.
6. N.C. OFFICERS QRS.
7. BARRACKS.
8. GUARD HOUSE.
9. POST EXCHANGE.
10. BAKERY.
12.
14. WAGON SHED.
101. GARAGE.
102.
20. Q.M. AND COMMISSARY OFFICE & STORE HO.
21. Q.M. STOREHOUSE.
22. FORAGE STOREHOUSE.
23. Q.M. WORK SHOP.
24. Q.M. STABLE.
25. HAY SHED. (Q.M.)
28. Q.M. SALVAGE WARE HO.
70. Y.M.C.A.
90. TRANSFORMER STATION.
91. GATE HOUSE.
92.

EDITION OF NOV. 28, 1921.
REVISIONS: APR. 17, 1925.
JULY 1929, MAR. 15, 1935

SERIAL NUMBER [redacted]

NEW YORK HARBOR

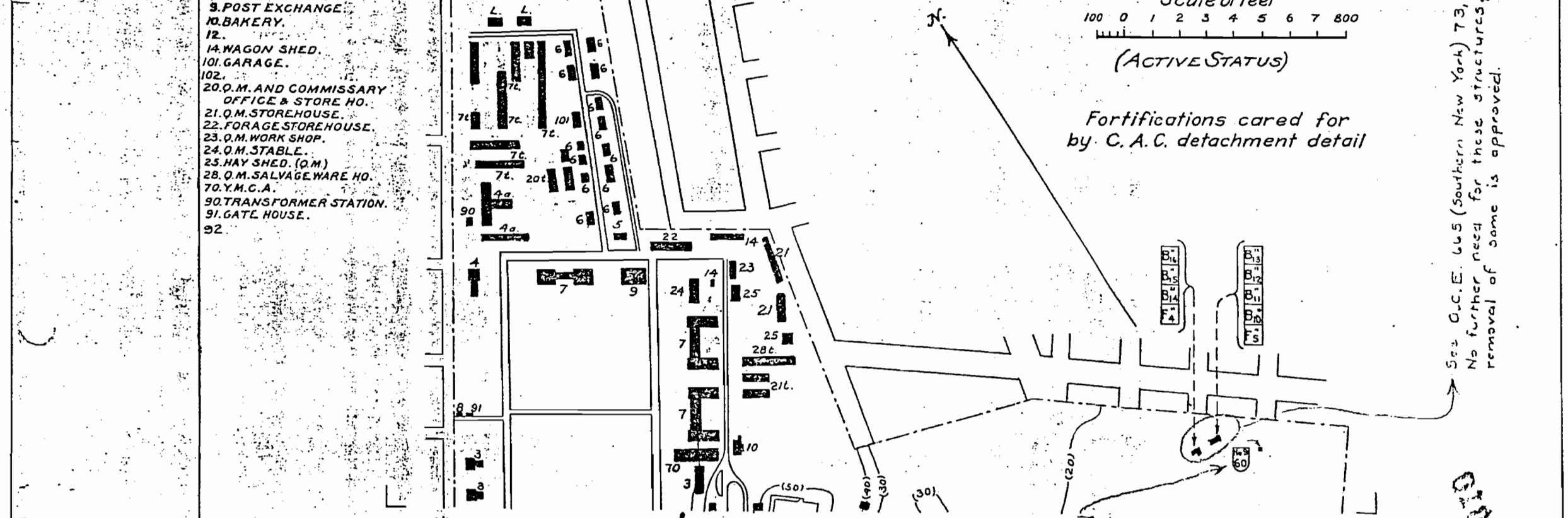
FORT HAMILTON

NORTHERN PART

Scale of Feet
100 0 1 2 3 4 5 6 7 800

(ACTIVE STATUS)

Fortifications cared for by C. A. C. detachment detail



Harbor Defense Museum
St Hamilton. NY.

My Collection

146239

LEGEND

1. ADMINIS. BLDG.
2. COMDG. OFFICERS QRS.
3. OFFICERS QRS.
6. N.C. OFFICERS QRS.
7. BARRACKS.
8.
11.
12. DORMITORY.
13. GREEN HOUSE.
14.
15. WOOD SHED.
16. MESS HALL.
17.
18. FIRE ENGINE HOUSE.
19. COAL SHED.
100. CREMATORY.
101. GARAGE.
102. HOSE REEL HOUSE.
103. BOAT HOUSE.
20. Q.M. AND COMMISSARY OFFICE & STORE HO.
21. Q.M. STOREHOUSE.
26. Q.M. SCALES.
27. Q.M. SHED.
30. ORDNANCE OFFICE AND STOREHOUSE.
40. ENGINEER OFFICE.
41. ENGINEER ST. HO.
42. ENGINEER BLACKSMITH AND CARPENTER SHOP.
70. Y.M.C.A.
71.

EDITION OF NOV. 28, 1921.
REVISIONS: APR. 17, 1925.
JULY 1929. MAR. 15, 1935

SERIAL NUMBER [redacted]

NEW YORK HARBOR

FORT HAMILTON

SOUTHERN PART

BATTERIES

PIPER.....4-12" M.
DOUBLEDAY. 2-12" Dis.
BROWN.....2-12" "
NEARY.....2-12" N. Dis.
GILLMORE..4-10" Dis.
SPEAR.....
BURKE.....
‡ LIVINGSTON....2-6" P.
‡ MENDENHALL..
JOHNSTON.....2-6" Dis.
† GRIFFIN.....2-3" P.

A-Anti-aircraft gun - 2-3" (being dismounted by Ordnance)

† Griffin - Empls. 142 vacant
‡ Mendenhall - 4 Empls. demolished.
‡ Livingston - Empls. 3 & 4 demolished.

(ACTIVE STATUS)

Scale of Feet

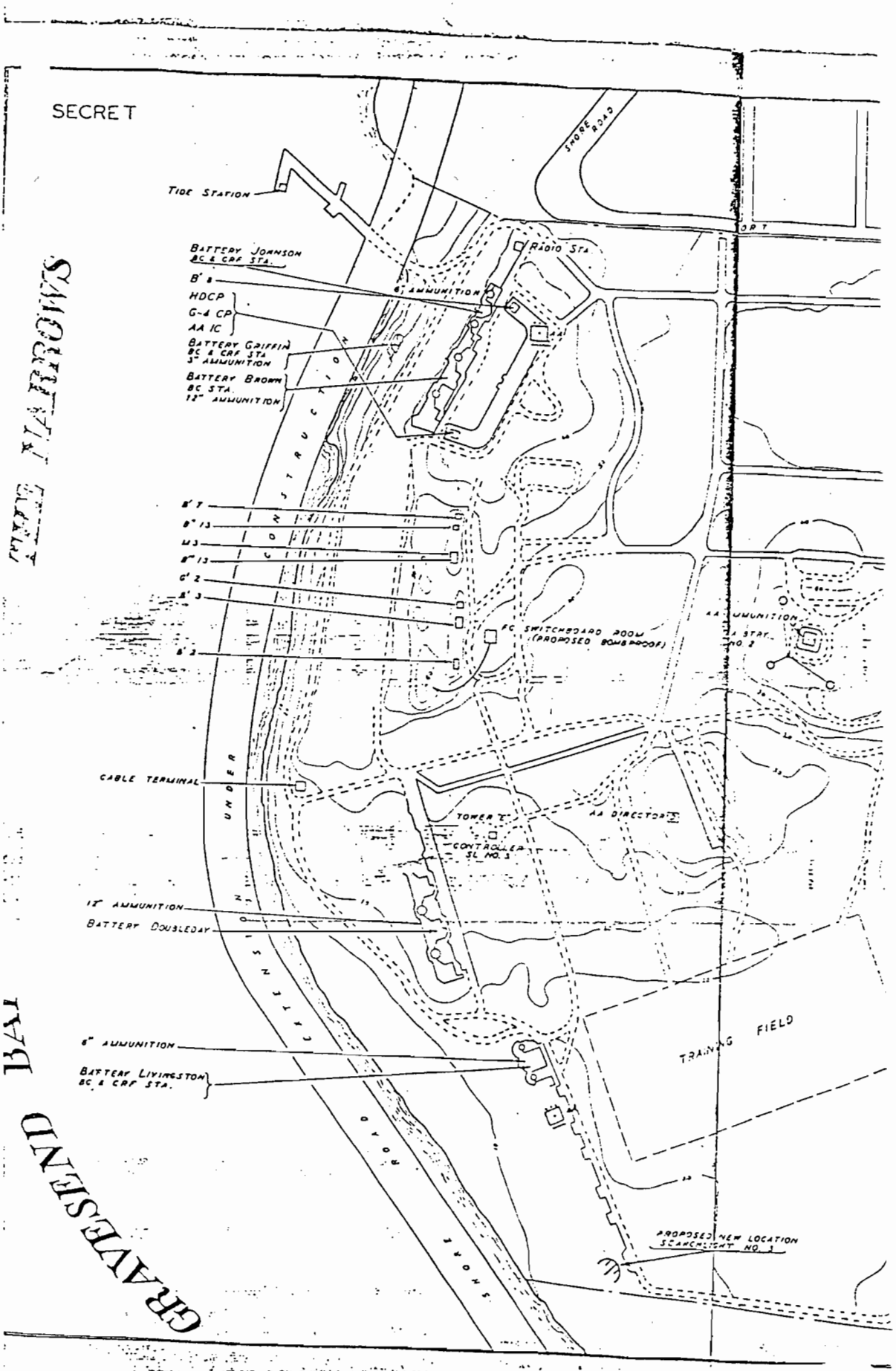
100 0 1 2 3 4 5 6 7 800

Equipment removed

PIPER
MENDENHALL
LIVINGSTON
DOUBLEDAY
NEARY
GILLMORE
SPEAR
GRIFFIN
BROWN
JOHNSTON
BURKE

n.a.

Undated, untitled map of Fort Hamilton that shows the training field behind Battery Livingston.
File: National Archives Memorandum Sketch,
Harbor Defense Museum, Fort Hamilton, NY.



Harbor Defense Museum
Ft Hamilton, N.Y.
Ft National Archives –
Memorandum Sheets

n.a.

Untitled map of some of the batteries at Fort Hamilton,
no date.
Record Group 77; Entry 802; Box 28; File 10.
National Archive-North Atlantic Region, New York, NY.

N

A V E.

(35)

(45)

(40)

2-duct

(40)

(45)

(50)

(55)

(60)

Property line

B' BURKE & JOHNSTON
Axis of Tel. (76.01)

4-duct

(60.3)

(61.3)

(46)

BATTERY
BURKE.

10-duct

(64.04)

(64.02)

(64.3)

Axis of Tel. (68.02)

(64.04)

(64.03)

BATTERY
ABRAHAM JOHNSTON. HARVEY BROWN.

POWER HOUSE

12-duct

16-duct

8-duct

C'

M.S.

B' HARVEY BROWN
4-duct Ax. Tel. (61.1)

F' No 1
Ax. Tel. (59.1)

B.C.S.T.

(30)

(27)

(12)

(34)

(540)

Trench

4-duct

12-duct

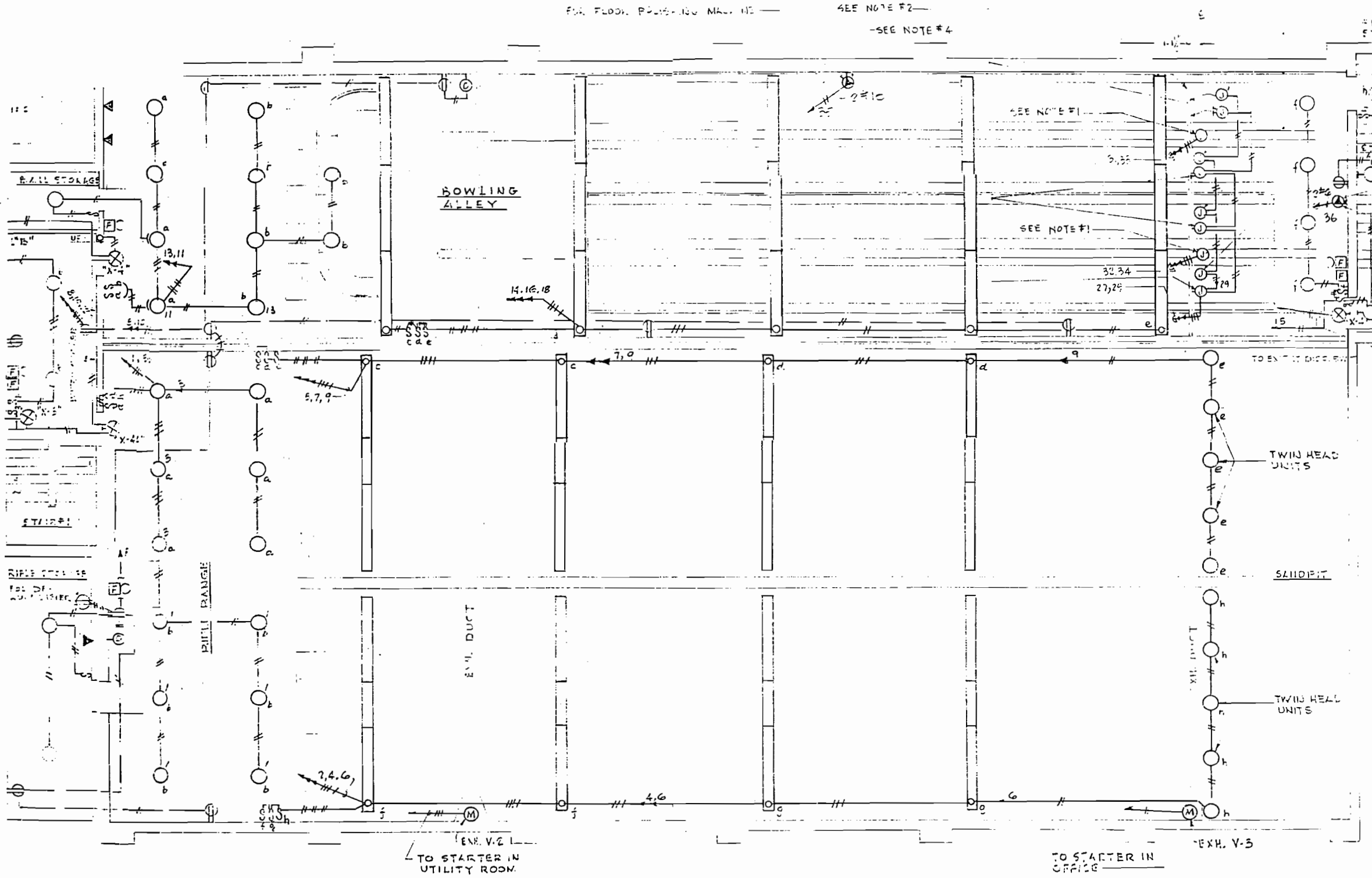
n.a.

"Basement Plan," Building 402,
no date.
Public Works Office, Fort Hamilton, NY.

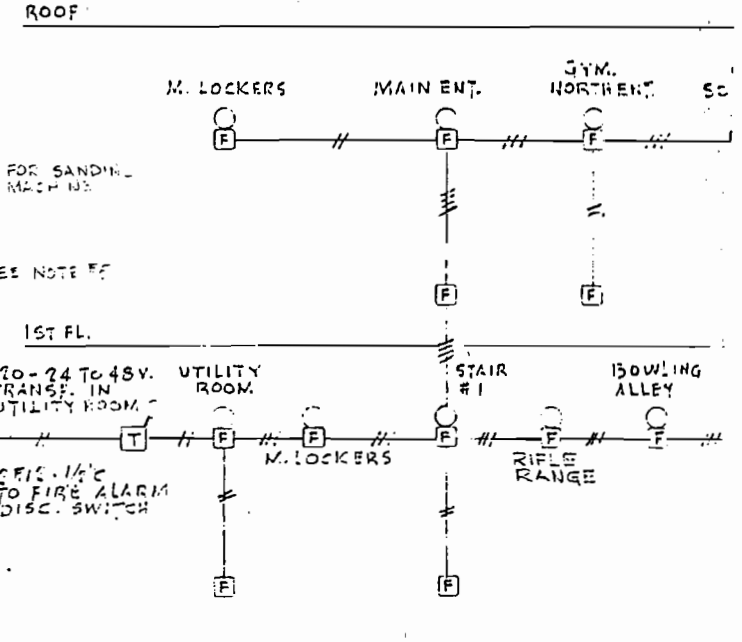
ELECTRIC SWITCH
. TERMINATE
DG., 6'-0" BELOW

3"C UNDERGROUND
AT 5'-0" BEYOND BLDG.
WALL & 2'-0" BELOW GRADE

TELEPHONE RISER DIAGRAM
NO SCALE



BASEMENT PLAN
SCALE : 1/8" = 1'-0"



FIRE ALARM SYSTEM RISER
NO SCALE

NOTES

1- OUTLET FOR AUTOMATIC PIN SETTER. PROVIDE FLEXIBLE DROP CORD (2 PER OUTLET) EXTENDING DOWN TO WITHIN 5'-2" ABOVE THE FINISHED SURFACE OF THE ...

2- TELE-FOUR POWER OUTLET MOUNTED ON WALL 6'-5" ABOVE PLAYING SURFACE AT END OF EACH LANE. PROVIDE BLANK COVER & CABLE EXTENDING FROM BOX. TERMINATE THREE TWIST-LOCK RECEPTACLES.

3- J.B. ... IN CEILING. PROVIDE FLEXIBLE ADAPTOR TO J.BOX ON ASSEMBLY MOUNTING BOARD.

4- RECEPTACLE - HUBBELL #7310 OR EQUAL

5- RECEPTACLE - HUBBELL #738... OR EQUAL

Mt Hamilton, NY
Environmental Office
Map Drawer: Shelving 402

n.a.

Hand drawn map submitted with
General John Newton's letter of 01 April 1871.
File: Redoubt,
Harbor Defense Museum, Fort Hamilton, NY.

MAP "SUBMITTED WITH GENL. JOHN NEWTON'S LETTER OF APRIL 1, 1871"

FRANKLIN AVE.

STREET.

Low Ground

Swampy

Surgeon's Qrs.

Q M Stores

Officer's Qrs

Old Hospital

Cemetery

REDOUBT

Harbor Defense Museum
Ft Hamilton, N.Y.
Vertical File: Redoubt

'2 Sheets'

Redoubt

Glacis / Fort

Ravine

COPIED FROM THE SURVEY OF
LIEUT. HARRISON OF THE CORPS OF
ENGINEERS. BY RICHARD DELAFIELD,
MAJOR I.C. OF ENGINEERS.
FORWARDED WITH LETTERS OF 3 SEPT. 1852

Scale of 1 inch = 125 feet

LOCATION
OF #117

n.a.

Site Plan of Fort Hamilton, Brooklyn, New York,
no date.
Harbor Defense Museum, Fort Hamilton, NY. (no copy)

Office of the Facility Engineer.

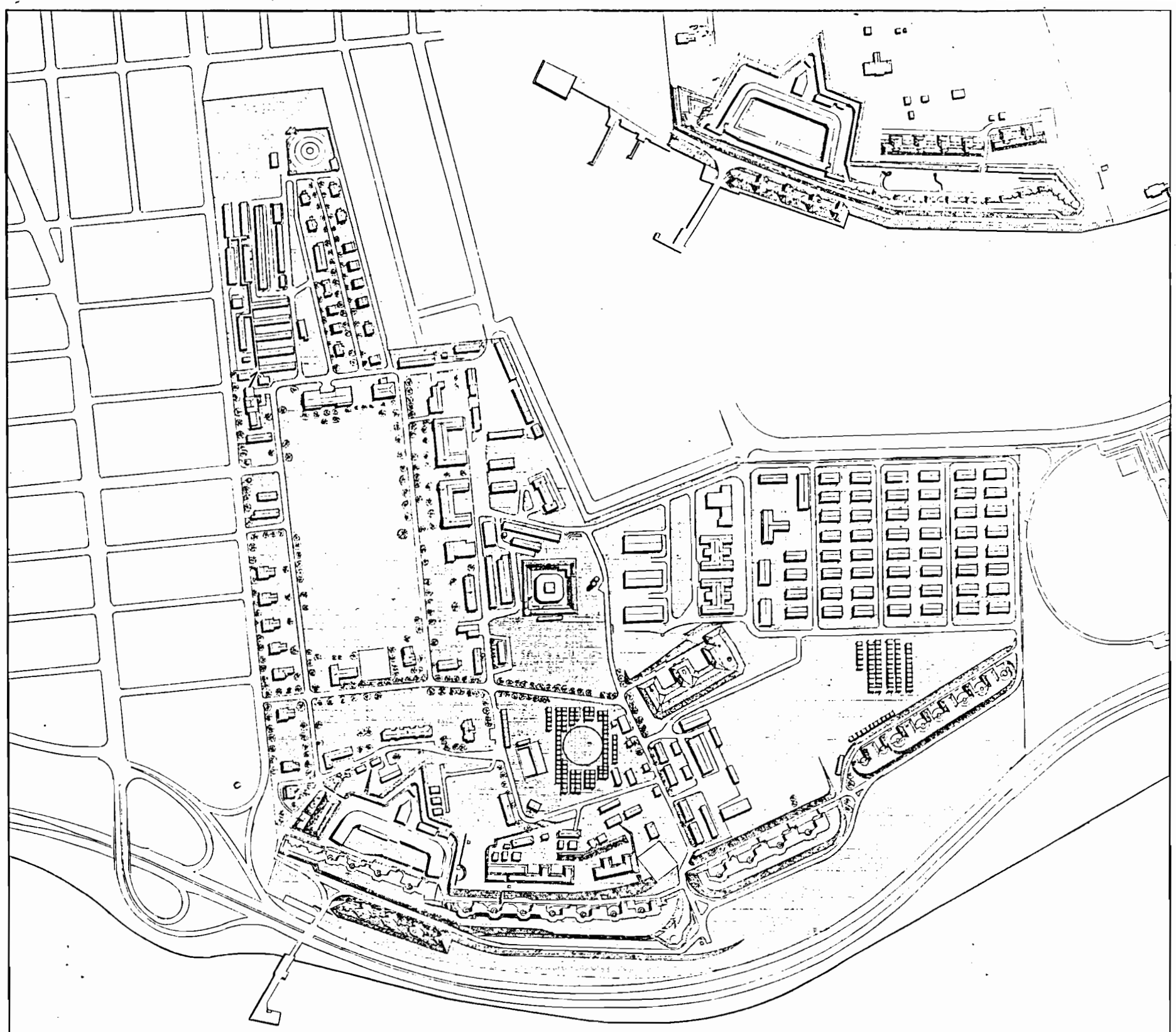
Map: "Grimes Road Realignment and Parking Extension,"
no date.
Public Works Office, Fort Hamilton, NY.

n.a.

Site Plan of Fort Hamilton, Brooklyn, New York,
no date.
Harbor Defense Museum, Fort Hamilton, NY. (no copy)

Office of the Facility Engineer.

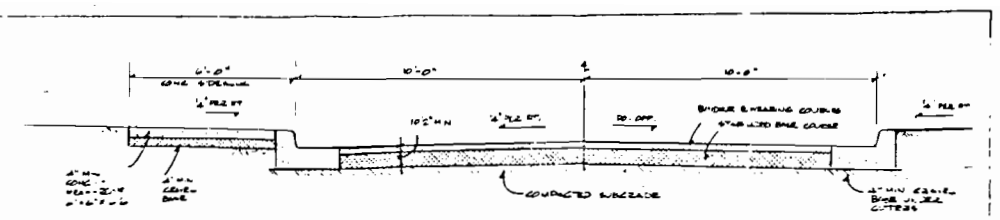
Map: "Grimes Road Realignment and Parking Extension,"
no date.
Public Works Office, Fort Hamilton, NY.



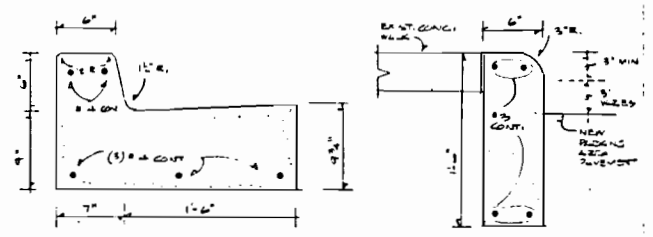
FORT HAMILTON

BROOKLYN, N.Y.
COMPOSITE MAP

1825 thru 1946

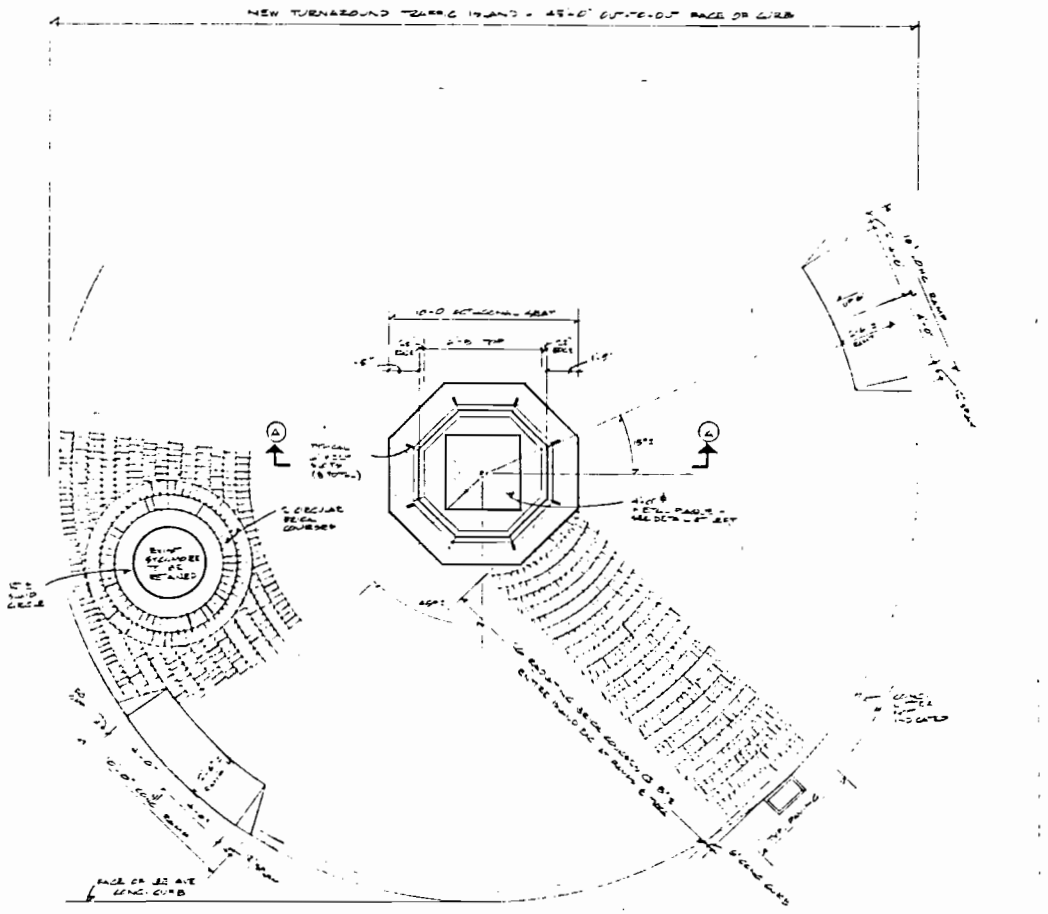


TYP SECTION - NEW GRIMES RD. PAVEMENT (10)



COMBINATION CURB/GUTTER (13) CURB ONLY (12)

DETAILS - NEW CONCRETE CURBS & GUTTERS



(9) PLAN OF NEW TRAFFIC ISLAND - INTERSECTION 22 AVE & GRIMES RD

J. Hamilton
Public Works

SYMBOL	DESCRIPTION	DATE	BY
	REVISIONS		

DEPARTMENT OF THE ARMY
HEADQUARTERS NEW YORK AREA COMMAND
BROOKLYN, NEW YORK 11252
OFFICE OF THE FACILITY ENGINEER

DRAWN BY: L. KAY & ASS. CODES	GRIMES RD REALIGNMENT & PARKING EXTENSION
CHECKED BY	FORT HAMILTON NEW YORK
REVIEWED BY	
APPROVED DATE	DETAILS
SCALE: NOTED	SHEET NO 2 OF 2 — DWG. NO.

Office of the New York District Engineer.

Map: "Real Estate, Fort Hamilton-New York (Military Reservation),"
dated 27 August 1964.
Public Works Office, Fort Hamilton, NY.

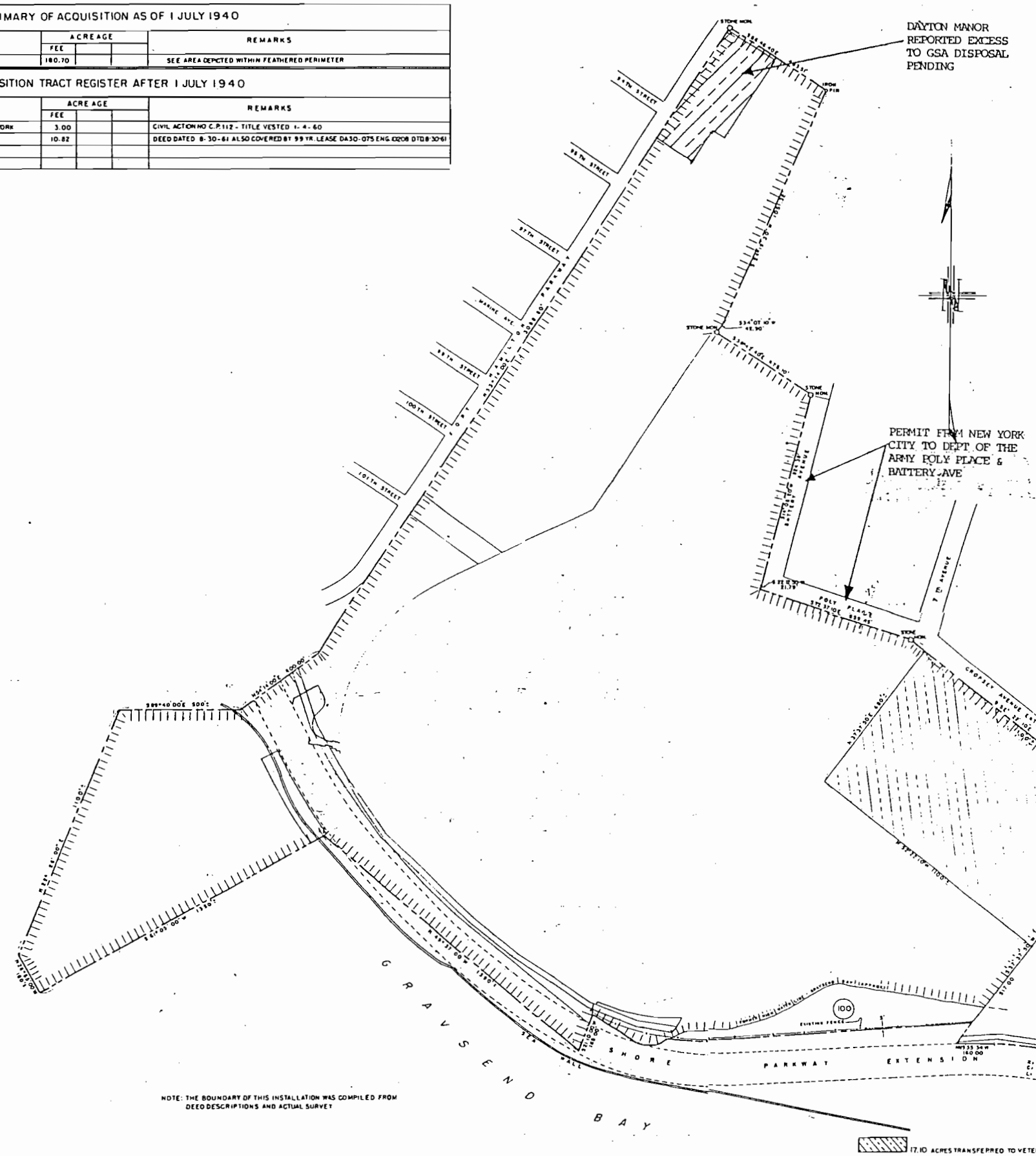
CORPS OF ENGINEERS

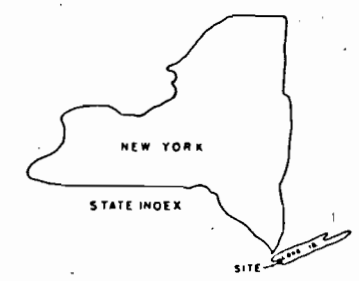
SUMMARY OF ACQUISITION AS OF 1 JULY 1940

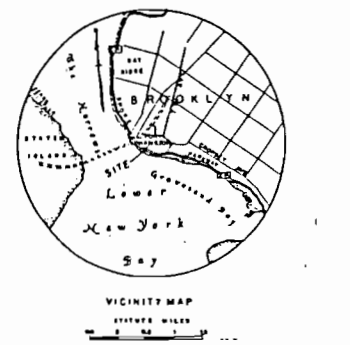
			ACREAGE			REMARKS
			FEE			
			180.70			SEE AREA DEPICTED WITHIN FEATHERED PERIMETER

ACQUISITION TRACT REGISTER AFTER 1 JULY 1940

DIRECTIVE NO	TRACT NO	LAND OWNER	ACREAGE FEE			REMARKS
(2)(3)	100	THE PEOPLE OF THE STATE OF NEW YORK	3.00			CIVIL ACTION NO C.P.112 - TITLE VESTED 1-4-60
(1)	101	THE CITY OF NEW YORK	10.82			DEED DATED 8-30-61 ALSO COVERED BY 99 YR. LEASE DA30-075 ENG 6208 DTD 8-30-61







FINAL

PROJECT MAP

DEPT. OF THE ARMY

USING SERVICE FIRST ARMY

LOCATION OF PROJECT

STATE NEW YORK

COUNTY KINGS

DIVISION NORTH ATLANTIC

DISTRICT NEW YORK

ARMY AREA FIRST

IN THE BOROUGH OF BROOKLYN N.Y.

MILES OF

TRANSPORTATION FACILITIES

RAILROADS

STATE ROADS SHORE PARKWAY, - 27A

FEDERAL ROADS

AIR LINES

ACQUISITION

TOTAL ACRES ACQUIRED 194.5

FEE 13.8

PUBLIC DOMAIN { PERM. WITHDRAWAL / TEMP. WITHDRAWAL

USE PERMIT

TRANSFER

LEASE

LESSER INTERESTS

DISPOSAL

TOTAL ACRES DISPOSED OF 17.10

SOLD

PUBLIC DOMAIN { PERM. WITHDRAWAL / TEMP. WITHDRAWAL

USE PERMIT

TRANSFERRED { FEE 17.10

LEASES TERMINATED

LESSER INTERESTS TERM.

REASSIGNED

OTHER

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP SYMBOLS ARE STANDARD IN ARMY MAP SERVICE TECHNICAL MANUAL NO. 23.

RESERVATION LINE

RESERVATION LINE Marked Surveyed

TRACT BOUNDARY LINE

TRACT NUMBER

CONTOUR LINE

DISPOSAL

ACQUISITION AUTHORIZATION

(3) RE-D 7184 A ..... DATED 4-15-60
(2) RE-D 7184 ..... DATED 12-9-59
(1) CON. NO DA 30-075 ENG 7931 DATED 8-17-57

THIS MAP SUPERSEDES "FORT HAMILTON N.Y. POST AND BOUNDARY MAP" O.D.M.S. NO. 6188-112 DATED JANUARY 1931, REVISED TO 13 APRIL, 1942

DEPARTMENT OF THE ARMY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
NORTH ATLANTIC DIVISION

DRAWN BY P.B.S.
TRACED BY P.B.S.
CHECKED BY L.A.D.
SUBMITTED BY: Lawrence A. Day, ENGINEER
RECOMMENDED BY: A.D. Thompson, CHIEF, REAL ESTATE DIVISION

REAL ESTATE
FORT HAMILTON - NEW YORK
(MILITARY RESERVATION)

APPROVED BY: Maurice Liebig, CHIEF, REAL ESTATE DIVISION DATE 8-27-64

OFFICE, CHIEF OF ENGINEERS, WASHINGTON 25, D. C.
AUDITED
INSTALLATION OR PROJECT NO. 113

Scale IN FEET 100 0 100 200 400

SHEET 1 OF 1 DRAWING NO. NY 699

B

DATE	REVISIONS	BY
6-27-64	DUE TO REVISED & SUPPLEMENTAL AUDIT	P.B.S.

Ft Hamilton, N.Y.
Environmental Office
file drawer: Real Property & Excess

U. S. Army Corps of Engineers, New York.

Map: "U. S. Government Land at Fort Hamilton, New York,
compiled under the direction of Lt. Col. W. L. Marshall,
Corps of Engineers, U. S. A., from previous maps and present data,"
dated 1905.
Record Group 77; Entry 802; Box 26; File: Fort Hamilton #2.
National Archives-North Atlantic Region, New York, NY.

File B

MAP OF U.S. GOVERNMENT LAND AT FORT HAMILTON, NEW YORK

compiled under the direction of

LT. COL. W. L. MARSHALL, CORPS OF ENGINEERS.

from previous maps and present data

1888

SCALE 1 IN. 100 FT.

92 ND ST.

DE RUSSEY AVE.

BATH AVE.

101 ST

102 ND ST.

103 RD ST.

104 TH ST.

105 TH ST.

DAHLGREN PLACE

BATTERY AVE.

SEVENTH AVE.

ELEVENTH AVE.

CROPSEY AVE.

WAREHOUSE AVE.

MORRISON ST.

DELAPLAINE AVE.

TWELFTH AVE.

BAY 1ST ST.

FORT HAMILTON AVE.

REDOUBT

BATTERY PIPER

BATTERY MANNIN. LIVINGSTON. RA...

BATTERY WM. NEARY. BATTERY DOUBLEDAY.

BATTERY BURKE. BATTERY ABRAHAM JOHNSTON. BATTERY HARVEY BROWN. BATTERY GRIFFIN.

BATTERY GILLMORE. BATTERY SAMUEL SPEAR.

SECONDARY STATIONS (FORT WADSWORTH)

FORT HAMILTON, NEW YORK.

DUCT PLAN CORRECTED TO

Note.

Electric conduit lines and manholes are shown, thus

Main drains and sewers

Electric cables in trenches

NARROWS

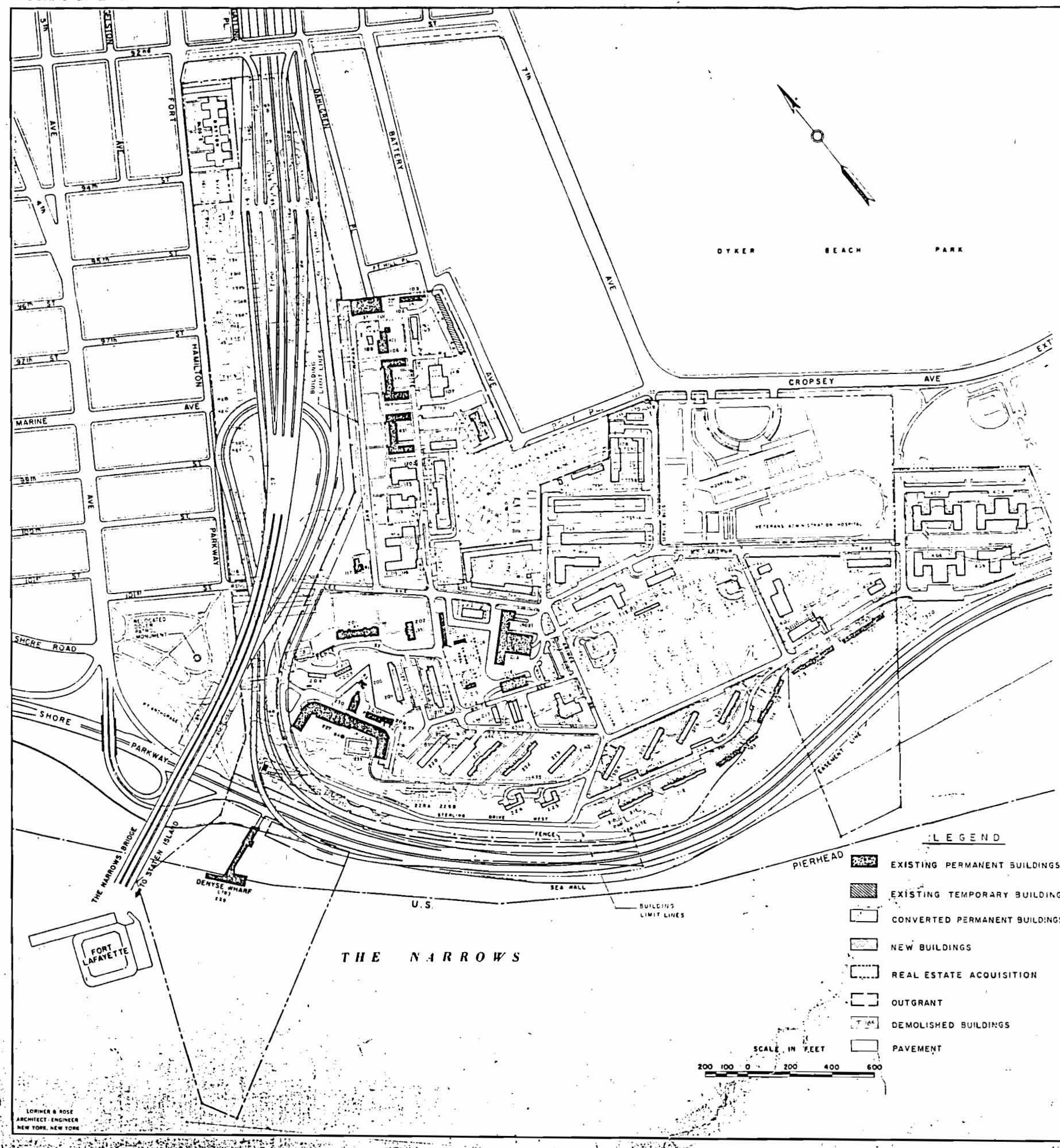
GRAVESEND B...

U. S. Army Corps of Engineers, New York.

Map: Fort Hamilton, New York, "Post and Boundary Map,"
dated 13 July 1942.
Real Estate Division, U.S. Army Corps of Engineers,
New York District, NY (no copy)

U. S. Army Corps of Engineers, New York.

Map: "Master Plan for Redevelopment, Scheme K, Master Plan
Superimposed on Existing Facilities,"
dated 01 June 1956.
Public Works Office, Fort Hamilton, NY.



LEGEND

- EXISTING PERMANENT BUILDINGS
- EXISTING TEMPORARY BUILDINGS
- CONVERTED PERMANENT BUILDINGS
- NEW BUILDINGS
- REAL ESTATE ACQUISITION
- OUTGRANT
- DEMOLISHED BUILDINGS
- PAVEMENT

NEW SCHEDULE OF BUILDINGS

OLD BLDG. NO.	BLDG NO.	USE	GROSS AREA SQUARE FEET
37	101	COMMISSARY	23 650
38	102	TRUCK GARAGES	2 682
94A	103	SENTRY BOOTH	142
14B 14A	T104	MOTOR POOL GARAGES (AAA)	8 083
76	105	AAA ADMINISTRATION	2 800
42	106	MOTOR REPAIR SHOP (AAA)	5 750
	107	POST RESTAURANT	12 417
	108	PX GAS STATION	1 450
77	109	TRANSIENT QUARTERS	47 040
83	110	TRANSIENT QUARTERS	47 040
73	111	TRANSIENT QUARTERS	18 375
	112	TRANSIENT QUARTERS (14 UNITS)	5 723A
230	113	YOUTH CLUB	9 828
	114	POST EXCHANGE	16 932
	115	NURSERY	8 624
	116	OPERATIONS	51 274
9	117	OFFICER QUARTERS	5 270
	118	SENTRY BOOTH	28
	119	POST MOTOR POOL GARAGES	13 170
	120	POST MOTOR POOL REPAIR SHOP & GAR.	8 652
	121	POST MOTOR POOL OIL HOUSE	140
	122	POST MOTOR POOL DISPATCHER	500
	123	ADMINISTRATION	28 272
	124	WAREHOUSES	24 000
	125	WAREHOUSES & BOILER HOUSE	25 500
	126	P E PAINT STORAGE	400
	127	P E SHED & HEAVY EQUIPMENT	5 313
	128	P E SHOPS	9 778
	129	P E OFFICE & SHOPS	6 290
	130	PROVOST MARSHAL	2 687
	131	SENTRY BOOTH	28
94D	132	SENTRY BOOTH	142
	133	SUBSTATION	
87	201	OFFICER QUARTERS	14 767
85	202	OFFICER QUARTERS	10 610
72	1203	CAR GARAGES	6 612
	204	CAR GARAGES	924
63	205	CAR GARAGES	1 200
8	206	SIGNAL OFFICE	3 234
91	207	OFFICERS CLUB	38 294
8A	208	ART SHOP	1 250
	209	B Q Q	23 394
	210	B Q Q	23 394
22	211	CAR GARAGES	3 212
	212	THEATRE	9 600
402	213	ARMORY	55 255
1NONE	214	FILTER PLANT	1 020
401	215	BATH HOUSE	1 040
403	216	AUTO MECHANIC SCHOOL	6 656
	217	C&A GARAGES	8 804
	218	CAR GARAGES	4 386
	219	CHAPEL	8 790
	220	FEMALE B Q Q	9 893
	221	OFFICER QUARTERS (6 UNITS)	11 445
	222	OFFICER QUARTERS (6 UNITS)	11 445
	223	OFFICER QUARTERS (8 UNITS)	9 380
	224	OFFICER QUARTERS (1 UNIT)	3 581
	225	OFFICER QUARTERS (1 UNIT)	3 581
	226	SWIMMING POOL 50'x120', 25'x50'	
6A	227	FLAG POLE (75' HIGH)	
	228AB	TENNIS COURTS	
70	229	DENYSE WHARF	
	230	OPEN STORAGE	
	231	PUMP HOUSE	960
	232	AMO STORAGE	500
	233	SWIMMING POOL 63'C & 82'C	
	301	MEDICAL	43 477
	302	POST HEADQUARTERS	14 128
	303	REVIEWING STAND	1 600
	304	OFFICER QUARTERS (8 UNITS)	9 380
	305	NCO QUARTERS (8 UNITS)	9 380
	306	NCO QUARTERS (8 UNITS)	9 380
	307	NCO QUARTERS (8 UNITS)	9 380
	308	CAR GARAGES	2 024
	309	CAR GARAGES	2 464
	310	OFFICER QUARTERS (2 UNITS)	4 200
	311	OFFICER QUARTERS (6 UNITS)	9 051
	312	OFFICER QUARTERS (8 UNITS)	11 445
93	313	NCO QUARTERS (8 UNITS)	14 427
92	314	NCO QUARTERS (8 UNITS)	14 427
91	315	NCO QUARTERS (8 UNITS)	14 427
7C0	316	NCO QUARTERS (8 UNITS)	14 427
	317	FLAG POLE (75' HIGH)	
	318	BASEBALL DIAMOND	
	319	SOFT BALL DIAMOND	
	320AB	TENNIS COURTS	
	401	BAND	2 420
	402	GYMNASIUM	20 996
	403	NCO CLUB	6872
	404	LIBRARY	3097
	405	WAC BARRACKS	26968
	406	EM BARRACKS	52 578
	407	EM BARRACKS	52 578
	408	EM BARRACKS	52 578
	409	EM CLUB	15 352
	410	BASKETBALL COURT	
	411AB	HANDBALL COURTS	
	412AB	VOLLEY BALL COURTS	
		TOTAL AREA OF STRUCTURES	1105 531

FORT HAMILTON MANOR DEVELOPMENT

A	A	FAMILY HOUSING (167 UNITS)	827 AV EA
B	B	FAMILY HOUSING (125 UNITS)	827 AV EA
C	C	FAMILY HOUSING (126 UNITS)	827 AV EA
D	D	FAMILY HOUSING (84 UNITS)	827 AV EA

DAYTON DEVELOPMENT

E	E	FAMILY HOUSING (180 UNITS)	1800 AV EA

SCHEDULE OF EXISTING BUILDINGS

BLDG NO	USE	TYPE	AREA SQ FT
1	OFFICERS QUARTERS	2-FAM	4134
T-2	GRANDSTAND		4600
3	OFFICERS QUARTERS	2-FAM	3700
4	OFFICERS QUARTERS	2-FAM	3976
5	OFFICERS QUARTERS	2-FAM	4706
6	OFFICERS QUARTERS	2-FAM	4700
7	OFFICERS QUARTERS	2-FAM	5700
8	SIGNAL OFFICE		3234
8-A	ART SHOP		1250
9	OFFICERS QUARTERS	2-FAM	5270
10	FLAG POLE		
12	POST HOSTRS		13800
14	MTR POOL GARAGES		4125
14-A	MTR POOL GARAGE		3758
14-B	MTR POOL GARAGE		4387
14C	MTR POOL GARAGES		2879
15	VET. & SUPPLY		2350
16	MCO SUPPLY SHSE		10200
T-18	NCO QUARTERS	1-FAM	1330
A-18	STOREHOUSE		400
19	CAR GARAGES & QTRS	1-FAM	4013
20	NCO QUARTERS	1-FAM	1148
B-20	STOREHOUSES		322
T-21	CAR GARAGES		1812
22	CAR GARAGES		3213
T-22B23	NCO QUARTERS	2-FAM	1460
B-21	STOREROOM		522
24	CAR GARAGES		4708
B-24	STOREROOM		427
25	HUT		90
B-25	NURSERY SCHOOL		2405
26	OFFICERS QUARTERS	6-FAM	7980
27	OFFICERS QUARTERS	3-FAM	5650
28	OPERATIONS		32500
T-29	ATHLETIC ARENA		58368
C-30	STOREROOM		510
31	NCO QUARTERS	1-FAM	1392
C-31	NCO QUARTERS	3-FAM	2904
B-32	STOREROOM		576
T-33	PX GAS STATION		239
T-33B34	QUARTERS	2-FAM	1692
35	OFFICERS QUARTERS	4-FAM	10610
A-35	STOREHOUSE		583
C-35	STOREHOUSE		1040
36	GAS STATION		400
T-36B37	STOREROOM		1515
37	COMMISSARY		23650
38	TRUCK GARAGES		2682
C-38	GM SUPPLY		1787
39	NCO QUARTERS	2-FAM	2196
40	NCO QUARTERS	2-FAM	2196
B-40	SUPPLY		1459
41	NCO QUARTERS	2-FAM	2196
42	MOTOR REPAIR SHOP		5750
43	DISPENSARY		15550
B-44	CABLE HUT		64
T-45	TENNIS COURTS		
50	NCO QUARTERS	2-FAM	2520
51	NCO QUARTERS	2-FAM	2520
52	NCO QUARTERS	2-FAM	2520
53	NCO QUARTERS	2-FAM	2520
54	NCO QUARTERS	2-FAM	2520
55	NCO QUARTERS	2-FAM	2520
62	NCO QUARTERS	2-FAM	2196
63	GARAGE		1200
70	DENYSE WHARF		
T-71	STOREROOM		800
73	TRANSIENT QTRS		24300
74	SWIM & WADING POOLS		50'x90' 27'x17'
75	POST EXCHANGE		12800
76	TA JOB & MTR POOL DISP		2800
77	TRANSIENT QTRS		60900
78	OFFICERS QTRS	9-FAM	6437
80	NCO QUARTERS	2-FAM	2196
81	NCO QUARTERS	2-FAM	1728
82	SUB STATION		613
83	TRANSIENT QTRS		60900
84	FLAG POLE		
T-85	PROVOST MARSHAL		9487
P 86	WAREHOUSE		1160
87	OFFICERS QTRS	6-FAM	14760
88	QUARTERS	1-FAM	7875
88-C	GARAGE		440
89	STORAGE		4989
90	QUARTERS	2-FAM	2196
91	OFFICERS CLUB		38294
92	WAREHOUSE		6540
93-B	SCALE HOUSE		670
94-A	SENTRY BOOTH (MP)		142
94-B	SENTRY BOOTH (MP)		150
94-C	SENTRY BOOTH (MP)		135
94-D	SENTRY BOOTH (MP)		142
T-95&96	SENTRY BOOTH (MP)		240
95-A	POST OFFICE		4278
95-B	STORAGE		207
T-97	TENNIS COURTS		
100	ARENA DRESSING RMS		1472
101	BASEBALL DIAMOND		
T-123	TOOL SHED		170
T-130	BARRACKS		4600
T-131	BARRACKS & DAYROOM		4600
131-A	STORAGE		144
T-135	DAY RM & ORDERLY RM		1830
T-138	BARRACKS		5222
T-139	BARRACKS		5222
T-142	BARRACKS		5040
T-143	BARRACKS		5040
T-144	TROOP ADMIN. BLDG		3350
T-145	STORAGE		1290
T-146	DAY ROOM		1280
	FORT AMMO STORAGE		500
	PUMP HOUSE		960
	FILTER PLANT		1020

BLDG NO	USE	TYPE	AREA SQ FT
T-151	GENERATOR SHED		616
152	QUARTERS	1-FAM	1295
153	QUARTERS	1-FAM	1295
T-160	PE EQUIP SHOP		4233
T-183	WAREHOUSE		5377
T-184	WAREHOUSE		9451
T-185	69 AMTR POL		5820
T-190	DENTAL CLINIC		1900
T-191	TRANSFER PT ADM		4433
T-192	RECEIVING OFFICE INF		1246
T-196	YOUTH CENTER		4650
205	YMCA		9828
T-201	NURSES QUARTERS		3150
T-202	NURSES QUARTERS		3760
T-203	NURSES QUARTERS		3150
T-204	DISPENSARY		1165
T-205	TRANSFER PT CONF RM		5469
T-206	DISPENSARY		1920
T-207	T.F.R. WAITING RM.		5812
T-208	CLINIC OUT PATIENT		3812
T-209	NURSERY		3812
T-210	WARD 3		3812
T-211	NURSERY		3812
T-212	BARRACKS-ENTRANS		4425
	INF CONN CORRIDOR		7886
T-213	TRANSFER PT		3812
T-214	WET PERS STATION		4429
T-215	POST CHAPEL		3280
T-216	CHAPEL ANNEX		2584
T-217	QUARTERS	3-FAM	2280
T-218	STOREROOM		1425
T-219	BOQ		7670
T-220	BOQ		8044
T-221	PE WAREHOUSE & OFF		9400
T-222	PE OFF & WHSE		9300
T-223	WAREHOUSE (G.M.)		9300
T-225	BOQ		8044
T-230	PE SHOPS & WHSE		18432
T-231A	WAREHOUSE & T.H.Q.		3469
T-231B	BOWLING & SATT HQ		3469
T-232	NCO MESS & LIBRARY		22390
233	PAINT STORAGE		625
340	TRANSFORMER		100
360	TRANSIENT HOUSING		5310
361	WAC BARRACKS		5310
362	WAC BARRACKS		5310
363	WAC BARRACKS		5310
371	DAYROOM (WAC)		1750
T-372	POST OFFICE		1280
T-380	TRANSIENT MESS & WHSE		18000
400	THEATRE		8088
401	BATHHOUSE		1040
402	ARMORY		55253
403	AUTO MECH SCHOOL		6656
T-600	BOQ		8924
T-601	DAYROOM		1500
T-602	BE OFF		3330
T-603	MOB BARRACKS		5310
T-604	MOB BARRACKS		5310
T-610	CONSOL MESS		10490
T-611	STORAGE		1285
T-612	ORD ROOM & CCP PM		3150
T-613	MOB BARRACKS		5310
T-614	DAY ROOM SCHD RM		1750
T-615	MOB BARRACKS		5310
T-616	FUEL OIL PUMP HOUSE		120
T-617	STORAGE		532
T-618	SHED		2400
619	RANGE		4442
T-620	ORDERLY ROOM		1750
T-621	STORE HOUSE		1280
T-622	MOB BARRACKS		5310
T-625	MOB BARRACKS		5310
T-630	MOB BARRACKS		5310
T-631	DAY ROOM		1750
T-640	MOB BARRACKS		5310
T-641	MOB BARRACKS		5310
T-650	MOB BARRACKS		5310
T-651	MOB BARRACKS		5310
T-680	STORE HOUSE		1285
T-681	STORE HOUSE		1285
T-682	BAND		1200
T-683	BAND		1200
700	NCO QUARTERS	8-FAM	14427
701	NCO QUARTERS	8-FAM	14427
702	OFFICERS QUARTERS	8-FAM	14427
703	OFFICERS QUARTERS	8-FAM	14427
	FORTS STORAGE		70,500
TOTAL AREA OF STRUCTURES			1173395

FORT HAMILTON MANOR DEVELOPMENT

A	167 UNITS	827 AV EA
B	125 UNITS	827 AV EA
C	126 UNITS	827 AV EA
D	84 UNITS	827 AV EA

DAYTON DEVELOPMENT

E	180 UNITS	800 AV EA

LORIMER & ROSE
ARCHITECT - ENGINEER
NEW YORK, NEW YORK

CORPS OF ENGINEERS U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 3, NEW YORK

DRAWN BY
CHECKED BY
DESIGNED BY A. GORDON LORIMER
SUBMITTED
REVIEWED
APPROVED
DATE 1 JUNE 1956

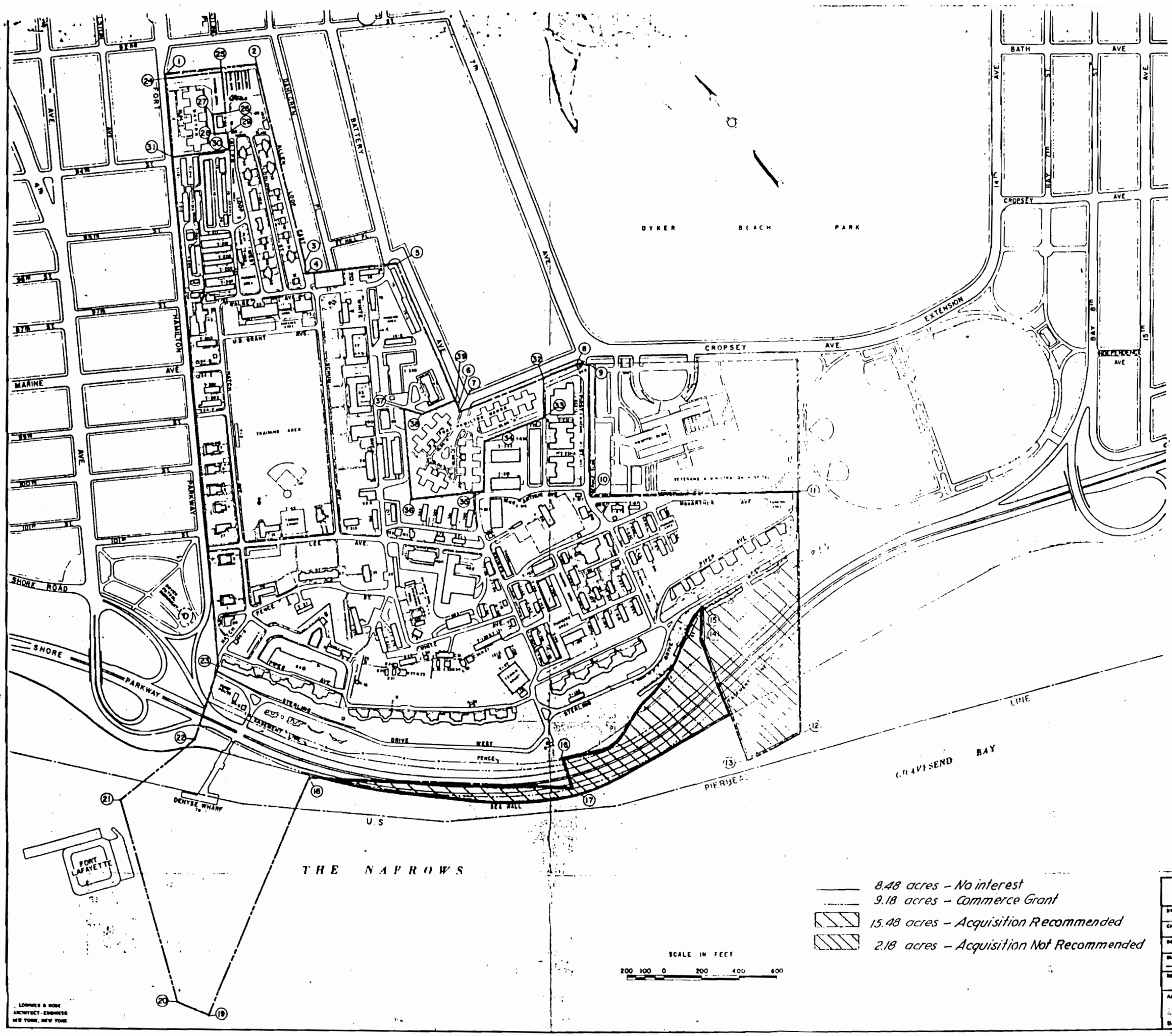
FORT HAMILTON
MASTER PLAN FOR REDEVELOPMENT
SCHEME K
MASTER PLAN SUPERIMPOSED ON EXISTING FACILITIES
BROOKLYN NEW YORK

RECOMMENDED
CHIEF ENGINEERING DIVISION
SCALE AS SHOWN
DRAWING NUMBER 18-02-02
SHEET 1 OF 1

FILE NO. 7582-500

U. S. Army Corps of Engineers, New York.

Map: "Fort Hamilton, Basic Information, Reservation Boundary Map,"
dated 01 June 1956.
Real Estate Division, U. S. Army Corps of Engineers,
New York District, NY.



SCHEDULE OF METES AND BOUNDS

COURSE	GEOGRAPHIC BEARING	DISTANCE FEET
FORT HAMILTON		
1 - 2	S 56°46' 40"E	483.21
2 - 3	S 24°19' 30"W	1081.33
3 - 4	S 34°07' 10"W	42.90
4 - 5	S 56°42' 40"E	475.10
5 - 6	S 14°06' 20"W	824.36
6 - 7	S 22°12' 50"W	21.79
7 - 8	S 72°37' 10"E	659.45
8 - 9	S 52°22' 10"E	70. ±
9 - 10	S 37°37' 50"W	680. ±
10 - 11	S 52°22' 10"E	1100. ±
11 - 12	S 37°37' 50"W	1263. ±
12 - 13	N 76°52' 10"W	315.
13 - 14	N 18°32' 50"E	652.5
14 - 15	N 37°37' 50"E	180.
15 - 16	WESTERLY ALONG FORMER SHORELINE	1158. ±
16 - 17	S 21°10' 00"W	168.
17 - 18	N 49°37' 00"W	1390. ±
18 - 19	S 61°00' 00"W	1350. ±
19 - 20	N 28°55' 00"W	180. ±
20 - 21	N 22°28' 00"E	1100. ±
21 - 22	S 89°40' 00"E	800. ±
22 - 23	N 54°14' 00"E	400. ±
23 - 1	N 33°14' 00"E	3086.80

COURSE	GEOGRAPHIC BEARING	DISTANCE FEET
DAYTON DEVELOPMENT		
1 - 24	S 33°14' 00"W	81.8
24 - 25	S 56°46' 40"E	284.00
25 - 26	S 33°14' 00"W	211.29
26 - 27	N 56°46' 40"W	67.08
27 - 29	S 33°14' 00"W	102.80
28 - 29	S 56°46' 40"E	67.08
29 - 30	S 33°14' 00"W	64.83
30 - 31	N 56°46' 40"W	294.00
31 - 24	N 33°14' 00"E	398.98
FORT HAMILTON MANOR		
6 - 7	S 22°12' 50"W	21.79
7 - 32	S 72°37' 10"E	467.06
32 - 33	S 37°40' 36"W	202.98
33 - 34	N 72°37' 10"W	337.96
34 - 35	S 38°32' 50"W	256.10
35 - 36	N 67°48' 43"W	379.25
36 - 37	N 33°28' 31"E	471.36
37 - 38	S 35°33' 54"E	84.86
38 - 39	S 72°33' 22"E	194.36
39 - 8	S 14°06' 20"W	40.81

FORT HAMILTON EXISTING AREA

AREA	ACRES	ACRES
ORIGINAL LAND AREA		189.68
FILLED LAND TO SEAWALL (EASEMENT)		8.48
TOTAL LAND AREA		198.16
TRANSFER TO VETERANS ADMINISTRATION	- 17.10	- 17.10
PRESENT LAND AREA (JUNE 1956)		181.06
LAND RESERVED FOR OTHER USES		
SHORE DRIVE (EASEMENT)	- 11.05	
FT. HAMILTON MANOR (LEASE)	- 5.62	
DAYTON DEVELOPMENT (LEASE)	- 2.50	
LAND BET. SHORE DRIVE & SEAWALL	- 5.00	
SUBMERGED LAND	- 20.40	
TOTAL RESERVED AREA	- 42.57	- 42.57
PRESENT USABLE AREA (JUNE 1956)		138.49

NOTES

ALL BEARINGS REFER TO TRUE NORTH

8.48 acres – No interest
9.18 acres – Commerce Grant
15.48 acres – Acquisition Recommended
2.18 acres – Acquisition Not Recommended

LOMMEN & NOE
ARCHITECT - ENGINEERS
NEW YORK, NEW YORK

CORPS OF ENGINEERS U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 5, NEW YORK

DRAWN BY: MADIGAN & HYLAND
CHECKED BY:
DESIGNED BY:
SUBMITTED: Chief, Engineering and Real Property Division
REVIEWED: Chief, Construction Division
RECOMMENDED: Chief, Real Estate Division
APPROVED: Colonel E.L. District Engineer
DATE: 1 JUNE 1956

FORT HAMILTON
BASIC INFORMATION MAPS
RESERVATION BOUNDARY MAP
BROOKLYN NEW YORK

SCALE AS SHOWN
DRAWING NUMBER 18-02-02
SHEET 2 OF 2

EXHIBIT "B" FILE NO. 7582-305

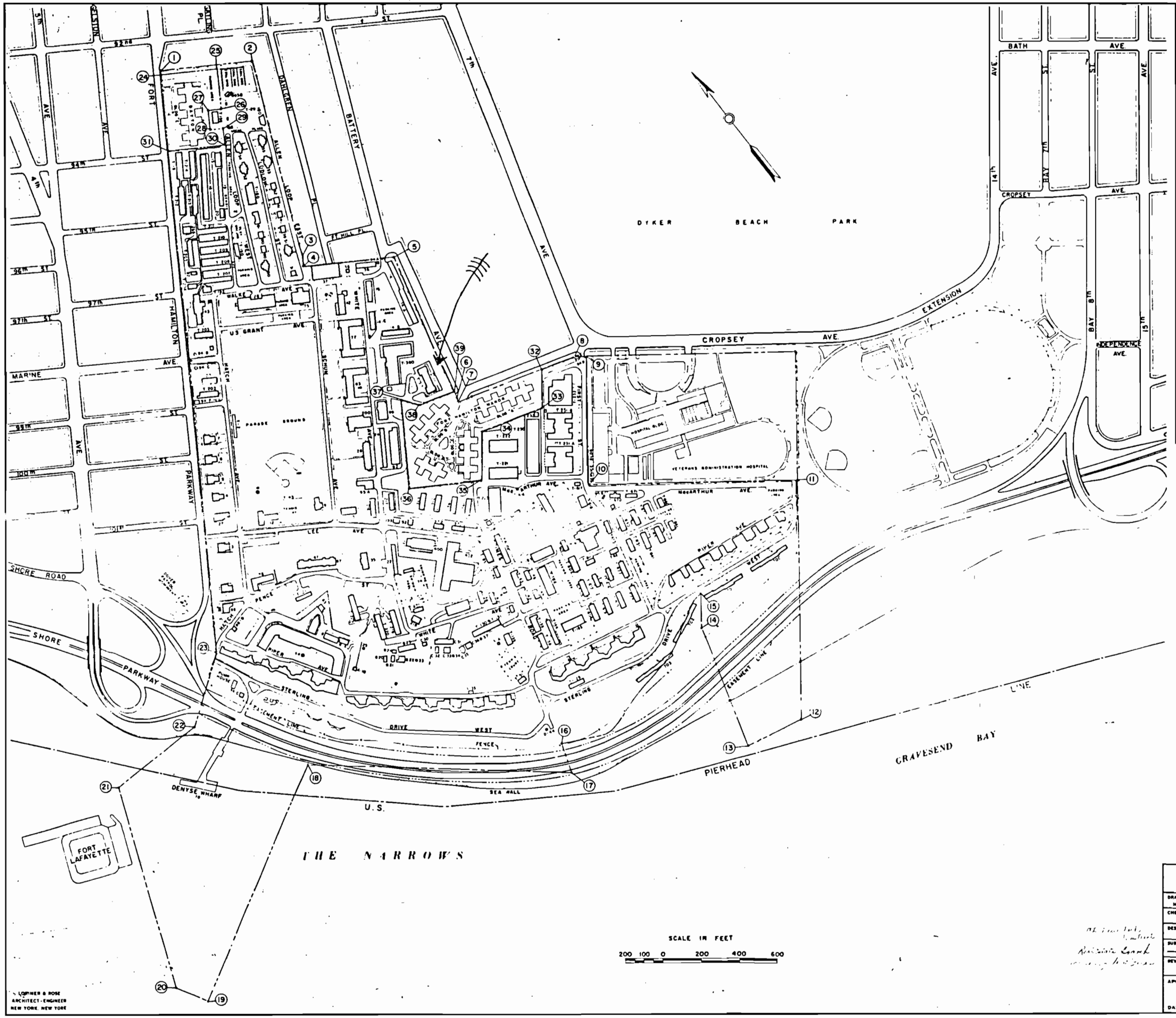
USACE- NY
Real Estate
Ft. Hamilton
Audit File

U. S. Army Corps of Engineers, New York.

Map: "Fort Hamilton, Basic Information, Reservation Boundary Map,"
dated 01 June 1956.
Real Estate Division, U. S. Army Corps of Engineers,
New York District, NY.

CORPS OF ENGINEERS

U. S. ARMY



SCALE IN FEET

200 100 0 200 400 600

SCHEDULE OF METES AND BOUNDS

COURSE	GEOGRAPHIC BEARING	DISTANCE FEET
FORT HAMILTON		
1 - 2	S 56°46'40"E	483.21
2 - 3	S 24°19'30"W	1051.33
3 - 4	S 34°07'10"W	42.90
4 - 5	S 56°42'40"E	475.10
5 - 6	S 14°05'20"W	824.38
6 - 7	S 22°12'50"W	21.79
7 - 8	S 72°37'10"E	659.45
8 - 9	S 52°22'10"E	70. ±
9 - 10	S 37°37'50"W	680. ±
10 - 11	S 52°22'10"E	1100. ±
11 - 12	S 37°37'50"W	1263. ±
12 - 13	N 76°52'10"W	315.
13 - 14	N 16°32'50"E	652.5
14 - 15	N 37°37'50"E	180.
15 - 16	WESTERLY ALONG FORMER SHORELINE	1158. ±
16 - 17	S 21°10'00"W	165.
17 - 18	N 49°37'00"W	1390. ±
18 - 19	S 61°05'00"W	1350. ±
19 - 20	N 28°55'00"W	180. ±
20 - 21	N 22°26'00"E	1100. ±
21 - 22	S 89°40'00"E	500. ±
22 - 23	N 54°14'00"E	400. ±
23 - 1	N 33°14'00"E	3088.80

COURSE	GEOGRAPHIC BEARING	DISTANCE FEET
DAYTON DEVELOPMENT		
1 - 24	S 33°14'00"W	21. ±
24 - 25	S 56°46'40"E	294.00
25 - 26	S 33°14'00"W	211.25
26 - 27	N 56°46'40"W	67.08
27 - 28	S 33°14'00"W	102.50
28 - 29	S 56°46'40"E	67.08
29 - 30	S 33°14'00"W	84.83
30 - 31	N 56°46'40"W	294.00
31 - 24	N 33°14'00"E	398.58
FORT HAMILTON MANOR		
6 - 7	S 22°12'50"W	21.79
7 - 32	S 72°37'10"E	467.02
32 - 33	S 37°40'36"W	202.58
33 - 34	N 72°37'10"W	337.96
34 - 35	S 38°32'50"W	258.10
35 - 36	N 57°46'43"W	379.25
36 - 37	N 33°28'31"E	471.38
37 - 38	S 35°33'54"E	94.56
38 - 39	S 72°33'22"E	194.35
39 - 6	S 14°05'20"W	40.51

FORT HAMILTON ORIGINAL AREA

FORT HAMILTON	164.46 ACRES
DAYTON APARTMENTS	2.50 ACRES
FORT HAMILTON MANOR	3.32 ACRES
TOTAL FORT AREA	172.58 ACRES

PRESENT USABLE AREA 145.28 ACRES

NOTES:

ALL BEARINGS REFER TO TRUE NORTH

LORIMER & ROSE
ARCHITECT-ENGINEER
NEW YORK, NEW YORK

CORPS OF ENGINEERS U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 3 NEW YORK

DRAWN BY: MADIGAN & HYLAND
CHECKED BY:
DESIGNED BY:
SUBMITTED: Lorimer and Rose, ARCHITECT ENGINEER
REVIEWED: Frank L. Rowe, ASSISTANT CHIEF ENGINEERING DIVISION
APPROVED: John T. Cahill, COLONEL C.E. DISTRICT ENGINEER
DATE 1 JUNE 1956

FORT HAMILTON
BASIC INFORMATION MAPS
RESERVATION BOUNDARY MAP

BROOKLYN NEW YORK

RECOMMENDED: [illegible], CHIEF ENGINEERING DIVISION

SCALE AS SHOWN

DRAWING NUMBER 18-02-02
SHEET 3 OF 11

FILE NO. 7582-303

U. S. Army Corps of Engineers, New York.

Map: "Master Plan for Redevelopment, General Site Plan,"
dated 09 January 1958.
Public Works Office, Fort Hamilton, NY.

CORPS OF ENGINEERS, U.S. ARMY
NEW YORK DISTRICT

MASTER PLAN FOR REDEVELOPMENT

FORT HAMILTON

GENERAL PLAN

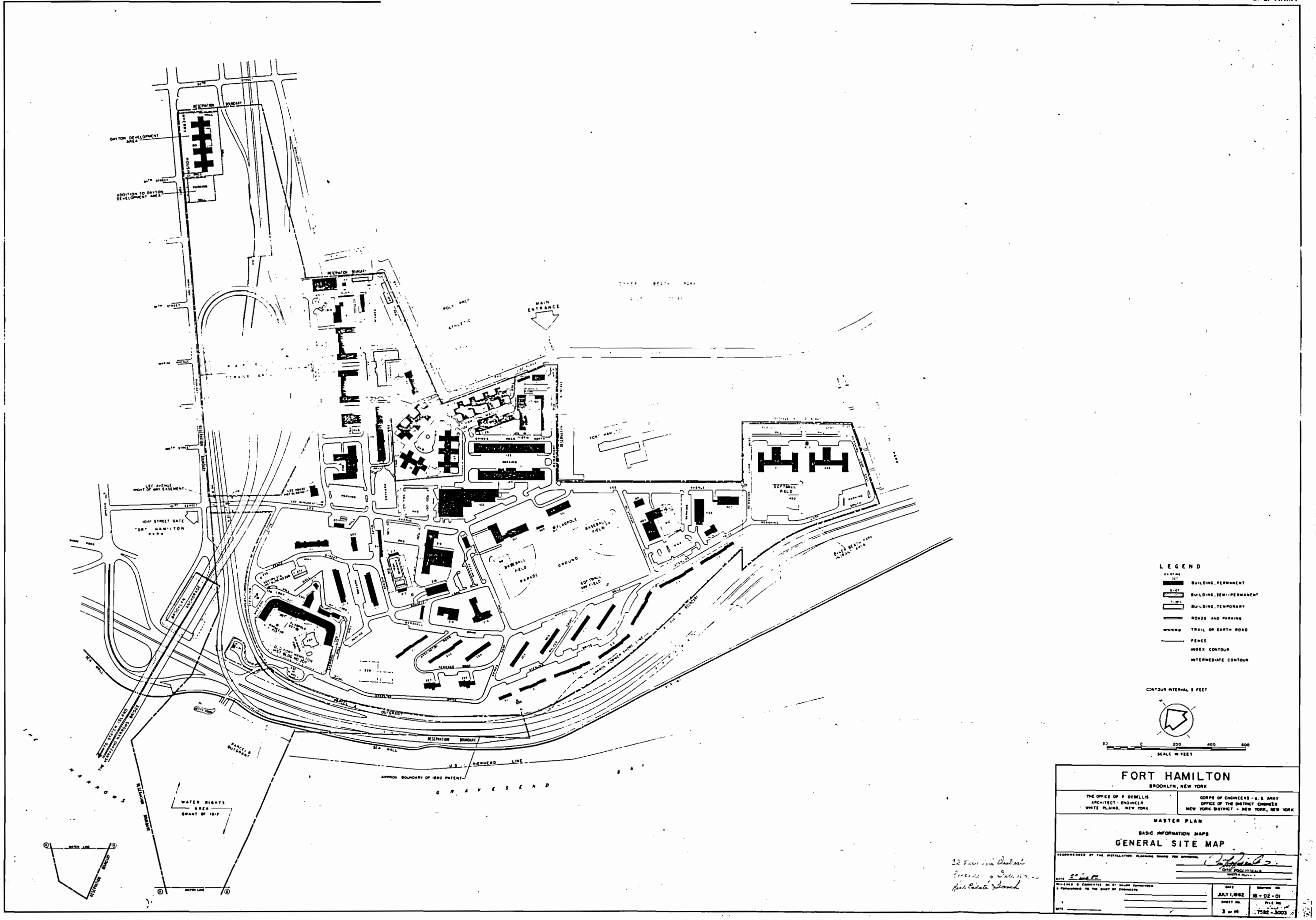
SCALE OF FEET

U. S. Army Corps of Engineers, New York.

Map: "Master Plan, Basic Information Maps, General Site Plan,"
dated 01 July 1982.
Real Estate Division, U. S. Army Corps of Engineers,
New York District, NY.

CORPS OF ENGINEERS

U. S. ARMY



LEGEND

- BUILDING, PERMANENT
- BUILDING, SEMI-PERMANENT
- BUILDING, TEMPORARY
- ROADS AND PARKING
- TRAIL OR EARTH ROAD
- FENCE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR

CONTOUR INTERVAL 5 FEET

SCALE IN FEET

0 100 200 400 800

FORT HAMILTON

BROOKLYN, NEW YORK

THE OFFICE OF P. DEBELLIS
ARCHITECT - ENGINEER
WHITE PLAINS, NEW YORK

CORPS OF ENGINEERS - U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT - NEW YORK, NEW YORK

MASTER PLAN

BASIC INFORMATION MAPS

GENERAL SITE MAP

RECOMMENDED BY THE INSTALLATION PLANNING BOARD FOR APPROVAL

DATE 22 JULY 82

RECOMMENDED FOR APPROVAL BY MAJOR COMMANDER AND FORWARDED TO THE CHIEF OF ENGINEERS

DATE

DATE JULY 1, 1982

SHEET NO. 3 of 14

DRAWING NO. 16-02-01

FILE NO. 7582-3003

32 Front St. Brooklyn
Engineer & Sub. Mgr.
Fort Hamilton Branch

U. S. Army Corps of Engineers, New York.

Map: "Master Plan, Basic Information, General Site Map,"
dated 31 August 1988.
Public Works Office, Fort Hamilton, NY.

FORT HAMILTON PARK
LEE AVENUE
BAY RIDGE PARKWAY
OUTERBRIDGE CROSSING
ADDITION TO DAYTON DEVELOPMENT AREA

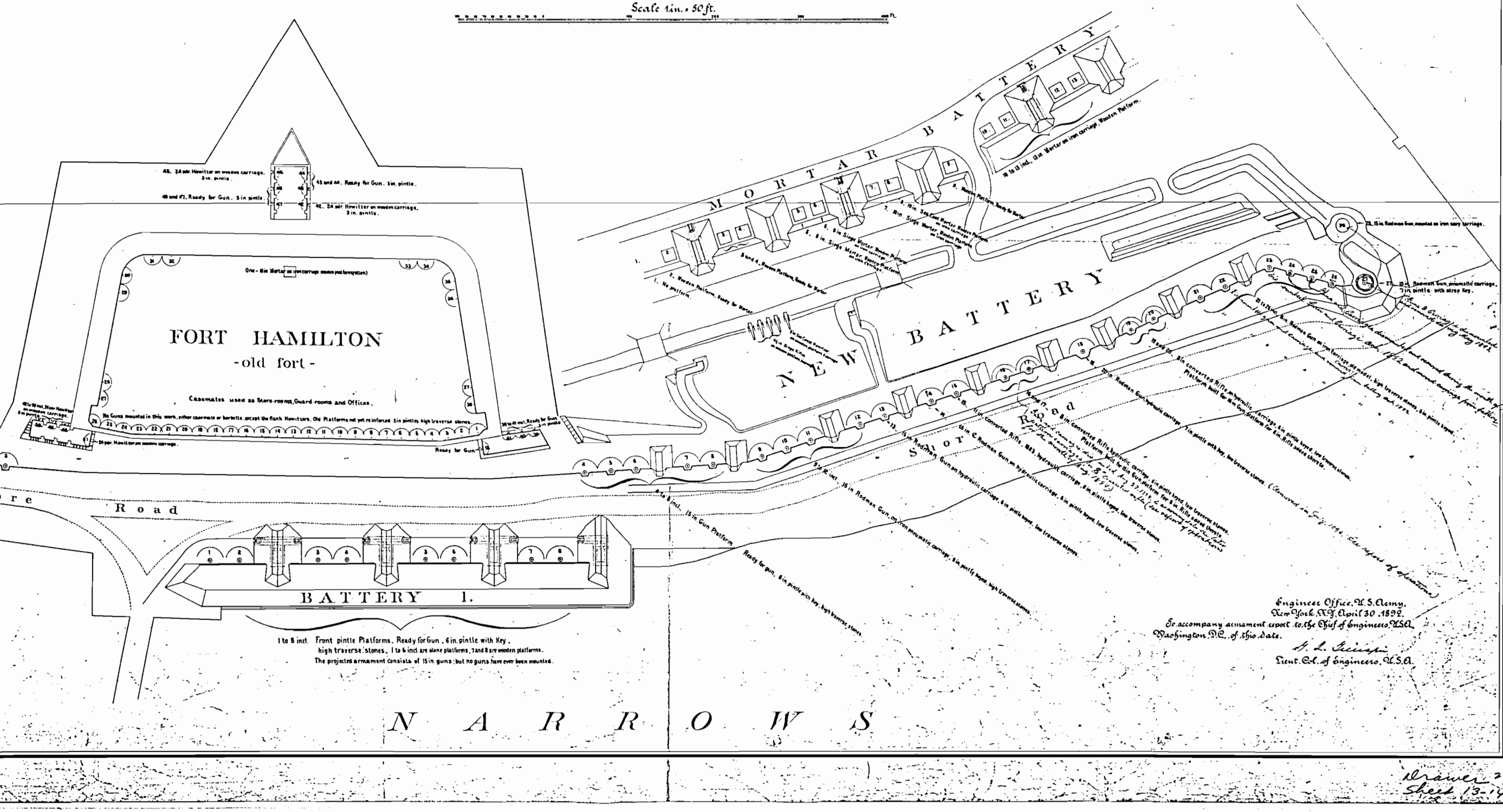
U. S. Engineer Office, New York.

Map: "Sketch of Fort Hamilton, New York Harbor,
consisting of Fort Hamilton, old fort; Battery No. 1;
New Battery and Mortar Battery, showing armament on April 1, 1892."
Record Group 77; Fortifications File; Drawer 250, Sheet 13-14.
Cartographic Branch, National Archives II, College Park, MD.

Sketch of
Fort Hamilton, New York Harbor,
consisting of
Fort Hamilton, old fort; Battery No. 1; New Battery and Mortar Battery
showing armament on April 1, 1892,

made in accordance with circular letter of the Chief of Engineers, U.S.A., dated Jan'y 19, 1892.

Scale 1 in. = 50 ft.



Engineer Office, U.S. Army,
New York, N.Y., April 30, 1892.
To accompany armament report to the Chief of Engineers, U.S.A., Washington, D.C., of this date.
H. L. Gillespie
Lieut. Col. of Engineers, U.S.A.

U.S. Engineers, New York.

Map: "U.S. Military Reservation, Fort Hamilton, New York,
Filled Area at Easterly End of Reservation,"
dated 9 August 1927.
Record Group 77; Entry 802; Box 26; File: Fort Hamilton #2.
National Archives-North Atlantic Region, New York, NY.

WAR DEPARTMENT

CORPS OF ENGINEERS. U. S. ARMY



U. S. MILITARY RESERVATION
FORT HAMILTON, N. Y.
FILLED AREA AT EASTERLY END OF RESERVATION
(CONDITION JULY 22, 1927.)

SCALE 1 INCH = 100 FEET

100 0 100 200 300 400

United States Engineer Office, Third District, New York City, Aug. 9, 1927.

Submitted A. G. Lueft. Associate Engineer.

Approved _____ Colonel, Corps of Engineers, District Engineer.

Drawn by a.c.d.

To accompany 8th Ind. dated Aug. 9, 1927.

NARA-NYC
RG 77
Entry 802
Box 16

War Department.

Map of Fort Hamilton, showing the air raid shelters,
dated 04 November 1949.
Accession 338-58A-4188; Box 4 of 4; File: 384.5.
National Personnel Records Center, St. Louis, MO.

AIR RAID SHELTERS

RED FLAG DENOTES NO FAMILIES IN QTRS.
RED FLOWER DENOTES NO BASEMENT SPACES
PRESENTLY OCCUPANTS TO BASEMENT SPACES

SHELTER	CAPACITY	ALLOCATED
10, 15, 15R, 1-6		ENG.
6R-8R	404	INFIRMARY
9-9R	151	QTRS 700, 908
11	31	QTRS 702A, B, C
12	42	QTRS 702, 704, 706
16-18		7201 MP
19	31	QTRS 703 E, F, G
14	31	QTRS 703 A, B, C, D
13, 13R, 13R, 14R		QM
20-24	427	DET #1
25-40		66 AAA (CWS)
41-43		66 AAA
44-48	500	ARMS, JEFFERSON
49	62	QTRS 217, 152, 153
50	62	QTRS 18, C-31, 65, C-2
51-53	74	66 AAA
54-55	—AMMO—	
56-57A	74	
58	84	QTRS B-32, B-30
59 59ABC	207	
60	82	QTRS 72
61	82	QTRS 9K
62	82	
63	24	QTRS 7
64	56	QTRS 5-B
64A	64	QTRS 4-67
64B	63	QTRS 1-3
65-67	246	DET #4
68	24	
69	56	
69A	64	
69B	63	QTRS 26
69C	24	QTRS 35
70-72	246	PROVOST MARSHAL
96		800 OCCUPANTS BATTERY 8-27
100-101		QTRS 84 (CG)
73-74		ORD
75-84		OFF. MESS
85-95		ASU
97-98		ENG

NOTES:
UNDER "CAPACITY"
BLANK DENOTES — NOT ALLOCATED
FIGURES DENOTE — MAX CAP AT 45 SQ. FT. PER IND.
BLUE DENOTES COMBINATION UNIT + STORAGE
RED DENOTES STORAGE ALLOCATED

2.8 ACRES FARMED LAND

VETERANS ADMINISTRATION HOSPITAL

AUX AID STATION

SHELTER 75-101

SHELTER 1-72

SHELTER 20-70

POST AUX

DET

DET QUARTERS

POST

BATTERY JOHNSTON

BATTERY BROWN

BATTERY STERLING

BATTERY GILLMORE

BATTERY GRIFFIN

BATTERY KEST

BATTERY SPEAR

BATTERY HENRY

BATTERY KELLY

BATTERY WOOD

BATTERY DUNNE

BATTERY MORRIS

BATTERY GUNNER

BATTERY BURNS

BATTERY WHITING

BATTERY ORANGE

BATTERY LIVINGSTON

BATTERY MARSHALL

BATTERY LUDLOW

BATTERY MAXWELL

BATTERY DUNCAN

BATTERY MAXON

BATTERY MAXSON

BATTERY MAXFIELD

BATTERY MAXCY

BATTERY MAXWELL

War Department.

Map: "Casemates Located at Fort Hamilton,"
dated 23 April 1950.
Accession 338-58A-4188; Box 4 of 4; File: 384.5.
National Personnel Records Center, St. Louis, MO.

FORT HAMILTON

COL. J. CHUDDEL — COMMANDING OFFICER

WAR DEPARTMENT

POST ENGINEER OFFICE

LT. COL. L. SHAW — POST ENGINEER

CASEMATES LOCATED AT FORT HAMILTON

JUNE 30, 1943

REV. 26 SEPT. 1941

UPRC
338-384-488
Box 4/4
Fld. 384.5

SCALE - 1IN - 150 FT

0 30 60 90 120 150 300

SHORE ROAD

NARROWS

BAY

EXTENSION

PARK WAY

BATTERY GILLMORE

BATTERY PEARSON

BATTERY GRIFFIN

BATTERY JOHNSTON

BATTERY BROWN

BATTERY DUNNE

BATTERY PIPER

BATTERY LIVINGSTON

BATTERY MCDOWELL

PIPER AVE.

MAC ARTHUR AVE.

AVENUE

VETERANS ADMINISTRATION HOSPITAL

CROPSEY AVE. EXTENSION

POLLY PLACE

AVE

FORT HILL PL

TENNIS COURTS

BATTERY PEARSON

BATTERY DUNNE

BATTERY GRIFFIN

BATTERY JOHNSTON

BATTERY BROWN

BATTERY GILLMORE

BATTERY PIPER

BATTERY LIVINGSTON

BATTERY MCDOWELL

SHORE ROAD

MARINE AVE

97 ST.

LEASED LAND

2.5 ACRES

N

APPENDIX G

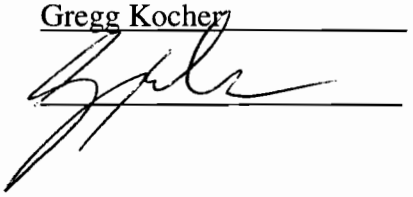
SITE SAFETY AND HEALTH PLAN/
SITE INSPECTION REPORT

SITE SAFETY AND HEALTH PLAN (SSHP)
for
FORT HAMILTON
BOROUGH OF BROOKLYN
KINGS COUNTY, NY

The purpose of this site visit is to reconnoiter, document, and photograph areas on Fort Hamilton suspected to be contaminated with unexploded ordnance and/or toxic chemical munitions.

PREPARED BY:	Randy Fraser
OFFICE	USACE, CEMVS-ED-P
ADDRESS	1222 Spruce St. St. Louis, Mo
PHONE	(314) 331-8268
DATE PREPARED	2-6-98

REVIEWED/APPROVED BY: Gregg Kocher



NOTE This SSHP is to be used only for non-intrusive site visits and must be approved by safety prior to the start of the field visit. All team members must read, and comply with the SSHP, and attend the safety briefings. The Site Safety and Health Officer (SSHO) shall ensure the Safety Briefing Checklist and the SSHP acceptance form (Appendix C) is filled out prior to the start of the site visit.

A. SITE DESCRIPTION AND PREVIOUS INVESTIGATIONS

1. Site Description

a. Size The original area with the Fort Hamilton reservation was approximately 180.7 acres, of which 20.4 acres are submerged by the Narrows, west of the facility. The total amount of land considered usable is 113.76 acres.

b. Present Usage (check all that apply)

[X] Military	[X] Recreational	[ ] Other (specify)
[X] Residential	[X] Commercial	_____
[ ] Natural Area	[ ] Industrial	_____
[ ] Agricultural	[ ] Landfill	_____
[X] Secured	[X] Active	[ ] Unknown
[ ] Unsecured	[ ] Inactive	

2. Past Uses The first defense structure constructed at New Utrecht Point, abreast of the Narrows, was a wooden blockhouse. It served as protection against raids by pirates as well as local Indians. With the revolt of the colonies in 1776, the first attempt at coast artillery fortifications was made by the patriot forces under General Washington. On July 4, 1776, a British fired on these works. The patriot gun crews returned for before their cannons were silenced. Following the Battle of Brooklyn, New Utrecht Point and the lands surrounding were under the control by the British until their surrender in 1783. In 1825 construction of Fort Hamilton was begun, with completion in 1831. Armament throughout the 1800s consisted of the following: 4½, & 8-inch siege guns, 15 & 20-inch Rodmans, 12 & 24-pounder howitzers, 8-inch siege howitzers, 8 & 10-inch siege mortars, 10" & 13" seacoast mortars, 3-inch guns. To match advancements made in the field of coast artillery, approximately half the fort was demolished to allow construction of new reinforced concrete batteries. Armament in the early 1900s consisted of 3", 6", 10", and 12" guns. After WWI many of the fort's big guns were removed, replaced by 3" anti-aircraft guns, 37mm guns, and caliber .50 machine guns. During the two World Wars, Fort Hamilton served as a major embarkation and separation center. At present no coastal defense weapons occupy the fort.

3. Surrounding Population (check all that apply)

[ ] Rural	[X] Residential	[ ] Other (specify)_____
[ ] Urban	[ ] Industrial	[X] Commercial

4. Ordnance/Explosives (OE) Potential Low probability of encountering any unexploded ordnance or explosive. Most of the old fort has been demolished and removed or backfilled.

B. DESCRIPTION OF ON-SITE ACTIVITIES (check all that apply)

[X] Walk-through	[X] Drive-through	[ ] Other (specify)
[X] On-Path	[X] On-road	_____
[X] Off-Path	[ ] Off-road	

C. SITE PERSONNEL AND RESPONSIBILITIES

1. Responsibilities

a. Project Manager The Corps of Engineers Project Manager (PM) is overall responsible for the site visit. He will assign a Team Leader, (most situation will be the PM). The PM will ensure that the SSHP is completed. Coordinates and executes the site visit.

b. Site Safety and Health Officer Individual designated to conduct safety, enforce the SSHP, conduct safety briefings, and ensure that the team leader can safely fulfill his objectives. The SSHO will maintain the safety gear, and monitor on-site operations. The SSHO is responsible for identifying, marking, and reporting any unexploded ordnance and explosives.

2. Team Members

Name	Position	Address	Phone
Rochelle Ross	PM/Team Leader	USACE, St. Louis, MO	(314) 331-8784
Randy Fraser	SSHO, UXO Spec	USACE, St. Louis, MO	(314) 331-8268
_____	_____	_____	_____

D. OVERALL HAZARD EVALUATION (check one)

[ ] High [ ] Moderate [X] Low [ ] Unknown

This assessment was developed using the Site Investigation Hazard Analysis and Risk Assessment Code Matrix.

E. GENERAL PRECAUTIONS Prior to the on-site visit, all team members are required to read this SSHP and sign the form acknowledging that they have read and will comply with it. In addition, the SSHO shall hold a brief tailgate meeting in which site specific topics regarding the days activities will be discussed. If unanticipated hazardous conditions arise, team members are to

stop work, leave the immediate area and notify the SSHO. The buddy system will be enforced at all times.

F. STANDARD OPERATION SAFETY PROCEDURES, ENGINEERING CONTROLS AND WORK PRACTICES

1. **Site Rules/Prohibitions** At any sign of unanticipated hazardous conditions, stop tasks, leave the immediate area and notify the SSHO. Smoking, eating and drinking allowed in designated areas only.

2. **Material Handling Procedures** Do not handle.

3. **Drum Handling Procedures** Do not handle.

4. **Confined Space Entry** An area identified as a Permit Required Confined space will not be entered. All confined spaces shall be considered permit required confined spaces until the pre-entry procedures demonstrate otherwise. Confined spaces may be entered without a written permit or attendant provided the space is determined not to be a permit required confined space as specified in 29 CFR 1910.146.

5. **Electrical Protection** Overhead power lines, downed electrical wires and buried cables pose a danger of shock and electrocution. In addition, buildings may contain exposed wiring that may hold a potential load. Workers should avoid contact with any and all exposed wire and cables

6. **Spill Containment** N/A

7. **Excavation Safety** Do not enter trenches/excavations.

8. **Illumination** Site visits will be conducted during daylight hours only.

9. **Sanitation** Use existing sanitary facilities.

10. **Buddy System** Individuals will maintain constant contact with other personnel at all times. No one will work alone at any time during the site visit.

11. **Engineering Controls** N/A

12. **Insects** Wearing light colored clothing and tucking in the pant legs can reduce contact. In severely infested area it may be necessary to tape all openings. Apply repellents to both clothing and bare skin. Diethyltoluamide (DEET) is an active ingredient in many repellents, which is effective against ticks and other insects. Repellents containing DEET can be applied on exposed areas of skin and clothing. However, repellents containing

permethrin should be used on only clothing. For more information on insect bites, refer to Appendix B.

13. Poisonous Vegetation Recognition and avoidance is the best protection. Cover all exposed skin. If it is known or suspected that an individual has been exposed, wash the effected area with soapy water.

14. Inclement Weather When there are warnings or indications of impending severe weather (heavy rains, strong winds, lightning, tornados, etc.), weather conditions shall be monitored and appropriate precautions taken to protect personnel and property from the effects of the severe weather.

15. Hot Weather In hot environments, cool drinking water shall be made available and workers shall be encouraged to frequently drink small amounts, e.g., one cup every 15 - 20 minutes; the water shall be kept reasonably cool. In those situations where heat stress may impact worker safety and health, work regimens shall be established. Environmental monitoring of the Wet Bulb Globe Temperature Index shall be conducted and work loads and work regimens categorized as specified in the American Conference of Governmental Industrial Hygienist (ACGIH) publication "Threshold Limit Values and Biological Exposure Indices". For more information on Heat Stress refer to Appendix A of this SSHP.

16. Cold Weather Cold injury (frost bite and hypothermia) and impaired ability to work are dangers at low temperatures and when the wind-chill factor is low. To guard against them; wear appropriate clothing; have warm shelter readily available; carefully schedule work and rest periods, and monitor workers' physical conditions.

17. Off-Road Driving Ensure all emergency equipment is available with the vehicle i.e. tire changing equipment. Drivers shall familiarize themselves with the procedures for engaging four-wheel drive systems before the need for added traction arises. Vehicles will not be driven into an environment that is unknown, such as deep water, or an unstable surface. Vehicles will not be driven into a suspected ordnance impact area.

18. Ordnance

a. General Information

(1) The cardinal principle to be observed involving explosives, ammunition, severe fire hazards or toxic materials is to limit the exposure to a minimum number of personnel, for the minimum amount of time, to a minimum amount of hazardous material consistent with a safe and efficient operation.

(2) The age or condition of an ordnance item does not decrease the effectiveness. Ordnance that has been exposed to the elements for extended

periods of time become more sensitive to shock, movement, and friction, because the stability agent in the explosives may be degraded.

(3) When chemical agents may be present, further precautions are necessary. If the munitions item has green markings leave the area immediately, since it may contain a chemical filler.

(4) Consider ordnance that has been exposed to fire as extremely hazardous. Chemical and physical changes may have occurred to the contents which render it more sensitive than it was in its original state.

b. On-Site Instructions

(1) DO NOT TOUCH or MOVE any ordnance items regardless of the markings or apparent condition.

(2) DO NOT conduct a site visit during an electrical storm or an approaching electrical storm. If a storm approaches during the site visit leave the site immediately and seek shelter.

(3) DO NOT use a radio or cellular phone in the vicinity of a suspect ordnance item.

(4) DO NOT walk across an area where the ground cannot be seen.

(5) DO NOT drive a vehicle into a suspected OE area; use clearly marked lanes.

(6) DO NOT carry matches, cigarettes, lighters or other flame producing devices into a OE site.

(7) DO NOT rely on color code for positive identification of ordnance items or their contents.

(8) Approach ordnance items from the side; avoid approaching from the front or rear.

(9) Always assume ordnance items contain a live charge until it can be determined otherwise.

(10) Dead vegetation and animals may indicate potential chemical contamination. If a suspect area is encountered, personnel should leave the immediate area and evaluate the situation before continuing the site visit.

c. Specific Action Upon Locating Ordnance

(1) DO NOT touch, move or jar any ordnance item, regardless of its apparent condition.

(2) DO NOT be misled by markings on the ordnance item stating "practice", "dummy", or "inert". Practice munitions may contain an explosive charge used for spotting the point of impact. The item may also be mismarked.

(3) DO NOT roll the item over or scrape the item to read the markings.

(4) The location of any ordnance items found during site investigations should be clearly marked so it can be easily located and avoided.

(5) Reporting will be conducted in accordance with CELMS-PM-M, Standard Operating procedure for Reporting Ordnance and Unexploded Ordnance (UXO), dated 19 January 1995.

19. Other (specify)

_____

G. SITE CONTROL AND COMMUNICATIONS

1. Site Map Map will be maintained by the PM or Safety Officer.

2. Site Work Zones N/A

3. Buddy System Individuals will maintain constant contact with other personnel at all times. No one will work alone at any time during the site visit.

4. Communications

a. On-Site Verbal communications will be used among team members.

b. Off-Site Communications shall be established on every site. Communications may be established by using an cellular phone or by public or private phone which may be readily accessible. (specify below)

[X] Cellular phone

[ ] Public/private phone (location_____

[ ] Other _____

c. Emergency Signals In the case of small groups, a verbal signal for emergencies will suffice. An emergency signal for large groups (i.e. air horn, whistle) should be incorporated at the discretion of the SSHO. (specify below)

[X] Verbal

[ ] Nonverbal (specify)_____

H. EMERGENCY RESPONSE Team members are to be alert to the dangers associated with the site at all times. If an unanticipated hazardous condition arises, stop work, evacuate the immediate area and notify the SSHO. A First Aid Kit and emergency eye wash (if applicable) will be located in the SSHO's field vehicle. If qualified persons (i.e. fire department, medical facility or physician) are not accessible within five minutes of the site at least two team members shall be qualified to administer first aid and CPR.

1. Emergency/Important Telephone Numbers

Emergency	911
Military Police	on post - 24456
Brooklyn Police, 62nd Precinct	(718) 236-2611
Hospital	(718) 567-1234
63rd Ord Bn (EOD)	(609) 562-5940
725th Ord Co (EOD)	(315) 532-3538
Huntsville Safety Office	(205) 895-1582/1579
Huntsville Safety (after hours)	(205) 895-1180
On-site cellular phone	(314) 606-4960
St. Louis Corps of Engineers	(314) 331-8036

2. Hospital/Medical Facility Information

Name: Victory Memorial Hospital
Address 699 92nd St
Brooklyn, NY
Phone: (718) 567-1234

Distance to hospital: < 2 miles

Route to Hospital: refer to the site map included with this SSHP.

I. MONITORING EQUIPMENT AND PROCEDURES

1. Exposure Monitoring For non-intrusive on-site activities such as site visits, air monitoring is typically not required. However, if the site situation dictates the need for monitoring, complete the following information on a separate page and attach the page to the SSHP.

a. Monitoring Equipment To Be Utilized N/A

b. Equipment Calibration Results N/A

c. Action Levels N/A

2. Heat/ Cold Stress Monitoring

a. Heat Stress monitoring criteria published in Chapter 8 of the NIOSH/OSHA/USCG/EPA "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities"shall be followed.

b. Cold Stress monitoring shall be conducted in accordance with the most current published American Conference of Governmental Industrial Hygienists (ACGIH) cold stress standard.

J. PERSONAL PROTECTIVE EQUIPMENT Typically, for non-intrusive site visits, Level D is required. If a higher level of protection is to be used initially or as contingency, a brief discussion will be attached. At a minimum personnel shall wear clothing suitable for the weather and work condition. The minimum for field work shall be short sleeve shirt, long trousers, and leather or other protective work shoes or boots. If a higher level of protection is to be used initially or as contingency, a brief discussion will be attached.

1. Footwear Footwear providing protection against puncture shall meet the applicable requirements as stated in EM 385-1-1, paragraph 05.A.08. All activities which personnel are potentially exposed to foot hazards will be identified and documented in a hazard analysis.

2. Hand Protection Persons involved in activities which subject the hands to injury (e.g., cuts, abrasions, punctures, burns) shall use leather gloves.

3. Head Protection Hardhats shall be worn when personnel are subject to potential head injury. The identification and analysis of head hazards will be documented in a hazard analysis.

4. Eye Protection Personnel will wear eye protection when activities present potential injuries to the eyes. All eye protection equipment shall meet the requirements as stated in EM

385-1-1, paragraph 05.B.

K. DECONTAMINATION PROCEDURES Decontamination procedures are not anticipated for this site investigation. Team members are cautioned not to walk, kneel or sit on any surface with potential leaks, spills or contamination.

L. TRAINING All site personnel shall have completed the training required by EM 385-1-1 and 29 CFR 1910.120 (e). The U.S. Army Corps of Engineer (USACE) Project Manager shall ensure, and the SSHO shall verify, that all on-site personnel have completed appropriate training. Additionally, the SSHO shall inform personnel before entering, of any potential site-specific hazards and procedures.

M. MEDICAL SURVEILLANCE PROGRAM The USACE Project Manager shall ensure, and the SSHO shall verify, that all on-site personnel are on the Medical Surveillance Program meeting the requirements of 29 CFR 1910.120, and ANZI Z-88.2, as appropriate, depending on the PPE and site specific tasks.

Provide the following information on Training and Medical

NAME	HAZWOPER	PROVIDER DATE	MEDICAL DATE
Rochelle Ross	1-98	Corps of Engineers	1-98
Randy Fraser	1-98	Corps of Engineers	4-97

N. LOGS, REPORTS AND RECORDKEEPING Site logs are maintained by the Project Manager and SSHO. This is to include historical data, personnel authorized to visit the site, all records, standard operating procedures, air monitoring logs and the SSHP.

O. GENERAL The number of personnel visiting the site shall be a limited to a minimum of two, maximum of eight. The more personnel on-site, the greater potential for an accident. The SSHO may modify this SSHP if site conditions warrant it and without risking the safety and health of the team members. This modification will be coordinated with the team members. The SSHO shall notify Corps of Engineers Safety Office in Huntsville, AL. of the change as the situation allows.

APPENDIX A

HEAT- RELATED INJURIES

Once the signals of a heat-related illness begin to appear, the victim's condition can quickly get worse. A heat related illness can result in death. If you see any of the signals of sudden illness, and the victim has been exposed to extremes of heat, suspect a heat-related illness.

People at risk for heat-related illness include those who work or exercise outdoors, elderly people, young children, and people with health problems. Also at risk are those who have had a heat-related illness in the past, those with medical conditions that cause poor blood circulation, and those who take medications to get rid of water from the body (diuretics).

People usually try to get out of extreme heat before they begin to feel ill. However, some people do not or can not. Those that work outdoors often keep working even after they begin to feel ill. Many times, they might not even recognize that they are in danger of becoming ill.

Heat cramps, heat exhaustion, and heat stroke are conditions caused by overexposure to heat. You can help prevent heat-stress emergencies by recognizing and properly treating symptoms. Below is a quick reference guide to heat-related emergencies:

HEAT CRAMPS Heat cramps are the least severe, and often are the first signals that the body is having trouble with the heat. *Symptoms* include: Muscle twitching; painful spasms in the legs, arms or abdomen.

WHAT TO DO:

- Have the individual rest in a cool place.
- Give cool water or a commercial sports drink.
- lightly stretch the muscle and gently massage the area.

HEAT EXHAUSTION Heat exhaustion is a more severe condition than heat cramps. *Symptoms* include: cool, moist, pale, or flushed skin, headache, nausea, dizziness, weakness, and exhaustion.

HEAT STROKE Heat stroke is the least common but most severe heat emergency. It most often occurs when people ignore the signals of heat exhaustion. Heat stroke develops when the body systems are overwhelmed by heat and begin to stop functioning. **Heat stroke is a serious medical emergency.** *Symptoms* include: red, hot, dry skin; changes in consciousness; rapid, weak pulse; and rapid, shallow breathing.

WHAT TO DO: When you recognize a heat-related illness in its early stages, you can usually reverse it.

- Get the victim out of the heat.

• Loosen any tight clothing and apply cool, wet cloths, such as towels or sheets.

• If the victim is conscious, give cool water to drink. Do not let the conscious victim drink too quickly. Give about 1 glass (4 ounces) of water every 15 minutes.

• Let the victim rest in a comfortable position, and watch carefully for changes in his or her condition. The victim should not resume normal activities the same day.

• **Refusing water, vomiting, and changes in consciousness mean that the victim's condition is getting worse. Call for an ambulance immediately if you have not already done so.**

• If the victim vomits, stop giving fluids and position them on their side.

• Watch for signals of breathing problems.

• Keep the victim lying down and continue to cool the body any way you can. If you have ice packs or cold packs, place them on each of the victim's wrists and ankles, on the groin, in each armpit, and on the neck to cool the large blood vessels.

APPENDIX B

BITES AND STINGS

Scorpions, Bees and Spiders

Bee stings are painful, but rarely fatal. Some people, however have a severe allergic reaction to an insect sting. This allergic reaction may result in a breathing emergency. If someone is stung by an insect, remove the stinger. Scrape it away with from the skin with your fingernail or plastic car, such as a credit card, or use tweezers. If you use the tweezers, grasp the stinger, not the venom sac. Wash the site with soap and water. Cover it to keep it clean. Apply a cold pack to the area to reduce the pain and swelling. Watch the victim for signals of an allergic reaction.

Scorpions live in dry regions of the southwestern United States and Mexico. They live under rocks, logs, and the bark of certain trees and are most active at night. Only a few species of scorpions have a sting that can cause death.

Spiders; there are also only two spiders in the United States whose bite can make you seriously sick or be fatal. These are the black widow spider and the brown recluse. The black widow is black with a reddish hourglass shape on the underside of its body. The brown recluse is light brown with a darker brown, violin-shaped marking on the top of its body. Both spiders prefer dark, out of the way places. Often, the victim will not know that he or she has been bitten until he or she starts to feel ill or notices a bite mark or swelling.

Symptoms: include nausea and vomiting, difficulty breathing or swallowing, sweating and salivating much more than normal, severe pain in the sting or bite area, a mark indicating a possible bite or sting, and swelling of the area.

First Aid: if someone has been stung by a scorpion or bitten by a spider he or she thinks is a black widow or brown recluse, wash the wound, apply a cold pack to the site, and get medical help immediately.

Ticks - Lyme Disease

Transmission:

Lyme Disease (LD) is most commonly transmitted by a tick bite (usually painless). The tick vectors include Ixodes scapularis (Deer Tick), Ixodes dammini (Deer tick), Amblyomme americanum (Lone Star Tick) and Ixodes pacificus. Ixodes dammini was thought to be the only species responsible for transmission until it was shown to be the same as Ixodes scapularis in 1993. The ticks prefer to live in wooded areas, low growing grassland, seashores and yards.

Depending on the location, anywhere from less than 1% to more than 90% of the ticks are infected with spirochetes.

The Deer tick has a 2 year life cycle and must feed 3 times. In the larvae stage, it is tan, the size of a pin head and feeds on small animals like the mouse where it can pick up the spirochete. During the nymph stage the tick is the size of a poppy seed, beige or partially transparent and feeds on larger animals such as cats, dogs and humans. The adult ticks are black and/or reddish and feed on cattle, deer, dogs and humans. The Lone Star tick is grey with a white dot. April through October is considered the "tick season" even though Lyme disease is a year round problem. Ticks are very active in the spring and early summer.

Location:

Cases of Lyme disease have been reported in virtually every state, although the Northeastern, Great Lakes, and Pacific Northwest areas are particularly endemic.

Symptoms:

Lyme disease is called the "Great Imitator" because it can mimic many other diseases, which makes diagnosis difficult. A rash can appear several days after infection, or not at all. It can last a few hours or up to several weeks. The rash can be very small or very large (up to twelve inches across). A "bulls-eye" rash is the hallmark of LD. It is a round ring with central clearing. Unfortunately, this is not the only rash associated with Lyme. Various other rashes associated with LD have been reported. One bite can cause multiple rashes. The rash can mimic such skin problems as hives, eczema, sunburn, poison ivy, flea bites, etc. The rash can itch or feel hot or may not be felt at all. The rash can disappear and return several weeks later. For those with dark skin the rash will look like a bruise. If you notice a rash, take a picture of it. Some physicians require evidence of a rash before prescribing treatment.

Early Symptoms: Several days or weeks after a bite from an infected tick, a patient usually experiences "flu-like" symptoms such as aches and pains in their muscles and joints, low grade fever, and/or fatigue.

Other Possible Symptoms -- No organ is spared:

- Jaw -- pain, difficulty chewing
- Bladder -- frequent or painful urination, repeated "urinary tract infection"
- Lung -- respiratory infection, cough, asthma, pneumonia
- Ear -- pain, hearing loss, ringing, sensitivity to noise
- Eyes -- pain due to inflammation, sensitivity to light, scleritis drooping of eyelid, conjunctivitis, blurring or double vision
- Throat -- sore throat, swollen glands, cough, hoarseness, difficulty swallowing
- Neurological -- headaches, facial paralysis, seizures, meningitis, stiffneck, burning, tingling, or

prickling sensations, loss of reflexes, loss of coordination, MS like syndrome
- Stomach --pain, diarrhea, nausea, vomiting, abdominal cramps, anorexia
- Heart -- weakness, dizziness, irregular heart-beat, myocarditis, pericarditis, palpitations, heart block, enlarged heart, fainting inflammation of muscle or membrane, shortness of breath, chest pain
- Joint -- arthralgias or arthritis, muscle inflammation and pain
- Other Organs -- liver infection, elevated liver enzymes, enlarged spleen, swollen testicles, irregular or ceased menses
- Neuropsychiatric -- mood swings, irritability, poor concentration, cognitive loss, memory loss, loss of appetite, mental deterioration, depression, disorientation, sleep disturbance
- Pregnancy -- miscarriage, premature birth, birth defects, stillbirth
- Skin -- single or multiple rash, hives

The above is a list of possible symptoms. They can occur in any combination. You may have one or several symptoms but not everyone will experience every symptom. Lyme affects each host in a different way. Having one or many of these symptoms does not indicate that you have Lyme disease. Diagnosis for Lyme is a clinical one and must be made by a physician experienced in recognizing LD. Serological testing is not reliable.

Lyme Disease Prevention:

- Dress properly, wear long-sleeved shirts that button at the wrist, long pants tucked into socks, and closed shoes. Choose light-colored fabric so you can spot and brush of ticks.

- Apply approved tick repellant and use only as directed. Products that contain DEET are tick repellents. They do not kill the tick and are not 100% effective in discouraging a tick from feeding on you. Products like Permanone contain premethrin and are known to kill ticks. However, they are not to be sprayed on the skin. Permanone can be sprayed on clothing. Once it is dry it is assumed to be safe. Ticks are anti-gravitational. They are generally seeking the highest point. If they get on your body below the clothes line, one hopes they will travel up and die once they come in contact with treated clothing.

- Always do regular tick checks when outdoors.

- Shower after all outdoor activities are over for the day. If the tick is still wandering it may wash off. Check all body parts that bend. Run fingers gently over skin. If there is a tick and it is attached, it will feel like the last piece of scab left before a cut completely heals. Remove ticks promptly and properly from yourself.

Proper Tick Removal:

Using fine-tipped tweezers, grasp tick close to the skin. Apply gentle, steady straight upward pressure to remove. Disinfect the bite site. Do not squeeze the body, apply Vaseline, use a burnt

match, or clean with alcohol while the tick is attached. Any of these actions could cause transmission of the bacteria. Save the tick for testing. Put it in a vial or ziplock bag with a blade of grass. Contact your doctor for further instructions.

The best defense against LD is education. Know your facts.

APPENDIX C

SSHP ACCEPTANCE FORM

ABBREVIATED SITE SAFETY AND HEALTH PLAN

FOR

FORT HAMILTON

BROOKLYN, NY

I have read and agree to abide by the contents of the Site Safety and Health Plan.

NAME	OFFICE	SIGNATURE	DATE
Rochelle Ross	USACE, St Louis	Rochelle Ross	1/8/98
Randy Fraser	USACE, St Louis	Randy Fraser	1/7/98

SITE SURVEY SAFETY BRIEFING

(Check subjects discussed)

Date 1/8/98

GENERAL INFORMATION

- X Purpose of Visit
- X Identify Key Site Personnel

SITE SPECIFIC INFORMATION

- X Site Description/Past Use
- X Results of Previous studies
- X Potential Site Hazards
- X OE Safety Procedures
- X Site SOP
- X Site Control and Communications
- X Emergency Response
  - (X) Location of First aid Kit
  - (X) Emergency Phone Numbers
  - (X) Map to Facility
- X PPE
- X Weather Precautions
  - ( ) Cold/Heat
  - ( ) Severe Weather

Safety Briefing Attendance

All team members and any accompanying personnel will be briefed and sign this form.

NAME (Print)	ORGANIZATION	SIGNATURE
Rochelle Ross	USACE-STL, CEMVS-ED-P	
Randy Fraser	USACE-STL, CEMVS-ED-P	



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RISK ASSESSMENT CODE MATRIX

Hazard Severity	Hazard Probability				
	A Frequent	B Probable	C Occasional	D Remote	E Improbable
I Catastrophic	1	1	2	3	5
II Critical	1	2	3	4	5
III Marginal	2	3	4	5	5
IV Negligible	3	4	5	5	5

Hazard Severity

Description	Category	Mishap Definition
Catastrophic	I	Death or permanent total disability.
Critical	II	Permanent partial disability or temporary total disability in excess of (3) months.
Marginal	III	Minor injury, lost workday accident, or compensable injury or illness.
Negligible	IV	First aid or minor supportive medical treatment.

Hazard Probability

Description	Level	Event
Frequent	A	Likely to occur frequently during the project.
Probable	B	Will occur several times during the project.
Occasional	C	Likely to occur sometime during the project.
Remote	D	Unlikely, but possible to occur during the project.
Improbable	E	So unlikely it can be assumed occurrence may not be experienced during the project.

Risk Assessment Code	Hazard Evaluation
1,2	High
3	Moderate
4,5	Low

Site Investigation Hazard Analysis for Fort Hamilton

Activity: Site Investigation **Analyzed by/Date:** Randy Fraser 1-07-98 **Reviewed by/Date:** Gregg Kocher 1-07-98

Operation	**Hazard** Potential Energy	**Cause** Stimuli	**Effect** Mishaps Results	**RAC** without controls	**Countermeasures** Hazard Controls	**RAC** with controls
Site investigation	Explosives unexploded ordnance	detonation	puncture wounds, amputation, death	I, D, 3	do not touch or disturb, avoidance	I, E, 5
	slippery, uneven surface	slip, trips and falls	sprains, strains fractures	III, C, 4	attentiveness, avoidance, approved footwear	III, D, 5
	sharp pointed objects	punctures	foot injury	III, C, 4	approved footwear	III, E, 5
	branches	contact	eye injuries	II, C, 3	eye protection	II, D, 4
	poisonous reptiles	bites	sickness, death	III, D, 5	avoidance	III, E, 5
	animals	bites	punctures, lacerations, rabies	III, D, 5	avoidance	III, E, 5
	insects	bites	sickness, discomfort	IV, C, 5	insect repellant, proper clothing	IV, D, 5
	poisonous vegetation	contact	rash	IV, C, 5	PPE, recognition, avoidance laundered work clothing.	IV, D, 5

Operation	**Hazard** Potential Energy	**Cause** Stimuli	**Effect** Mishaps Results	**RAC** without controls	**Countermeasures** Hazard Controls	**RAC** with controls
Site investigation continued	solar/heat	exposure	sun burn, heat exhaustion, heat stress, heat stroke	III, B, 3	long pants, long sleeve shirts, lotion, water consumption	IV, D, 5
	chemicals	physical contact, skin absorption, exhalation	skin rash, toxic effects	II, D, 4	recognition, avoidance, appropriate PPE	IV, E, 5

SITE INSPECTION REPORT

CEMVS-ED-P

MEMORANDUM FOR RECORD

SUBJECT: Fort Hamilton, New York, Site Inspection, 8-9 January 1998

1. Randy Fraser and I departed for Fort Hamilton Thursday, January 8, 1998. We arrived at Fort Hamilton in the afternoon. After checking in with Peter Koutroubis and Andy Rupert, we drove to the current ammunition magazine, Building 232. We then drove where the former batteries had been. Only a few guns exist. Housing is in the location of the former Batteries Mendenhall, Livingston, Doubleday, Neary, and Spear; tennis courts are in the location of Battery Gillmore; a childcare facility is in the location of Batteries Brown and Johnson; the location of Battery Burke is on FUDS property; and open land is in the location of Battery Griffin. Hamilton Manor Housing was constructed in the former location of the Redoubt. Building 301 occupies the location of Battery Piper. Ammunition Storage Buildings 71 and 611 no longer exist. Based on historical maps, it appears that the majority of "training field" in the southeastern portion of the installation is occupied by the VA Hospital (FUDS).

2. Per Peter and Andy, the VA Hospital was constructed in the early 1950's. The installation's current indoor range is located in Building 213. The indoor range in Building 402 is no longer in use.

3. No hazards were found. We departed Fort Hamilton on the 9th.

Rochelle Ross
Project Manager

APPENDIX H

ORDNANCE DATA SHEETS

ORDNANCE DATA SHEETS

Small Arms Ammunition
Cartridge, Practice, 37-mm, M55A1
Shell, 37-mm, Fixed, HE, M54
Shell, Fixed, 37-mm, Armor-Piercing, M80
Shell, Fixed, 37-mm, HE, Mk II
Cartridge, 37-mm, TP, M63 Mod I
Shell, 3-inch, HE, Mk IX
Shell, 3-inch, Shrapnel, Mk I
Shell, HE, 4.7-inch, M73
Projectile, 6-inch, AP, Mk 35
Projectile, 6-inch, HC, Mk 34
Projectile, 6-inch, Special Common, Mk 27
Projectile, 10-inch Seacoast Gun, AP Shot
Projectile, 12-inch, AP, Mk 18 Mod 1
Projectile, 12-inch, AP, Mk 15 Mod 6
Mortar, 12-inch Seacoast
B.M. Smoke Candle
Candles
Grenade, Smoke, WP, M15
Grenade, Hand, Tear, CN, M7 and M7A1
Grenade, Hand, Irritant, CN-DM, M6
Grenade, Gas, CN, M5 and
Grenade, Rifle, CN, M2
Time Fuses (Civil War)
Smoothbore Projectiles
Heavy Artillery Projectiles of the Civil War 1861-1865
Fuze, Bomb, Nose, AN-M110A1

Small Arms Ammunition

SMALL-ARMS AMMUNITION

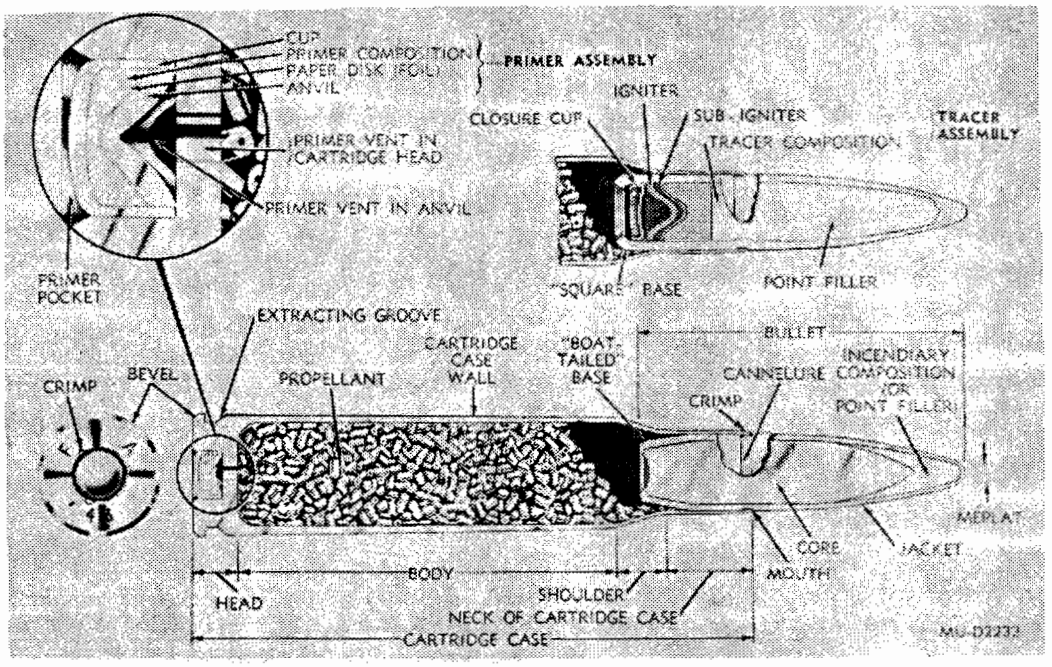


Figure 1. Typical cartridge (sectional)

1. General Small-arms ammunition, as used herein, describes a cartridge or families of cartridges intended for use in various types of hand-held or mounted weapons through 30 millimeter. Within a caliber designation, these weapons may include one or more of the following: rifles (except recoilless), carbines, pistols, revolvers, machineguns and shotguns. For purposes of this publication, small-arms ammunition may be grouped as cartridges intended primarily for combat or training purposes (API, HEI, tracer or ball); for training purposes only (blank or dummy); or for special purposes (rifle grenade or spotter-tracer). Refer to TM 9-1306-200 for more detailed information on small-arms ammunition.

2. Cartridges In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank and rifle grenade cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges. A typical cartridge and the terminology of its components are shown in figure 1.

a. Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 percent copper and 30 percent zinc, is the most commonly used material for cartridge cases. Steel, as well as brass, is an approved material for caliber .45 cartridge cases. Brass, paper and plastic are used for 12 gage shotshell bodies and aluminum is used for military-type .410 gage shotshell bodies. Configurations of cartridges and bullets are illustrated in figures 2 through 11.

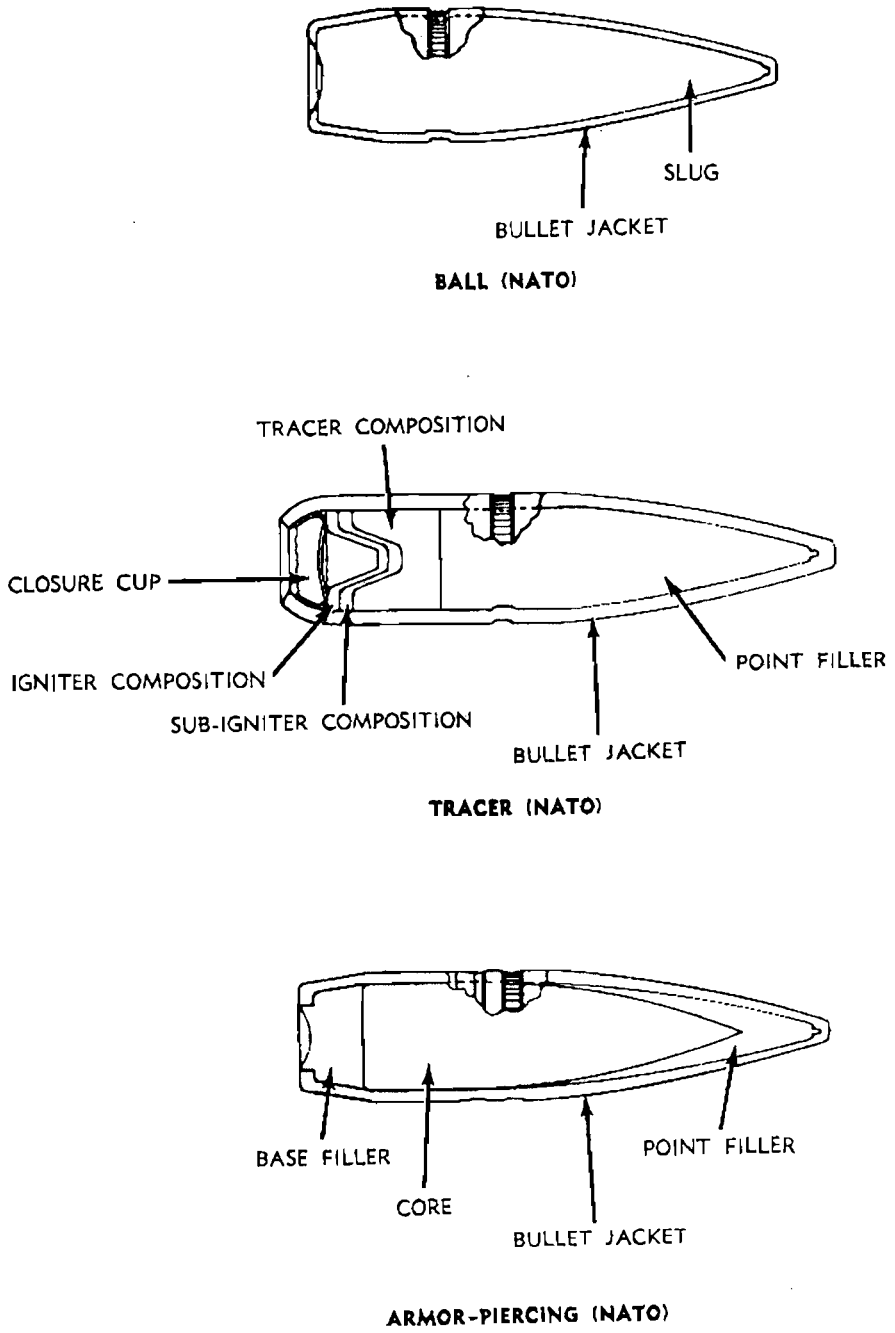
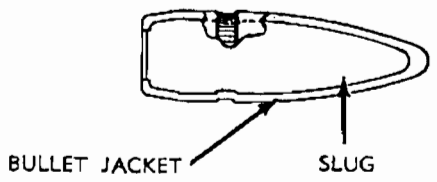
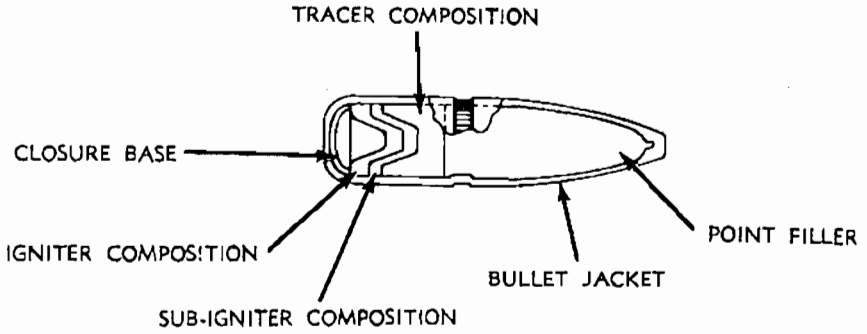


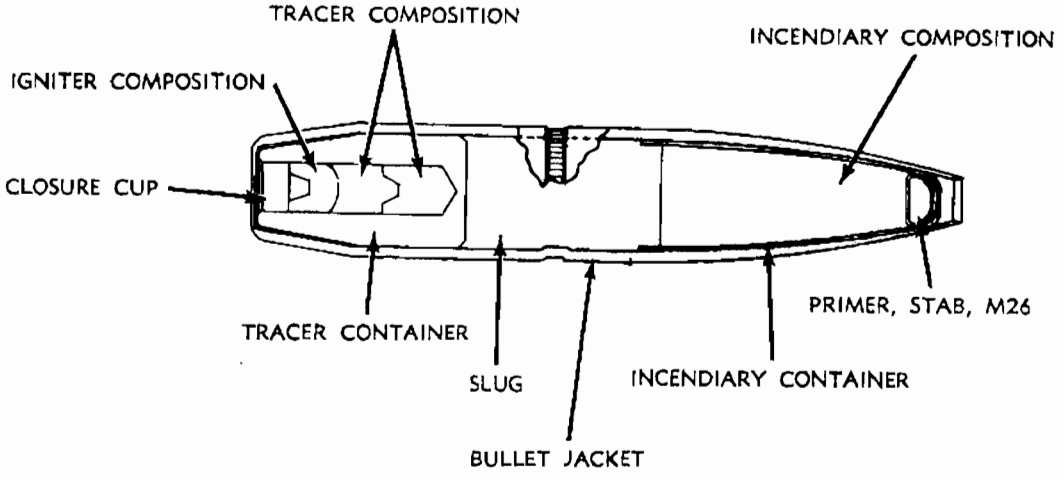
Figure 2. 7.62 MM bullets (sectional)



5.56 MM BALL



5.56 MM TRACER



CALIBER .50, SPOTTER TRACER

MU-D 2234

Figure 3. 5.56MM and caliber .50 spotter tracer bullets (sectioned).

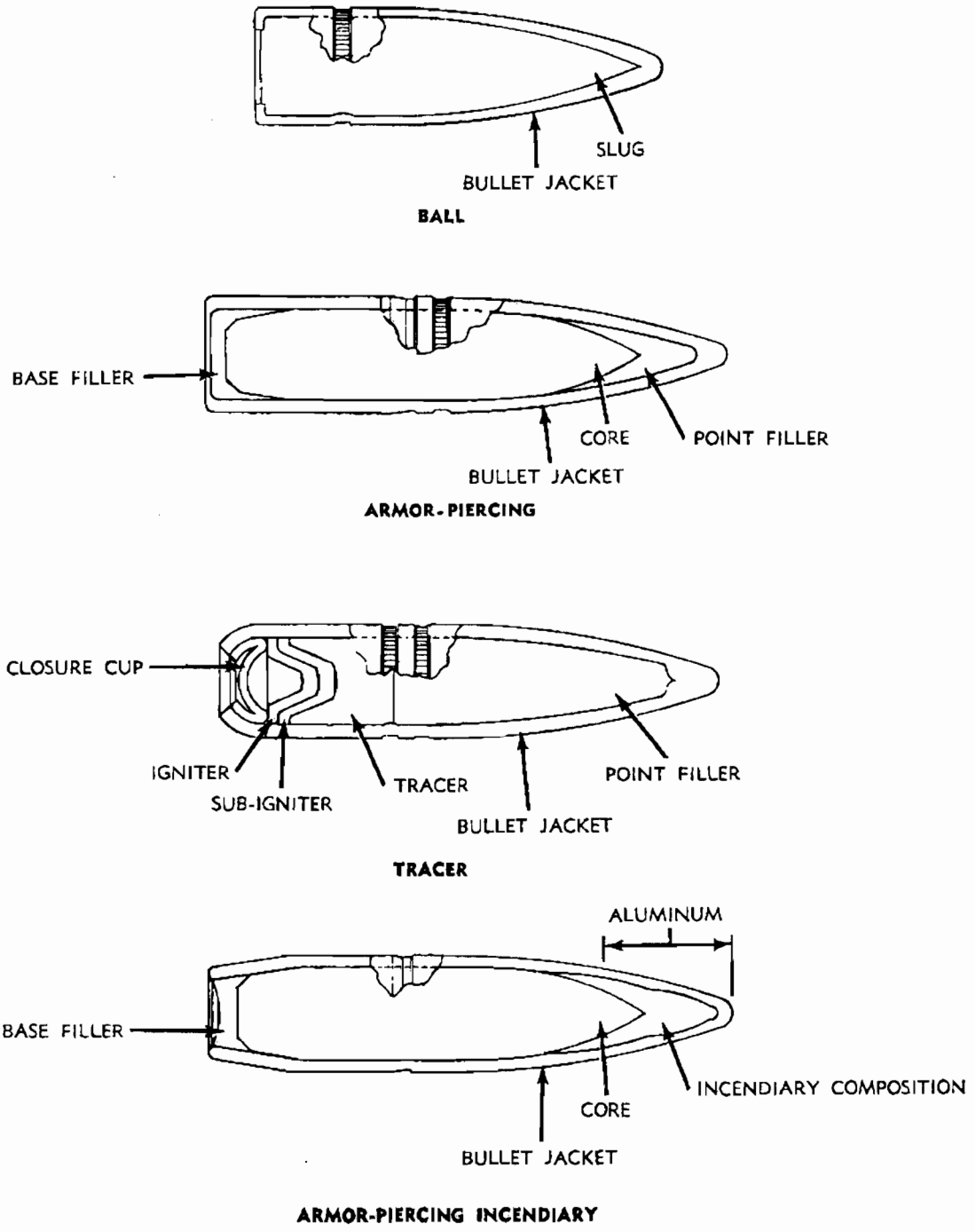
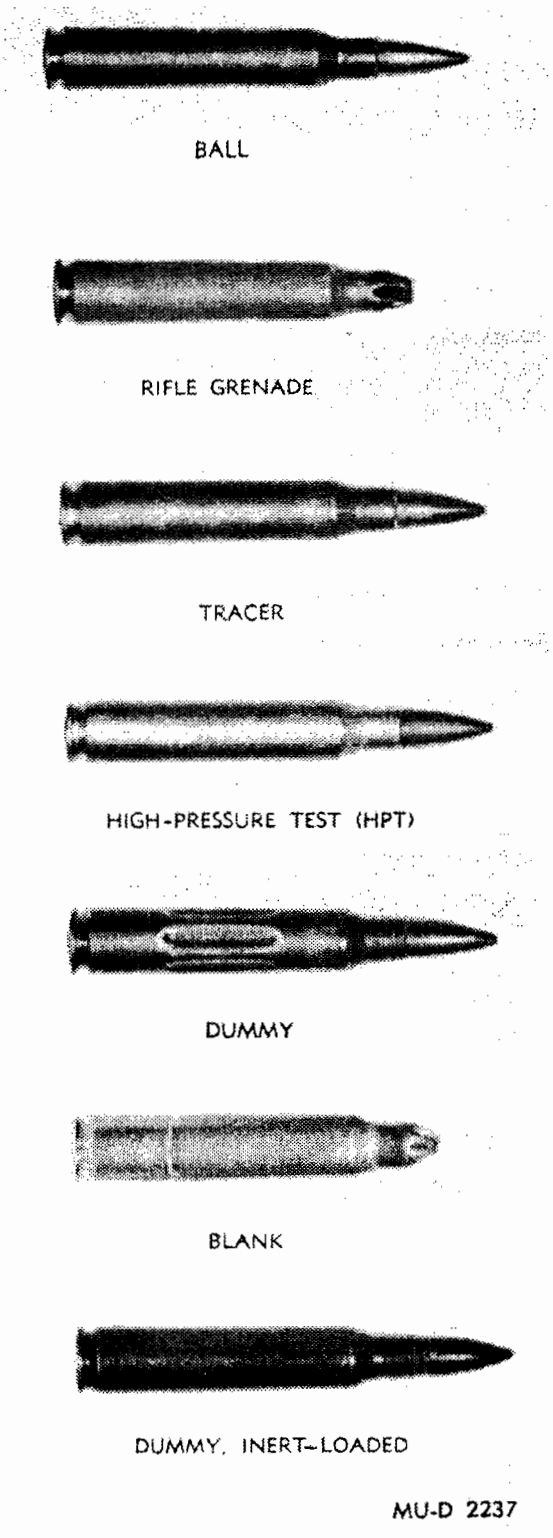


Figure 4. Caliber .30 bullets (sectional).



b. Propellant Cartridges are loaded with varying weights of propellant. This is to impart sufficient velocity (within safe pressures) to the projectile to obtain the required ballistic performance. These propellants are either of the singlebase (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

c. Primer Small-arms cartridges contain either a percussion or electric primer. The percussion primer consists of a brass or gilding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil. The electric primer consists of an electrode button in contact with the priming composition, a primer cup assembly and insulator. A blow from the firing pin of the weapon on the center of the percussion primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. The function of the electric primer is accomplished by a firing pin with electrical potential, which contacts the electrode button. This allows current to flow through the energy-sensitive priming composition to the grounded primer cup and cartridge case, exploding the priming composition. Holes or vents in the anvil or closure cup allow the flame to pass through the primer vent in the cartridge case and ignite the propellant. Rimfire ammunition, such as the caliber .22 cartridge, does not contain a primer assembly. Instead, the primer composition is spun into the rim of the cartridge case and the propellant is in intimate contact with the composition. On firing, the firing pin strikes the rim of the cartridge case, compressing the primer composition and initiating its explosion.

d. Bullet With few exceptions, bullets through caliber .50 are assemblies of a jacket and a lead or steel core. They may contain other components or

Figure 6. 5.56MM cartridges

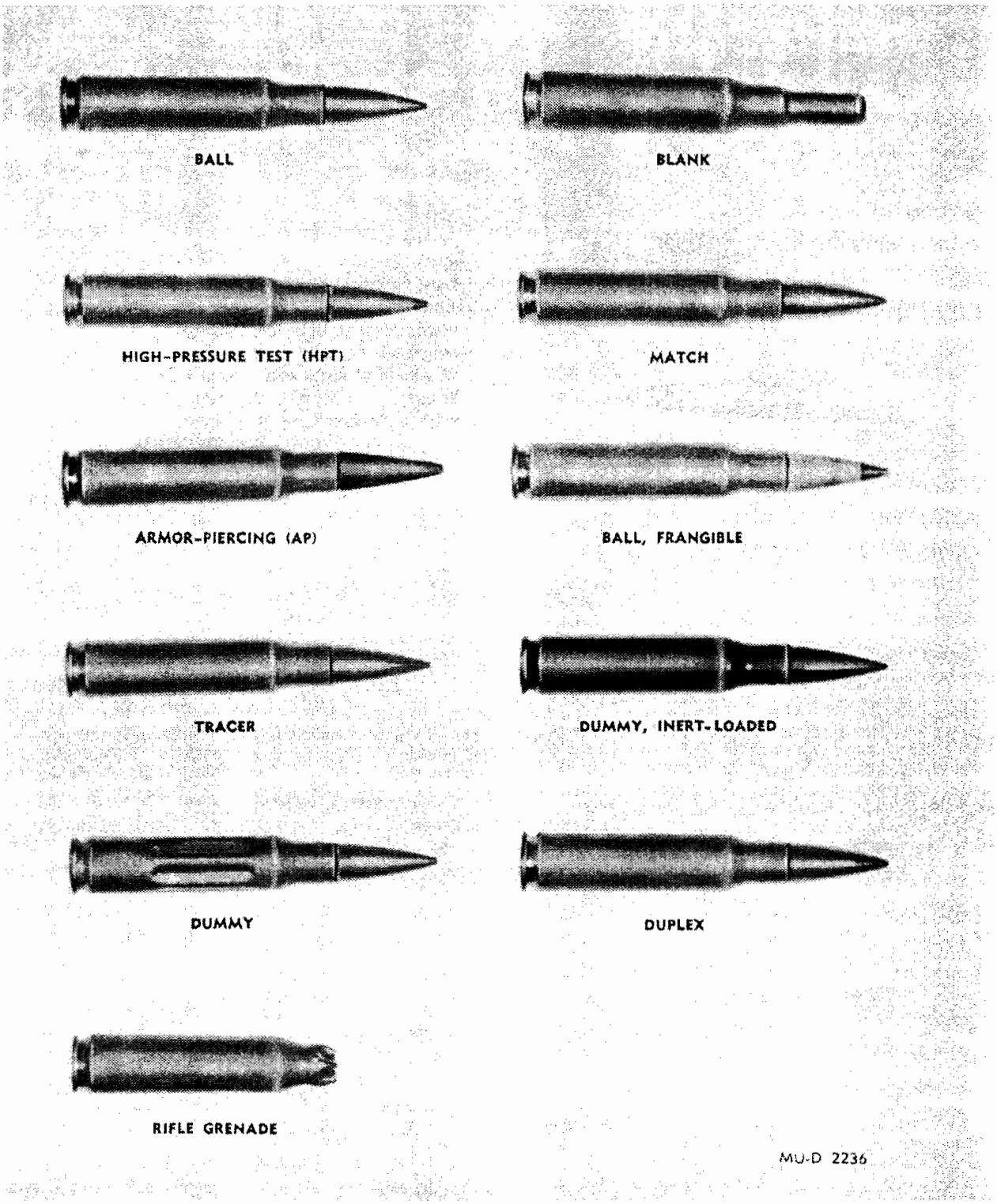


Figure 5. 7.62MM cartridges

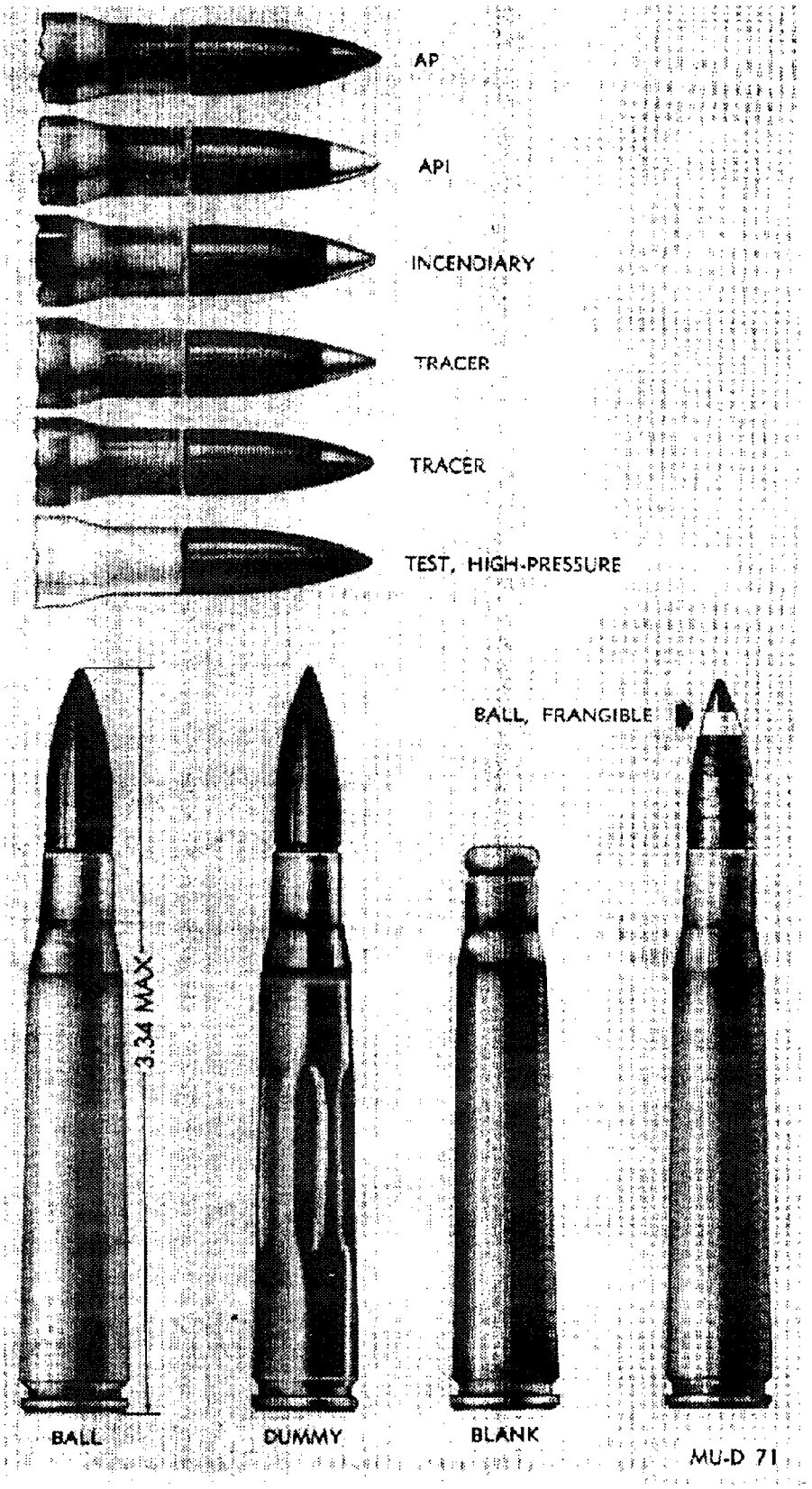


Figure 7. Caliber .30 cartridges.

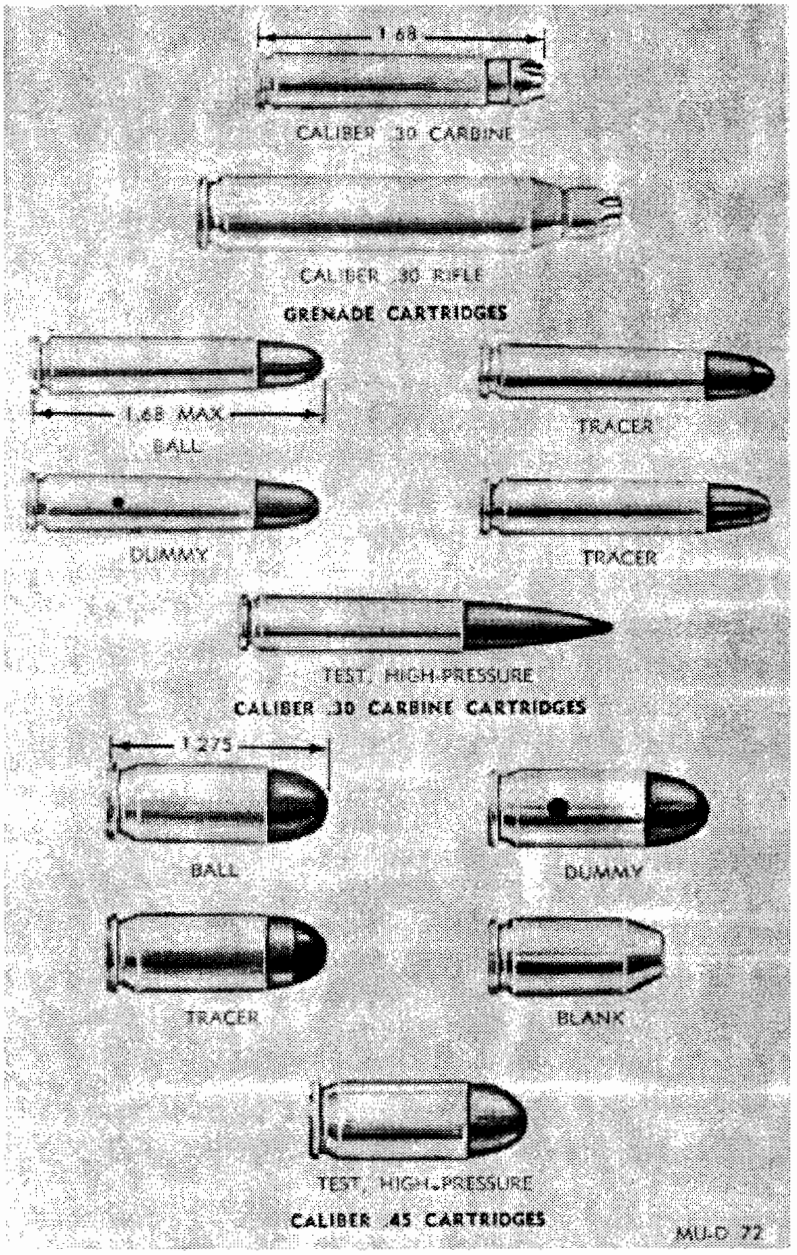


Figure 8. Caliber .30 carbine and caliber .45 cartridges

chemicals which provide the terminal ballistic characteristics of the bullet type. The bullet jacket may be either gilding metal, gilding-metal clad steel, or copper plated steel. Caliber .30 and 7.62-mm frangible bullets are molded of powdered lead and a friable plastic which pulverizes into dust upon impact with the target.

The pellets used in shotgun shells are spheres of lead alloys varying from 0.08 inch to 0.33 inch in diameter.

e. Projectile All 20-mm and 30-mm projectiles are assemblies of a steel shell containing a brass rotating band and a point-detonating nose fuze or an aluminum, steel or plastic nose plug.

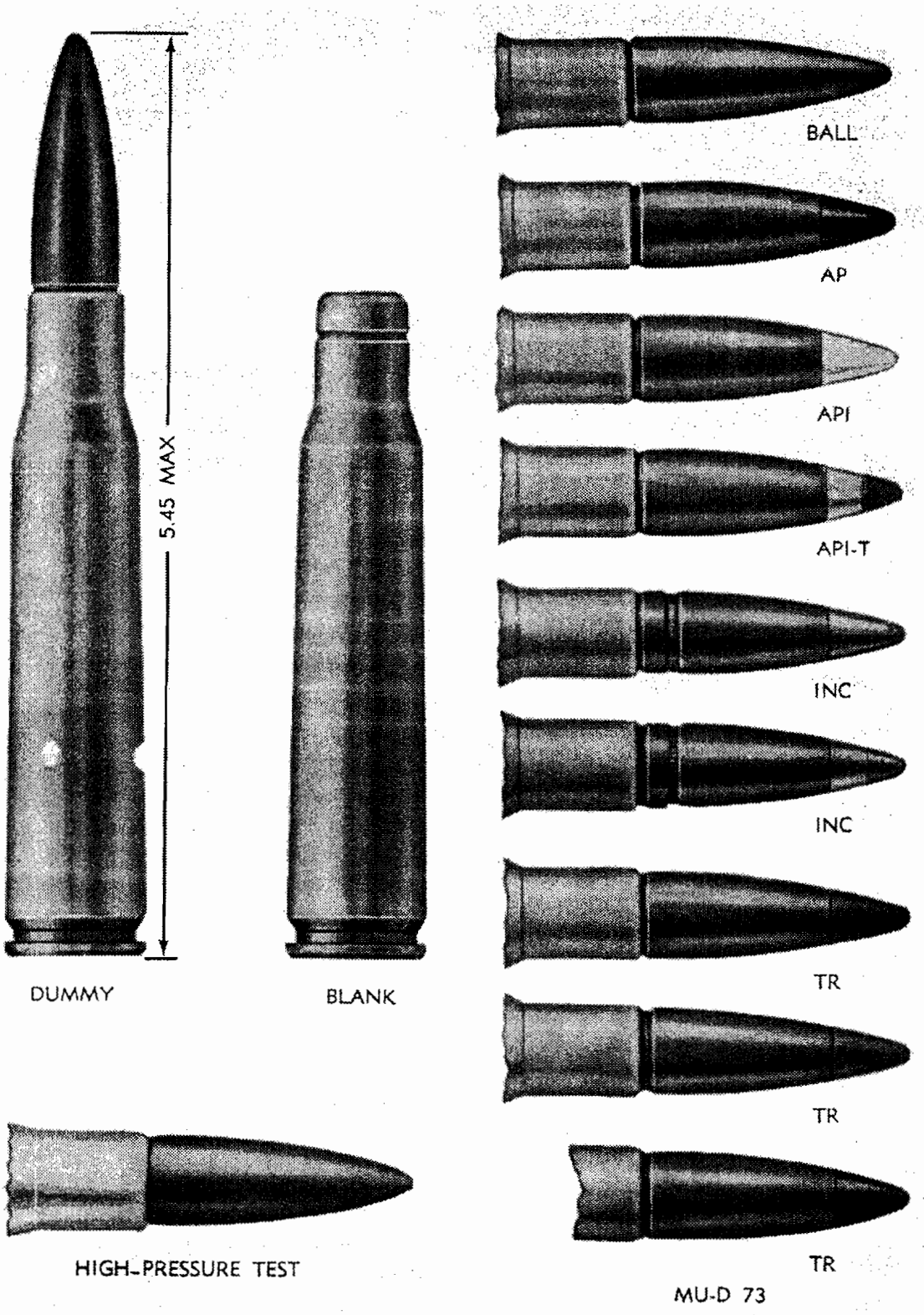


Figure 9. Caliber .50 cartridges

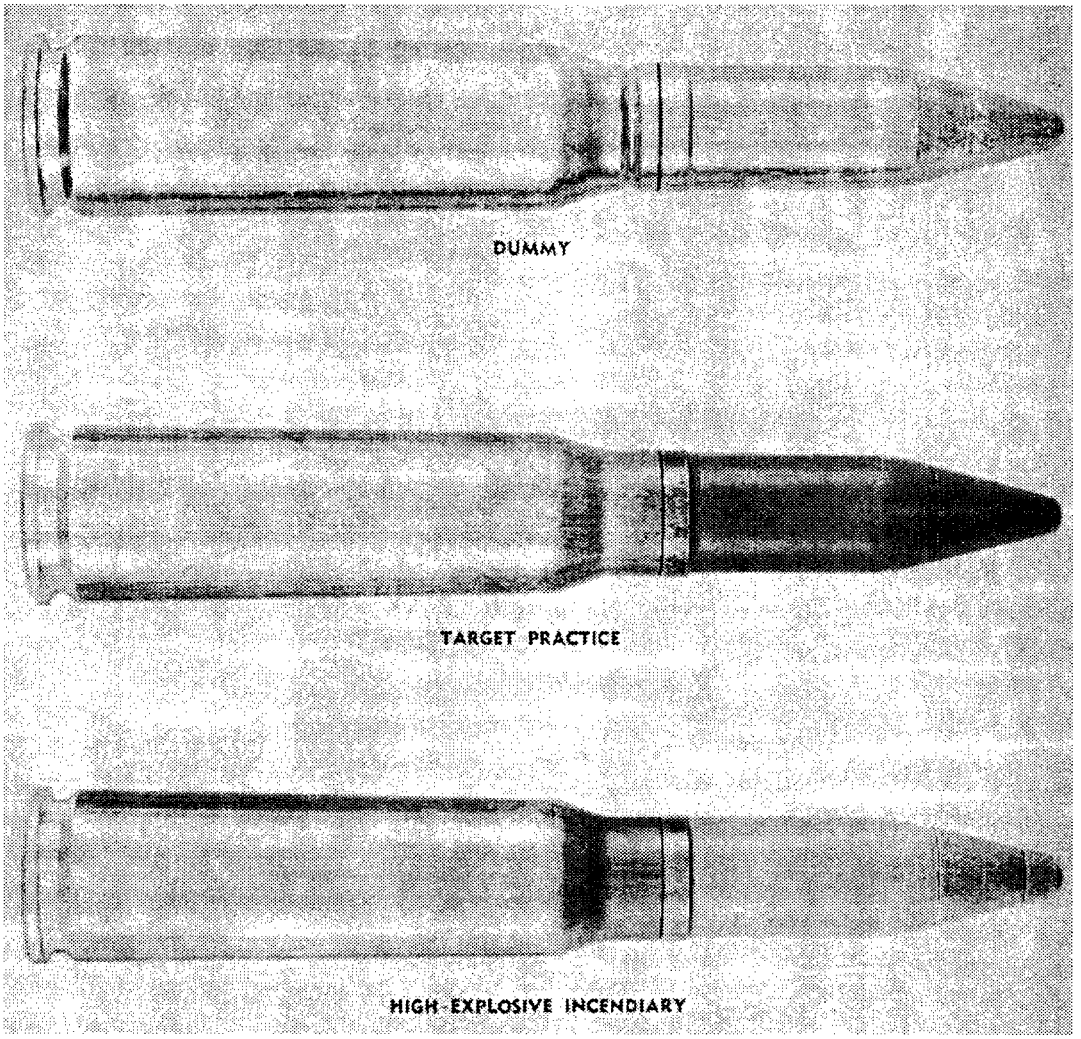


Figure 10. 20MM cartridges

3. Ball Cartridge The ball cartridge is intended for use in rifles, carbines, pistols, revolvers and/or machineguns against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug. Caliber .60 ball bullet and 7.62-mm, Ball M59 bullet contain soft steel cores.

4. Tracer Cartridge By means of a trail of flame and smoke, the tracer cartridge is intended to permit visible observation of the bullet's in-flight path or trajectory and the point of impact. It is used primarily to observe the line of fire. It may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes. The tracer element consists of a compressed, flammable, pyrotechnic composition in the base of the bullet. This composition is ignited by the propellant when the cartridge is fired. In flight, the bullet emits a bright flame which is visible to the gunner. Trace burnout occurs at a range between 400 and 1,600 yards, depending upon the caliber of ammunition.

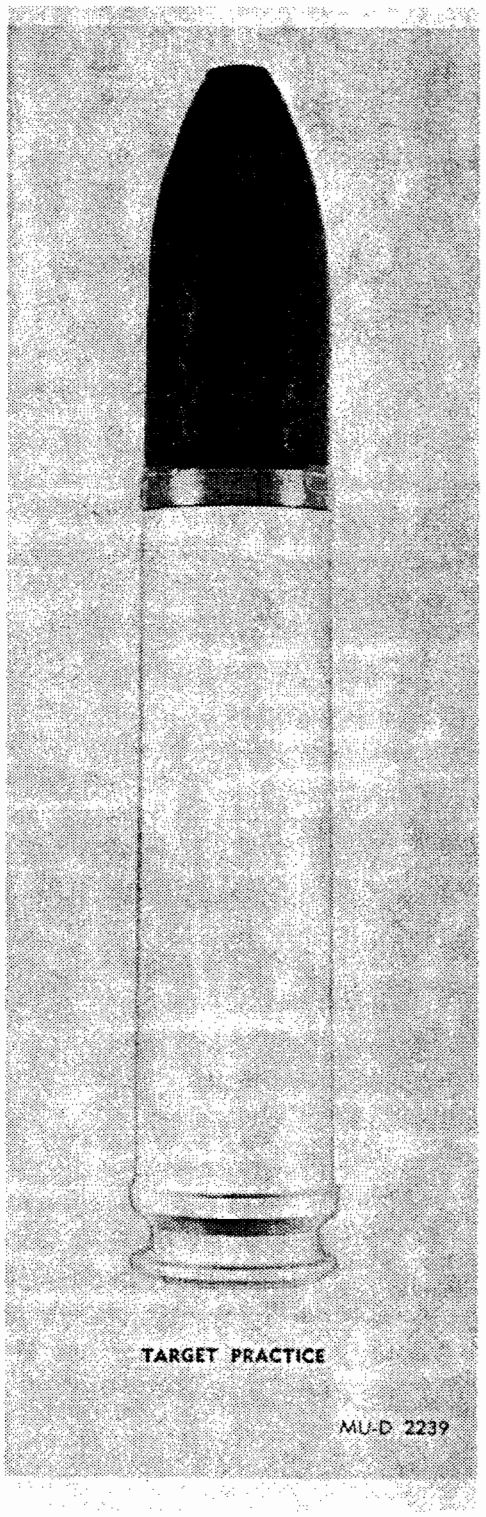


Figure 11. Typical 30mm cartridge.

5. Match Cartridge The match cartridge is used in National and International Match Shooting competitions. The bullet consists of a gliding-metal jacket over a lead slug. The cartridges are identified on the head face with the designation NM (National Match) or Match.

6. Armor-Piercing Cartridges The armor-piercing cartridge is intended for use in machine-guns or rifles against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resisting targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a base filler and/or a point filler of lead.

7. Armor-Piercing-Incendiary Cartridge The armor-piercing-incendiary cartridge is used in rifles or machineguns as a single combination cartridge in lieu of separate armor-piercing and incendiary cartridges. The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. Upon impact with the target, the incendiary mixture burst into flame and ignites flammable material.

8. Armor-Piercing-Incendiary Tracer Cartridge The bullet of the armor-piercing- incendiary-tracer cartridge combines the features of the armor-piercing, incendiary, and tracer bullets and may be used to replace those cartridges. The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core. The core is covered by a gilding-metal jacket with incendiary mixture between the core point and jacket. This cartridge is for use in caliber .50 weapons only.

9. Duplex Cartridge The duplex cartridge contains two special ball type bullets in tandem. The front bullet is positioned partially in the case neck, similarly to a standard ball bullet. The rear bullet, positioned completely within the case, is held in position by a compressed propellant charge. The base of the rear bullet is angled so that in flight, it follows a path slightly dispersed from that of the front bullet.

10. Spotter-Tracer Cartridge The spotter-tracer cartridge is intended for use in coaxially mounted caliber .50 spotting rifles. The bullet trajectory closely approximates that of 106-mm projectiles. Thus, this cartridge serves as a fire control device to verify weapon sight settings before firing 106-mm weapons. The bullet contains an impact detonator and incendiary composition which identify the point of impact by flash and smoke.

11. Blank Cartridge The blank cartridge is distinguished by absence of a bullet. It is used for simulated fire, in training maneuvers, and for saluting purposes. It is fired in rifles and machineguns equipped with blank firing attachments.

12. Grenade Cartridge The grenade cartridge is used to propel rifle grenades and ground signals from launchers attached to rifles or carbines. All rifle grenade cartridges are distinguished by the rose petal (rosette crimp) closure of the case mouth.

13. Frangible Cartridge The caliber .30 frangible cartridge, designed for aerial target training purposes, is also used in rifles and machineguns for target shooting. Caliber .30 and 7.62mm frangible cartridges are used in tank machineguns, firing single shot, for training in tank gunnery. At its normal velocity, the bullet, which is composed of powdered lead and friable plastic, will completely disintegrate upon striking a 3/16-inch aluminum alloy plate at 100 yards from the muzzle of the gun. These cartridges are not to be used on any but well ventilated indoor ranges to preclude buildup of toxic bullet dust. Inhalation of bullet dust may be injurious to health.

14. Incendiary Cartridge The incendiary cartridge was designed for aircraft and ground weapon use to ignite combustible targets (e.g., vehicular and aircraft fuel tanks). The bullet contains a compressed incendiary mixture which ignites upon impact with the target. The incendiary cartridge has been superseded by the API and APIT cartridges because of their improved terminal ballistic effects

15. High-Explosive-Incendiary Cartridge The 20-mm high-explosive-incendiary cartridge is a combat round used on aircraft and ground vehicles. It contains a projectile consisting of a steel body and point-detonating fuze. The steel body contains a high-explosive incendiary mixture which is detonated on impact as the fuze strikes the target. The fuze, a high-precision device, arms shortly after leaving the muzzle of the weapon. On impact, the fuze releases a small firing pin which sets off the charge in the fuze and detonates the HEI.

16. Target-Practice Tracer Cartridge The 20-mm target-practice-tracer cartridge contains a target-practice projectile with a tracer cavity. The cavity, filled with pyrotechnic composition, is in the rear of the body. This cartridge is generally linked with the target-practice cartridge in a ratio of 1 to 7.

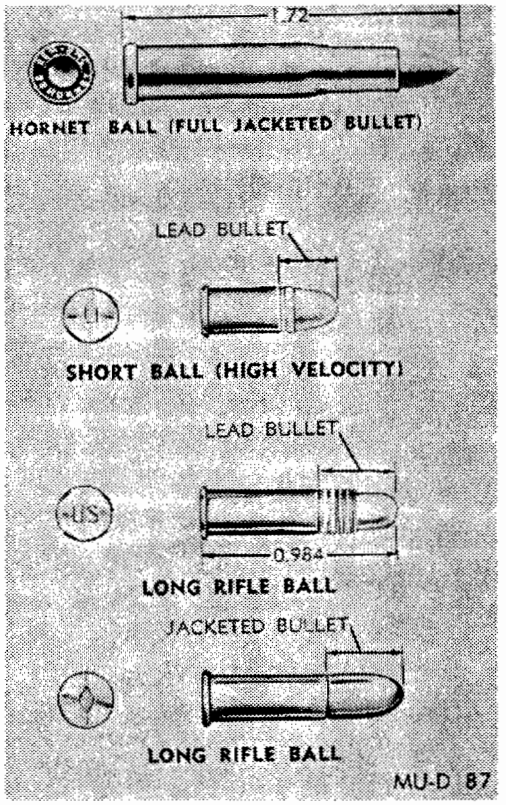


Figure 12. Caliber .22 cartridges.

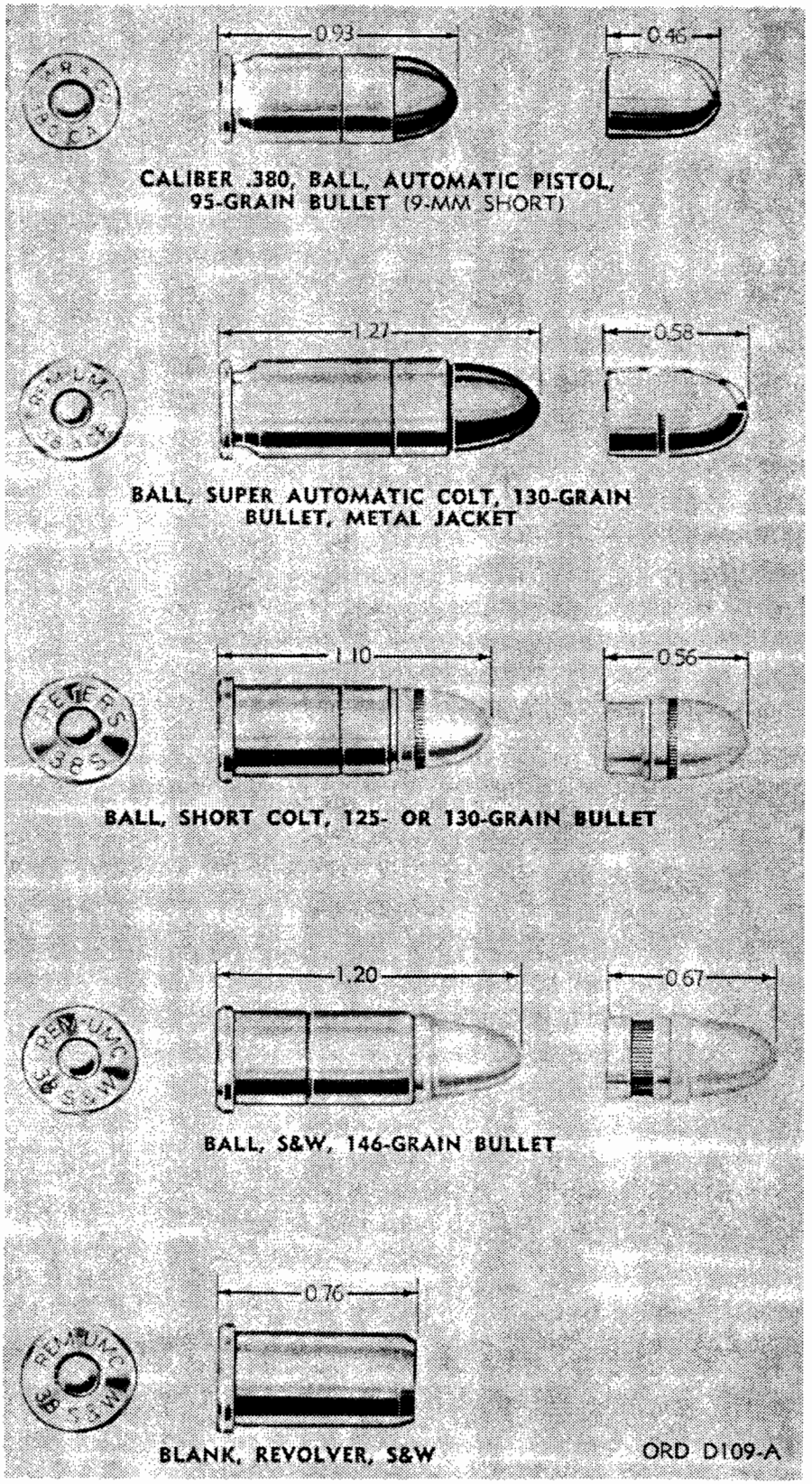


Figure 13. Caliber .38 cartridges.

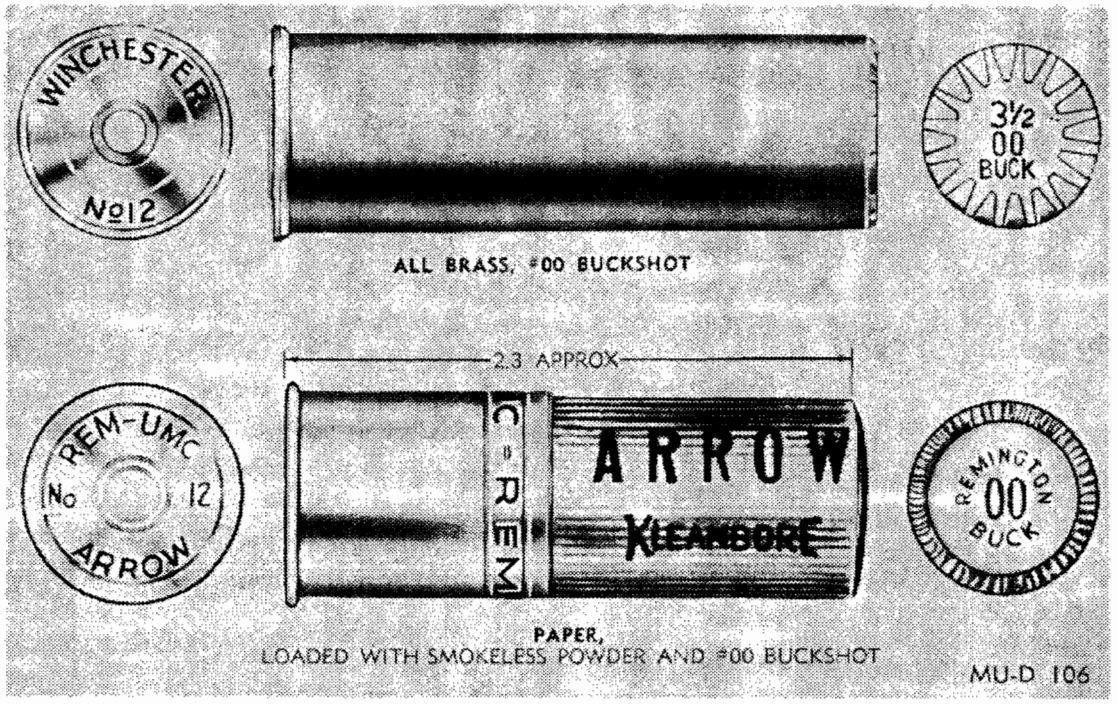


Figure 14. 12 gage shotgun shells.

17. Target-Practice Cartridge The 20-mm target-practice cartridge is the conventional steel shell with steel nose plug. It is used primarily for training purposes. This is not a combat cartridge; hence, no fuze is used in the assembly.

18. Special Purpose Cartridge

a. Cartridges of various calibers (fig. 12 through 14), which consist of different types of projectiles and bullets, are used for training and special purposes. They include the following:

(1) Caliber .22 long rifle and caliber .38 and .45 wad-cutter cartridge for target shooting.

(2) Caliber .45 blank cartridges fired in exercises to condition dogs to gun fire.

(3) Caliber .22 hornet and .410 shotgun cartridges for firing in Air Force combination (survival) weapons for hunting purposes.

(4) Caliber.45 line-throwing cartridges for firing in caliber .45 line-throwing rifles. The Navy uses these for throwing lines from ship- to-ship. The Army Signal Corps uses these for projecting signal wires over elevated terrain

(5) Shotshells containing the designated shot sizes as required for the following:

(a) 12 gage #00 Buck for guard duty

(b) 12 gage #4 Buck for guerrilla purposes.

(c) 12 gage #6, 7½ and 8 shot for clay target shooting for training purposes.

(d) .410 gage #7 shot for caliber .22/.410 survival weapons maintained by aircraft.

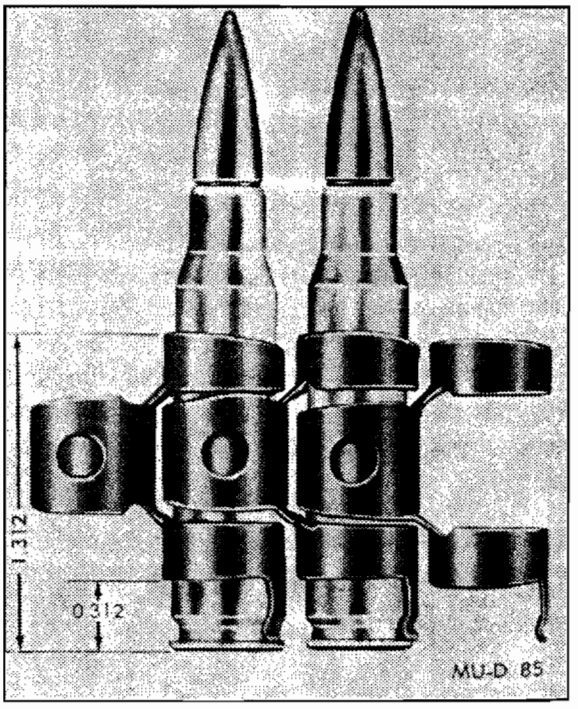


Figure 15. Linked 7.62-mm cartridges.

b. Special purpose cartridges also include the following types of military cartridges:

(1) Dummy. The dummy cartridge is used for practice in loading weapons and simulated firing to detect flinching of personnel when firing weapons. It consists of a cartridge case and a ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.

(2) Dummy inert-loaded. This cartridge consists of a cartridge case, a ball bullet and inert granular material in the case simulating the weight and balance of a live cartridge. The exterior of the cartridge is identified by a black chemical finish and by the absence of a primer. This cartridge is used by installations for testing weapon function, linkage and feed chutes.

(3) High-pressure test. High-pressure test ammunition is specially loaded to produce pressures substantially in excess of the maximum average or individual pressures of the corresponding service cartridge. This cartridge is not for field issue. It is used only by armorers and weapons mechanics for proof firing of weapons (rifles, pistols, machine guns) at place of manufacture, test and repair. Because of excessive pressures developed by this type of ammunition, and the potential danger involved in firing, proofing of weapons is conducted only by authorized personnel from fixed and shielded rests by means of a lanyard or other remote control methods.

19. Metallic Links and Clips

a. *Metallic links* (fig. 15 and 16) are used with caliber .30, caliber .50, 5.56-mm, 7.62-mm and 20-mm cartridges in machine guns. The links are made of steel, surface treated for rust prevention. They are used to assemble cartridges into linked belts of 100 to 750 cartridges per belt. The links must meet specific test and dimension requirements to assure satisfactory ammunition feed and functioning in the machine gun under all training and combat service conditions.

b. Different configurations of cartridge clips permit unitized packages of ammunition. This facilitates transfer of cartridges to appropriate magazines for caliber .30, 7.62-mm and 5.56-mm rifles. The caliber .30 eight-round clip feeds eight cartridges as a unit into the receiver of the rifle.

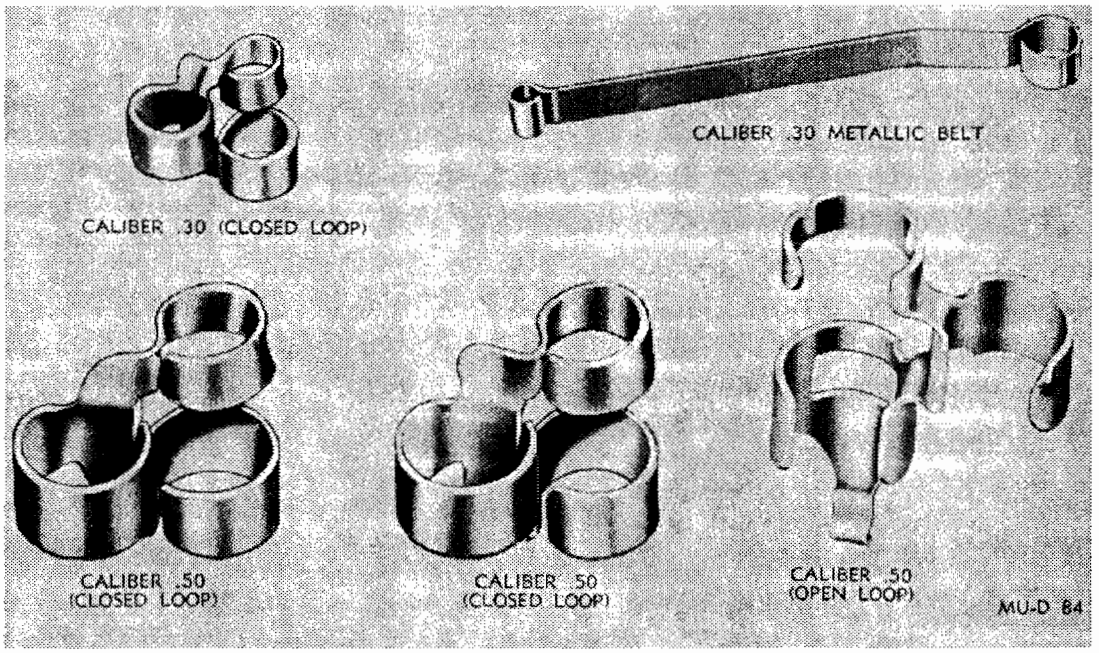


Figure 16. Links for caliber .30 and caliber .50 ammunition.

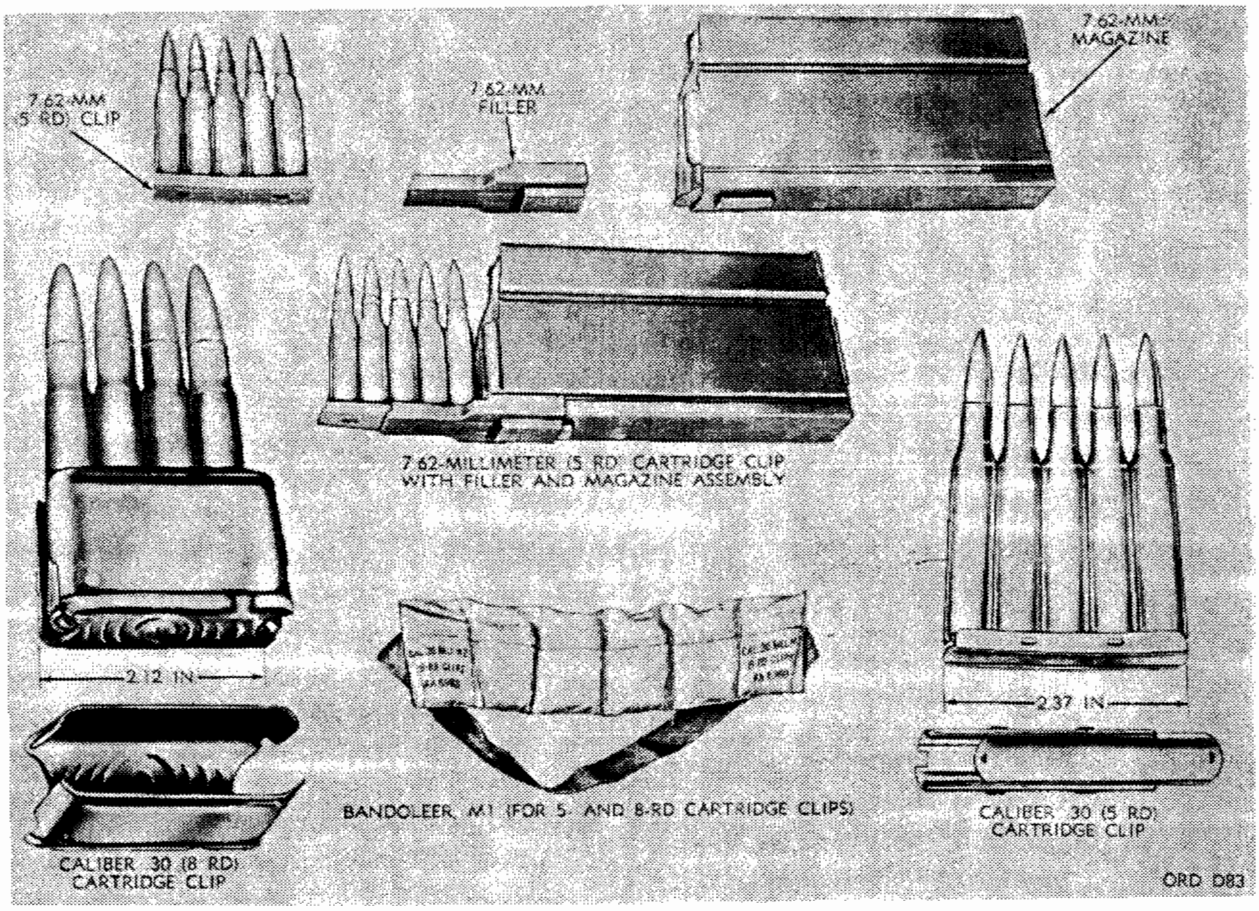


Figure 17. Cartridges in 20-round cartons in ammunition box.

The caliber .45 clip feeds three cartridges as a unit into the revolver cylinder. Five-round and eight- round clips are used with caliber .30 cartridges; five-round clips with 7.62-mm cartridges; ten- round clips with caliber .30 carbine and 5.56-mm cartridges; and three-round clips with caliber .45 cartridges.

20. Packing and Identification Marking

a. Packing Containers and methods for packing military small-arms ammunition are specified in drawings, specifications or, as required, in the procurement contract. Military containers presently being manufactured have been limited to a few standard types designed to withstand all conditions commonly encountered in handling, storage and transportation of ammunition. Military cartridges, except 20-mm, are packed in metallic ammunition boxes, over- packed in wooden wire-bound crates. Twenty millimeter cartridges are packed in ammunition boxes only. When commercial cartridges are not packed in a military pack, they are packed in accordance with standard commercial practices.

b. Identification Markings Each outer shipping container and all inner containers are fully marked to identify the ammunition. Wire- bound boxes are marked in black and ammunition boxes are painted olive drab, with markings in yellow. When linked ammunition is functionally packed, component lot numbers are replaced by a functional lot number. Typical packing and identification markings are illustrated in figures 17 and 18.

Cartridge, Practice, 37-mm, M55A1

CARTRIDGE, PRACTICE, 37-MM, M55A1

Complete round. This round was designed to simulate the M54, HE Shell for practice firing.

Cartridge cases. M1A1 gun, M17 is "Standard", M17B1 is "Substitute Standard". The Mk IIIA2 is "Standard" with the Mk IIIA2B1 being the "Substitute Standard"

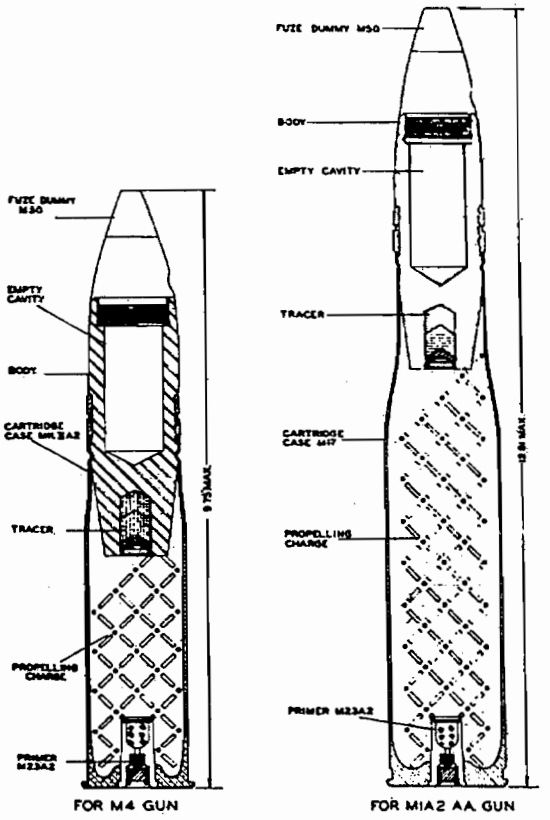
Primer. M23A2, 20-grain, Percussion Primer is "Standard" for both rounds. Some rounds maybe found with M23A1 primer.

Projectile. The projectile is of the same length, weight, and contour as the HE Shell M54. It is made of three parts.

The body has no filler, but is made to the same size and weight as the high-explosive M54. A tracer cavity is machined into the base. Of course, since no filler is used, the tracer does not have shell destroying qualities.

The tracer consists of red tracer cavity composition and igniting compound closed into the tracer cavity.

The Fuze, dummy, M50, is entirely inert and is made in one piece of cast aluminum. It is of the same size, shape, and weight as the M56 Fuze.



Identification The complete rounds can be identified for the M1A2, 37-mm Antiaircraft gun by its size and the extracting groove in the cartridge case. The complete round can be identified for he M4 (aircraft) gun by its shorter cartridge case (5.69 inches) with its extracting flange. Aside from the blue painting and white stenciling on the projectile, it may be distinguished as the Practice Round M55A1 by the Dummy Fuze M50. The complete round measures 12.81 inches in length and weighs 2.62 pounds

Length of complete round:
- M1A1 Gun ..... 12.81 in.
- M4 Gun ..... 9.75 in.

Weight:
- M1A1 Gun ..... 2.62 pound
- M4 Gun 1.94

Propellant weight:
- M1A1 Gun .....
- M4 Gun ..... 2.5 oz FNH

Fuze: ..... M50 Dummy Fuze

Color: ..... Blue with white markings

Reference: TM 9-1904, Ammunition Inspection Guide, March 1944

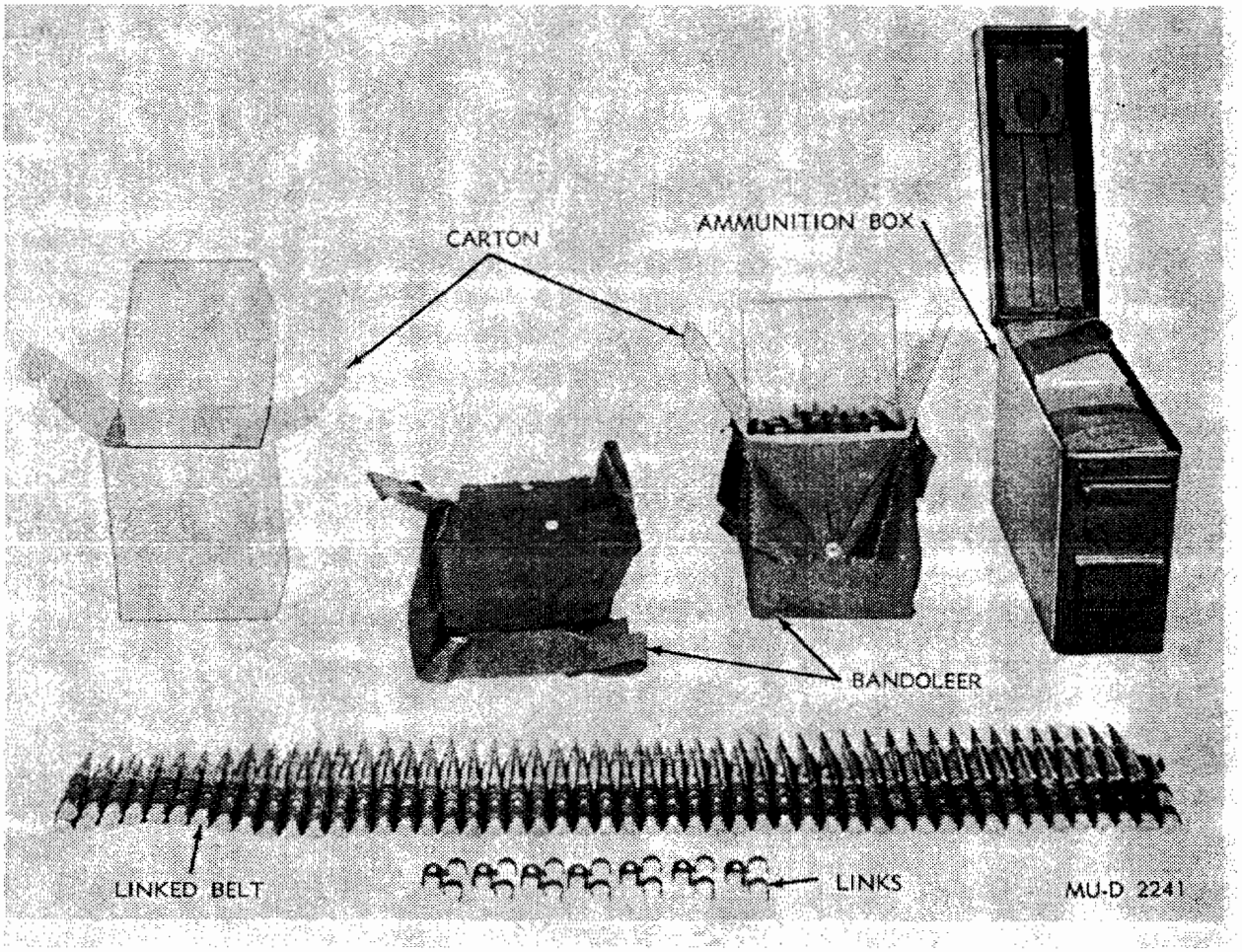


Figure 18. Cartridges, link belt, cartons, bandoleers and ammunition box.

21. Care, Handling and Preservation

Small-arms ammunition is comparatively safe to handle. It is packed to withstand transportation, handling and storage conditions normally encountered in the field. However, consideration should be given to general handling precautions pertaining to ammunition and explosives.

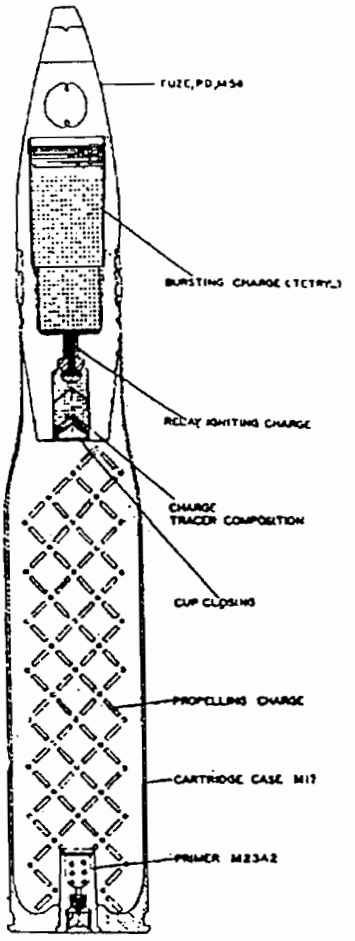
Reference: This data is a reprint of Chapter 3, TM 9-1300-200, Ammunition General, October 1969

Shell, 37-mm, Fixed, HE, M54

SHELL, 37-MM, FIXED, HE, M54

Use: M1A1 and later, the M1A2 gun, AN-M9 gun. The same shell and fuze also are used with the M10 aircraft gun with a different cartridge case, the Mk 3A2..

Description: The Cartridge Case M17 is made of cartridge brass. The Cartridge Case M17B1 is, "substitute standard", being made of steel and having a slightly thinner head and primer seat. The M23A2, 20-grain, Percussion Primer was "Standard" in 1944, some rounds may be primed with M23A1. The propelling charge consists of 6 ounces of FNH powder. The projectile as fired, weighs 1.34 pounds and is about 5.9 inches long. The projectile consists of three components: the body; the Point-detonating Fuze M56; and the shell destroying tracer. The body is machined from bar steel and is 4.13 inches long. The cavity of the shell destroying tracer is machined into the heavy base. The bursting charge of 0.10 pound of tetryl is pressed into the body in two increments: a base pellet and a main charge. The shell-destroying tracer assembly consists of a quantity of tracer composition, and ignition charge, a celluloid closing cup, a relay igniting charge and a relay pellet. When the tracer composition is almost completely burned, it initiates the relay igniter, which carries the flame to the relay pellet of black powder which than detonates the bursting charge. The M56 Fuze is a supersensitive, superquick point-detonating fuze which will detonate on a very slight impact. The complete round, M54, HE shell can be identified for the Antiaircraft Gun M1A2 by the extracting groove in the cartridge case. The presence of the M56 Fuze identifies the round an High-explosive. The M54 is painted olive drab and stencilled in yellow. The complete round is 12.81 inches long and weighs 2.62 pounds.



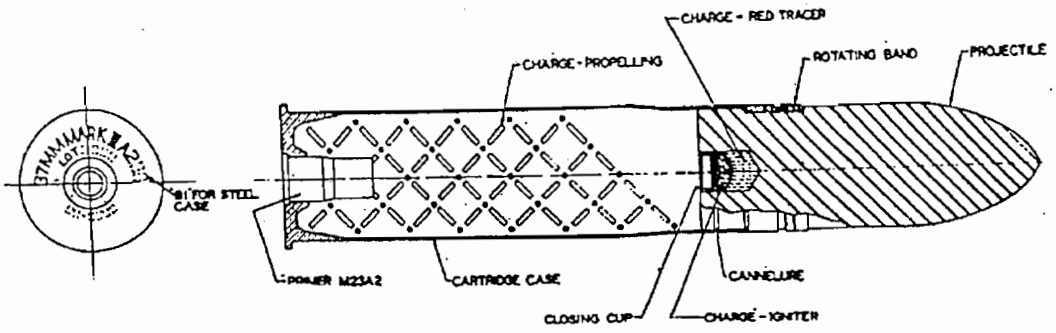
FOR AUTOMATIC GUN M1A2

Length, Projectile with Fuze: ..... 5.9 inches
Length, complete round: ..... 12.81 inches
Diameter: ..... 37 mm
Filler: ..... Tetryl
Weight of filler: ..... 0.10 pounds
Weight, complete round: ..... 2.62 pounds
Fuze: ..... M56 Point-detonating
Primer: ..... Percussion

Reference: TM 9-1904, Ammunition Inspection Guide, March 1944
TM 9-1901, Artillery Ammunition, September 1950

Shell, Fixed, 37-mm, Armor-Piercing, M80

SHELL, FIXED, 37-MM, ARMOR-PIERCING, M80



Complete round. As indicated by the nomenclature, this round does not include an armor-piercing cap.

Cartridge cases. M17 and M17B1 are "Standard" and "Substitute Standard" respectively.

Primer. M23A2, 20 grain, Percussion Primer is "Standard". Some rounds may contain M23A1 primer.

Propelling charge. 0.56 pound of FNH powder.

Projectile. The projectile is in the form of a solid steel slug. It has a comparatively blunt nose. A cavity is machined into the base for a tracer.

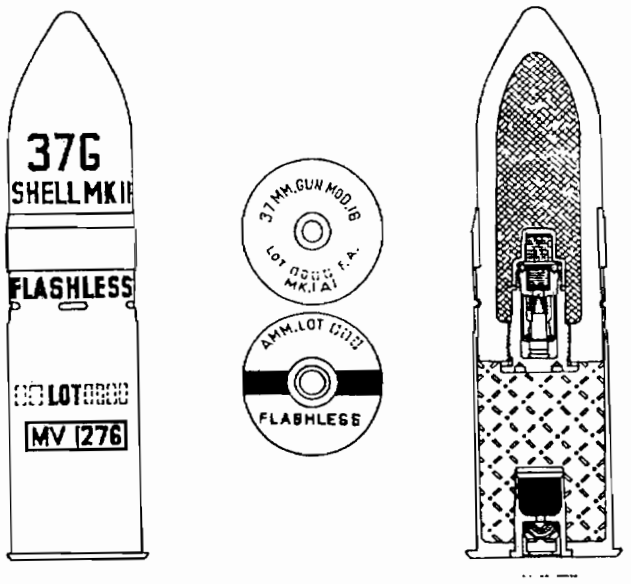
Identification. The Round M80 may be distinguished as 37-mm ammunition by its size, and for the aircraft group by the length and flange of its cartridge case. The projectile is painted black with white stencil

Projectile Length ..... 4.23 in.
Diameter ..... 2.35 in.
Length of complete round ..... 5.69 in.
Weight of complete round ..... 2.25 lb.
Color ..... Black with white markings

Reference: TM 9-1904, Ammunition Inspection Guide, March 1944
Department of Ordnance, Complete Round Chart, N0 5981, December 1940

Shell, Fixed, 37-mm, HE, Mk II

SHELL, FIXED, 37-MM, HE, MK II



Use: M1916 Gun

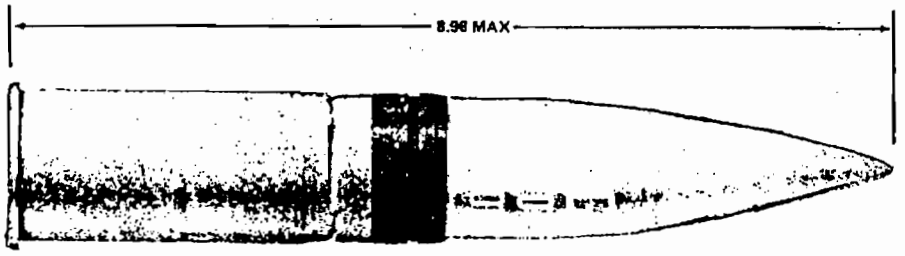
Description: The Mk II High-explosive Shell is standard for issue and manufacture although it is not widely used for infantry support. The Mk IA2 Cartridge Case with M23A2 Primer is standard for the high-explosive shell. However, older rounds may be found with the Mk IA2 or Mk IA1 Cartridge case and M23A1 Primers, or possibly with Mk I Cartridge Cases and M23A1 Primers. Approximately 550 grains of FNH powder is poured loosely into the cartridge case. The projectile is made of bar steel and has an explosive charge of 0.06 pounds of TNT. It is 4.45 inches long and has an ogive radius of 2.25 calibers. Since it is adapted for a base detonating fuze, the nose is continued to a rounded point. The total weight of the projectile with fuze and bursting charge is about 1 pound. The complete round is 6.92 inches long and weighs approximately 1.61 pounds The M38A1 Fuze is standard, replacing the M38, (modification to the detonator assembly) for the Mk II round. It is a typical nondelay fuze, being located in the base of the projectile and having no delay between the firing pin and the detonator. There is no positive separation between the detonating elements and the booster, so the fuze is not boresafe. On impact, the firing pin is carried forward by inertia and initiates the explosive train of detonator consisting of priming mixture, lead azide and tetryl. The projectile is painted olive drab and stenciled in yellow.

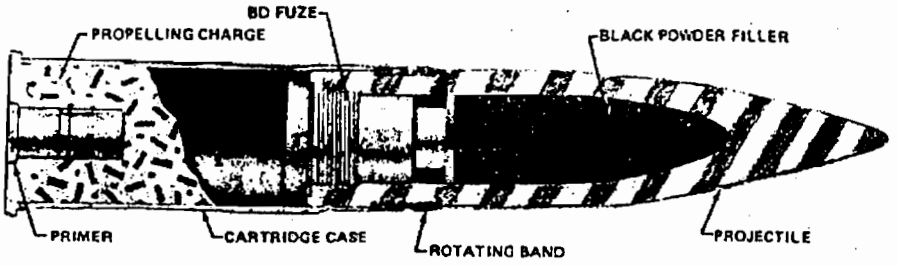
Length (projectile): ..... 4.45 inches
Over-all length w/cartridge case: ..... 6.92 inches
Diameter: ..... 2.25 caliber, 37 mm
Weight, complete round: ..... 1.61 pounds
Filler: ..... TNT
Fuze: M38, M38A1

Reference: TM 9-1904, Ammunition Inspection Guide, March 1944

Cartridge, 37-mm, TP, M63 Mod I

CARTRIDGE, 37-MM, TP, M63 MOD 1





Use: This target practice cartridge is used in subcaliber 37-mm guns fitted to larger weapons for practice firing training.

Description: The cartridge consists of a black powder filled steel projectile crimped to a steel cartridge case and fitted with a base-detonating practice fuze. A rotating band encircles the projectile near the base. The cartridge case is loosely filled with propellant and is fitted with a percussion primer.

Weight	2.01 pound
Length	8.98 inch
Filler	Black Powder
Filler weight	0.084 pound
Cartridge case	MK1A2, MK1A2B1
Propellant	M2, 0.56 pound
Color	Blue with white markings (brown band for later manufacture)

Reference: TM 43-0001-28, Army Ammunition Data Sheets Artillery Ammunition, April 1977

Shell, 3-inch, HE, Mk IX

SHELL, 3-Inch, HE, MK IX

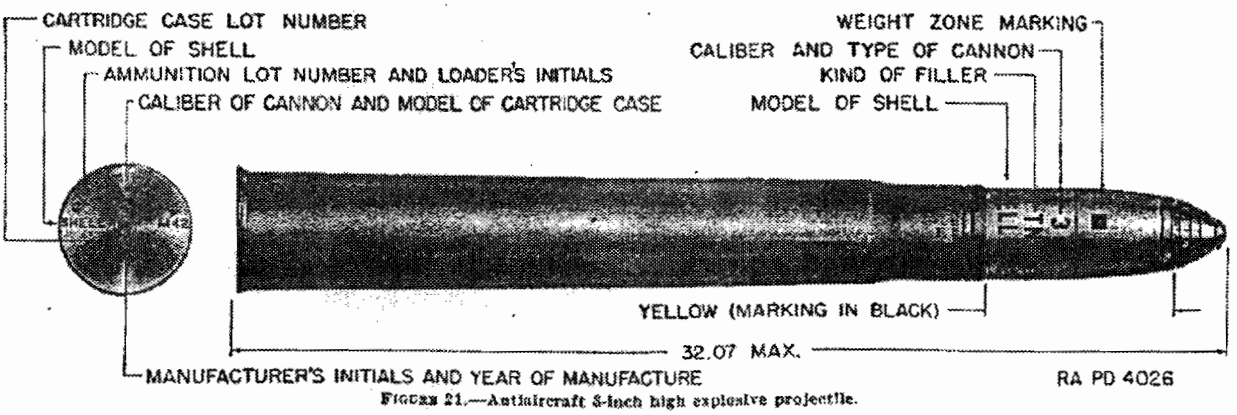


FIGURE 21.—Antiaircraft 3-inch high explosive projectile.

General. In order to increase the life of the 3-inch AA gun, the twist of the rifling in all late models and relined or retubed guns was reduced to one turn in forty calibers. This change in rifling, however, caused the Mk I High Explosive Shell to become unstable in flight, and it was therefore necessary to design a new HE shell. The shell designed to supersede the Mk I is known as the Mk IX.

Projectile. The Projectile, Mk. IX is of steel construction, and is shorter and lighter in weight than the Mk I. It has a radius of ogive of 7 calibers, and it continues its cylindrical shape from the rotating band to the base. The rotating band is 1 inch wide. The filler is 0.91 pound of TNT. This shell has a steel base plate and an adapter.

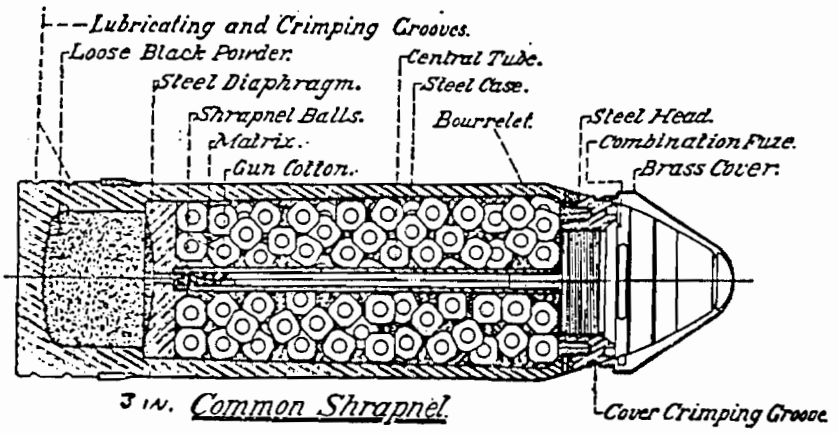
Components. The complete round consists of the Mk IX Projectile with its adapter, fuzed with the MIIIA1 Time Fuze, (earlier Mk I Projectile used the M1907, 21-second, Combination Fuze). This loaded, boostered, and fuzed projectile is assembled to the Mk IM2 or the Mk IIM2 Cartridge Case with its propelling charge of NH smokeless powder, distance wad, and M28A2 Primer.

Overall Length	3.07 inches
Diameter	3 inches
Weight	12.7 pounds
Explosive Filler	TNT
Weight of filler	0.91 pounds
Propellant	NH or FNH smokeless powder
Propellant Weight	78 ounces
Fuze	Mk IIIA1 Time Fuze
Color	Yellow w/ black markings

Reference TM 9-1904, Ammunition Inspection Guide, March 1944
No. 5891, Complete Round Chart, Issued August 1924

Shell, 3-inch, Shrapnel, Mk I

SHELL, 3-Inch, SHRAPNEL, MK I



General. This projectile consists of a steel case, near the base of which a shoulder is formed on the interior surface. A base charge of 3 ounces of black powder is packed in the base of the projectile beneath a diaphragm of steel which rest on the shoulder. This diaphragm also supports a flash tube, the upper end of which is flared out into a smaller thin diaphragm. Between the two diaphragms is held a charge of melted resin which holds 253 lead balls (hardened with antimony) suspended within it. These balls average 42 to the pound, totaling 6.2 pounds. Above the lower diaphragm, the interior of the shrapnel case is gradually enlarged in diameter so that it tapers outward from base to head. The top of the case is closed by a steel head which fastens to the case with a fine thread, and which is adapted to the fuze with a coarse thread.

Components. The complete round consists of the Mk I projectile, fuzed with the 21-second M1907 Combination Fuze, and using the Mk IA1 or Mk IIA1 Cartridge Case with a propelling charge of N.H. smokeless powder, distance wad, and M28A2 Primer.

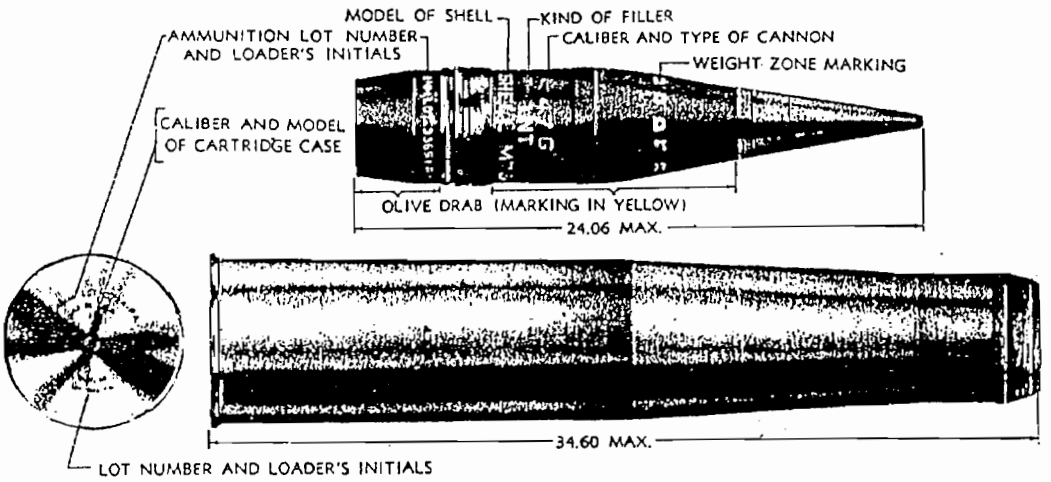
Function. The shrapnel projectile is actually a gun within a gun. The flame from the magazine charge of the fuze flashes down the central tube and ignites the black powder base charge. Explosion of the charge forces the lower diaphragm, matrix and balls, and flash tube upward, blowing off the fuze and head. The balls are ejected from the case with a velocity of 350 fps in addition to the velocity of the projectile.

Projectile Length	11.3 inches
Diameter	3 inches
Color	Red w/ white markings
Weight	15 Pounds
Explosive Filler	Black Powder
Weight of filler	3 ounces
Propellant	NH or FNH smokeless powder
Propellant Weight	5 pounds (approx)
Fuze	M1907 Combination Fuze

Reference TM 9-1904, Ammunition Inspection Guide, March 1944
No. 2036, Service Markings of Ammunition and Ammunition Containers, 1929

Shell, HE, 4.7-inch, M73

SHELL, HE, 4.7-INCH, M73



General. In this round the shell has a distinctive conical, long, graceful ogive beginning just ahead of the bourrelet and extending the length of the elongated fuze. The shell alone weighs approximately 50 pounds and is 24.06 inches long.

Projectile. The shell body is of forged steel construction. It has a boat-tail base and a base plate of steel. The rotating band is 2.25 inches wide, and is made of gliding metal. The shell cavity is designed to hold 5.26 pounds of TNT, 4.8 pounds of 50/50 amatol and TNT surrounds, or 5.42 pounds of trimonite as a bursting charge.

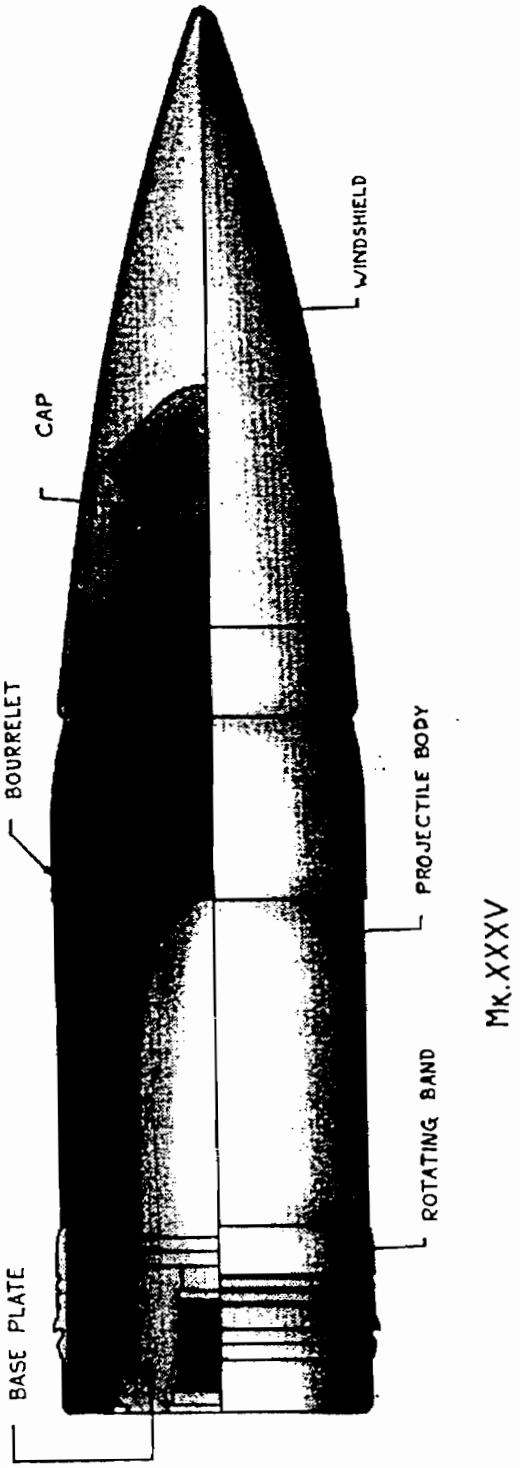
Projectile Length:	24.06 inches
Diameter:	4.69 inches
Color:	Olive Drab w/ yellow marking
Weight:	50 pound (approx)
Filler:	TNT; Amatol 50/50 and TNT; or Trimonite
Weight of filler:	5.26 pounds TNT; 4.8 pounds Amatol 50/50 and TNT; or 5.42 pounds Trimonite
Fuze:	M61 Mechanical Time Fuze

Reference: TM 9-1904, Ammunition Inspection Guide, March 1944

Projectile, 6-inch, AP, Mk 35

PROJECTILE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6"/47 - Mk. 35	CLASSIFICATION: A.P.
TARGET: Used against heavily armored targets.	



PROJECTILE DATA

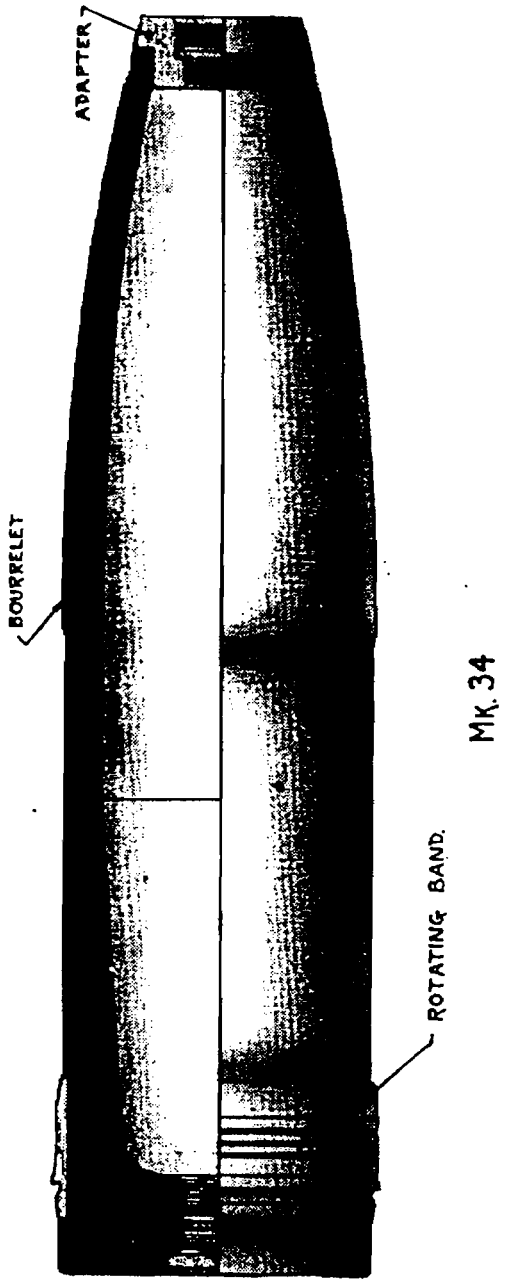
NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6"/47 - Mk. 35	CLASSIFICATION: A.P.
TARGET: Used against heavily armored targets.	

1.	OVERALL LENGTH -	
	With Cap & Windshield	27.0"
	Without Cap & Windshield	17.19"
2.	DIAMETER OF BASE	5.99"
3.	DISTANCE FROM BASE TO BAND	1.00"
4.	WIDTH OF BAND	2.50"
5.	DIAMETER OF BOURRELET	5.99"
6.	TYPE OF FILLING	Explosive D
7.	WEIGHT OF FILLING	1.95 lbs
8.	WEIGHT OF LOADED PROJECTILE	130 lbs
9.	CHARGE-WEIGHT RATIO	1.5 %
10.	TYPE OF GUN USED IN	6"/47
11.	TRACER	Mk. 5
12.	FUZES WHICH MAY BE USED IN PROJECTILE	Base: Mk. 21; Mk. 19.
13.	CAP & WINDSHIELD: The Cap weighs 15.82 lbs and is soldered on to the nose of the projectile, In addition to the solder, it is secured by five crimp caps equally spaced around the periphery of the nose. The Windshield, 3/32" thick, is fastened to the cap by means of three equi-distanced notches which are staked.	
14.	CARTRIDGE CASE	Mk. 4
15.	PRIMER	Mk. 13
16.	REMARKS: For method of marking and painting projectile, see INTRODUCTION.	

Projectile, 6-inch, HC, Mk 34

PROJECTILE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6"/47 and 6"/53 Mk. 34	CLASSIFICATION: High Capacity (H.C.)
TARGET: Used effectively in bombarding shore installations because of the high loading factor. Also, used against lightly armored vessels such as cruisers, aircraft carriers, etc.	



PROJECTILE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6"/47 and 6"/53 Mk. 34	CLASSIFICATION: High Capacity (H.C.)
TARGET: Used effectively in bombarding shore installations because of high loading factor. Also, used against lightly armored vessels such as cruisers, aircraft carriers, etc.	

1.	OVERALL LENGTH -	
	With Fuze	27.05"
	Without Fuze	22.625"
2.	DIAMETER OF BASE	5.99"
3.	DISTANCE FROM BASE TO BAND	1.00"
4.	WIDTH OF BAND	2.50"
5.	DIAMETER OF BOURRELET	5.99"
6.	TYPE OF FILLING	Explosive D
7.	WEIGHT OF FILLING	13.22 lbs
8.	WEIGHT OF LOADED PROJECTILE	105 lbs
9.	CHARGE-WEIGHT RATIO	12.60 %
10.	TYPE OF GUN USED IN	6"/47 and 6"/53
11.	FUZES WHICH MAY BE USED IN PROJECTILE	Base: Mk. 28 Nose: Mk. 29; Mk. 18 Mods 2, 3 & 4; A.P. Nose Plug; Auxiliary Detonator Fuze Mk. 17 and Mods.
12.	TRACER	Mk. 5; Mk. 5 Mod 1
13.	PRIMER	Mk. 13
14.	REMARKS:	

A waterproof cap may be placed over the nose fuze for protection from moisture.

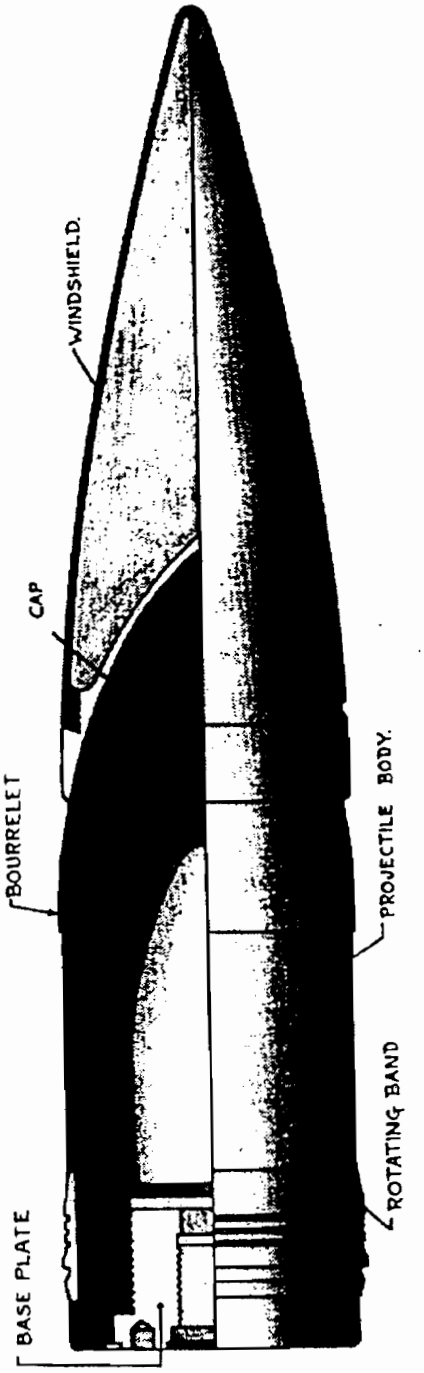
For method of marking and painting projectile, see INTRODUCTION.

Note: - The nose of this projectile may be fitted with a steel armor piercing plug instead of a nose fuze. The steel plug has two notches 180° apart which may be staked to hold the plug in position and prevent turning. When the A.P. plug is used, the detonation depends entirely on the base fuze alone.

Projectile, 6-inch, Special Common, Mk 27

PROJECTILE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6"/47 - Mk. 27	CLASSIFICATION: Special ~~Common~~
TARGET: Used against lightly armored surface craft such as cruisers, destroyers and also submarines.	



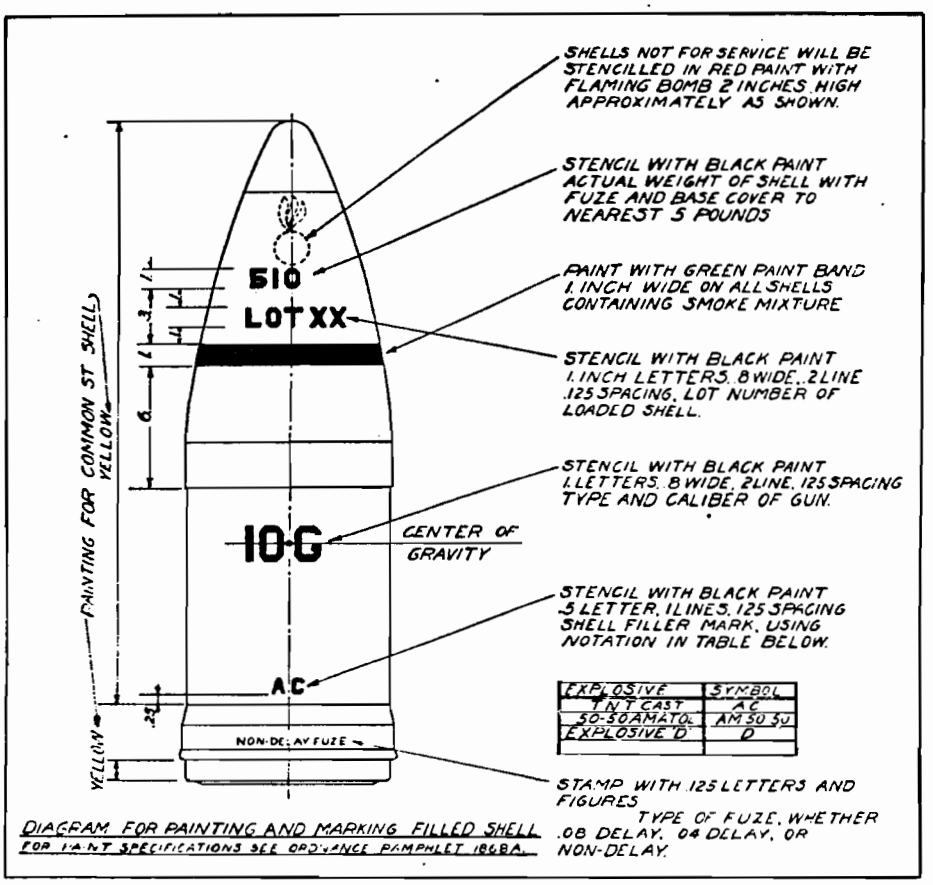
PROJECTILE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6"/47 - Mk. 27	CLASSIFICATION: Special Common
TARGET: Used against lightly armored surface craft such as cruisers, destroyers and also submarines.	

1.	OVERALL LENGTH - With Cap & Windshield Without Cap & Windshield	27.0" 15.95"
2.	DIAMETER OF BASE	5.99"
3.	DISTANCE FROM BASE TO BAND	1.0"
4.	WIDTH OF BAND	2.50"
5.	DIAMETER OF BOURRELET	5.99"
6.	TYPE OF FILLING	Explosive D
7.	WEIGHT OF FILLING	2.20 lbs
8.	WEIGHT OF LOADED PROJECTILE	105 lbs
9.	CHARGE-WEIGHT RATIO	2.1 %
10.	TYPE OF GUN USED IN	6"/47
11.	TRACER	Mk. 5
12.	FUZES WHICH MAY BE USED IN PROJECTILE	Base: Mk. 19
13.	CAP & WINDSHIELD: The Cap is soldered to the nose of the projectile. Also it is held secure by five crimp caps equally spaced around the periphery of the nose. The Windshield is fastened to the cap by means of five notches which are equally spaced on the periphery and staked.	
14.	CARTRIDGE CASE	Mk. 4
15.	PRIMER	Mk. 13
16.	REMARKS: For method of marking and painting projectile, see INTRODUCTION.	

Projectile, 10-inch Seacoast Gun, AP Shot

10-inch Seacoast Gun, A.P Shot



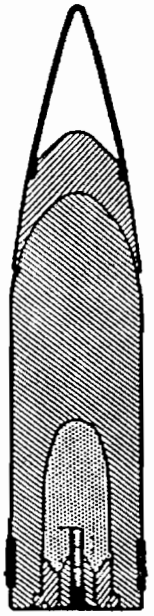
Use: Used against the sides of armored vessels at short range to obtain penetration.

Description: There were several models of 10" guns used in seacoast defensive positions: the models of 1888, 1895, and 1900. Ammunition for these guns was usually A.P. shot, or armor piercing shot, and came in weights from 604 to 617 pounds. There were also explosive-filled shells as well. These projectiles were fitted with a standard base-detonating fuze used in armor piercing rounds. The filler (bursting charge) in high explosive shells was either cast TNT, 50/50 Amatol (ammonium nitrate and TNT) or Explosive D. The filler represented 2% of the total weight.

length . . . . . approx. 40" (fuzed)
Diameter . . . . . 10"
Filler . . . . . cast TNT, 50/50 Amatol or Explosive D
Reference . . . . . Coast Artillery School, *Notes on Ammunition*, Bulletins 216-R2 and 287, Fort Monroe, VA, October 1918

Projectile, 12-inch, AP, Mk 18 Mod 1

PROJECTILE, 12-INCH, AP, MK 18 MOD 1



12-inch A.P. Mk 18 Mod 1

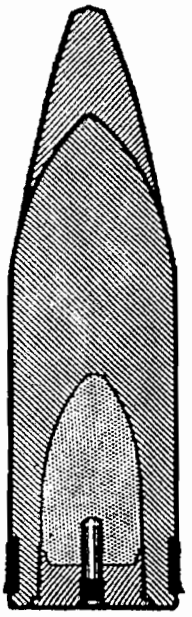
Armor-Piercing (AP) These projectiles are designed to penetrate an equal caliber of Class A armor plate. The cap is a soft steel designed to increase the power of penetration to the projectile. The body is of high quality alloy steel. The base plug closes off the explosive cavity and holds the base fuze or base fuze adapter. The base fuze is inserted through the base plug or base fuze adapter and is designed to detonate the projectile after penetration.

Length	
With Cap & Windshield	54.0 inches
Without Cap & Windshield	38.95 inches
Diameter of Base	11.98 inches
Diameter of bourrelet	12.98 inches
Width of band	4.0 inches
Weight	1140 pounds
Filler	Explosive D
Weight of filler	17.10 pounds
Fuze	Base Fuze, Mk 21; Mk 23

Reference: U.S.N. Bomb Disposal School, Projectiles and Fuzes, April 1943
West Point Text Book, "Ordnance and Gunnery" copyright 1907

Projectile, 12-inch, AP, Mk 15 Mod 6

PROJECTILE, 12-INCH, AP, MK 15 MOD 6



12-inch A.P. Mk 15 Mod 6

Armor-Piercing (AP) These projectiles are designed to penetrate an equal caliber of Class A armor plate. This is an old type projectile without a windshield. The cap is a soft steel designed t increase the power of penetration to the projectile. The body is of high quality alloy steel. The base plug closes off the explosive cavity and holds the base fuze or base fuze adapter. The base fuze is inserted through the base plug or base fuze adapter and is designed to detonate the projectile after penetration.

Length	42.10 inches
Diameter of Base	11.94 inches
Diameter of bourrelet	12.97 inches
Width of band	4.0 inches
Weight	870 pounds
Filler	Explosive D
Weight of filler	22.50 pounds
Fuze	Base Fuze, Mk 2 Mod 2;Mk 11

Reference: U.S.N. Bomb Disposal School., Projectiles and Fuzes, April 1943
West Point Text Book, "Ordnance and Gunnery" copyright 1907

Mortar, 12-inch Seacoast

12-inch Seacoast Mortar

[no diagram available]

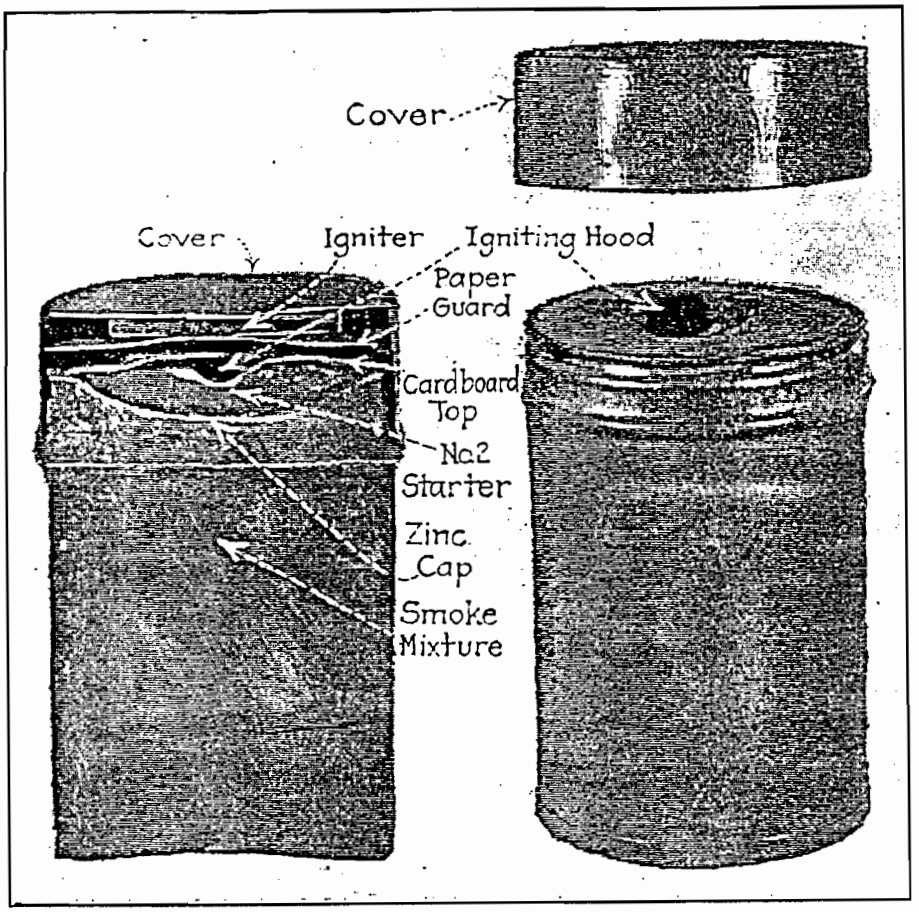
Use: Used in high angle fire to penetrate the deck of vessels and explode after penetration.

Description: There were several models of 12" mortar used in seacoast defensive positions: the models of 1886, 1890, 1908 and 1912. Ammunition for these mortars was D.P., or deck piercing, and came in several weights, such as the 700-lb., 800-lb., 824-lb. and 1,046-lb. projectiles. Originally fitted with a "torpedo base detonating fuze", they later incorporated a standard base fuze used in armor piercing rounds. The filler (bursting charge) was cast TNT, which represented 3% of the total weight.

length . . . . . approx. 40" (fuzed)
Diameter . . . . . 12"
Filler . . . . . cast TNT
Reference . . . . . Coast Artillery School, *Notes on Ammunition*, Bulletins 216-R2 and 287, Fort Monroe, VA, October 1918

B.M. Smoke Candle

WWI CHEMICAL MUNITIONS



B. M. Smoke Candle.

TYPE: B. M. SMOKE CANDLE or CANDLE, SMOKE SUBSTITUTE

ORIGIN: USA

LENGTH W/O FUZE:

LENGTH OVERALL: 5.875 INCHES w/o COVER; 6.5 INCHES w/COVER

DIAMETER: 3.375 INCHES

WEIGHT EMPTY: 0.5 POUNDS (est.)

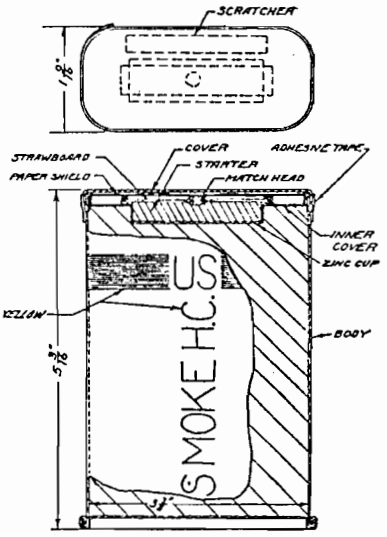
WEIGHT FILLED (AVG): 3.5 POUNDS

REFERENCES: CHEMICAL WARFARE, p 301; CHEMICALS IN WAR, pp 304-306; BANCROFT'S HISTORY OF THE CWS, p 207

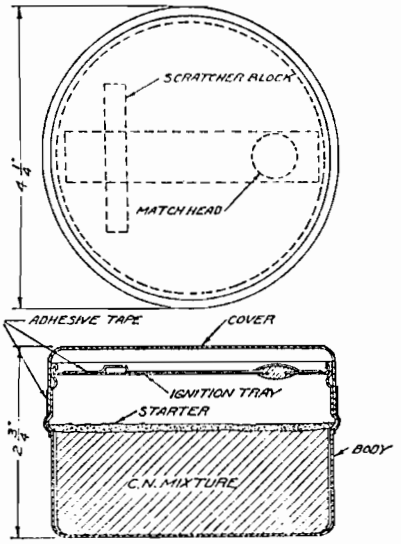
POSSIBLE AGENTS/WT LBS: B. M. MIXTURE (3 lbs.) or POTASSIUM NITRATE + COAL DUST + SULFUR, BORAX AND HARD PITCH

Candles

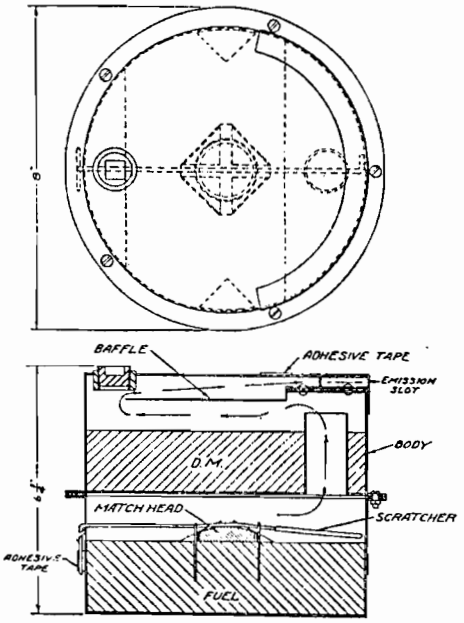
CANDLES



Smoke candle (HC) M1



Candle, Lacrimatory (CN) M1



Candle irritant, DM, M1

Candles. Candles are small chemical-warfare munitions used to generate a cloud of smoke or tear gas. They are essentially small containers filled with smoke or tear-gas mixtures and fitted with a match head for ignition by means of a scratch block.

Smoke Candle. The HC (Hexachlorethenone) smoke candle emits a dense white smoke cloud which tends to stay close to the ground. The use of these candles include, screening flanks, river crossings, and other movements of troops; but may also be used to screen, disguise, or simulate other chemical attacks.

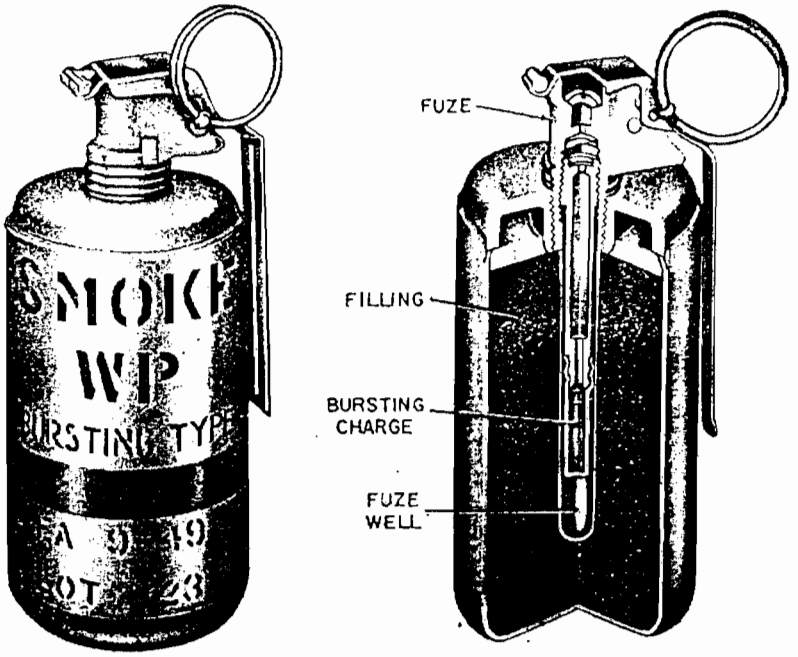
Lacrimatory Candle. The CN (Chloracetophenone) candle is similar in construction to the smoke candle. The vapor produced by this candle produces an intense lacrimatory effect on all personnel exposed to it. Except in high concentration it is nontoxic. The candle is an effective munition for use against mobs and may be used in connection chemical-warfare training of troops.

DM Candle/Smoke Substitute. The DM (Admsite) produces a cloud of irritant smoke. The candle consists of a cylindrical metal container 7 to 8 inches in diameter and 6½ inches high, weighing when filled about 9 pounds. The candle functions on the principle of heat distillation, smokeless powder being used as fuel. The heat evolved vaporizes the DM, which, however, rapidly becomes visible. The candle is ignited by pulling a shear wire across a match head.

Reference: Special text No. 24, Defense Against Chemical Warfare, 1933 Edition

Grenade, Smoke, WP, M15

GRENADE, SMOKE, WP, M15



Use. White Phosphorous (WP) smoke grenade hand grenade M15 is a bursting type grenade used for signaling, screening and incendiary purpose. The screening effect of the smoke is limited because WP burns with such intense heat, the smoke tends to rise rapidly. Pieces of WP will burn for about 60 seconds, igniting any flammable substance contacted.

Description The grenade body is of sheet steel and is cylindrical in shape. The body has a fuze well liner and is filled with WP.

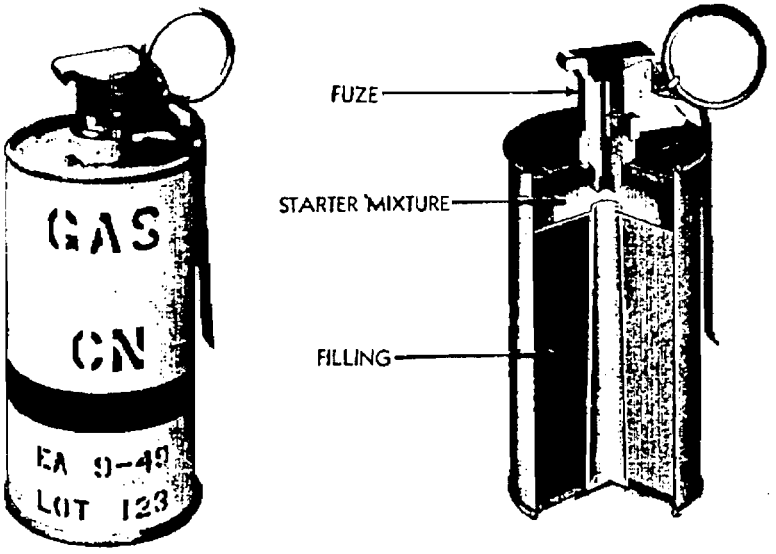
Fuze. The Fuze M206A1 and M206A2 are pyrotechnic delay-detonating fuzes. They differ only in body construction. The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, and a detonator assembly. The split end of the safety pin has an angular spread or a diamond crimp.

DODAC: 1330-G935
Length: ..... 4.5 inches
Diameter: ..... 2.38 inches
Color: ..... Grey with 1 yellow band and yellow markings
Weight: ..... 31 ounces
Filler: ..... White Phosphorous (WP)
Weight of filler: ..... 15 ounces
Fuze: M206A1, M206A2

Reference: TM 43-0001-29 w/change 11, Ammunition Data Sheets for Grenades, Oct 77

Grenade, Hand, Tear, CN, M7 and M7A1

GRENADE, HAND, TEAR, CN
M7 and M7A1



Description:

M7A1 grenade is a cylindrical thin sheet metal container with four emission holes in the top and one in the bottom. The filler is a mixture of CN, sugar, potassium chlorate, potassium bicarbonate, and a finely divided inert substance (diatomaceous earth). The emission holes are covered with adhesive tape to protect the filling from moisture. filled with CN. The Fuze M201A1 is a pyrotechnic-igniting fuze.

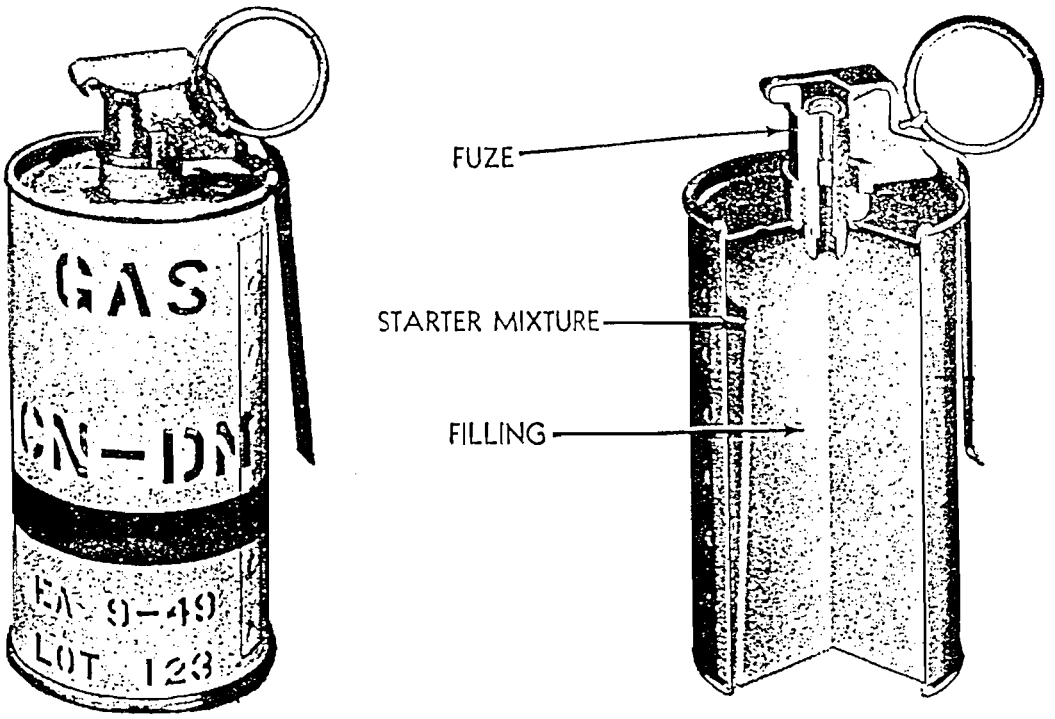
M7 grenade is similar to the M7A1 grenade, except that the M7 grenade has 18 emission holes in the sides and none in the bottom. It also contains less filler and produces about half as much effective CN gas as the M7A1. The grenade operates and functions in the same manner as the M7A1.

DODAC	1330-G960
Length	5.7 inches
Diameter	2.5 inches
Color	Blue grey or grey with 1 red band & red markings
Weight	
M7	17 ounces
M7A1	18.5 ounces
Filler	CN- Pyrotechnic composition
Weight of filler	
M7	10.25 ounces
M7A1	12.5 ounces
Fuze	M201A1

Reference TM 43-0001-29 w/change 11, Ammunition Data Sheets for Grenades, Oct 77
TM 3-300, Miscellaneous Chemical Munitions, Mar 50

Grenade, Hand, Irritant, CN-DM, M6

GRENADE, HAND, IRRITANT, CN-DM, M6



Description: The body of the M6 grenade is about 2½ inches in diameter and approximately 4½ inches high, made of 28 gage rolled steel. In the top of the body is a fuze adapter to receive the fuze assembly. Evenly spaced around the fuze adapter are emission holes covered with waterproof adhesive tape. In addition, it has three rows of 6 emission holes each in its body walls. The filling for this grenade consists of about 10 ounces of a mixture of chloroacetophenone (CN), adamsite (DM), and EC smokeless powder. A starter mixture, with binder, is contained in a zinc or plastic cup attached inside the top of the container. A fuze of the Bouchon type (M201) is positioned over the starter mixture through a threaded adapter in the top of the grenade. The fuze lever is held in an unarmed position by a ringed safety pin to prevent accidental ignition.

Length (body)	4.5 inches
Diameter	2.5 inches
Color	Blue grey or grey with 1 red band & red markings
Filler	chloroacetophenone (CN), adamsite (DM) and EC smokeless powder.
Weight of filler	10 ounces
Fuze	M201

Reference TM 3-300, Miscellaneous Chemical Munitions, Mar 50

Grenade, Gas, CN, M5
and
Grenade, Rifle, CN, M2

ARMY EXTENSION COURSES

SPECIAL TEXT No. 24

DEFENSE AGAINST CHEMICAL WARFARE

1933 EDITION

PREPARED UNDER THE DIRECTION OF THE CHIEF OF THE
CHEMICAL WARFARE SERVICE FOR USE WITH
THE ARMY EXTENSION COURSES

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1933

For sale by the Superintendent of Documents, Washington, D.C. - - - - - - - - - - Price 10 cents

Weights of the component parts of the 4-inch and 4.2-inch mortars are as follows:

	4-inch	4.2-inch
	Pounds	*Pounds*
Barrel	90	95
Bipod	32	35
Base plate	120	100
Tools	25	25
Pick, shovel and aiming stakes	12	12
Aggregate	279	267

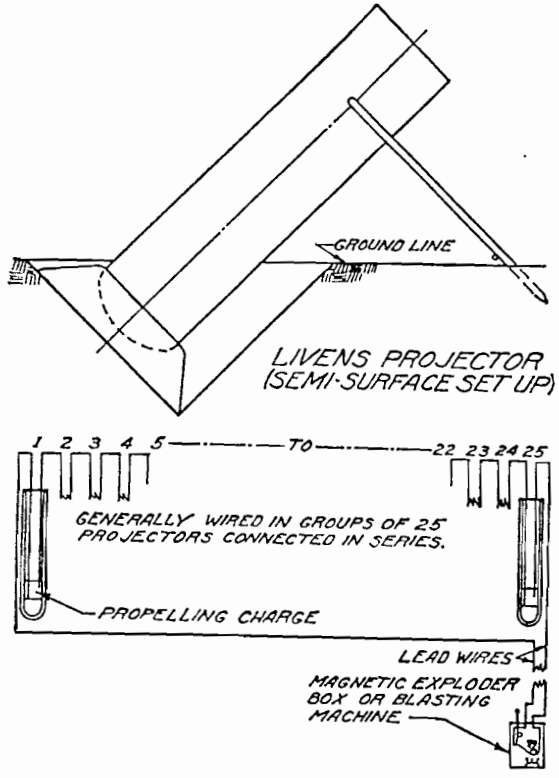


FIGURE 9.—Method of wiring projectors

d. Tactical uses.—The chemical mortar has general application but is especially effective against small definite targets for the production of screening smoke or for delivering harassing fire.

19. Grenades.—Chemical grenades are missiles filled with gas or smoke-producing materials. They are thrown by hand or fired from

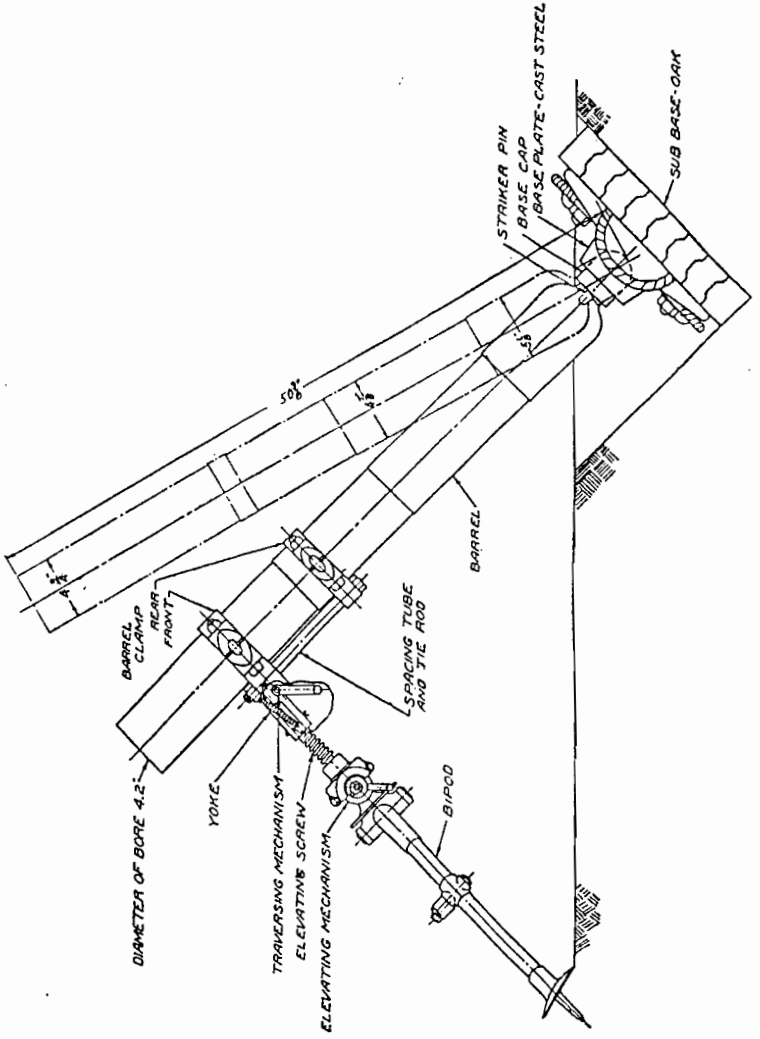
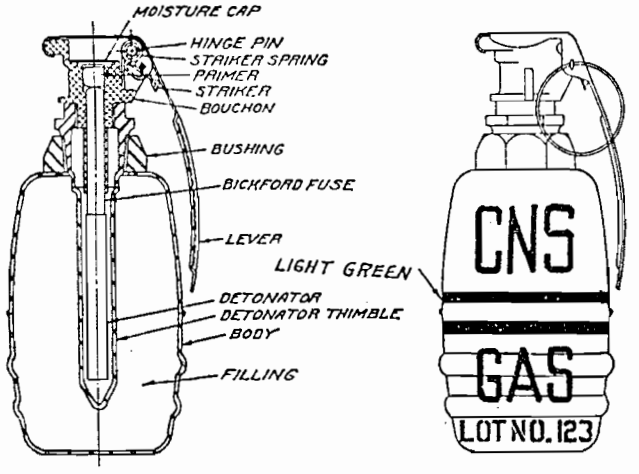


FIGURE 10.—Mortar, 4-inch chemical M1

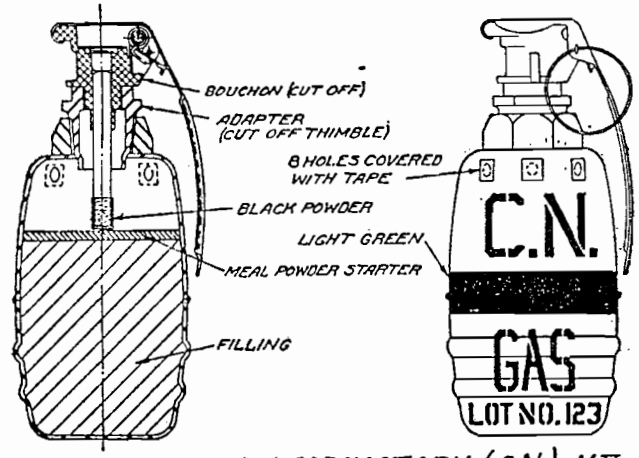
a rifle and are intended primarily for use by infantry to cause casualties, screen movements, and harass. Tear gas and smoke grenades may be effectively used in training troops and in quelling civil disturbances. (See Figures 12 and 13.)

Light artillery, i. e., 75-mm or similar calibers, is suitable for firing persistent agents and smoke. The large calibers, 155-mm or greater, are needed to produce an effective concentration with nonpersistent agents; they may also be used with persistent agents and smoke.

21. Artillery chemical shell.—The complete round consists of the following components: The shell with adapter, booster, and filling; the



GRENADE, HAND, LACRIMATORY, (CNS) MK II
(COMPLETELY ASSEMBLED)



GRENADE, HAND, LACRIMATORY (CN) M V
(COMPLETELY ASSEMBLED)

FIGURE 13.—Lacrimatory hand grenades

fuse, the shell case with primer and propellant (75-mm), or separate propellant charge (155-mm).

Artillery chemical shell are relatively less efficient than special

the shock of explosion of the large propellant charge employed. This reduces the ratio of weight of chemical filling to total weight of shell.

The booster charge used to break the shell on impact must not be so great as to cause decomposition of the chemical filling in the explosion. Hence, there is much less fragmentation in the explosion of a gas shell than in the case of an H. E. shell.

22. Airplane chemical weapons—*a. Chemical-spraying apparatus.*—This apparatus consists of one or more metal tanks filled with a suitable chemical agent which can be released by the pilot at will. If a liquid vesicant agent is used, it is released as a spray falling in the form of a band of fine droplets like rain. If a smoke agent is used, a band of dense white smoke is emitted from the tank. The chemical spray has never yet been used in war.

b. Chemical bombs.—Bombs filled with chemical agents such as mustard gas, lacrimators, or smoke may also be employed by enemy airplanes. The general construction, method of carriage, and release of chemical bombs are the same as in the case of H. E. bombs.

The grenade consists of three parts: Body, exploding device, and filling. It contains a 5-second fuse ignited when the grenade is armed and thrown or fired.

The hand grenade may be thrown from 25 to 50 yards. The rifle grenade is projected from the service rifle, using a special blank cartridge, and has a maximum range of about 225 yards.

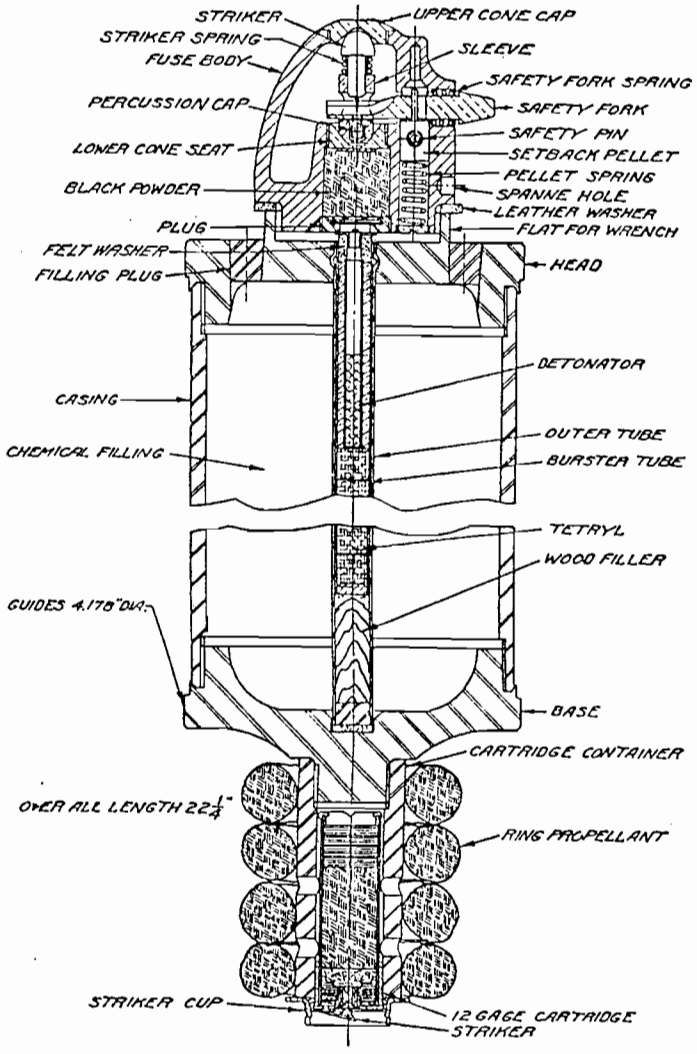


FIGURE 11.—Shell, 4-inch C. M. chemical MI

20. Artillery.—Of the various classes of artillery which the enemy will possess, only his field artillery is likely to be used for fire of chemical agents, and of this class only the light and medium types,

i. e., 75 mm to 155-mm or similar calibers, assigned to divisions and corps. The heavy army artillery, with its slow rate of fire, limited mobility, and comparatively few guns, is generally not suited for chemical fire missions.

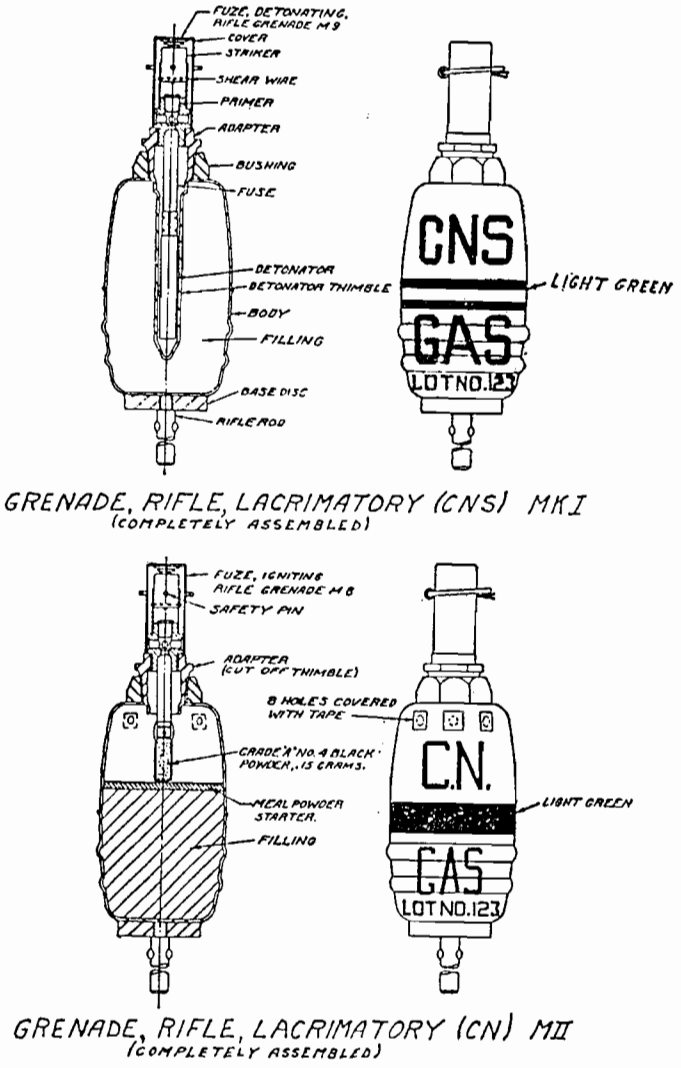


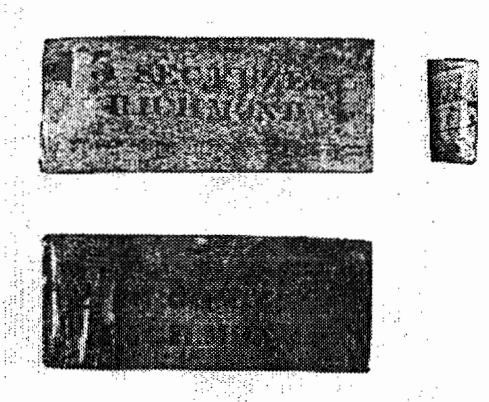
FIGURE 12.—Lacrimatory rifle grenades

The characteristics of field artillery make it especially useful in chemical warfare, viz, long range, accuracy, mobility, rapidity of fire, ability to concentrate on small areas and to switch fire, and its general independence of weather and terrain conditions as compared with special chemical weapons.

Time Fuses (Civil War)

Time Fuses (Civil War)

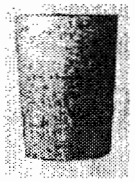
The paper time fuse consisted of a paper cylinder packed with black powder whose rate of burning at a given pressure was supposedly known. Graduations in seconds on the outside of the paper case enabled the gunner to shorten the fuse if a decreased burning time was desire to burst the projectile. To secure uniformity in their fuses, the Federal Ordnance Department, in October 1862, directed that all paper time fuses were to be made at the Frankford Arsenal. Confederate time fuses were made at a number of ordnance establishments and seem to have always varied in quality and rate of burning. Paper time fuses were inserted in wooden or metallic fuse plugs and were ignited by the gases of the propelling charge. In the North, they were replaced for the most part in spherical projectiles by the Bormann time fuse; however, in elongated case shot projectiles, their use continued. Confederates used the paper time fuse throughout the war in spherical and elongated shells and case shot.



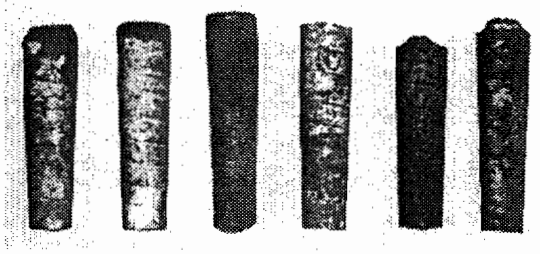
Packages of 2- and 5 second time fuses, Richmond Arsenal



8-second time fuse



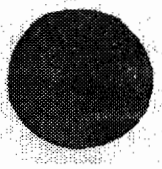
Wooden fuse plug



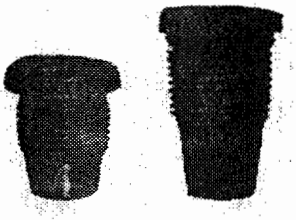
Assorted Confederate time fuses



Package of 5-second fuses, Frankford Arsenal



Bormann time fuse



C.S. copper fuse plugs

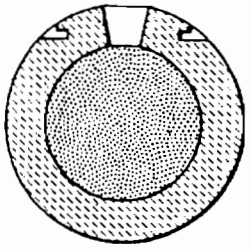
Reference: Cannons, An Introduction to Civil War Artillery, Thomas Dean, Copyright 1985 (Thomas Publications)

Smoothbore Projectiles

Civil War Explosive Ordnance 1861-1865
U.S. Naval School, Explosive Ordnance Disposal, 16 June 1972

SMOOTHBORE PROJECTILES

A. MORTAR PROJECTILES



The Coehorn mortar found high favor from both sides due to its ease of transportation. Weighing 164 pounds and requiring a maximum propellent charge of only 1/2 pound, its high elevation of fire was extremely effective against entrenched troops. A 24-pounder spherical shell was thrown at ranges up to 1,200 yards. Solid and explosive shells were used extensively. Coehorns were of 12 and 24 pounder in size. Other sizes of mortars came in 8 and 10 inch for siege, and 13, 15, and 20 inch for seacoast use.

A large type was employed mainly in siege service but was used on occasion against a well fortified enemy in the field. The 10-inch mortar shell was converted into case shot by filling it with 30 balls of the size of 12-pounder canister shot and timed to explode approximately 50 feet above the ground. Shells of this type were first fired by Union artillery at the siege of Petersburg, as was the 8-inch mortar. The deadly fire quickly silenced flanking enemy artillery.

The spherical shell in Figure 1 is of the siege mortar type and probably of Confederate origin, as indicated by the two recessed lifting "ears," a feature usually lacking in Northern manufacture. It is an 8-inch shell weighing about 44.5 pounds. The linear column time fuze was generally used for land service and the metal capped, waterproof seacoast fuze adapter for coastal defense. Often the black powder filler charge was field inserted at the time of action.

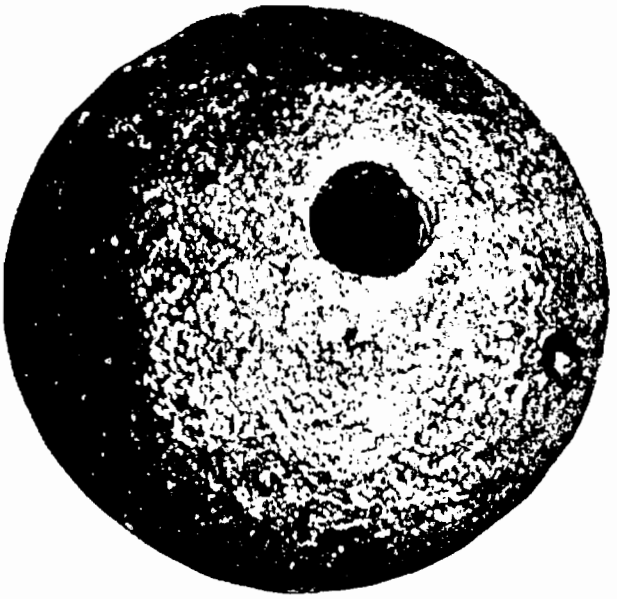


Figure 1. 8-Inch Mortar Shell.

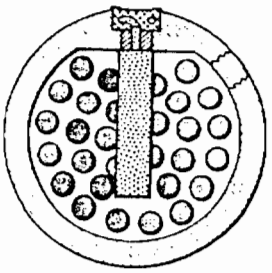
Table 1. Mortar Diameters, Weights, and Wall Thickness.

DESIGNATION	**DIAMETER (in)**	**WEIGHT (lb)**	**THICKNESS (opposite the fuze, in)**
12 Pdr. (Coehorn)	4.5	8.5	.3
24 Pdr. (Coehorn)	5.7	17.5	.5
8 inch	7.85	44.5	1.25
10 inch	9.85	87.5	1.6
13 inch	12.85	197	2.5
15 inch	14.9	350	3 (approx.)
20 inch	19.85	1000	Solid Shot

Note: Shells that are 8 inches and larger that were designed for Columbiads and Seacoast howitzers and Naval shells will be slightly thicker than stated in Table 1 and will be a great deal thicker at the fuze opening.

A radiograph of the mortar shell will not be included because of the simplicity of its design. Refer to Figure 4 for cross sectional views of mortars and comparable shells and Figure 6 for configurations prior to firing. Mortar ammunition was also issued in solid shot form.

B. SPHERICAL CASE SHOT



Projectiles similar to antipersonnel Civil War spherical case shot were introduced by French artillerymen during the 16th century. These were crude, rock filled devices which created little more than a nuisance effect. Leaden balls were next employed as a filler but it was found that the force and heat of discharge often squeezed them into a hard cake. Colonel Shrapnel of the British army recognized the potential killing power of case shot and developed a lead ball hardened with antimony and zinc. These were placed in the projectile cavity and the space between the balls was filled with melted sulphur which solidified around them forming a solid mass. A portion of the cavity was then partitioned off by a diaphragm of sheet iron and the bursting charge inserted. Communicating with this powder was a paper wrapped mealed composition time fuze which ignited from the cannon discharge flame. The projectile was first successfully used against the French in the Peninsular War.

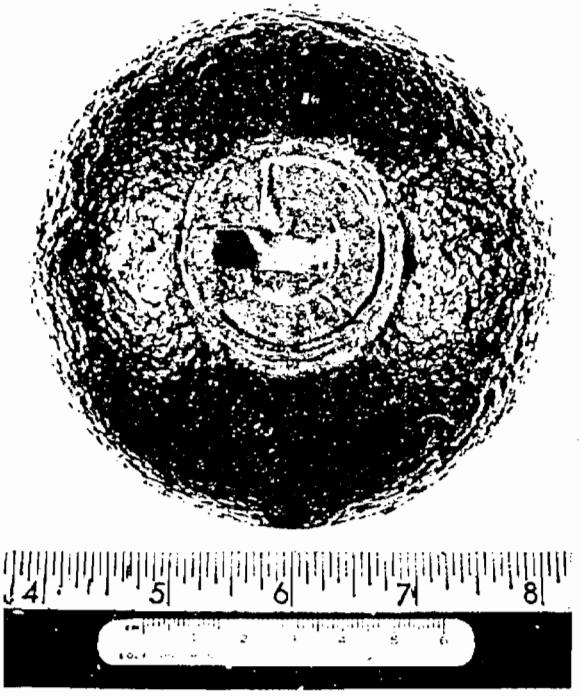


Figure 2. 12-Pounder Case Shot.

U. S. Ordnance engineers improved the Shrapnel design by filling the thin-walled cast-iron shell with standard musket balls then filling the interstices with a mixture of charcoal and mealed powder, melted sulphur, or resin. A hole was then bored through the mass to receive the bursting charge which was only sufficient to rupture the casing. The lower portion of the fuze was partially closed by screwing into it a disk perforated with a small hole for the passage of the flame from the fuze. The annular Bormann-type time fuze was commonly used by the Union.

*The Confederate armies also used case shot of the same calibers differing only in method of manufacture by the manner of inserting the matrix of sulphur or pitch. (A tin cylinder was passed down through the fuze opening to maintain a space for the burster charge as the molten matrix solidified.) A small screwed in plug of brass, steel, or lead was provided about 60^{o} from the fuze opening into which the matrix and musket balls were inserted. The cylinder was later removed and the black powder bursting charge poured in. Normally the South used a copper time fuze adapter which was screwed into the ball and received the common paper time fuze.

Spherical case shot generally employed in field service was the more common 12-pounder size, Figure 2, and contained about 80 musket balls weighing 17 to a pound. One ounce of black powder comprised the bursting charge and the total weight was 11.75 pounds - nearly equal to a solid shot of the same caliber. Case shot was manufactured and used in sizes of 6, 12, 18, 24, 32, and 42 pounders and 8 inch. Case shot has been field recovered in larger calibers although purchase records do not indicate that any were intentionally produced. The 6- and 12-pounder sizes of case shot has the wooden sabot strapped into position. A cartridge bag containing the propellant charge was secured to the sabot groove and the complete unit was known as a "stand of ammunition" and was often factory assembled, Figure 5 upper half. More often than not they were merely strapped to their sabots and used a separate propellant charge, Figure 6. A radiograph, Figure 3, is provided.

With the exception of the 6-pounder size, common shells also existed in the same sizes as case shot. A common shell contains no matrix or shrapnel but merely has its entire cavity filled with black powder. Externally, there is no positive way to distinguish between case shot and common shell. Normally, shells having a wooden paper time fuze adapter fitted in the fuze opening will be a common shell. The majority of all spherical projectiles that have been field recovered containing the Bormann-type time fuze have been filled with case shot. Naval shells were also issued in case shot and shell but were normally fitted with the water-capped time fuze adapter. The common shell was of the same construction as the mortar, minus the lifting "ears," and had slightly thinner walls. See Figure 4 for shell sizes.

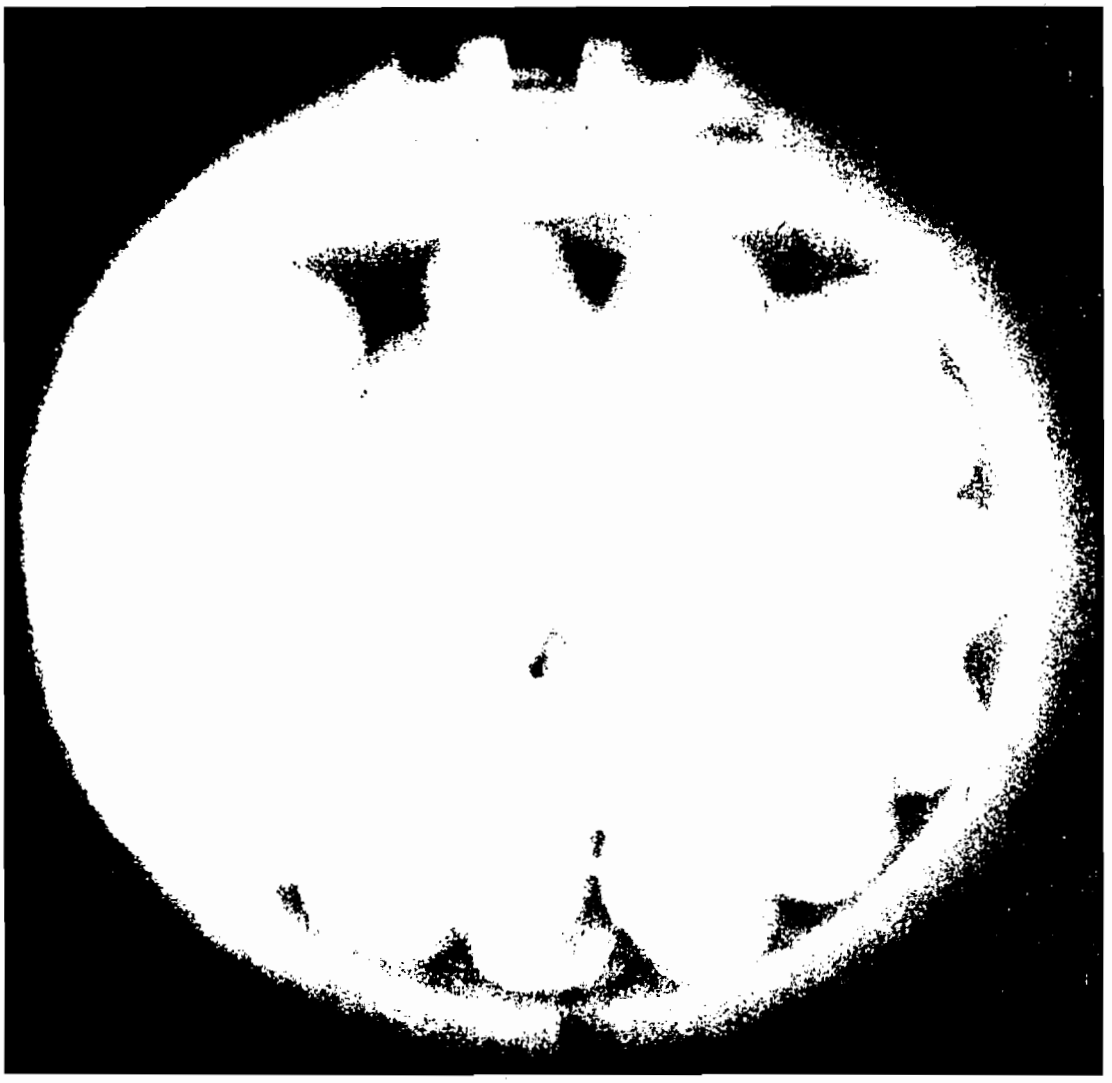


Figure 3. Radiograph of 12-Pounder Case Shot

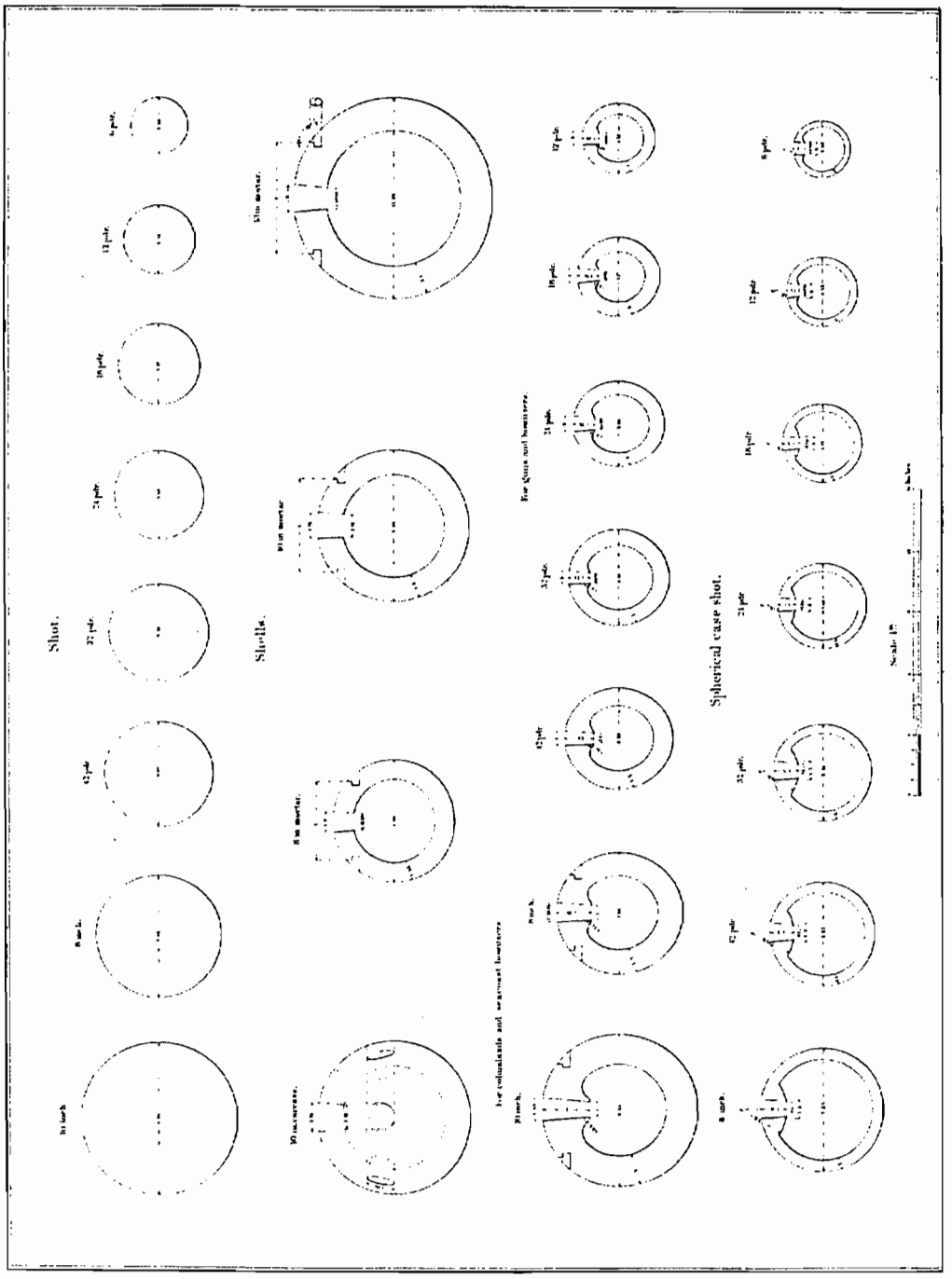


Figure 4. Solid Shot, Shell, and Case Shot. Sizes and cross sectional views

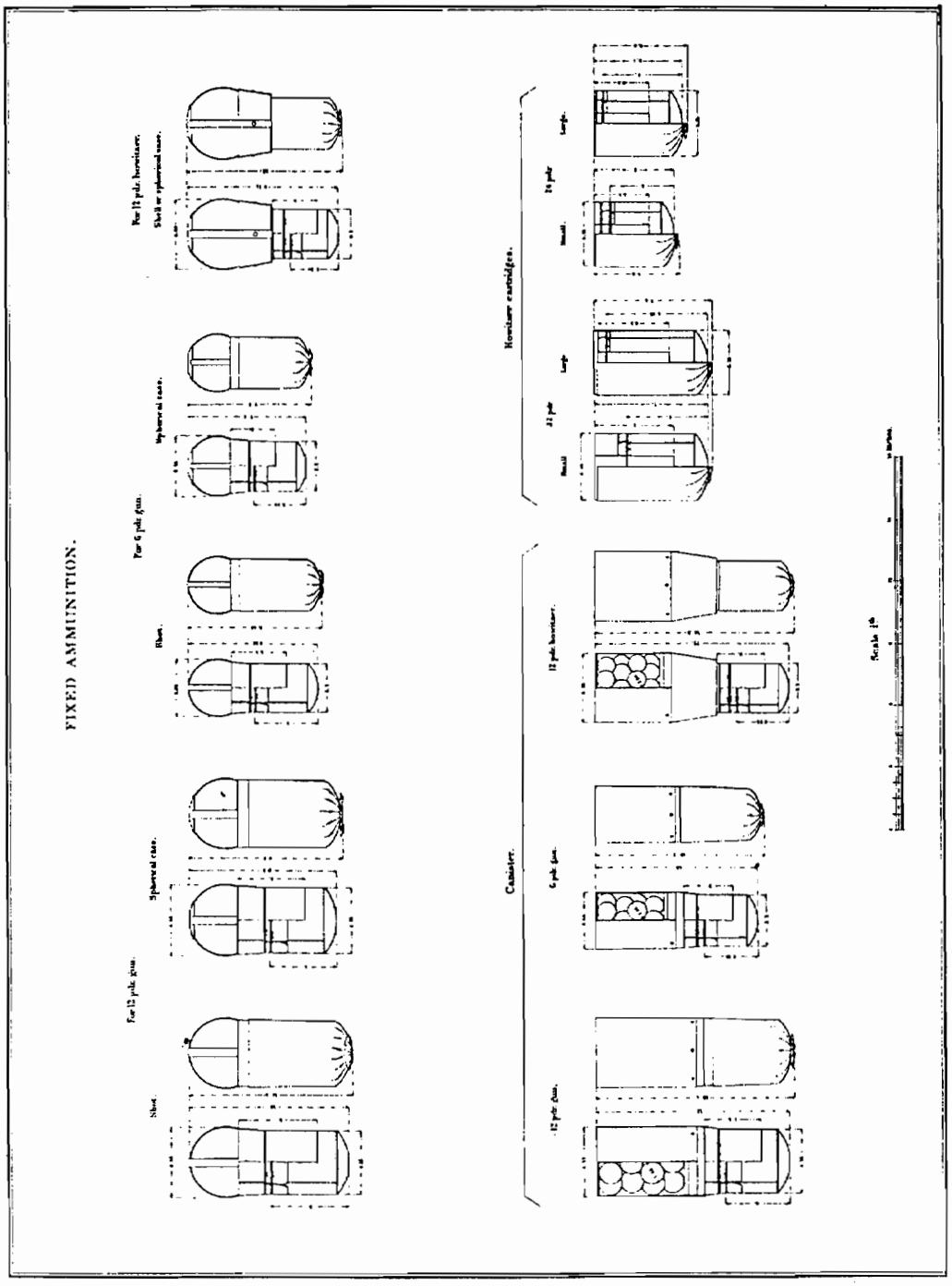


Figure 5. Stands of Ammunition.

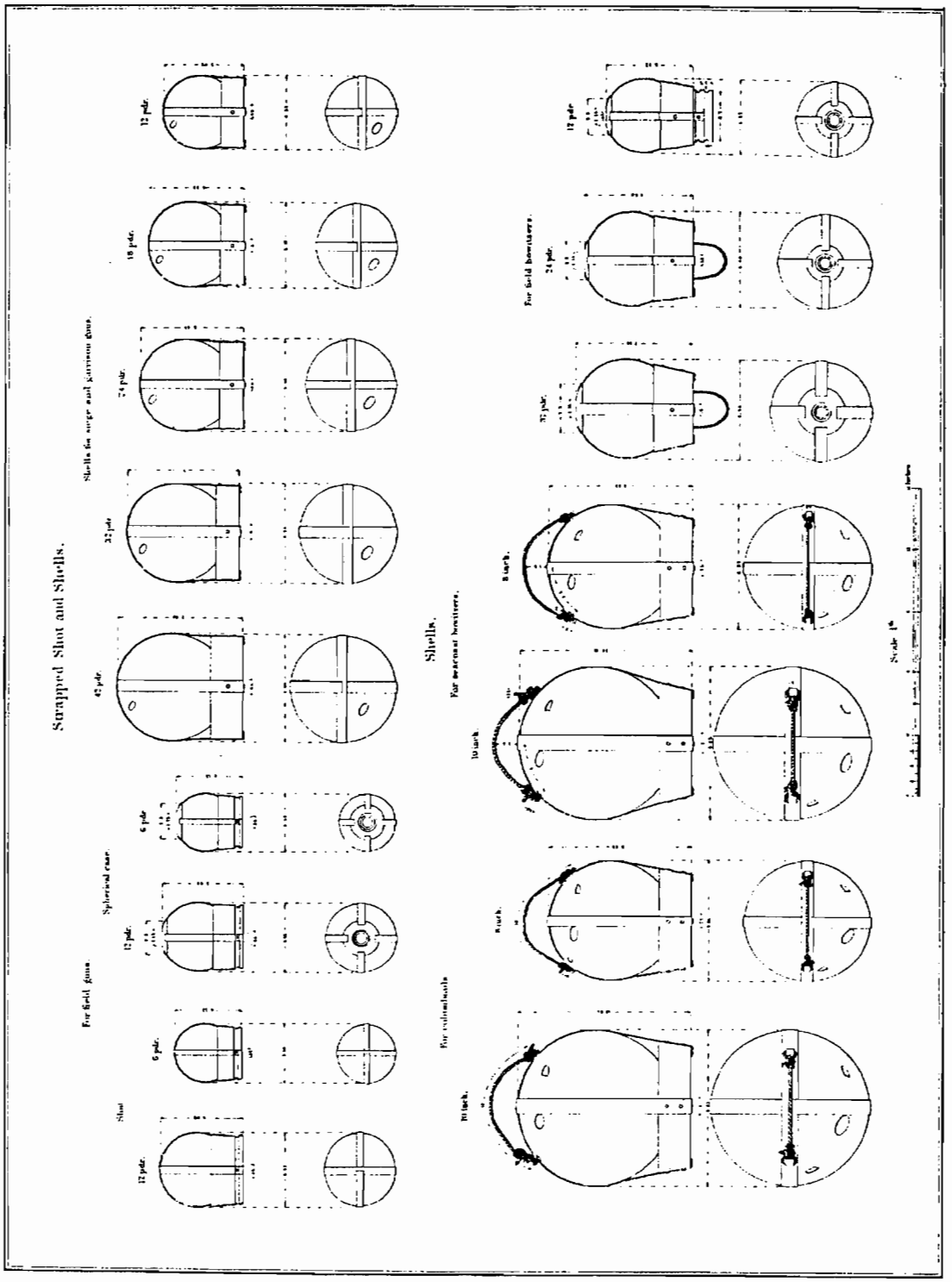


Figure 6. Strapped Shot and Shell.

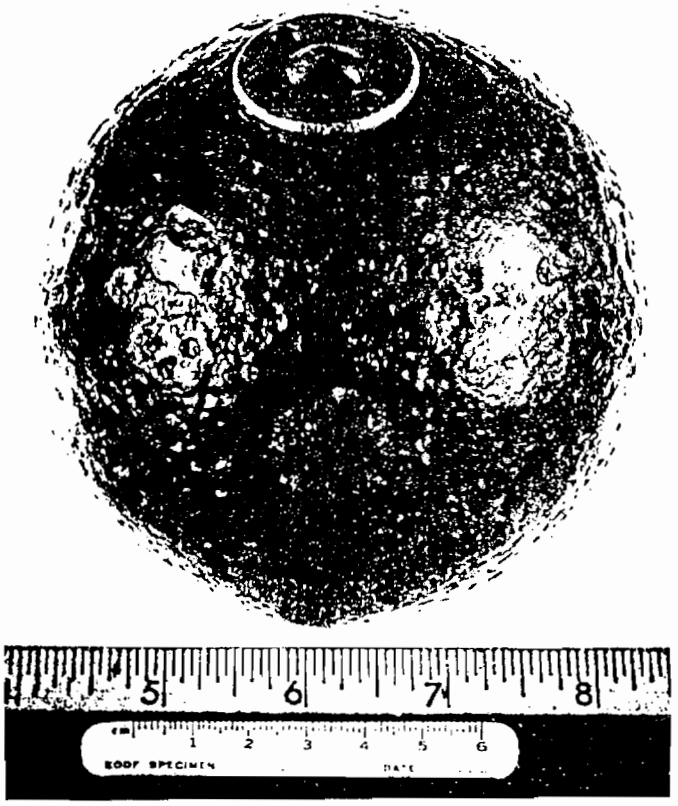


Figure 7. Confederate 12-Pounder Case Shot

As stated earlier, the main difference between Union and Confederate 12-pounder case shot was the method of inserting the lead or steel balls and the matrix binder. Figure 7 shows the threaded lead filler plug used by the South to close the matrix filler hole.

Also shown is the more common time fuze adapter used by the Confederacy. Normally made of copper, it had two-spanner holes for threading it into the fuze opening.

Often the Southern artillerists would fill their case shot in the field using field expediency. Some case shot have been found filled with .44 and .58 caliber rifle shot.

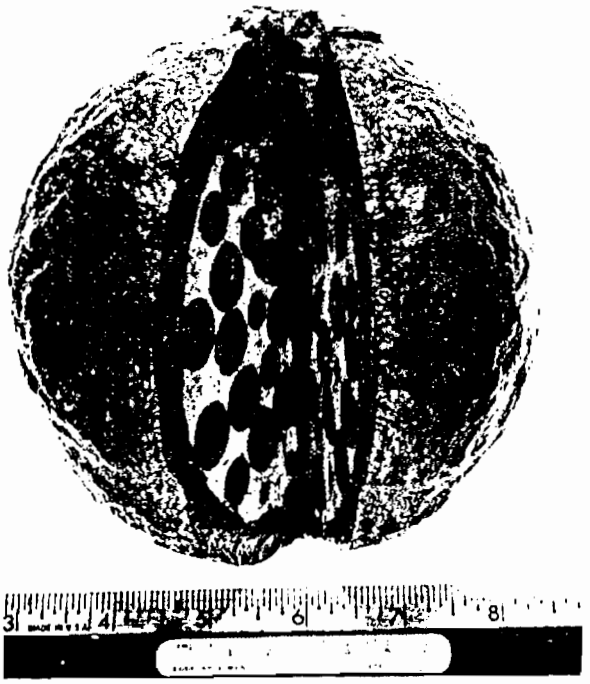


Figure 8. 24-Pounder Case Shot, Sectionalized.

The "cannon ball" was fired from muzzle loading smoothbore cannon which accounted for more than 50 percent of the estimated 10,000,000 battlefield rounds fired during the entire war.

Field recoveries of this case shot. Figure 8. have been numerous. The diameter is 5.68 inches and its weight approximately 17 pounds. It is armed with a Bormann-type time fuze having a diameter of 1⅛ inches and ½-inch thick.

The solid shot is a solid casting of steel and contains no explosive. Figure 4 is considered to provide sufficient coverage of manufactured sizes of solid shot. It is safe to assume that if a spherical projectile is found to contain no opening or fuze whatsoever that it will be a solid casting and present no hazard.

Reference: Civil War Explosive Ordnance 1861-1865, U.S. Naval School Explosive Ordnance Disposal, 16 June 1972

Heavy Artillery Projectiles of the Civil War 1861-1865

"HEAVY ARTILLERY PROJECTILES OF THE CIVIL WAR 1861-1865"

PROJECTILES IN GENERAL

A variety of projectiles quite naturally developed for the many types of guns in use in both armies, especially in the Confederate service.

Many of these were of a transient and experimental nature and did not survive in any quantity.

Seven primary types of projectiles were employed in heavy guns during the war, as follows:

SOLID SHOT, usually, referred to as "shot" when spherical and "bolts" when conical.

HOLLOW SHOT. a solid shot with interior cavity.

CASE SHOT, time fused.

COMMON SHELL, both impact and time fused.

BLIND SHELL, projectiles containing an explosive charge but no fuse.

CANISTER, a number of small balls of lead or iron, enclosed in a thin sheet-iron container.

GRAPE SHOT, usually consisted of 9 very large balls, packed in different fashions. The characteristics of each type of projectile will be briefly discussed, in order to clarify certain salient features of each, which will be subsequently described in detail.

SOLID SHOT, in the form of a spheroid for smoothbored and a conical bolt for rifles, requires no particular explanation. The smoothbore shot is frequently referred to as a "cannonball", a term somewhat archaic, even in 1861, but one that lingers on. These projectiles were used very extensively for both anti-material and anti-personnel purposes, the smoothbore shot particularly so. Because of the inherent nature of both gun and projectile, the latter was very prone to ricochet - skipping over the ground or water in the fashion a flat rock does when skimmed over water. This peculiarity was utilized by skillful gunners against both ground troops and warships. Although in the field artillery few rifle bolts were used, the opposite was true with heavy artillery. They were extensively used to batter and breach fortifications on land and against warships in coastal batteries.

HOLLOW SHOT, a spherical projectile with a center cavity, to lighten the weight and obtain higher velocity and longer range. Primarily a naval projectile. Indistinguishable from solid shot by visual examination.

CASE SHOT, was the same general type as used in field artillery and for the same purposes. It is also referred to in contemporary writings as "Spherical Case", "Bullet Shell", "Shrapnel Shell" and "Shrapnel". "Shrapnel" was well known in WW 1, and by extension and ignorance, today means any shell or grenade fragment. This type of projectile consisted of a time fused, thin walled projectile filled with relatively small round bullets, generally set in a matrix of sulphur, asphalt. rosin, or similar composition with a very light bursting, or opening charge, sufficient only to break open the casing. Being primarily a carrier for the ball, this type of projectile did not depend on the fragmentation of the outer casing for any effect. When burst by the time fuze over or slightly in front of the target (in modern parlance, "an air burst"), the charge

of balls upon being released by the breaking away of the outer casing continued to travel at the velocity of the projectile at the time of bursting, but no longer being confined, spread out into a wide dispersion zone. This closely simulates the effect of a charge of canister, but far beyond the range capabilities of that projectile. Naturally case shot could be effective only as anti-personnel and anti-horse projectiles and had no use in reducing earthworks and similar uses. They were, however, quite effective in firing against enemy batteries to prevent the personnel from manning their guns. Impromptu, but very effective mortar shell case shot were employed by the Federals in the siege of Petersburg. They were made up in the field by placing thirty 12- pounder canister balls, (approximately 1.50 inches in diameter) in 8-inch mortar shells. This was probably the first time spherical case was fired from siege mortars. Rifled case shot was not as effective as spherical, owing to the thicker projectile walls required, the smaller number of balls in the projectile, and the ragged, twisting dispersion zone of the balls, caused by the rotation of the projectile on its long axis.

COMMON SHELL, was the same as its modern day counterpart - a hollow casing, designed to break into many fragments by the explosion of a heavy bursting charge. This shell was used extensively in both smooth and rifled guns and at that time consisted of a hollow projectile of cast iron with a bursting charge of black powder. This charge was exploded by an impact fuse, generally referred to in Civil War accounts as a "percussion fuse", a combination fuse, a self contained metallic time fuse, or by a specially prepared paper time fuse contained in a wooden or metallic fuse plug and ignited by the hot gases of the discharge of the gun. Shell was very extensively employed both as an anti-personnel and anti-materiel weapon, the impact fused version for long range harassing fire, ranging purposes, and firing against wooden war ships. The various fuses will be discussed separately.

BLIND SHELL, is a type of projectile peculiar to heavy guns. It is quite similar to common shell, but has a much thicker cavity wall and no exterior fuse hole or fuse. Common shell with impact fuses were useless against armored or large wooded warships, exploding harmlessly upon impact and doing little or no damage. The principle of the blind shell was that it would strike and penetrate the armor or oak sheathing of the vessel. The heat generated by the friction as it penetrated the obstruction would be sufficient to explode the bursting charge, preferably after it had passed through the obstruction, and exploded in the interior of the vessel. Naturally it was impossible to obtain any accurate timing, and the projectile will rarely be encountered.

CANISTER was a very formidable charge within the range limitations imposed by its nature. The maximum effective range of canister is sometimes given as 600 yards, the writer doubts this figure as being really effective. Quite possibly 400 yards is a more realistic figure, with a really effective range of 200 yards. Canister, in effect, was the use of an artillery piece as a shotgun. The projectile consisted of a number of large spherical balls, usually of cast iron, contained in a thin "tin" container. The balls varied in diameter and size somewhat, but as a rule, the larger the calibre concerned, the larger the balls. The balls were packed in the container, usually a tinned sheet iron cylinder of light weight, in sawdust. The front, or end away from the charge, was generally closed by a wooden or light weight metal disc, with the end of the cylindrical container crimped over it. The rear end, or the next to the charge, generally contained a heavy iron disc, slightly smaller than the bore diameter of the piece, called a "culot". This disc

was a serviceable missile in its own right, smaller than the bore diameter of the piece, called a "culot". This disc was a serviceable missile in its own right. For the same reasons as stated for case shot, rifled pieces were not as effective as smoothbores for firing canister, the primary defect being the twisting and scattering of the balls by the rifling.

GRAPE SHOT, Contrariwise to field artillery usage grape, was widely used in heavy artillery. The heavier powder charge and larger bore allowed the use of quite large and heavy iron balls, which gave it more range than canister. The projectile, usually referred to as a "stand of grape", was prepared in two ways. The earlier fashion, which was obsolete long before 1861, was nevertheless issued in some quantity. This was known as "quilted grape". A base, usually of wood with a center rod, was used. The balls were placed around this rod in layers and the whole wrapped in heavy cloth, generally canvas, and tied with twine. The second method was to use two, three or four, iron plates, or rings, bottom, middle and top, placing the balls in layers of three between the plates or rings and securing the top plate with a nut on the threaded center rod. Sometimes the plates had recesses to fit the balls; in others they were kept in place by one or more rings. This method was referred to as "Tiered" grape. It was a much better method, as of course the plates, center rod, rings etc., were also missiles when the projectile was fired. This projectile was very formidable within its range limitations. Some of the grape stands for the larger guns used nine 6-pounder solid shot. A single discharge of this was equal to a volley from nine 6 pounder field guns, plus the plates and other components of the projectile.

Two types of projectiles of a special nature, Incendiary shell and repeating shell, were used to a more or less limited extent.

In certain operations shot were heated red hot and fired to set fire to their target. This device was limited during the Civil War, but when employed, regular round shot were used, with a special method of loading, to prevent a premature discharge.

Spherical Projectiles, excepting mortar shell, were fastened to a wooden base or sabot usually by crossed tin strapping. The bottom of the base was grooved, and in the smaller calibers a cloth bag containing the powder charge for propelling the projectile, was tied. The larger guns used a separate powder charge, also in a cloth bag. In order to facilitate loading, the projectile was slightly smaller than bore diameter. The wooden base served a twofold purpose: to prevent the projectile from bounding from side to side in the bore and scoring the metal of the gun, and in the case of fused projectiles, to keep the fuse turned toward the muzzle of the gun and away from the propelling charge.

Naturally the problem with any muzzle loading rifle is to have the projectile slightly smaller than the bore diameter in order that it might be easily pushed down the bore and yet have some means of expansion upon firing, in order that it "take" the lands and spin. This problem was readily solved with small arms, the Minie system being quite effective. This system utilized a large hollow cavity in the base of the projectile. When the projectile is fired, the pressure of the gas from the explosion forced the sides of the cavity outwards and into the lands. However, as there is a great deal of difference between a soft lead bullet and a cast iron artillery projectile, more ingenious methods were needed.

As a consequence, prior to and during the war, a great many systems to accomplish this were tried. Many were good and worked; others were not and failed. Most of these systems

were variations of basic principles and most were of original British origin. General Abbot lists 10 different systems. It is the opinion of the writers however, that in reality there were only 3 basic systems, i.e.:

1. Expansion cup principle.

This system consists especially of a metal ring, disc or cup, of softer and more ductile metal than the projectile body and affixed by various methods to the base of the projectile. In an unfired projectile this device is the same diameter as the projectile body and smaller than bore diameter. Upon firing the gun the gas from the discharge is trapped in the device and forces the soft metal out and into the lands of the gun. This system obtained a fairly tight obturation, but some projectiles using time fuses apparently depended on a sufficient flame leak (hot gas), to light the fuse. Others had small notches or flame grooves cut into the sabot. Examples of this system are the Parrott,* Burton and many Confederate projectiles.

2. Forcing cone principle.

This system consists of a tapered rear portion or cone on the base of the projectile, with the declining taper toward the rear. Fitted upon this cone at its base is a ring of soft metal, or other substance, usually lead, smaller than bore diameter. On discharging the gun, the ring is forced forward toward the ogive or larger portion of the cone, either directly by gas pressure or by other means. As it is forced up the tapered cone, it is forced outwards and into the lands of the gun. The same remarks concerning obturation applying to this system. Examples of this system are the Hotchkiss, Schenkl (using a papier mache sabot), Sawyer and Archer.

3. Pre-Guided principle.

Projectiles based on this principle have some built-in method of engaging the lands, depending on a close mechanical fit to obtain good obturation and engagement. The shunt system, Armstrong with its studs, the Blakely with its splines and the Whitworth which its machined plane surfaces... are

* At the time Volume 1 of this series was prepared the authors were under the impression, primarily gained by the apparent chronological recovery of Parrott projectiles, that the type 1 low band came first and was followed by the type 2 high band. Since then the original patent papers of Parrott have been discovered and indicate that the reverse was true. The high band was first, and the improved band, the low type, was later. In this volume the high band will be designated as type 1 and the low band as type 2.

examples of this principle. The Confederates experimented, at Selma, with a bastard system, both expansion cup and preguided, using pre-engraved flanges on the copper sabot. It is not thought to have been very successful. Most projectiles based on this system were of British provenance and, while they apparently worked satisfactorily, were quite expensive and, by and large, beyond the resources of the Confederates to manufacture. They were used in the Confederate service primarily from need. They could not be used with time fused projectiles, as the very tight obturation allowed no flame to pass and ignite the fuse. Some were probably used with igniters,

such as the McEvoy.

The only two systems that do not fit entirely in the above categories are the first model James, which is, however, a variant of the expansion cup principle, and the lead coated British Armstrong. The latter, in effect, a variant of the forcing cone principle, as it functions by the soft lead coating being upset and compressed outwards by the pressure of the gas.

Generally, the Parrot series resemble their field artillery counterparts. However, in the large calibers, 100, 200 and 300 pounders, a bolt or plug in the base of many of the projectiles will be noted. This is though to have resulted from the use of a rod to steady the core during the casting process. After casting, the rod was removed and the resulting hole was threaded and closed up with a heavy bolt. Incendiary shell also had a bolt closure in the bottom. In this case it was necessary for insertion of the incendiary compound. Other than the fact that the incendiary shell were the long type, used very little, and sometimes fitted with the Tice fuse, there is no definite way to distinguish them from ordinary projectiles.

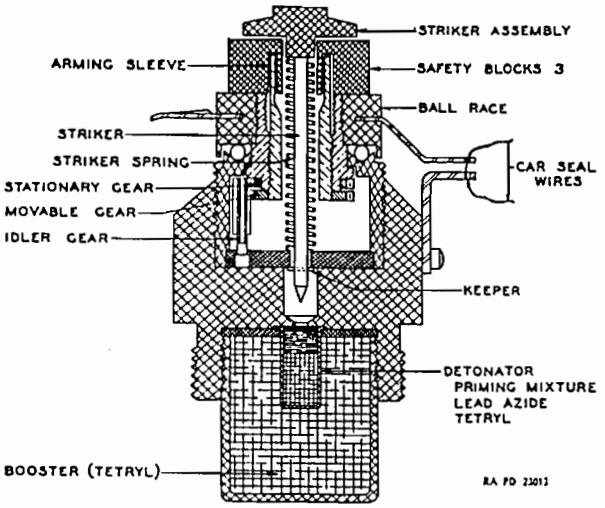
It soon became apparent that, for some reason, the wrought iron Reed sabot, quite successful on the 10 and 20 Pounder Parrott projectiles, would not work satisfactorily with 30 Pounder and larger calibre Parrott projectiles. Parrott designed a brass ring sabot, rabbeted into the base of the projectile. This sabot, the type 1 or "high" band was never very satisfactory, as it was frequently thrown off upon firing, especially in the 30 pounders. A different sabot, the type 2 or "low band", was then designed and proved quite successful. The Confederates apparently had solved whatever problem Parrott had encountered, as they continued to use the Reed sabot, in both wrought iron and copper, on a great variety of projectiles.

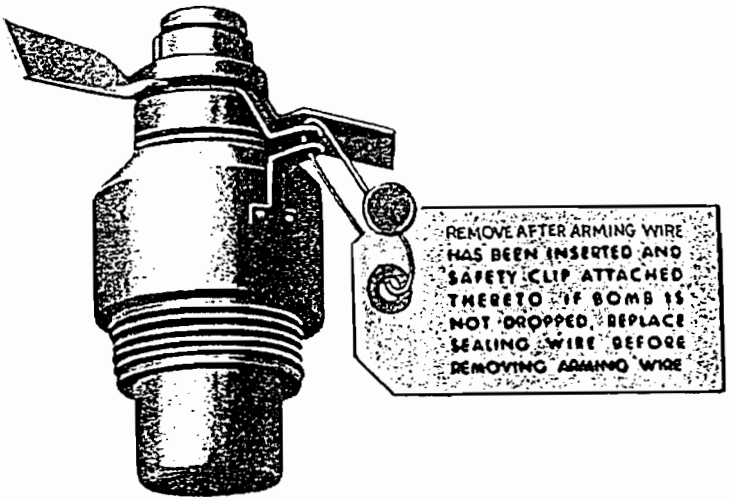
The basic Federal procurement of projectiles was from the same independent manufacturers ... Parrott's, from the Parrott foundry, Hotchkiss from the Hotchkiss foundry, etc. As a consequence, a fairly standard series of projectiles from these sources will be noted. Naturally there are variations and improvements, as this was a continuing process. On the other hand the Confederates had no such central sources, and their projectiles were manufactured on contract by many foundries and by private various Governmental installations.

Reference: "Heavy Artillery Projectiles of the Civil War 1861-1865", Kerksis & Dickey, Copyright 1972 (Phoenix Press)

Fuze, Bomb, Nose, AN-M110A1

FUZE, BOMB, NOSE, AN-M110A1





General: This is an arming vane type of fuze with mechanical delay in arming. Its action on impact is instantaneous. The fuze is armed after approximately 340 revolutions of the vane. It is used in the 20-pound AN-M41 Fragmentation Bomb, the 20-pound M48 Practice Bomb, and the 115-pound M70 Chemical Bomb.

Description: The fuze is about 3.59 inches long, and 2.30 inches of this length projects from the bomb when assembled. The vane is assembled to the fuze and has two tabs leading from it. These tabs have two holes which correspond to holes in a vane lock on the side of the body. These holes are to allow the fuze to be kept in the unarmed position until otherwise desired. The booster is encased in a metal cup which protrudes from the base of the fuze. One top of the booster cup is a metal disc with a small hole in the center to hold the detonator cup. Above the detonator is the striker which is held away from the explosive element by a restraining spring and metal safety block.

Functioning: The bomb is dropped and the arming wire is retained in the plane. The arming vane begins to rotate and , after approximately 340 revolutions the fuze is armed. Upon impact, the striker is forced inward against its spring causing the firing pin to strike the detonator of priming mixture, lead azide, and tetryl. The wave produced functions the booster of tetryl which is part of the fuze.

Overall Length	3.59 inches
Explosive Components	Detonator (priming mixture, lead azide, tetryl
Booster	tetryl

Reference: TM 9-1904, Ammunition Inspection Guide, March 1944

APPENDIX I

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