

Buildings 140, 141, and 144  
Nike Missile Site C-80/81  
COL P. Schulstad USARC IL002/17580  
Arlington Heights  
Cook County, Illinois

IL HABS CK-2012-2

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

SUPPLEMENTAL DOCUMENTATION

HISTORIC AMERICAN BUILDINGS SURVEY

National Parks Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, D.C. 20240-0001

**Illinois HABS Level III Documentation of Buildings 140, 141, and 144 at  
Nike Missile Site C-80/81  
COL P. Schulstad United States Army Reserve Center IL002/17580  
Arlington Heights  
Cook County, Illinois**

Prepared for the

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## **Introduction**

This document was prepared to fulfill stipulations of the Memorandum of Agreement (MOA) between the 88th Regional Support Command (RSC) and the Illinois State Historic Preservation Officer (SHPO) dated December 4, 2012 covering the COL P. Schulstad United States Army Reserve Center Building 141 demolition. The 88th RSC contracted with Brockington and Associates, Inc. via Mobile District, U.S. Army Corps of Engineers (MCOE) to complete the documentation. The HABS documentation is intended as a resolution for the adverse effect caused by demolition of a potentially eligible building in accordance the requirements of Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 CFR Part 800. The documentation, including field photography and report writing, was conducted by Architectural Historian Cameron Sexton under the direction of Senior Historian F. Patricia Stallings.

Nike Missile Site C-80/81,  
COL P. Shulstad USARC IL002/ 17580  
Arlington Heights, Cook County, Illinois  
Illinois HABS No. CK-2012-2  
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**Nike Missile Site C-80/81**  
**COL P. Schulstad USARC (IL002/17580)**  
**Arlington Heights, Cook County, Illinois**

**Location:** Nike Missile Site C-80/81 is within the boundaries of the COL P. Schulstad United States Army Reserve Center, which is located at 1515 West Central Road, Arlington Heights, Cook County, Illinois 60005-2475. (See Figure 1.1 on page 34)

Map Reference: Arlington Heights, IL Quadrangle, USGS 7.5 Minute Series  
UTM: Z16, 416840E, 4657040N  
T41N R11E, Section 9

**Present Owner and Occupant:** This facility is owned by the U.S. Government, Department of the Army, 88th Regional Support Command.

**Present Use:** Buildings 140, 141, and 144 of Nike Missile Site C-80/81 are now part of the COL P. Schulstad U.S. Army Reserve Center. The facility is currently used to train Army Reserve personnel. (See Figure 1.2 on page 35)

**Significance:** Constructed during the early Cold War, Nike Missile batteries, along with Strategic Air Command bomber bases and missile silos, were the primary military installations that symbolized the United States' Cold War military strategy of using technology and nuclear weapons to protect itself from the larger conventional forces of the Soviet Union. During the 1950s and 1960s, the Nike batteries were tasked with the defense of major American urban and industrial areas from Soviet bomber nuclear attack. At its peak, the Army operated over 200 Nike sites in the United States. With the introduction of intercontinental ballistic missiles, the U.S. moved away from anti-aircraft defense toward the development of anti-ballistic missile technology, and the last Nike Missile battery was deactivated in the mid-1970s.



## PART I: HISTORICAL INFORMATION

### A. Physical History

1. **Date of construction:** Nike Missile Site C-80/81 was constructed between 1954 and 1956. The Site C-80DC, the Missile Master Complex for the Chicago-Gary Defense Area, was constructed from 1959 to 1960.
2. **Architects:** Leon Chatelain, Jr., along with the architectural firm of Spector and Montgomery, designed the standard plans for the Nike Missile buildings. The firm of Amman and Whitney Consulting Engineers developed the standardized construction plans for Missile Master facilities.
3. **Original and subsequent owners:** Department of the Army.
4. **Builders:** The United States Army Corps of Engineers Chicago District was tasked with the building of all of the Nike Sites in the Chicago-Gary Defense Area. The Corps hired local contractors to construct each of the sites, but no specific documentation related to the contractor for Nike Missile Site C-80/81 has been found.

### B. Historical Context

#### Air Defense Historical Context<sup>1</sup>

Since the first balloons served as scouting platforms in the American Civil War, soldiers have been trying to shoot aerial enemies out of the sky.<sup>2</sup> The danger from above became more significant over time, as the world's militaries progressed from aerial reconnaissance, to aerial bombing, to the use of unmanned rockets at the end of World War II. U.S. military planners observed the devastating power of these new aerial technologies, and began developing ways to counter the expanding threat. Their research took on new urgency as America's relationship with the Soviet Union deteriorated, and it became clear the antiaircraft artillery batteries that protected the nation's cities and coastlines would be insufficient in a future conflict.

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<sup>1</sup> The Air Defense Historic Context was originally developed by Ed Salo and Cameron Sexton as part of the *HABS Documentation of the Oakdale Army Air Defense Base, Nike Missile Site PI-62, and Nike Maintenance Shop, Neville Island, Vicinity of Oakdale and Pittsburgh, Allegheny County, Pennsylvania (revised 2011)*. Two good books that deal with the development of the American strategy for air defense during the Cold War are B. Bruce-Briggs, *The Shield of Faith: Strategic Defense from Zeppelins to Star Wars* (New York: Touchstone Books, 1988), and James Chace and Caleb Carr, *America Invulnerable: The Quest for Absolute Security from 1812 to Star Wars* (New York: Simon and Schuster, 1989).

<sup>2</sup> For a history of the U.S. Army Air Defense Artillery, see James D. Crabtree, *On Air Defense* (Praeger Paperback, 1994).

For the first years of the Cold War, the U.S. had a monopoly on atomic weapons and their delivery platform, the B-29 long-range strategic bomber. The monopoly ended when the Soviets used reverse engineering to build their own version of the B-29. The first TU-4 was unveiled in 1947. In 1949, the Soviet Union tested its first atomic weapon. By 1954, they possessed a stockpile of 200 bombs, which was smaller than the American arsenal, but still formidable. Americans were painfully aware after the Japanese attack on Pearl Harbor that the measure of security afforded by geographic separation from Europe and Asia was waning, but Hawaii was still a significant distance from the American mainland. The Soviet development of the TU-4 and their possession of nuclear weapons removed that remaining sense of security, because it meant for the first time that an adversary could decimate America's largest cities from above.<sup>3</sup>

A document produced by the 209<sup>th</sup> Anti-Aircraft Artillery (AAA) Group gives an indication of the assumptions held at that time:

- (1) The initial air attack against the Continental UNITED STATES will be made in force and with little or no warning. Simultaneous attacks will be made on as many critical objectives as the enemy capability at the time will permit.
- (2) The USSR [Soviet Union] will attack with atomic bombs from altitudes up to 30,000 feet employing TU-4 (B-29) type aircraft, the possibility of a low level attack must not be ignored.<sup>4</sup>

U.S. decision-makers and military planners developed a two-part strategy for countering the threat from the Soviet Union. The first part of the strategy was called deterrence. Under this strategic concept, the military worked to deter the Soviet Union from an attack on the U.S. or its allies with the threat of massive atomic retaliation designed to destroy the enemy's ability and willingness to make war. If the deterrence strategy failed, the military made plans and developed weaponry designed to minimize the destruction caused by an attack.<sup>5</sup>

The U.S. Air Force held the primary responsibility for defending the nation from an air attack. Air Force planners developed a "defense-in-depth" strategy that encompassed early warning radars, fighter aircraft, and long-range anti-aircraft missiles positioned to

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<sup>3</sup> GlobalSecurity.org. For information on the Soviet TU-4 "Bull":  
<http://www.globalsecurity.org/wmd/world/russia/tu-4.htm>.

<sup>4</sup> 209<sup>th</sup> AAA Group, *Operation Plan for the Antiaircraft Defense of Pittsburgh 1951, AAD-PTP-1-51* (On file at the Senator John Heinz Pittsburgh Regional History Center), 4.

<sup>5</sup> John C. Lonnquest and David F. Winkler, *To Defend and Deter: The Legacy of the United States Cold War Missile Program*, USACERL Special Report 97/01 (U.S. Army Construction Engineering Research Laboratories, Champaign, IL. Rock Island, IL: Defense Publishing Service, November 1996), 1-2.

detect and engage the enemy before they entered American airspace.”<sup>6</sup> Because its weapons had greater range and were able to protect a larger area, the Air Force was charged with the area defense portion of “defense-in-depth.” The U.S. Army had shorter range weapons that provided close protection of strategic sites. The Army’s anti-aircraft artillery batteries were therefore considered point defense weaponry. The “defense-in-depth” design created two tiers of protection for strategic sites. If an enemy was able to breach the outer or area defense tier provided by the Air Force, the attacker still had to deal with the inner or point defense tier provided by the Army.<sup>7</sup>

### Creation of the Nike Antiaircraft Missile Program<sup>8</sup>

#### *Development of the Nike System*

Planning for a missile-based antiaircraft system began during the last months of World War II, when the U.S. Military realized that conventional anti-aircraft artillery could not deal with the fast, high-flying and maneuverable jet aircraft and rockets being introduced by the Germans. The development of short-range antiaircraft missiles fell to the U.S. Army, as a natural evolution of the point defense they had historically provided with antiaircraft artillery. After observing the effects of the Nazi V-1 and V-2 rocket attacks on London, U.S. Army Lieutenant Jacob W. Schaefer, a former employee of Bell Telephone Laboratories, proposed the development of a radio-controlled antiaircraft rocket that could be used to protect strategic sites from bomber attack. His proposal called for “command guidance” that would use multiple radars to direct a missile to an incoming target. In June 1945, Army contractor Western Electric and its research and development arm, Bell Laboratories, began development of the new system. Western Electric selected Douglas Aircraft Company as the major subcontractor to design and manufacture the missile, booster, and launching equipment.<sup>9</sup> The U.S. Army initially called the new weapon the Anti Aircraft Guided Missile (AAGM). Later, Colonel Gervaise Trichel, head of U.S. Army advanced research and a classical scholar, named

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<sup>6</sup> Ibid., 3.

<sup>7</sup> Ibid., 2-3.

<sup>8</sup> There are several excellent histories of the Nike missile program. These include popular works, scholarly works, and official histories. The best popular work is Mark Morgan and Mark A Berhow, *Rings of Supersonic Steel: Air Defenses of the United States Army 1950-1979 - An Introductory History and Site Guide* (Bogeda Bay, CA: Hole in the Head Press, 2002). The official history of the Nike Ajax program is Mary T. Cagle, *Development, Production, and Deployment of the Nike Ajax Guided Missile System, 1945 – 1959* (Redstone Arsenal, Alabama: U.S. Army Ordnance Missile Command, 1959). These works should be consulted for a more detailed look at the program.

<sup>9</sup> Stephen P. Moeller, “Vigilant and Invincible”; Mark L. Morgan and Mark A Berhow, *Rings of Supersonic Steel: Air Defenses of the United States Army 1950-1979 - An Introductory History and Site Guide* (Bogeda Bay, CA, Hole in the Head Press, 2002); B. Bruce-Briggs, *The Shield of Faith*, 46-47; Lonquest and Winkler, *To Defend and Deter*, 170; Christina M. Carlson and Robert Lyon, *Last Line of Defense: Nike Missile Sites in Illinois* (Denver, CO: National Park Service, Rocky Mountain System Support Office, 1996), 27-31.

the new missile Nike for the Greek goddess of victory.<sup>10</sup> The first generation of the Nike Missile was called the Nike Ajax. When it was deployed in 1954, it was “the world’s first operational guided, surface-to-air missile system.”<sup>11</sup>

### *Nike Technical Specifications and Operation*

The Nike Ajax missile assembly consisted of a missile portion and a booster portion. The missile was 21 feet long and 12 inches in diameter. It had a wingspan of four feet six inches and weighed 1,000 pounds. With the booster attached, the length was increased to 34 feet 10 inches, and the weight increased to 2,455 pounds. The Ajax had a range of 25 to 30 miles, could reach an altitude of 70,000 feet, and had a top speed of Mach 2.3 (1,679 miles per hour [mph]).<sup>12</sup>

Nike missiles were guided by a computer in the Integrated Firing Control (IFC) area from the time they were launched until they were detonated by a signal from the IFC. A Nike battery was activated when the acquisition radar detected a target and verified that it was hostile. The Target Tracking Radar (TTR) would then lock onto and track the hostile target. A third radar, the Missile Tracking Radar (MTR), was then aimed at an individual Nike missile located at the nearby Launcher Area. Both the TTR and MTR were linked to a guidance computer located within the Battery Control Trailer at the IFC Area. The missile was launched and sent on its supersonic path to intercept the hostile target. The MTR relayed steering commands from the guidance computer to guide the missile toward the target. At the moment of closest approach, the missile’s three warheads would be detonated by a computer generated “burst command” sent from the ground via the MTR.<sup>13</sup>

### *Nike Testing and Infrastructure Construction*

On September 17, 1946, the first static firing of a Nike Ajax missile took place at White Sands Proving Ground, New Mexico. Launch tests continued throughout 1947, but the project had fallen behind schedule as of 1948 due to problems with the original booster configuration. The eight solid-fuel boosters that were to be placed around the tail of the missile were replaced with a single solid-fuel booster placed at the end of the missile. Technical advances were made throughout the subsequent months of testing. By October 1950, K. T. Keller, the Director of Guided Missiles for the Department of Defense (DoD), recommended acceleration of the program. In January 1951, the Army ordered production of 1000 Nike Ajax missiles and 60 sets of ground equipment. The Army’s faith in the project was rewarded when a Nike Ajax successfully intercepted a QB-17

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<sup>10</sup> Bruce-Briggs, *The Shield of Faith*, 47. The U.S. would continue to name missiles after Greek and Roman mythology. (i.e., the Atlas and the Jupiter Missiles).

<sup>11</sup> Lonnquest and Winkler, *To Defend and Deter*, 165.

<sup>12</sup> Ibid., 165.

<sup>13</sup> Ibid., 168.

drone over White Sands Proving Ground on November 27, 1951. By January 1953, the first Nike Ajax battery and assembly area prototype was set up for operation at White Sands. Five months later, in June 1953, the first Nike Ajax was fired from an underground launch facility. The Nike Ajax was ready to protect America's strategic sites, but deployment presented a new set of challenges.<sup>14</sup>

One of the challenges that faced military planners and the designers of the Nike Ajax system as they prepared to deploy the weapons was the vast amount of real estate required for each installation. As originally designed, a Nike Ajax installation was located aboveground in two separate areas: the battery control area and the launching area. A total of 119 acres was required for construction of these two areas. This amount of property was easier to obtain in less-developed, less-populated western states, but significantly more challenging in the highly populated urban areas of the eastern U.S. Military planners initially sought land in rural areas outside highly populated strategic sites, but changed their approach when they realized that building the installations in proximity to the defended area increased the effective range of the missiles.<sup>15</sup>

Leon Chatelain Jr., the design architect for the project, proposed the construction of an underground launcher installation that would reduce the real estate requirement for individual installations to about 40 acres. The new design would also accommodate the proposed Nike Hercules missile, which was larger than the Nike Ajax. After testing the underground magazine configuration at White Sands in 1953, the Army decided that it would adopt the underground version for the majority of installations nationwide. With the design proven, Chatelain, along with the architectural firm of Spector and Montgomery, began preparing drawings for nationwide distribution. Once the land was acquired, local U.S. Army Corps of Engineer districts contracted with private construction firms to execute the Chatelain plans.<sup>16</sup>

#### *Typical Nike Ajax Missile Installation*

In the early 1950s, tensions between the U.S. and the Soviet Union were increasing. The Army felt an urgent need to field the Nike Ajax throughout the country as quickly as possible, especially after the delays with the development of the missile. Army planners initially considered using prefabricated buildings, but ultimately decided to use standardized, "modified emergency" designs that were more permanent. These buildings were typically one to two stories in height, and featured concrete block walls with flat metal roofs. This utilitarian, industrial design is considered Military Vernacular architecture. The style is characterized by the lack of high-style design influences, as the

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<sup>14</sup> Ibid., 170-171.

<sup>15</sup> Ibid., 171-172

<sup>16</sup> Ibid.

standardized plans were intended to be purely functional and adaptable to local conditions.<sup>17</sup>

A typical Nike Ajax missile installation featured three distinct areas: the administrative area, the Integrated Fire Control Area, and the Launcher Area. The administrative area was often built on an adjacent parcel of land to the IFC or the launch area. A typical administrative area featured the following buildings: a barracks, a sentry guardhouse, an administration building, a paint/oil shed, a water treatment plant, a mess hall, a recreation/administration supply building, and a separate area with single-story detached homes for married personnel and their families.<sup>18</sup> The design of the missile system required the IFC and the Launcher Area to be separated by at least 1,000 yards, but no more than three miles. To launch a missile, the radar equipment needed a direct line of sight between the IFC and the Launcher Area.<sup>19</sup>

The Integrated Fire Control Area: The IFC was the nerve center of a Nike Ajax installation. It was headquarters to the battery commander, and the location for all of the radar, computer and control equipment that was needed to detect a hostile target and subsequently launch and guide a Nike missile to intercept the target. The IFC was usually constructed on high ground to prevent any interference from the surrounding terrain. Unlike the semi-permanent buildings in the administration and Launcher Areas, most of the structures in the IFC were designed to be used on a more temporary basis. The guidance computer and the consoles for the three radars were actually housed in mobile trailers so that they could be adapted to changes in radar technology.<sup>20</sup>

According to the 2003 *Architectural Inventory and Evaluation of the C. E. Kelly Support Facility*, a typical Nike Ajax control area featured the following buildings and structures:

- Acquisition Radar (ACQR) - this primary surveillance radar for each individual Nike Ajax battery could detect approaching aircraft at a considerable distance from the site and was equipped with Identification Friend or Foe (IFF) features, which enabled a battery to positively identify hostile aircraft and avoid firing on any friendly aircraft operating in the area.
- Target Tracking Radar - used the range (distance) and azimuth (direction) data obtained from the Acquisition Radar to locate and electronically lock onto hostile

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<sup>17</sup> S. I Enscoe, S. P. Johnson, M. A. Pedrotty, and J. L. Webster, *Historical and Architectural Documentation Reports for Albrook Air Force Station and Howard Air Force Base Former Panama Canal Zone, Republic of Panama* (Champaign-Urbana, Illinois: U.S. Army Corps of Engineers, Construction Engineering Research Laboratories, 1997).

<sup>18</sup> Carlson and Lyon, *Last Line of Defense: Nike Missile Sites in Illinois*, 53-56.

<sup>19</sup> Lonnquest and Winkler, *To Defend and Deter*, 170-173.

<sup>20</sup> Enscoe, et al., *Historical and Architectural Documentation Reports*, 56-59.

aircraft targeted for destruction. Tracking of an incoming aircraft was normally accomplished in an automatic mode, the TTR antenna following the aircraft in spite of any attempted evasive action. The TTR also reported the position of the aircraft to the guidance computer located inside of the Battery Control Trailer.

- Missile Tracking Radar - tracked the missile during its flight, reported its position to the ground-based guidance computer, and transmitted steering commands generated by the guidance computer so the missile could intercept its target.
- Guidance Computer - as the “electronic brain” of the Nike Ajax system, this analog computer was inside the Battery Control Trailer on the ground. During an actual missile firing, it continuously compared the relative locations of both the target (aircraft) and the launched Nike missile. Based on this data, it generated the steering commands necessary to direct the missile to intercept its target and generated the “burst command” that detonated the missile’s warheads at the moment of closest approach to the target aircraft.
- Radar Collimation Mast - a 60-foot tall radar mast that provided Nike crews with both visual and electronic “targets” against which the tracking radars could be aligned.
- Battery Control Trailer - this portable trailer, which directed the engagement of hostile aircraft, housed the Battery Control Officer’s console, Acquisition Radar display and operator, early warning plotting board, event recorder, and the analog guidance computer and operator. The Battery Control Officer stationed here would initiate the actual firing of a Nike missile located at the separate Launcher Area.
- Radar Control Trailer - contained the consoles for the TTR and MTR. The controls of the TTR could track targets in an automatic mode, or in various assisted or manual modes of operation. Individual operators within the Radar Control Trailer could adjust the TTR through all three axes of operation including range (distance), azimuth (direction), and elevation (height). The MTR operator electronically locked this radar onto the individual missile selected for firing prior to its launch.
- Interconnecting Corridor - small facility used for docking both the Battery and Radar Control Trailers at permanent Nike sites within the U.S. The structure provided simplified crew ingress and egress and contained space for a technician and spare parts. At many sites, a separate room for the Fire Unit Integration Facility (FUIF) equipment, which integrated a battery with fire distribution systems such as the Missile Master or Battery Integrated Radar Display Equipment (BIRDIE), was later added to the Interconnecting Corridor.

- Barracks and Ready Room - provided for both enlisted men and officers at each Nike installation. These were often one-story concrete block buildings (although some sites used semi-permanent prefabricated structures).
- Generator Building - contained diesel-powered electrical generators capable of supplying the Control Area with full tactical power during an attack. Under most conditions, Nike sites obtained electrical power via the local commercial electrical grid. However, if this power supply was interrupted due to bomb damage or sabotage at critical moments when power was most needed (i.e., during an actual air attack), each Nike facility could generate its own internal electrical power.
- Paint and Oil Shed - situated at a distance from other buildings and structures at the sites and stored such flammable materials as paints, solvents, and oil.
- Sentry Guardhouse - access to each Nike facility was controlled by at least one sentry checkpoint. Also, an enclosed six-foot (or taller) chain link fence topped by barbed wire surrounded each facility.<sup>21</sup>

The Launcher Area: “In addition to being the site from which the missiles would be launched, the Launcher Area was the location in which the missiles were assembled and their guidance and control systems tested.”<sup>22</sup> The structures and operations associated with the Launcher Area required a considerable amount of space, so the Launcher Area was a larger facility than the IFC. Part of this space was used as a common disposal area for the expended booster casings that fell from the missiles after they were launched.<sup>23</sup>

The missile storage magazines were the most important structures within the Launcher Area. The magazines at early Nike missile installations were built aboveground, but the Army soon adopted an underground magazine configuration. The underground magazine design required smaller parcels of land for construction and provided greater protection in the event of an accidental explosion. At installations with underground magazines, the Nike missiles were stored horizontally on large racks. In the event of a missile launch, a Nike missile would be transported aboveground using a missile elevator. Depending on the types of launchers at a particular installation, the missile would be launched directly from an elevator launcher or Launcher Area personnel would manually transfer the missile from the elevator to one of four satellite launchers. After being placed on a launcher, the missile was raised to a near vertical position and fired.<sup>24</sup>

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<sup>21</sup> Laurie J. Paonessa, Elizabeth B. O’Brien, Susan L. Bupp, and Donald E. Bender, *Architectural Inventory and Evaluation U.S. Army Support Element Charles E. Kelly Support Facility Oakdale, Pennsylvania* (Fairfax, Virginia: Parsons, Inc., January 2003), 32-33.

<sup>22</sup> Ibid, 33.

<sup>23</sup> Lonquest and Winkler, 173.

<sup>24</sup> Paonessa, et al., *Charles E. Kelly Support Facility*, 34.



Four basic types of Nike underground storage magazines were developed - Types "A," "B," "C," and "D." Type A was designed for Nike Ajax missiles and the missile storage pit underground typically measured 42 feet in length and 63 feet in width. The larger "B" type could accommodate Ajax or the larger, second-generation Hercules missiles and measured 49 feet by 60 feet. The "C" type was essentially a former Ajax "A" magazine modified to hold Hercules missiles, and was the same size as an "A" magazine but was the only type without a launcher on an elevator. The "D" type was designed for Hercules missiles and was therefore the largest type: 62 feet long by 68 feet wide. However, the most commonly used types were the "B" and "C" type magazines. Each "B" or "C" type missile storage magazine was capable of holding as many as ten fully assembled or twelve partially assembled Nike Ajax missiles. Most underground Nike missile magazines featured a separate underground personnel room accessed via a corridor off the main magazine room. Three heavily constructed blast-resistant doors protected the crews while missile firings were conducted. An escape ladder led from the personnel room to a hatch at the surface of the site, providing an alternate means of egress in the event of an emergency.<sup>25</sup>

A typical Launcher Area featured the following buildings and structures:<sup>26</sup>

- Missile Assembly and Test Building - since Interstate Commerce Commission regulations prevented complete missiles from being transported over public roads, Nike Ajax missiles arrived unassembled and were assembled and tested in this building. Large, overhead doors at each end allowed the unassembled missiles to be wheeled in on one side of the building while completed missiles exited on the other side. After assembly, missiles were moved to the Acid Fueling area.
- Acid Fueling Area - located in proximity to the Missile Assembly and Test Building, this area was completely surrounded by eight- to 10-foot high earthen berms with sloped sides designed to protect the site and its personnel by deflecting the force of an accidental explosion. This was the location where the three high-explosive warheads were emplaced within the missile body and the booster rocket was attached. Subsequently, the completed missile was placed within one of the site's underground missile storage magazines.
- Acid Storage Shed - provided a space for storing containers of Inhibited Red Fuming Nitric Acid, the oxidizer for the liquid-fuel Nike Ajax missiles.

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<sup>25</sup> Ibid, 34.

<sup>26</sup> Ibid, 34-35.

- Paint and Oil Shed - same as provided in Control Area description.
- Sentry Guardhouse - same as provided in Control Area description.
- Launcher Control Trailer (LCT) - housed communications equipment and supervised the launch sections by acting as an intermediary between the Launcher and Control Areas. Firing commands to launch missiles would have been sent from the Control Area to the Launcher Area via the special buried Inter-area Cable connected to this portable trailer. The LCT also had a steel mast that could electronically simulate a Nike Ajax missile erected to its near-vertical launch position. This enabled personnel at the Control Area to perform certain procedures without requiring Launcher Area personnel to bring an actual missile out of the underground magazines.
- Generator Building - same as provided in Control Area description.
- Barracks and Ready Room - same as provided in Control Area description.
- Kitchen/Mess Hall - located at either the Launcher or Control Area, this dual-purpose building provided food and common dining facilities for personnel.
- Recreational Facilities - most sites offered an outdoor basketball court and/or softball field.

### *Deployment of Nike*

In March 1954, the first Nike Ajax unit deployed to an aboveground site at Fort Meade, Maryland. On May 30, 1954, it became fully operational on an around-the-clock, combat ready status. By 1958, the U.S. Army had deployed nearly 200 Nike Ajax batteries around the nation's cities and vital military installations. Table 1.1 lists the locations of Nike Missile Defense Areas in the U.S.<sup>27</sup>

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<sup>27</sup> Lonquest and Winkler, *To Defend and Deter*, 135. Paonessa, et al., *Charles E. Kelly Support Facility*, 31. Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 82-202.

**Table 1.1.** Nike Missile Defense Areas in the United States.

Anchorage (AK)	Baltimore (MD)	Barksdale AFB (LA)
Bergstrom AFB (TX)	Boston (MA)	Bridgeport (CT)
Buffalo (NY)	Chicago-Gary (IL, IN)	Cincinnati-Dayton (OH, IN)
Cleveland (OH)	Dallas-Fort Worth (TX)	Detroit (MI)
Dyess AFB (TX)	Ellsworth AFB (SD)	Fairbanks (Ft Wainwright & Eielson AFB) (AK)
Fairchild AFB (WA)	Hanford (WA)	Hartford (CT)
Homestead-Miami (FL)	Kansas City (KS, MO)	Key West (FL)
Lincoln AFB (NE)	Loring (ME)	Los Angeles (CA)
Milwaukee (WI)	Minneapolis-St. Paul (MN, WI)	New York (NY, NJ)
Niagara Falls (NY)	Norfolk (VA)	Oahu (Pearl Harbor) (HI)
Offutt AFB (IA/NE)	Philadelphia (PA, NJ)	Pittsburgh (PA)
Providence (RI, MA)	Robins AFB (GA)	San Francisco (CA)
Seattle (WA)	Shilling AFB (Kansas)	St. Louis (IL, MO)
Travis AFB (CA)	Turner AFB (GA)	Walker AFB (NM)
Washington DC (MD, VA)		

Ultimately, Western Electric and its numerous subcontractors worked together to produce 350 missile batteries for domestic and overseas deployment. To arm these batteries, Douglas Aircraft built 13,714 missiles at its plant in Santa Monica, California and at the U.S. Army Ordnance Missile Plant in Charlotte, North Carolina.<sup>28</sup>

#### *Manning of the Nike Missile Installations*

During the Korean War, the Army did not have enough personnel to man all of the Nike installations throughout the country. To make up for the shortfall, the government federalized National Guard battalions to provide anti-aircraft defense. The National Guard battalions were replaced with Regular Army battalions at the end of the war, but this proved too expensive during the budget cutbacks of the Eisenhower administration. The U.S. Army Chief of Staff decided to replace some of the Regular Army personnel with less expensive National Guardsmen. Rather than federalize every member of the Nike missile batteries, certain technicians and officers were selected and designated Special Security Forces (SSF). Each firing battery had 15 such SSF personnel who worked full time. The additional personnel required to round out the battery were ordinary guardsmen who drilled one weekend a month and attended a two-week camp once a year.<sup>29</sup>

<sup>28</sup> Lonquest and Winkler, *To Defend and Deter*, 165.

<sup>29</sup> Moeller, "Vigilant and Invincible."

*Development of the Missile Master System*

While the Nike Ajax was being deployed throughout the country, plans were already underway to make improvements in terms of the command and control systems and the firepower of an individual missile. The Army was concerned that the Ajax would not be able to offer sufficient protection to strategic sites if the Soviet Union attacked with massed bomber squadrons flying at different altitudes in different directions. The Martin Company of Orlando, Florida began work on an automated command and control system that would address these concerns.<sup>30</sup>

The Missile Master (AN/FSG-1) system, which became operational in 1957, automated the command and control operations of the Nike Missile batteries, making them considerably more efficient. It could differentiate between friend and foe, as well as coordinate up to 24 individual Nike batteries to engage 24 separate targets. Missile Master systems nationwide were ultimately integrated with the Air Force's Semi-Automatic Ground Environment (SAGE) and BIRDIE systems to create a nationwide air defense system.<sup>31</sup>

The Army built Missile Master installations to protect the largest and most strategically important defended areas. Table 1.2 (below) provides information on the 10 Missile Master installations constructed nationwide.<sup>32</sup>

**Table 1.2.** United States Missile Master sites.

Facility Name	Location	Defense Area
Fort George G. Meade	Maryland	Washington-Baltimore
Fort Heath (Winthrop)	Massachusetts	Boston
Fort Lawton	Washington	Seattle
Fort MacArthur	California	Los Angeles
Arlington Heights	Illinois	Chicago-Gary
Highlands Army Air Defense Base	New Jersey	New York
Lockport Air Force Station	New York	Niagara Falls-Buffalo
Oakdale Army Air Defense Base	Pennsylvania	Pittsburgh
Pedricktown Army Air Defense Base	New Jersey	Philadelphia
Selfridge Air Force Base	Michigan	Detroit

<sup>30</sup> Paonessa, et al., *Charles E. Kelly Support Facility*, 35- 37.

<sup>31</sup> Ibid., 35-47.

<sup>32</sup> Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 82-202.

The buildings constructed for Missile Master sites were designed by Ammann and Whitney Consulting Engineers. They were purpose-built, utilitarian structures, like those constructed for the Nike missile batteries. In addition to the support facilities like those found at Nike installations, Missile Master sites typically featured the following four buildings:<sup>33</sup>

- Missile Master Blockhouse – also known as the Anti-Aircraft Operations Center (AAOC), this window-less, blast- and fallout-resistant reinforced concrete building housed the Missile Master's electronic equipment, the radar screens and Plexiglass® plotting boards of the Blue Room (or Anti-Aircraft Operations Room), as well as offices, supply and maintenance rooms, and emergency accommodations and rations for more than 100 personnel. This structure also contained the follow-on fire distribution systems associated with the later version of the Missile Master, or the AN/TSQ-51 Missile Mentor system. In fact, the equipment of the AN/TSQ-51 system was stored in two large trailers that could be moved inside the Missile Master Blockhouse for protection from blasts and radiation.
- Back-up Power Generator Facility – located within a fenced compound surrounding the Missile Master Blockhouse, the facility contained large diesel-powered engines able to internally supply full power to the base if the local power system was damaged. Underground storage tanks supplied the fuel necessary to operate the engines.
- Pump House – this building stored water pumps for fire-fighting purposes.
- Water Storage Reservoir – a large, circular metal storage tank that contained an emergency water supply.

The Army began replacing its expensive and cumbersome Missile Master system with the Hughes AN/TSQ-51 Missile Mentor system in the mid-1960s, with the first Missile Mentor system providing air defense for the Chicago area in 1966. Missile Mentor cost one tenth of the Missile Master system's cost, and was one of the first applications of second-generation solid-state computing to command and control of missile systems.<sup>34</sup>

#### *The Evolution and Deactivation of Nike Missile Systems*

Ultimately, the Nike Ajax missile system had a short service life in the continental United States. The first Ajax unit deployed to Fort Meade, Maryland in March 1954. By June 1958, the Army had begun the process of adapting existing Nike Ajax batteries to support

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<sup>33</sup> Paonessa, et al., *Charles E. Kelly Support Facility*, 37-38.

<sup>34</sup> Globalsecurity.org, Missile Mentor information: <http://www.globalsecurity.org/wmd/systems/an-tsq-51.htm>.

a second-generation surface-to-air missile, the Nike Hercules. During testing of the Ajax missile, the Army became concerned about the missile's ability to defend strategic sites in the event of a massed Soviet bomber attack. It was not considered feasible at the time to add a nuclear warhead to the Ajax missile, so the Army authorized the development of the nuclear-capable Nike Hercules. In addition to carrying a nuclear payload that the engineers believed could destroy a Soviet bomber squadron, the Nike Hercules had an increased range of 75 miles. This was nearly triple the range of the Nike Ajax. As a result of this increased range and firepower, fewer Nike Hercules batteries were required to protect the strategic areas than the Nike Ajax. The Army ultimately built 35 new Nike Hercules batteries, and adapted 110 existing Nike Ajax batteries to accommodate the Nike Hercules. The remaining Nike Ajax batteries were subsequently deactivated. The Army defended the nation's strategic sites with the Nike Hercules until the mid-1970s. By that time, it had become clear that the Soviets would be more likely to attack the U.S. with ICBMs than with massed bomber squadrons. In the technological race that characterized the Cold War, the military had to move beyond traditional surface-air-missiles to develop an ABM system that would address the new ICBM threat.<sup>35</sup>

### State and Local Historic Contexts

#### *Nike Missile Defense in Illinois*

The Nike program in Illinois began in the mid-1950s when the Army began to develop the surface-to-air missile defenses for the city of Chicago. The proximity of Chicago to Gary, Indiana allowed the Army to build a series of 20 Nike Ajax installations that would provide protection for both cities. Fifteen of the installations that were part of the Chicago-Gary Defense Area were located in Illinois, and the remaining five were located in northern Indiana. The Chicago-Gary Defense Area was considered a prime target for a Soviet bomber attack because it was densely populated and had a high concentration of industrial activity in areas critical for national defense.<sup>36</sup>

Ongoing concerns about the ability of the Nike Ajax to repel a massed Soviet bomber attack prompted the Army to deploy the second generation Nike Hercules surface-to-air missile in the late 1950s. The Nike Hercules was a significantly more powerful weapon than the Nike Ajax. It had nearly three times the range of the Nike Ajax, and could be fitted with a nuclear warhead that would be much more likely to destroy a large bomber squadron. This increased capability meant that fewer Nike Hercules batteries were needed to protect each strategic site.<sup>37</sup>

In the late 1950s, the Army upgraded the batteries at nine of the Nike Ajax facilities that were part of the Chicago-Gary Defense Area to accommodate Nike Hercules Missiles.

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<sup>35</sup> Lonnquest and Winkler, *To Defend and Deter*, 172-177.

<sup>36</sup> Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 96-102.

<sup>37</sup> Lonnquest and Winkler, *To Defend and Deter*, 172-181.

Nike Missile site C-03 (Montrose/Belmont, Illinois) was actually the first operational Nike Hercules installation in the United States. The 11 other Nike Ajax batteries were considered obsolete and subsequently deactivated. At the same time, the Army constructed four new Nike Hercules installations to provide protection for St. Louis, Missouri. Three of the Nike Hercules installations were on the eastern side of the Mississippi River in Illinois, and the fourth was on the western side of the river in Missouri. The air defense of St. Louis initially consisted of 90mm anti-aircraft guns, but local officials fought to receive Nike Hercules installations. From 1960 to 1968, the Nike Hercules installations provided protection for the city's population, substantial rail and industrial assets, and the air operations associated with Scott Air Force Base. Table 1.3 provides information on the Nike Ajax and Nike Hercules facilities located in Illinois or that provided protection for vital areas in Illinois.<sup>38</sup>

**Table 1.3.** Nike Installations in Illinois or that protected vital areas of Illinois

Identification	Facility Location	Missile Type	Defense Area
C-03	Montrose/ Belmont	Ajax / Hercules	Chicago-Gary
C-32	Porter (IN)	Ajax / Hercules	Chicago-Gary
C-40	Burnham Park	Ajax	Chicago-Gary
C-41	Jackson Park	Ajax / Hercules	Chicago-Gary
C-44	Hegewisch/ Wolf Lake	Ajax	Chicago-Gary
C-45	Gary Municipal Airport (IN)	Ajax	Chicago-Gary
C-46	Munster (IN)	Ajax / Hercules	Chicago-Gary
C-47	Hobart/Wheeler (IN)	Ajax / Hercules	Chicago-Gary
C-48	South Gary (IN)	Ajax	Chicago-Gary
C-49/50 (double site)	Homewood	Ajax / Hercules	Chicago-Gary
C-51	Worth/ Palos Heights/ La Grange	Ajax	Chicago-Gary
C-54	Orland Park	Ajax	Chicago-Gary
C-61	Argonne National Laboratories	Ajax / Hercules	Chicago-Gary
C-70	Naperville	Ajax	Chicago-Gary
C-72	Addison	Ajax / Hercules	Chicago-Gary
C-80/81(double site)	Arlington Heights	Ajax	Chicago-Gary
C-84	Barrington/ Palatine	Ajax	Chicago-Gary
C-92/94 (double site)	Mundelin/ Libertyville	Ajax	Chicago-Gary
C-93	Northfield/ Skokie	Ajax / Hercules	Chicago-Gary
C-98	Fort Sheridan	Ajax	Chicago-Gary
SL-10	Marine	Hercules	St. Louis
SL-40	Hecker	Hercules	St. Louis
SL-90	Pere Marquette State Park	Hercules	St. Louis

<sup>38</sup> Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 96-102, 178-179; Lonnquest and Winkler, *To Defend and Deter*, 485; Christina M. Carlson and Robert Lyon, *Last Line of Defense: Nike Missile Sites in Illinois*. (Denver: National Park Service, Rocky Mountain System Support Office, 1996), 46.

The Missile Master system that the Army deployed in the late 1950s was designed to automate missile command guidance and coordinate the firing of multiple missile batteries. The Missile Master system for the Chicago-Gary Defense Area was located at C-80/81 in Arlington Heights, Illinois. In 1966, the Army replaced the Missile Master system at Arlington Heights with a Missile Mentor system, the first of its kind to be activated in the United States.<sup>39</sup>

### *Nike Missile Defense of Chicago*

In 1952, the Korean War was in full swing and Cold War tensions were high. There was growing concern about a Soviet aerial attack on America's strategic sites, and the situation only seemed graver after the Soviets acquired atomic weapons. To protect the city of Chicago, 90mm and 120mm anti-aircraft artillery were deployed in defensive positions around the city. These anti-aircraft artillery positions were eventually replaced by the 20 Nike Ajax missile installations that were built to protect the Chicago-Gary Defense Area.<sup>40</sup>

Army officials believed that Chicago was a prime target for an aerial attack by Soviet bombers. In a 1954 memorandum on Nike deployment and site availability, the Army designated Chicago as priority number three for receiving Nike Ajax missile defenses, following Washington D.C. and New York.<sup>41</sup> In addition to being a major population center, Chicago "constituted the largest grouping of government, financial, business, industrial, and military activities in the upper Midwest."<sup>42</sup>

The responsibility for the construction of the Chicago-Gary Defense Area Nike missile sites fell to the U.S. Army Corps of Engineers Chicago District. The Corps of Engineers hired local architecture and engineering contractors to adapt Leon Chatelain's standard plans for Nike missile bases to local conditions. In the case of the Chicago-Gary Defense Area, the spatial arrangement of the Nike installations had to be adapted to address the proximity of the cities to Lake Michigan. Nike installations were typically arranged in rings around a defense area, but the location of Chicago and Gary on the shore of Lake Michigan precluded that siting strategy. Instead, the Army was required to purchase or otherwise acquire parcels of land along the shoreline of the lake to provide an eastern protective boundary for Chicago. The density of development along the lakeshore and the high price of the real estate prompted the Army to use public parkland for a number of Nike installations.<sup>43</sup>

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<sup>39</sup> Globalsecurity.org, Missile Mentor information: <http://www.globalsecurity.org/wmd/systems/an-ts-51.htm>

<sup>40</sup> Carlson and Lyon, *Last Line of Defense*, 41.

<sup>41</sup> Carlson and Lyon, *Last Line of Defense*, 41.

<sup>42</sup> Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 96.

<sup>43</sup> Paonessa, et al., *Charles E. Kelly Support Facility*, 31. Carlson and Lyon, *Last Line of Defense*, 41-42.



In all, the Chicago Park District leased 88.5 acres of lake front land to the Army at the rate of \$1.00 per year per site. Some local citizens criticized the loss of public recreation land and lack of compensation. On March 6, 1956, Major General Carter, chief of the 5<sup>th</sup> Regional Antiaircraft Command at Fort Sheridan, told the *Chicago Daily News*: ‘We don’t want to take any park land, but we have no alternative...a circular defense of the city is best from a military point of view. In lake front cities like Chicago the defense must cut across the “diameter” of the circle, the lake shore. We make every adjustment possible without throwing defense out the window.’<sup>44</sup>

Public criticism related to the construction of Nike installations was not limited to protests about the taking of public parkland. “Civic officials, real estate groups, farmers, and homeowners objected to the installations for several reasons: fear of falling debris from booster cases, reduction in real estate values, damage to crops, and the possibility of a missile misfire or explosion.”<sup>45</sup> Public opposition delayed the building of the installations for a time, but security concerns eventually prevailed.<sup>46</sup>

The 20 Nike Ajax installations of the Chicago-Gary Defense Area (See Figure 1.3 on page 36) were constructed between 1954 and 1957. In the late 1950s, nine of the Ajax installations were upgraded to accommodate the larger Nike Hercules missile. The remaining 11 Nike Ajax installations that were not converted to Nike Hercules sites were deactivated between 1960 and 1963. Although it ceased to operate as a Nike Ajax installation, Nike Missile Site C-80/81 in Arlington Heights continued to operate as the Missile Master and Missile Mentor site for the entire Chicago-Gary Defense Area until 1974. Two of the Nike Hercules installations that were part of the Chicago-Gary Defense Area were deactivated in the late 1960s, and a third was deactivated in 1971.<sup>47</sup>

The remaining Nike Hercules installations of the Chicago-Gary Defense Area were combined with the Milwaukee Defense Area in 1968 and the Detroit Defense Area in 1971. The resulting Chicago-Detroit Defense Area was active until the demise of the Army Air Defense Command (ARADCOM) in 1974.<sup>48</sup>

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<sup>44</sup> Carlson and Lyon, *Last Line of Defense*, 42.

<sup>45</sup> Carlson and Lyon, *Last Line of Defense*, 41.

<sup>46</sup> *Ibid.*, 41.

<sup>47</sup> Lonnquest and Winkler, *To Defend and Deter*, 483-487.

<sup>48</sup> Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 96.

Nike Missile Site C-80/81 (Arlington Heights)

*Development of Nike Missile Site C-80/81(Arlington Heights)*

The land on which Nike Missile Site C-80/81 was built originally entered Government control in 1942, when the area was cleared by the Navy for use as an auxiliary airfield of the nearby Glenview Naval Air Station. By late 1943, an aircraft hangar and an H-shaped administration building had been constructed near the northern boundary of the property. In May 1944, the site became a prisoner of war camp, with the administration building being converted to a barracks to house the German POWs that served as mechanics in the engine overhaul and repair department at Glenview Naval Air Station.

In September 1944, the Navy officially purchased 93.97 acres of the land, and leased an additional 182 acres. After WWII, the site briefly entered private hands, but the Navy went to court to reclaim its ownership of the property in the late 1940s. The Navy leased the property as a civilian airport and subsequently a trailer park before transferring ownership to the Army for construction of the Nike Missile Site C-80/81 on April 28, 1954. The 93.97-acre parcel, which the Army acquired at no cost, was located on the south side of West Central Road and east of South New Wilke Road, south of the Village of Arlington Heights, Illinois.<sup>49</sup>

Between 1954 and 1957, the Chicago District of the U.S. Army Corps of Engineers directed construction of the 20 Nike Ajax missile installations that formed a protective shield of air defenses around Chicago, Illinois and Gary, Indiana. The two Nike Ajax batteries that made up dual Nike Missile Site C-80/81 were activated in 1955 and 1956.<sup>50</sup>

The C-80/81 designation was the result of a naming system the Army implemented to indicate the geographic location of a missile installation with respect to its defended area. The one or two-letter prefix was an abbreviation of the name of the defense area. In the case of Nike Missile Site C-80/81, the C stood for the Chicago-Gary Defense Area. The two digit numerical designator that followed the prefix was based on a 100-part "compass" in which due north is 0 (or 100), due east is 25, due south is 50, and due west is 75. Based on this system, Site C-80/81 was located at positions 80/81 on the 100-part compass, placing it northwest of the city of Chicago. Letters were appended to the site name in order to identify the mission or use of a particular area:

- A Administration facility
- C Control/IFC (integrated fire control)
- DC Direction Center
- L Launch facility<sup>51</sup>

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<sup>49</sup> James Finsterle, "45th Air Defense Artillery Brigade History." *The NPG News*, August 2000, 9-14.

<sup>50</sup> Lonnquest and Winkler, *To Defend and Deter*, 483-487.

<sup>51</sup> Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 80.

A typical Nike Missile installation was made up of three main parts: a launch area, an Integrated Fire Control (IFC) area, and an administrative area. In many cases, the administrative area for a Nike site would be co-located with either the launch area or the IFC. Nike Missile Site C-80/81 followed the co-location precedent, but differed slightly in its spatial arrangement because it was a combined or double site. C-80/81 had two independent IFC areas that were designated C-80C and C-81C and located on separate parcels of land, but it shared a single, co-located administrative area and launcher area. The two additional parcels of land the Army acquired for the IFC areas were located southeast of the 93.97-acre parcel and north of Illinois State Route 58. After obtaining the required land, construction of the site proceeded quickly, and Nike Missile Site C-80/81 became operational in March of 1955.<sup>52</sup> (See Figure 1.4 on page 37)

The C-80/81 administrative area featured a headquarters building, several barracks, a mess hall, a dispensary, officer and enlisted clubs, and several other support buildings for the installation, such as maintenance and storage facilities. (See Figure 1.5 on page 38) The combined C-80/81 launcher area that was co-located on the 93.97-acre parcel of land with the administrative area featured six underground batteries that each stored 10 Nike Ajax missiles. Each of the six batteries served four launchers, for a total of 24 launchers.<sup>53</sup>

Sites C-80C and C-81C, the Integrated Fire Control (IFC) Areas for Nike Missile Site C-80/81, were the locations for all of the radar, computer, and control equipment that was needed to detect an enemy bomber and subsequently launch and guide a Nike missile to intercept the target. Most of this command and control equipment was housed in trailers so that it was mobile and could be easily updated to accommodate changes in technology. Although no buildings remain at either site C-80C or C-81C, IFC areas typically featured a barracks and mess hall for the troops that were on duty, an interconnecting corridor that linked the command and control trailers, and a generator building.<sup>54</sup>

Other than the modifications associated with being a combined installation, Nike Missile Site C-80/81 was typical of Nike installations located throughout the U.S.<sup>55</sup>

#### *Missile Master and Missile Mentor at Arlington Heights (C-80DC)*

In 1959, the Army purchased a 44.38-acre tract of land located along the eastern border of the C-80/81 administrative and launcher area for its new Missile Master Site.

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<sup>52</sup> James Finsterle, "45th Air Defense Artillery Brigade History," 9-14.

<sup>53</sup> The buildings that were once part of the C-80/81 administrative area were depicted on a 1976 Army real estate document that was provided by the 88th Regional Support Command. Information about the launcher area was found in Morgan and Berhow, *Rings of Supersonic Steel*, 3<sup>rd</sup> ed., 100-101.

<sup>54</sup> Lonnquest and Winkler, *To Defend and Deter*, 172.

<sup>55</sup> Ibid.

Construction began immediately, and by October of 1960, the Arlington Heights facility had been activated as a Missile Master Site with the designation C-80DC. This was a significant event, because it now was the command and control facility for all of the Nike missile installations that made up the Chicago-Gary Defense Area.

The heart of the Missile Master facility was the Antiaircraft Operations Room, commonly referred to as the “Blue Room.” This two-story room featured large Plexiglass® plotting boards and rows of radar screens. These elements were associated with the surveillance and tracking of both hostile and friendly aircraft, as well as the coordination of the ... area’s Nike missile batteries. The massive digital computers that drove the system occupied the building’s lower levels. Towers supporting various types of surveillance and height-finder radars that provided radar data to the Missile Master system were located nearby.<sup>56</sup>

The Antiaircraft Operations Center (Missile Master Blockhouse/ Building 144) was a self-contained blast- and fallout-resistant building. It was designed to remain functional during and after a nuclear attack on the Chicago-Gary Defense Area. “Inside, triple tiers of pull-down canvas cots lined the inner walls to allow personnel to sleep in the building between shifts. The blockhouse also contained water in seven 13,000-gallon tanks in the basement and food sufficient for 130 personnel for 30 days. The building also featured a water wash-down system capable of removing radioactive fallout following a nuclear attack.”<sup>57</sup> (See Figure 1.6 on page 39)

In 1966, the Missile Master at Arlington Heights (C-80DC) was deactivated and replaced with the Missile Mentor, the next generation air defense control system. Arlington Height’s Missile Mentor designation ended in 1974 with the nationwide deactivation of the remaining Nike Missile Sites associated with the demise of the Army Air Defense Command (ARADCOM).<sup>58</sup>

### *The Evolution and Deactivation of Nike Missile Site C-80/81*

Nike Missile Site C-80/81 contributed to the air defense of America’s major mid-western cities for almost two decades. For the first five years of its existence, it was part of a system of twenty Nike Ajax batteries that made up the Chicago-Gary Defense Area. The arrival of the Nike Hercules made the Nike Ajax obsolete, and ended the tenure of C-80/81 as a Nike Ajax site in 1960. The deactivation of the Ajax site set the stage for years of controversy over the surplus land that was no longer necessary for the Missile Master and Missile Mentor operations taking place at C-80/81. Much of the land was eventually released to the Village of Arlington Heights Park District and converted to the Arlington

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<sup>56</sup> Paonessa, et al., *Charles E. Kelly Support Facility*, 51-52.

<sup>57</sup> Paonessa, et al. *Charles E. Kelly Support Facility*, 51.

<sup>58</sup> Paonessa, et al. *Charles E. Kelly Support Facility*, 20-22.

Heights Golf Course. In 1968, the Army transferred 51.77 acres of land to the Navy for family housing associated with Glenview Naval Air Station. The Navy subsequently lost its funding for the project, and the housing never materialized. When the command and control operations associated with the Missile Mentor ended in the mid-1970s, the Army retained 47.99 acres of the property for the COL P. Schulstad USARC.<sup>59</sup>

## PART II: ARCHITECTURAL INFORMATION

### A. General Statement:

Nike Missile Site C-80/81 was located on three separate parcels of land near the Village of Arlington Heights in Cook County, Illinois, approximately 25 miles northwest of Chicago. Nike Missile Site C-80/81 once featured a collection of 1950s and 1960s Military Vernacular-style buildings that served as either operations or support structures for the Nike battery and the Missile Master or Missile Mentor command and control systems.

### B. Documented Resources:

Three buildings at the COL P. Schulstad USARC (Buildings 140, 141, and 144) were documented as part of this project. These buildings are the only extant resources that represent former Nike Missile Site C-80/81 in Arlington Heights, Illinois.

### C. Description:

Very little evidence of Nike Missile Site C-80/81 remains at COL P. Schulstad USARC. None of the buildings that were part of the C-80/81 administrative area are extant, and no portion of the launcher area is extant. After the site was decommissioned, the above-ground launch equipment was removed and the six underground batteries were filled in and planted over with landscaping material associated with the Arlington Heights Golf Course.

Buildings 140, 141, and 144 were built on the 44.38-acre tract of land that the Army purchased in 1959 for the Missile Master Site, known as C-80DC. The buildings were designed in the Military Vernacular style by the architects from Ammann and Whitney Consulting Engineers, New York.<sup>60</sup>

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<sup>59</sup> James Finsterle, "45th Air Defense Artillery Brigade History," 9-14.

<sup>60</sup> Paonessa, et al., *Charles E. Kelly Support Facility*, 37-38.

### *Building 140*

Building 140 (c. 1959-1960) was the Consolidated Power Generator Building for the Missile Master Complex. It is a rectangular, concrete masonry unit (CMU) building with a two-story main block and a full-width one-story front projection. The two-story main block has a shallow gabled roof, while the one-story projection has a shallow shed roof.

The north (primary) elevation features three nine-light single-hung sash windows with concrete sills, a metal door with a metal and glass sidelight on its left side. Two additional windows, one covered with a metal screen and the other with plywood, are located to the right of the entry door. Eight six-light fixed clerestory windows pierce the wall of the main block above the one-story projection. The west elevation features a nine-light single-hung sash window covered with a metal screen on the one-story projection and a pair of double doors located toward the northern end of the two-story main block. The south elevation features four evenly distributed metal overhead retractable bay doors. The east elevation of the two-story main block features a metal retractable overhead bay door and a square aperture that has been covered with plywood that was either a window or a vent. The one story projection toward the northern end of the building features a nine-light single-hung sash window.

All of the power generation equipment associated with the Missile Master and Missile Operations has been removed from Building 140. The building is now used for storage by the reserve units associated with COL P. Schulstad USARC.

### *Building 141*

Building 141 served as the heating plant for the Missile Master/ Missile Mentor Complex. It is a two-story, rectangular, CMU building. A portion of the roof at the western end of the building is slightly higher than the main level of the roof, though both levels feature shallow gables. Portions of the building have been clad in either corrugated metal sheeting or plywood.

The south (primary) elevation of Building 141 features both a single and a double metal entry door located toward the western corner of the building. A ribbon window that extends the entire length of the elevation has been obscured with corrugated metal sheeting toward the western end of the building and plywood for the remainder of the length of the building. The east elevation of the building features a metal entry door toward the center and a metal overhead retractable bay door toward the northern end of the building. The upper half of this elevation has also been sheathed in corrugated metal sheeting. The northern elevation of the building features a ribbon window that extends the entire length of the building. Like the windows on the south elevation, it has been covered in plywood. The west elevation of the building features a small single window that has been covered with a metal screen, and an elongated horizontal window that has

been partially covered with plywood. The central portion of the elongated horizontal window that is visible is a narrow, one-over-one single-hung sash window. This elevation also features the ribbon window found on the northern and southern elevations. It is also obscured with either corrugated metal sheeting or plywood.

All of the heating plant equipment associated with the operations of the Missile Master and Missile Mentor Complex has been removed from Building 141. The building is now used for storage by the COL P. Schulstad USARC.

#### *Building 144*

Building 144 (c. 1959-1960) served as the Missile Master Blockhouse and Anti-Aircraft Operations Center (AAOC) for the early warning radar operation located at Nike Missile Site C-80/81. The building is generally square, with a few small projections on the south side. The roof is flat toward the perimeter of the building, but features two rectangular hipped portions at its center that run parallel to each other on a north-south axis. The roof is one-foot thick reinforced concrete that is clad in a synthetic waterproof material. It is pierced by a brick chimney toward the southeast corner of the building. The exterior walls of Building 144 are 16-inch thick steel-reinforced concrete. Building 144 is generally one story, but rises to two stories under the hipped portions at its center. It was designed to be blast- and fallout-resistant in order to remain functional during and after a nuclear attack. A fallout shelter constructed underneath the building provided additional protection for military personnel.

The west (primary) elevation of Building 144 features a metal entry door that is protected by a projecting concrete hood and a bay door covered by a metal overhead retractable door. The south elevation features two shallow projections that extend from the main block of the building and two metal entry doors that are protected by projecting concrete hoods. The east elevation features a shallow projection at the southeastern corner of the building and a metal entry door protected by a projecting concrete hood toward the northeastern corner of the building. The northern elevation of the building does not have any projections, fenestration, or other features.

Although this building once accommodated the two-story, 68-by-47-foot interior "Blue Room" of the Missile Master System, and later the mobile equipment vans of the Missile Mentor System, all of this equipment has been removed. The building is now used for offices and storage by the reserve units associated with COL P. Schulstad USARC.

### PART III: SOURCES OF INFORMATION

#### A. Original Architectural Drawings:

No original plans or architectural drawings were available for buildings 140 and 141. These buildings were measured during the field investigations and the data was subsequently converted into a floor plan in AutoCAD. In the case of building 144, no original plans or architectural drawings were available. The 88th RSC was able to provide both an HVAC plan and an electrical plan that were the basis of the floor plan developed in AutoCAD.

#### B. Early Views:

1. Army Helicopter Flying Above C-80/81 Radomes and Building 144, c. 1956.  
Courtesy Arlington Heights History Museum.

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#### C. Supplemental Material:

Figure 1.1. – Location of the COL P. Schulstad USARC

Figure 1.2. – Location of Buildings 140, 141, and 144 at the COL P. Schulstad USARC IL002/ 17580

Figure 1.3. – Locations of Chicago-Gary Defense Area Nike Missile Sites

Figure 1.4. – Location of Nike Missile Site C-80/81

Figure 1.5. – Buildings of Nike Missile Site C-80/81

Figure 1.6. – Army Helicopter Flying Above C-80/81 Radomes and Building 144, c. 1956

#### PART IV: METHODOLOGY OF RESEARCH

This documentation of the Nike Missile Site C-80/81 was prepared as part of compliance with Section 106 of the National Historic Preservation Act. The 88th RSC has determined that Building 141 is excess to the needs of its mission and has therefore proposed demolition of the building. The Army requested documentation at a level consistent with the Historic American Buildings Survey/Historic American Engineering Record as mitigation for this action.

The study was completed under contract with the United States Army Corps of Engineers, Mobile District for the United States Army Reserve 88th Regional Support Command. Joseph Giliberti and Matthew Grunewald of the USACE Mobile District and Carrie Schafer of the 88th RSC served as technical points of contact for the project. Eric Johnson and Bud Berendes of the 88th RSC provided support for the documentation effort. The fieldwork was completed in May of 2012.

#### A. Research Process

General information about Air Defense and the Nike Missile Program was obtained through a study of the significant resources available on the development of air defenses and the Nike Missile Program (see bibliography). Specific information on Nike Missile Site C-80/81 was developed through a review of the GIS Data, maps, real property records, and cultural resources management documents provided by the 88th Regional Support Command. Additional archival information was obtained from subject files and databases of the National Archives Chicago Branch, the Arlington Heights Memorial Library, and the Arlington Heights Historical Museum Library.

#### B. Archives and Repositories Used

Primary research was conducted at the National Archives Chicago Branch, the Arlington Heights Memorial Library, and the Arlington Heights Historical Museum Library. Additional archival information was provided by the 88th RSC.

Archival research assistance was provided by Scott Forsyth of the National Archives Chicago Branch and by Mickey Horndasch and Barbara Scalett of the Arlington Heights Historical Museum Library.

#### C. Research Staff

1. Primary Preparer: Cameron Sexton, Project Manager/ Historian and GIS Specialist, Brockington and Associates, Inc.
2. Photographer: Cameron Sexton, Project Manager/ Historian and GIS Specialist, Brockington and Associates, Inc.
3. Delineator/ GIS Specialist: Cameron Sexton, Project Manager/ Historian and GIS Specialist, Brockington and Associates, Inc.
4. AutoCAD Specialist: Jennifer Corcoran, Project Manager/ Historian and AutoCAD Specialist, Brockington and Associates, Inc.

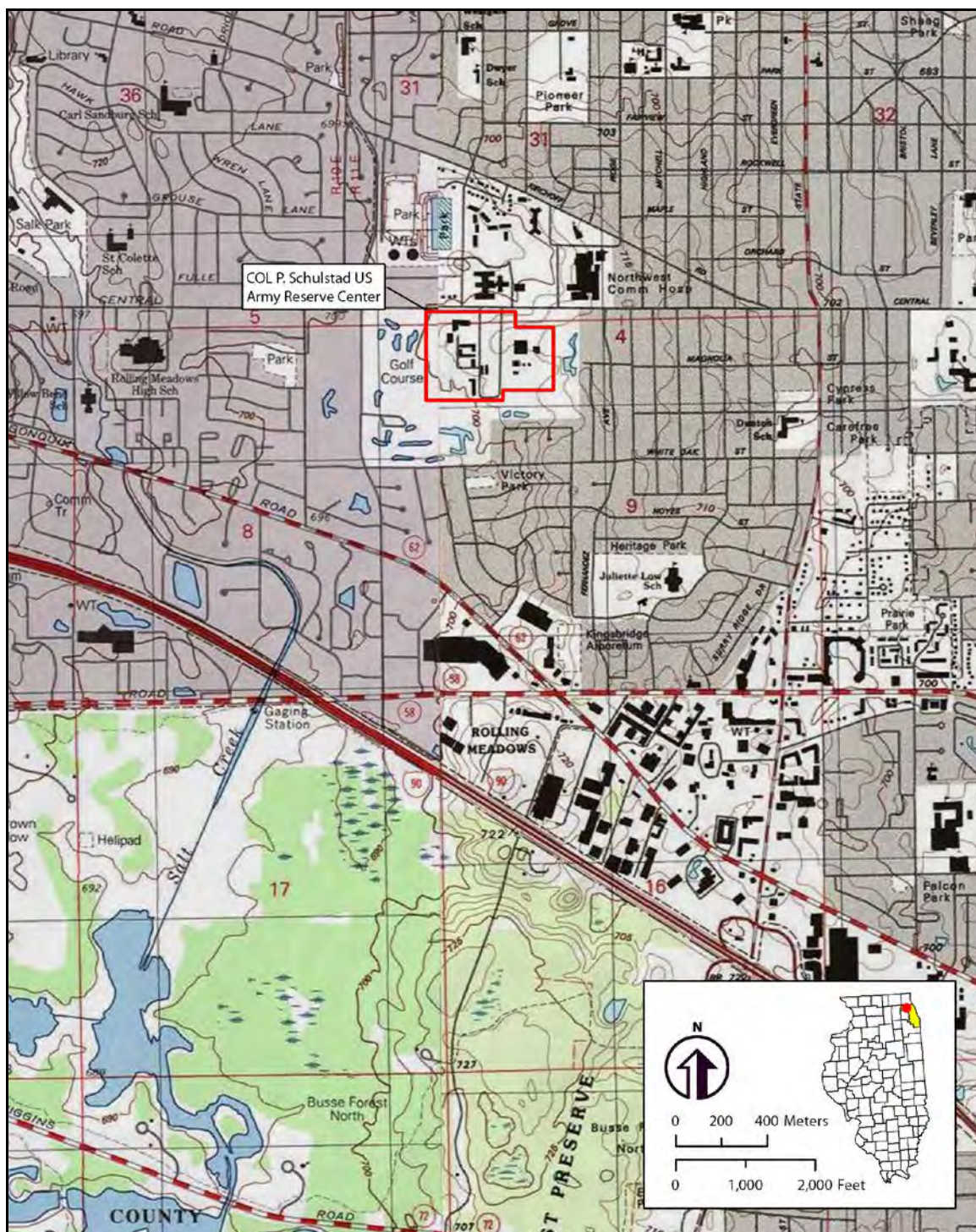
### PART V: PROJECT INFORMATION

This Illinois Historic American Buildings Survey documentation is being prepared at the request of the Illinois Historic Preservation Agency. The documentation conforms to the Memorandum of Agreement between the United States Army Reserve, 88<sup>th</sup> Support Command and the Illinois State Historic Preservation prepared in conformance with section 106 of the

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National Historic Preservation Act of 1966, as amended (16 USC 470f) and its implementing regulations, "Protecting Historic Properties", 36 CFR part 800, the regulations of the Advisory Council on Historic Preservation. This Memorandum of Agreement was ratified on November 9, 2012.

## FIGURES



**Figure 1.1.** Location of COL P. Schulstad USARC IL002/ 17580





**Figure 1.2.** Location of Buildings 140, 141, and 144 at the COL P. Shulstad USARC IL002/ 17580

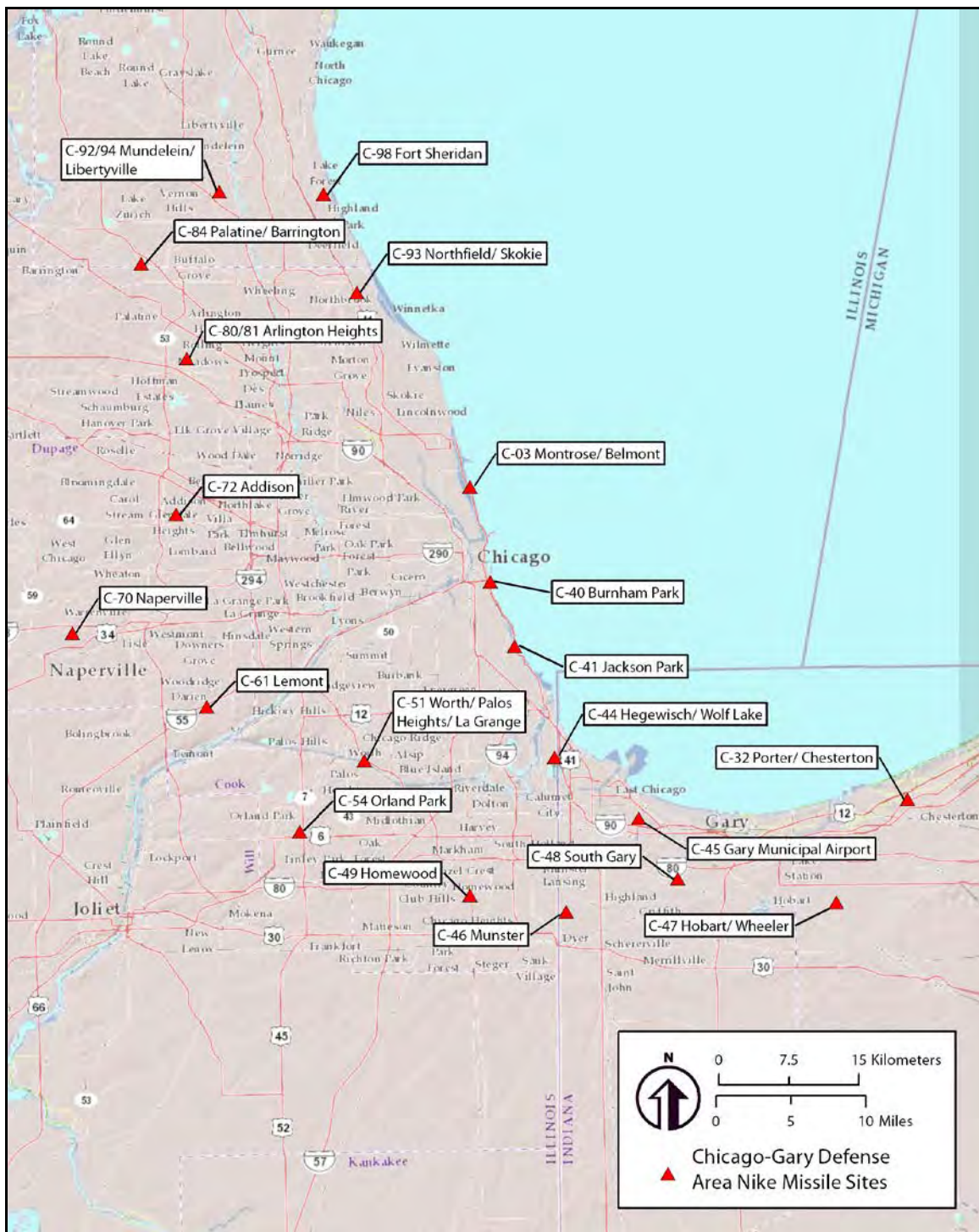


Figure 1.3. Locations of Chicago-Gary Defense Area Nike Missile Sites





**Figure 1.4.** Locations of the Component Sites that Made Up Nike Missile Site C-80/81

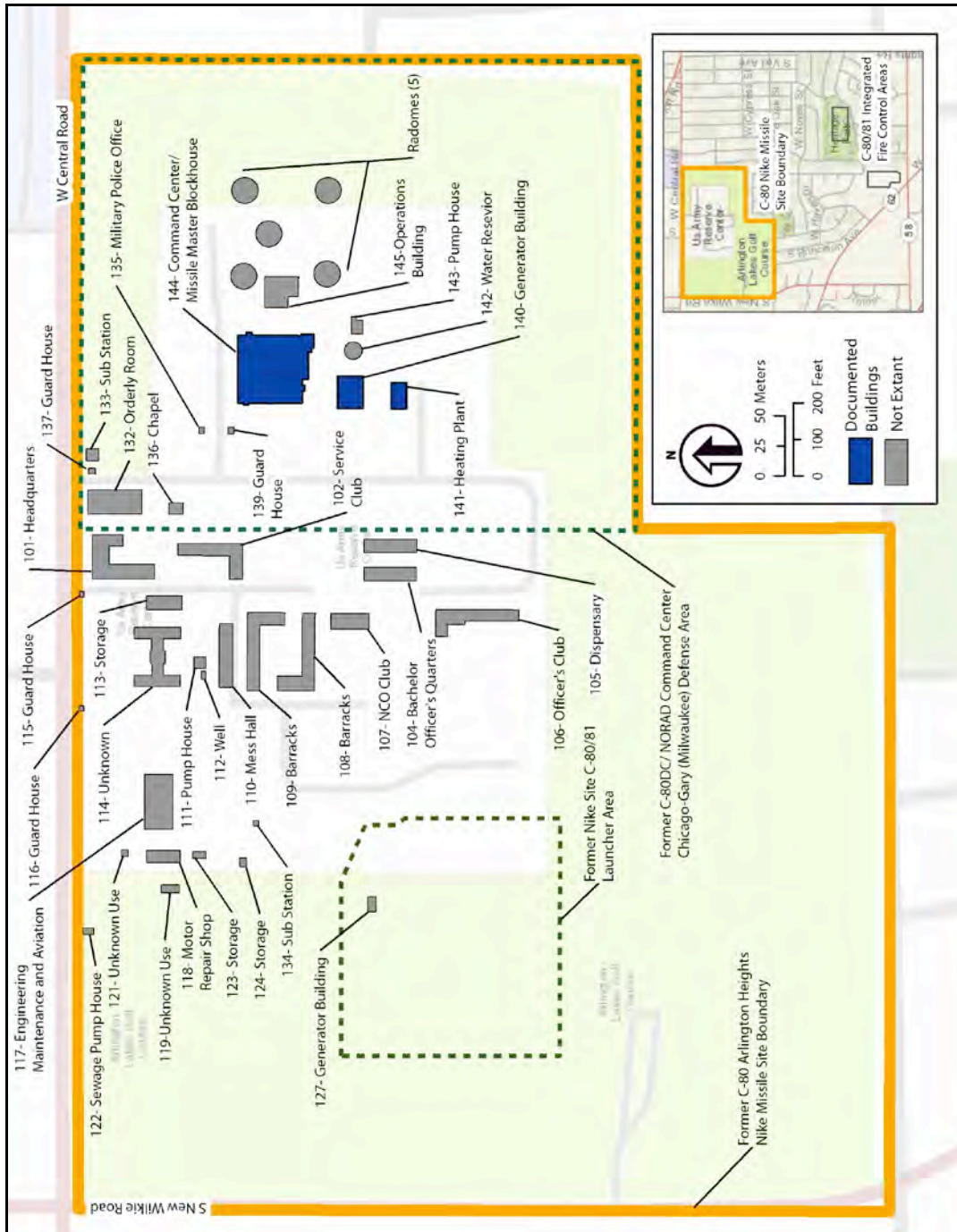
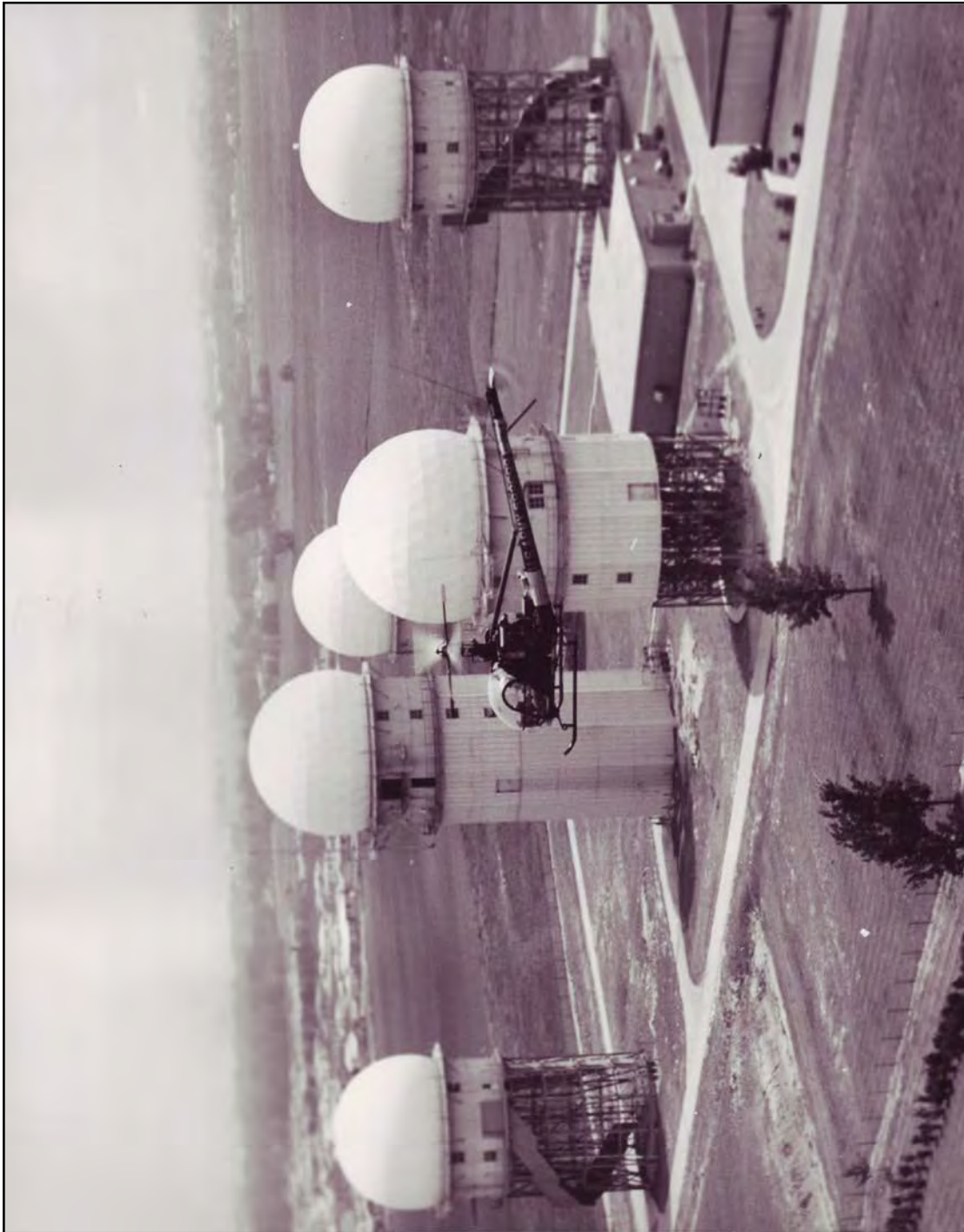


Figure 1.5. Buildings of Nike Missile Site C-80/81.





**Figure 1.6.** Army Helicopter Flying Above C-80/81 Radomes and Building 144, c. 1956

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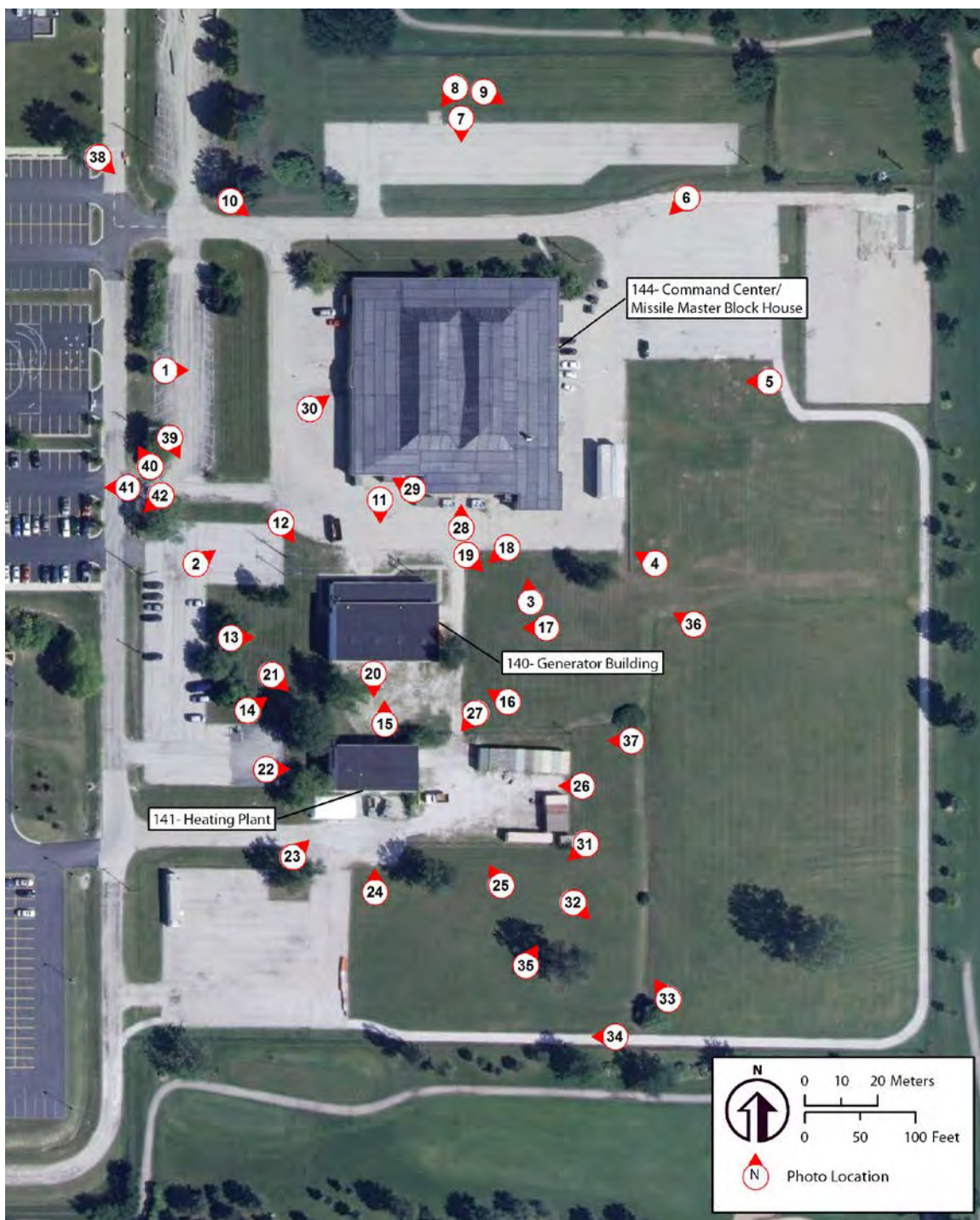
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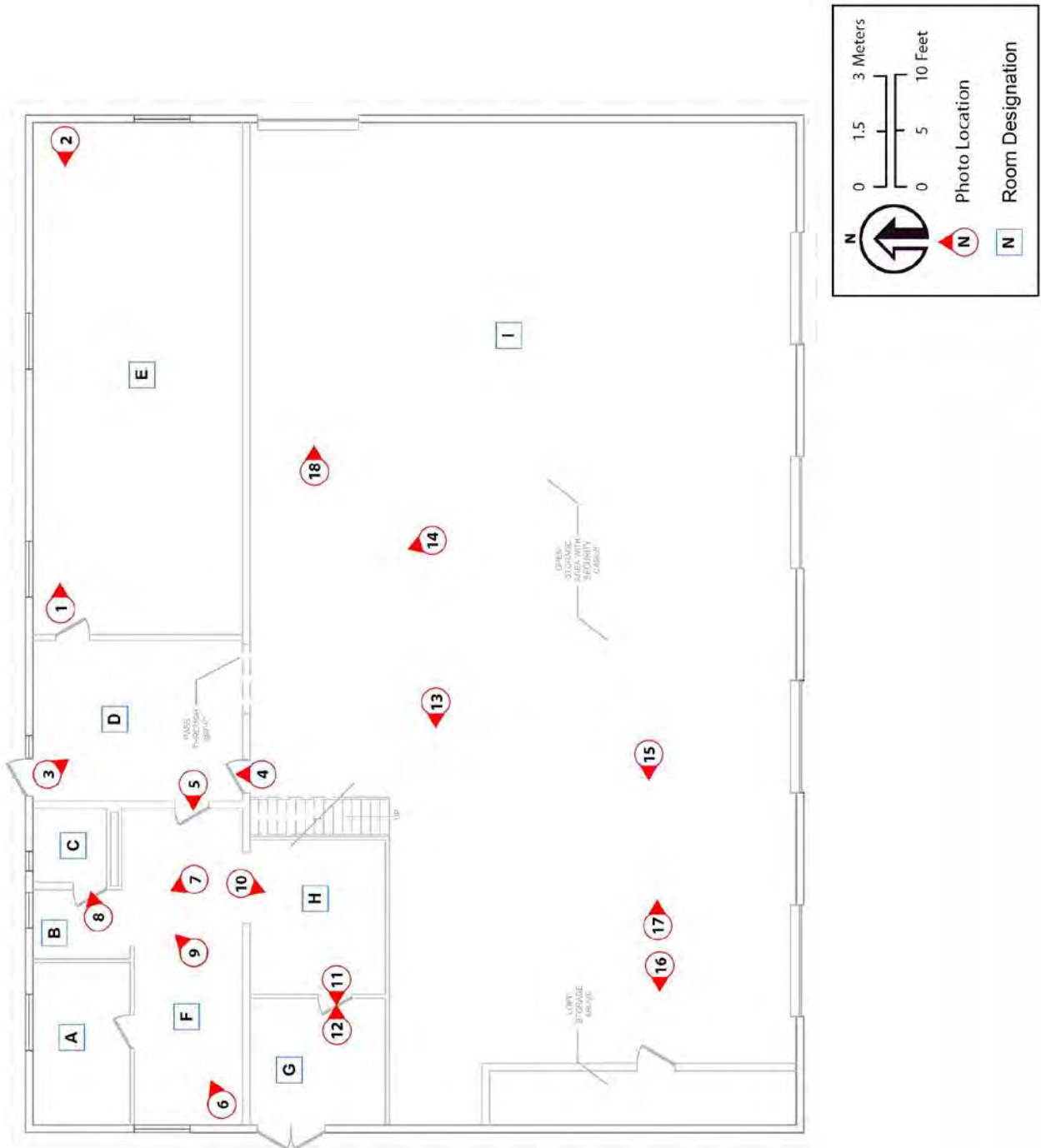


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\*NOTE: For ease of interpreting the site plans, room designation letters have been assigned for purposes of this report.

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- 2 VIEW WEST THROUGH ROOM E.
- 3 VIEW SOUTHEAST THROUGH ROOM D TOWARD DOORWAY OF ROOM I.
- 4 VIEW NORTH FROM ROOM I TOWARD ENTRANCE OF BUILDING IN ROOM D.
- 5 VIEW WEST THROUGH INTERIOR DOORWAY OF ROOM D TO ROOM F.
- 6 VIEW NORTHEAST OF ROOM F.
- 7 VIEW NORTHWEST THROUGH ROOM F TO ROOM B.
- 8 VIEW EAST INTO BATHROOM (ROOM C).
- 9 VIEW NORTHEAST FROM ROOM F INTO ROOM B AND ROOM C.
- 10 VIEW SOUTHWEST INTO ROOM H
- 11 VIEW EAST FROM ROOM H INTO ROOM G, SHOWING EXTERIOR DOORWAY  
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- 15 VIEW WEST IN ROOM I TOWARD LOFT STORAGE AREA.
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Building 140 interior photo location map

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SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS  
NIKE MISSILE SITE C-80/81  
BUILDING 140 INTERIOR – GENERATOR BUILDING  
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Building 140, No. 9



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Building 140, No. 10



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Illinois

Building 140, No. 11





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Illinois

Building 140, No. 12



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Building 140, No. 13



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Building 140, No. 14



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Building 140, No. 16



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NIKE MISSILE SITE C-80/81  
BUILDING 140 INTERIOR – GENERATOR BUILDING  
Arlington Heights  
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Illinois

Building 140, No. 18



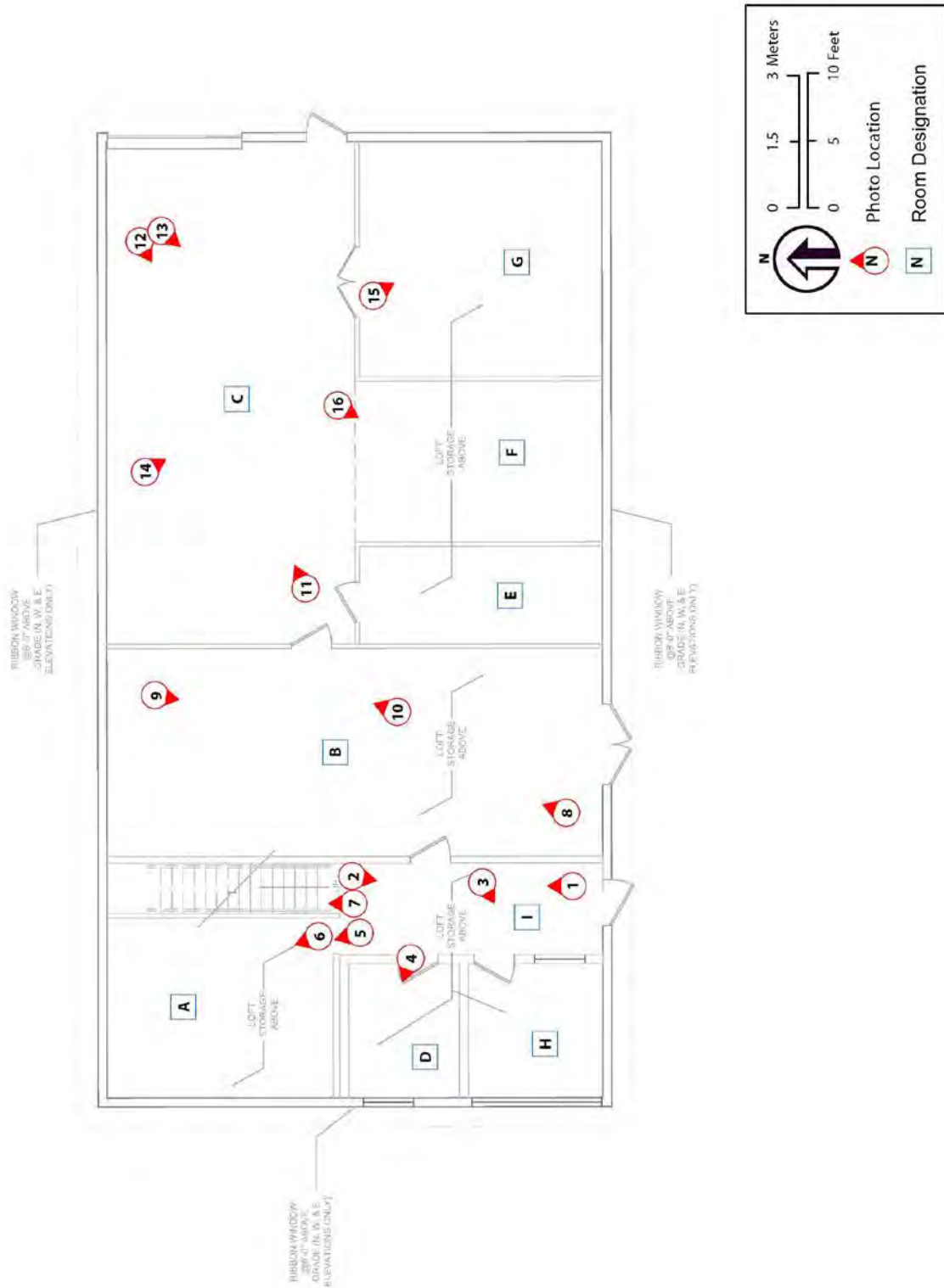
## INDEX TO PHOTOS

NIKE MISSILE SITE C-80/81  
BUILDING 141 INTERIOR – HEATING PLANT  
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\*NOTE: For ease of interpreting the site plans, room designation letters have been assigned for purposes of this report.

- 1 VIEW NORTH FROM EXTERNAL ENTRANCE IN ROOM I.
- 2 VIEW SOUTH TOWARD EXTERNAL ENTRANCE IN ROOM I.
- 3 VIEW SOUTHWEST FROM ROOM I INTO ROOM H.
- 4 VIEW EAST FROM ROOM I INTO ROOM D.
- 5 VIEW NORTHWEST FROM ROOM I INTO ROOM A.
- 6 VIEW NORTHWEST IN ROOM A.
- 7 VIEW NORTH FROM ROOM I (ENTRANCE HALL) UP STAIRS.
- 8 VIEW NORTHEAST FROM SOUTHERN WALL THROUGH ROOM B.
- 9 VIEW SOUTH FROM NORTHERN WALL OF ROOM B.
- 10 VIEW NORTHEAST IN ROOM B FROM MID-ROOM.
- 11 VIEW NORTHEAST IN ROOM C TOWARD EXTERIOR DOOR ON EASTERN WALL.
- 12 VIEW SOUTHWEST IN ROOM C.
- 13 VIEW SOUTHWEST IN ROOM C, SHOWING DOORS OF ROOM G.
- 14 VIEW SOUTHEAST IN ROOM C, SHOWING DOORS TO ROOM G AND EXTERIOR DOOR ON EASTERN WALL.
- 15 VIEW SOUTHEAST IN ROOM G.
- 16 VIEW SOUTHWEST FROM ROOM C INTO ROOM F.





Building 141 interior photo location map

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Building 141, No. 1



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Building 141, No. 2



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Building 141, No. 3



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BUILDING 141 INTERIOR – HEATING PLANT  
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Building 141, No. 4



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Building 141, No. 5



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Building 141, No. 6



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Building 141, No. 7





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Building 141, No. 8



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BUILDING 141 INTERIOR – HEATING PLANT  
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Building 141, No. 9



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Building 141, No. 10



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Building 141, No. 11



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Building 141, No. 12



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Building 141, No. 13



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NIKE MISSILE SITE C-80/81  
BUILDING 141 INTERIOR – HEATING PLANT  
Arlington Heights  
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Building 141, No. 16

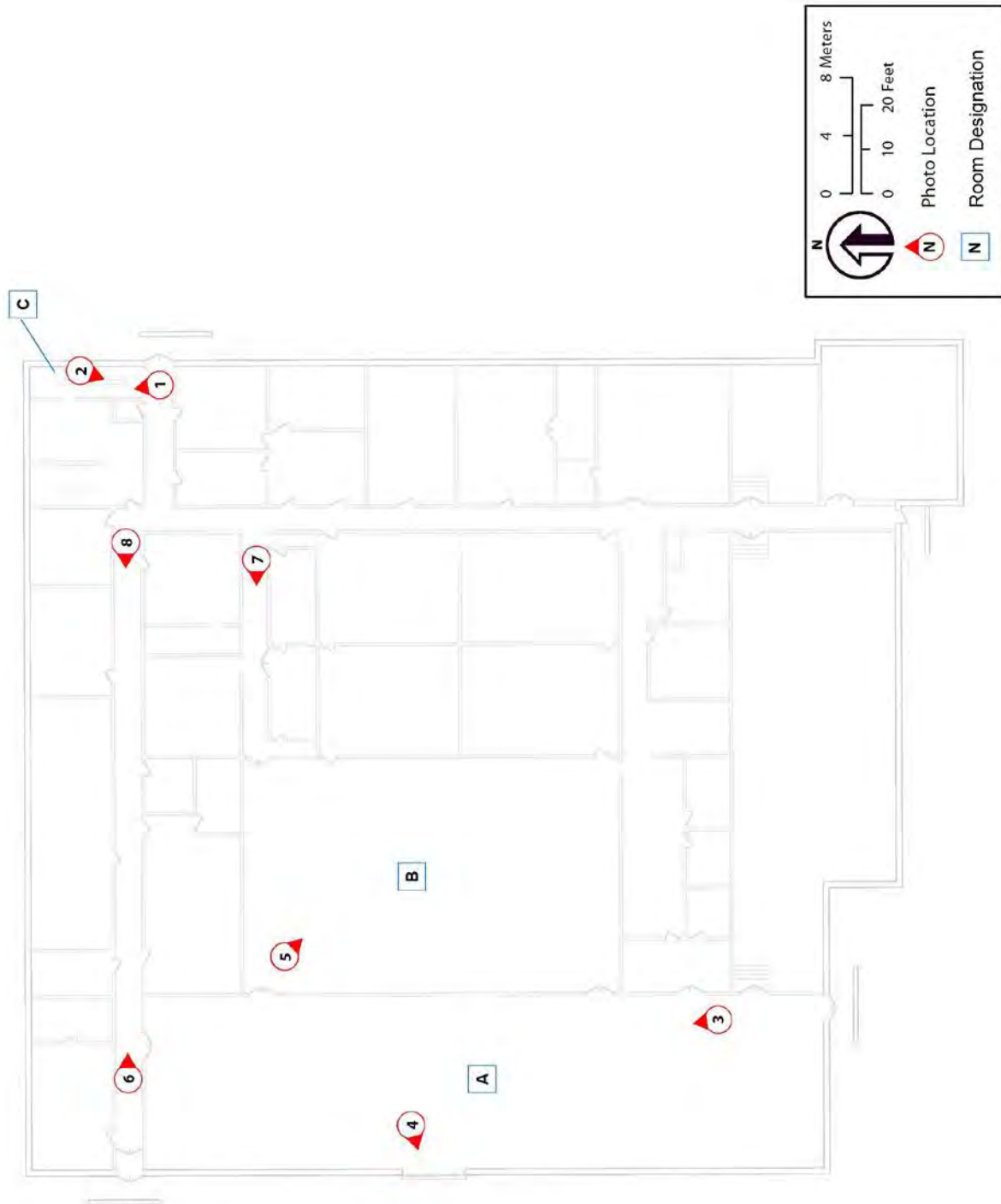


## INDEX TO PHOTOS

NIKE MISSILE SITE C-80/81  
BUILDING 144 INTERIOR – COMMAND CENTER/MISSILE MASTER  
BLOCKHOUSE  
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Illinois

\*NOTE: For ease of interpreting the site plans, room designation letters have been assigned for purposes of this report.

- 1      LOOKING NORTH INTO DECONTAMINATION SHOWER (ROOM C).
- 2      VIEW SOUTH OF THE DECONTAMINATION SHOWER ASSISTANCE AREA  
BUILDING 1(ROOM C).
- 3      VIEW NORTHWEST IN ROOM A.
- 4      VIEW SOUTHWEST FROM ROOM A TOWARD BAY DOOR.
- 5      VIEW SOUTHEAST IN ROOM B.
- 6      VIEW EAST ALONG THE NORTH HALLWAY.
- 7      VIEW WEST ALONG HALLWAY THROUGH ROOM B INTO ROOM A.
- 8      VIEW WEST ALONG THE NORTH HALLWAY.



Building 144 interior photo location map

SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS

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BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

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Building 144, No. 1



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Building 144, No. 2



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BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

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Illinois

Building 144, No. 3



SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS

NIKE MISSILE SITE C-80/81

BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

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Illinois

Building 144, No. 4



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NIKE MISSILE SITE C-80/81

BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

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Illinois

Building 144, No. 5





SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS

NIKE MISSILE SITE C-80/81

BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

Arlington Heights

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Building 144, No. 6



SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS

NIKE MISSILE SITE C-80/81

BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

Arlington Heights

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Illinois

Building 144, No. 7



SEE INDEX TO PHOTOGRAPHS FOR CAPTIONS

NIKE MISSILE SITE C-80/81

BUILDING 144 – COMMAND CENTER/MISSILE MASTER BLOCKHOUSE

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Cook County

Illinois

Building 144, No. 8



**Appendix A:**  
**Memorandum of Agreement**

**MEMORANDUM OF AGREEMENT**  
**BETWEEN**  
**THE UNITED STATES ARMY RESERVE, 88TH REGIONAL SUPPORT COMMAND**  
**AND**  
**THE ILLINOIS STATE HISTORIC PRESERVATION OFFICER**  
**FOR BUILDING 141 DEMOLITION AT THE**  
**COL P. SCHULSTAD UNITED STATES ARMY RESERVE CENTER (USARC)**  
**1515 WEST CENTRAL ROAD, ARLINGTON HEIGHTS, ILLINOIS**

This Memorandum of Agreement (the “Agreement”) is hereby mutually entered into by and among the United States Army Reserve 88th Regional Support Command (hereinafter referred to as the “88th RSC”) and the Illinois State Historic Preservation Officer (“ILSHPO”).

**WHEREAS**, the 88th RSC has current control and accountability of the COL P. Schulstad United States Army Reserve Center at 1515 West Central Road, Arlington Heights, Cook County, Illinois, 60005-2475; and

**WHEREAS**, the 88th RSC has that deemed Building 141 on the Property to be excess to the needs of their mission; and

**WHEREAS**, the Property has been determined to be potentially eligible for the National Register of Historic Places (see **Attachment 1**); and

**WHEREAS**, the demolition of a historic building is an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 C.F.R. Part 800; and

**WHEREAS**, the 88th RSC has determined that the demolition of Building 141 is an adverse effect as defined in 36 Code of Federal Regulations (CFR) 800.5(a)(2)(vii) of the regulations implementing Section 106 of the National Historic Preservation Act (16 United States Code (USC) 470f); and

**WHEREAS**, the 88th RSC has defined the undertaking's area of potential effect (APE) as within the Property enclave; and

**WHEREAS**, the 88th RSC has consulted with the ILSHPO pursuant to 36 CFR 800 (see **Attachment 2**); and

**WHEREAS**, in accordance with 36 C.F.R. § 800.6(a)(1), the 88th RSC has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination providing the specified documentation, and the Council has chosen not to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii) (see **Attachment 3**);

**NOW, THEREFORE**, the 88th RSC and ILSHPO hereby mutually agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

## **STIPULATIONS**

The 88th RSC shall ensure that the following stipulations are carried out:

1. The 88th RSC will continue to consult with the ILSHPO under the Section 106 Consultation Process until the Stipulations below are satisfied or until the agreement expires, whichever comes first.

### **2. MITIGATION MEASURES**

- A. The will be documented in accordance with the Illinois Historic American Buildings Survey Standards (IL HABS).
- B. The IL HABS number for the building shall be CK-2012-2.
- C. Level III documentation shall be required.
- D. Sketch plans of the building shall be produced on archivally stable 8" x 11" sheets
- E. Acceptable reproductions of digital photography of the building to include building site, exterior elevations, distinctive exterior architectural features and significant interior spaces and features.
- F. Written historic narrative of the building and a written description of the building using the IL HABS designated outline format.
- G. The US Army Reserve will award the recordation contract to the consultant of its choice, provided the consultant is qualified to perform the work and agrees to meet IL HABS Standards and guidelines.
- H. IHPA will review the 95% draft and accept or reject the submittal in accordance with IL HABS Standards. Upon acceptance of the draft in writing, the 88th RSC will complete the final documentation and deliver one original and one copy to IHPA on a Gold CD.
- I. Upon IHPA's written acceptance of the 95% draft documentation, the 88th RSC may commence demolition activities on the building.

### **3. EFFECTIVE DATES**

All mitigation stipulated above will be completed within five (5) years of the last signatory date of this agreement. By mutual agreement of the signatories, this Agreement may be renewed for an additional five (5) year period, if required.

### **4. EXECUTION AND IMPLEMENTATION**

Execution and implementation of this Agreement evidences the 88th RSC's compliance with 36 CFR Part 800 for the proposed disposal of the Property. The 88th RSC has also afforded the Council a reasonable opportunity to comment on the proposed undertaking.

### **5. ANTI-DEFICIENCY ACT**

The stipulations of this agreement are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs the Army Reserve's ability to implement the stipulations of this agreement, the 88th RSC will consult in accordance with the amendment and termination procedures found in Stipulations 7 and 8.

### **6. DISPUTE RESOLUTION**

- A. Should the ILSHPO reject any of the mitigation documentation within the time frames provided by this Agreement, the 88th RSC will consult further with the ILSHPO to seek resolution. If the 88th RSC

determines that the objection cannot be resolved, the 88th RSC shall forward to the Council all documentation relevant to the dispute, including proposed resolution to the objection. Within 30 calendar days after receipt of all pertinent documentation, the Council will either:

1. Advise that it concurs with resolution to the objection.
2. Provide recommendations which will be taken into account in reaching a final decision regarding the dispute; or
3. Notify that it will comment pursuant to 36 CFR 800.7(c), and proceed to comment. Any Council comment provided will be taken into account by the 88th RSC in accordance with 36 CFR Part 800.7(c)(4) with reference to the subject of the dispute.

B. Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; and responsibility to carry out all actions under this Agreement that is not the subject to the dispute will remain unchanged.

C. Failure to carry out the terms of this Agreement requires that the 88th RSC consult with the ILSHPO to amend or terminate the agreement.

## 7. AMENDMENTS

Any signatory to this Memorandum of Agreement may request that it be amended, whereupon the signatories will consult in accordance with 36 CFR 800.6 (c)(7) to consider such amendment. If any of the signatories to this Agreement believes that the terms of the Agreement cannot be carried out, or that an amendment to the terms of this Agreement must be made, that signatory shall immediately consult with the other signatories to develop amendments to this Agreement. The process of amending this Agreement shall be the same as that exercised in creating the original Agreement. If an amendment cannot be agreed upon, the dispute resolution process set forth in Stipulation 5 will be followed.

## 8. TERMINATION

Any signatory to this Memorandum of Agreement may request that it be terminated, whereupon the signatories will consult in accordance with 36 CFR 800.6 (c)(8) to consider such termination.

## 9. FILING WITH THE COUNCIL

Filing of the Agreement with the Council evidences that the 88th RSC has met the requirements of 36 CFR Part 800.6 (b) (iv), and has afforded the Council an opportunity to comment on the Agreement.

## FOR THE U.S. ARMY RESERVE

By:   
Kurt F. Wagner  
Colonel, US Army  
Director, Public Works

Date: 4 DEC 2012

FOR THE ILLINOIS STATE HISTORIC PRESERVATION OFFICE

By: Anne Haaker  
Anne Haaker.  
Deputy State Historic Preservation Officer  
Illinois Historic Preservation Agency

Date: Nov. 9, 2012



**Appendix B:**  
**Resume of Architectural Historian**

**CAMERON DEWBERRY SEXTON**

**PROJECT MANAGER/ HISTORIAN/ GIS SPECIALIST**

**EDUCATION AND TRAINING**

Master of Heritage Preservation (2009), Georgia State University  
B.S. in International Affairs (2001), The Georgia Institute of Technology  
Georgia Department of Transportation: Plan Development Process (2012)  
ACHP Section 106 Advanced Seminar (2012), Atlanta, Georgia  
Nikon School: Digital SLR Photography (2012), Atlanta, Georgia  
Ranch House Evaluation Seminar (2010), Atlanta, Georgia  
Applying the NEPA Process (2009), Norcross, Georgia

**AREAS OF SPECIALIZATION**

Architectural Survey	Interpretive Writing
Historic Resource Evaluation	Geographic Information Systems (GIS)
Archival Research	Photography

**PROFESSIONAL POSITIONS AND ACADEMIC EXPERIENCE**

Project Manager/ Historian/ GIS Specialist- Brockington and Associates, Norcross GA (August 2009- present)  
Applied Historic Preservation Intern- Brockington and Associates, Norcross GA (summer 2009)  
National Historic Landmarks Program Intern/Contractor, National Park Service, Atlanta GA (summer and fall 2008)  
Beltline Survey Intern, Emory University, Atlanta GA (summer 2007)  
Production Manager, Admiral Investment Company, Inc., Alpharetta, GA (2002-2006)

**PROFESSIONAL SOCIETY MEMBERSHIPS**

American Historical Association  
Society of Architectural Historians  
DOCOMOMO US

**SELECT PROJECT EXPERIENCE AND PUBLICATIONS**

2012	Project Manager/ Historian Greenville County Historic Resources Survey. Prepared for Greenville County, South Carolina. (in progress)
2012	Project Manager/ Historian/ GIS Specialist Gainesville Historic Preservation Design Guidelines. Prepared for the City of Gainesville, Georgia. (in progress)
2012	Project Manager/ Historian/ GIS Specialist Culpeper, Virginia Historic Resources Survey. Prepared for the Town of Culpeper, Virginia.
2012	Project Manager/ Historian/ GIS Specialist Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) documentation of the COL P. Schulstad United States Army Reserve Center, a former Nike Missile facility in Arlington Heights, Illinois, for the US Army Reserve, 88th Reserve Support Command. (in progress)
2012	Project Manager/ Historian/ GIS Specialist Cultural Resources Literature Review and Architectural Windshield Reconnaissance for the Duke Energy Lee Steam Station, Anderson and Greenville Counties, South Carolina. Prepared for Pike Energy Solutions, LLC.
2011	Project Historian Development of a popular history of Fort McPherson as part of BRAC mitigation for the installation. Prepared for Parsons Corporation and the U.S. Army Corps of Engineers, Fort Worth District.

- 2011 Project Historian  
Development of an Existing Conditions Survey and Design Standards (ECSDS) document as part of BRAC mitigation for Forts McPherson and Gillem, Atlanta, Georgia. Prepared for Parsons Corporation and the U.S. Army Corps of Engineers, Fort Worth District.
- 2011 Project Manager/Historian/GIS Specialist  
Cultural Resources Literature Review and Architectural Windshield Reconnaissance for Pike VCS-St. George Transmission Line Siting, Dorchester, Orangeburg, Calhoun, Lexington and Richland Counties, South Carolina. Prepared for Pike Energy Solutions, LLC.
- 2011 Project Manager/Historian/GIS Specialist  
Gainesville, Georgia Community-wide Historic Structural Survey, Phase V. Prepared for the City of Gainesville, Georgia Department of Planning and Development.
- 2011 Project Historian/Interpretive Writer  
*What We Have, We Shall Defend: A History of Nike Missile Site PI-62 and Oakdale Army Air Defense Base.* Prepared as mitigation to the closure of the Charles E. Kelly Support Facility, Pittsburgh, Pennsylvania for Parsons Corporation and the U.S. Army Corps of Engineers, Mobile District.
- 2011 Project Historian/GIS Specialist  
Revision of HABS-level documentation entitled *Oakdale Army Air Defense Base, Nike Missile Site PI-62, Nike Maintenance Shop, Neville Island, Vicinity of Oakdale and Pittsburgh, Allegheny County, Pennsylvania.* Prepared for Parsons Corporation and the U.S. Army Corps of Engineers, Mobile District.
- 2011 Project Manager/Historian/GIS Specialist  
Cultural Resources Literature Review and Architectural Windshield Reconnaissance for Sugar Mountain Transmission Line Siting, Avery County, North Carolina. Prepared for Pike Energy Solutions, LLC.
- 2011 Project Manager/Historian/GIS Specialist  
Cultural Resources Literature Review and Architectural Windshield Reconnaissance for Pike ZF Transmission Line Siting, Laurens County, South Carolina. Prepared for Pike Energy Solutions, LLC.
- 2010 GIS Specialist  
*Archeology Inventory and GIS Analysis for the Johnston's River Line Battlefield (July 5-10, 1864) Cobb County, Georgia.* Prepared for the Mableton Improvement Coalition, Inc. and the National Park Service American Battlefield Protection Program.
- 2010 Project Manager/Historian/GIS Specialist  
Cultural Resources Literature Review and Windshield Reconnaissance for Caterpillar 100kV Transmission Line Siting, Forsyth and Davidson Counties, North Carolina. Prepared for Pike Energy Solutions, LLC.
- 2010 Project Historian/GIS Specialist  
*Phase I Cultural Resources Study, Hyatt Tie Station Alternative Sites, Swain County, North Carolina.* Prepared for Duke Energy Carolinas.
- 2010 GIS Specialist  
*Metal Detector Survey and Battlefield Delineation of the Buford's Massacre (Waxhams) Revolutionary War Battlefield, SC Route 9 and SC Route 522 Intersection Improvements.* Prepared for the South Carolina Department of Transportation.
- 2010 Project Historian/Interpretive Writer  
Content and text development for website, outdoor exhibit panels, and travelling museum exhibit for historic mitigation measures for Clarksville Base, Fort Campbell, Kentucky. Prepared for GEO Marine Consultants, LLC.
- 2010 GIS Specialist  
DAGIR Archaeological Survey, Hardin County, Kentucky. Prepared for ICI Services, LLC, Dayton, Ohio.
- 2009 GIS Specialist  
Huntsville US Army Engineering and Support Center Historical Update 1998-2007. Prepared for the US Army Corps of Engineers, Mobile District.
- 2009 Interpretive Writer  
Stratford Army Engine Plant Travelling Exhibits. Prepared for the US Army Corps of Engineers, Mobile District.