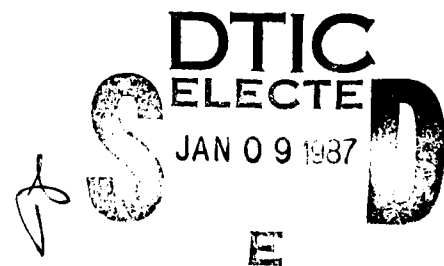


AD-A175 872

HISTORIC PROPERTIES REPORT  
HARRY DIAMOND LABORATORIES, MARYLAND  
AND SATELLITE INSTALLATIONS  
WOODBIDGE RESEARCH FACILITY, VIRGINIA  
AND  
BLOSSOM POINT FIELD TEST FACILITY, MARYLAND

FINAL REPORT

JULY 1984



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This document was prepared under Contract CX-0001-2-0033  
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Engineering Record, National Park Service  
U.S. Department of the Interior

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## EXECUTIVE SUMMARY

Harry Diamond Laboratories (HDL) is a major Army research, development, and test facility located in the metropolitan Washington, D.C. area at Adelphi, Maryland. It is one of seven laboratory complexes of the U.S. Army Electronics Research and Development Command (ERADCOM). Composed of 22 buildings built between 1969 and 1983, HDL is a completely modern installation. Two HDL satellite installations are included in this report: Woodbridge Research Facility in Virginia, and Blossom Point Field Test Facility in Maryland. The Woodbridge subinstallation has 21 buildings, all of which were built between 1952 and 1969. The Blossom Point subinstallation has 20 buildings, most of which date from the 1950s. Because of the relatively recent construction of HDL and its satellite installations, they contain few historic properties and no Category I historic properties deemed of national significance. The only Category II historic property of architectural, historical, or technological significance is the historic Ballast House, a late eighteenth century farmhouse located at Blossom Point that should be preserved in whole or in part. The Ballast House (c. 1800) has been determined eligible for the National Register of Historic Places and has been documented by the Historic American Buildings Survey. There are no Category III historic properties at HDL, Woodbridge, or Blossom Point.



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## PREFACE

This report presents the results of an historic properties survey of Harry Diamond Laboratories, Adelphi, Maryland and satellite installations Woodbridge Research Facility, Woodbridge, Virginia, and Blossom Point Field Test Facility, Blossom Point, Maryland. Prepared for the United States Army Materiel Development and Readiness Command (DARCOM), the report is intended to assist the Army in bringing these installations into compliance with the National Historic Preservation Act of 1966 and its amendments, and related federal laws and regulations. To this end, the report focuses on the identification, evaluation, documentation, nomination, and preservation of historic properties at the three installations. Chapter 1 sets forth the survey's scope and methodology; Chapter 2 presents an architectural, historical, and technological overview of the installations and their properties; and Chapter 3 identifies significant properties by Army category and sets forth preservation recommendations. Illustrations and an annotated bibliography supplement the text.

This report is part of a program initiated through a memorandum of agreement between the National Park Service, Department of the Interior, and the U.S. Department of the Army. The program covers 74 DARCOM installations and has two components: 1) a survey of historic properties (districts, buildings, structures, and objects), and 2) the development of archeological overviews. Stanley H. Fried, Chief, Real Estate Branch of Headquarters DARCOM, directed the program for the Army, and Dr. Robert J. Kapsch, Chief of the

Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) directed the program for the National Park Service. Sally Kress Tompkins was program manager, and Robie S. Lange was project manager for the historic properties survey. Technical assistance was provided by Donald C. Jackson.

Building Technology Incorporated acted as primary contractor to HABS/HAER for the historic properties survey. William A. Brenner was BTI's principal-in-charge and Dr. Larry D. Lankton was the chief technical consultant. Major subcontractors were the MacDonald and Mack Partnership and Melvyn Green and Associates. The authors of this report were John P. Johnson, David G. Buchanan, and William A. Brenner.

The complete HABS/HAER documentation for these installations will be included in the HABS/HAER collections at the Library of Congress, Prints and Photographs Division, under the designation HAER No. MD-48.

## Chapter 1

### INTRODUCTION

#### SCOPE

This report is based on an historic properties survey conducted in 1982 of all Army-owned properties located within the official boundaries of Harry Diamond Laboratories, Woodbridge Test Facility, and Blossom Point Field Test Facility. The survey included the following tasks:

- Completion of documentary research on the history of the installations and their properties, and general research on Harry Diamond and his work.
- Completion of a field inventory of all properties at the three installations.
- Preparation of a combined architectural, historical, and technological overview for the installations.
- Evaluation of historic properties and development of recommendations for preservation of these properties.

Also completed as a part of the historic properties survey of the installations, but not included in this report, are HABS/HAER Inventory cards for 15 individual properties. These cards, which constitute HABS/HAER Documentation Level IV, will be provided to the Department of the Army. Archival copies of the cards, with their accompanying photographic negatives, will be transmitted to the HABS/HAER collections at the Library of Congress.

The methodology used to complete these tasks is described in the following section of this report.

## METHODOLOGY

### 1. Documentary Research

Harry Diamond Laboratories (HDL) and its two satellite facilities at Woodbridge and Blossom Point are unique and have no military or civilian counterparts. Documentary research centered on the history of HDL itself and to biographical information on Harry Diamond, a pioneer radio engineer who first directed the laboratories. Both Maryland and Virginia State Historic Preservation offices were contacted about possible historic properties at HDL and the Woodbridge and Blossom Point satellite facilities. No historic properties were identified by these sources except for the Ballast House at Blossom Point, which is listed on the National Register and has been documented by the Historic American Buildings Survey (see Chapter 3).

Army records used for the field inventory included current Real Property Inventory (RPI) printouts that listed all officially recorded buildings and structures by facility classification and date of construction; the installation's property record cards; base maps and photographs supplied by installation personnel; and installation master planning, archaeological, and environmental assessment and related reports and documents. A complete listing of this documentary material may be found in the bibliography.

## 2. Field Inventory

The field inventory was conducted by John P. Johnson and David G. Buchanan during a one-week period in October 1982. James Shropshire of the Facilities Engineering Office at HDL escorted the survey team at all three installations, and provided building data and copies of photographs used in this report. Rodney Metzger of the Environmental Engineering Office at HDL provided copies of current base maps, master plans, environmental reports, and archeological reports. Marian Singleton of the Public Affairs Office at HDL provided copies of the in-house newsletter, Currents, and made valuable suggestions for further research. Walter W. Weinstein, historian at the National Bureau of Standards in Gaithersburg, Maryland, provided copies of the Bureau's biographical information about Harry Diamond.

Field inventory procedures were based on the HABS/HAER Guidelines for Inventories of Historic Buildings and Engineering and Industrial Structures.<sup>1</sup> All areas and properties were visually surveyed. Building locations and approximate dates of construction were noted from the installation's property records and field-verified.

Field inventory forms were prepared for, and black and white 35 mm photographs taken of all buildings and structures through 1945 except basic utilitarian structures of no architectural, historical, or technological interest. When groups of similar ("prototypical") buildings were found, one field form was normally prepared to represent all buildings of that



type. Field inventory forms were also completed for representative post-1945 buildings and structures.<sup>2</sup> Information collected on the field forms was later evaluated, condensed, and transferred to HABS/HAER Inventory cards.

### 3. Historic Overview

A combined architectural, historical, and technological overview was prepared from information developed from the documentary research and the field inventory. It was written in two parts: 1) an introductory description of the installation, and 2) a history of the installation by periods of development, beginning with pre-military land uses. Maps and photographs were selected to supplement the text as appropriate.

The objectives of the overview were to 1) establish the periods of major construction at the installation, 2) identify important events and individuals associated with specific historic properties, 3) describe patterns and locations of historic property types, and 4) analyze specific building and industrial technologies employed at the installation.

### 4. Property Evaluation and Preservation Measures

Based on information developed in the historical overviews, properties were first evaluated for historical significance in accordance with the eligibility criteria for nomination to the National Register of Historic Places. These criteria require that eligible properties possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that they meet one or more of the following:<sup>3</sup>

- A. Are associated with events that have made a significant contribution to the broad patterns of our history.
- B. Are associated with the lives of persons significant in the nation's past.
- C. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction.
- D. Have yielded, or may be likely to yield, information important in pre-history or history.

Properties thus evaluated were further assessed for placement in one of five Army historic property categories as described in Army Regulation 420-40:<sup>4</sup>

Category I	Properties of major importance
Category II	Properties of importance
Category III	Properties of minor importance
Category IV	Properties of little or no importance
Category V	Properties detrimental to the significance of of adjacent historic properties

Based on an extensive review of the architectural, historical, and technological resources identified on DARCOM installations nationwide, four criteria were developed to help determine the appropriate categorization

level for each Army property. These criteria were used to assess the importance not only of properties of traditional historical interest, but of the vast number of standardized or prototypical buildings, structures, and production processes that were built and put into service during World War II, as well as of properties associated with many post-war technological achievements. The four criteria were often used in combination and are as follows:

- 1) Degree of importance as a work of architectural, engineering, or industrial design. This criterion took into account the qualitative factors by which design is normally judged: artistic merit, workmanship, appropriate use of materials, and functionality.
- 2) Degree of rarity as a remaining example of a once widely used architectural, engineering, or industrial design or process. This criterion was applied primarily to the many standardized or prototypical DARCOM buildings, structures, or industrial processes. The more widespread or influential the design or process, the greater the importance of the remaining examples of the design or process was considered to be. This criterion was also used for non-military structures such as farmhouses and other once prevalent building types.
- 3) Degree of integrity or completeness. This criterion compared the current condition, appearance, and function of a building, structure, architectural assemblage, or industrial process to its original or

most historically important condition, appearance, and function.

Those properties that were highly intact were generally considered of greater importance than those that were not.

4) Degree of association with an important person, program, or event.

This criterion was used to examine the relationship of a property to a famous personage, wartime project, or similar factor that lent the property special importance.

The majority of DARCOM properties were built just prior to or during World War II, and special attention was given to their evaluation. Those that still remain do not often possess individual importance, but collectively they represent the remnants of a vast construction undertaking whose architectural, historical, and technological importance needed to be assessed before their numbers diminished further. This assessment centered on an extensive review of the military construction of the 1940-1945 period, and its contribution to the history of World War II and the post-war Army landscape.

Because technology has advanced so rapidly since the war, post-World War II properties were also given attention. These properties were evaluated in terms of the nation's more recent accomplishments in weaponry, rocketry, electronics, and related technological and scientific endeavors. Thus the traditional definition of "historic" as a property 50 or more years old was not germane in the assessment of either World War II or post-war DARCOM buildings and structures; rather, the historic importance of all properties was evaluated as completely as possible regardless of age.

Property designations by category are expected to be useful for approximately ten years, after which all categorizations should be reviewed and updated.

Following this categorization procedure, Category I, II, and III historic properties were analyzed in terms of:

- Current structural condition and state of repair. This information was taken from the field inventory forms and photographs, and was often supplemented by rechecking with facilities engineering personnel.
- The nature of possible future adverse impacts to the property. This information was gathered from the installation's master planning documents and rechecked with facilities engineering personnel.

Based on the above considerations, the general preservation recommendations presented in Chapter 3 for Category I, II, and III historic properties were developed. Special preservation recommendations were created for individual properties as circumstances required.

## 5. Report Review

Prior to being completed in final form, this report was subjected to an in-house review by Building Technology Incorporated. It was then sent in draft to the subject installation for comment and clearance and, with its associated historical materials, to HABS/HAER staff for technical review. When the installation cleared the report, additional draft copies

were sent to DARCOM, the appropriate State Historic Preservation Officer, and, when requested, to the archeological contractor performing parallel work at the installation. The report was revised based on all comments collected, then published in final form.

#### NOTES

1. Historic American Buildings Survey/Historic American Engineering Record, National Park Service, Guidelines for Inventories of Historic Buildings and Engineering and Industrial Structures (unpublished draft, 1982).
2. Representative post-World War II buildings and structures were defined as properties that were: (a) "representative" by virtue of construction type, architectural type, function, or a combination of these, (b) of obvious Category I, II, or III historic importance, or (c) prominent on the installation by virtue of size, location, or other distinctive feature.
3. National Park Service, How to Complete National Register Forms (Washington, D.C.: U.S. Government Printing Office, January 1977).
4. Army Regulation 420-40, Historic Preservation (Headquarters, U.S. Army: Washington, D.C., 15 April 1984).

## Chapter 2

### HISTORICAL OVERVIEW

#### BACKGROUND

Harry Diamond Laboratories, named after pioneer radio engineer Harry Diamond, is one of the seven laboratory complexes of the U.S. Army Electronics Research and Development Command (ERADCOM). It is the Army's lead facility for fluidics and nuclear-effects technology research and for the development of electronic fuzing for projectiles and missiles. Two satellite facilities at Woodbridge, Virginia, and Blossom Point, Maryland, provide field testing support.

HDL facilities were originally housed within the National Bureau of Standards (NBS), at the Bureau's former site in Washington, D.C. There, Harry Diamond headed a group of engineers and scientists who became the Ordnance Development Division of NBS. This group was initially formed to develop fuzes for non-rotating munitions such as bombs, rockets, and mortar shells. A major early accomplishment of this group, the development of radio doppler proximity fuzes, was heralded as one of the outstanding scientific developments of World War II, second only to the atomic bomb.

In 1953, the Ordnance Development Division of NBS was transferred to the Department of the Army and renamed the Diamond Ordnance Fuze Laboratories (DOFL). DOFL's facilities remained at NBS, but they were administered as a Class II installation by the Office of the Army's Chief of Ordnance. In 1962, DOFL was renamed the Harry Diamond Laboratories, and the Army assigned HDL a broadened mission as a laboratory of the U.S. Army Materiel Command. When plans were made in the 1960s to move the NBS to a new

location in Gaithersburg, Maryland, a joint Army and Navy study group recommended that new and separate HDL facilities be constructed on a 137-acre site adjacent the U.S. Naval Ordnance Laboratory in Adelphi, Maryland. The site, prior to becoming the home of HDL, had been used as farmland and had no historic properties. Construction began at the site in 1969, and by 1983 twenty-two completed structures in Adelphi housed all the HDL activities relocated from Washington, D.C.<sup>1</sup>

Since 1953 the Harry Diamond Laboratories have made a number of significant technical and scientific advances in electronics, radar, fluidics, and on the effects of nuclear irradiation on electronics. HDL research and development efforts have reduced the costs of proximity fuzes while increasing their reliability. Over the past 25 years HDL has developed:

- the first all solid-state radio proximity fuze
- the first automated production techniques for manufacturing low-cost radio proximity fuzes
- the M990 series electrical bomb used by the Navy
- the M904/905 series mechanical bomb fuzes used by the U.S. Air Force
- the Mk-43 proximity bomb sensor for the U.S. Navy Snakeye weapon system



- a series of fuzes for armor piercing antitank munitions
- guided missile fuzes for the Army, Navy, and Air Force
- smaller, less expensive microwave radar antennas
- microwave semiconductor diode switches
- the first optical character recognition reader
- an ultrasonic flow meter and heart monitor system
- fluidic devices for many uses, including for sensing temperatures in jet aircraft engines, for rocket thrust vectoring and weapons stabilization
- studies in the fields of transient radiation effects on electronics and internal and external electromagnetic pulse effects on electronics.

### HARRY DIAMOND LABORATORIES

The 22 buildings and structures at Harry Diamond Laboratories in Adelphi, Maryland are all of modern construction and, for the most part, of utilitarian design. They are located in four general building areas (Figure 1):<sup>2</sup>

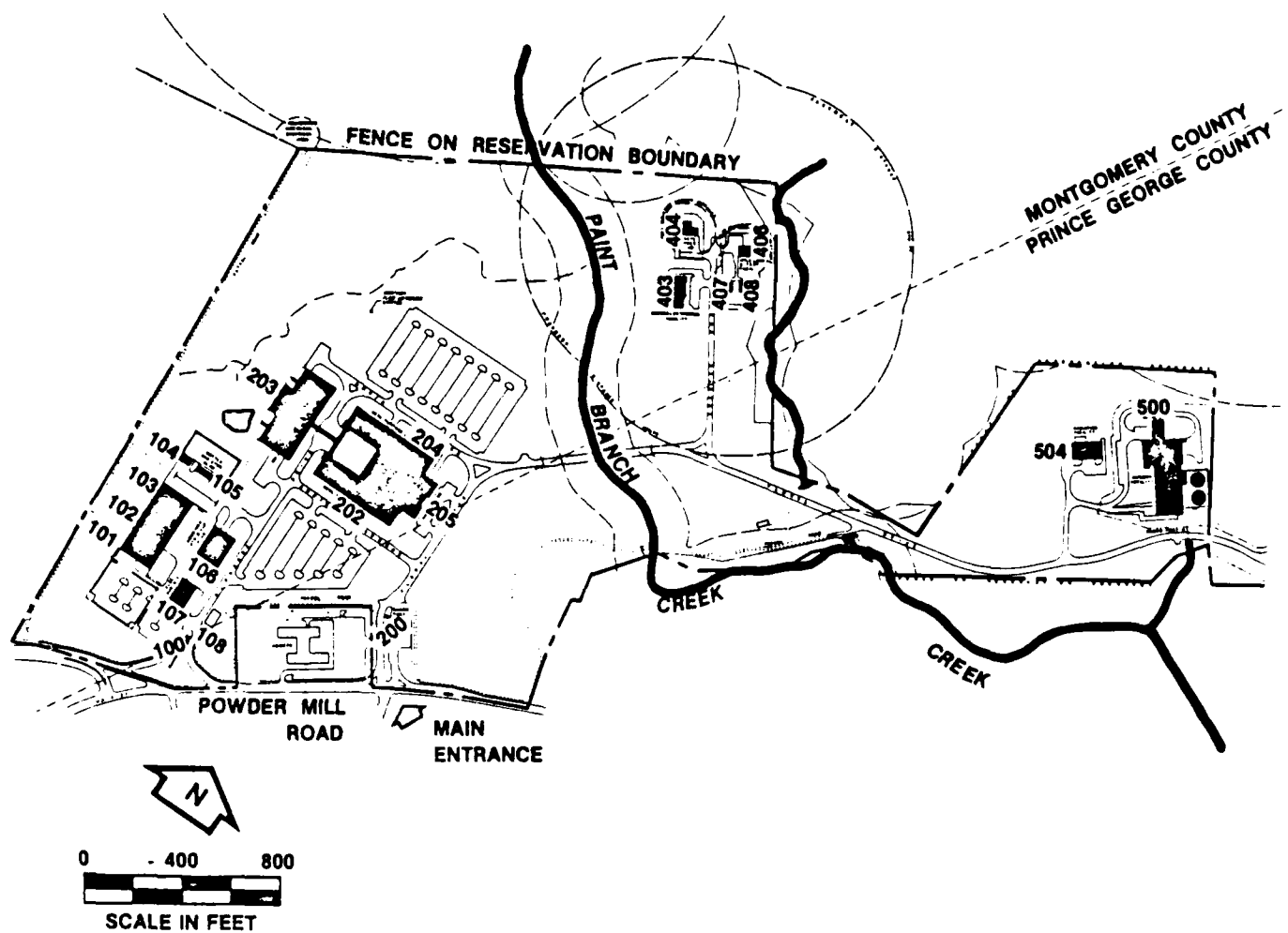


Figure 1. Site map, Harry Diamond Laboratories, Adelphi, Maryland.  
(Source: U.S. Army Toxic and Hazardous Materials Agency)

1. The 100 area is composed of nine structures (Buildings 100-108) that house the installation's service and storage facilities.
2. The 200 area contains HDL's primary administration and laboratory facilities. It is composed of a sentry station (Building 200) and four major buildings. Three of the buildings (Buildings 202, 204, and 205) form a complex that functions as one building and the fourth structure (Building 203) is located to the rear of this complex; together they house HDL's main administrative offices and the major portion of its basic research and development laboratories. The design of the three-building complex is architecturally distinctive. Built between 1974 and 1977, it varies from four to five stories and has a facade of precast concrete interrupted by long, unbroken horizontal bands of dark glass at each floor above ground level (Figure 2).
3. The 400 area currently includes five structures (Buildings 403, 404, 406, 407, and 408) used for small-scale explosives testing.
4. The 500 area contains the Aurora Facility (Building 500) and its associated Electric Equipment Facility (Building 504). Built under the aegis of the Naval Facilities Engineering Command (NAVFAC), the facility houses a large impulse generator used to study the effects of transient radiation (such as that emitted by a nuclear detonation) on electronic communications systems. Construction of the Aurora Facility was begun in 1969 and formally completed in January 1971. The facility is a large, reinforced concrete structure with a precast exterior of simple, but well executed, design (Figure 3).

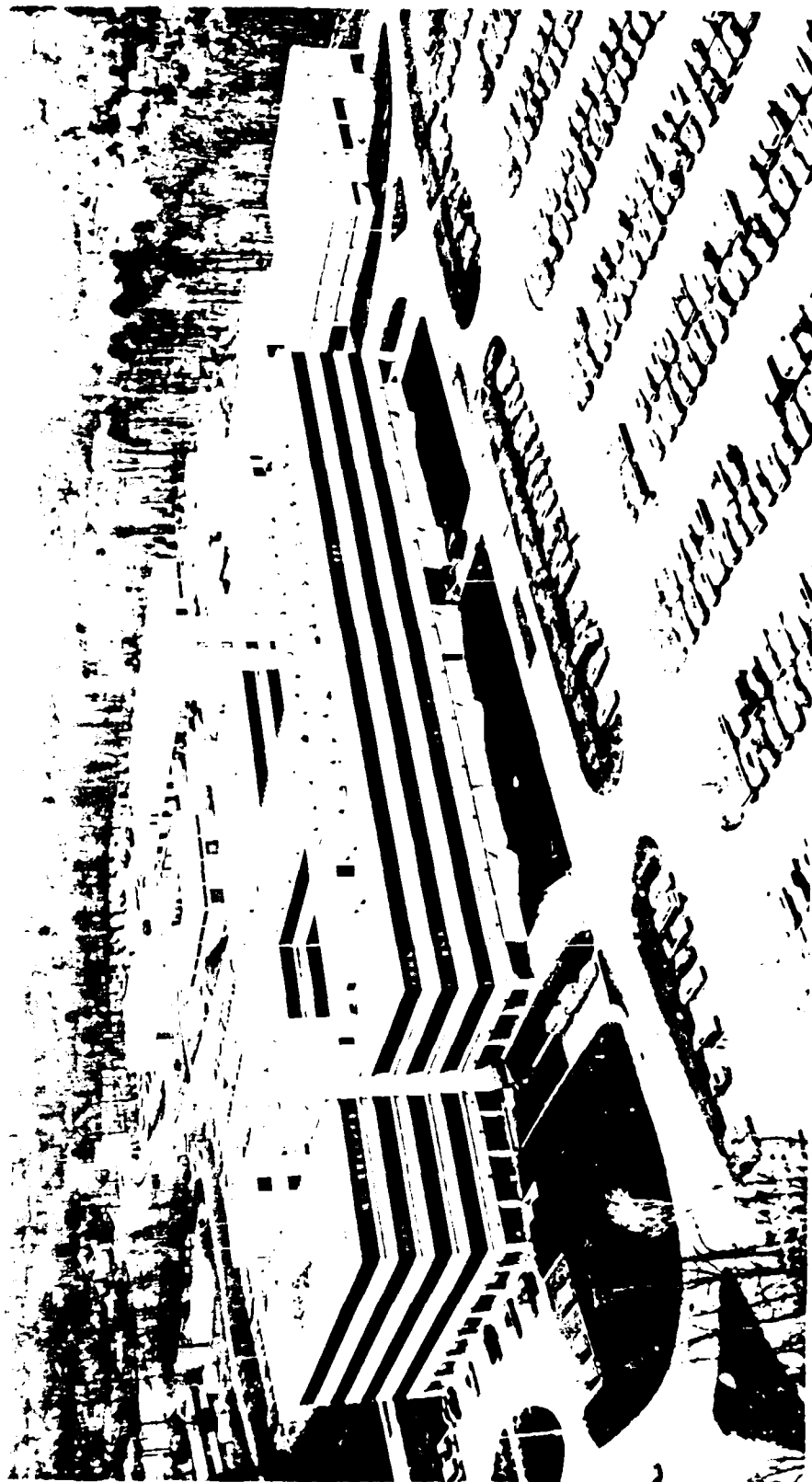


Figure 2. Main administration and laboratory complex (Buildings 202, 204, 205), view from northeast. Harry Diamond Laboratories, Adelphi, Maryland. (Source: HDL Real Estate Office)



Figure 3. Aurora Facility (Buildings 500 and 504), view from south.  
Harry Diamond Laboratories, Adelphi, Maryland.  
(Source: HDL Real Estate Office)

## WOODBIDGE RESEARCH FACILITY

In 1952, the Army built a major radio transmitting station on an isolated and vacant 648-acre woodland site in Woodbridge, Virginia. Composed of three principal communications buildings and a transmission tower, the site was designated the Army Transmitting Station under the U.S. Army Command and Administration Communications Agency, Chief Signal Officer. A counterpart receiving station was located in La Plata, Maryland. In 1962, following a major Army reorganization, the Station was redesignated the Regional Communications Command, East Coast Radio Transmitting Station, Woodbridge, Virginia, and in 1965 the Station was placed under the U.S. Army Strategic Communications Command. The Station was deactivated in July 1969.<sup>3</sup>

In July 1970, most of the Woodbridge site was transferred to the U.S. Army Materiel Command (the housing area was transferred to the Army Engineer Center at Fort Belvoir). The isolation of the facility and the high moisture content of the soil (which had excellent electrical grounding characteristics) led to its use as an electromagnetic pulse development and test site under the U.S. Army Mobility Equipment Research and Development Center, Ft. Belvoir, Virginia. In July 1971, HDL acquired the facility when the Army consolidated its nuclear weapons effects research and test activities.

The Woodbridge Research Facility currently is used for testing the vulnerability of both new and fielded tactical systems to the effects of nuclear attack.

Since actual nuclear detonations testing is now prohibited, a realistic tactical environment is simulated by means of high-voltage electromagnetic pulse (EMP) testing equipment. The 21 permanent buildings at the research facility (19 of which were constructed prior to acquisition by HDL) support this testing activity.<sup>4</sup>

All of the research facility's buildings were erected between 1952 and 1979 and are of simple, utilitarian construction. They are located in three principal areas (Figures 4 and 5):<sup>5</sup>

1. The main entrance area consists of a visitor control building (Building 101) and a sentry station (Building 102). Building 101 was constructed in 1960 and the C&P Telephone Company of Virginia initially used it as an equipment building and terminal for C&P's east coast relay cable. In 1972, the C&P removed the cable.
2. The main compound area is the inner secure area of the research facility (Figure 5). It consists of four permanent brick-faced buildings (Buildings 201, 202, 203, and 211), a 250-foot antenna tower, and a brick guard house (Building 210). The four permanent buildings are primarily used for administration or specialized research and development work in high-voltage technology. Building 201 is an electronics laboratory. Building 203, an electronics laboratory and administration building, Building 202, a high voltage EMP simulations building, and Building 211, a high-voltage EMP simulations laboratory. Buildings 201-203 were built in 1952 and Building 211 in 1979.

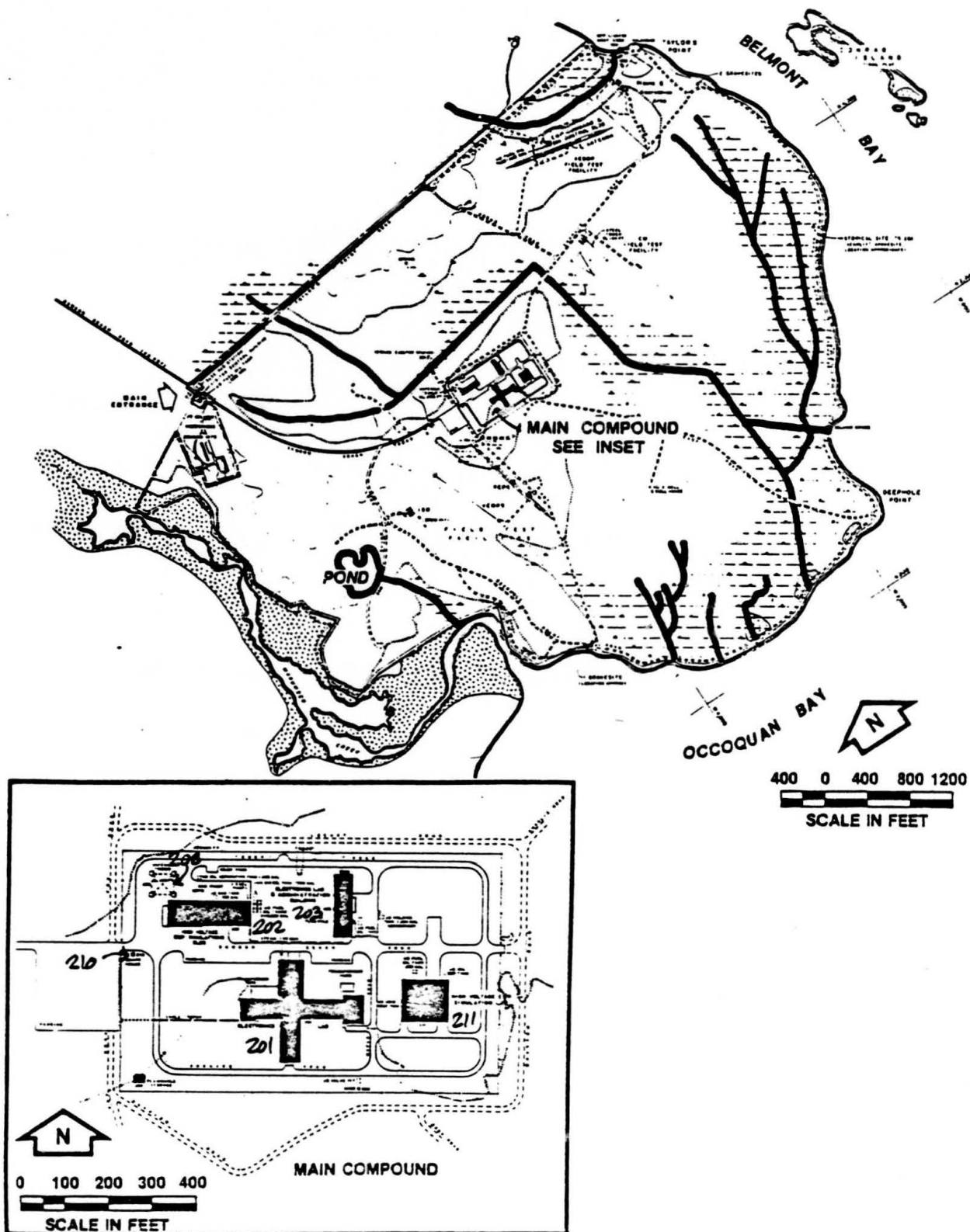


Figure 4. Site map, Woodbridge Research Facility, Woodbridge, Maryland.  
(Source: U.S. Army Toxic and Hazardous Materials Agency)



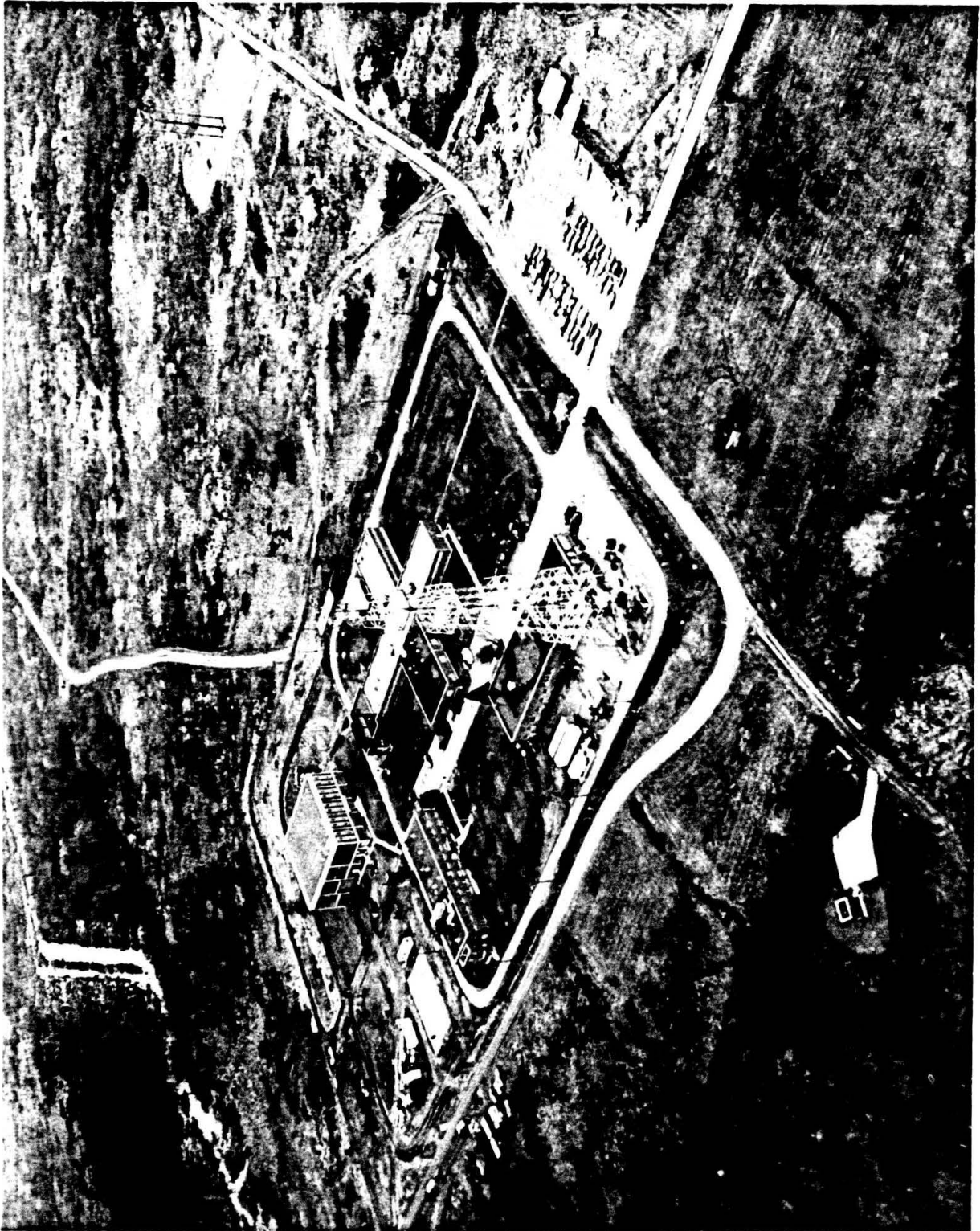


Figure 5. Aerial view of main compound area (200 area), view from northwest. Woodbridge Research Facility, Woodbridge, Maryland, (Source: HDL Real Estate Office)

3. Several test areas are located in different parts of the site. The control centers for these test facilities are, with one exception, mobile office trailers set on blocks, and are unoccupied between projects. The exception is an EMP command and control building (Building 306), which is a permanent structure. Located in the northern corner of the site, it contains an engineering and test bay partially buried in the ground and is used for EMP simulation tests.

#### BLOSSOM POINT FIELD TEST FACILITY

The Blossom Point Field Test Facility is located on an isolated peninsula in the southern part of Charles County, Maryland. The Army has used it as a proving ground and firing range since 1942. Prior to that time it was a part of the Jesuit-owned St. Thomas Manor, which dates from 1793 and was farmed first by the Jesuits and later by tenant farmers.

In 1942, the Catholic Church leased the land to the National Bureau of Standards' Ordnance Development Division, which designated it Blossom Point Proving Ground. A variety of test sites were built, including instrumentation ranges for aerial drops and for nonexplosive rocket, mortar, and other projectile aerial firings. Blossom Point functioned as a fuze and ordnance testing site until 1974 when testing was transferred to the Edgewood Area of Aberdeen Proving Ground. All remaining testing activities at Blossom Point terminated in 1976. Faced with the option of purchasing or decontaminating the leased property, the Army acquired the site in 1980 and reactivated it as a satellite installation of HDL.<sup>6</sup>

Blossom Point currently is used for field testing HDL-developed fuzes, explosive and pyrotechnic devices, and electronic telemetry systems. The facility consists of 20 buildings; all are of simple, utilitarian construction except the historic Ballast House. Nine buildings date from 1942 (all of them storage facilities); the majority of the remainder were built during the 1950s. The buildings are situated in three general areas (Figure 6):<sup>7</sup>

1. The main building area (Figure 7) currently consists of historic Ballast House (Building 501), three nonpermanent field office trailers, general maintenance and storage buildings, ordnance storage and loading facilities, a well house (Building 509), and two towers. The observation tower is a steel structure 175 feet in height with a 100-square-foot enclosed shed at the 90 foot level and an elevator. The tower firing point is a six-legged wood structure topped by a wooden platform at 85 feet and is connected by a steel walkway to the observation tower.

The Ballast House (c. 1790-1815) is a two-story structure that exemplifies the architectural design and craftsmanship of the Federal period in rural Maryland (Figures 8-9). It is of brick construction and has several additions of a later period. The structure was used as a farmhouse until 1942, and then as a field office until it was boarded up in the 1960s. Ballast House was listed on the National Register of Historic Places in 1979 and was documented in 1979-80 by the Historic American Buildings Survey of the U.S. Department of the Interior.<sup>8</sup>

## BUILDING INDEX

**BALLAST HOWE**

BALLAST HOUSE		FACILITY FACILITY	
T-101	MAINTENANCE	P-201	ORDNANCE FACILITY
T-102	MAINTENANCE	P-202	ORDNANCE FACILITY
T-103	MAINTENANCE	P-203	ORDNANCE FACILITY
T-104	GEN. PURP. WHSE.	T-203	HEATING PL. (oil)
T-105	GEN. PURP. WHSE.	T-204	HEATING PL. (oil)
T-106	GEN. PURP. WHSE.	T-205	ORDNANCE FACILITY
T-107	MOTOR REPAIR SHOP	T-206	ORDNANCE WHSE.
T-108	WATER PUMP STA.	T-207	ORDNANCE FACILITY
T-109	GEN. PURP. WHSE.	T-208	ORDNANCE FACILITY
T-110	GEN. PURP. WHSE.	T-209	ORDNANCE FACILITY
T-111	ORDNANCE FACILITY	T-210	ORDNANCE FACILITY
T-112	ORDNANCE FACILITY	T-211	ORDNANCE FACILITY
T-113	MAINTENANCE SHOP	T-212	ORDNANCE FACILITY
T-114	MAINTENANCE SHOP	T-213	ORDNANCE FACILITY
T-115	MAINTENANCE SHOP	T-214	FUZE DET. MAG.
T-116	ORDNANCE FACILITY	T-215	FUZE DET. MAG.
T-117	ORDNANCE FACILITY	T-216	FUZE DET. MAG.
T-118	GEN. PURP. WHSE.	T-217	ORDNANCE FACILITY
T-119	GEN. PURP. WHSE.	T-218	ORDNANCE FACILITY
T-120	VEHICLE SHED	T-219	ORDNANCE FACILITY
T-300	GEN. PURP. WHSE.	T-220	GEN. PURP. WHSE.
T-301	ORDNANCE FACILITY	T-221	ORDNANCE FACILITY
T-302	ORDNANCE FACILITY	T-222	ORDNANCE FACILITY
T-303	ORDNANCE FACILITY	T-223	ORDNANCE FACILITY
T-304	ORDNANCE FACILITY	T-224	ORDNANCE FACILITY
T-305	GEN. PURP. WHSE.	T-225	ORDNANCE FACILITY
T-306	GEN. PURP. WHSE.	T-226	ORDNANCE FACILITY
T-307	FUZE DET. MAG.	T-227	ORDNANCE FACILITY
T-308	FUZE DET. MAG.	T-228	ORDNANCE FACILITY
T-309	VEHICLE SHED	T-229	ORDNANCE FACILITY
T-400	ORDNANCE FACILITY	T-301	ORDNANCE FACILITY
T-401	ORDNANCE FACILITY	T-302	ORDNANCE FACILITY
T-402	ORDNANCE FACILITY	T-303	ORDNANCE FACILITY
T-403	GEN. PURP. WHSE.	T-304	ORDNANCE FACILITY
T-404	ORDNANCE FACILITY	T-305	ORDNANCE FACILITY
T-405	ORDNANCE FACILITY	T-306	ORDNANCE FACILITY
T-406	ORDNANCE FACILITY	T-307	ORDNANCE FACILITY
T-407	ORDNANCE FACILITY	T-308	ORDNANCE FACILITY
T-408	ORDNANCE FACILITY	T-309	ORDNANCE FACILITY
T-409	ORDNANCE FACILITY	T-310	ORDNANCE FACILITY
T-410	ORDNANCE FACILITY	T-311	ORDNANCE FACILITY
T-411	ORDNANCE FACILITY	T-312	ORDNANCE FACILITY
T-412	ORDNANCE FACILITY	T-313	ORDNANCE FACILITY
T-413	ORDNANCE FACILITY	T-314	ORDNANCE FACILITY
T-414	ORDNANCE FACILITY	T-315	ORDNANCE FACILITY
T-415	ORDNANCE FACILITY	T-316	ORDNANCE FACILITY
T-416	ORDNANCE FACILITY	T-317	ORDNANCE FACILITY
T-417	ORDNANCE FACILITY	T-318	ORDNANCE FACILITY
T-418	ORDNANCE FACILITY	T-319	ORDNANCE FACILITY
T-419	ORDNANCE FACILITY	T-320	ORDNANCE FACILITY
T-420	ORDNANCE FACILITY	T-321	ORDNANCE FACILITY
T-421	ORDNANCE FACILITY	T-322	ORDNANCE FACILITY
T-422	ORDNANCE FACILITY	T-323	ORDNANCE FACILITY
T-423	ORDNANCE FACILITY	T-324	ORDNANCE FACILITY
T-424	ORDNANCE FACILITY	T-325	ORDNANCE FACILITY
T-425	ORDNANCE FACILITY	T-326	ORDNANCE FACILITY
T-426	ORDNANCE FACILITY	T-327	ORDNANCE FACILITY
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T-430	ORDNANCE FACILITY	T-331	ORDNANCE FACILITY
T-431	ORDNANCE FACILITY	T-332	ORDNANCE FACILITY
T-432	ORDNANCE FACILITY	T-333	ORDNANCE FACILITY
T-433	ORDNANCE FACILITY	T-334	ORDNANCE FACILITY
T-434	ORDNANCE FACILITY	T-335	ORDNANCE FACILITY
T-435	ORDNANCE FACILITY	T-336	ORDNANCE FACILITY
T-436	ORDNANCE FACILITY	T-337	ORDNANCE FACILITY
T-437	ORDNANCE FACILITY	T-338	ORDNANCE FACILITY
T-438	ORDNANCE FACILITY	T-339	ORDNANCE FACILITY
T-439	ORDNANCE FACILITY	T-340	ORDNANCE FACILITY
T-440	ORDNANCE FACILITY	T-341	ORDNANCE FACILITY
T-441	ORDNANCE FACILITY	T-342	ORDNANCE FACILITY
T-442	ORDNANCE FACILITY	T-343	ORDNANCE FACILITY
T-443	ORDNANCE FACILITY	T-344	ORDNANCE FACILITY
T-444	ORDNANCE FACILITY	T-345	ORDNANCE FACILITY
T-445	ORDNANCE FACILITY	T-346	ORDNANCE FACILITY
T-446	ORDNANCE FACILITY	T-347	ORDNANCE FACILITY
T-447	ORDNANCE FACILITY	T-348	ORDNANCE FACILITY
T-448	ORDNANCE FACILITY	T-349	ORDNANCE FACILITY
T-449	ORDNANCE FACILITY	T-350	ORDNANCE FACILITY
T-450	ORDNANCE FACILITY	T-351	ORDNANCE FACILITY
T-		T-352	ORDNANCE FACILITY

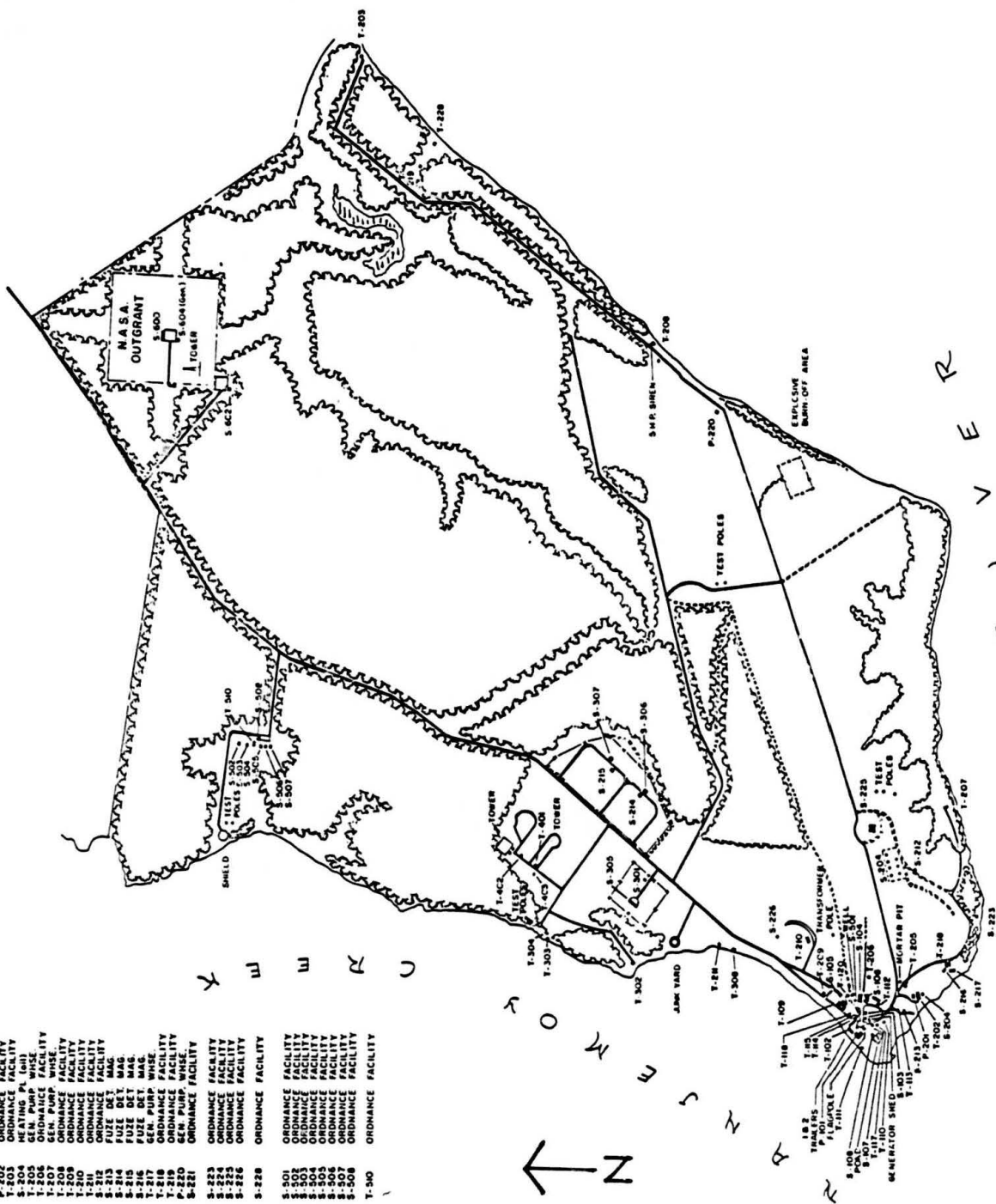


Figure 6. Site map, Blossom Point Field Test Facility, Charles County, Maryland. (Source: HDL Facility Engineer)



Figure 7. Aerial View of main building area at western tip of Blossom Point, view from north. Blossom Point Field Test Facility, Charles County, Maryland (Source: HDT, Real Estate Office)

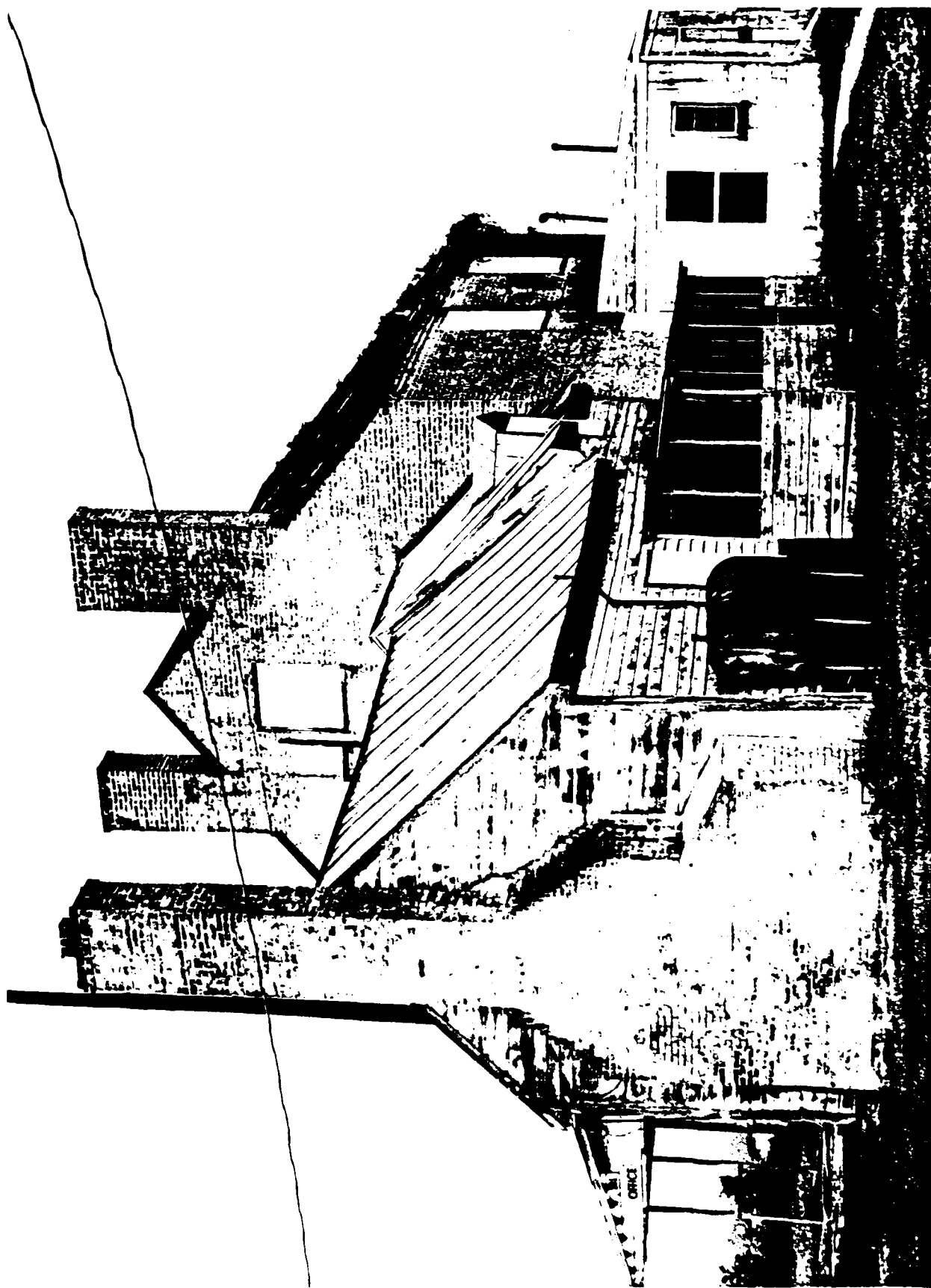


Figure 8. Ballast House (Building P-101), view from northeast. Blossom Point Field Test Facility, Charles County, Maryland, (Source: HDL Real Estate Office)

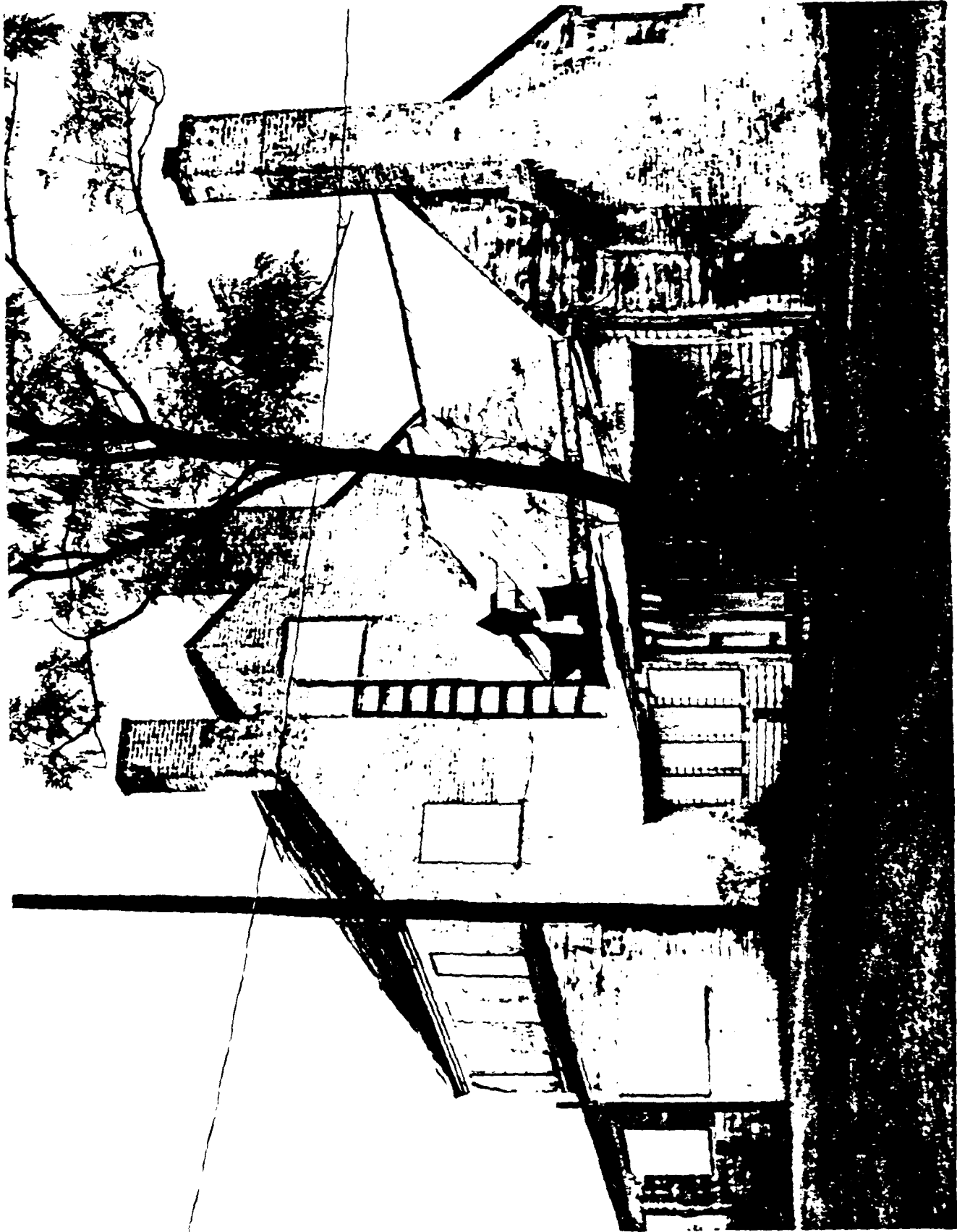


Figure 9. Ballast House (Building P-101), view from southeast. Blossom Point Field Test Facility, Charles County, Maryland. (Source: HDL Real Estate Office)

2. Test areas are located north of the main building area on Nanjemoy Creek and west of the main building area on the Potomac River. Structures include observation towers, test poles, small outbuildings (mostly of temporary construction), and six explosive storage magazines that date from 1942. Magazines 402 and 403 are nonstandard, earth-covered, arch-type structures consisting of 1-foot-thick reinforced concrete walls and an unbarricaded steel door. Magazine 401 is of lighter construction and is used for inert storage.
3. An area in the northern tip of the site is leased to the National Aeronautics and Space Administration Department of the Navy and consists of an observation tower and two small buildings.

#### NOTES

1. This brief history was drawn from the following: DARCOM Installation and Activity Brochure, Harry Diamond Laboratories, December 1981; Diamond Ordnance Fuze Laboratories, Five Years Old, Twenty Years Experience, Cochrane, Rexmond C., "The Radio Proximity Fuze;" Measures for Progress: A History of the National Bureau of Standards, pp. 388-398; Army Materiel Command, A History of the Relocation of the Harry Diamond Laboratories from Washington, D.C. to Adelphi, MD, 1956-1976, pp. 40-52.
2. Environmental Science and Engineering, Installation Assessment of ERADCOM Activities: Harry Diamond Laboratories, Maryland; Woodbridge Research Facility, Virginia, passim; Corps of Engineers, Harry Diamond Laboratories, Adelphi, MD, Basic Information Master Plan: Analysis of Existing Facilities and Environmental Assessment, passim.
3. Environmental Science and Engineering, Installation Assessment of ERADCOM Activities: Harry Diamond Laboratories, Maryland; Woodbridge Research Facility, Virginia; Blossom Point Field Test Facility, Maryland, passim.
4. Corps of Engineers, Woodbridge Research Facility, Woodbridge, Basic Information Master Plan: Analysis of Existing Facilities and Environmental Assessment, passim.



5. Ibid.
6. See No. 1 above.
7. Ibid.
8. Interagency Archeological Services; 106 Case Report and Mitigation Plan: Ballast House, Blossom Point Testing Facility, Charles County, Maryland; Historic American Building Survey, "Ballast House, Blossom Point, Charles County, Maryland."

## Chapter 3

### PRESERVATION RECOMMENDATIONS

#### BACKGROUND

Army Regulation 420-40 requires that an historic preservation plan be developed as an integral part of each installation's planning and long range maintenance and development scheduling.<sup>1</sup> The purpose of such a program is to:

- Preserve historic properties to reflect the Army's role in history and its continuing concern for the protection of the nation's heritage.
- Implement historic preservation projects as an integral part of the installation's maintenance and construction programs.
- Find adaptive uses for historic properties in order to maintain them as actively used facilities on the installation.
- Eliminate damage or destruction due to improper maintenance, repair, or use that may alter or destroy the significant elements of any property.
- Enhance the most historically significant areas of the installation through appropriate landscaping and conservation.

To meet these overall preservation objectives, the general preservation recommendations set forth below have been developed:

#### Category I Historic Properties

All Category I historic properties not currently listed on or nominated to the National Register of Historic Places are assumed to be eligible for nomination regardless of age. The following general preservation recommendations apply to these properties:

- a) Each Category I historic property should be treated as if it were on the National Register, whether listed or not. Properties not currently listed should be nominated. Category I historic properties should not be altered or demolished. All work on such properties shall be performed in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation (ACHP) as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800).
  
- b) An individual preservation plan should be developed and put into effect for each Category I historic property. This plan should delineate the appropriate restoration or preservation program to be carried out for the property. It should include a maintenance and repair schedule and estimated initial and annual costs. The preservation plan should be approved by the State Historic Preservation Officer and the Advisory Council in accordance with the above referenced ACHP regulation. Until the historic preservation plan is put into effect, Category I historic properties should be maintained in accordance with the recommended approaches of the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings<sup>2</sup> and in consultation with the State Historic Preservation Officer.

- c) Each Category I historic property should be documented in accordance with Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Documentation Level II, and the documentation submitted for inclusion in the HABS/HAER collections in the Library of Congress.<sup>3</sup> When no adequate architectural drawings exist for a Category I historic property, it should be documented in accordance with Documentation Level I of these standards. In cases where standard measured drawings are unable to record significant features of a property or technological process, interpretive drawings also should be prepared.

#### Category II Historic Properties

All Category II historic properties not currently listed on or nominated to the National Register of Historic Places are assumed to be eligible for nomination regardless of age. The following general preservation recommendations apply to these properties:

- a) Each Category II historic property should be treated as if it were on the National Register, whether listed or not. Properties not currently listed should be nominated. Category II historic properties should not be altered or demolished. All work on such properties shall be performed in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation (ACHP) as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800).

- b) An individual preservation plan should be developed and put into effect for each Category II historic property. This plan should delineate the appropriate preservation or rehabilitation program to be carried out for the property or for those parts of the property which contribute to its historical, architectural, or technological importance. It should include a maintenance and repair schedule and estimated initial and annual costs. The preservation plan should be approved by the State Historic Preservation Officer and the Advisory Council in accordance with the above referenced ACHP regulations. Until the historic preservation plan is put into effect, Category II historic properties should be maintained in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings<sup>4</sup> and in consultation with the State Historic Preservation Officer.
- c) Each Category II historic property should be documented in accordance with Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Documentation Level II, and the documentation submitted for inclusion in the HABS/HAER collections in the Library of Congress.<sup>5</sup>

### Category III Historic Properties

The following preservation recommendations apply to Category III historic properties:

- a) Category III historic properties listed on or eligible for nomination to the National Register as part of a district or thematic group should be treated in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800). Such properties should not be demolished and their facades, or those parts of the property that contribute to the historical landscape, should be protected from major modifications. Preservation plans should be developed for groupings of Category III historic properties within a district or thematic group. The scope of these plans should be limited to those parts of each property that contribute to the district or group's importance. Until such plans are put into effect, these properties should be maintained in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings<sup>6</sup> and in consultation with the State Historic Preservation Officer.
- b) Category III historic properties not listed on or eligible for nomination to the National Register as part of a district or thematic group should receive routine maintenance. Such properties should not be demolished, and their facades, or those parts of the property that contribute to the historical landscape, should be protected from modification. If the properties are unoccupied, they should, as a minimum, be maintained in stable condition and prevented from deteriorating.

HABS/HAER Documentation Level IV has been completed for all Category III historic properties, and no additional documentation is required as long as they are not endangered. Category III historic properties that are endangered for operational or other reasons should be documented in accordance with HABS/HAER Documentation Level III, and submitted for inclusion in the HABS/HAER collections in the Library of Congress.<sup>7</sup> Similar structures need only be documented once.

### CATEGORY I HISTORIC PROPERTIES

There are no Category I historic properties at Harry Diamond Laboratories or its subinstallations, Woodbridge Research Facility and Blossom Point Field Test Facility.

### CATEGORY II HISTORIC PROPERTIES

#### Ballast House

- Background and significance. The Ballast House is a two-story brick structure located at the Blossom Point Field Test Facility. Built c. 1790-1815, it is of simple design and construction, with brick masonry bearing walls and interior wood framing. The main block of the house is approximately square and has two flush chimneys on its southeast side. Its exterior is extremely plain except for several rows of corbelled brickwork beneath the eaves. There is a partially enclosed wood porch flanking the building's southwest side, and a relatively recent concrete block addition on the northeast, which is now boarded off from the

remainder of the house and contains toilet facilities that are still in use by installation personnel. A wood frame kitchen wing is located on the southeast end of the house; this wing was apparently once detached and later joined to the house by a filler addition with a dormered roof. The wing is sheathed in clapboard siding and has a large free-standing chimney on its southeast end. It also has one enclosed and one open porch on the southwest side and a small screened porch on the northeast side. All roofs on the house are metal covered.

The interior of the main block is plain, with simple but consistent trim and woodwork that appears to be original. Interior alterations include lowered ceilings, the addition of a second floor bathroom and a wall to enclose the attic stairs, and conversion of the attic to a habitable room. The kitchen wing has been extensively renovated and its fireplace bricked up.

The Ballast House was declared eligible for listing on the National Register in 1979, largely because of its interior woodwork, which was said to be of value in understanding the evolution of interior woodwork in the late eighteenth and early nineteenth century houses of southern Maryland. Other items judged to be of significance were the kitchen, said to be unique to the local area since few kitchen dependencies from that period apparently still survive; the kitchen chimney, which appears to contain a bake oven, said to be unique to the period; and the building's long association with the Society of Jesus (Jesuits), its builders and the owners of its surrounding property from 1649 to 1980. The Ballast House is listed



as property CH-337 on the Maryland Historical Trust Inventory of Historic Sites, Charles County. It is a Category II historic property because it is important in southern Maryland as a work of architecture and is regionally unique to the historic period in which it was built (see Chapter 2, Blossom Point Field Test Facility, and Figures 8 and 9).

- Condition and potential adverse impacts. The Ballast House was converted to a field office by the Army in 1942, was boarded up in the 1960s, and has remained vacant since that time. An inspection of the building in January 1984 revealed that the building's 8" thick brick bearing walls are in generally good condition, although there is cracking above and below the middle second floor window on the northeast elevation and delamination of the outer brick layer near the ground line; mortar deterioration and two areas of bulging on both gable ends; and some masonry cracking above and below the first and second story windows on the northwest elevation. The wooden window sills are extremely deteriorated. There is significant mortar deterioration on the kitchen chimney. The kitchen porches are highly deteriorated and partially collapsed, and the floors of the flanking southwest porch are deteriorated and in some places badly damaged. The interior face of the exterior brick walls, where exposed, is in some locations damp and suffering mortar deterioration. Above the ground floor line the interior wood framing appears intact, as does most of the plaster and wood trim; when probed with a moisture meter, these components had moisture readings below 20%, well within safe range.

The Ballast House is located on the edge of a steep embankment on the Potomac River. In recent years this embankment has eroded to the point that the house is in danger. A study by the Army Corps of Engineers in 1978 found that protection of the embankment would be extremely expensive, with alternative stabilization schemes ranging in cost from \$467,000 to \$1,045,000. Since that time, the Army has added some rock fill below the embankment as a stopgap measure. Current estimates of the length of time remaining before the embankment begins to undermine the house vary from one to ten years, depending on natural events associated with the river that are largely unpredictable.

In 1979, Harry Diamond Laboratories entered into a Memorandum of Agreement with the Maryland State Historic Preservation Office and the Advisory Council on Historic Preservation regarding the future of the Ballast House. To date, Harry Diamond Laboratories has complied with the Memorandum of Agreement to the following extent:

- 1) The house has been recorded to the standards of the Historic American Buildings Survey (1979).
  - 2) A new site for the house has been selected and plans and cost estimates prepared for its relocation and stabilization (1979).
  - 3) A cultural resources survey has been completed for the Blossom Point facility (1979).
  - 4) Funding from the Department of the Army for such a relocation was sought, but not received (1980).
- Preservation recommendations. The estimated cost of relocating and stabilizing (but not restoring) the Ballast House was \$138,000 in late 1979. The Department of the Army, in refusing to fund the project, stated in a letter to Harry Diamond Laboratories in June 1980 that:

- 1) The house is "not an outstanding example of Maryland architecture of the first quarter of the 19th century. Rather, it is a good example of vernacular building in the traditional form and style of the period and region. While the building is of some value because of its age, it has little value as an example of significant architecture....It is inappropriate to fund this project as a historic preservation project to the extent of \$138,000."
- 2) The estimated cost of \$138,000 did not include the cost of restoring the building, parts of which are highly deteriorated, and there is no present or future known requirement for utilizing the building if it were to be restored.
- 3) Harry Diamond Laboratories should, in light of the above, renegotiate the Memorandum of Agreement to allow for the demolition of the Ballast House, while saving significant building materials for the Maryland Historic Trust or other eligible grantees, or for sale.

From all available evidence, it is questionable whether the Ballast House is of sufficient architectural or historical merit to warrant the high cost of moving and stabilizing the structure, not to mention restoring it. Were the building in fact successfully moved to the planned relocation site, it still would be unusable without considerable restoration work and would still be located in a restricted area inaccessible to the public.

It is therefore recommended that Harry Diamond Laboratories seek to modify the Memorandum of Agreement in a manner which would provide that:

- 1) The Ballast House would be offered first to a public, and second to a private, party that would agree to remove the building from Army property (at a specified maximum cost to government) and to undertake its care. The offering should be adequately publicized in southern Maryland and in state and national preservation publications. Properly executed, the offering would be a fair test of public support for the building's preservation.

- 2) If support were not forthcoming within a reasonable period of time, the Army should be allowed to demolish the building. In this event, an expert in historic building interiors should be first retained by the Army to evaluate the building's interior woodwork, determine if it should be salvaged, and recommend appropriate recipients for the woodwork if it were to be removed. Although the Ballast House was recorded by the Historic American Buildings Survey in 1979, detailed measured drawings of its woodwork were not prepared. If the woodwork were found to be of special significance, such measured drawings should then be completed and added to the existing HABS documentation.

### CATEGORY III HISTORIC PROPERTIES

There are no Category III historic properties at Harry Diamond Laboratories or its subinstallations, Woodbridge Research Facility and Blossom Point Field Test Facility.

### NOTES

1. Army Regulation 420-40, Historic Preservation (Headquarters, U.S. Army: Washington, D.C., 15 April 1984).
2. National Park Service, Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings, 1983 (Washington, D.C.: Preservation Assistance Division, National Park Service, 1983).
3. National Park Service, "Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," Federal Register, Part IV, 28 September 1983. pp. 44730-44734.
4. National Park Service, Secretary of the Interior's Standards.

5. National Park Service, "Archeology and Historic Preservation."
6. National Park Service, Secretary of the Interior's Standards.
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