STATE OF DELAWARE

**DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL-
SITE INVESTIGATION AND RESTORATION BRANCH**

PROPOSED PLAN OF REMEDIAL ACTION

SCANNED
AUG 2 3 2005
File# DE1068
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August 2005

Former Delaware Compressed Steel Property
503 S. Market Street
Wilmington, DE **DNREC Project No. DE-1068**

This proposed plan of remedial action (Proposed Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) proposed cleanup alternative for the former Delaware Compressed Steel property in Wilmington. For site-related reports and more information, please see the public participation section of this document.

The purpose of the proposed plan is to provide specific information about the soil and groundwater contamination and the cleanup alternatives DNREC has considered. In addition, as described in Section 12 of the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), DNREC will provide notice to the public and an opportunity for the public to comment on the proposed plan. At the comment period's conclusion, DNREC will review and consider all of the comments received and then will issue a final plan. The final plan shall designate the selected remedy for the site. All investigations of the site, the proposed plan, and comments received from the public, DNREC's responses to the comments, and the final plan will constitute the Remedial Decision Record.

This proposed plan summarizes the remedial investigation and interim remedial actions that have already taken place at the site. Each of these reports is included in the administrative record file. Copies of these documents can be obtained or viewed at the DNREC offices in New Castle, Delaware.

DNREC's proposed remedy is preliminary and a final decision will not be made until all comments are considered. The final remedy selected may differ from the proposed remedy based on DNREC's responses to comments.

INTRODUCTION

The property is located at 503 South Market Street, Wilmington, New Castle County, Delaware. The 2.2-acre property (henceforth "the Site") is located on the west side of Market Street approximately 1,500 feet south of the Christina River (Figure 1). The facility was a scrap metal recycling facility and currently is a commercial parking lot. The facility and the property are owned by South Market Street Enterprises, LLC and the parking lot is operated by Colonial Parking.

The Site was officially entered into the Voluntary Cleanup Program (VCP) pursuant to the provisions of the Delaware Hazardous Substance Cleanup Act, 7 Del. C. Chapter 91 (HSCA), on August 10, 1999. The goal for entering the site into the VCP was to complete an investigation of the property to support the redevelopment of the site and to obtain a Certificate of Completion of Remedy pursuant to HSCA. It has been assigned the Site Investigation and Restoration Branch (SIRB) Identification Number of DE 1068. The Site was certified a Brownfield on April 15, 2003.

Environmental Alliance, Inc. (Alliance) completed a comprehensive Remedial Investigation (RI) of the Site on behalf of South Market Street Enterprises, LLC to assess potential contamination, specifically any adverse impacts to soil, groundwater, and to the Christina River. The RI was completed in December 2004, and DNREC approved the Final RI report dated March 29, 2005. The RI Report included evaluations of the risk to human health and an evaluation of the fate and transport of site contaminants to ecological receptors in the Christina River. An interim remedial action was completed at the site to excavate and properly dispose off site the soil that contained PCBs at a total concentration exceeding 50 mg/kg. The work associated with this interim remedial action is described in this proposed plan and a full discussion is provided in the RI Report.

SITE DESCRIPTION

The Site is described in the tax maps of New Castle County, as tax parcel number 26-049.00-011. The Site occupies approximately 2.2 acres along South Market Street in the southern portion of the City of Wilmington in New Castle County, Delaware. The property is separated from the bank of the Christina River (< 1,000 feet away) by another property owned by Shellhorn and Hill. Refer to Figure 2 for a site map.

SITE INVESTIGATION HISTORY

Alliance completed a Remedial Investigation (RI) of the Site in 2004 and the RI was approved by DNREC via correspondence dated March 31, 2005. This investigation involved the collection of samples from surface soil, subsurface soil, and groundwater beneath the Site. Various substances were detected in these samples at concentrations that exceed their respective Delaware Uniform Risk Based Remediation Standards (URS) for restricted use properties.

The metals found in the surface soils above the restricted use URS values included iron, arsenic, lead, copper, and antimony. The semi-volatile organic compound (SVOC) substances that were identified in surface soil above the restricted use URS values were, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene. Total petroleum hydrocarbons (TPHs) in particular, the C9 to C18 aliphatic hydrocarbons, C19 to C36 aliphatic hydrocarbons and C11 to C22 aromatic hydrocarbons, were detected in soil above the restricted use URS values. PCBs (specifically aroclors 1248, 1254 and 1260) were detected in surface soil samples in excess of the restricted use URS values. Table 1 summarizes the results and the maximum concentration of each substance identified above the URS value for restricted site use.

The substances detected in the subsurface soils (soil at a depth greater than 2 feet below grade) at a concentration in excess of the URS values included Polychlorinated Biphenyls (PCBs) aroclor 1254, PCB aroclor 1260 and benzo(a)pyrene. Table 2 below summarizes the results and the maximum concentration of each substance identified in the subsurface soils above the URS value for restricted site use.

The metals found dissolved in groundwater above the URS values include iron, manganese, and arsenic. The Volatile Organic Compounds (VOCs) identified in groundwater above the restricted use URS values were vinyl chloride and TPHs (C11 to C22 aromatics, C19 to C36 aliphatics, and C9 to C18 aliphatics). The SVOCs found in groundwater samples at concentrations in excess of the URS values were indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, benzo(b)fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(a)anthracene. In addition to the above, a layer of phase-separated oil was identified on the water table at the western property boundary, based on the data it appears to be originating from the Shellhorn and Hill property and is not related to this site. Table 3 summarizes the results for groundwater and the maximum concentration of each substance identified above the URS value.

Cleanup Action Objectives

In keeping with the HSCA Regulations, site-specific Remedial Action Objectives (RAOs) must be established for all plans of remedial action. The Regulations require DNREC set objectives for land use, resource use, and cleanup levels that are protective of human health and the environment.

REMEDIAL INVESTIGATION RESULTS

A detailed discussion of the sampling results is included in the Final RI Report. The data tables summarize the results for surface soil, subsurface soil and groundwater. This data reflects the conditions of the Site prior to the interim remedial action that removed soil containing in excess of 50 mg/kg total PCBs.

TABLE 1
SURFACE SOIL (< 2 feet below ground surface)

Contaminant	Maximum Concentration (mg/kg)	URS for Restricted Use (mg/kg)	Default Natural Background Concentration (mg/kg)
Iron	270,000	2,300	3,000 - 22,000
Arsenic*	162	11	11
Lead	53,400	1,000	30-100
Copper	89,400	8,200	15-40
Antimony	316	82	<0.5
Benzo(a)anthracene	9	8	
Benzo(a)pyrene	7.5	0.8	
Benzo(b)fluoranthene	10	8	
Dibenzo(a,h)anthracene	1.6	0.8	
C9 to C18 Aliphatic Hydrocarbons	5,100	2,500	
C19 to C36 Aliphatic Hydrocarbons	13,000	5,000	
C11 to C22 Aromatic Hydrocarbons	2,400	2,000	
PCB Aroclor 1248	130	3	
PCB Aroclor 1254	500	3	
PCB Aroclor 1260	40	3	

TABLE 2
SUBSURFACE SOIL (> 2 feet below ground surface)

Contaminant	Maximum Concentration (mg/kg)	URS for Restricted Use (mg/kg)	Default Natural Background Concentration (mg/kg)
PCB Aroclor 1254	4.2	3	
PCB Aroclor 1260	4.2	3	
Benzo(a)pyrene	1.8	0.8	

TABLE 3
GROUNDWATER

Contaminant	Monitoring Well	Maximum Concentration (µg/L)	Groundwater URS [Restricted Use] (µg/L)
Iron (dissolved)	GP-3	116,000	300
Manganese (dissolved)	GP-3	11,100	50
Arsenic (dissolved)	GP-3	130	10
Vinyl Chloride	GP-24	6	2
C11 to C22 Aromatics	GP-8	24,000	200

Contaminant	Monitoring Well	Maximum Concentration (µg/L)	Groundwater URS [Restricted Use] (µg/L)
C19 to C36 Aliphatics	GP-8	250,000	5,000
C9 to C18 Aliphatics	GP-8	22,000	4,000
Indeno (1,2,3-cd)pyrene	GP-24	1.6	0.09
Benzo(k)fluoranthene	GP-24	1	0.9
Benzo(b)fluoranthene	GP-24	4.4	0.09
Benzo(a)pyrene	GP-24	3.1	0.2
Benzo(a)anthracene	GP-24	1.9	0.09

The URS values referenced above are guidance values based upon very conservative assumptions of exposure and risk. In lieu of their usage, the Regulations allow, the performance of a site-specific risk assessment, which takes into account site-specific factors of exposure and risk.

Risk Assessments

The purpose of the risk assessment is to estimate the potential health and environmental impacts of exposure to toxic chemicals at the site. Risk assessments estimate the increased occurrence of health effects resulting from exposure to contamination. For example, a one in a million increase level of risk (1×10^{-6}) corresponds to one person in a million having an increased risk of a cancer occurring based on exposure to contamination. DNREC requires a risk assessment meet the increased cancer risk of one in one hundred thousand (1×10^{-5}) and a non-carcinogenic risk (or Hazard Index) equal to 1.0 or less.

The risk assessment that was conducted for the Site identified the following potentially unacceptable risks at the Site:

1) A potentially unacceptable carcinogenic risk was identified for surface soil assuming exposure to soil on a restricted site use basis (4×10^{-5}). The primary substance contributing to this risk is arsenic.
2) A potentially unacceptable non-carcinogenic risk was identified as a result of the presence of lead in surface soil in excess of 1,000 mg/kg.
3) Use of groundwater for domestic purposes would be unacceptable.

The risk assessment assumed exposure to Site surface soil for typical exposure assumptions of a restricted use property (i.e., commercial/industrial). The data used in the risk assessment was the data collected from the Site after the interim remedial action.

Mass loading calculations were performed to estimate the amounts of contaminants reported in groundwater that could migrate towards the Christina River. It was concluded that the mass loading of site related contaminants to the river did not pose an adverse risk to ecologic receptors.

INTERIM RESPONSE REMOVAL ACTIVITIES

An interim remedial action was completed at the Site in December 2003. This involved the excavation of soil that was identified to contain PCBs at a total concentration exceeding 50 mg/kg. Soils were removed to a maximum depth of 2 feet below grade. It was discovered during the excavation that a continuous concrete surface was present below grade throughout much of the area excavated. The depth of the top of concrete ranged from 12 to 16 inches below grade. Soils were excavated down to the top of the concrete or to a depth of 2.0 feet, whichever was deeper.

Soils were excavated using a backhoe and stockpiled on site, prior to subsequent transportation and off-site disposal at an Environmental Protection Agency (EPA)/State licensed disposal facility (Wayne Disposal, Belleville, MI). Soil transportation documentation and disposal manifests are presented in Appendix VI of the RI Report. The soil was stockpiled on 6-mil plastic sheeting placed over an even paved surface. The soil pile was covered by plastic, and the edges of the plastic were secured using concrete blocks. An area of approximately 2,000 square feet was ultimately excavated to a depth of one to two feet and following confirmatory sampling, all remaining total PCB concentrations were less than 50 mg/kg (the maximum remaining total PCB concentration is 46.1 mg/kg). The RI discusses this activity in more detail and provides copies of all disposal manifests.

Following the above interim remedial action, a geotextile fabric was placed over all un-paved areas of the site and the property was converted to a commercial parking facility. The property is operated by Colonial Parking under contract with South Market Street Enterprises, LLC.

REMEDIAL ACTION OBJECTIVES

The evaluation of the nature and extent of contamination at the Site included comparing the soil and groundwater analytical data to applicable DNREC Soil and Groundwater Remediation Standards as provided in the DNREC Remediation Standards Guidance under the Delaware Hazardous Substance Cleanup Act (DNREC, 1999). For soil, the criteria applicable to the Site are the Restricted Use Setting, Non-Critical Resource Area Criteria (DNREC Criteria). A Restricted Use setting is defined in DNREC regulations as a setting where current or future use will be restricted in some way to ensure protection of human health.

According to Section 8.4(1) of the Regulations, site-specific remedial action objectives (RAOs) must be established for all plans of remedial action. The Regulations provide that DNREC will set objectives for land use, resource use, and cleanup levels that are protective of human health and the environment.

Qualitative objectives describe, in general terms, what the ultimate result of the remedial action, if necessary, will be. The following qualitative objectives are proposed for the site:

1) Minimize and control exposure to surface soil at the Site.
2) Minimize and control human exposure to impacted groundwater.

These objectives are consistent with the existing use of the Site as a commercial parking lot, New Castle County zoning policies, state regulations governing water supply, and worker health and safety. The site is located within the Groundwater Management Zone (GMZ) for the City of Wilmington. The GMZ will prohibit the installation of any water wells on, or groundwater usage at the site without prior written approval of DNREC.

Quantitative objectives define specific levels of remedial action to achieve protection of human health and the environment. Based on the qualitative objectives, the quantitative objectives are:

1) Prevent human exposure to surface soil (0-2 feet) that contains the substances identified as contributing to the exceedance of the carcinogenic risk target of 1 X 10-5 and that contain lead in excess of 1,000 mg/kg; and
2) Prevent human exposure to groundwater at the Site.

PROPOSED PLAN OF REMEDIAL ACTION

Based on the RI and Risk Assessment completed for the Site, a potentially unacceptable risk to human health exists based on the exposure to soil at the Site assuming a commercial/industrial setting. The exposure to groundwater assuming use for domestic purposes also is not acceptable. In order to address these conditions, DNREC's proposed remedy for the Site includes the following actions:

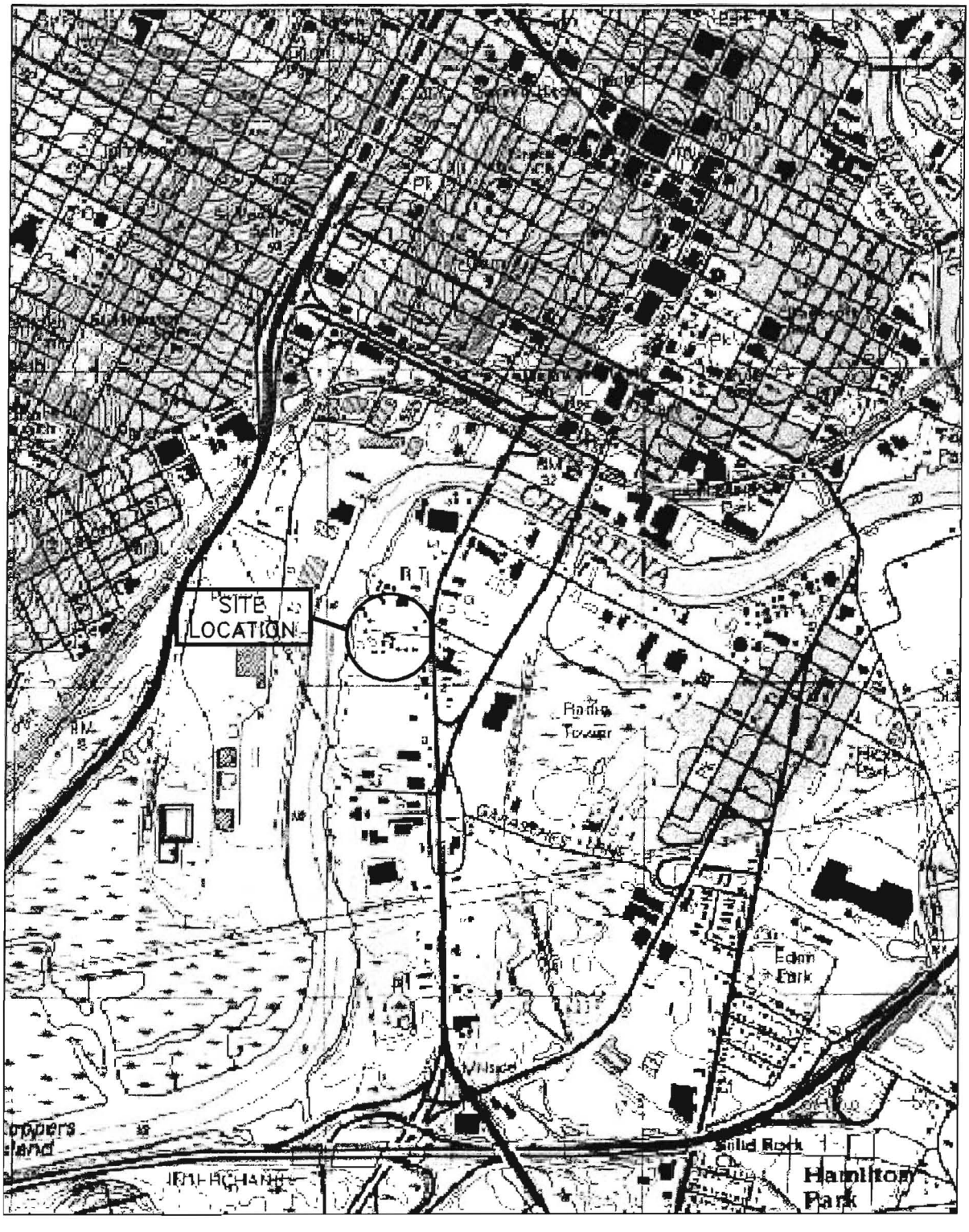
Interim Action

- Installation of an impervious cap (consistent with the construction of an asphalt parking lot) preventing direct contact exposure to soil. The existing soil surface will be covered with a marker fabric prior to the installation of the asphalt cap to provide a visual demarcation of where the contaminated soil exists in the event that future use results in excavation at the site.

Remedial Action

- Place a restrictive covenant consistent with the Uniform Environmental Covenants Act on the property within ninety-days following DNREC's adoption of the final plan; The restrictive covenant shall (a) prohibit current and future residential use of the property; (b) prohibit any digging, drilling, excavating, grading, constructing, earth moving, or any other land disturbing activities on the property without the prior written approval of the DNREC; and (c) prohibit the installation of any water well on, or use of groundwater at, the site without the prior written approval of DNREC, as well as noting the site's location within a GMZ.
- A DNREC approved Operations and Maintenance (O&M) Plan for the Site shall be finalized within 90 days following the issuance of the Final Plan. The O&M Plan will include procedures for evaluating the integrity of the capped area.
- The necessary Storm Water Management permits relative to the operation of the Site must be obtained for use of the site as a commercial paved parking lot from DNREC.

Figure 1: Site Location



0 1530'
APPROXIMATE SCALE

REVISION DATE: 11/25/02	Environmental Alliance, Inc. 1812 Newport Gap Pike Wilmington, DE 19808
DESIGNED BY:	
DRAFTED BY: AG	FIGURE 1-1 SITE LOCATION MAP DELAWARE COMPRESSED STEEL WILMINGTON, DELAWARE
CHECKED BY: AK	

Source: USGS Wilmington North, Delaware Quadrangle

Figure 2: Site Layout and Sampling Locations

PUBLIC PARTICIPATION
The Department is actively soliciting written public comments and suggestions on the proposed plan of remedial action. The comment period begins August 1, 2005 and ends at the close of business (4:30 p.m.) on August 22, 2005.
If you have any questions or concerns regarding the site, or if you would like to view reports or other information regarding this site, please contact the project manager, Lynn Krueger, 391 Lukens Drive, New Castle, Delaware 19720 or at 302.395.2600.

James D. Werner
Director of Air & Waste Management

17 Aug 05
Date

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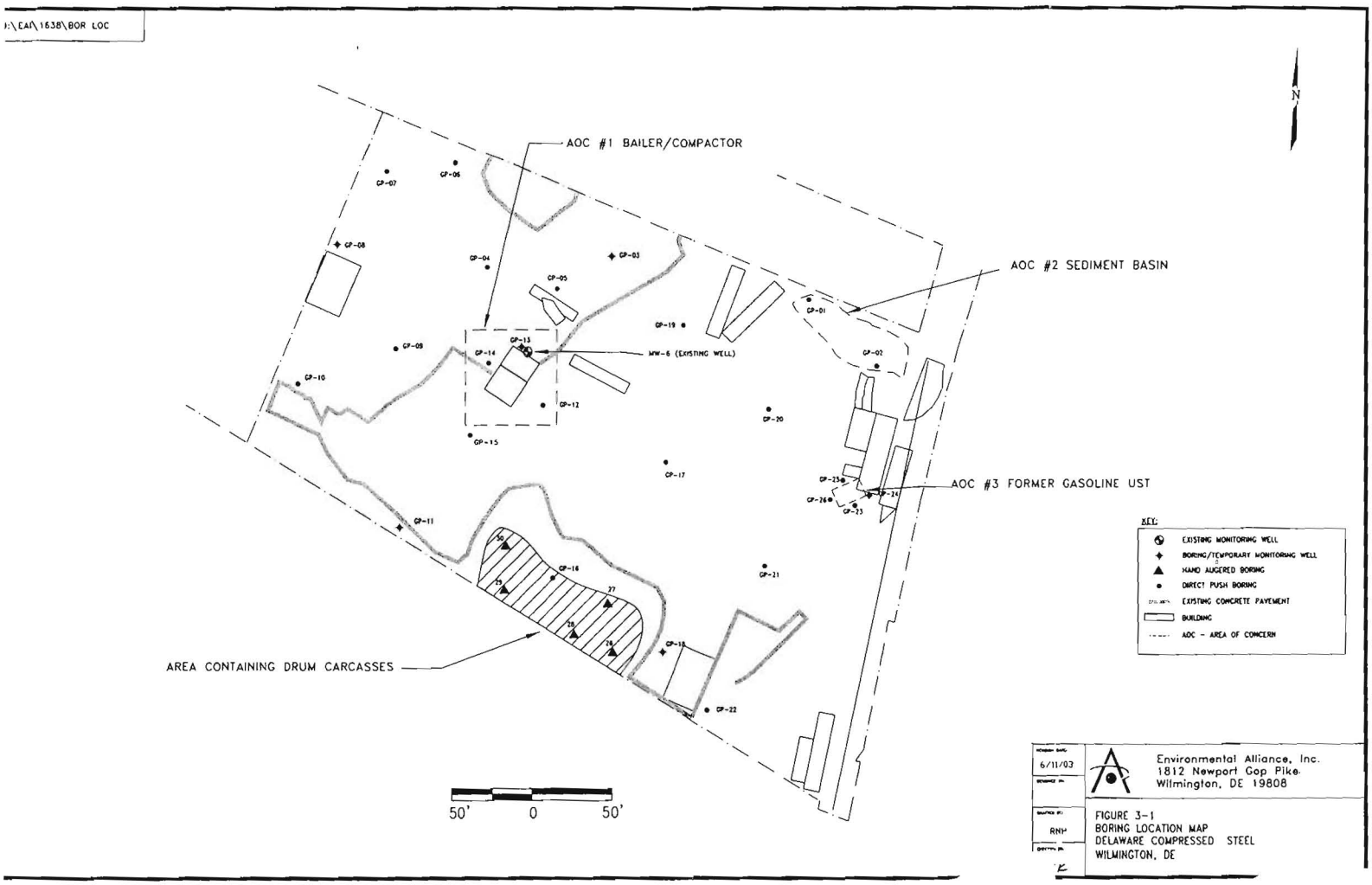
I:\EAI\1638\BOR LOC
N
AOC #1 BAILER/COMPACTOR
AOC #2 SEDIMENT BASIN
AOC #3 FORMER GASOLINE UST
AREA CONTAINING DRUM CARCASSES
MW-6 (EXISTING WELL)
GP-01
GP-02
GP-03
GP-04
GP-05
GP-06
GP-07
GP-08
GP-09
GP-10
GP-11
GP-12
GP-13
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26
27
28
29
30
50'
0
50'
KEY:
EXISTING MONITORING WELL
BORING/TEMPORARY MONITORING WELL
HAND AUGERED BORING
DIRECT PUSH BORING
EXISTING CONCRETE PAVEMENT
BUILDING
AOC - AREA OF CONCERN
6/11/03
RNH
Environmental Alliance, Inc.
1812 Newport Gap Pike
Wilmington, DE 19808
FIGURE 3-1
BORING LOCATION MAP
DELAWARE COMPRESSED STEEL
WILMINGTON, DE