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SUMMARY REPORT FOR CONSTRUCTION SUPPORT DISCARDED MILITARY MUNITIONS
VISUAL SURVEY OPERATIONS PHASE II NWS EARLE NJ
12/1/2007
TETRA TECH

**SUMMARY REPORT
for
CONSTRUCTION SUPPORT
DISCARDED MILITARY MUNITIONS
VISUAL SURVEY OPERATIONS
PHASE II**

**NAVAL WEAPONS STATION EARLE
LEONARDO, NEW JERSEY**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

Submitted to:

**Naval Facilities Engineering Command Mid-Atlantic
9472 Maryland Avenue
Norfolk, Virginia 23511-3095**

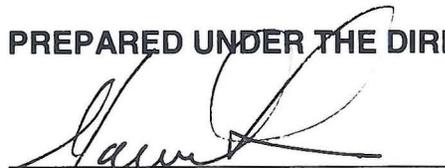
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**CONTRACT NO. N62472-03-D-0057
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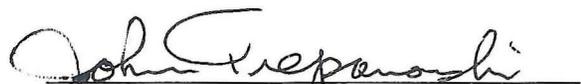
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ACRONYMS

BIP	Blow-in-Place
CAR	Corrective Action Request
C/D	hazard class/division
CLEAN	Comprehensive Long-Term Environmental Action Navy
CNO	Chief of Naval Operations
CQCP	Contractor Quality Control Plan
CTO	Contract Task Order
CWM	Chemical Warfare Material
cy	cubic yards
DDESB	Department of Defense Explosive Safety Board
DID	Data Item Description
DMM	discarded military munitions
DN	Deficiency Notice
EMM	earth moving machinery
EOD	Explosive Ordnance Disposal
ESQD	Explosive Safety Quantity Distance
ESS	Explosive Safety Submission
HASP	Site-Specific Health and Safety Plan
HE	high explosive
HTRW	Hazardous, Toxic or Radiological Waste
ITR	independent technical review
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
MHP	material handling plan
Mm	millimeter
MPPEH	material potentially presenting an explosive hazard
NCR	Non-Conformance Report
NJDEP	New Jersey Department of Environmental Protection
NW	net explosive weight
NOSSA	Naval Ordnance Safety and Security Activity
NWS	Naval Weapons Station
PESM	Project Environmental Safety Manager
PM	Project Manager
POC	Point of Contact

ACRONYMS cont'd

QC	Quality Control
SOP	Standard Operating Procedure
SS	Site Supervisor
SSWP	Site-Specific Work Plan
SUXOS	Senior UXO Supervisor
TBD	to be determined
TtNUS	Tetra Tech NUS, Inc.
USACE	United States Army Corps of Engineers
UXO	unexploded ordnance
UXO ESS/QC	UXO Environmental Safety Specialist/Quality Control Specialist
WMI	Weeks Marine Incorporated

1.0 INTRODUCTION

This Summary Report was prepared by Tetra Tech NUS, Incorporated (TtNUS) under Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62472-03-D-0057, Contract Task Order (CTO) 054. The report summarizes Phase II of the discarded military munitions (DMM) survey construction support services. These services, provided by TtNUS from August 2007 through October 2007, were conducted at the Naval Weapons Station (NWS) Earle located in Leonardo, New Jersey. The survey operations were conducted in support of an ongoing military construction (MILCON) project to replace existing pier 3 at NWS Earle. All project activities were conducted in accordance with the approved Explosive Safety Submission (ESS) (TtNUS, 2007), approved Work Plan (TtNUS, 2007a), and the approved Materials Handling Plan (MHP) (TtNUS, 2007b). Approximately 8,745 cubic yards (cy) of debris were certified DMM-free in accordance with the Explosive Safety Submission (ESS), following survey and removal of 5 DMM items.

1.1 PROJECT BACKGROUND

In July 2005, Weeks Marine Incorporated (WMI), a prime contractor for the Navy, began demolition and dredging in preparation for the replacement of Pier 3 at NWS Earle. WMI contracted with a private landowner in Virginia for upland disposal of the dredge materials not suitable for ocean disposal. The upland disposal of these dredge materials was approved by appropriate state of Virginia environmental agencies. WMI used four scows for dredge material storage and transport. WMI's disposal operation in Virginia involved a two-stage process. The first stage incorporated water into the dredge material, creating a slurry mix. This mix was subsequently pumped off of the scow. Once the slurry was removed from one of the scows, WMI started removing remaining dredge debris from the bottom of the scow. Shortly after the offloading operation began, WMI uncovered three 40mm Anti-Aircraft (HE) ammunition rounds and a single 5 inch / 54 powder can (partially emptied). The Explosive Ordnance Disposal (EOD) unit at NWS Yorktown was contacted and removed the rounds from the site under emergency response provisions. Naval Ordnance Safety and Security Activity (NOSSA) was contacted and they advised that this could be an isolated event and to closely monitor the material for additional discoveries of DMM. In December 2005, TtNUS was tasked by the Navy to provide Unexploded Ordnance (UXO) support during the subsequent off-loading operations. Shortly after off-loading operations recommenced, two additional rounds of DMM [40mm Anti-Aircraft (HE)] were encountered. These findings were reported to the Navy, NOSSA was notified, and the upland disposal at the Virginia site was suspended. The NWS Yorktown EOD unit responded for a second time and removed the rounds under emergency response provisions (TtNUS, 2006c). Based on the discovery of the additional DMM, NOSSA required the material in the four scows be surveyed for DMM.

In January 2006, the Navy requested that TtNUS provide additional UXO support services during any material transfer operations and further requested that TtNUS conduct a material DMM survey using UXO-qualified staff. The Navy, after reviewing available options for conducting the material survey, determined that the survey would be performed at the NWS Earle Pier Complex.

NWS Earle is located along the northern New Jersey shore along the south end of Sandy Hook Bay. The station is about 4 miles west of Sandy Hook and 7 miles southeast of Staten Island. The station is comprised of two main sections: Main-side, located in Colts Neck, and the Waterfront Area, on Sandy Hook Bay, located in the Leonardo section of Middletown. Both areas are connected by Normandy Road, a 15-mile military road and rail line. The DMM survey project was conducted on abandoned Trestle 2 in the Pier Complex of the Waterfront Area near Pier 3; Figures 1-1 and 1-2.

Phase I DMM survey operations were conducted 24-hours per day 7-days per week from May 15, 2006 through August 18, 2006. Approximately 18,000 cy of dredge material were surveyed and certified after recovering 28 DMM items during Phase I operations (TtNUS, 2006a).

The Phase II operations were initiated in May 2007. Project planning and coordination meetings were held at NWS Earle and through teleconferences. The ESS, work plan and MHP previously approved for Phase I operations were updated and revised to incorporate operational changes and to reflect completed activities. The revised plans were approved and issued to direct Phase II (TtNUS, 2007; TtNUS, 2007a; TtNUS 2007b). The Phase II survey operations project was also conducted on Trestle 2 and included scows, or barges, which were in-process loaded with dredge spoil materials and off loaded on to the trestle after decanting water from the barge. The weight restrictions on Trestle 2 which were enforced for the Phase I operations were modified by the Navy for Phase II and were delineated in the approved Phase II Work Plan.

1.2 PROJECT OBJECTIVE

The objective of TtNUS' work was to remove DMM from the dredged debris and certify it as DMM-free so that it could be disposed as non-hazardous solid waste. The visual survey was conducted to remove DMM and Material Potentially Presenting an Explosive Hazard (MPPEH) from the dredged material prior to the material being released for shipment and disposal offsite. The survey was designed and conducted to identify and remove DMM and MPPEH larger than small arms ammunition from the survey material and to certify the material DMM-free in accordance with the ESS (TtNUS, 2007). As identified in the ESS and the work plan, the Client must recognize that even the most comprehensive services may not detect and/or reduce all of the environmental liabilities related to MPPEH because of technological limitations of equipment or methods and/or unique conditions at the site (TtNUS, 2007; TtNUS, 2007a).

2.0 DESCRIPTION OF FIELD ACTIVITIES

Field activities were completed during the period from August 6, 2007 through November 2, 2007. Activities consisted of site preparation and mobilization, maintenance of access controls, DMM survey operations on Trestle 2, and barge, or scow, inspections.

2.1 SITE PREPARATION, MOBILIZATION AND ACCESS CONTROLS

The TtNUS project team participated in a preconstruction meeting with the Navy and other Navy contractors to plan for and coordinate project activities. Mobilization of equipment, supplies and personnel to the project site was initiated on August 6, 2007. The project work area, consisting of the northern 2000 feet of Trestle 2, was prepared for the survey operation in accordance with the approved work plan and MHP (TtNUS, 2007a; TtNUS, 2007b). Geotextile fabric material was anchored to the top of the side curbs along the east and west sides of the trestle and pre-cast concrete "jersey barriers" were installed end to end, adjacent to the covered curbs on each side for the entire 2,000 feet of work area. Straw bales were placed at each end of the work area to form a sedimentation fence to prevent the discharge of water-borne sediment and small particles from the work area to Sandy Hook Bay. The jersey barriers were placed to prevent materials from accidentally spilling into the bay and to provide the required safety barrier for equipment and personnel. A rubber tired excavator and a front end loader with a fork lift attachment, properly sized, was used to unload and place the jersey barriers and the blast shield booths, which were required to support the screening operation. A gangway leading from Trestle 1A to Trestle 2, was constructed to provide an access and egress point for personnel working the survey operations at the north end of the Trestle 2. Once the project area was established the equipment used to prepare the trestle was demobilized from the site until demobilization activities began.

Two excavators with specially designed 6' wide rake attachments and two medium sized front end loaders were mobilized to support survey operations. Additionally, the excavators and front end loaders were outfitted with appropriate blast shields to protect the operator(s) against possible accidental detonation of a 5-inch round, if encountered during survey operations. One excavator and one front end loader each were stationed at the north and south ends of Trestle 2 to support simultaneous surveys at both ends of the trestle. In addition, personnel protective booths fitted with blast shields sized for protection from an accidental detonation of a 5-inch round, were placed at both ends of the trestle. Also, as part of the mobilization effort, the Navy supplied two (2) Ready Service Lockers (RSLs) at the south end of Trestle 2 for the temporary storage of any DMM recovered during the survey operation. Signage was placed at both the north and south access points to the trestle to control unauthorized personnel from entering the work area. Photographs of the survey equipment, work area, and survey operations are presented in Appendix A.

The project work area is located within the NWS Earle facility and within a Navy-controlled ordnance handling area. Explosive safety required a minimum 236 foot active exclusion zone be established and maintained before any screening activities occurred due to the potential of encountering live explosively configured munitions. However, based on the approved CNO Waiver and ESS, Navy and Navy contractor personnel non-essential to the survey operation were permitted use of Trestle 1A, which intersects the exclusion zone (see Figures 2-1 and 2-2), for non-ordnance related activities (Navy 2006; TtNUS, 2007). During Navy ordnance handling operations on the Pier Complex, TtNUS stationed flagmen with approved radios at either end of the DMM screening Explosive Safety Quantity Distance (ESQD) arc on the main trestle. When placarded ordnance laden conveyances approached the ESQD with the intent of passing through the area on Trestle 1A, the flagman notified the Site Supervisor and UXO Team Leaders to secure their operations in order to allow the Navy ordnance conveyances to proceed down Trestle 1A. Once the ordnance vehicles were out of the area, the survey/transfer operation resumed. Navy ordnance handling operations on the Pier Complex took priority at all times and transit delays of Navy ordnance conveyances were kept to a minimum. All other vehicles were allowed to proceed and the flagmen were not stationed on the main trestle when there was no ordnance handling operations underway. Communications between NWS Earle and the UXO teams, for the pier operations, were critical for efficient/timely DMM operations.

2.2 VISUAL SURVEY OF DREDGE SPOILS FOR DMM

The survey operation consisted of several phased activities. The first activity was the offloading of dredged materials from barges/scows by WMI to the designated location on Trestle 2. This operation was carried out during off-hours or weekends, so as not to interfere with active survey operations. Two teams of 3 UXO technicians assisted by heavy equipment operators were stationed at north and south ends of the trestle to reposition the dredge material into a workable stockpile. The dredge material was then removed from the stockpile in batches, using front-end loaders and spread and raked using excavators equipped with custom manufactured rake attachments. This work was accomplished while being observed by one of the qualified UXO technicians at a safe distance inside a blast booth.

Once a batch of spoils were raked to a depth of 4 to 6 inches, UXO teams visually surveyed the materials to identify and remove DMM or other MPPEH. This task was accomplished using appropriate hand tools such as rock rakes and garden forks. After survey operations were completed on each batch, the material was transported and stockpiled in a "clean zone" designated for temporary storage while awaiting removal by WMI. In accordance with the work plan, a quality control (QC) check of the survey operation was conducted by completing an independent second survey of the material before transport to

the “clean zone.” Appendix B contains the QC inspection log and the certifications issued for each batch of surveyed material removed by WMI. The UXO teams conducted operations 12-hour days/5 days per week for the first 6 weeks and 11-hour days for the last 2 weeks until all material was surveyed.

In addition to conducting the survey of materials on Trestle 2, the TtNUS team conducted a final survey and certification of residual material remaining in the barges or scows. After WMI had removed as much dredge material as possible from the barges, a TtNUS UXO team entered the barges, under approved health and safety procedures, and conducted a survey of the residual materials. The UXO team removed the remaining materials from the barge side and end walls and spread the material on the floor of the barge for inspection. The material was surveyed in the same manner as on the trestle deck. After all material was surveyed, found to be free of DMM and certified, the barge was released from the work area.

A total of 8,745 cubic yards were handled and surveyed and 5 DMM items were found during the 8 weeks of surveying/screening operations. Appendix C provides the MEC Accountability Logs and a listing of the five DMM items recovered during the operation. Photographs of each item are contained in Appendix A.

During the operation, in accordance with the approved work plan and ESS, TtNUS provided continuous health and safety and QC supervision and oversight of all activities. Daily progress reports, documenting site activities, staffing, and QC and health and safety activities, were prepared and submitted to the Navy (see Appendix D). In addition, RSL/Container Inventories and Magazine Inspection Checklists were completed throughout the project to track DMM finds and handling activities (see Appendix E). All DMM and MPPEH recovered during the operation were transferred, in accordance with the approved work plan and ESS, to the NWS Earle EOD Detachment for subsequent handling and treatment.

2.3 DEMOBILIZATION

At the completion of the active survey operations all equipment, material and personnel were demobilized from the site. The work area on Trestle 2 was scraped and cleaned of loose debris and sediment prior to removing the Jersey barriers. The area was cleaned an additional time using a street cleaner after removing the geotextile filter fence materials. The gangway between Trestle 2 and Trestle 1A was removed and the guard rail sections on Trestle 1A were replaced by Navy personnel. Demobilization activities commenced on October 15, 2007 and all personnel left the site on November 2, 2007 after the area had been inspected and approved by a representative from the Navy.

REFERENCES

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TtNUS, 2007b. Materials Handling Plan Discarded Military Munitions Visual Survey Operations Naval Weapons Station Earle Leonardo, New Jersey, Addendum 1. July.

FIGURES

Naval Weapons Station Earle Pier Location

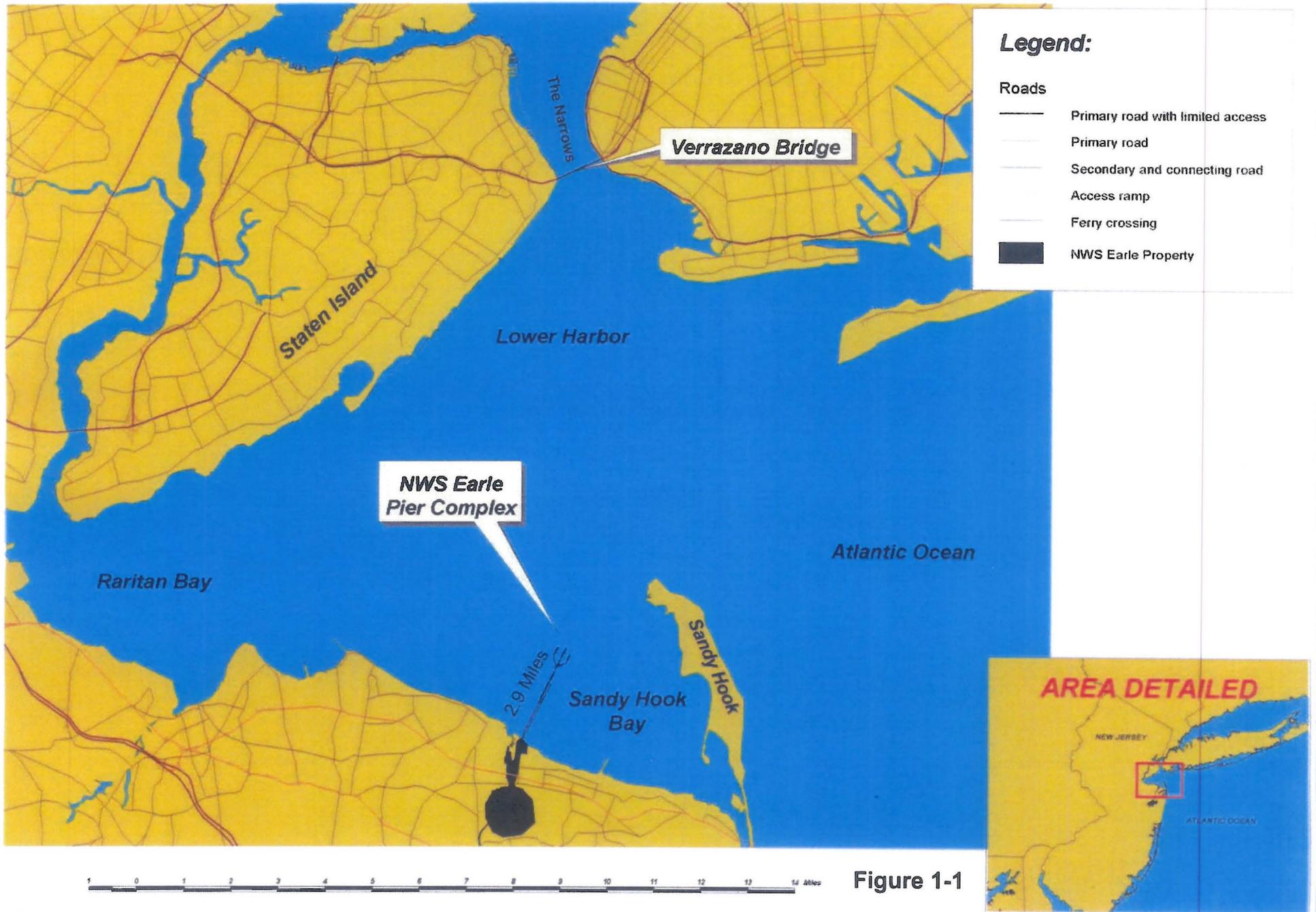
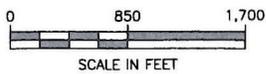
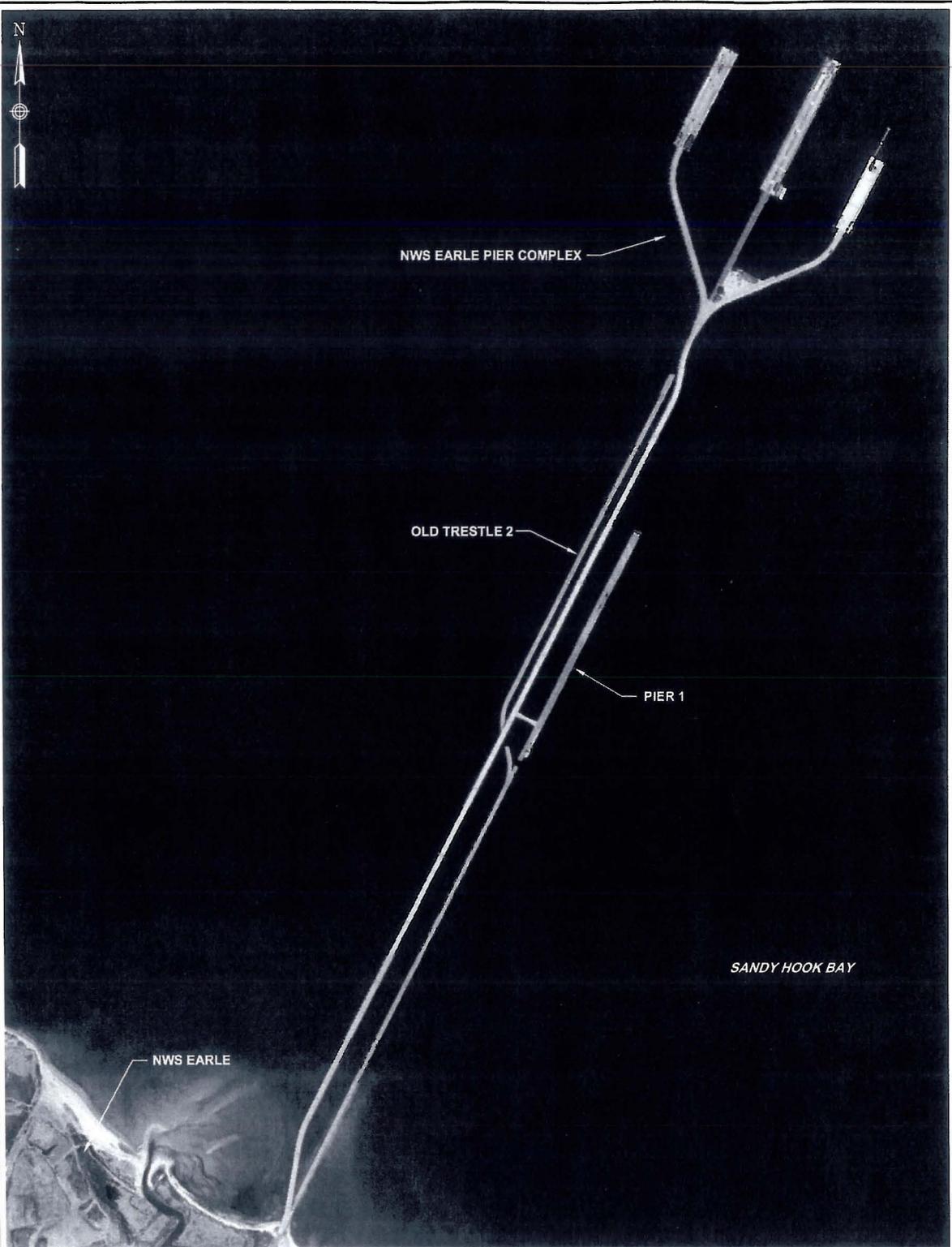


Figure 1-1

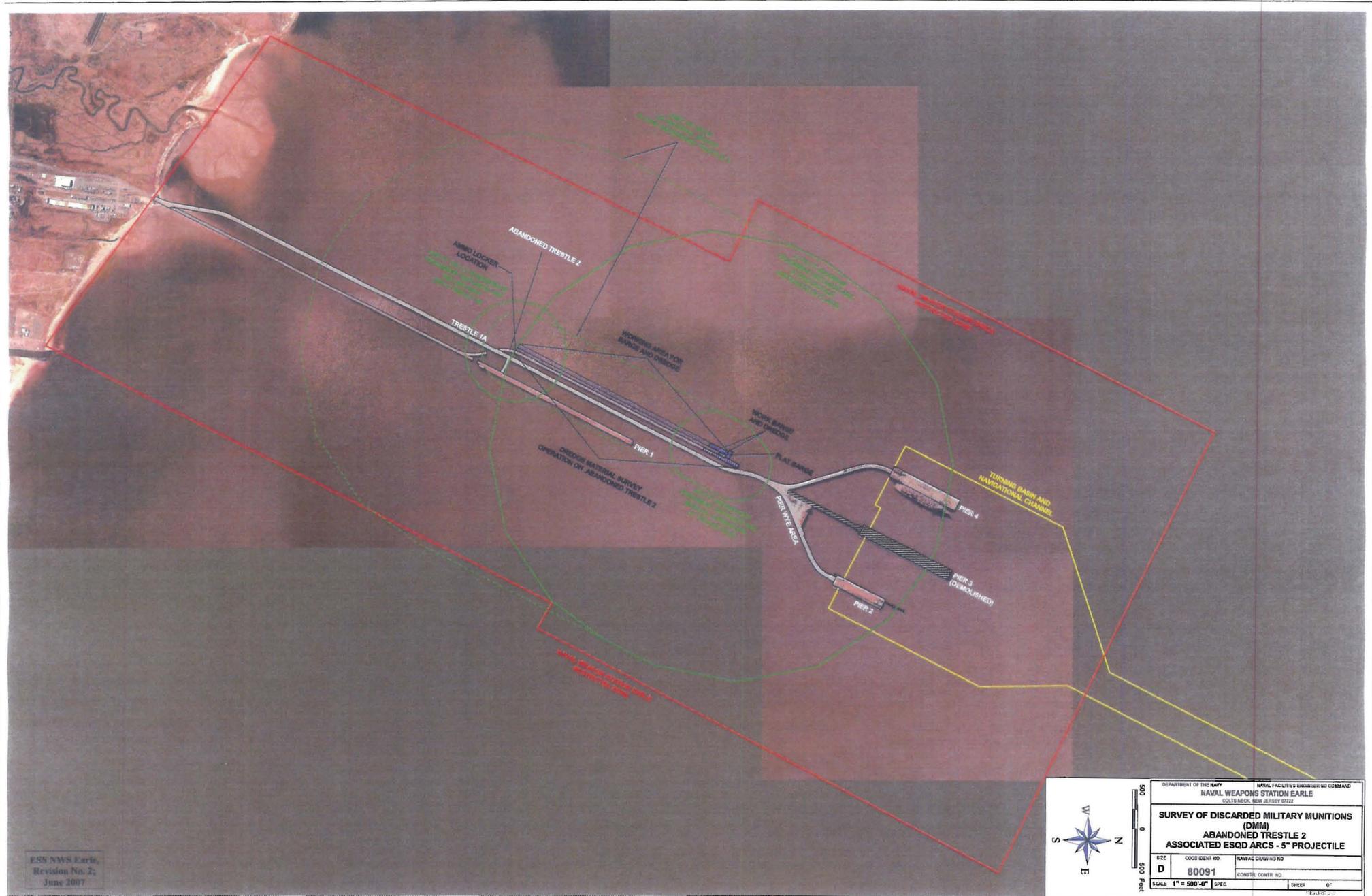


TETRA TECH NUS, INC.

PIER COMPLEX
 WATERFRONT AREA
 NWS EARLE
 OLD TRESTLE 2 AND PIER 1
 LEONARDO, NEW JERSEY

FILE
 112G00314MD03
 FIGURE 1-2

SCALE
 AS NOTED
 REV 0 DATE
 05/03/07



ESS NWS Earle,
Revision No. 2;
June 2007

		DEPARTMENT OF THE NAVY NAVAL WEAPONS STATION EARLE <small>COLTZ BLDG. 800 JARVIS ST. 07024</small>	
		NAVAL FACILITIES ENGINEERING COMMAND	
SURVEY OF DISCARDED MILITARY MUNITIONS (DMM) ABANDONED TRESTLE 2 ASSOCIATED ESQD ARCS - 5" PROJECTILE			
SIZE D	CODE IDENT NO 80091	NAWFAC DRAWING NO 	COMBITE CONTR NO
SCALE 1" = 500'-0" SPEC.		SHEET	01

FIGURE 2-1