01.09-5/18/98-00203

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FINAL
~~DRAFT~~

SAMPLE AND ANALYSIS WORK PLAN FOR CHARACTERIZATION OF BRINSON CREEK SITE

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

CONTRACT TASK ORDER 0375

Prepared for:

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
Norfolk, Virginia

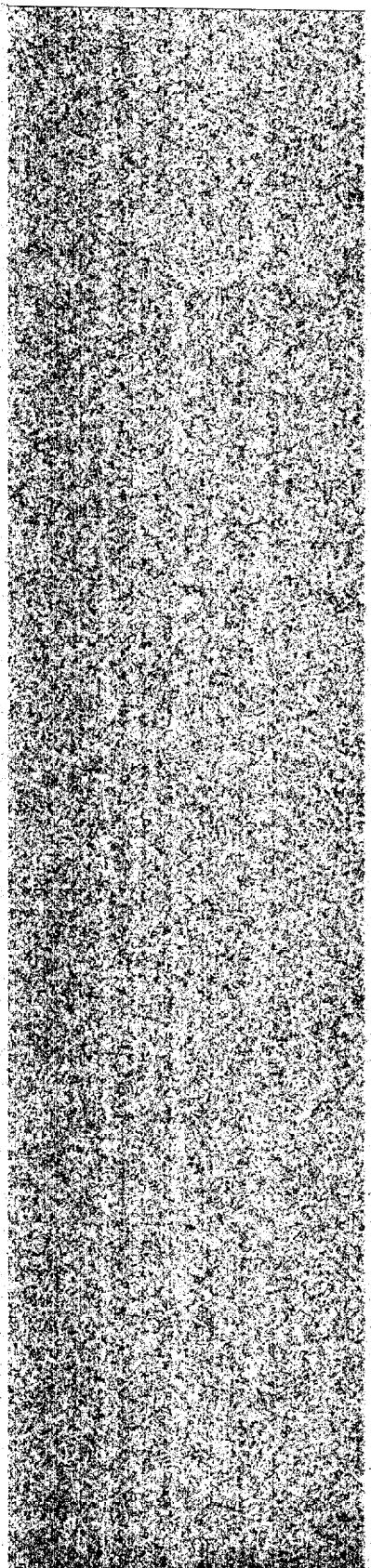
Under the:

LANTDIV CLEAN Program
Contract N62470-89-D-4814

MAY 18, 1998

Prepared by:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania



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1.0 INTRODUCTION

An Administrative Order on Consent (AOC) (provided as Appendix A) was issued by the North Carolina Department of Environment and Natural Resources (NC DENR) Division of Waste Management (effective March 31, 1998) with the consent of Marine Corp Base (MCB), Camp Lejeune to resolve issues concerning a potentially hazardous waste disposed at a City of Jacksonville, North Carolina wastewater treatment construction site located along Brinson Creek (Figure 1-1). The City of Jacksonville has signed the AOC to allow for site access. Initially, the AOC requires MCB, Camp Lejeune to characterize the sand blast grit to ensure proper disposal (Order Item 2.), and submit to the NC DENR, Division of Waste Management, a sampling and analysis work plan for the investigation of potential lead, chromium and potentially hazardous metals contamination associated with the sand blasting grit (Order Item 3.).

This Sample and Analysis Plan (SAP) has been prepared to support to the required characterization (Order Item 2) of sandblast grit disposed at the Brinson Creek AOC site (AOC site), and meet the work plan submission requirement of Order Item 3. This SAP provides the NC DENR, Division of Waste Management with the following:

- Sample locations and depths
- A summary of sample collection methods
- Analytical methods to be used
- Schedule for project completion

Upon approval of the SAP by the NC DENR, Division of Waste Management, characterization activities will commence.

2.0 BRINSON CREEK AOC SITE

The Brinson Creek AOC Site (AOC site) consists of a disposal area that is approximately 300 feet long by 17 feet wide and extends to a depth of approximately 12 feet. It is generally located northeast of the Camp Geiger wastewater treatment plant on the north side of Brinson Creek adjacent to the abandoned railroad bridge (see Figure 1-1).

2.1 Site Description

The AOC site is situated on City of Jacksonville right-of-way (ROW) where the 18 inch Brinson Creek trunk main was constructed. The AOC Site appears to be located in an area of ponded water between manhole (MH) # 22 and MH # 24 along the alignment of the 18 inch Brinson Creek trunk main (see Figures 2-1 and 2-2). This based on the following available information:

- City of Jacksonville, NC, Department of Public Works, Construction Contract Progress Payment Request Summary for the 1990 Annexation Contract #3 Brinson Creek Trunk Main Project.
- City of Jacksonville, NC, Department of Public Works, Daily Inspection Sheets for the 1990 the Annexation Contract #3 Brinson Creek Trunk Main Project.
- City of Jacksonville, NC, Department of Public Works, As Built Drawing (Sheet 7) for the 1990 the Annexation Contract #3 Brinson Creek Trunk Main Project (Figure 2-1). The profile view of the sheet 7 as built drawing shows a depression between MH # 22 and MH #24 that is approximately 300 feet long.
- Discussions with MCB Camp Lejeune's Environmental Management Department (EMD).
- A Baker and EMD site walk-through conducted on January 27, 1998.

The immediate area that surrounds the AOC site is undeveloped and is primarily a wetland associated with Brinson Creek. Approximately 200 feet from the AOC site on private property are a pig pen, construction debris piles, and a stack of utility poles. Storm runoff from this area appears to drain into the pond area between MH #22 and MH #24. Photographs of the AOC site taken during the Baker/EMD site walk-through are included in Appendix B.

2.2 Site History

During August 1992, a contractor hired by Marine Corps Systems Command (MARCORSYSCOM) for the Enhanced Applique Armor Kit (EAAK) conversion project, improperly transferred drums of contaminated residual sandblast grit which was subsequently used as fill material for an unrelated non-federal construction project.

The contractor was hired to sandblast paint and other protective coatings from Assault Amphibious Vehicles as part of the EAAK conversion project. As specified by terms of the contract, the grit residue was to be tested and disposed of as hazardous waste. On the basis of inadequate testing, in June 1992 the contractor informed MARCORSYSCOM that the residuum was not hazardous and sought to dispose of the grit by other means. MARCORSYSCOM informed the contractor to submit

a proposal to transport the material to an appropriate disposal facility. The contractor failed to do so and instead contracted with a local firm to remove the grit from site. This grit, commingled with other fill, was used as fill material in an off-base project for the City of Jacksonville. The fill was placed in a trench approximately 17 feet wide, 12 feet deep, and 300 feet long in order to buttress a sewer pipeline adjacent to a local waterway, Brinson Creek.

The contractor reported that they tested the sandblast grit prior to disposal and found it to be below the North Carolina requirement for disposal as hazardous materials. Investigation disclosed that the contractor's test was for only lead and that a Toxicity Characteristics Leaching Procedures test would have surfaced the chromium. Camp Lejeune's Environmental Management Department reported the results of a later test of debris similar to that which was dumped in Brinson Creek and those results revealed the paint debris was contaminated at a level of 1.09 mg/L of chromium and 0.6 mg/L lead.

3.0 SAMPLE AND ANALYSIS PLAN

This Sample and Analysis Plan (SAP) has been prepared to meet the required characterization (Order Item 2) of sandblast grit disposed at the Brinson Creek AOC site (AOC site), and meet the work plan submission requirement of Order Item 3. This SAP provides the NC DENR, Division of Waste Management with a description of sample locations and depths, sample collection methods, analytical methods, decontamination procedures, Investigative Derived Waste (IDW) disposal procedures, and a schedule of characterization tasks.

3.1 Description of Sampling Grid

According to the AOC the area of disposal was 17 feet wide by 300 feet long and extended to a depth of 12 feet. To minimize the number of samples taken over the broadest area, the 300 feet by 17 feet area was broken into six grid blocks. Each grid block measures 100 feet along the alignment of the sewer main by 10 feet in a direction perpendicular to the alignment of the sewer main. Since it was reported that the disposed material was mixed with other fill before placement on site, discrete samples would not provide adequate characterization. Therefore, in order to provide maximum characterization, a grid pattern will be established over the area. Within each grid block a total of five uniformly spaced aliquots will be collected and homogenized. These samples will be collected from varying depths in order to obtain a representative portion from a depth 0 to 12 feet. A sample will be collected for laboratory analysis from this homogenized material. A total of six samples of homogenized material will be shipped to the laboratory.

The location of the grid blocks and the aerial and vertical orientation of the aliquots is shown in Figure 2-2. Within a grid block each aliquot will be collected from different a different 2.4 foot interval between 0 and 12 feet below ground surface (bgs). The sample will be collected from the middle of the interval.

3.2 Sample Collection Methods

A discrete interval sampling tool will be used to collect aliquots at the prescribed depth. This tool consists of a 35 pound manually operated slide hammer, probe rods, and a Geoprobe large bore soil sampler. The hammer will be used to advance the boring, and recover probe rods and the large bore soil sampler.

The Geoprobe large bore sampling device consists of a 1.375 inch outer diameter steel spoon that is fitted with a plastic liner/tube. At the end of the spoon is a retractable drive point. When desired interval is reached the drive point is retracted into the top of the spoon as it is advanced. Vendors literature on the large bore sampling device has been included in Appendix C. When the aliquot is collected the large bore sampling device and probe rods are removed from the hole and the plastic liner/tube containing the sample material is removed. A new liner/tube will be used for the collection of each aliquot. Aliquot samples will remain in the plastic tube/liner until all five aliquot samples from a grid block are collected. All five aliquots will then be placed in a stainless steel mixing bowl and homogenized.

For efficiency and safety the samples will be collected from a small john boat. The bottom of the boat will be fitted with a sampling portal that will prevent the boat from sinking and allow the insertion of the large bore sampling device and probe rods.

3.3 Analytical Methods

Due to the nature of the disposed material and to characterize the sandblast grit at the AOC Site as characteristically hazardous or nonhazardous for disposal, the following analysis will be performed on each of the six samples submitted for analysis:

- TCLP Metals (SW1311/ /SW 6010B)

Samples will cooled to 4 degrees centigrade and shipped for analytical determination.

3.3 Decontamination Procedures

Prior to collecting aliquots in a grid block the steel sampling spoons, drive points, and piston of the large bore sampling device will undergo the full decontamination procedure outlined below. In addition, after each use any mixing bowls and mixing implements will first be fully decontaminated prior to each use. The full decontamination procedure is listed in the following paragraph. However, prior to the collection of each aliquot of the same grid block the sampling spoon, drive points and piston of the large bore sampling device and probe rods will only be washed with a liquid detergent and rinsed with deionized water.

The full decontamination procedure is as follows:

- Wash equipment with laboratory detergent and a brush to remove gross contamination.
- Rinse equipment with deionized water.
- Rinse equipment with 10% nitric acid.
- Rinse equipment with deionized water.
- Rinse equipment with isopropyl alcohol and allow to air dry for 24 hours.

3.4 Investigative Derived Waste (IDW) Disposal

It is anticipated that the volume of homogenized material collected for each grid block will exceed the required volume to be needed for laboratory analysis. The excess volume will be temporarily stored in a 55-gallon drum for the duration of the field effort. At the conclusion of field effort solid IDW will be characterized for proper disposal.

If the waste is characteristically hazardous it will be disposed of in accordance with 40 CFR Parts 262, 263 and 761 and the AOC.

4.0 SCHEDULE

A schedule of activities associated with the characterization of the sandblast grit at the AOC Site is included in Figure 4-1. To comply with the AOC the following deliverables noted below will be provided. Dates included in Figure 4-1 and milestone dates associated with deliverables were based on time frames provided in the AOC. These dates are subject to change based on review time and final NC DENR approval.

Deliverable	Effective Date	Tentative Target Date
Draft Sample and Analysis Work Plan	4/10/98	5/20/98
Final Sample and Analysis Work Plan	5/1/98	6/30/98
Draft Sampling and Analysis Report	6/10/98	8/30/98
final Sampling and Analysis Report	6/30/98	10/30/98
Draft Corrective Action Plan	7/20/98	11/15/98
Final Corrective Action Plan	8/4/98	12/30/98

FIGURES

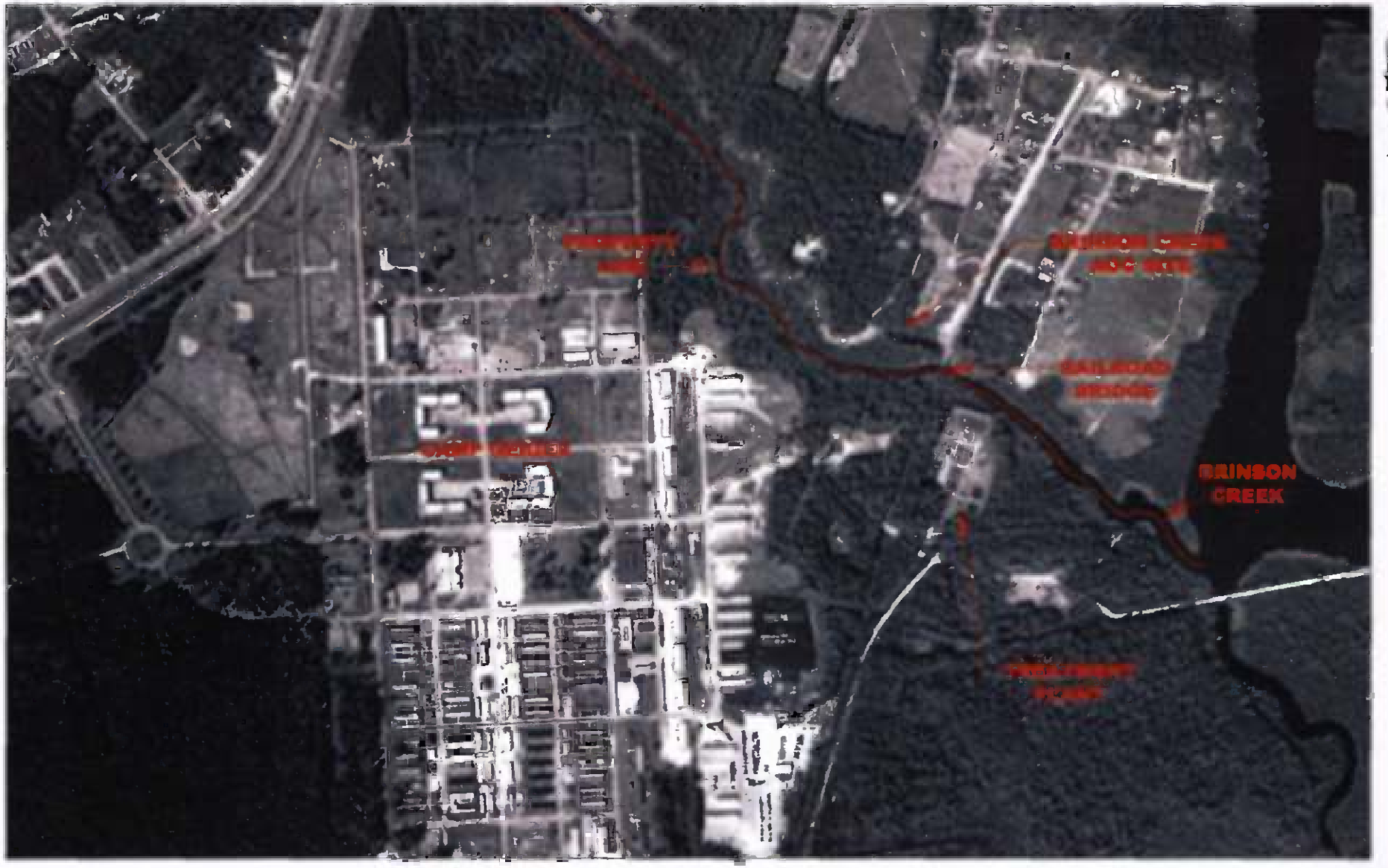

FIGURE 1-1
AERIAL PHOTOGRAPH, MARCH 6, 1993
BRINSON CREEK ADMINISTRATIVE ORDER ON CONSENT
CHARACTERIZATION SAMPLING, SAMPLE STRATEGY PLAN, CTO-0375
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

Baker

375006GI

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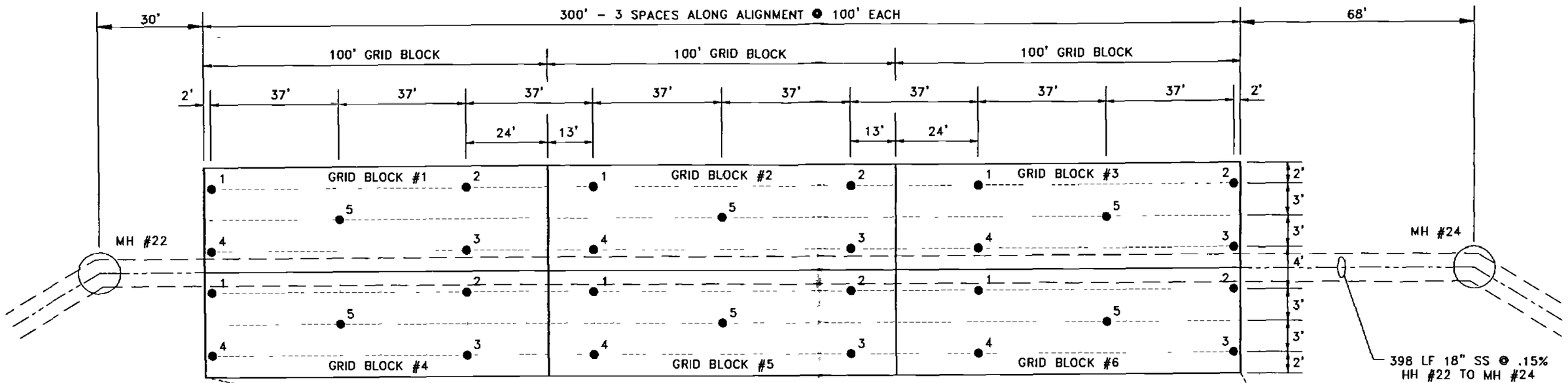
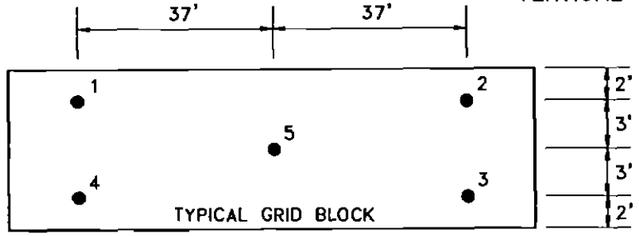


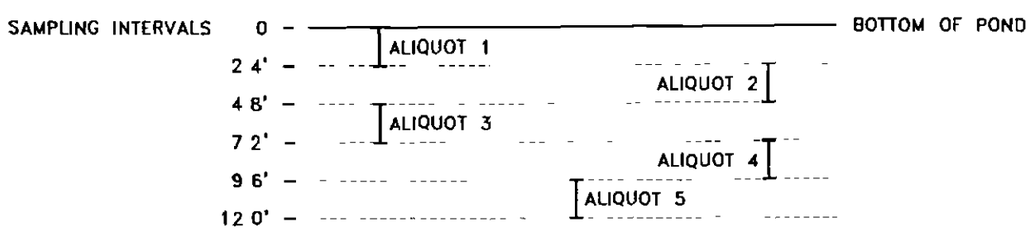
SAMPLING GRID

HORIZONTAL SCALE = 1'=30'
VERTICAL SCALE = 1'=10'



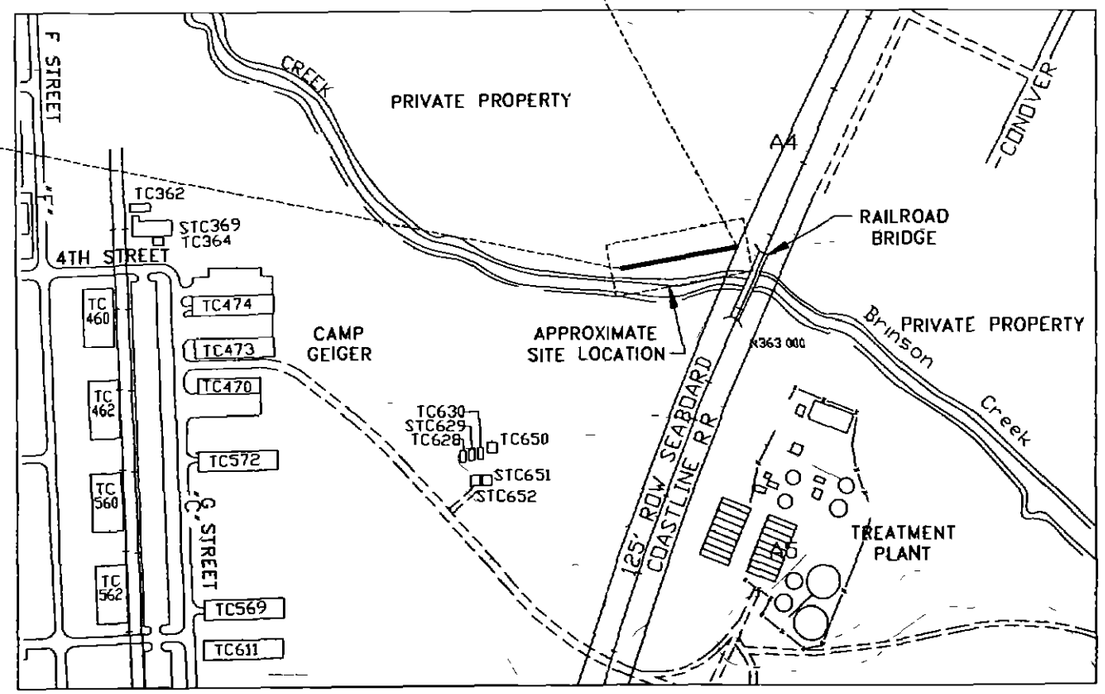
PLAN VIEW

SHOWING ALIQUOT LOCATIONS IN A TYPICAL GRID BLOCK



PROFILE VIEW

SHOWING VERTICAL ORIENTATION OF ALIQUOTS



SITE LOCATION MAP

N.T S

LEGEND
- MANHOLE
- CENTERLINE OF SS
- SS LINE
- GRIDLINES
- ALIQUOT LOCATION

DSN/DWN MDS/WATC
CHK.
S.O. NO.
FILE 375004GI

NORTH

CHARACTERIZATION SAMPLING, SAMPLING STRATEGY PLAN, CTO-0375
MARINE CORPS BASE CAMP LEJEUNE
NORTH CAROLINA

Baker Environmental, Inc
Coraopolis, Pennsylvania

Baker

PROPOSED SAMPLING GRID
BRINSON CREEK
ADMINISTRATIVE ORDER ON CONSENT

DATE. MAY 4, 1998

FIGURE NO. 2-2

00203E022

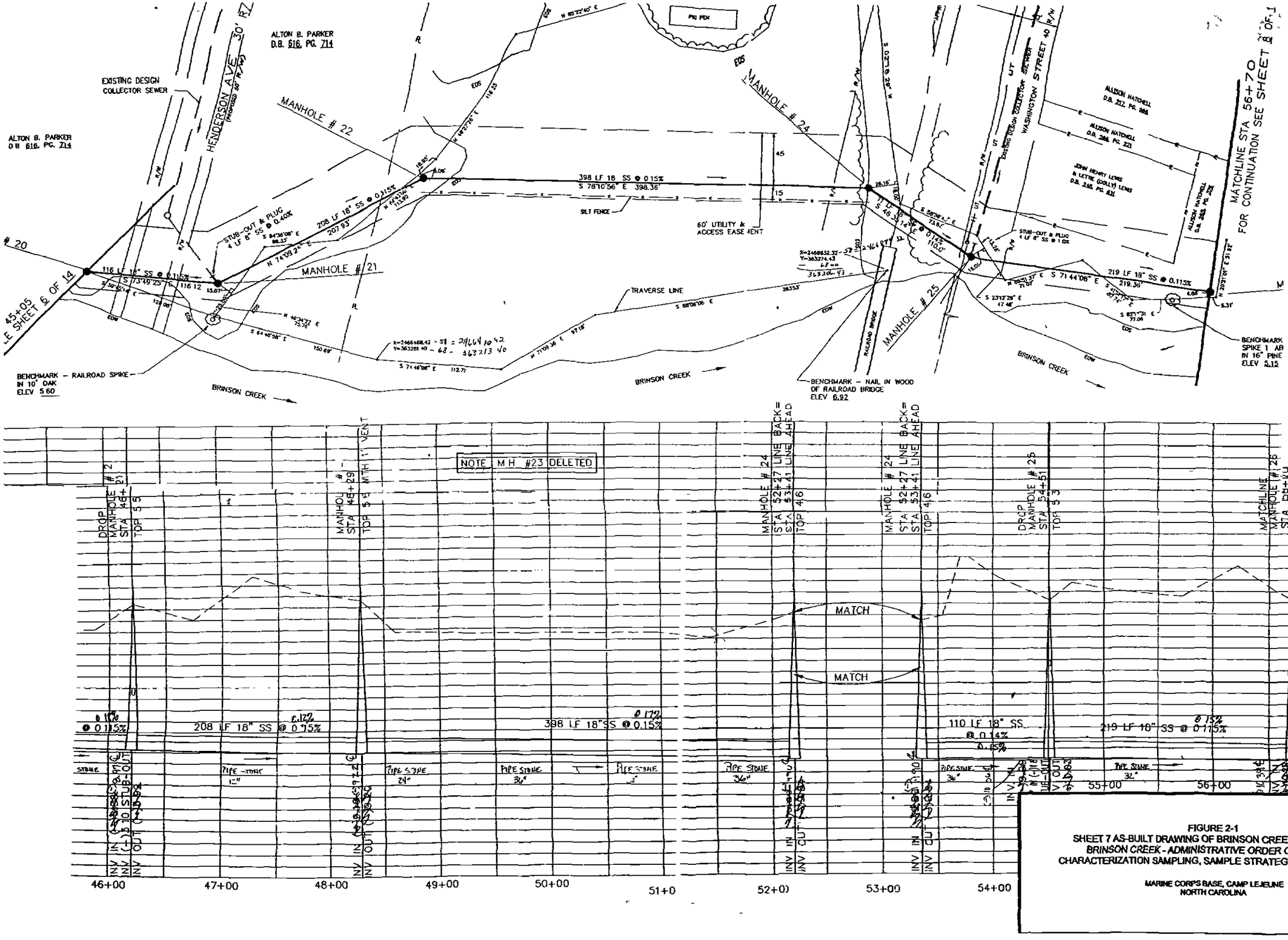


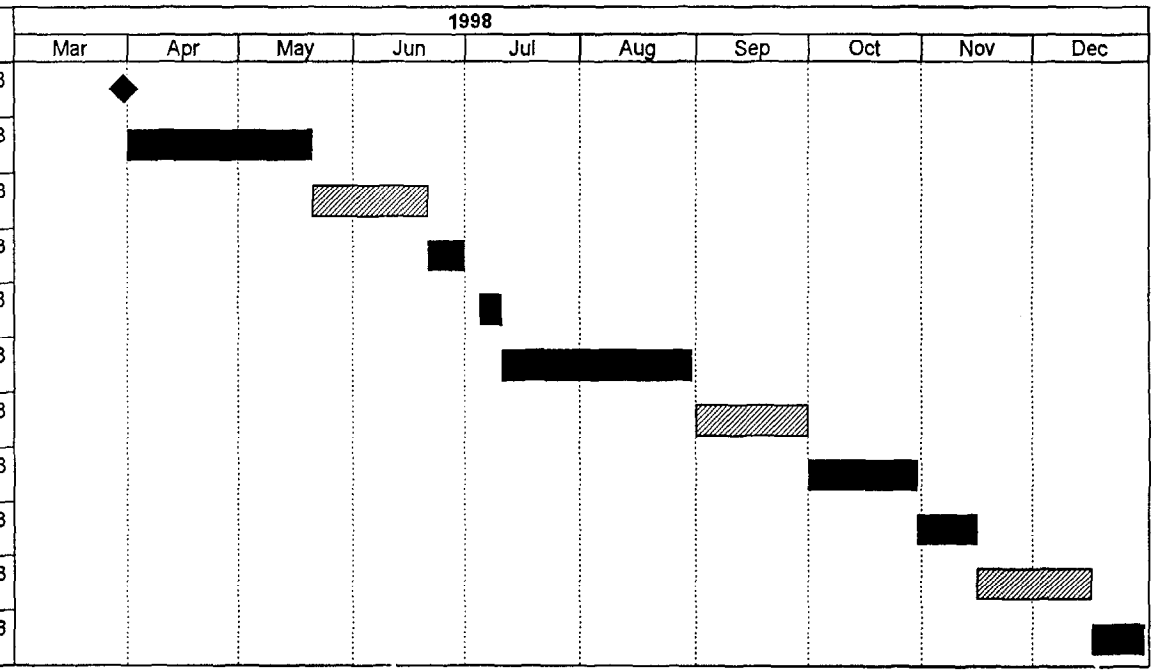
FIGURE 2-1
SHEET 7 AS-BUILT DRAWING OF BRINSON CREEK TRUNK MAIN
BRINSON CREEK - ADMINISTRATIVE ORDER OF CONSENT
CHARACTERIZATION SAMPLING, SAMPLE STRATEGY PLAN - CTO-0375

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

00203E03Z

Figure 4-1
Brinson Creek Administrative Order On Consent
Project Schedule - CTO-0375

Task Name	Start	Finish
Effective Date of AOC	3/31/98	3/31/98
Draft Sampling and Analysis Plan	3/31/98	5/20/98
NC DENR Review	5/20/98	6/20/98
Final Sampling and Analysis Plan	6/20/98	6/30/98
Characterization Sampling	7/5/98	7/10/98
Draft Sampling and Analysis Report	7/10/98	8/30/98
NC DENR Review	9/1/98	9/30/98
Final Sampling and Analysis Report	10/1/98	10/30/98
Draft Corrective Action Plan	10/30/98	11/15/98
NC DENR Review	11/16/98	12/16/98
Final Corrective Action Plan	12/17/98	12/30/98



Task

APPENDIX A
ADMINISTRATIVE ORDER OF CONSENT (AOC)

NCDENR
JAMES B. HUNT JR.
GOVERNOR
MCDEVITT
SECRETARY

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

March 31, 1998

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ► 7

To MATT BARTMAN	From MICK SENUS
Dept./Agency	Phone # 910/451-5068
Fax # 412/269-2002	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

CERTIFIED MAIL
Return Receipt Request

Commanding General
AC/S EMD (Attn: Mr. Neal Paul)
Marine Corps Base
PSC Box 20004
Camp LeJeune, North Carolina 28542-0004

RE: Administrative Order on Consent
United States Marine Corps Camp LeJeune
NC6 170 022 580

Dear Mr. Paul:

Enclosed is the United States Marine Corps Camp LeJeune's signed Administrative Order on Consent (Order). Please note that the docket number is 98-052. The Order outlines the specific concerns to be addressed.

Thank you for your assistance in this matter. If you have any questions, please contact Harold McCarty, Acting Head of the Programs Branch at 919-733-2178 extension 247.

Sincerely,

William L. Meyer, Director
North Carolina Division of Waste Management

Enclosure: Administrative Order on Consent

c: Doug Holyfield
Larry Perry
Dick Denton
Kathleen Waylette
Central Files

rc: Helen Cotton
Doug Roberts
Shelia Askew

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605

North Carolina Department of Environment
and Natural Resources
Division of Waste Management
Hazardous Waste Section

In Re: United States Marine Corps Camp LeJeune NC6 170 022 580	)))	ADMINISTRATIVE ORDER ON CONSENT Docket # 98-052

PRELIMINARY STATEMENT

With the consent of the United States Marine Corps (USMC Camp LeJeune), owners of property in Onslow County, North Carolina, upon which is or was located certain hazardous wastes, the North Carolina Department of Environment and Natural Resources, through its Division of Waste Management, issues this Administrative Order on Consent (AOC) to amicably resolve issues concerning those hazardous wastes.

BACKGROUND

1. On December 18, 1980, the United States Environmental Protection Agency (EPA) authorized North Carolina to operate a state hazardous waste program in accordance with the provisions of the Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.), the North Carolina Solid Waste Management Act (NC General Statutes 130A), and the rules promulgated thereunder in the North Carolina Administrative Code at Title 15A, subchapter 13A.

2. Pursuant to the Resource Conservation and Recovery Act (RCRA), the North Carolina Solid Waste Management Act (herein referred to as the "Act"), and rules promulgated thereunder (herein referred to as the "Rules"), the Secretary of the North Carolina Department of Environment and Natural Resources (DENR) is authorized to enforce standards for generation, transportation, treatment, storage, and disposal of hazardous wastes. The Director of the Division of Waste Management, William L. Meyer, is delegated that authority by the Secretary.

RELEVANT STATUTES AND REGULATIONS

1. Wastes which are subject to regulation as hazardous wastes under title 40 Code of Federal Regulations (CFR) part 262 through 265, 268, and part 270, 271 and 124 are identified in title 40 CFR 261.1(a) which is adopted by reference in 15A NCAC 13A .0106. The hazardous wastes so identified are subject to the notification requirements of section 3010 of RCRA.

2. Pursuant to title 40 CFR 261.2(b), as adopted by reference in 15A NCAC 13A .0106, materials are a solid waste if they are abandoned by being (1) disposed of; (2) burned or incinerated; or (3) accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

3. Pursuant to title 40 CFR 261.3(a), as adopted by reference in 15A NCAC 13A .0106, a solid waste is hazardous if:
   (a). It is not excluded from regulation as a hazardous waste under section 261.4(b); and
   (b). It meets any of the following criteria:
      (i). It exhibits the characteristics of hazardous waste identified in Subpart C.
      (ii). It is listed in Subpart D and has not been excluded from the lists in Subpart D under Sections 260.20 and 260.22.
      (iii). It is a mixture of a solid waste and a hazardous waste that is listed in Subpart D solely because it exhibits one or more of the characteristics of hazardous waste identified in Subpart C, unless the resultant mixture no longer exhibits any characteristics of hazardous waste identified in Subpart C.
      (iv). It is a mixture of solid waste and one or more hazardous wastes listed in Subpart D and has not been excluded from this paragraph under Sections 260.20 and 260.22.

4. Pursuant to GS 130A-290(6), "Disposal" is the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that the solid waste or any constituent part of the solid waste may enter the environment or be emitted into the air or discharged into any waters, including groundwater.

STIPULATIONS OF FACT

1. The City of Jacksonville owns property located at Brinson Creek, in Jacksonville, Onslow County, North Carolina (herein referred to as the "Site").

2. USMC Camp LeJeune is a person as defined in NCGS 130A-290(22) and 15A NCAC 13A.0102~~, and generated the hazardous waste disposed of at the Site.~~

3. In a letter to Flint Worrell, Waste Management Specialist for the Division, Mr. N. R. Robins, Special Agent in Charge with the Department of the Navy's Criminal Investigation Service (NCIS) Field Office at Camp LeJeune advised the state of the Navy's investigation of the management of sandblast material at the Site. Tito Contractors, Inc. was contracted by the Navy to sandblast and remove hazardous paint materials from approximately 150 assault vehicles. Sand and grit generated by this process is or was contaminated with lead and/or chromium. As stated in the correspondence, sometime between May and August 1992, R&W Construction

transported the sand and grit generated by this action from Camp LeJeune to a City of Jacksonville wastewater treatment project. Investigations revealed that R&W spread the material in an area approximately 17 feet wide by 12 feet deep that extended over a distance of about ~~300 yards~~ along Brinson Creek. Tito had apparently tested the material only for lead content and did not test for chromium. Later tests of similar debris performed by Camp LeJeune indicated the paint debris had a lead content of 0.6 mg/l and a chromium content of 1.09 mg/l under the Toxicity Characteristic Leaching Procedure. Tito is said to be unable or unwilling to account for the filtering devices used during Phase I of the two phase project. The investigation indicated that the filtering devices should have been heavily contaminated with lead and chromium as well.

Replace w/ 300 feet

4. Following a Comprehensive Environmental Response, Compensation, and Liability Act investigation, USMC Camp LeJeune notified the Division on March 10, 1997 of a potential human health risk that may be present in the Brinson Creek - Camp Geiger area. Concentrations of mercury and arsenic were detected in fish tissue. Arsenic and lead were found in crab tissue. ~~The investigation identified as a potential source the sand blasting grit improperly transported and disposed of in the Brinson Creek area.~~

5. Hazardous wastes involved at the Site include sand blasting debris potentially containing hazardous waste including hazardous waste codes D007 and D008.

~~6. USMC Camp LeJeune is the generator of the above hazardous wastes and is responsible for the proper treatment, storage and disposal of the hazardous waste.~~

7. The Division has jurisdiction under RCRA, the Act, and the Rules to require remediation of the Site.

ORDER

The Division hereby issues to, and with the consent of, USMC Camp LeJeune the following AOC:

1. The provision of this AOC shall henceforth govern the remedial actions of USMC Camp LeJeune with regard to this Site.

2. USMC Camp LeJeune shall comply with 40 CFR 262.11, as adopted by reference in 15A NCAC 13A .0107. An immediate determination and analysis of all solid wastes generated and disposed of at the Site shall be completed to ensure proper characterization and disposition of the wastes.

3. Within thirty (30) days of the effective date of this AOC, USMC Camp LeJeune shall submit to the Hazardous Waste Section (Section) a comprehensive sampling and analysis work plan for investigating the potential lead, chromium and any other applicable hazardous waste contamination at the Site due to the disposal of sand blasting debris.

Within sixty (60) days of receipt of the sampling and analysis work plan approval, USMC Camp LeJeune shall submit the sampling and analysis report which verifies the extent and characterization of the soil contamination (inorganic and organic) at the Site; specifically, the 17 feet wide by 12 feet deep area extending a distance of ~~300 yards~~ Replace w/300 ft. along Brinson Creek that was impacted by the improper disposal of the sandblasting debris. This report shall specify the sampling and analysis procedures used, sampling locations, and the depths used to assess the horizontal and vertical extent of contamination as well as sampling and analysis results.

4. Within forty-five (45) days of submitting the comprehensive sampling and analysis report in item 3, USMC Camp LeJeune shall submit a remediation plan. The remediation plan shall describe the remediation of the Site including any necessary soil removal, storage and transportation to an off-site disposal facility, and sampling to evaluate the adequacy of the clean-up. If USMC Camp LeJeune cannot effectively achieve remediation target levels at the site within one hundred-eighty (180) days after receiving the Division's approval of the remediation plan, USMC Camp LeJeune shall submit to the Division: 1) a justification for additional time to remediate the Site including a new proposed remediation schedule, or 2) shall submit a closure plan in accordance with 40 CFR 265.112, codified at 15A NCAC 13A .0110, a post-closure plan in accordance with 40 CFR 265.118, codified at 15A NCAC 13A .0110, and begin performing groundwater monitoring in accordance with 40 CFR 265.90-94, codified at 15A NCAC 13A .0110. If a revised schedule is proposed and the Division does not agree that compliance with the schedule will effectively remediate the Site within a timely manner, USMC Camp LeJeune shall immediately submit the closure and post-closure plans and begin performing groundwater monitoring as described above.

5. USMC Camp LeJeune shall comply with 15A NCAC 13A .0109(a). USMC Camp LeJeune shall no longer store or dispose of any more hazardous waste at the site. USMC Camp LeJeune shall manage all hazardous waste previously on the site in accordance with the approved remediation plan or USMC Camp LeJeune shall comply with the closure, post-closure, and groundwater monitoring provisions stated in item 4.

6. During the interim, pending shipment of the hazardous waste, USMC Camp LeJeune shall comply with 40 CFR 262.34(a), as adopted by reference in 15A NCAC 13A .0107.

   (a). If hazardous waste is placed in containers, USMC Camp LeJeune shall comply with Subpart I of 40 CFR Part 265 or if hazardous waste is placed in tanks, USMC Camp LeJeune shall comply with Subpart J of 40 CFR Part 265 with the exception of 265.197(c) and 265.200.

   (b). USMC Camp LeJeune shall mark clearly, so as to be visible for inspection on each container of hazardous waste, the date upon which each period of accumulation begins.

   (c). While being accumulated on-site, USMC Camp LeJeune shall label or mark clearly with the words "Hazardous Waste" each hazardous waste container and tank.

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▸ 7

To MATT BAETMAN	From MICK SENUS
Dept./Agency	Phone # 910/451-5068
Fax # 412/269-2002	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

DESIGNATED PROJECT COORDINATORS

Documents including reports, approvals, disapprovals, and other correspondence which must be submitted under this AOC shall be sent to the following addresses and to any other addresses which USMC Camp LeJeune and the Division designate in writing:

(1). Submittals to the Division or the Section shall be addressed to:

James A. Carter, Chief
Hazardous Waste Section (Attn: Larry Perry)
P.O. Box 29603
Raleigh, NC 27611-9603

(2) Submittals to USMC Camp LeJeune will be addressed to:

Commanding General
AC/S EMD (Attn: Mr. Neal Paul)
Marine Corps Base
PSC Box 20004
Camp LeJeune, North Carolina 28542-0004

DELAY IN PERFORMANCE

If any event occurs which causes delay in the achievement of the requirements of this AOC, USMC Camp LeJeune shall have the burden of demonstrating that the delay was caused by circumstances beyond the reasonable control of USMC Camp LeJeune which could not be overcome by its due diligence. USMC Camp LeJeune shall promptly notify the Division orally and shall, within seven (7) calendar days of oral notification to the Division, advise the Division in writing of the anticipated length and cause of the delay and the timetable by which USMC Camp LeJeune intends to obtain compliance. If the Division agrees that the delay has been or will be caused by circumstances beyond the reasonable control of USMC Camp LeJeune, the time for performance will be extended for a period equal to the delay resulting from such circumstances. Neither increased costs of performance of the terms of this AOC nor changed economic circumstances shall be considered as circumstances beyond the control of USMC Camp LeJeune.

DISPUTE RESOLUTION

If USMC Camp LeJeune objects to any disapproval or other decision made by the Division pursuant to this AOC, USMC Camp LeJeune may notify the Division in writing of its objections within fourteen (14) calendar days of receipt of the decision and request reconsideration, amendment or other modification. If, within fourteen (14) days following receipt of the request, the Division and USMC Camp LeJeune have not reached mutual agreement regarding the objections raised, the Division will provide a written response to USMC Camp LeJeune's request.

The above AOC is effective on this the 31 day of March, 1998.

DIVISION OF WASTE MANAGEMENT

for William L. Meyer, Division Director — 31 March 1998 Date

USMC CAMP LEJEUNE

Scott A. Brewer — 2/6/98 Date

Scott A. Brewer
Deputy Assistant Chief of Staff
Environmental Management Department
Marine Corps Base, Camp Lejeune

and solely for the purposes of Site access,

CITY OF JACKSONVILLE, NORTH CAROLINA

Jerry A. Bell — 3-18-98 Date

C:\ORDER\USMC2.BIL

APPENDIX B
PHOTOGRAPHS

Figure 1.0. Facing Camp Geiger from the north side of Brinson Creek at the railroad bridge. The site is to the right.

Figure 2.0. Facing west from the north side of Brinson Creek at the railroad bridge. Site is generally in the center of the photo.

Figure 3.0. Facing Camp Geiger from the north side of Brinson Creek between manhole # 22 (right) and manhole # 24 (left).

Figure 4.0. Facing east toward manhole # 24 from manhole #22.

Figure 5.0. The open space is where a 36" sanitary sewer main is located. The site is to the left of the makeshift structure (pig pen).

ATTACHMENT C
VENDOR LITERATURE

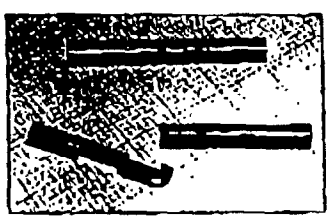
Soil Sampling Tools – Large Bore Soil Sampler

A unique soil sampling system designed for use with Geoprobe probing tools.

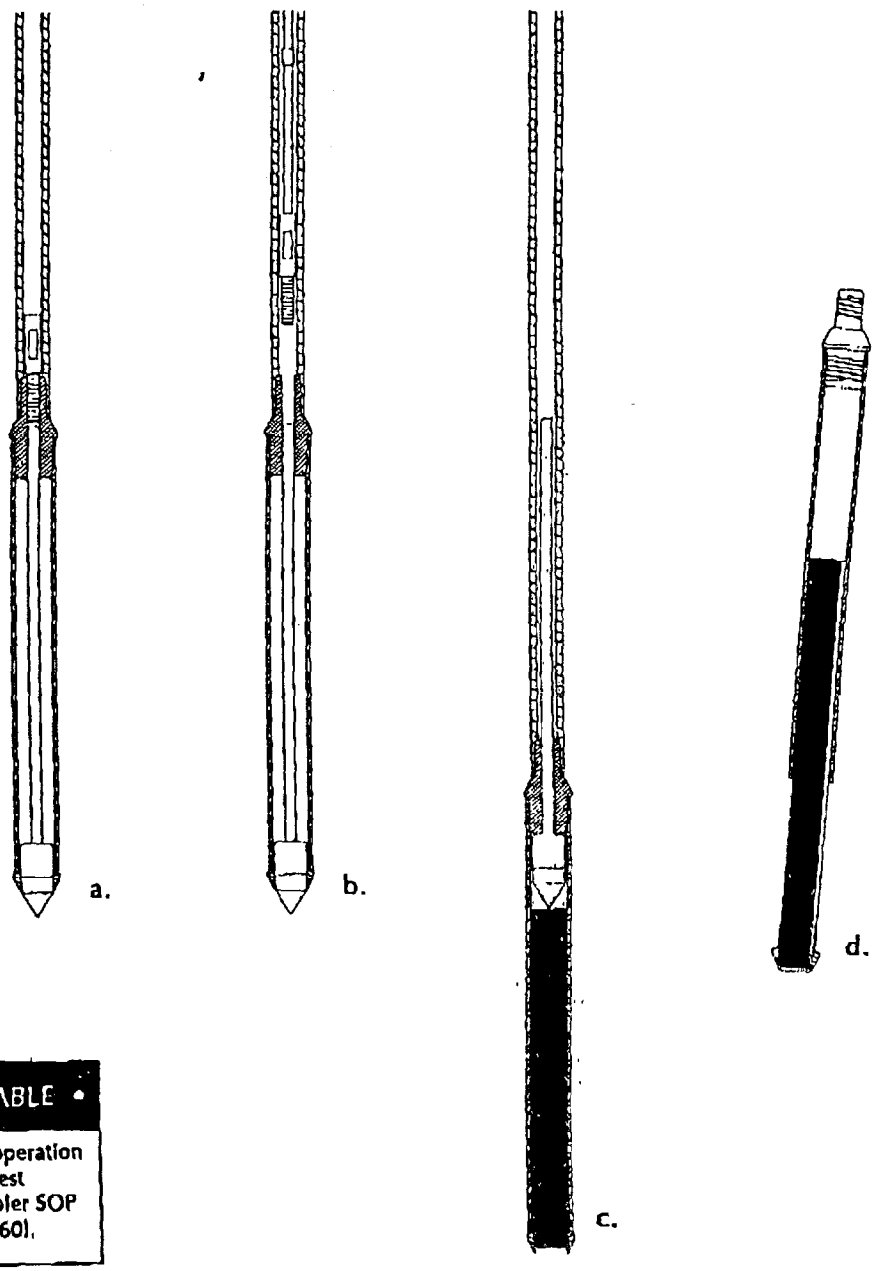
Geoprobe's Large Bore Soil Sampler can be used with either manually driven probe rods or Geoprobe hydraulic soil probing machines.

Unlike split-spoon samplers, the Large Bore Sampler remains completely sealed while it is pushed or driven to the desired sampling depth.

A piston stop-pin at the top end of the sampler is removed by means of extension rods inserted down the inside diameter of the probe rods after the sampler has been driven to depth. This enables the piston to retract into the sample tube as it is driven to recover a sample.



Stop-pin removal on the LB Sampler is now faster than ever thanks to the new Extension Rod Quick Links (AT-694K).



• GEOPROBE SOP AVAILABLE •

For complete instructions on the operation of this sampler, please request Geoprobe's Large Bore Soil Sampler SOP (Technical Bulletin No. 93-660).

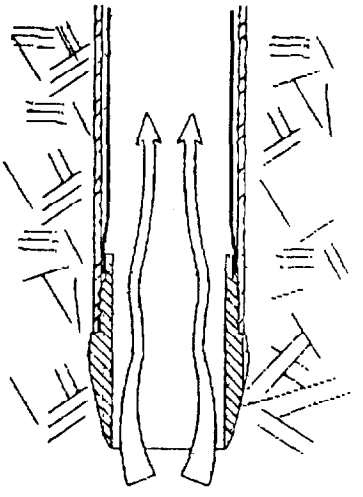
Figure 1. Driving and Sampling with the Large Bore Soil Sampler.
a. Driving the Sealed Sampler b. Removing the Stop-Pin
c. Collecting a Sample d. Recovering Sample in Liner

Large Bore Soil Sampling System . . .

Soil samplers that remain completely sealed while being pushed or driven to depth.

Typical Applications: Retrieval of Discrete Soil Samples at Depth Using Driven Probes

- Soil Sampling Beneath UST Sites
- Studies of Chemical Dissipation with Soil Depth
- Pesticide Studies
- Hazardous Waste Site Investigations
- Property Transaction Surveys
- Chemical Carryover/Residue Studies

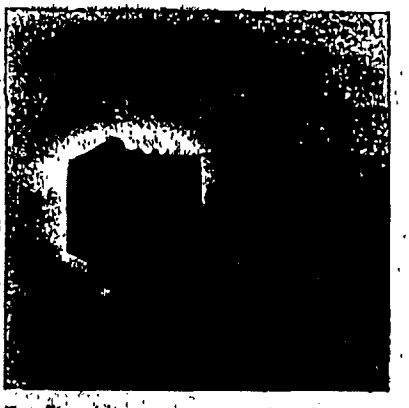


Geoprobe soil samplers feature liners that fit over the end of the cutting shoe. This feature, which was pioneered by Geoprobe, allows soil to flow into the liner without lodging behind the liner.

The Large Bore (LB) Soil Sampler is used primarily as a discrete interval sampler; that is, for the recovery of a sample at a prescribed depth. In certain circumstances, it is also used for continuous coring. The Large Bore Sampler recovers a 22-inch long x 1.06-inch diameter (559 mm x 27 mm) core. Maximum core volume is 318 mL.

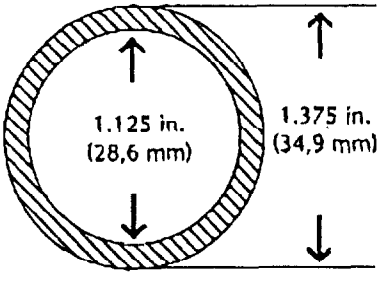
Liners for the Large Bore Sampler are available in CAB (clear plastic), brass, stainless steel, and PTFE (Teflon®).

Geoprobe's Large Bore Soil Sampler is perhaps the most popular direct push soil sampler in the United States today. It has achieved this status by solving problems for field investigators. Think of the possibilities: You need to determine the distribution of contaminants at depth (i.e., 10, 20, and 30 feet [3, 6, and 9 m]) — the Large Bore is your tool! Simply drive it to depth, open it, and recover a core. Easy driving, fast operation, minimal disturbance, no cuttings.



Pre-flared liners snap over interior end of cutting shoe. (Large Bore CAB liner shown here)

Suppose the project requires definition of contaminant concentration at a specific depth across the site. This is where the LB shines! You can complete multiple sampling points across the site. The speed and economic advantages offered by this sampler have allowed site investigators to increase the number of samples they obtain to define site conditions. It has also allowed them to develop a better understanding of subsurface conditions and contaminant distribution.



Actual size of Large Bore Sample Tube. The Large Bore Sampler gives an ample I.D. for core recovery while maintaining a small O.D. for ease of driving.

Soil sample recovered using the Geoprobe Large Bore Soil Sampler.