

Explosives Safety Submission
FINAL
ORDNANCE AND EXPLOSIVES REMOVAL ACTION
FORMER CAMP HERO

MONTAUK, NEW YORK

May 2003

Prepared by
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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May 9, 2003

U.S. Army Engineering and Support Center, Huntsville
Attn: CEHNC-CT-E (Ms. Lydia Tadesse)
P. O. Box 1600 (4820 University Square)
Huntsville, Al 35807-4301

Re: Contract No. DACA87-00-D-0037; Task Order 0024 – OE Removal Action – Former Camp Hero, Montauk, NY - Transmission of Final Explosives Safety Submission (ESS)

EODT Document Control No.: 0578-0024-004

Dear Ms. Tadesse:

EOD Technology, Inc. (EODT) is pleased to submit the final ESS for Former Camp Hero. We understand CEHNC will forward the appropriate number of copies for review. To facilitate the review timetables necessitated by the aggressive project schedule, we have sent the four copies of the documents themselves directly to Jerry Kresge for his internal distribution.

We appreciate the responsiveness CEHNC demonstrated in conducting the review of the draft document.

If you have any questions, please don't hesitate to give me a call. EODT appreciates the opportunity to be of continued support to the U. S. Army Engineering and Support Center, Huntsville.

Yours very truly,

EOD TECHNOLOGY, INC.

A handwritten signature in black ink that reads "Buddy Munnay FOR". The signature is written in a cursive style.

William M. Pearse
Project Manager

Enclosures as noted.

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1.0 INTRODUCTION

1.1 Site Location

The former Camp Hero, consisting of 468.69 acres, is located on the extreme eastern tip of the south fork of Long Island, New York, approximately 5 miles east of the Village of Montauk (Figure A-1 in Appendix A). The Camp is bounded by Montauk Highway (Route 27) to the north, the Atlantic Ocean to the south, Montauk Point State Park to the east, and an undeveloped nature preserve owned by the state to the west. The Camp is located in Suffolk County, NY. A general layout map of the Former Camp Hero is provided on Figures A-1 thru A-4 in Appendix A.

1.2 Site Description

1.2.1 Terrain and Vegetation

The entire project area land rises abruptly along the oceanfront and then gradually slopes northward. Several high points are in the area, and in general the land contour consists of numerous ridges and depressions. Most of the general topography drains into swamps, situated throughout the area. There is also approximately 5,500 feet of man-made drainage ditches on the site. The entire area, with the exception of the developed structures, roadways, oceanfront, and southern bluff area, is covered with a dense growth of scrub oak and brush. Oyster Pond is situated to the north of the former Camp Hero, and larger Lake Montauk is to the west.

1.2.2 Geologic and Soil Conditions

The soils of Suffolk County are a complex mixture of weathered mineral material, organic matter, water, air, and living organisms. The mineral material, mainly granite, is a result of glacial till deposited during the Wisconsin Age. The glacial till, together with the water or wind-deposited silt, clay, and sand, combined to form Suffolk County's soils. Those soils are of the Bridgehampton, Escarpment, Montauk, Muck, Wallington, and Whitman series.

1.2.3 Climate

The former Camp Hero is subjected to warm, humid summers and mild winters. The annual average rainfall is approximately 46 inches with the most rain falling in March, April, and August. The former Camp Hero is sometimes subject to coastal tropical storms occurring in the late summer or fall capable of producing high winds and heavy rains. Average yearly snowfall is 29 inches, with most of the snow falling from December through March. The average annual temperature is 52.2 degrees F. The average winter months (December through February) temperature is 30.9 degrees F, and the average summer months (June through August) is 71.1 degrees F.

1.3 Site History

1.3.1 Pre-WWI

Military site history at the former Camp Hero begins well before the World War I era. Revolutionary War and War of 1812 American and British warships reportedly used the "Montauk Bluffs" for firing practice with cannons. Teddy Roosevelt and his Rough Riders, part of an estimated 29,500 men force returning from the Cuba, Puerto Rico, and Florida campaigns of the Spanish American War in 1898, camped in the Fort Pond Bay area of Montauk. Their

camp was called Camp Wikoff and served as a quarantine station for these returning soldiers. Camp Wikoff was active for only a few months.

1.3.2 WWI - WWII

Between WWI and WWII, a Navy observation post housing two reconnaissance blimps were stationed at a hangar adjacent to the current Montauk Tower, and a number of oceangoing seaplanes were positioned at a Naval Base on Fort Pond Bay. From about 1921 until around 1923, thousands of soldiers from Regular Army, National Guard, and Citizen Military Training Corps Field Artillery units camped and trained in the Montauk area. A campsite on the east side of Fort Pond Bay, presumably named Camp Walsh, was chosen to accommodate the training units. From 1936 through the 1970s, Army Air Corps planes conducted bombing target practice on an island off of Montauk Point known as Gardiner's Point. This island also contained an abandoned Spanish American War Fort known as Fort Tyler. In 1942, the Department of the Navy built a facility on Fort Pond Bay to develop and test torpedo propulsion systems. This facility remained in existence until the end of WWII.

1.3.3 WWII

The former Camp Hero was established in early 1942 as a Coastal Defense Installation to defend the approaches to New York and was named in honor of Major General Andrew Hero. Three self sufficient batteries (Battery 112, 113, and 216) and supporting facilities were constructed which included barracks, mess halls, hospital facilities, a motor repair shop, a recreation facility, sentry boxes, and water supply and sewage facilities. A total of 600 enlisted men and 37 officers were stationed at the Camp. Battery 216 contained two M1903A2 6-inch shielded guns that were delivered to the battery in January 1943. Battery 113 (also known as Battery Dunn) consisted of two Navy MKIIM1 16-inch casemated guns that were completed on June 5, 1943. The guns of Battery 112 were identical to Battery 113 and were completed on January 12, 1944. Additionally, 37mm weapons and .50-caliber antiaircraft weapon platoons were assigned to protect the Camp from air attack. The Camp's weaponry was periodically fired to practice over water but was never fired as a result of an act of hostility.

1.3.4 Post WWII

The Camp was placed on inactive status on July 31, 1947 and ultimately declared surplus by the Department of the Army on December 31, 1949. Simultaneously a portion of the former Camp Hero lands was also transferred to the Department of the Air Force for an aircraft control and warning station. On January 24, 1951 the former Camp Hero was withdrawn from surplus and designated for use as a firing range and field exercise area for antiaircraft artillery (AAA) from Fort Totten, NY. Arrangements were made for the permanent Army AAA cadre at the Camp. 90mm and quad .50 caliber antiaircraft artillery began firing exercises from firing positions established in the southern bluff overlooking the Atlantic Ocean.

In 1952 the Air Force property was renamed the Montauk Air Force Station and was occupied by the 773rd Aircraft Control and Warning Squadron (ACWS). Training continued using 90mm and

120mm guns, 3.5-inch rockets, and .50 caliber guns until 1957. The facility was inactive until October 1958 when the 773rd ACWS was redesignated as the 773rd Radar Squadron with a new mission to provide surveillance data of air traffic in the area. In order to accomplish this mission, an advanced Specific Frequency Diversity Search Radar was built in late 1960. The facility was closed in 1982. Between 1974 and 1984 all site lands were transferred to State, Local, and other Federal agencies.

1.4 Current Land Use

The overall Former Camp Hero Site comprises 468.69 acres, and includes the following current landowners.

- State of New York, New York State Parks Commission (415.35 acres);
- Town of East Hampton (46.19 acres);
- Montauk Historical Society Lighthouse Commission, leased for 30 years from the Department of Transportation, U.S. Coast Guard (6.29 acres); and
- 0.86 acres of unresolved real estate ownership, attributed to erosion or poor survey techniques at the time of land procurement.

Future land use is anticipated to remain the same.

1.4.1 New York State Parks Commission.

The State of New York, New York State Parks Commission, owns the largest land parcel which is designated as limited access public park land. Controlled public access is allowed on the southern bluff area by permit only to fisherman during season. Following removal of any former military hazards, future land use is for unrestricted public use including hiking, fishing, camping, and other recreational uses.

1.4.2 Town of East Hampton.

The 46.19 acres owned by the Town of East Hampton are used for low-income housing, which consists of 27 former Air Force housing units and a small amount of East Hampton Town-owned undeveloped property. Future land use is anticipated to remain the same.

1.4.3 U.S. Coast Guard.

The U.S. Coast Guard operates an automated beacon light atop the old lighthouse. The property around the lighthouse is leased to the Montauk Historical Society and includes the old Camp Hero Fire Control/37mm AAA Station. The area is regularly open to the public.

1.5 Project Areas

1.5.1 Area H – Bluff Area

1.5.1.1 General. Area H encompasses an approximately 8-acre square area in the southeastern portion of the Camp and is bounded by a bluff overlooking the Atlantic Ocean. Area H is adjacent to and uphill from Area K. The area is characterized by a central wetland and heavy

scrub oak vegetation. Area H was designated as an ordnance destruction range during the ASR, although no historical documentation was located to confirm past military usage. The basis for this designation included the presence of a diversity of ordnance-related debris on the ground surface, most of which was not indicative of the types of ammunition used at the Camp. Furthermore, evaluation of the larger projectile fragments indicated the ammunition had not been fired.

1.5.1.2 Land Use. Area H is entirely under the jurisdiction of the NY Office of Parks, Recreation, and Historic Preservation. The Park is mostly undeveloped and open to the public for pedestrian-based passive recreation including bird watching, beach combing, walking/hiking, photography, and seasonal surf fishing (with permit). Vehicular traffic is restricted in most areas. Camping or overnight parking is not allowed within the Park without permit, although it does occur. Development is under consideration by the Park in support of increased recreational use such as construction of cabins, although the proposal is controversial.

1.5.1.3 ASR Findings. The ASR recommended an EE/CA investigation be conducted in Area H based on the confirmed presence of OE items. These items included projectile fragments, functioned fuzes, and .50 caliber casings and bullets. In the northern portion of Area H additional OE was observed including a fragmentation bomb body, projectile fragments and bases, and a 3.5-inch rocket. An inspection of the southern portion of this area during the ASR reconnaissance revealed that OE items were moving to the adjacent Near-Shore Ordnance Area (Area K) as a result of bluff erosion.

1.5.1.4 EE/CA Findings. Approximately 3.29 acres were surveyed during the EE/CA investigation in Area H. A large wetland area, approximately 2 acres in extent, occurs in the eastern and central portion and was not surveyed. Difficult terrain in the north and a chain-link fence along the northwest corner restricted geophysical survey activities. A total of 334 anomalies were identified from the geophysical data. Of this total, 127 anomalies (38%) were selected for reacquisition and intrusively investigated. The recovered items from the intrusive investigation of anomaly locations at Area H included ordnance-related scrap and non ordnance-related scrap. A total of 21 OE scrap items (from 19 unique anomalies) were recovered from Area H. The items included OE scrap from 3.5-inch practice rockets and 105mm M1 HE projectiles. In addition to these OE scrap items, some unidentifiable fragments (suspected as OE scrap) were also recovered. All the OE scrap items were found between 0 and 18 inches below ground surface (bgs) in the south/southeastern portion of Area H. Non ordnance-related scrap items including nails, metal wires, cables, and fence debris were recovered from anomaly locations at Area H. During the intrusive investigation, no UXO items were found at Area H.

1.5.2 Revised Area K – Near-Shore Area

1.5.2.1 General. The Near-Shore Ordnance Area (Area K) encompasses the southern shore of the Camp lands directly south and southeast of Area H. Much of the approximately 9-acre parcel

is a rocky beach, although Area K also includes the steep bluff area between the beach and the upland Area H.

1.5.2.2 Land Use. Area K is entirely under the jurisdiction of the NY Office of Parks, Recreation, and Historic Preservation. The beach is undeveloped and open to the public for pedestrian-based passive recreation including bird watching, beach combing, walking/hiking, photography, and seasonal surf fishing (with permit). Surf fishing is extremely popular during the late summer and fall. There is no vehicular traffic on the beach. .

1.5.2.3 ASR Findings. The ASR recommended an EE/CA investigation of Area K based on the confirmed presence of OE items. These items included items similar to those encountered in Area H and also included a 90mm projectile, historic cannon balls, WWI/WWII vintage projectiles, fuzes, a hand grenade, a live 3.5-inch rocket, and several unidentifiable OE (USACE, 2000a,b). The majority of the OE scrap observed in Area K appears to have originated from erosion of the bluffs from the adjoining Area H and the remainder of the OE scrap is likely to have come from the ocean after severe storms.

1.5.2.4 EE/CA Findings. A total area of 9.58 acres was surveyed in Area K during this EE/CA investigation (excluding “mag and dig” survey). The geophysical survey resulted in the identification of 1171 anomalies. A total of 409 anomalies (35%) were reacquired and intrusively investigated. The recovered items from the intrusive investigation included ordnance-related scrap and non ordnance-related scrap. A total of 16 OE scrap items were identified from ten unique anomaly locations. Nine of the ten locations are immediately adjacent to the bluffs adjoining and below Area H; the tenth was located outside of the current Area K. All the OE scrap items were found between 0 and 12 inches bgs. No UXO items were identified in Area K. Non ordnance-related scrap material identified consisted of pipes, wires, nails, rods, and sign posts. The distribution of OE scrap items in Area K indicates that the OE presence is almost exclusively below the adjoining Area H bluff and is likely the result of displacement from erosion as opposed to an artifact of military training activity at the location. This speculation is supported by the lack of OE scrap items in other locations within Area K.

1.5.3 NO DoD ACTION INDICATED (NDAI) SITES

Figure A-5 shows the NDAI sites associated with the Former Camp Hero site.

1.5.3.1 Area A – Fire Control/37mm AAA Station

Area A was identified in the ASR as a small 0.03-acre flat parcel that housed a fire control tower with a 37mm (later changed to 40 mm) automatic weapons section located on the roof of the tower. The fire tower is located adjacent to (immediately east of) the historic Montauk Point lighthouse. No UXO/OE items were discovered during the ASR reconnaissance and no historical data, interview information, or physical evidence could be found to indicate actual ordnance firing from this location or a remaining ordnance presence at this location. However, during a meeting in March 2001 with the representatives of the Montauk Historical Society,

several undocumented OE discovery incidents were verbally conveyed that had taken place on the adjacent beach. Because of these findings, USAESCH added this area to the EE/CA project scope. No UXO or “ordnance-related scrap” was recovered from this area. All available evidence indicated that this site does not pose any explosive safety risk to the public. The historical use of Camp Hero was primarily for shore battery protection of U.S. territories and did not contain any impact areas or fuzing and ordnance test ranges. In addition, the ASR findings concluded that for Area A, there was no historical data, interview information, or physical evidence that indicated actual ordnance firing from this location or a remaining ordnance presence. Furthermore, the site characterization performed during the EE/CA investigation included the entire area around the fire tower that potentially could be investigated and no OE was identified. These findings substantiate the ASR conclusion of No DoD Action Indicated (NDAI) for Area A and therefore it will not be further evaluated for OE response.

1.5.3.2 Area K – Near Shore Ordnance Area

The Near-Shore Ordnance Area (Area K) encompasses the southern shore of the Camp lands northward to within approximately 500 feet of the lighthouse. Much of the approximately 44.88-acre parcel is a rocky beach. Except for the portion of Area K described in Section 1.5.2 (Revised Area K), the near-shore ordnance area was determined in the EE/CA to be NDAI, as no evidence of UXO/OE was found.

2.0 REASON FOR OE

OE is suspected in each of the areas addressed by this submission due to past DOD activities at former Camp Hero. The suspected OE contamination within each area was evaluated during the EE/CA conducted at the site.

**TABLE 2-1
REASON FOR OE**

AREA	Reason For OE
H	Possible ordnance destruction range.
K	Erosion from bluff (Area H) and transport from ocean firing range (Area L) after storms.

3.0 AMOUNT AND TYPE OF OE

No OE has been located during the previous site investigations. OE scrap from 3.5” rockets and 105mm M1 HE projectiles was identified during the EE/CA field investigation in 2002. As described in section 1.5, anomaly densities in Areas H and K were generally low (50-100/acre). The OE density estimates below in Table 3-1 are based upon the EE/CA field data.

**TABLE 3-1
OE DENSITY ESTIMATES**

Investigation Area	Minimum Estimated OE Density (OE per acre)	Maximum Estimated OE Density (OE per acre)	Types of OE Expected
Area H	0	5	105mm, 3.5" rocket
Area K	0	1	105mm, 3.5" rocket

3.1 Most Probable Munition

For Q-D purposes, the most probable munition (MPM) has been established as the 105mm M1 HE projectile for each area addressed by this submission. The MPM is the round with the greatest fragment distance that can reasonably be expected to exist in any particular OE area. For each area, the MPM has been chosen based upon both the historical data and sampling data. Using the MPM for each site, the Minimum Separation Distance (MSD) has been calculated by CEHNC to be 1939 feet. During the course of removal action if OE with a greater fragmentation distance is encountered, or if no evidence of 105mm frag is found, then the MSD and Q-D arcs shall be adjusted accordingly and an amendment to this safety submission submitted for approval.

**Table 3-2
MPM AND MSD**

AREA	MPM	MSD
H	105mm M1 HE	1939 Feet
K	105mm M1 HE	1939 Feet

Note: 1. See Appendix B for calculation sheets and documentation of MSD.

3.2 Maximum Credible Event (MCE)

No explosive contaminated soil is expected for the areas addressed by this submission. Therefore, no MCE is required.

4.0 START DATE

The projected start date for this project is July 14, 2003.

5.0 FROST LINE

Based upon data obtained from the Suffolk County Water Department, the frost line at Montauk New York is 48 inches.

6.0 CLEARANCE TECHNIQUES

This paragraph describes the techniques to be used to detect, recover, and destroy OE. These techniques are being described using excerpts from the work plan for the removal action.

6.1 Geophysical Survey Instrument

The geophysical survey instrument (GSI) to be used for subsurface clearances and the magnetometer assisted surface clearances is the Schonstedt 52 CX ferrous metal detector.

6.2 Geophysical Instrument Prove Out

To ensure these magnetometers are capable of detecting the 105mm M1 HE and 3.5" rocket at required clearance depths, a test line will be established. EODT will bury an item similar in size, shape, metal type and density as the 105mm projectile at a depth up to 11 diameters of the object, not to exceed of four feet below ground surface. Each magnetometer will be tested to detect the buried item prior to and after removal activities each day. If a magnetometer fails to detect the item prior to work it will not be used. If it fails to detect the item at the completion of work the area searched with the instrument will be re-searched the following day. If anomalies deeper than 24 inches are detected they will be excavated to determine if they are OE.

6.3 Site Control During OE Operations

Prior to initiation of on-site OE operations, all nonessential personnel will be removed to a location outside the exclusion zone (EZ). The New York State Office of Parks, Recreation, and Historic Preservation have agreed to close the park and access road during intrusive operations. The EZ will be equal to the MSD, as identified in paragraph 3.1. Once an OE operation commences, only essential personnel will be allowed inside the EZ. In the event that an item with a larger MSD is located during on-site activities, the CEHNC will be notified and the

CEHNC-ED-CS will be contacted to calculate the new MSD for the new MPM. Until the new MSD distance has been calculated, the default distances specified in DOD 6055.9-STD will be used. Additional information related to the use of the MSD is presented in paragraph 6.6 of this submission.

6.4 Surface and Subsurface Geophysical Investigation

The UXO personnel will concurrently conduct a surface and subsurface investigation in each grid. The procedures for conducting the investigation are presented below.

6.4.1 Grid Preparation: When the team arrives at a grid the UXOT3 will visually inspect the grid to determine if any preparatory measures (e.g., vegetation removal) will be required before the removal action can begin. The grid size has been established at 100 feet by 100 feet.

6.4.2 Search Lanes: To ensure complete coverage of the grid during the removal action search lanes 5-feet in width will be established within the each grid. Small rope will be used to mark these lanes, which will be laid parallel to the north-south boundary of the grid.

6.4.3 Surface and Subsurface Magnetometer Searches: Once the search lanes have been established, each team member will be assigned a lane and will typically line up along the southern boundary of the grid, starting in the southwest corner.

6.4.3.1 The UXO personnel will remain within their lane and search the areas directly in front of themselves. To ensure there is no interference between individuals or instruments there will be at least one lane not occupied between UXO personnel, or a staggered start will be used to maintain distance and avoid electromagnetic interference between instruments. To ensure that each search lane is adequately searched, and that the magnetometer will be able to appropriately respond to surface and subsurface anomalies, both the forward movement of the sweep personnel and the swing of the magnetometers will be performed at a controlled pace. Throughout the sweep, the UXOT3 will closely monitor individual performance to ensure that these procedures are performed in an appropriate manner with due diligence and attention to detail.

6.4.3.2 Once the sweep line reaches the grid boundary, the team personnel will move to the next lane not cleared and proceed back to the opposite boundary.

6.4.3.3 When an anomaly is located, the UXOT2 locating the item will either mark the item for examination at the completion of the magnetometer search or investigate the item at the time it is located. The determination of whether to mark or inspect an item when it is located will be based upon the physical nature of the grid and the anomaly densities, which will be determined by the UXOT3 in charge of the team.

6.5 Anomaly Excavation and Identification

Excavation and identification of anomalies will be performed using the criteria and procedures outlined below. Only UXO-qualified personnel will perform excavation and investigation of anomalies.

6.5.1 To gain access to a subsurface anomaly, UXO-qualified personnel will use either hand tools or earth moving machinery (EMM) to remove the soil. Excavation will be initiated to the side of the anomaly, and will not be conducted directly over the anomaly until such time as the depth of the anomaly can be ascertained.

6.5.2 Soil removal will be conducted in 1-foot lifts and after each lift; the excavated area will be magnetically surveyed to assess the approximate distance to the item (based upon signal strength).

6.5.3 When the excavation is believed to be within 1-foot of the anomaly source, additional excavation will be conducted with care using small hand tools only.

6.5.4 Excavation will be continued until the source of the anomaly has been uncovered and identified.

6.5.5 A detailed accounting of all UXO/OE located at each site will be made and maintained by the SUXOS. A log entry will be made for each UXO/OE item indicating the item's identity, its explosive hazards, location (x, y, and z measurements) and final disposition.

6.5.6 All OE scrap with a width (diameter) inclusive of and between a 3.5 inch rocket motor (which is 51mm diameter) and a 105 mm projectile at a depth of less than 11 diameters of the object will be removed from the site.

6.5.7 When EMM is required, the UXOT3 and SUXOS will coordinate its use and basic requirements and in turn, ensure that a cleared entrance and egress path is available. At no time will EMM excavate directly over a suspected UXO nor will it dig closer than 12-inches to the item. Once the bucket is within 12-inches of the anomaly, the excavation will be completed by hand as described above.

6.6 Operations in Populated/Sensitive Areas

No OE removal operations will be conducted within 1939 feet of any of the sites in close proximity to any populated areas.

6.7 Engineering Controls

Engineering controls for demolition will be used as delineated in the CEHNC document entitled "Use of Sand Bags for Mitigation of Fragmentation and Blast Effects due to Intentional Detonation of Munitions," Document Number: HNC-ED-CS-S 98-7, dated August 1998. These controls will be applied as necessary to mitigate fragmentation and blast hazards created during demolition operations.

6.8 Demolition Operations

All OE items requiring detonation will be marked with two crossed pin flags pending blow-in-place (BIP) disposal. Detonation of OE items will be controlled using an electric firing system. All explosive operations will be supervised by the SUXOS and coordinated with the CEHNC OSS. All explosive operations will follow the procedures outlined in TM 60A-1-1-31 and the CEHNC "Safety Concepts and Basic Considerations for Unexploded Ordnance (UXO)," dated

22 May 2000. Demolition operations will be performed as needed on a daily basis. If demolition operations cannot be conducted because of severe weather or some other unforeseen reason a guard will be posted to secure the item from the public until it can be detonated.

6.8.1 Explosive, Storage, Accountability, and Transportation: Explosives will not be stored at the Former Camp Hero site. A local explosives supply contractor will provide explosives on an as-needed basis. Binary explosives will be used. Once issued, total control of explosives will be maintained while the explosives are on site. Only the amount of explosives required for the day's operations will be issued. Compliance with the requirements listed below will be maintained at all times:

6.8.1.1 Strict accountability of explosives will be maintained at all times. An explosives accountability record will be used for explosives accountability, and reconciliation of amounts received and used.

6.8.1.2 Only EODT UXO personnel will be issued explosives and allowed to transport explosive materials.

6.8.1.3 All vehicles transporting explosives will be properly inspected, equipped, and placarded prior to the loading of explosives onto the vehicle, and DD Form 626 completed.

6.8.2 Disposal Shots. While preparing OE for detonation, the UXOSO will ensure that the number of personnel on site is kept to the minimum required to safely accomplish the disposal mission. Authority to initiate demolition operations will rest solely with the SUXOS. The UXOSO will be responsible for ensuring all personnel have been accounted for and that the area is secure prior to authorizing the detonation of explosive charges. The SUXOS will ensure that the local Police PH 631-668-3709, Fire Department 631-324-0124, and Parks Superintendent PH 631-668-2765 (Tom Dess) are notified of an impending demolition shot.

6.9 Quality Assurance/Quality Control (QA/QC)

The UXOQCS will perform random, unscheduled audits of the various site activities to ensure that personnel accomplish all work and record keeping as specified in the work plan (WP) and CEHNC SOW. These quality inspections shall include property accountability, UXO related tasks, equipment operator maintenance, personal protective equipment (PPE) usage and WP compliance. Any non-conformance to contractual requirements will be documented and reported in writing to the SUXOS, Quality Control Manager (QCM), and Project Manager (PM). The SUXOS will then be responsible for the field remediation of the non-conformance.

6.9.1 Upon conclusion of the removal activities in each grid within each area, the UXOQCS will conduct a surface and subsurface QC sweep of the grid within a reasonable time after the completion of the work (one or two working days). During this QC sweep, a minimum of 10% of a site will be checked, regardless of the stated requirements in the SOW, unless the SOW requires more than 10% will be checked, in which case the SOW takes precedence. The UXOQCS will proceed on a zigzag pattern covering 10% of the entire site, with a report of the

findings submitted to the SUXOS. Grids that pass the QC sweep will be submitted to the CEHNC for QA inspection. The pass/fail criteria for both the QC and the QA inspections will be the location of one UXO/OE or OE scrap with a width (diameter) inclusive of and between a 3.5-inch rocket warhead and a 105mm projectile at a depth of less than 11 diameters of the object. If a grid does not pass a QC or QA inspection, it will be reported to the SUXOS and the grid will be scheduled for a re-sweep.

6.10 OE Scrap Inspection

All ORS and non-ORS, to include inert OE items will be inspected and certified free of explosives by at least two UXO qualified personnel prior to it being removed from the grid. ORS will be segregated from non-ORS. ORS will be stored in a metal scrap storage container and secured with a lock by the SUXOS.

6.11 OE Scrap Disposition

Upon completion of all removal activities EODT will complete a DD Form 1348-1A or similar form as turn-in documentation. EODT will certify that 100% of the property is properly inspected and free of explosives and explosive residues by qualified UXO personnel. The following statement shall be signed and dated by the SUXOS and verified by the on site CEHNC OE Safety Specialist.

“This certifies and verifies that the AEDA residue, Range Residue and/or Explosive Contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, are inert and/or free of explosives or related material.”

All OE scrap will be disposed of at a foundry and/or recycler to ensure permanent disposal. EODT will document the chain of custody and transportation of the scrap to its final destination. A copy of the form and chain of custody will be included in the Removal Report.

7.0 ALTERNATE TECHNIQUES

No other disposal techniques are anticipated for this OE removal action.

8.0 OFF-SITE DESTRUCTION

No off-site destruction of recovered OE is anticipated for this OE removal action. All detonations will occur within the grid as specified in paragraph 6.7.

9.0 TECHNICAL SUPPORT

9.1 EOD Support: The 63rd Battalion (EOD) located at Fort Dix, TX, phone number 609-562-5940 or 609-562-4184 will provide EOD support.

9.2 Technical Escort Unit: If suspected CWM is found, or if an OE item cannot be positively identified, the CEHNC OSS will request military support from the Technical Escort Unit at Aberdeen, Phone 410-436-4381 or 410-436-7193. No chemical warfare materiel (CWM) is suspected at any site.

9.3 Contractor: The contractor for this project is EOD Technology, Inc. (EODT) Lenoir City, TN 37771. All on-site UXO personnel will meet the training and minimum experience required by the CEHNC and DID OE-025.01

10.0 LAND USE RESTRICTIONS

After project completion, the property will remain undeveloped and be returned to recreational use.

11.0 PUBLIC INVOLVEMENT

One public information meeting is tentatively scheduled for July 10 in Montauk.

12.0 MAPS

The following maps and data are contained in Appendix A of this submission:

1. Regional map showing the regional location of the site.
2. Site map depicting OE areas covered by this submission
3. Quantity-Distance data is depicted on the site map depicting each OE area being cleared under the submission.

13.0 QUANTITY-DISTANCE

13.1 OE Area(s)

The MSD restrictions from OE areas to non-project personnel will be applied during all surface and subsurface OE removal actions. The MSD identified by CEHNC for each area is presented in Table 3-2 of this submission. Preliminary site work such as surveying, laying grid lanes and anomaly detection do not require the establishment of a MSD for Q-D purposes. Project personnel are defined as those on-site contractor and DoD personnel required to participate in the OE removal/sampling, along with those approved and authorized visitors. All other personnel are non-project personnel. For all sites addressed in this ESS, the outer boundaries of the MSD arcs in each site is depicted on the map in Appendix A of this ESS and were measured from the outer boundaries of each site rather than the center of each site. The team separation distance at each site will be 200 feet. If an OE item with a potentially greater fragmentation distance encountered during the removal action a revised MSD that applies to the OE will be requested from CEHNC. An amendment with the revised MSD will be prepared and submitted for approval. Until the amendment is approved, the specified default distances in DoD 6055.9-STD, Chapter 5, Paragraph C5.5.4 will be used.

13.2 Explosive Storage Magazines

No explosive storage magazines will be used for this OE removal project. Explosives will be provided by a local vendor on an as-needed basis and will be delivered to the site in day boxes.

13.3 Planned or Established Demolition Areas

All demolition activities will be conducted within each grid using BIP procedures. Therefore, the Q-D requirements for planned demolition areas are discussed below in paragraph 13.4.1.

13.4 Footprint Areas

13.4.1 Blow-in-Place

The EZ for BIP operations will be 1939 feet, which is the MSD designated for intentional detonations, unless an engineering control such as those described in paragraph 6.6 are used. The unbarricaded MSD and the MSD for sandbag enclosures for the MPM are presented in the MSD calculation sheets in Appendix B of this submission.

13.4.2 Collection Points

Collection points are those areas used to temporarily accumulate OE within a search grid pending destruction at the end of the day using consolidated shots. Consolidating multiple UXO is not anticipated for this project, but if it is deemed necessary, CEHNC's publication *Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites*, dated August 1998 will be used.

13.4.3 In-Grid Consolidated Shots

Consolidating multiple UXO is not anticipated for this project, but if it is deemed necessary, CEHNC's publication *Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites*, dated August 1998 will be used.

APPENDIX A
SITE MAPS

CONVENTIONAL EXPLOSIVES SAFETY SUBMISSION

FOR THE

OE REMOVAL ACTION

FORMER CAMP HERO
MONTAUK, NY

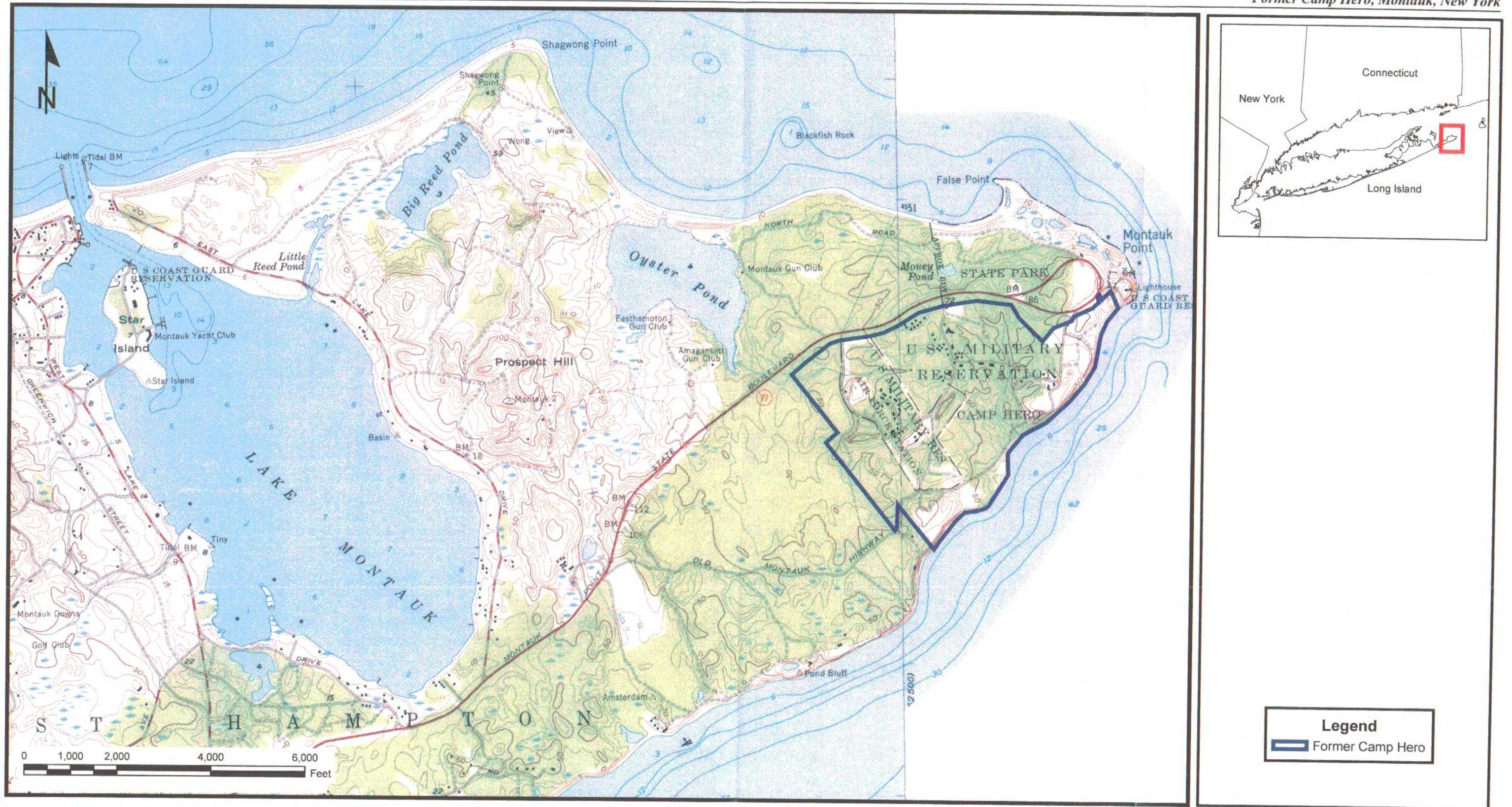


Figure A-1 Regional Map

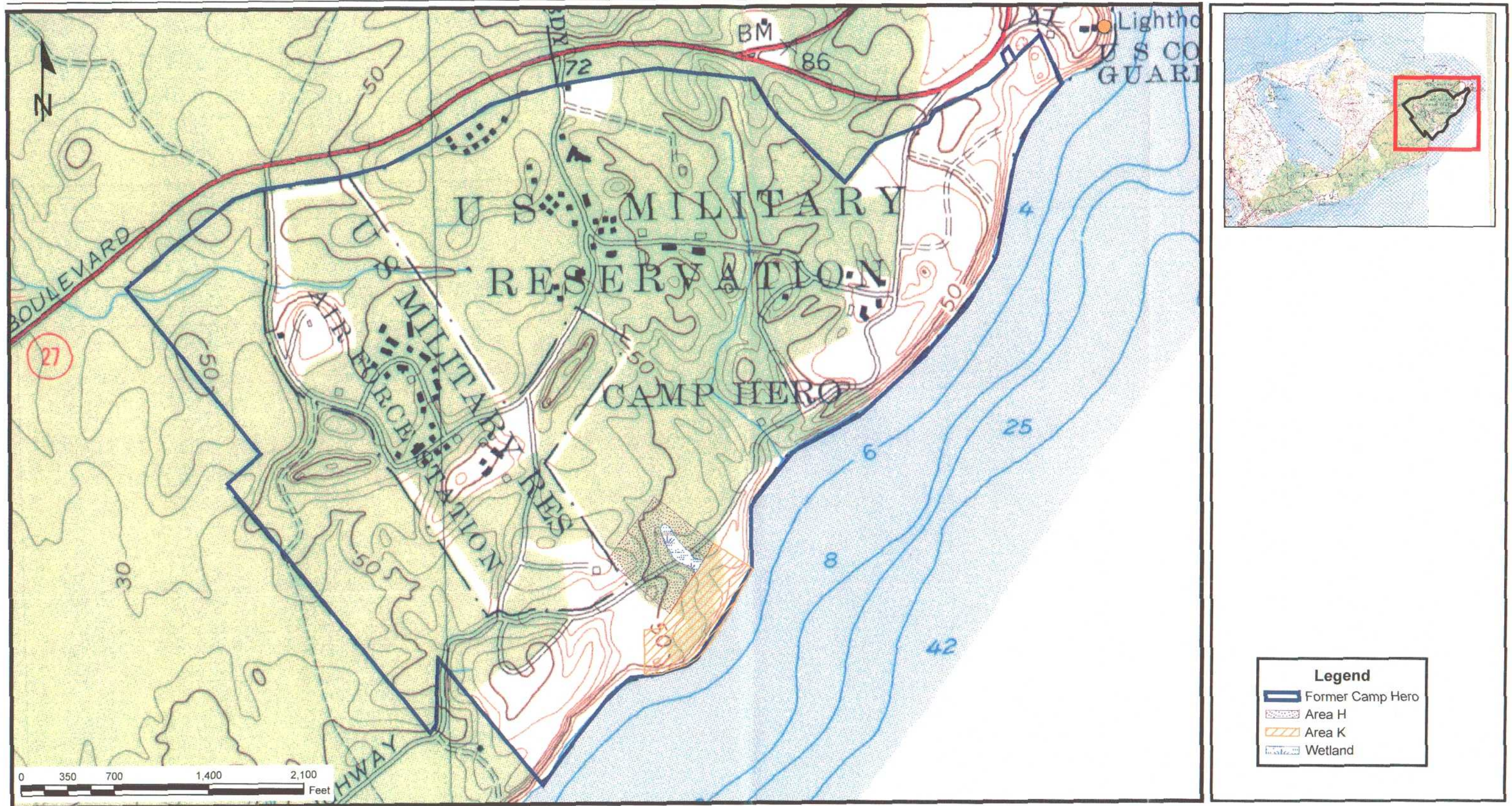


Figure A-2 Site Map

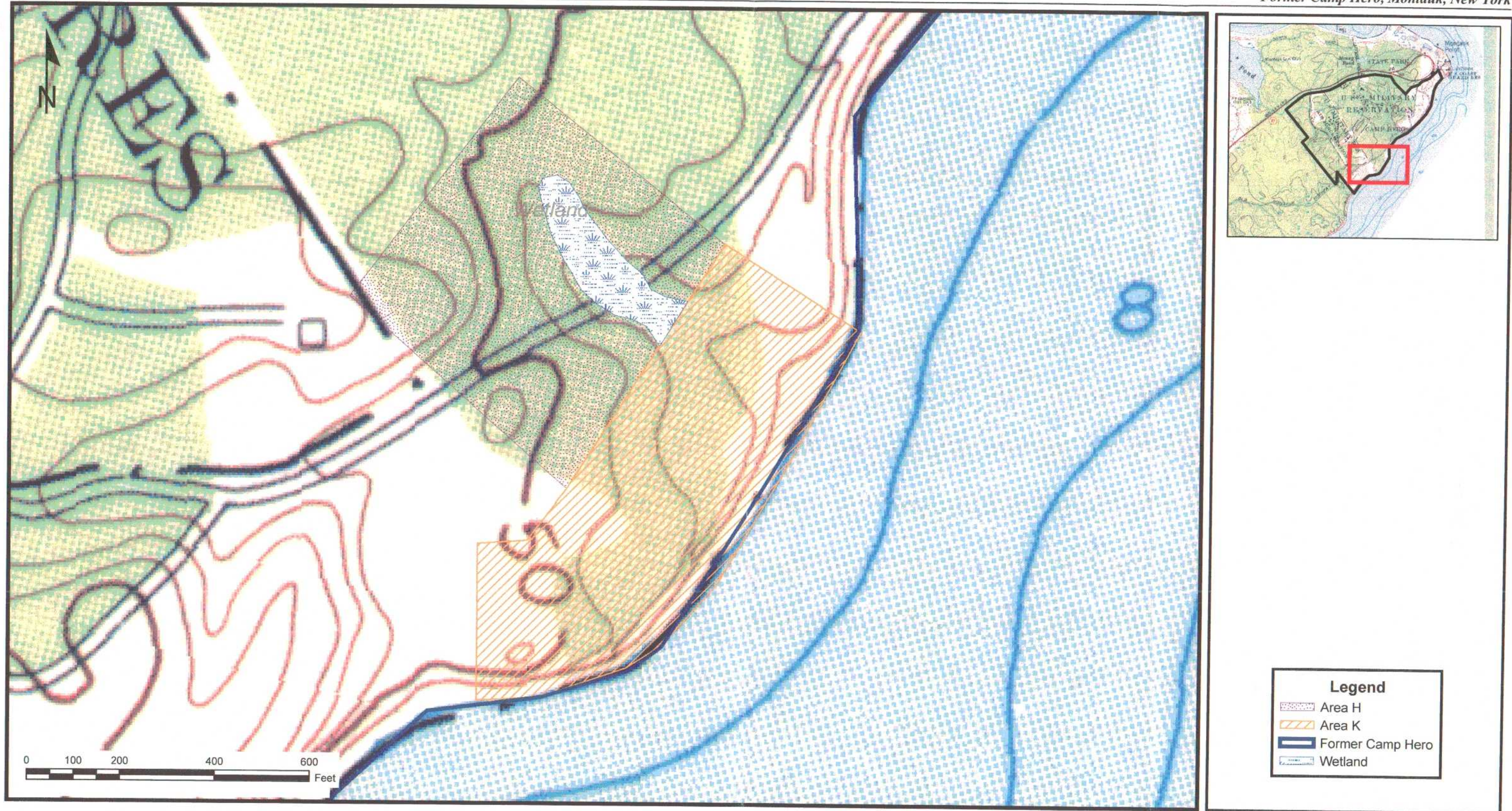


Figure A-3 OE Removal Areas

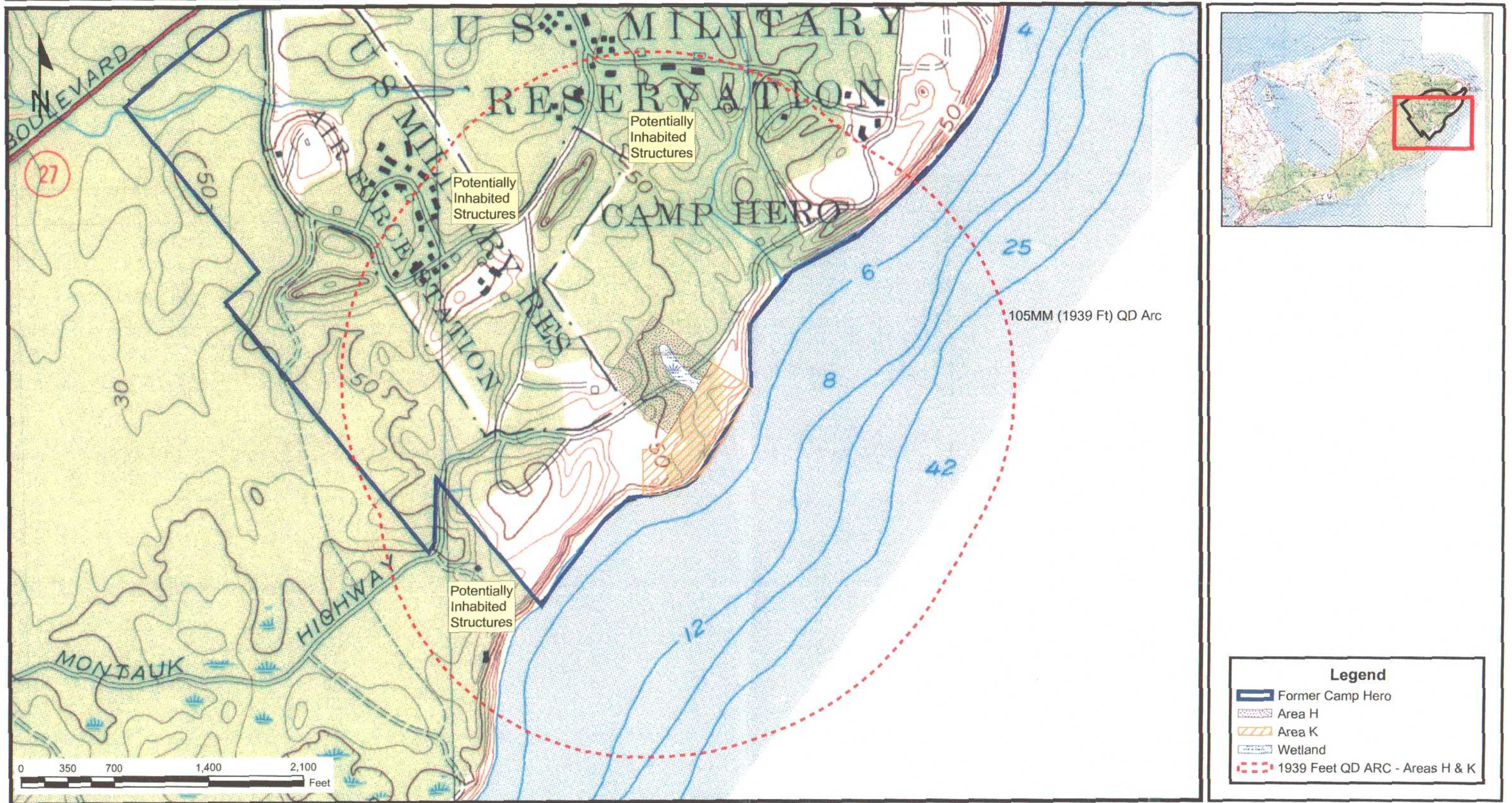


Figure A-4 105mm Projectile (1939 Feet) QD Arc Map

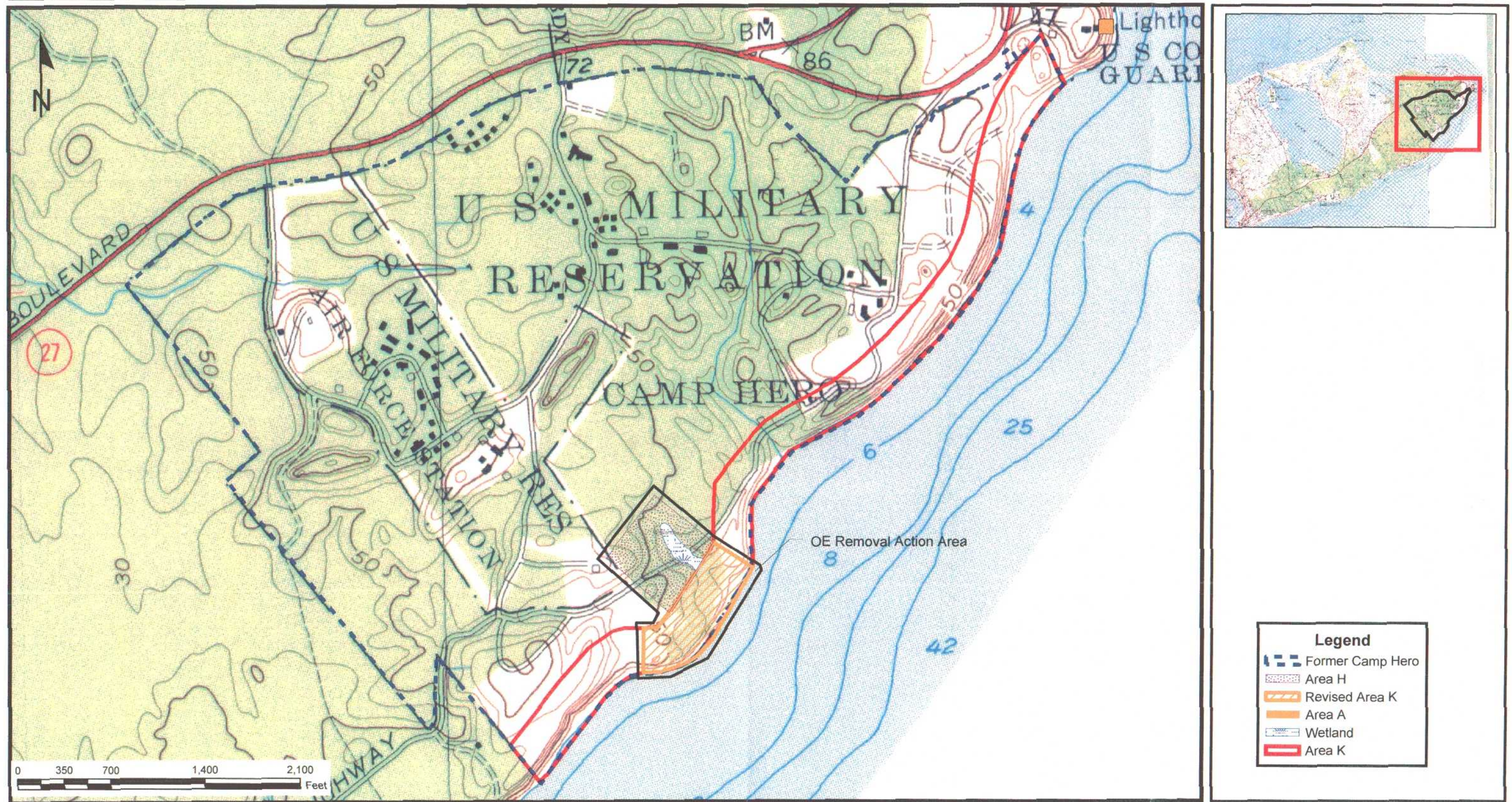


Figure A-5 NDAI Areas

APPENDIX B
MSD CALCULATIONS

EXPLOSIVES SAFETY SUBMISSION

FOR THE

OE REMOVAL ACTION

FORMER CAMP HERO
MONTAUK, NY

Minimum Separation Distances
Camp Hero
105mm M1
9 May 2003

REQUESTED BY: Jerry Kresge
PREPARED BY: Sherene Opichka

This form shows calculated distances only. It does not constitute approval. Concurrence of CEHNC-OE-S is required to determine the applicable distance for a specific site.

In accordance with (IAW) EM 1110-1-4009, the minimum separation distance for unintentional detonations shall be the largest of the maximum fragment range, the K50 ($50W^{1/3}$ where W is the total net explosive weight for the detonation) overpressure distance or 200 ft. In accordance with (IAW) EM 1110-1-4009, use of the range to no more than 1 hazardous fragment/600 sq ft as the minimum separation distance for unintentional detonations requires written justification, a risk analysis, calculation of this distance by CEHNC-ED-CS-S, and concurrence of CEHNC-OE-S.

IAW EM 1110-1-4009, the minimum separation distance for intentional detonations shall be the largest of the maximum fragment range, the K328 ($328W^{1/3}$ where W is the total net explosive weight for the detonation) overpressure distance or 200 ft.

CALCULATED FRAGMENT DISTANCES

Maximum Fragment Range = 1939 ft
Range to No More Than 1 Hazardous Fragment/600 sq ft = 341 ft

CALCULATED OVERPRESSURE DISTANCES BASED ON OE ITEM'S EXPLOSIVE WEIGHT ONLY (i.e. NO DONOR CHARGE)

Range to 0.9 psi Overpressure (K50) = 97 ft
K328 Overpressure Range = 636 ft (based on munition NEW only, no donor)

The primary fragmentation characteristics used in the calculation of the values listed above were computed IAW CEHNC-ED-CS-S-98-1. The maximum fragment range was calculated using the maximum weight fragment and the initial velocity from these characteristics in the computer software TRAJ. The range to no more than 1 hazardous fragment/600 sq ft was calculated IAW CEHNC-ED-CS-S-98-2.

NOTE THAT ALL MITIGATION METHODS FOR INTENTIONAL DETONATIONS ARE BASED ON THE USE OF COMMERCIAL SHAPED CHARGES FOR INITIATION. IF ANY OTHER DONOR CHARGE IS TO BE USED THIS INFORMATION MUST BE PROVIDED TO CEHNC WITH A REQUEST FOR NEW CALCULATIONS!

Minimum Separation Distances
Camp Hero
105mm M1
9 May 2003

SANDBAG ENCLOSURE FOR INTENTIONAL DETONATIONS

Required Sandbag Thickness = 24 in. with 6" standoff between munition and sandbags

Sandbag Throw Distance = 135 ft

Minimum Separation Distance = 200 ft

The required sandbag thickness and the sandbag throw distance were calculated IAW CEHNC-ED-CS-S-98-7. A copy of HNC-ED-CS-S-98-7, "Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions" must be available on site.

WATER MITIGATION FOR INTENTIONAL DETONATIONS

Water Containment System (see HNC-ED-CS-S-00-3)	Minimum Separation Distance (ft)
1100 gallon tank	200

The water containment system and the minimum separation distance were determined IAW HNC-ED-CS-S-00-3. A copy of HNC-ED-CS-S-00-3, "Use of Water for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions" must be available on site.

MINIMUM SEPARATION DISTANCES WHILE USING OFB DURING INTRUSIVE ACTIVITIES

Design of the Open Front Barricade (OFB) is in accordance with HNC-ED-CS-S-99-1, "Open Front and Enclosed Barricades". A copy of this report must be available on site. DDESB has placed certain restrictions on the approved usage of the OFB. These are listed in the approval letter in the front of the report.

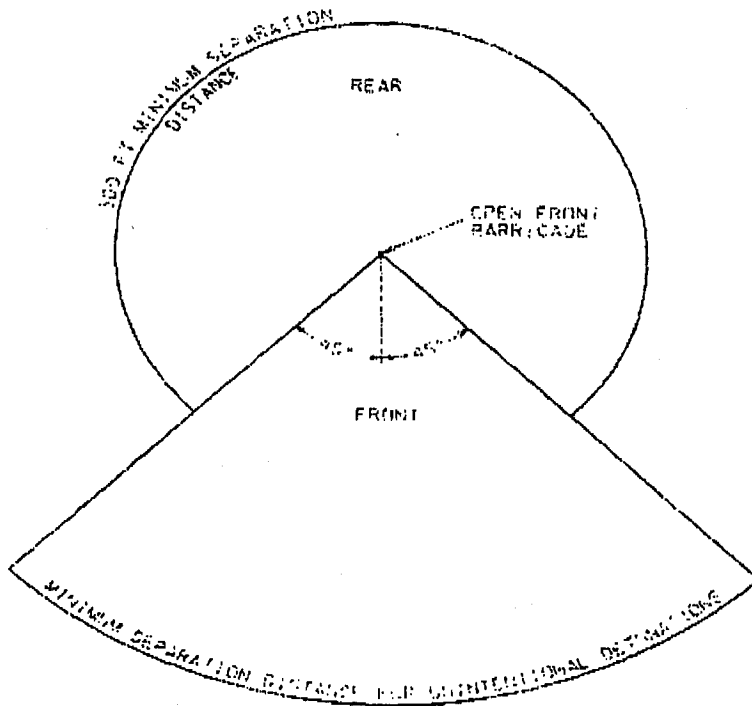
Thickness of Aluminum Required to Prevent Perforation = 1.87 in
Thickness of Steel Required to Prevent Perforation = 0.90 in

The OFB is designed to defeat fragments to the rear and sides of the OFB in the case of an accidental/unintentional detonation during intrusive activities. The fragment distances to the front of the OFB are the same as the fragment distances without the OFB (see figure). The OFB is not designed to reduce the effects of blast overpressure. The OFB may not be used for intentional detonations. The minimum separation distances to the rear and sides of the

Minimum Separation Distances
Camp Hero
105mm M1
9 May 2003

OFB must be maintained based on the expected throw distance of the OFB itself.

Minimum Separation Distance to sides and rear = 300 ft
Minimum Separation Distance to front = 1939 ft
K50 distance = 97 ft



MINIMUM SEPARATION DISTANCE FOR INTENTIONAL DETONATIONS
USING OPEN FRONT BARRICADE DURING OFFENSIVE ACTIVITIES

SIGNATURES:

Shereno Oricka 5/9/03
Subject Matter Expert Date

Michelle Cull 5/9/03
QA Reviewer Date