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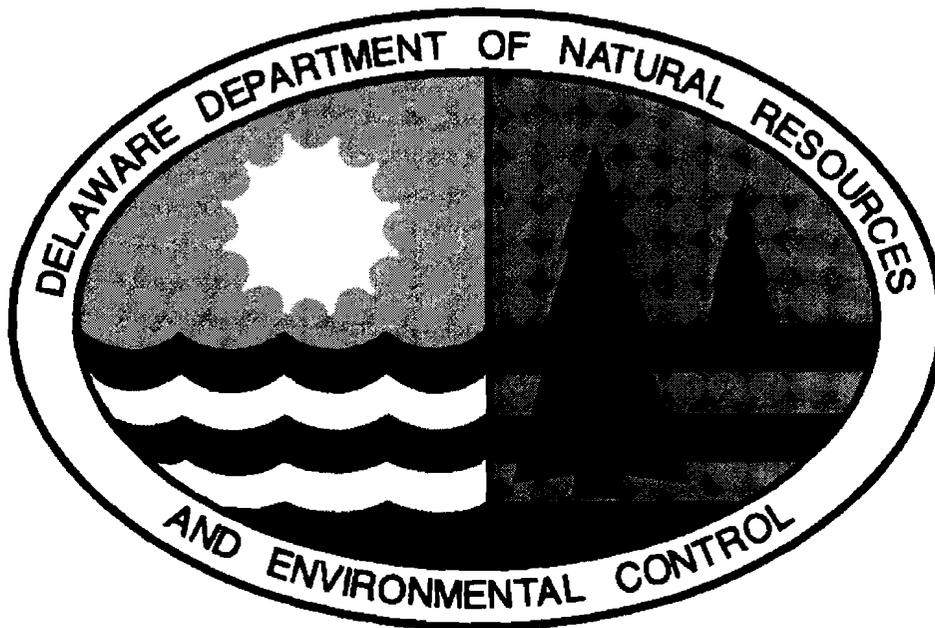
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CBI SITE

FINAL PLAN OF REMEDIAL ACTION

FOR OPERABLE UNIT #2



AUGUST 1996

**Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Site Investigation & Restoration Branch**

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CBI Site: Final Plan of Remedial Action for Operable Unit #2

I. INTRODUCTION

The Department of Natural Resources and Environmental Control (“Department”) issues this Final Plan of Remedial Action under the provisions of the Delaware Hazardous Substance Cleanup Act (“HSCA”) and the Delaware Regulations Governing Hazardous Substance Cleanup (“Regulations”). The Final Plan presents to the public, the Department’s final selection of remedial activities to occur at the CBI Services, Inc., New Castle, New Castle County, Delaware.

II. BACKGROUND

The CBI facility (“site”), comprised of both OU #1 and OU #2, occupies an approximate 102 acre tract of land at 801 East Sixth Street, New Castle, New Castle County, Delaware, (See Figure 1). The Site is bordered to the east by Buttonwood Ditch and the Delaware River, to the south by property currently known as the Carpenter Warehouse Complex, to the west by a City of New Castle electrical substation, and a 1 million gallon elevated water tank for the City of New Castle, and to the northwest by a railroad spur and residential areas.

Approximately one-third of the site has been developed by CBI. The developed portion of the Site includes an office building, warehouse, former fabrication shop, parking areas and designated outdoor storage areas. This developed portion of the Site is enclosed by a fence, thereby limiting access to authorized personnel only.

The undeveloped portion of the Site represents the majority of the property. Significant features include the remains of at least six old building foundations from the Baldt Steel Company which went out of business around 1930, and the old homesite and well which have been abandoned. Debris has been observed randomly located in the undeveloped portion of the site. Wetlands occupy the majority of the undeveloped portion of the Site.

From 1899 to 1929, the Baldt Steel Company was located on the Site. The company manufactured steel pipe in an area upland and adjacent to the wetlands. The foundations from the buildings are still located in the undeveloped area of the Site, (see Figure 2). Waste practices are not known but the type of waste can be inferred to be metals and foundry sand.

The Site remained inactive until September, 1950, when it was purchased by CBI. In 1956, CBI built the Fabrication Shop along the southwestern border of the property which operated from 1957 until 1980. In addition, CBI operated an acid pickling bath to remove mill scale from formed steel plates prior to painting. The acid bath produced pickling waste consisting of dilute (5-6%) sulfuric acid which CBI neutralized with lime (calcium hydroxide), to produce a calcium sulfate and iron hydroxide waste. CBI disposed of the neutralized acid in a pit located approximately 150 feet east of the Fabrication Shop.

By the early 1960’s, the Delaware Water Pollution Commission requested that CBI discharge the neutralized acid into the Old Baldt Steel Company foundations, (see Figure 2) rather than in the

historic pit. CBI continued this practice until 1975 when CBI retained Chemline Corporation to haul the wastes offsite.

CBI disposed of approximately 2400 pounds of phosphoric acid on an annual basis. It was diluted, neutralized and disposed of in a similar manner as the sulfuric acid. This practice was terminated in 1980 when the Fabrication Shop was closed.

In October, 1955, CBI entered into an agreement with the City of New Castle ("City") to allow the City to use a portion of the property as a sanitary landfill. The approximate location of the landfill is 350 feet southeast of the Fabrication Shop, (see Figure 2).

From approximately 1957 to 1980, CBI conducted painting operations at locations both indoors and immediately outdoors of the former Fabrication Shop. Painting operations included the use of "red lead" primer, vinyl and epoxy primers and limited use of zinc and chromium based primers. At both the indoor and outdoor painting areas of the Fabrication Shop, excess primers "accumulated" on the ground surface from overspray or dripping from the steel plates during painting.

Solvents associated with the painting operations included mostly mineral spirits, but some xylene, methyl ethyl ketone ("MEK") and methyl isobutyl ketone ("MIBK") were used. Other solvents may have also been used.

In October, 1981, a Preliminary Assessment ("PA") of the Site was conducted by Ecology and Environmental, Inc., which recommended sampling and analysis of the Site. The Department, operating under an agreement with the United States Environmental Protection Agency ("EPA"), conducted a Site Inspection ("SI") in May, 1982. The SI entailed the collection of soil samples at the Site and chemical analysis of samples for hazardous substances. Analytical results from four SI soil samples collected were below detection limits for organics and Resource Conservation and Recovery Act ("RCRA") metals.

In July, 1984, the Department conducted another PA which qualified the Site for a more extensive SI. In October, 1987, EPA contracted NUS Corporation ("NUS") to conduct a second more extensive SI. The SI sampling plan consisted of seven water and twenty soil samples including blanks and duplicates. The results were submitted to the EPA in 1988. The report indicated elevated concentrations of some metals in Buttonwood Ditch due east of the facility, with inference to an off-site source. Two soil samples located on the facility plant site indicated elevated levels of semi-volatile compounds, polychlorinated biphenols ("PCB") Aroclor 1248 and lead. A soil sample identified as the background sample was collected by NUS from an area located approximately 360 feet southeast of the now former Fabrication Shop. Analytical results of the NUS background sample showed elevated concentrations of lead, zinc, PCB Aroclor 1248 and various semi-volatile organics.

In September, 1991, Aware Environmental, Inc., under contract with CBI, completed both a preliminary and detailed assessment of the painting areas affected by painting operations at the Fabrication Shop. The purpose of the assessment was to provide a gross quantitative and qualitative indication of impact to soils from the painting areas. The detailed assessment defined the horizontal and vertical extent of impacted soil and the chemical nature of constituents present.

In May, 1993, CBI entered into a Consent Decree with the Department under HSCA. Pursuant to the Consent Decree, CBI agreed to design and implement a RI for the Site and conduct an Interim Remedial (“IR”) response of the former Fabrication Shop. The RI workplan was approved in December, 1993.

Interim Response activities were subsequently expanded at the request of CBI in April, 1994 to include the NUS Background Area. The Former Fabrication Shop and the NUS Background Area constitutes the two general areas incorporated into OU #1, (see Figure 3). The Final RI/IR Documentation Report of the Former Fabrication Shop and the NUS background sample area were submitted to the Department in September, 1994, and March, 1995, respectively.

A proposed plan for OU #1 was issued for public comment on August 9, 1995 and the Final Plan for OU #1 was completed on October 13, 1995. CBI requested a Certificate of Completion of Remedy for OU #1 from the Department, which was issued on January 23, 1996.

In conjunction with the Interim Remedial response for OU #1, CBI conducted a Remedial Investigation and Interim Response Activities for the remaining Site area referred to as Operable Unit #2 (“OU #2”). These activities were conducted in accordance with the Department approved “Remedial Investigation Workplan for CBI Services, Inc., New Castle, Delaware,” (revised July, 1995). Based on the results of the Interim Response Activities conducted for surface soils and the comprehensive environmental investigations performed for OU #2, the Department determined that the Site, in its present condition, does not present an unacceptable risk to public health, welfare, or the environment.

In January, 1996, CBI submitted the “Remedial Investigation report for CBI Services, Inc.” prepared by Aware Environmental Inc. to the Department. Upon review of the findings, the Department met with CBI to discuss further action. On April 22, 1996, CBI conducted additional sampling in order to document background constituents relative to on-site contaminants.

The Interim Response activities for Operable Unit #2 were concluded in April, 1996. The following describes the findings of the Remedial Investigation and Interim Remedial Response activities as well as the additional 1996 data collected from background sediment samples.

III. REMEDIAL INVESTIGATION RESULTS

Based on historic information, past investigations and activities associated with the Site, CBI and the Department developed a Remedial Investigation Workplan for OU#2. The goals of the RI, as presented in the workplan were:

- 1) identify all sources of contamination;
- 2) identify the extent and magnitude of soil, subsoil, groundwater and surface water contamination; and
- 3) identify all existing and potential migration characteristics and pathways for hazardous substances, pollutants or contaminants caused by on-site activities. Details of sampling activities, sample locations and results are presented in the RI report.

Soil

Areas targeted for soil sampling for OU#2 included the warehouse area, acid disposal area/Old Baldt Steel Foundation area, NUS S-1 sample location and drainage ditches, (see Figure 2). These areas were targeted to confirm results of previous investigations and to delineate the extent of contamination. Soil samples were analyzed for Target Analyte List (“TAL”) including inorganics plus cyanide and Target Compound List (“TCL”) including volatile organic compounds (“VOC’s”), semi-volatile organic compounds (“SVOC’s”) and PCBs.

In conjunction with the RI activities, CBI conducted an Interim Response action involving removal of contaminated soil outside the warehouse area. A document dated April 13, 1995, reported the results of the removal activities near the warehouse formerly known as the Paint Dip and Drum Storage areas. Although lead was the primary constituent of concern, soil samples were collected and analyzed for TCL and total RCRA metals following soil excavation. In addition, two composite confirmatory soil samples were collected from the base of each excavation as directed by Department representatives and analyzed for TCL and TAL. All constituents detected were below the established cleanup objectives.

Following the Interim Response activities near the warehouse area (former Paint Dip and Drum Storage areas), CBI agreed to collect additional soil samples within the same area in accordance with the RI workplan, (March 1995).

Analytical results for soil, surface water, sediment and groundwater samples collected from sample locations described in the RI workplan are presented in the RI report, (January 1996).

The soil samples for reported results were collected within the area of OU #2 near the Old Baldt Steel Foundation area, neutralized acid disposal area, landfill area and the warehouse area. Two inorganic analytes (beryllium and manganese) were detected in soil samples above the respective clean-up objectives. However, the detected concentrations for beryllium and manganese on-site are well within the naturally occurring concentrations found in the United States as reported by Shacklette and Boerger (1984). One isolated lead concentration exceeding cleanup objectives was detected in the landfill sample LF-1. Please note, these metal concentrations, found on-site, are not likely to present a greater than normal threat to human health or the environment.

Soil samples collected near the Old Baldt Steel Foundations were also analyzed for SVOCs. Seven compounds were detected, four with specific cleanup objectives and three without cleanup objectives. These three compounds are associated with coal and petroleum; and therefore could be associated with Baldt Steel operations and were collected in the Old Baldt Steel ruins.

Surface Water

Results for surface water samples reported concentrations up to 1450 ug/l of aluminum and 4590 ug/l of iron. These exceedances of the Delaware Surface Water Quality Standards (“DSWQS”) (amended February 26, 1993) are comparable to Delaware River surface water background concentrations as provided by the Delaware Estuary Program. Please note, there were other constituents detected which do not have standards as per the DSWQS.

Sediment

Results for sediment samples collected from onsite drainage ditches and points along Buttonwood Ditch indicate reported concentrations of metals above the established clean-up objectives. Constituents of concern included copper, lead, mercury and zinc. Additional sediment samples were collected on April 22, 1996 in order to compare detected concentrations of metals on-site to upgradient conditions off-site. The upgradient samples were analyzed for copper, lead, mercury and zinc utilizing a Spectrace Quanx X-Ray Fluorescence instrument. The analytical results indicate that upgradient off-site sediments exceed both the established cleanup objectives for the Site as well as concentrations detected for on-site sediments. Therefore, concentrations of metals on-site do not exceed background concentrations.

Groundwater

Sample results for eight groundwater monitoring wells (MW-1 through MW-8) characterize the shallow groundwater aquifer on-site. Samples have been collected from wells MW-1 through MW-4 on a quarterly schedule since 1993, until September 1994, when the frequency was decreased to semi-annual. Analytical parameters initially included both TCL and TAL lists, however, with time, the analyte list was gradually decreased to VOCs, sulfate and phosphorous. During the monitoring period, detected concentrations of tetrachloroethene (PCE) from samples in monitoring well MW-2 have consistently exceeded the established cleanup objective. From September 1993 through November 1995, PCE concentrations increased from 27 ug/liter to 76 ug/liter. The most recent sample collected in May 1996 reported a PCE concentration of 51 ug/liter.

In July, 1995, CBI sampled four newly installed monitoring wells, MW-5 through MW-8. In 1995, CBI analyzed the samples for the full TCL and TAL for Site characterization. The only constituents detected with concentrations exceeding Water Quality Standards were iron, manganese and sulfate.

IV. FACILITY REMEDIAL ACTION OBJECTIVES

In accordance with the Regulations, the Department set (remedial action) objectives for land use, resource use, and cleanup levels that are protective of human health and the environment for the site. The following two (2) objectives are determined to be appropriate for the facility:

- To continue the use of the site as an industrial/commercial facility or future residential with supplied public water for all purposes;
- That routine construction, excavation and maintenance activities can occur without any special chemical hazard precautions.

These objectives are consistent with the value of the building structure as a manufacturing facility, the surrounding land use, New Castle County zoning policies, state regulations governing water supply, and worker health and safety.

V. PROPOSED PLAN AND PUBLIC PARTICIPATION

V. PROPOSED PLAN AND PUBLIC PARTICIPATION

The Department drafted a Proposed Plan of Remedial Action titled "CBI Site Proposal Plan of Remedial Action for Operable Unit #2" recommending further action limited to groundwater monitoring and institutional controls. The notice of the Proposed Plan was published on July 10, 1996 in the Wilmington News Journal Newspaper (Figure 4). During the comment period, the Department received written comments regarding the Proposed Plan from CBI. The Department's response to comments received has been incorporated into the Administrative record. There will be no changes to the Proposed Plan as a result of comments received. However, the Department will delete the requirement for institutional controls restricting land use. At this time, a restrictive covenant recorded with the County Registrar of Deeds will not be required for OU #1 and OU #2.

VI. FURTHER ACTION

Since the risks associated with the Site are acceptable if the existing industrial land use is continued and the unconfined aquifer is restricted from drinking water use, the Department requests the following plan be implemented.

- ◆ No further action is required for areas remediated through interim response activities and/or for areas that were sampled to date, excluding groundwater.
- ◆ Groundwater withdrawal from the unconfined aquifer will be restricted for both OU #1 and OU #2.
- ◆ A groundwater monitoring program will be established to document the concentration of contaminants for a minimum period of two and one half years, beginning November, 1996. Samples are to be collected semi-annually from four on-site monitoring wells (MW-1 through MW-4). At the completion of the 2.5 year period, if contaminant levels are above the MCL, then the monitoring program will continue until such time that two consecutive sample collections indicate contaminant levels at or below the MCL.
- ◆ Samples are to be analyzed for volatile organic compounds, phosphorous, sulfate, iron II and pH.
- ◆ During the monitoring period, any groundwater sample from existing monitoring wells (MW-1 through MW-4) with a concentration of tetrachlorethene (PCE) exceeding 69 ug/l will be resampled within 30 days to confirm all detected concentrations and/or initiate remedial action.
- ◆ If during the monitoring period, the PCE concentrations are not decreasing consistently, after a second 2.5 year period or a total of 5 years, the Department will evaluate all relevant information to determine if the monitoring program should be modified. If a decreasing trend of PCE concentrations is observed during the 5 year monitoring program, the Department will evaluate all relevant information to determine if the monitoring program should be continued.

- ◆ Remedial action, initiated by exceeding the target concentration of 69 ug/l for PCE, must be approved by the Department and, must include the following:
 - * Delineate the extent of the contaminated groundwater and the flow direction.
 - * Remove any contaminant source discovered above the water table which provides a source significant enough to impact groundwater.
 - * Remove or control any contaminant source discovered within the groundwater aquifer.
 - * Analytical parameters for groundwater samples at a minimum must include volatile organic compounds, phosphorous, sulfate, and pH.
 - * Re-initiate the groundwater monitoring program to document the reduction of the contaminant concentration. The duration, frequency and the analytical parameters for groundwater monitoring will be determined following evaluation of the Remedial Action results by the Department.

The Final Plan addresses shallow soils only for the remediated area delineated in Operable Unit #2. The Department requires no further action with respect to shallow soils within Operable Unit #2.

Based upon the Remedial Investigation and Interim Response activities of shallow soil in Operable Unit #2, there are no significant risks to human health and the environment under current land use objectives. The Final Plan allows for the use of the facility in accordance with the following stipulations:

- The groundwater monitoring program will be implemented in accordance with the Proposed Plan of Remedial Action for Operable Unit #2.
- A groundwater management zone (“GMZ”) will be established, which will restrict groundwater withdrawals at this site. The GMZ will be administered via a memorandum of understanding between DNREC’s Division of Air and Waste Management and Division of Water Resources.

VII. DECLARATION

This Final Plan of Remedial Action for the CBI Site is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

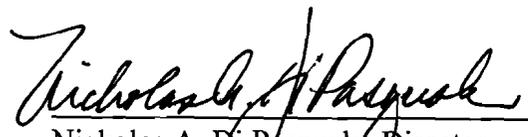
 8/13/96
Nicholas A. Di Pasquale, Director
Division of Air and Waste Management

Figure 3
OU #1 and OU #2



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ENGINEERS ARCHITECTS SCIENTISTS

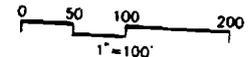
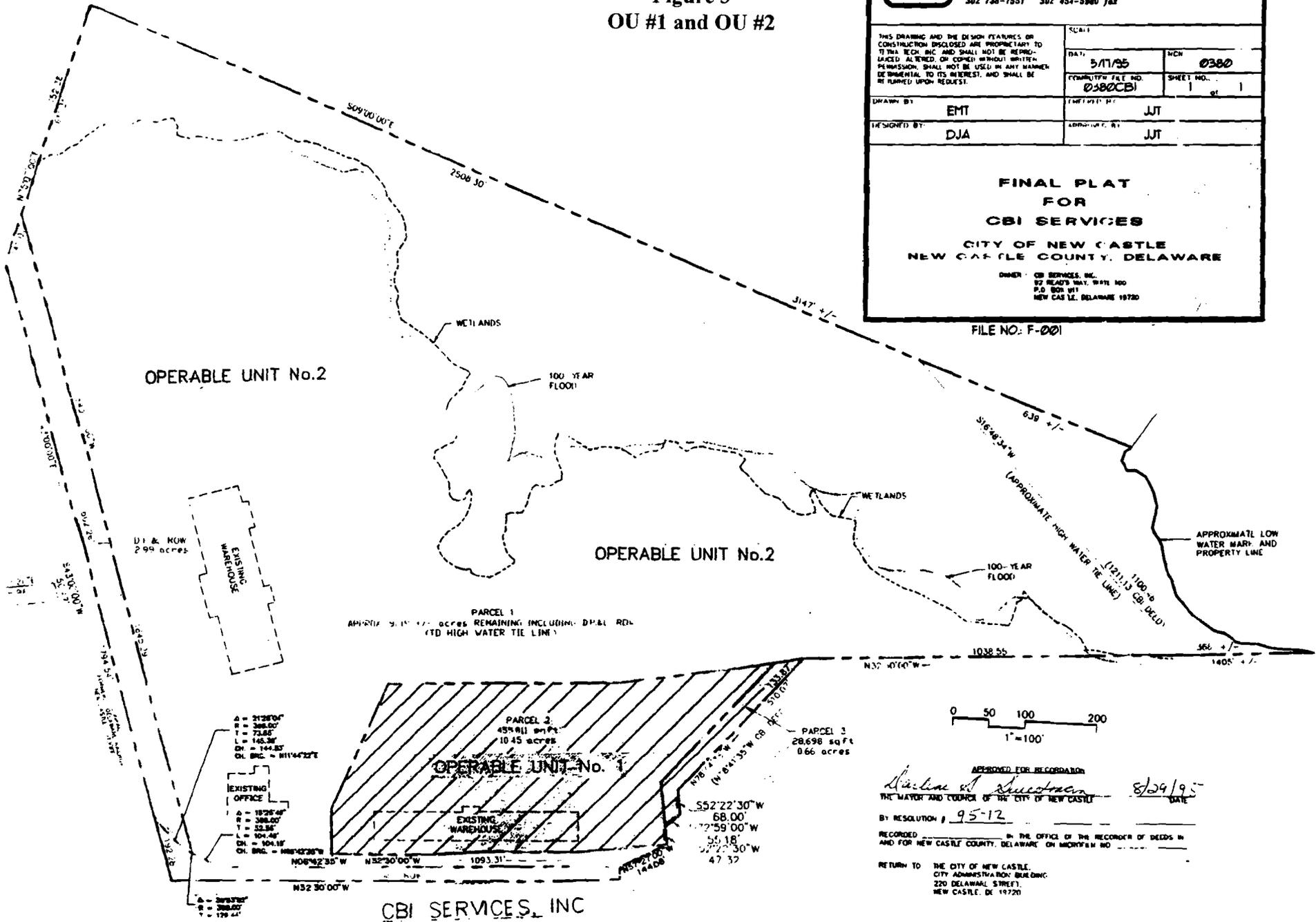
Tetra Tech, Inc.
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302 730-7551 302 454-5900 fax

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DATE	5/17/95	MCN 0380
CITY/PLAT FILE NO.	0380CBI	SHEET NO. 1 of 1
DRAWN BY	EMT	CHECKED BY
DESIGNED BY	DJA	APPROVED BY
		JJT

**FINAL PLAT
FOR
CBI SERVICES
CITY OF NEW CASTLE
NEW CASTLE COUNTY, DELAWARE**

DRAWN BY: CBI SERVICES, INC.
BY: READ'S MAP, STATE 300
P.O. BOX 911
NEW CASTLE, DELAWARE 19720

FILE NO: F-001



APPROVED FOR RECORDATION
Richard A. Sweetman 8/29/95
THE MAYOR AND COUNCIL OF THE CITY OF NEW CASTLE DATE
BY RESOLUTION, 95-12
RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN AND FOR NEW CASTLE COUNTY, DELAWARE ON MICROFILM NO. _____
RETURN TO THE CITY OF NEW CASTLE, CITY ADMINISTRATION BUILDING, 220 DELAWARE STREET, NEW CASTLE, DE 19720

**PROPOSED PLAN OF
REMEDIAL ACTION
FOR**

**CBI SITE
OPERABLE UNIT #2**

The Delaware Department of Natural Resources and Environmental Control (DNREC) Announces the release of the Proposed Plan of Remedial Action for the CBI Site ("site"), Operable Unit #2 located in New Castle, Delaware, under the authority of the Hazardous Substance Cleanup Act (HSCA).

In May, 1993, CBI Services, Inc. ("CBI"), the responsible party, entered into a Consent Decree with DNREC to perform a Remedial Investigation/Feasibility Study of the site under HSCA.

The site underwent interim remediation with DNREC approval in specified areas of the site now referred to as Operable Unit #1 ("OU #1"). On January 23, 1996, DNREC issued a Certificate of Completion of Remedy for OU #1 to CBI.

CBI conducted a Remedial Investigation and Interim Response Activities for the remaining site area referred to as Operable Unit #2 ("OU #2"). Based on the results of the Interim Response Activities conducted for surface soils and the comprehensive environmental investigations performed for OU #2, DNREC determined that the site, in its present condition, does not present an unacceptable risk to public health, welfare, or the environment.

Based on this information, the proposed remedy for this site is annual groundwater monitoring and the implementation of institutional controls in the form a restrictive covenant on groundwater usage.

A copy of the Proposed Plan of Remedial Action for the CBI Site is available at the following location:
DNREC's New Castle

Office
715 Grantham Lane
New Castle, De 19720
(301) 323-4540

DNREC invites written comments on this Plan. Members of the public may also request a public hearing on the Proposed Plan of Remedial Action pursuant to 7 Del. C. §9112. The comment period begins on July 8, 1996 and ends at 4:30 p.m. on July 29, 1996.

Comments or requests for a public hearing may be submitted in writing to Zsolt Haverland by the close of business (4:30 p.m.) on July 29, 1996 at DNREC's New Castle Office.

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**Figure 4
Public Notice**