

FINAL LIMITED ENVIRONMENTAL SITE ASSESSMENT REPORT

**NIKE SITE #73
133 OXBOW ROAD
WAYLAND, MASSACHUSETTS**



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Prepared for:

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1.0 INTRODUCTION

1.1 OBJECTIVE

Bois Consulting Company, Inc. (Bois Consulting) was contracted by the Town of Wayland to assist the Nike Site Advisory Committee with environmental site assessment services. Bois Consulting conducted a Limited Environmental Site Assessment, pursuant to the Town of Wayland's Nike Site Advisory Committee (Advisory Committee) Request for Proposal (RFP) dated November 3, 2003. The purpose of the Limited Environmental Investigation was to assist the Town of Wayland in evaluating potential environmental liabilities associated with the Former Boston Area Nike Battery 73 (Nike Missile Site #73) located at 133 Oxbow Road, in Wayland, Massachusetts ("the Site"), which the Town of Wayland is considering acquiring and developing for various property reuses.

The objectives for performing the requested environmental assessment are to:

- Further quantify the environmental conditions identified in the Phase I Environmental Site Assessment conducted for the Town of Wayland by CMG Environmental, Inc., (October 17, 2003) and determine if response actions under Massachusetts or Federal environmental regulations are required;
- Further quantify the environmental conditions identified in the ESA to support property acquisition negotiations with the GSA; and
- Provide information to support the evaluation of various property reuse options.

The project work was scoped as requested in the Town of Wayland's RFP. The Scope of Work is described in further detail in the Environmental Site Assessment Qualifications Proposal for Nike Site #73, dated November 18, 2003 by Bois Consulting. This report is subject to the Study Limitations noted in Section 6.0 of this report.

1.2 PHYSICAL SITE CHARACTERISTICS

The Site is located on the north side of Oxbow Road in the Town of Wayland, Massachusetts. Figure 1 provides a Site Locus map of the area. The Site is currently owned by the U. S. Government and access is managed by the General Services Administration (GSA). According to the CMG report, the Site was operated by the U.S. Army as a Nike missile site from 1955 through 1964; the Massachusetts Army National Guard operated the missile site from 1964 until 1974. The National Guard used the Site as a storage facility from 1974 through 1997. Prior to 1955, the Site was undeveloped woodlands. The property is currently vacant, and contains 12 buildings and two missile silos (Silo 6 and Silo 7). Additional information on the Site history and past uses are described in the Phase I Environmental Site Assessment (ESA) Report (CMG, 2003).

The property covers approximately 14 acres of land, primarily wooded with some vegetation and paved areas over approximately 70% of the Site, in the vicinity of the buildings and silo areas. There are no surface water bodies such as streams or ponds on

the Site. The nearest surface water is the Sudbury River, located approximately 0.2 miles northeast of the Site, and which flows to the east. Surface water drainage from the paved areas of the Site most likely flows radially outward or as directed by the stormwater drainage system on the Site. For example, stormwater on the north side of the Site in the Silo Area flows to the north as to three stormwater drains located just north of the paved area.

1.3 GEOLOGY/HYDROLOGY

Based on the soil samples collected and drill cuttings observed during this investigation, soil at the Site consists of approximately two-inches of dark brown, organic silty sand; approximately 20 to 30 feet of brown/orange, fine to medium sand with varying amounts of silt, coarse sand, gravel and organics; overlying orange/tan, fine sands with varying amounts of silt and medium sand. Bedrock was not encountered during drilling to a maximum depth of 57 feet below grade.

The Site is located within a mapped Zone II of a drinking water supply well located approximately one-half mile south of the site, as shown on the Massachusetts Geological Information Services of the area (CMG, 2003). Groundwater was encountered at depths between 42 feet and 51 feet below grade in the three monitoring wells installed during this Limited Environmental Site Assessment, further described in Section 2.2. Based on the survey data from this investigation, groundwater flows to the northwest across the Site.

1.4 REGULATORY INFORMATION/SOIL AND GROUNDWATER CATEGORIES

There is no specific regulatory or statutory requirement in Massachusetts related to environmental reporting requirements for property transfers. Under the Massachusetts Contingency Plan (MCP) regulations (310 CMR 40.0000), a release of oil and/or hazardous material must be reported to the Department of Environmental Protection (DEP). If concentrations of compounds in soil or groundwater are greater than the MCP Reportable Concentration (RC), then reporting this information as a “release” of oil and/or hazardous material to the DEP is required, as is evaluation and remediation of the release, if necessary.

Although the groundwater at the Site is not used directly as a drinking water supply, the current MCP reporting category for groundwater at this site is “GW-1” since it is located within a mapped Zone II of a drinking water supply well located approximately one-half mile south of the Site. The MCP reporting category for the soil at the Site is “S-1” since the Site is located above a GW-1 groundwater category.

The Massachusetts Army National Guard submitted Release Notification Forms to the Massachusetts DEP on November 1, 1996 regarding two areas where soil samples had exceeded the Massachusetts Contingency Plan (MCP) Reportable Concentrations for polynuclear aromatic compounds (PAH). The DEP’s Release Tracking Numbers for

these areas were RTN 3-14462 and RTN 3-14463 (North Outfall Missile Magazine Area and Building L-5, respectively). New England Environmental Testing, Inc. (NEET) conducted excavation and removal activities, as well as confirmation soil samples, on behalf of the National Guard. NEET submitted a Class A-2 Response Action Outcome under the MCP to the DEP on October 8, 1997 for both releases, thereby closing these two cases under the existing regulatory framework.

2.0 SCOPE OF WORK AND FINDINGS

As requested in the Request for Proposal (RFP) sent to Bois Consulting on November 3, 2003 by the Town of Wayland's Nike Site Advisory Committee, the Limited Environmental Site Assessment was conducted in accordance with:

- ASTM Standard Practice E 1903-97 "Standard Practice for Environmental Site Assessments: Phase II Subsurface Investigation;"
- Best practices for data collection as set forth by the Massachusetts Department of Environmental Protection, the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000), and specifically Response Action Performance Standards (310 CMR 40.0191);
- Worker health and safety requirements as established by OSHA and other relevant requirements. This included confined space entry considerations when evaluating the silos; and
- State and Federal regulations for asbestos containing material (ACM) including National Air Emission Standards for Hazardous Air Pollutants (NESHAP) and Asbestos Hazard Emergency Response Act (AHERA) assessments.

Section 2.3.2 of the Phase I ESA Report by CMG described six areas of concern (AOCs) at the Site. These are:

- AOC #1: OHM Handling & Storage Buildings Area (L-3, L-5, L-9, L-10, storage sheds, and pump house);
- AOC #2: Missile Battery & Associated Storm Drainage Area;
- AOC #3: Warheading Building (L-11);
- AOC #4: Primary Septic System;
- AOC #5: Dog Kennel Septic System (near L-18); and
- AOC #6: Former Heating Oil UST (L-1).

The scope of work performed to investigate the six AOC previously identified and the results are set forth below. Lightship Engineering, LLC, of Plymouth, MA conducted the field sampling program. A Sampling Locations Plan is attached as Figure 2, Appendix A. In general, the sampling and analyses program was conducted in conformance with the DEP's Data Quality requirements with the exception of limiting the list of metals analyzed. This action was taken since the site history did not support analyzing for the full list of metals. It should be noted that the volatile organic compound analyses were conducted using appropriately preserved bottles, one set for potentially high-level concentrations and one set for low-level concentrations. Both sets of VOC results are presented in the summary analytical tables.

2.1 INSPECTION/SAMPLING OF SUBSURFACE MISSILE SILOS (AOC #2)

On January 7, 2004, the two subsurface missile silos (L-6 and L-7) were inspected for evidence of oil and/or hazardous material (OHM). The welds on the entry hatches were cut to gain access to the silos prior to sampling and welded back after the sampling was completed. The ambient air in the silos was monitored for oxygen, carbon dioxide, hydrogen sulfide and lower explosion limit (“LEL”) prior to and during the inspection. A hydraulic lift is present in each of the two silos. No visual evidence of an OHM release was observed in either silo.

Standing water samples were collected from the standing water in the pit where the hydraulic lift is located, in each silo (Silo 6 and Silo 7). These two water samples were submitted to Alpha Analytical Laboratories, Inc., a Commonwealth of Massachusetts certified analytical laboratory for the following analyses:

- Volatile Organic Compounds (“VOCs”) using EPA Method 8260 and dimethyl hydrazine and ethylene oxide,
- Volatile Petroleum Hydrocarbons (“VPH”) and Extractable Petroleum Hydrocarbons (“EPH”) using the DEP Method (DEP 98-1),
- Total RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), and nickel.

The standing water analytical results are summarized in Tables 1 through 4 in Appendix B and the analytical laboratory report is included in Appendix C. As indicated in Tables 1 through 4, three total metals (barium, chromium and lead) and one VPH fraction (C₉-C₁₂ aliphatics) were detected above the analytical method detection limits. Total lead was detected in standing water samples collected from the pits in both Silos. As the table indicates, the concentrations detected exceed the RCGW-1 groundwater standard, however, these standards are provided for comparison purposes only and apply to groundwater samples, not to contained standing water. Therefore, the lead concentrations detected in the samples collected of the standing water in the silos do not represent an MCP Reportable Concentration.

2.2 INSTALLATION, SAMPLING AND ELEVATION SURVEY OF THREE GROUNDWATER MONITORING WELLS

On January 7, 2004, the three groundwater monitoring wells (MW-1, MW-2 and MW-3) were installed to assess groundwater depth, flow direction, and quality. The well locations are indicated on Figure 2, Appendix A. Monitoring well MW-1 was installed south of AOC # 4 and AOC # 6, in a presumed upgradient location. Monitoring well MW-2 was installed northeast (presumed to be hydraulically downgradient) of the missile silos (AOC #2). Monitoring well MW-3 was installed north (presumed to be hydraulically downgradient) of AOC # 3 and AOC # 1.

Groundwater monitoring wells were advanced using the hollow-stem auger drilling method to depths of between 50 and 57 feet below grade. Soil samples were collected

using a split spoon sampler from 0 to 2 feet, 5 to 7 feet below grade and at the groundwater interface. Soil samples were screened in the field for total organic volatiles (“TOVs”) using a photo-ionization detector (“PID”) with an 11.7 electron volt bulb and the DEP’s jar headspace method. PID readings at the selected depths in all three of the borings were 0, or “non-detectable.” The three borings were completed as groundwater monitoring wells. Wells were constructed of 2-inch diameter PVC with 10-feet of 0.010 slot PVC screen set to intersect the groundwater table (encountered at depths of approximately 44 to 52 feet below grade). The screened section of each borehole was packed with filter sand to a minimum of two feet above the top of screen and finished with a two-foot bentonite seal. The boreholes were finished to grade with native soil and a protective road box cover. Well logs with field screening results are included as Appendix D.

After installation, the top of the PVC casing elevations for each of the three wells was surveyed and the wells were gauged to determine depth to groundwater. As indicated on Table 5, Appendix B, depth to water in the three wells ranged from 41.80 to 50.76 feet below grade. Based on the calculated groundwater elevations, groundwater flows in a northwest direction across the Site, as indicated on Figure 2, Appendix A.

On January 15, 2004, one groundwater sample was collected from each of the three wells. Prior to sampling, each monitoring well was purged of approximately three to five well volumes using a disposable polyethylene bailer. The purge water was monitored for pH, temperature, and conductivity. A groundwater sample was collected from each well using a disposable polyethylene bailer. The three groundwater samples were submitted to a Commonwealth of Massachusetts certified analytical laboratory for VOCs, VPH, EPH, total RCRA 8 metals and nickel analyses.

The groundwater analytical results are summarized in Tables 6 to 9, Appendix B, and the analytical laboratory report is included in Appendix C. There were no VOCs or petroleum-related compounds (VPH/EPH) detected in any of the three groundwater samples.

Five total metals (arsenic, barium, chromium, lead and nickel) were detected above the analytical method detection limits. The concentrations in the groundwater samples exceed the MCP’s RCGW-1 groundwater standards, however, these results reflect total metal concentrations and not dissolved metal concentrations. The collection method for total metals does not include filtering the samples for sediment prior to analysis. Sediment from the well installation, development and sampling activities can become entrained in the sample and lead to artificially high results in a total metals analysis. Due to the depth of the water table, low-flow sampling, which decreases the amount of sediment in a sample, could not be conducted. Analysis of the groundwater samples for dissolved metals is more representative of the groundwater conditions and would likely indicate lower concentrations of metals. Therefore, an additional round of groundwater samples were collected on March 4, 2004, and submitted for dissolved metals analysis. The samples were filtered in the laboratory and then preserved, in accordance with the method requirements for dissolved metals. The results of the dissolved metals analysis

are provided on Table 6. As indicated on the table, no dissolved metals were detected above the method detection limits in any of the three samples collected.

2.3 ASBESTOS AND LEAD SURVEY (ALL AOCS)

On January 7, 2004, Axiom Partners, Inc. (“Axiom”) performed an asbestos and lead-based paint survey of the fifteen structures at the Site, including the aboveground buildings, sheds and sentry posts, and both underground missile silos. The purpose of the survey was to identify asbestos-containing building materials (ACBMs) and lead-based paint (LBPs), based on the sampling program scoped in the RFP, prior to property acquisition and/or future renovation/demolition of the structures.

A Massachusetts-licensed asbestos inspector with Axiom conducted the asbestos survey of the accessible portions of each of the fifteen structures at the Site (including the roofs). Seventy-five (75) bulk samples of suspect ACBMs were collected from accessible locations. Of these, fifty (50) samples were submitted and analyzed for asbestos mineral type and content using polarized light microscopy (PLM) in conjunction with dispersion staining. The results of the survey are included in the Axiom report attached as Appendix E.

Of the 50 samples analyzed, twelve samples contained greater than one-percent asbestos content by visual inspection. These samples were taken primarily from Building L-1 with some also in Building L-5, and the two Silo Areas (floor tiles, white air cell thermal insulation, coating on kitchen sinks, door caulking, transite wall panels). Exterior window caulking throughout the buildings also tested as ACBM. Materials greater than one percent asbestos are considered “asbestos-containing” under both federal and state regulations. A summary of the asbestos materials and their locations is provided in the Axiom report. In general, the condition of the ACBMs was fair to poor.

Axiom also conducted the lead paint survey of the accessible portions of each of the fifteen structures at the Site to assess for the presence of lead paint on the interior and exterior painted surfaces. The survey was conducted using a portable X-Ray Fluorescence (“XRF”) analyzer. The U.S. EPA uses a level of 1.0 mg/cm² as the concentration that defines “lead-based paint” for residential lead removal projects (EPA, 2000). Under the U.S. Department of Labor, Occupational Safety and Health Act (OSHA), according to the Axiom report, any substance with a detectable amount of lead is a “lead-containing” material and workers handling such materials under renovation and demolition work must comply with applicable OSHA requirements.

Fifty-six (56) areas were tested using the XRF field screening instrument. The majority of the samples (54) had concentrations between 0.0 mg/cm² and 5.10 mg/cm². Of those samples, twenty-four (24) were below the U.S. EPA 1.0 mg/cm² concentration for residential lead-based paint levels. The two paint samples with the highest concentrations were the missile silo entrance and missile silo aboveground manhole (yellow paint), at concentrations of 18.0 and 40.0 mg/cm², respectively. Three samples were also submitted for confirmation laboratory analysis using atomic absorption. These

results confirmed that the material contained over 0.5% lead by weight. The results of the survey are included in the Axiom report attached as Appendix E.

2.4 PRIMARY SEPTIC FIELD/SEPTIC TANK (AOC # 4)

On January 7, 2004, four subsurface soil samples were collected from the Primary Septic Field (SB-1 to SB-4) and one liquid/sludge (standing water) sample was collected from the Septic Holding Tank (Septic Tank). Soil borings were advanced using the direct push type drilling method. Continuous soil samples were collected to eight feet below grade. Soil samples collected from the “drain field” were field screened for olfactory and visual evidence of OHM and for TOVs using a PID and the DEP jar headspace method. Based on the field screening results, one composite soil sample (SB-1/2/3/4) and the standing water sample (Septic Tank) were submitted to a Commonwealth of Massachusetts certified analytical laboratory for VOCs, VPH, EPH, total RCRA 8 metals and nickel analyses.

No visual evidence of OHM or TOV concentrations were detected in the samples collected. The standing water analytical results are summarized in Table 1 to 4 and the soil analytical results are summarized in Tables 10 to 15, Appendix B. The analytical laboratory report is included in Appendix C.

As indicated in Tables 1 to 4, the standing water sample collected from the septic tank did not contain any VOC or petroleum-related compounds (VPH/EPH). The sample did contain two total metals (barium and lead) above the analytical method detection limits; however, as shown in the table, the concentrations are below the MCP RCGW-1 groundwater standards. The RCGW-1 groundwater standards are provided for comparison purposes only, since they apply to groundwater, not to standing water inside a septic tank.

As shown in Tables 10 to 15, the soil sample composite collected from the primary septic field contained eight total RCRA 8 metals and nickel, one VOC (acetone) and one EPH fraction (C19-C36 aliphatics) above the analytical method detection limits; however, all concentrations detected were below the MCP RCS-1 soil standards. Acetone is typically detected as a by-product of the sample preservation and is not likely to be a site contaminant.

Based on the analytical laboratory results, no MCP Reportable Concentrations were detected in the samples collected of the standing water in the holding tank or in the composited soil sample collected from the primary septic field.

2.5 FLOOR DRAIN INVESTIGATION IN BUILDING L-1 (AOC # 3)

On January 7, 2004, the discharge point of the floor drain located in Building L-1 (“Warhead Building”) was investigated. A visual inspection of the floor drain indicated that the discharge is connected to the sanitary sewer system. One soil sample (B-1) was collected from an area adjacent to the floor drain. This sample was submitted to a

Commonwealth of Massachusetts certified analytical laboratory for VOCs, VPH, EPH, PCBs, total RCRA 8 metals and nickel analyses.

No visual evidence of OHM or TOV concentrations were detected in the samples collected. The soil analytical results are summarized in Tables 10 to 15, Appendix B. The analytical laboratory report is included in Appendix C.

As indicated in Tables 10 to 15, the soil samples collected adjacent to the floor drain in Building L-1 contained eight total RCRA 8 metals and nickel, one VOC (acetone), one PCB (Aroclor 1268) and two EPH fractions (C₁₉-C₃₆ aliphatics and C₁₁-C₂₂ aromatics) above the analytical method detection limits; however, all concentrations were below the MCP's RCS-1 soil standards.

Based on the analytical laboratory results, no MCP Reportable Concentrations were detected in the soil sample collected adjacent to the floor drain in building L-1.

2.6 SUBSURFACE SOIL SAMPLING

Twenty-seven soil samples were collected and analyzed for compounds including volatile organic compounds, petroleum-related compounds, PCBs, and metals. None of these compounds were detected in the soil at concentrations that would require reporting under current Massachusetts (MCP) regulations.

On January 7, 2004, subsurface soil samples were collected from the AOCs set forth below. A total of twenty-six additional deep soil borings (SB-5 to SB-30) were advanced using the direct push drilling method and a total of seven additional shallow samples (Perimeter samples P-North, P-South, P-East and P-West; soil samples B-2 and B-3 and one catch basin/"dry well" sample) were collected using a hand auger. Continuous soil samples were collected and screened for olfactory and visual evidence of OHM and for TOVs using a PID and the DEP jar headspace method. No visual evidence of OHM or TOV readings greater than 5 ppm were detected in any of the samples collected. Select soil samples were collected and submitted to a Commonwealth of Massachusetts analytical laboratory for the analyses set forth below.

2.6.1 Former UST Locations/Arsenic Area (AOC #1)

Fourteen soil borings were advanced in AOC # 1, including:

- five soil borings (SB-14 to SB-18) at the location of the former 3,000-gallon diesel fuel UST near building L-3;
- five soil borings (SB-19 to SB-23) at the location of the former 1,000-gallon No. 2 fuel oil storage tank near building L-5; and

- Four soil borings (SB-24 to SB-27) in the vicinity of historical sampling location L-5-EW (A) south of the flammables shed, where elevated arsenic had been detected in past investigations.

Soil samples from borings collected from the sidewalls and base of each of the former UST locations (SB-14/15/16/17, SB-18-10-12, SB-19/20/22/23 and SB-21-10-12) were composited and submitted to the laboratory for EPH analysis. Four soil samples (SB-24-4-6, SB-25-4-6, SB-26-4-6 and SB-27-4-6), collected from below the backfill layer in the vicinity of historic sampling location L-5-EW (A) were submitted for total arsenic analysis.

The EPH soil analytical results are summarized in Table 15, Appendix B, and the analytical laboratory report is included in Appendix C. The three EPH fractions were detected in the sample collected from the base of the 1,000-gallon diesel fuel excavation at concentrations above the analytical method detection limits; however, all three samples were below the MCP RCS-1 soil standards.

The arsenic soil analytical results are summarized in Table 10, Appendix B, and the analytical laboratory report is included in Appendix C. As indicated in Table 10, the soil samples collected from below the fill in the vicinity of historical sampling location L-5-EW (A) contained arsenic above the analytical method detection limits, ranging between 4.2 and 6.7 mg/kg. These concentrations were all below the MCP RCS-1 soil standard of 30 mg/kg for arsenic.

The sumps inside Buildings L-3 and L-5 were visually inspected for sediment. Sediment was observed in the sump in Building L-3 only. One soil sample (B-2) was collected from the sediment in this sump at Building L-3. This sample was submitted to a Commonwealth of Massachusetts certified analytical laboratory for VOCs, VPH, EPH, PCBs, total RCRA 8 metals and nickel analyses.

The soil analytical results are summarized in Tables 10 to 15, Appendix B. The analytical laboratory report is included in Appendix C. As indicated in Tables 10 to 15, the soil sample collected from the sump in Building L-3 contained eight total RCRA 8 metals and nickel, one VOC (acetone), one PCB (Aroclor 1260) and two EPH fractions (C₁₉-C₃₆ aliphatics and C₁₁-C₂₂ aromatics) above the analytical method detection limits; all compounds detected were below their respective MCP RCS-1 soil standards.

Based on the analytical laboratory results, no MCP Reportable Concentrations were detected in the soil and sediment samples collected from the two former UST locations, historical sampling location L-5-EW (A) or the sump in Building L-3 in AOC #1.

2.6.2 Silo Area Stormwater Drains/Open Area to Southwest (AOC #2)

Three shallow soil borings (SB-28 to SB-30) were advanced in vicinity of the three storm water drainage outfalls in AOC #2. Samples collected from each of the three outfall locations (SB-28-0-2, SB-29-0-2 and SB-30-0-2) were submitted for EPH analysis and

one composite soil sample (SB-28/29/30) was submitted for EPH, PCB, total RCRA 8 metals and nickel analyses.

The soil analytical results are summarized in Tables 10 to 15, Appendix B. The analytical laboratory report is included in Appendix C. As indicated in Tables 10 to 15, the soil samples collected from the drainage outfalls contained eight total RCRA 8 metals and nickel, two VOCs (acetone and toluene), and one EPH fraction (C₁₁-C₂₂ aromatics) above the analytical method detection limits; however, all concentrations were below the MCP RCS-1 soil standards.

One composite soil sample (B-3) was collected of shallow soil from the large open area southwest of AOC #2. This sample was submitted for EPH, PCB, total RCRA 8 metals and nickel analyses. The soil analytical results are summarized in Tables 10 to 15, Appendix B. The analytical laboratory report is included in Appendix C. As indicated in Tables 10 to 15, the soil sample collected from this area contained five of the eight total metals above the analytical method detection limits; however, all were below the MCP RCS-1 soil standard.

Based on the analytical laboratory results, no MCP Reportable Concentrations were detected in the soil samples collected from the water drainage outfall locations or the large open area southwest of AOC #2.

2.6.3 Building L-11 (AOC #3)

One sediment sample (“Dry Well”) was collected from the bottom of the “drywell” structure, north of building L-11. Although referred to as a “drywell” in past environmental reports, it appears that this is actually a catch basin, with an outlet to a storm drain pipe that discharges to the easterly storm drain, north of the silo structures. For the purposes of consistency, the term “dry well” has been retained although it is not a structure that is open to the environment at this point. The sediment sample that was collected from this location (“Dry Well”) was submitted for EPH, total RCRA 8 metals and nickel analyses.

As indicated in Tables 10 to 15, Appendix B, the soil sample collected from this structure contained the total RCRA 8 metals, nickel and the three EPH fractions above the analytical method detection limits but below the MCP RCS-1 soil standards.

Three soil borings (SB-11 to SB-13) were advanced in the vicinity of the former fueling/de-fueling area. Samples collected from each of these locations (SB11-0-2, SB12-0-2, and SB13-0-2) were submitted for EPH and VOCs analysis.

The soil analytical results are summarized in Tables 11 and 15, Appendix B, and the analytical laboratory report is included in Appendix C. As indicated in Tables 11 to 15, the soil samples collected from the former fueling/de-fueling area contained one VOC (acetone) and two EPH fractions (C₁₉-C₃₆ aliphatics and C₁₁-C₂₂ aromatics) above the analytical method detection limits but below the MCP RCS-1 soil standards.

Based on the analytical laboratory results, no MCP Reportable Concentrations were detected in the soil/sediment samples collected from the catch basin/“drywell” location or the former fueling/defueling area in AOC #3.

2.6.4 Utility Pole, South Side (AOC #4)

One shallow soil boring (SB-10) was advanced at the base of the utility pole that formerly held the two pole-mounted transformers near AOC #4. One soil sample collected from 0 to 0.5 feet below grade (SB-10-0-0.5) was submitted for PCB analysis.

The soil analytical results are summarized in Table 13, Appendix B, and the analytical laboratory report is included in Appendix C. As indicated in Table 13, no PCBs were detected in the soil sample collected at the base of the utility pole. The detection limit for PCBs was 0.568 milligrams per kilograms (mg/kg).

2.6.5 Former UST (AOC #6)

Five soil borings (SB-5 to SB-9) were advanced in the location of the former 2,000-gallon No. 2 fuel oil UST near building L-1. One composite sidewall sample (SB-5/6/7/8) and one composite base sample (SB-9-10-12) were submitted for EPH analysis.

The soil analytical results are summarized in Table 15, Appendix B, and the analytical laboratory report is included in Appendix C. As indicated in Tables 15, no EPH fractions were detected in the composite soil sample collected from the former 2,000-gallon fuel oil UST area near Building L-1.

2.6.6 General Property Characterization

Four shallow soil samples (collected at depths of 0 to six inches below grade) were collected from the perimeter of the Site along inner and outer perimeter fencing (P-North, P-South, P-East and P-West) to supplement existing data regarding potential adverse environmental impacts from historic vegetation control activities performed in this area. One composite soil sample collected from each perimeter location was submitted for EPH and PCBs analyses.

The soil analytical results are summarized in Tables 13 and 15, Appendix B, and the analytical laboratory report is included in Appendix C. As indicated in Tables 13 to 15, the soil sample collected from the perimeter of the Site contained one PCB (Aroclor 1260) and eight total RCRA 8 metals and nickel, one VOC (acetone), and two EPH fractions (C₁₉-C₃₆ aliphatics and C₁₁-C₂₂ aromatics) above the analytical method detection limits; however, all concentrations detected were below the MCP RCS-1 soil standards.

Based on the analytical laboratory results, no MCP Reportable Concentrations were detected in the shallow soil samples collected from the Site perimeter samples.

3.0 REMEDATION EVALUATION/DEMOLITION/RENOVATION ISSUES

3.1 MANAGEMENT OF ASBESTOS- AND LEAD-CONTAINING BUILDING MATERIALS

As described in the Axiom Report, Appendix E, asbestos-containing building materials (“ACBMs”) and lead-based paint were identified at the Site. ACBMs identified included:

- floor tiles and mastic;
- thermal insulation;
- kitchen sink coating;
- exterior door caulking; and
- transite wall panels.

The ACBM must be removed prior to building demolition and handled in accordance with the appropriate federal and state regulations. Based on the survey conducted, Axiom provided a preliminary cost estimate of approximately \$69,320 for the removal/abatement of the ACBMs identified.

Lead-based paint was detected on many of the painted surfaces throughout the Site. The highest concentrations were detected on the walls and window casings of Building L-1 and on the bulkhead doors, manhole covers, stairwells and ground markings at the Silos. Building renovation projects, which disturb substrates that contain lead, are regulated under U.S. Department of Labor, Occupational Health and Safety Administration (“OSHA”), Lead in Construction Standard 29 CFR 1926.62. During demolition, the employer is required to comply with the safe work practices outlined in this Standard. In addition, some of the waste generated during demolition may be classified as hazardous. If the waste is determined to be hazardous, it must be treated, stored, transported and disposed of in accordance with hazardous waste regulations.

3.2 REMEDIATION EVALUATION

As described in Section 2.0, the soil samples did not contain concentrations of oil or hazardous materials that would require reporting to the DEP under the MCP regulations (310 CMR 40.0000). Based on these results, no soil remediation is required under current MCP regulations.

As noted in Section 2.0, total metal concentrations detected in initial sampling round from the three groundwater monitoring wells at the Site exceeded MCP Reportable Concentrations; however, those samples were analyzed without filtering (total metals analysis), and may have contained suspended sediment that artificially increased the concentrations of the metals. Based on these results, additional groundwater sampling for dissolved metals was conducted on March 4, 2004. These additional samples, which were filtered and then analyzed for dissolved metals, did not contain any detectable concentrations of metals. This finding confirmed that concentrations met the MCP criteria and no groundwater remediation is necessary.

3.3 FORESEEABLE USES OF THE SITE

As noted above, no MCP Reportable Concentrations were detected in the soil samples collected at the Site. Since the concentrations in the soil samples were also below the MCP's Cleanup Standards for unrestricted use of the property, no restrictions to foreseeable use of the site were identified, based on these soil results.

Regarding the groundwater at the Site, the groundwater at the Site is not currently planned for use as a potable water supply; however, it is located in the Zone II of a municipal water supply well approximately one-half mile south of the Site. Therefore, additional sampling was conducted to determine if the total metals, which were above the MCP GW-1 (drinking water) standards in some of the groundwater samples were the result of suspended sediment in the monitoring wells, and not representative of the actual concentrations in the groundwater. DEP has stated that filtered samples (for dissolved metals) may provide a better estimate of exposures to metals in potable water (DEP, 1999). In the additional sampling of the monitoring wells for dissolved metals, no detectable concentrations were found. Therefore, no further action is required regarding the groundwater.

4.0 CONCLUSIONS AND RECOMMENDATIONS

On behalf of the Town of Wayland's Nike Site Advisory Committee, Bois Consulting Company, Inc. conducted a Limited Environmental Site Assessment of the property at the Former Nike Missile Site, located at 133 Oxbow Road in Wayland, Massachusetts. This work was conducted as described in the Town of Wayland's Request for Proposal and the Scope of Work for this Site, dated November 18, 2003. The field work for this project was conducted between January 7, 2004 and March 4, 2004. The Town of Wayland is currently evaluating the property for potential acquisition.

Based on the data collected and current use of the property, there are no significant environmental issues currently present at the Former Nike Missile Site. Pursuant to ASTM E 1527-00 for environmental site assessment work, a *recognized environmental condition* is defined as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of release..." A *recognized environmental condition* is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies. Based upon this definition, this assessment has revealed some potential recognized environmental conditions at the property located at 133 Oxbow Road in Wayland, Massachusetts, which are noted below. These potential recognized environmental concerns include those that may arise during future development of the property:

- Asbestos- and lead-containing materials were encountered at various structures throughout the property, and would require appropriate management of the demolition debris, as well as worker safety precautions during renovation and/or demolition activities.
- The asbestos-containing building materials identified should be removed prior to building demolition. Based on the survey conducted, Axiom provided a cost estimate of approximately \$69,320 for the removal/abatement of the materials identified.
- Soil samples were taken in select locations from likely source areas and did not indicate any significant contamination issues; however, as with any construction and/or excavation activities at previously developed properties, unusual odors or visibly contaminated soil, if encountered during such activities, should be evaluated by an environmental professional; off-site disposal of soil must be managed in accordance with existing regulations and may require additional analyses.
- The total metals concentrations (from unfiltered samples) were higher than MCP Reportable Concentrations for drinking water; additional groundwater samples were collected for dissolved metals analysis on March 4, 2004; these additional samples confirmed that the initial data

most likely reflected the presence of metals adhered to suspended sediment. The additional results are considered more representative of the groundwater conditions, and indicate that no detectable levels of dissolved metals were found in the groundwater in any of the three monitoring wells.

- Standing water in each of the missile silo bunkers' mechanical pit ("Sump" area) contained concentrations of lead and other metals; this water should be managed in accordance with existing regulations regarding the disposal of lead-contaminated water.
- Sediment samples from the catch basins on-site have had elevated concentrations of some metals in the past; the catch basins should be cleaned prior to closing, and the sediment disposed of properly at the time of cleaning.
- The hydraulic lifts in each missile silo bunker may contain oil, which should be managed properly during decommissioning of the structures.

It should also be noted that under the MCP regulations, if contamination is detected at a property, then both current and past owners can be considered to be responsible for the release. If contamination encountered is clearly related to the past use of the property as a missile site or other activities conducted during the U.S. Government's ownership, however, it is likely that the Federal government would take the necessary actions to conduct appropriate assessment and remediation activities.

5.0 REFERENCES

CMG Environmental, Inc. Phase I Environmental Site Assessment, Former Boston Area Nike Battery 73 (Nike Missile Site #73), 133 Oxbow Road, Wayland, MA. October 17, 2003.

Massachusetts DEP. Master Q&A, 1993-1997, A Compilation of all "MCP Q&A's" Published between November 1993 and May 1997. March 25, 1999.

U.S. Army Center for Health Promotion and Preventative Medicine. Site Inspection No. 38-EH-3651-95, Massachusetts National Guard Armory, Former Boston Area Nike Battery 73, Wayland, MA. September 18, 1995.

U.S. Environmental Protection Agency, Inc. Testing Your Home for Lead in Paint, Dust, and Soil. EPA 747-K-00-001. July 2000.

6.0 STUDY LIMITATIONS

The findings set forth in the attached Report are strictly limited in time and scope to the date of the evaluation(s). The information presented in this report is based on completion of the Scope of Services described in the contractual agreement (including the Terms and Conditions) between Bois Consulting Company, Inc. and its client, the Town of Wayland, Massachusetts.

Information provided in this report may be based upon personal interviews and research of available documents, records, and maps held by the facility, Client personnel, or appropriate government and private agencies. This information is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollection of those persons contacted. Bois Consulting Company, Inc. shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time this work was performed.

Bois Consulting Company, Inc. (BCCI) collected the information provided in this report for the benefit of its client. BCCI's client may release the information to third parties, who may use and rely upon the report at their discretion. Any use of or reliance upon the information by a party other than specifically named above shall be solely at the risk of such third party and without legal recourse against BCCI or its subsidiaries and affiliates, or their respective employees, officers, or directors regardless of whether the action in which recovery of damages sought is based upon contract, tort (including the sole, concurrent or other negligence and strict liability of BCCI), statute or otherwise. This information shall not be used or relied upon by a party that does not agree to be bound by the above statement.

APPENDIX A

FIGURES

APPENDIX B

TABLES

APPENDIX C

LABORATORY ANALYTICAL DATA PACKAGES

APPENDIX D

WELL LOGS/REPRESENTATIVE BORING LOGS

APPENDIX E

ASBESTOS AND LEAD INSPECTION REPORT

APPENDIX A

FIGURES



Scale: 1 inch = 2,750 feet

SOURCE:
 CMG Environmental, Inc.
 Phase I Environmental Site Assessment
 October 17, 2003

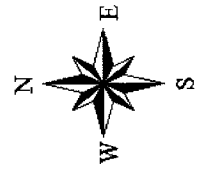


FIGURE 1

Site Locus Map

NIKE Site # 73, 133 Oxbow Road, Wayland, MA

PREPARED FOR

Town of Wayland

The NIKE Advisory Committee

Bois Consulting Company, Inc.

131 Brook Street
 Framingham, Massachusetts 01701

PROJECT TITLE	MIKE SITE # 73
CLIENT NAME	133 OXBOW ROAD
CLIENT ADDRESS	WATLAND, MA
CLIENT CITY STATE ZIP	
CLIENT PHONE	
CLIENT FAX	
CLIENT E-MAIL	
CLIENT WEBSITE	
CLIENT CONTACT	
CLIENT TITLE	
CLIENT SIGNATURE	
CLIENT DATE	
CLIENT PROJECT NO.	
CLIENT DRAWING NO.	
CLIENT SHEET NO.	

FIGURE 2
 SAMPLE LOCATION PLAN

DATE	1/28/04
BY	SK
CHECKED BY	SK
SCALE	AS SHOWN
PROJECT NO.	526.9.1
SHEET NO.	1 OF 1

526.9.1
 SHEET NO. 1 OF 1

