04.09-8/14/97-1755

DEPARTMENT OF THE NAVY

ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VIRGINIA

LANTDIV RAC Contract No.
N62470-89-D-3032

PHASE I INTERIM REMEDIAL ACTION AT OPERABLE UNIT NO. 10, SITE 35 MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

Designed by:

BAKER ENVIRONMENTAL, INC.
CORAOPOLIS, PENNSYLVANIA

Specification Prepared by:

Environmental:	**Civil:**
Donald P. Joiner, P.E.	Donald P. Joiner, P.E.

Date: August 14, 1997

Specification Approved by:

Specification Branch Head: M. D. Mutter, P.E.

Engineering and Design Division Director: W. H. Crone IV, P.E.

Environmental Quality Division Director:

Date:_____

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SECTION 01010

GENERAL PARAGRAPHS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.120	Hazardous Waste Operations and Emergency
29 CFR 1926	Safety and Health Regulations for Construction

CORPS OF ENGINEERS (COE)

COE EP 1110-1-8	1993 Construction Equipment Ownership and Operating Expense Schedule
COE EM 385-1-1	1992 Safety and Health Requirements Manual

MILITARY STANDARDS (MIL-STD)

MIL STD 461	(Rev C) (Notice 2) Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
MIL STD 462	(Notice 6) Measurement of Electromagnetic Interference Characteristics

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	1989 Safeguarding Construction, Alteration, and Demolition Operations

1.2 PRECONSTRUCTION SUBMITTALS

Submit the following in accordance with Section C, Part 7 of the Basic Contract.

1.2.1 SD-09, Reports

a. Work Plan G

1.2.1.1 Work Plan

Within 60 days of issuance of the delivery order, submit a work plan consisting of the following elements.

a. Narrative

Provide a brief description of the project objectives, scheduling, sampling and analysis requirements, decontamination procedures, removal and excavation procedures, and storage, transportation, and treatment requirements; and a detailed sequence of events for the construction, extraction, and treatment methods.

Specifically, the narrative of the work plan shall include information to demonstrate the Contractor's understanding of each of the components of the project including, as a minimum, the following:

1. Overall plan for the construction of the initial, or Phase 1, component of the system. This portion of the work plan shall present the Contractor's proposed methods of installing the necessary facilities and equipment, and shall incorporate data from the geotechnical evaluation.

2. Overall plan for the operation and monitoring of the system, based on the requirements presented in these technical specifications, including any amendments developed by the Contractor.

b. Technical Specifications

Provide, in an amendment format, any additions and modifications to the contract specifications required to accurately describe the materials and work procedures envisioned to satisfy the requirements of the delivery order. Contact Code 406, Specifications Branch, Engineering and Design Division, LANTNAVFACENGCOM, (757) 322-4406, for availability of guide specification sections for those sections required, but not included in the contract documents.

c. Shop Drawings

Shop drawings shall detail and describe all components of the project not currently indicated on the contract drawings such that the shop drawings and the contract drawings, when taken together, provide a complete representation of the project requirements. Shop drawings shall be prepared and sealed by a registered professional engineer. Shop drawings shall include: 1) Site plans and structural drawings providing details of all site work, including the layout, arrangement, and components of the groundwater remediation system; 2) Drawings showing erosion controls to be used during construction. 3) Drawings providing details of the layout and installation of all process equipment.

d. Environmental Protection Plan

Within 15 days of issuance of the delivery order, meet with the Navy's Technical Representative (NTR) to discuss environmental protection requirements for the project. After meeting with the NTR, prepare and submit an Environmental Protection Plan in accordance with Section C, Part 4.0, of the Basic Contract.

e. Health and Safety Plan

Provide a site specific health and safety plan (HASP) in accordance with Section C, Part 3.0, of the Basic Contract. The HASP shall include but is not limited to the following:

1. Names of the Health and Safety officer and names of alternates responsible for Health and Safety.

2. Description of the levels of personal protection to be used for each task.

3. A description of the frequency and types of personal monitoring.

4. Employee training.

5. A description of environmental sampling techniques and instrumentation.

6. Site control measures.

7. Decontamination procedures.

8. Standard Health and Safety operating procedures.

9. Contingency plan.

10. NFPA 241

11. Material Safety Data Sheets for all hazardous materials brought to the site.

f. QC Plan

Provide a QC Plan in accordance with Section C, Part 6.0, of the Basic Contract.

(1) Submittal Register

As part of the QC Plan, submit a completed Submittal Register to document quality control for materials, inspection, and testing in accordance with Section C, Part 7.0 of the Basic Contract. A copy of the Submittal Register is provided at the end of this section.

(2) Testing Laboratory Qualifications

As part of the QC Plan, submit qualifications for each laboratory

which shall be used in accordance with Section C, Part 6.0, of the Basic Contract.

g. Sampling and Analysis Plan

Provide a Sampling and Analysis Plan describing all sampling and analyses requirements for the delivery order. The Plan shall contain a field sampling plan and a quality assurance plan.

1.2.2 Forwarding Preconstruction Submittals

Within 60 days of issuance of the delivery order, and before procurement, fabrication, or mobilization, submit to the Architect-Engineer, Baker Environmental, Inc., Airport Office Park, Building 3, 420 Rouser Road, Coraopolis, PA 15108, and to distribution as directed by the NTR, the preconstruction submittals required in this specification. The Architect-Engineer and NTR shall review the Contractor's Work Plan to determine compliance with the requirements of the contract documents for this delivery order.

1.2.3 Review Comments

The Contractor's Work Plan shall be reviewed. The NTR shall compile and coordinate all Government review comments, and forward consolidated review comments to the Contractor. Review comments on the Work Plan shall be resolved, and submittals modified as required. After the correction of the submittals, submit corrected final copy of the Work Plan to the NTR for final review. The Final Work Plan shall be approved by the NTR prior to commencement of any other work associated with this delivery order.

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0, of the Basic Contract.

1.3.1 SD-08, Statements

a. Class I ODS Prohibition G

b. Material Safety Data Sheets G

1.3.1.1 Class I ODS Prohibition

Class I ODS defined and identified herein shall not be used in the performance of this contract, and shall not be provided as part of the equipment. This prohibition shall be considered to prevail over any other provision. specification, drawing, or referenced documents.

1.3.1.2 Material Safety Data Sheets

Provide Material Safety Data Sheets (MSDS) for all hazardous materials.

1.3.2 SD-18, Records

a. Shop Drawings

b. Record Documents/Drawings G

c. Environmental Conditions Report

d. QC Meeting Minutes

e. Test Results Summary Report

f. Contractor Production Report

g. QC Report

h. Rework Items List

i. Permits

j. Contractor's Closeout Report

1.3.2.1 Record Documents/Drawings

Maintain two sets of full size contract drawings and two sets of full size approved shop drawings marked to show any deviations which have occurred, including buried or concealed construction and utility features revealed during the course of construction. Record horizontal and vertical locations of buried utilities that differ from the contract drawings. These drawings shall be available for review by the NTR at any time. At the completion of the work, deliver marked sets of the contract drawings to the NTR. The Contractor shall incorporate all shop drawing deviations, and deliver one complete set of the shop drawings to the NTR.

1.3.2.2 Environmental Conditions Report

Prior to starting work, perform a preconstruction survey with the NTR. Take photographs showing existing environmental conditions on and adjacent to the site. Prior to starting work, submit the results of the survey in an Environmental Condition Report to the NTR.

1.3.2.3 QC Meeting Minutes

The QC Representative shall document all QC meetings by delivering copies of the minutes to the NTR within 3 calendar days after each QC meeting. The submittals shall comply with Section C, Part 6.0 of the Basic Contract.

1.3.2.4 Test Results Summary Report

A summary report of all field tests and laboratory analytical results shall be submitted to the NTR within 30 days after laboratory receipt of samples and in accordance with Section C, Part 6.0 of the Basic Contract.

1.3.2.5 Contractor Production Report (CPR)

The CPR shall be prepared and submitted daily to the NTR in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.2.6 QC Report

The QC Report shall be submitted by the QC Representative to the NTR every day work is performed, material is delivered, direction is pending, or a labor force is present in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.2.7 Rework Items List

The QC Representative shall deliver a copy of the rework items list to the NTR on a monthly basis in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.2.8 Permits

Fifteen days prior to beginning onsite work, submit draft copies of the following permits required for onsite activities:

a. Excavation Permit; from the Public Works Officer, Utilities Division

1.3.2.9 Contractor's Closeout Report

Submit upon completion of the project. This report shall include: Introduction, Summary of Action, Final Health and Safety Report, Summary of Record Documents, Field Changes and Contract Modification, Final Documents, Complete Set of all Field Test and Laboratory Analytical Results, Offsite Transportation and Treatment of Materials, and QC Summary Report along with recommendations for operation and expansion of the treatment system.

1.3.3 Forwarding Submittals

After approval of the work plan, and before procurement or fabrication, submit, except as specified otherwise, to the Architect-Engineer, Baker Environmental, Inc., Airport Office Park, Building 3, 420 Rouser Road, Coraopolis, PA 15108, the shop drawings and technical data required in the technical sections of this specification. The Architect-Engineer for this project shall review and provide surveillance for the NTR to determine if Contractor-approved submittals comply with the contract requirements, and shall review and approve for the NTR those submittals not permitted to be Contractor approved to determine if submittals comply with the contract requirements. At each "Submittal" paragraph in the individual specification sections, a notation "G", following a submittal item, indicates the Architect-Engineer, acting as the agent for the NTR, is the approving authority for that submittal item. One copy of the transmittal form for submittals shall be forwarded to the Resident Officer in Charge of Construction (ROICC).

1.4 GENERAL INTENTION

It is the declared and acknowledged intention and meaning to provide and secure Contractor services for construction of an interim groundwater remediation system at Operable Unit No. 10, Site 35, Camp Geiger Fuel Farm at Marine Corps Base Camp Lejeune, complete and ready for use.

1.5 GENERAL DESCRIPTION

This work includes preparation of work plans and submittals previously described, and providing all labor, supervision, tools, materials, equipment and transportation necessary to install and operate for 180 days an in-situ air sparging (IAS) system for remediation of contaminated groundwater at Site 35. Components of this project include but are not limited to: mobilization and preparatory work; construction of temporary facilities; installation of an air sparging system; construction of treatment system equipment pad and fencing and related site work; installation of an electrical power supply line; monitoring of IAS system and treatment systems including testing, sampling and analytical requirements; operation of the IAS system for a period of 180 days; and site restoration and other related work.

After the remediation system has been installed the Contractor will operate and maintain the remediation system for a period of 180 days. The Contractor shall be responsible for correcting and repairing all problems that may occur during this 180 day period.

The work required by these specifications shall be performed in a phased approach, and requires the Contractor to obtain input and concurrence from the NTR before proceeding to the next task. The overall schedule for these tasks is defined in Part 1.8 of these specifications.

1.6 LOCATION

The work is located at Operable Unit No. 10, Site 35, Camp Geiger Fuel Farm, at Marine Corps Base Camp Lejeune, North Carolina.

1.7 PROJECT INFORMATION

1.7.1 Drawings, Maps and Specifications

Four sets of contract drawings, maps and specifications shall be furnished to the Contractor, except applicable publications incorporated into the technical provisions by reference. Additional sets shall be furnished on request. The work shall conform to the following contract drawings and maps, all of which form a part of these specifications and are available in the office of the NTR.

EFD Dwg. No.	NAVFAC Dwg. No.	Title	Sheet No.
		Cover Sheet and General Notes	T-1
		Existing Site Plan	C-1
		Enlarged Site Plan	C-2

1.7.2 Reference Reports

The following reference reports are available for examination in the office of the NTR and are intended only to show the existing conditions. The reports and drawings are the property of the Government and shall not be used for any purpose other than that intended by the specification.

Reports

A. Baker Environmental, Inc., Final Remedial Investigation Report, Operable Unit No. 10, Site 35, Camp Geiger Area Fuel Farm, May 1995.
B. Baker Environmental, Inc., Final Interim Feasibility Study, Operable Unit No. 10, Site 35, Camp Geiger Area Fuel Farm, September 1995.
C. Baker Environmental, Inc., Draft IAS Treatability Study Report, Operable Unit No. 10, Site 35, November 1996.
D. Baker Environmental, Inc., Draft Supplemental Groundwater Investigation Report, Operable Unit No. 10, Site 35, Camp Geiger Area Fuel Farm, November 1996.
E. Baker Environmental, Inc., Draft Feasibility Study, Operable Unit No. 10, Site 35, Camp Geiger Area Fuel Farm, January 1997.
F. Baker Envirionmental, Inc., Site 35, PAE Interim Remedial Action Field Investigation Letter Report, June 1997.

1.8 PROJECT SCHEDULE AND TIME CONSTRAINTS

The Contractor shall be required to commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed. The work required by these specifications shall be performed in a phased approach, and requires the Contractor to obtain input and concurrence from the NTR before proceeding to the next phase. The overall phases of this project, and their duration, are as follows:

a. Work Plan - Within 60 calendar days of receiving notice to proceed, the Contractor shall prepare an overall plan for the construction of the initial, or Phase 1, component of the system, as specified in Part 1 of this section. The work plan shall be reviewed by the NTR, and the Contractor shall submit a corrected copy of the work plan to the NTR for review, prior to commencement of any work associated with this task.

b. Construction Phase - After approval of the work plan, the Contractor shall complete the entire work, including initial start-up, within 120 calendar days.

c. Operation and Monitoring Phase - After initial start-up, the Contractor shall operate and monitor the system for a period of 180 calendar days. At the end of the 180-day operating period, the Contractor shall prepare a contract close-out report, as required by these specifications.

PART 2 PRODUCTS

2.1 SAFETY FENCING

Safety fencing shall be orange, high density, ultra violet stabilized polyethylene, at least four feet in height.

PART 3 EXECUTION

3.1 FACILITIES AND SERVICES

The Contractor shall provide all temporary facilities necessary for the proper completion of the work, as necessary and as specified.

3.1.1 Availability of Utilities Services

a. Government utilities, if available at the work sites shall be made available to the Contractor without charge.

b. The Government shall supply non-potable water required to perform work to the Contractor. The water source location will be as directed by the NTR. Work shall be coordinated with the Base Utilities Branch (Mr. Carl Baker, (910) 451-5024). The Contractor shall provide all piping, hoses, pumps, and connections to transport water to the desired locations on site. The Contractor shall also provide a backflow-prevention device at the water source.

c. The Government shall supply reasonable amounts of electricity to the Contractor. The Contractor shall provide all equipment and labor necessary to connect, convert, and transfer the utilities to the work. The Contractor shall make connections and disconnections.

d. The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, electrical, and steam services. The Government shall operate the control devices as required for normal conduct of the work. The Contractor shall notify the NTR, giving 15 days advance notice when such operation is required.

e. The Contractor shall contact Base Telephone Services in writing to obtain telephone connection. The Contractor shall provide all equipment and labor necessary to connect the telephone service to the site. The Contractor shall make arrangements for connections and disconnections and payments.

3.1.2 Storage in Existing Buildings

Storage in existing buildings shall not be allowed.

3.1.3 Open Site Storage Size and Location

The open site available for storage/laydown/decontamination shall be confined to the areas approved by the NTR.

3.1.4 Trailers, Storage, and Temporary Buildings

Locate trailers, storage, and temporary buildings where directed and within the indicated operations area. Trailers or storage buildings shall be permitted where space is available subject to the approval of the NTR. The trailers or storage buildings shall be suitably painted and kept in a good state of repair. Failure of the Contractor to maintain the trailers or storage buildings in good condition shall be considered sufficient reason to require their removal. Trailers shall be anchored to resist high winds and must meet applicable state or local standards for anchoring mobile trailers.

3.1.4.1 Storage and Office Trailers

Provide a trailer of sufficient size for an office trailer work area and floor area for the exclusive use of the Contractor's Quality Control Representative. Also provide room in the same trailer for the Quality Control Representative with a 4-foot by 8-foot plan table, a standard size office desk and chair, and telephone service. Quality control records shall be filed in the office and available at all times to the Government.

Trailers must meet state law and station requirements and must be in good condition. Trailers shall be lockable and shall be locked when not in use. Trailers shall have a sign not smaller than 24 inches by 24 inches in the lower left hand corner of left door of trailer with the following information: company name, address, registration number of trailer or vehicle identification number, location on base, duration of contract or stay on-base, contract number, local on-base phone number, off base phone number of main office, and emergency recall person and phone number.

3.1.5 Cleaning Up

During the progress of the remediation, the work area and adjacent areas shall be kept clean and free of all non-hazardous solid waste, surplus materials, and unneeded construction equipment.

No material or debris shall be allowed to flow or wash into watercourses, ditches, gutters, drains, or pipes.

The Contractor shall remove all temporary buildings and structures built under this contract on or before the completion of the work.

All materials and equipment installed by the Contractor or any subcontractors shall be thoroughly clean. Upon completion of the work, The Contractor shall deliver it undamaged and in fresh and new-appearing condition.

The Contractor shall restore or replace, when and as directed by the NTR, any property damaged by the contract work and equipment or by employees. The property shall be restored in a condition at least equal to that existing prior to the beginning of construction operations. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of property shall be done promptly and shall not be left until the end of the contract period.

3.2 RESTRICTIONS ON OPERATIONS

3.2.1 Scheduling

The facilities and buildings adjacent to the site shall remain in operation during the entire construction period. The Contractor shall schedule the work as to cause the least amount of interference with Base operations. Work schedules shall be subject to the approval of the NTR. Permission to interrupt Base roads shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption. Notify the NTR 48 hours prior to starting excavation.

3.2.2 Regular Work Hours

The regular work hours for the Marine Corps Base, Camp Lejeune, North Carolina, are 0645 to 1615, Monday through Friday.

3.2.3 Work Outside Regular Hours

If the Contractor desires to carry on work outside regular hours or on Saturdays, Sundays, or holidays, the Contractor shall submit an application to the NTR. The Contractor shall allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in progress. At night, the Contractor shall light the different parts of the work in an approved manner.

3.2.4 Security Requirements

The Contractor shall comply with the general security requirements as stipulated in Section C, Part 2.0, of the Basic Contract. No employee or representative of the Contractor will be admitted to the work site without satisfactory proof of United States citizenship unless specifically authorized to the work site by the NTR.

3.2.5 Restrictions On Equipment

3.2.5.1 Radio Transmitter Restrictions

The Contractor shall conform to the restrictions and procedures for the use of radio transmitting equipment, as directed by the NTR. Do not use transmitters without prior approval.

3.3 ACTIONS REQUIRED OF THE CONTRACTOR

The Contractor shall comply with all requirements stated in Section C, Part 2.0, of the Basic Contract.

3.3.1 Base Permits

The Contractor shall obtain all necessary base permits. Permits are required for, but not necessarily limited to, welding, digging and burning. Allow 7 calendar days for processing of the application. One copy of all applicable permits shall be posted at the job site.

3.4 PUBLIC RELEASE OF INFORMATION

The Contractor shall comply with all requirements stated in Section C, Part 2.0, of the Basic Contract.

3.5 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined in Section C, Part 4.0, of the Basic Contract, with additional requirements as follows:

a. Provide 24 hour advance written notice to the NTR of Contractor's intention to dispose of contaminated material off-Base.

b. Disposal at facilities not holding a valid State of North Carolina permit is specifically prohibited. The prohibition also applies to sites where a permit may have been applied for but not yet obtained.

c. Off-base disposal of construction debris outside the parameters of this paragraph at sites without state permits and/or not in accordance with all regulatory requirements shall require the Contractor at his own expense to remove, transport, and relocate the debris to a state approved site. The Contractor shall also be required to pay any fines, penalties, or fees related to the illegal disposal of construction debris.

3.6 PUBLIC SAFETY MEASURES

3.6.1 Safety Fencing

Safety fencing shall be installed around the work area as indicated.

3.6.2 Safety Drums

Safety drums shall be installed as necessary in front of any work areas or excavations near occupied areas or roads.

3.7 REQUIRED INSURANCE

Insurance requirements from Section H of the Basic Contract are enforced in their entirety.

3.8 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

Whenever a contract or modification of contract price is negotiated, the Contractor's cost proposal for equipment ownership and operating expenses shall be determined in accordance with the following requirements. A copy of COE EP 1110-1-8 is available for review at:

OICC/ROICC
NAVFACENGCOM Contracts
1005 Michael Road
Camp Lejeune, North Carolina 28547-2521

a. Allowable cost for construction, marine plant, and equipment in workable condition, owned or controlled, and furnished by a Contractor or subcontractor at any tier shall be based on actual cost data when the Government can determine both ownership and operating costs for equipment or equipment groups of similar serial numbers and series from the Contractor's accounting records. When both ownership and operating costs cannot be determined from the Contractor's accounting records, equipment costs shall be based on the applicable provisions of COE EP 1110-1-8, Region II (the schedule). Working conditions shall be considered to be average for determining equipment rates using the schedule unless otherwise specified by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retrospective pricing, the schedule in effect at the time the work was performed shall apply.

b. Equipment rental costs are allowable, subject to FAR 31.105(d)(2)(ii) and FAR 31.205-36, when substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease purchase, or sale-lease back arrangements will be determined using the schedule. However rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees shall not be allowed. Costs for major repairs and overhaul are not allowed.

c. When actual equipment costs are proposed and the total amount of the pricing action is over $25,000, submit cost or pricing data on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the Contractor grants to the Contracting Officer or an authorized representative the right to examine those books, records, documents, and other supporting data that will permit evaluation of the proposed equipment costs. After price agreement the Contractor shall certify that the equipment costs or pricing data submitted are accurate, complete, and current.

3.9 FIRE PROTECTION

3.9.1 Compliance

COE EM-385-1-1, NFPA 241, and activity fire regulations. Obtain approval from the activity Fire Chief prior to commencement of hot work operations.

3.9.2 Notification of Fire

Post the activity fire poster in conspicuous locations and at telephones in construction shacks.

3.10 QUARANTINE FOR IMPORTED FIRE ANT

Onslow, Hones, and Cartaret Counties and portions of Duplin and Craven Counties have been declared a generally infested area by the United States

Department of Agriculture (USDA) for the imported fire ant. Compliance with the quarantine regulations established by this authority as set forth in USDA Quarantine No. 81 dated 9 October 1970, and USDA Publication 301.81-2A of 23 July 1976, is required for operations hereunder. Pertinent requirements of the quarantine for materials originating on the Camp Lejeune reservation, the Marine Corps Air Station, Cherry Point, which are to be transported outside Onlsow County or adjacent suppression areas, include the following:

a. Certification is required for the following articles and they shall not be moved from the reservation to any point outside Onslow County and adjacent designated areas unless accompanied by a valid inspection certificate issued by an Officer of the Plant Protection and Quarantine Program of the U.S. Department of Agriculture.

   (1) Bulk soil,

   (2) Used mechanized soil-moving equipment. (Used mechanized soil-moving equipment is exempt if cleaned of loose noncompacted soil).

   (3) Other products, articles, or means of conveyance, if it is determined by an inspector that they present a hazard of transporting spread of the imported fire any and the person in possession thereof has been so notified.

b. Authorization for movement of equipment outside the imported fire ant regulated area shall be obtained from USDA, AAPHIS, PPQ, Box 83, Goldsboro, North Carolina, 27530, Attn: Mr. Haywood Cox, telephone (919) 735-1941. Requests for inspection shall be made sufficiently in advance of the date of movement to permit arrangements for the services of authorized inspectors. The equipment shall be prepared and assembled so that it may be readily inspected. Soil on or attached to equipment, supplies, and materials shall be removed by washing with water or such other means as necessary to accomplish complete removal. Resulting soil shall be wasted as necessary and as directed.

-- End of Section --

SUBMITTAL REGISTER (PART A)

Contract Number: | Project Title: Interim Groundwater Remediation System for

	SD NO, AND TYPE OF SUBMITTAL					
SPEC SECTION NO.	MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1) 01010	SD-09, Reports	1.2.1				
2)	Work Plan	1.2.1.1	G			
3) 01010	SD-08, Statements	1.3.1				
4)	Class I ODS Prohibition	1.3.1.1	G			
5)	Material Safety Data Sheets	1.3.1.2	G			
6) 01010	SD-18, Records	1.3.2				
7)	Shop Drawings	1.2.1.1				
	Record Documents/Drawings	1.3.2.1	G			
9)	Environmental Conditions Report	1.3.2.2				
10)	QC Meeting Minutes	1.3.2.3				
11)	Test Results Summary Report	1.3.2.4				
12)	Contractor Production Report	1.3.2.5				
13)	QC Report	1.3.2.6				
14)	Rework Items List	1.3.2.7				
15)	Permits	1.3.2.8				
16)	Contractor's Closeout Report	1.3.2.9				
17) 01430	SD-12, Field Test Reports	1.2.2				
18)	Waste Characterization Sample	1.2.2.1				
19)	Analyses					
20) 02222	SD-08, Statements	1.4.1				

* Navy Notes:
Approved by:
G: NTR
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
FIO: For Information Only

Contract Number: | Project Title: Interim Groundwater Remediation System for

SPEC SECTION NO.	SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1)	Excavation and Material	1.4.1.1	G			
2)	Handling Plan					
3)	Site Health and Safety Plan	1.4.1.2	G			
4)	Field Sampling and Laboratory	1.4.1.3	G			
5)	Testing Plan					
6) 02223	SD-18, Records	1.2.2				
7)	Waste Shipping Documentation	1.2.2.1				
	Waste Delivery Documentation	1.2.2.2				
9)	Disposal Site Decontamination	1.2.2.3				
10)	Verification					
11)	Work Site Decontamination	1.2.2.4				
12)	Verification					
13) 02231	SD-14, Samples	1.1.1				
14) 02903	SD-02, Manufacturer's Catalog Data	1.2.1				
15)	Piping and Fittings	2.3				
16)	Valves	2.3				
17)	Air Sparging Equipment	2.7	G			
18) 02903	SD-04, Drawings	1.2.2				
19)	Air Sparging System and Piping	1.2.2.1	G			
20)	Air Sparging Equipment	2.7	G			

* Navy Notes:
Approved by:
G: NTR
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
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(a)	(b)	(c)	(d)	(e)	(f)	(g)
1)	Electrical Site Layout and	1.2.2.3	G			
2)	Details					
3) 02903	SD-05, Design Data	1.2.3				
4)	Engineering Design Calculations	1.2.3.1	G			
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* Navy Notes:
Approved by:
G: NTR
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
FIO: For Information Only

SECTION 01430

WASTE SAMPLING REQUIREMENTS

PART 1 GENERAL

Waste sampling requirements of this section apply to excavated soils and fluids (i.e., decontamination water and drilling fluids) generated during construction.

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

EPA/540/P-91/008	Compendium of ERT Waste Sampling Procedures, 1991
EPA SW-846	Test Methods for Evaluating Solid Wastes (Nov. 1986)

NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY (NEESA)

NEESA 20.2-047B	Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (June 1988)

1.2 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0, of the Basic Contract.

1.2.1 SD-08, Statements

1.2.1.1 Sample Log

Provide a detailed summary of all waste characterization samples collected. The Sample Log should include the type of sample collected, the location of the sample, the analyses performed, and the location of the analyses results.

1.2.2 SD-12, Field Test Reports

a. Waste Characterization Sample Analyses

1.2.2.1 Waste Characterization Sample Analyses Results

Provide the results of all waste charaterization sample analyses results in a concise and organized manner.

1.3 DEFINITIONS

1.3.1 Contractor Generated Wastes

Contractor generated wastes shall include all materials which become contaminated with wastes as defined in the Basic Contract as a result of Contractor activity at the site after the commencement of contract work.

1.3.2 Government Generated Wastes

Government generated wastes shall include all debris, incidental soils, drum, and container contents existing at the site prior to the commencement of contract work.

1.3.3 Waste Characterization Sampling

Waste characterization sampling shall include all sampling of the excavated soils to characterize the soils for disposal. The sampling of liquid waste shall also be included under this definition.

1.4 DESCRIPTION OF WORK

Collect and analyze environmental samples from each waste stream to determine applicable transportation and disposal requirements.

1.5 QUALITY ASSURANCE

1.5.1 Waste Sampling

Adhere to all sample acquisition, handling, custody documentation, decontamination, and quality assurance/quality control (QA/QC) requirements and procedures as required by federal, state and local regulations.

1.5.2 Analytical Laboratory

The Contractor shall be solely responsible for the execution and accuracy of the waste stream analyses. The Contractor shall use a NEESA-certified laboratory for all soil and waste analyses. All analytical standard methods shall meet, at a minimum, NEESA 20.2-047B QA/QC Level C requirements for confirmation sampling and Level C requirements for waste characterization sampling and shall also be in accordance with federal, local and state regulations.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL

Supply all personnel, equipment, and facilities to collect and analyze the environmental samples required to characterize the wastes.

3.1.1 Waste Characterization Samples

Waste characterization samples shall be collected for the purpose of determining handling, transportation, and disposal requirements and for determining personal and environmental protection and monitoring requirements.

Characterization samples shall be collected from the soils excavated from Site 35. One thoroughly mixed composite sample shall be collected for every 25 cubic yards or fraction thereof of material. The composite sample shall consist of six (6) grab samples representative of the material being sampled. The grab samples shall be thoroughly mixed to obtain a relatively homogeneous mixture.

At a minimum, the characterization samples shall be analyzed for the following parameters (additional analyses may be required by the disposal facility):

1. TCLP Metals - EPA Methods 7060, 7080, 7130, 7190, 7420, 7470, 7760, 7741

2. TCLP Volatiles - EPA Method 8240

3. TCLP Semi-Volatiles - EPA Method 8270

4. TPH - EPA Method 3550/8015

5. RCRA Characteristics - SW-846 9010, 1010, 9012, 9030

The soil shall contain no free liquid as demonstrated by EPA SW-846 Method 9095, paint filter liquids test.

In addition to the above analyses, the Contractor shall be responsible for performing any additional analyses required by the off-site soil disposal facility. These additional analyses shall be identified in the Contractor's Sampling and Analysis Plan.

3.1.2 Incidental Waste Samples

Collect samples from incidental wastes generated by the Contractor during normal construction activities (except general refuse) to determine applicable transportation and disposal requirements. Also included under this category is all water generated during the remedial action including, but not limited to, water from decontamination of personnel and equipment, groundwater encountered during excavation, and rainfall and surface water runoff accumulated in the open excavations. Analyze incidental waste samples for the following parameters and any additional analyses required by the off-site disposal facility:

* TCLP Metals - EPA Methods 7060, 7080, 7130, 7190, 7420, 7470, 7741, 7760
* TCLP VOAs - EPA Method 8240
* TCLP SVOAs - EPA Method 8270

3.1.3 Sample Handling

Sampling, sample handling, and sampling containers must be consistent with the chemicals expected, the matrix of the sample, and planned analytical procedures. Precleaned glass sample containers with teflon lids are required for soil samples.

The Contractor shall describe in the Sampling and Analysis Plan strict chain-of-custody procedures to be used during collection, transport, and analysis of all samples.

3.1.4 Sampling Documentation

Maintain a sample log containing, at a minimum, the following information:

a. Date and Time of Sampling

b. Sample Locations

c. Sample Matrix

d. Sample Identification Number

e. QA/QC Sample Identification

f. Analyses to be Performed

g. Type and Number of Sample Containers

h. Signatures of Individuals Performing Sampling

-- End of Section --

SECTION 02222

EXCAVATION, REMOVAL, AND TREATMENT OF CONTAMINATED SOIL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

ASTM D 4397	1991 Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

EPA SW-846	1986 Test Methods for Evaluating Solid Waste (Physical/Chemical Methods)
EPA 600/R-92/096	1992 Potential Reuse of Petroleum Contaminated Soil: A Directory of Permitted Recycling Facilities
EPA 600/4-79-020	1983 Methods for the Chemical Analysis of Water and Wastes
EPA 540/P-87/001a	1987 A Compendium of Superfund Field Operations Methods

1.2 DEFINITIONS

1.2.1 Excavated Soil Reused as Clean Fill

Soils containing less than 100 parts per million (ppm) of total organic halogens (TOX), less than 50 ppm of total petroleum hydrocarbons (TPH) and less than 10 ppm of the sum of benzene, toluene, ethyl benzene, and xylene (BTEX), can be used as fill material. Soil classified as clean fill shall be removed from the site or used as clean fill at locations identified by the NTR.

1.2.2 Contaminated Soil

Soils containing concentrations greater than 100 ppm TOX and/or 100 ppm TPH, shall be considered contaminated with hazardous materials and/or petroleum products.

1.3 DESCRIPTION OF WORK

Excavation is required for the installation of In-Situ Air Sparging System piping. The material excavated may be contaminated soil, as defined in this section. If contaminated soil is encountered, excavation and removal shall be in accordance with this section.

Excavate to the horizontal limits of the Air Sparging trench as necessary. Concrete pavement shall be swept clean.

1.4 SUBMITTALS

Submit the following in accordance with Section C, Part 7 of the Basic Contract.

1.4.1 SD-08, Statements

a. Excavation and Material Handling Plan G

b. Site Health and Safety Plan G

c. Field Sampling and Laboratory Testing Plan G

1.4.1.1 Excavation and Material Handling Plan

A material handling plan shall be furnished by the Contractor 15 days prior to initiation of the work that describes phases of dealing with the contaminated soil, including the following: a schedule to be employed in the excavation, a sequence of operations, the method of excavation, hauling, proposed equipment, and handling of the contaminated materials, soil testing requirements, and safety precautions and requirements. The plan shall define the Contractor's source for fill and method for importing the fill material.

1.4.1.2 Site Health and Safety Plan

Describe safety precautions for each phase of the project as specifically related to trenching. Identify safety equipment and procedures to be available and used during the project. Furnish the name and qualifications based on education, training, and work experience of the proposed Site Health and Safety Officer.

1.4.1.3 Field Sampling and Laboratory Testing Plan

Describe field sampling methods and quality control procedures. Identify laboratory and laboratory methods to be used for contamination testing. Sample reports shall show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and quality control procedures.

PART 2 PRODUCTS

2.1 PLASTIC SHEETING

ASTM D 4397

PART 3 EXECUTION

3.1 GENERAL

a. The methods and procedures for excavation and backfill shall be in accordance with Section 02903, "Air Sparging System".

b. The Contractor shall notify the NTR at least 48 hours prior to the start of excavation. The Contractor shall stage his/her operations to minimize the time the excavated soil is exposed to the weather. Provide protection measures around the area of excavation to divert runoff of water from within the excavation boundaries.

3.2 EXCAVATION REQUIREMENTS

Excavate soil for air sparging trenches as indicated or required.

3.2.1 Temporary Containment of Contaminated Soil

Soil removed from the excavation shall be placed in a temporary containment area. Provide a temporary containment area near the excavation area. Cover containment area with 6 mil reinforced polyethylene sheeting. Place excavated soil on the impervious barrier and cover with 6 mil reinforced polyethylene sheeting. Provide a straw bale berm around the outer limits of the containment area and cover with polyethylene sheets. Secure edges of sheets with weights to keep the polyethylene sheeting in place. All water runoff shall be diverted from the stockpiled material.

If approved by the NTR, soil removed from the excavation can be transported to the soil treatment area to be constructed at Camp Geiger.

3.2.2 Excavation Procedure

Methods and equipment used to remove soil shall result in minimal disturbance to remaining soil beyond the trench limits. Any materials that becomes contaminated as a result of the Contractor's operation shall be removed and disposed of at no additional cost to the Government.

Excavated slopes which are unstable or subject to slides shall be flattened or cut back as required to ensure slope stability, or supported in accordance with Section 02903, "Air Sparging System". Dewatering will not be permitted unless approval is obtained from the Contracting Officer. Any water (ground, rain, or surface) collected in the open excavation pit or temporary containment area shall be properly tested and disposed of. Collected water shall be tested in accordance with EPA SW-846 and EPA 600/4-79-20 and state and local required analyses. Water that contains contaminants above locally acceptable levels shall be disposed of in accordance with federal, state and local regulations. Contaminated water shall not be disposed of in the onsite sanitary or storm sewer systems. Non-contaminated water shall be disposed of onsite.

3.3 EXCAVATION MONITORING

Continuous monitoring of excavation work shall be accomplished with organic vapor analyzer/flame ionization device (OVA/FID) capable of detecting

volatile organic vapors to a minimum of 1 ppm. Continuous monitoring shall be accomplished during all excavation operations regardless of location on the site.

When soils with OVA/FID readings indicating a possible flammable vapor emission, the Contractor shall take the necessary precautions as dictated in the Site Health and Safety Plan.

3.3.1 Testing Laboratory

The Contractor shall submit to the Contracting Officer the names of all testing laboratories to be used to accomplish analysis of contaminated soil. A maximum turnaround time of 48 hours for sample analyses shall be required in accordance with the standard work week of the contract. Reports shall be provided to the Contracting Officer within 48 hours of sampling.

3.4 TESTING REQUIREMENTS FOR DISPOSAL OF CONTAMINATED SOILS

1. One composite sample shall taken from the proposed trench location and shall be analyzed for each required test. To develop a composite sample of the size necessary to run the required tests, the Contractor shall take several samples from different areas along the surface and in the center of the area to be excavated. These samples shall be combined and thoroughly mixed to develop the composite sample.

2. The soil shall contain no free liquid as demonstrated by EPA SW-846 Method 9095, paint filter liquids test.

3. The sum of benzene, toluene, ethyl benzene, and xylene (BTEX) concentrations shall be determined by using EPA SW-846 Method 5030/8020.

4. TPH (total petroleum hydrocarbons) concentrations shall be determined by using EPA 600/4-79-020 Method 418.1, which has been modified for use with soil.

5. Material shall be tested for TOX (total organic halogens) in accordance with EPA SW-846 Method 9020.

6. Material shall be analyzed for Full TCLP in accordance with EPA SW-846 Method 1311 and for ignitability, corrosivity, and reactivity.

7. Material shall be tested for PCB's (polychlorinated bipehenyls) in accordance with EPA SW-846 Method 8080.

8. Moisture content of the sample shall be determined in accordance with EPA Method 160.3.

3.5 CRITERIA FOR DISPOSAL APPROVAL

As identified by the Contracting Officer:

1. Soils failing the TCLP Test shall be managed in accordance with the North Carolina Hazardous Waste Management Regulations. Payment for disposal of materials failing the TCLP metals test shall be made in accordance with the "CHANGES" clause of the General Conditions.

2. Soils exhibiting a TOX > 100 ppm shall not be disposed of until separate approval from the North Carolina Department of Environmental Quality is granted. Payment for disposal of such materials shall be made in accordance with the "CHANGES" clause of the General Conditions.

3. If the concentration of total BTEX > 10 ppm or TPH > 50 ppm, the soil shall be disposed of using soil recycling.

4. If the concentration of TPH < 50 ppm and total BTEX < 10 ppm, the contaminated soil shall be used as on-site fill material.

3.6 SPILLS OF CONTAMINATED SOILS

The Contractor shall use appropriate vehicles and operating practices to prevent spillage or leakage of contaminated materials from occurring during operations. All vehicles leaving the contaminated soil removal site shall be inspected by the Contractor to ensure that no contaminated soil adheres to the wheels or undercarriage. An impervious barrier shall be placed under all areas that contaminated soil will rest on to prevent contamination from leaching into clean soil. Contaminated soil piles shall be covered at all times when not being worked on to minimize erosion.

3.7 TREATMENT FACILITIES

The proposed treatment method for soils meeting the constraints described in this section is soil recycling. The Contractor shall select a permitted facility for the treatment and disposal of the contaminated soil.

--End of Section--

SECTION 02223

TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent required. The publicaitons are referred to within the text by the basic designation only.

CODE OF FEDERAL REGULATIONS

40 CFR Part 261	Identification and Listing of Hazardous Waste
40 CFR Part 262	Standards Applicable to Generators of Hazardous Waste
40 CFR Parts 100 to 180	Transportation

UNITED STATED ENVIRONMENTAL PROTECTION AGENCY (USEPA)

SW-846	(1986) Test Methods for Evaluating Solid Waste (Physical/Chemical Methods).

1.2 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0 of the Basic Contract.

1.2.1 SD-08, Statements

1.2.1.1 Treatment or Disposal Facility Verification

Verification that the proposed treatment or disposal facility is permitted to accept the contaminated materials specified, prior to the start of excavation.

1.2.2 SD-18, Records

a. Waste Shipping Documentation

b. Waste Delivery Documentation

c. Disposal Site Decontamination Verification

d. Work Site Decontamination Verification

1.2.2.1 Waste Shipping Documentation

Copies of manifests and other documentation required for shipment of hazardous waste materials within 24 hours after removal of waste from the

site. Manifest documentation shall be in accordance with 40 CFR 261 and 40 CFR 262. All shipment manifests shall be signed by the NTR. Manifest documents are not required for soil which does not meet the characteristics of a hazardous waste as defined in 40 CFR 261.

1.2.2.2 Waste Delivery Documentation

Verification that the wastes were actually delivered to the approved treatment facility, within 7 days of shipment.

1.2.2.3 Disposal Site Decontamination Verification

Verification that all vehicles and containers were decontaminated prior to leaving the disposal site, within 7 days of disposal.

1.2.2.4 Work Site Decontamination Verification

Verification that all vehicles, equipment, and containers were decontaminated prior to leaving the work site shall be submitted within 24 hours of vehicles, equipment, or containers leaving the work site. Verification that all trucks transporting contaminated materials were properly operating, and were covered, shall be submitted within 24 hours after removal of waste from the site.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 Materials and Equipment

The Contractor shall furnish all labor, materials, and equipment necessary to transport and dispose of Government and Contractor generated wastes in accordance with applicable federal, state, and local requirements.

3.2 Records

The Contractor shall originate, use, and maintain the waste shipment records/manifests as required by the Virginia Department of Environmental Quality and the U.S. Department of Transportation, as necessary.

3.3 Temporary Storage of Contaminated Materials

The Contractor shall schedule and control the work such as to minimize the quantity and duration of on-site contaminated material storage. All contaminated materials stored on-site shall be stored in a temporary containment area, or in covered containers or vehicles designed to contain such materials without spillage. Any damage or contamination caused by contaminated materials storage shall be repaired or removed to the satisfaction of the NTR.

3.4 Transportation

The Contractor shall be solely responsible for complying with all federal, state, and local requirements for transporting hazardous materials through the applicable jurisdictions and shall bear all responsibility and cost for

any noncompliance. In addition to those requirements, the Contractor shall do the following:

a. Inspect and document all vehicles and containers for proper operation and covering.

b. Inspect all vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

c. Perform and document decontamination procedures prior to leaving the worksite and again before leaving the disposal site.

3.5 Incidental Waste

All incidental waste materials removed from the site shall be disposed of in a treatment/disposal facility permitted to accept such materials.

3.6 Sampling and Analysis Requirements for Disposal

The Contractor shall conduct sampling and analysis in accordance with Section 01430, "Waste Sampling Requirements".

3.7 Method of Measurement

The quantity of work done under this Section shall be measured in tons of soil removed from the site.

-- End of Section --

SECTION 02231

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

1.1.1 SD-14, Samples

a. Tree wound paint

b. Herbicide

Submit samples in cans with manufacturer's label.

1.2 DELIVERY, STORAGE, AND HANDLING

Deliver materials to, store at the site, and handle in a manner which will maintain the materials in their original manufactured or fabricated condition until ready for use.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Roads and Walks

Keep roads and walks free of dirt and debris at all times.

3.1.2 Trees, Shrubs, and Existing Facilities

Protection shall be in accordance with Section 01010, "General Paragraphs."

3.1.3 Utility Lines

Protect existing utility lines that are indicated to remain from damage. Notify the Contracting Officer immediately of damage to or an encounter with an unknown existing utility line. The Contractor shall be responsible for the repairs of damage to existing utility lines that are indicated or made known to the Contractor prior to start of clearing and grubbing operations. When utility lines which are to be removed are encountered within the area of operations, the Contractor shall notify the Contracting Officer in ample time to minimize interruption of the service. Refer to Section 01110, "Summary of Work," for additional utility protection.

3.2 CLEARING

Shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared. Cut off flush with or below the original ground surface trees, stumps, roots, brush, and other vegetation in areas to be cleared, except for trees and vegetation indicated or directed to be left standing. Apply herbicide in accordance with the manufacturer's label to the top surface of stumps designated not to be removed.

3.3 TREE REMOVAL

Where indicated, remove designated trees and stumps and grub roots.

3.4 GRUBBING

Remove and dispose of roots larger than 3 inches in diameter, matted roots, and designated stumps from the indicated grubbing areas. Fill depressions made by grubbing with suitable material and compact to make the new surface conform with the existing adjacent surface of the ground.

3.5 DISPOSAL OF CLEARED AND GRUBBED MATERIALS

3.5.1 Saleable Timber

Consider felled timber from which saw logs, pulpwood, posts, poles, ties, or fuelwood can be produced as saleable timber. Trim limbs and tops, and saw into saleable lengths, and stockpile adjacent to the site. The stockpile timber will remain the property of the Government.

3.5.2 Nonsaleable Materials

Remove from the project site and dispose of off station timber, scrub, vegetation, and debris considered as nonsaleable. Burning will not be permitted.

-- End of Section --

SECTION 02903

AIR SPARGING SYSTEM

PART 1 - GENERAL

The work described in this section includes the design and installation of the initial phase of an in-situ air sparging (IAS) system (Phase 1 IAS System), intended to evaluate the performance of the technology. The Phase 1 IAS system shall be constructed within the confines of work area depicted on the drawings and as specified herein. In addition, the work includes startup, initial testing, monitoring, and operation/maintenance of the system for a 180-day operations period.

The design and installation of the Phase 1 IAS System shall be carried out in accordance with the overall plans for the project, as described in the Contractor's work plans specified in Section 01010, "General Paragraphs", and as specified in this section. The type of IAS system selected for Phase 1, (i.e., horizontal well(s) or vertical wells), and the method of installation, (i.e. horizontal drilling, trenching), shall be selected by the Contractor, and approved by the NTR, based on information provided in the Basis of Design Report, other reference reports provided to the Contractor, and site-specific field data developed by the Contractor during pre-construction activities.

The Phase 1 IAS System shall be designed and installed in a manner which will allow for the system to be expanded, or modified, based on the results of testing and monitoring conducted during the initial operating period.

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced only. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) PUBLICATIONS

ASTM A 530	1992 Specialized Carbon and Alloy Steel Pipe
ASTM C 150	1989 Type I or II Portland Cement
ASTM D 1785	1989 Poly (Vinyl Chloride) (PVC) Plastic Pipe
ASTM D 2466	1988 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings
ASTM D 2564	1988 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 136	40 CFR 136 Guidelines Establishing Test

Procedures for the Analysis of Pollutants

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 National Electric Code

1.2 SUBMITTALS

Submit the following in accordance with Section C, Part 7, of the Basic Contract.

1.2.1 SD-02, Manufacturer's Catalog Data

a. Piping and Fittings
b. Valves
c. Air Sparging Equipment G

1.2.2 SD-04, Drawings

a. Air Sparging System and Piping G
b. Air Sparging Equipment G
c. Electrical Site Layout and Details G

1.2.2.1 Air Sparging System and Piping

Submit drawings by a registered professional engineer or approved by the manufacturer for the design and construction of the Phase 1 IAS System including sparging trench, all underground piping, and appurtenances. Drawings shall include material sizes and types, arrangements of sparging trench and underground piping, and the sequence and method of installation. The drawings shall provide sufficient information to allow for the construction of the Phase 1 AS System.

1.2.2.2 Air Sparging Equipment

Submit drawings by a registered professional engineer or approved by the manufacturer for the design and construction of the air sparging equipment sizes and types, arrangement of equipment components, and the sequence and method of installation.

1.2.2.3 Electrical Site Layout and Details

Submit drawings by a registered professional engineer for the design and construction of the site power distribution system, for equipment required.

1.2.3 SD-05, Design Data

a. Engineering Design Calculations G

1.2.3.1 Engineering Design Calculations

Submit calculations by a registered professional engineer for the design and installation of the Phase 1 IAS system including trenching, all underground piping, equipment, and appurtenances. Calculations shall

demonstrate that the selected equipment has been properly sized, and is capable of meeting the specified performance requirements. Calculations shall include data and references used, and shall be prepared in accordance with accepted engineering practices.

1.2.4 SD-12, Field Test Reports

a. Air Sparging System Performance Data G

1.2.4.1 Air Sparging System Performance Data

Submit a report that provides detailed data on the operation and performance of the Air Sparging System during the 180-day operational period. The report shall include monitoring data, analytical data, operation logs, problems noted, and an evaluation of system performance, including recommendations for modifications or expanding the system, as described in Part 3 of this section. The format of the report, and the methods to be used to sample and monitor the performance of the system, shall be provided in the Work Plans specified in Section 01010, "General Paragraphs".

1.2.5 SD-19, Operations and Maintenance Data

a. Air Sparging Equipment Data Package 4 G

1.3 DESCRIPTION OF SYSTEM

Provide a Phase 1 IAS system in accordance with these specifications to meet the performance requirements.

The work includes the construction of the Phase 1 IAS System and to reduce the levels of contamination in shallow groundwater as it migrates toward the site boundary in an area along the southern side of the proposed right-of-way for the U.S. Route 17 bypass. The work includes the installation of an IAS system in the area indicated. The overall length of the Phase 1 system shall be approximately 100 feet. The depth of the system shall be based on site geological considerations, specifically, the depth to the semi-confining layer in the area indicated, which is assumed to be 35 to 40 feet below ground surface based on previous investigations near the project area. The system shall function as an IAS "curtain" and is intended to remove contaminants as the plume travels through the curtain. Construction of a soil vapor extraction (SVE) system is not anticipated to be required. Existing contaminant conditions and preliminary system design information have been identified in the Basis of Design Report, which has been provided to the Contractor under a separate cover.

An on-site treatability study was performed to provide preliminary site-specific data which may be used to assist in the design of the IAS system. The results of this test are included in the "Draft IAS Treatability Study Report" (Baker, 1996), provided to the Contractor as a separate document. Additional site information is included in the Pre-Interim Remedial Action Field Investigation Letter Report in Appendix C of the Basis of Design Report.

1.4 GENERAL REQUIREMENTS

Provide in accordance with Sections 15011, "Mechanical General Requirements" and 16011, "Electrical General Requirements."

PART 2 - PRODUCTS

2.1 GENERAL

The work described in this section includes the design and installation of a complete in-situ air sparging (IAS) system to remediate groundwater as shown on the drawings and as specified herein. In addition, the work includes startup, initial testing, and operation/maintenance of the system for a 180-day operation period.

2.2 EQUIPMENT PADS AND ENCLOSURES

Provide a concrete equipment pad and weather-proof enclosure to house the IAS equipment in accordance with the construction drawings and these specifications. Provide a 10-foot high chain-link fence with 3-strand barbed wire around the perimeter of the concrete pad with one 10-foot wide vehicle gate.

2.3 AIR SPARGING PIPING, VALVES AND FITTINGS

Provide all piping, valves, and fittings that are rated to resist external and operating forces. All material shall be compatible for compressed air service and shall be resistant to corrosion by the contaminants and conditions at the site.

PVC piping and fittings shall conform to ASTM 1785 and ASTM 2466. Stainless steel piping and fittings shall conform to ASTM A530.

2.4 AIR SPARGING TRENCH SUPPORT SYSTEM

Provide a trench support system to allow for the installation of the air sparging piping and placement of the backfill material. The trench support system shall be designed and in accordance with accepted industry standards and practices, and shall be capable of maintaining a work zone to the anticipated depths of 40 feet (+/-).

2.4.1 Well Casings and Screens

Provide casing and screens with adequate strength to resist external and operating forces. Alternate well diameters and screen slot sizes can be proposed by the contractor, as necessary.

2.5 MANIFOLD PIPING SYSTEM

Provide manifold piping, fittings, and valves as required to construct a complete and operable system.

2.6 GROUNDWATER MONITORING WELLS

Provide a system of groundwater monitoring wells or piezometers to monitor the IAS system. The monitoring program shall include the collection of groundwater samples from seven to ten well clusters. A well cluster consists of a shallow well screened across the water table and an intermediate depth well seated in the confining unit. These two wells shall be located side by side. Shallow wells shall have a screened interval of 10 feet and intermediate wells shall have a screened interval of 5 feet.

The existing well clusters that should be considered for inclusion in the monitoring program are MW16, MW22, MW26, and MW31. Additional well clusters shall be installed hydraulically upgradient and downgradient of the IAS system along the length of the IAS trench. The number and location of these wells shall be determined by the Contractor and the NTR.

2.7 AIR SPARGING EQUIPMENT

Provide the following air sparging equipment, complete and ready for use, including all associated piping, valves, fittings, controls, and appurtenances. The air sparging system shall be designed for continuous and pulsed operation and shall be equipped with the necessary controls and instrumentation to allow for automatic operation with minimum operator input. The system shall include pressure and temperature indicators, and flow meters for flow rate determination. Pressure and flowrate measurement devices shall be provided at each well. In addition to the IAS wells, the system shall include manifold piping, groundwater monitoring wells, and an oil-free air compressor. All equipment shall be furnished by a supplier(s) that is established in the design and manufacture of such equipment. The equipment shall be installed in the equipment buildings as indicated. Platform or skid mounted equipment is acceptable, provided that the equipment skid(s) can be installed in a weather-proof enclosure.

2.7.1 Air Compressor

Provide an oil-free industrial service air compressor for the system, sized to meet the flow and pressure demands of the IAS system.

PART 3 EXECUTION

3.1 GENERAL

Using information provided in the Basis of Design, design and install an air sparging system at the site to monitor and evaluate the performance of the system within the areas of the site as indicated on the drawings and as specified.

3.2 SAMPLING AND ANALYSIS PLAN

Submit in accordance with Section 01010, "General Paragraphs", and this section. All sampling/analysis required to operate and monitor the IAS system shall be included.

3.3 AREA OF COVERAGE

The Phase 1 IAS system shall be located and sized to remediate the groundwater in the area indicated on the drawings. Contractor's design should include trench layout and all components of the entire system.

3.4 CLEANUP GOALS

The overall site groundwater cleanup goals, in parts per billion, for the contaminants of concern are as follows:

Trichloroethene (TCE)	2.8
cis-1,2-Dichloroethene (cis DCE)	70
trans-1,2-Diclorethene (trans DCE)	70
Ethylbenzene	29
Xylenes	530
Methyl Tertiary Butyl Ether (MTBE)	200
Benzene	1
Ethylbenzene	29
1,2-Dichloethene	70
Tetrachoroethane	0.7
1,1,2,2-Tetrachloroethane	0.41
Vinyl Chloride	0.015

3.5 PERFORMANCE REQUIREMENTS

The Contractor shall monitor the actual performance of the Phase 1 IAS system over the initial operation period in accordance with an approved Work Plan. This monitoring data shall be evaluated by the Contractor and the NTR, to determine the effectiveness of the Phase 1 IAS system.

3.6 INSTALLATION

Install the Phase 1 IAS system equipment, piping, power, controls, accessories and appurtenances in accordance with the manufacturer's recommendation. Provide all necessary interconnections, services, and adjustments as required for a complete and operable system. All electrical work shall be in accordance with NFPA 70 and as specified in Section 16011.

3.6.1 Piping

All air sparging piping shall be installed 18 inches underground from the IAS system to the equipment skids, with bedding material suitable for the piping size and material.

3.6.2 Soil Disposal

Material excavated for the installation of piping and the equipment building shall be sampled and disposed of in accordance with state and Federal regulations and Section 02222, "Excavation, Removal, and Treatment of Contaminated Material."

3.6.3 Nameplates

Provide laminated plastic nameplates identifying pertinent information for equipment, gauges, thermometers, and stop valves. Laminated plastic shall be 0.125-inch thick Melamine plastic, black with white center core. Surface shall be a matte finish. All corners shall be square. Accurately align lettering and engrave into the white core. Minimum size of nameplates shall be one inch by 2.5 inches. Lettering shall be minimum of 0.25-inch high normal block lettering. Equipment nameplates shall show the following information:

a. Manufacturer, type, and model number
b. Contract number and accepted date
c. Capacity or size

3.6.4 Electrical Service Installation

The Contractor shall provide electrical power to the air sparging system equipment from the closest available overhead power line. Installation of the new power service shall be in accordance with NFPA 70, and all local and Base requirements.

3.7 STARTUP AND INITIAL TESTING

3.7.1 General

The Contractor shall provide all startup and testing services, and make all required adjustments.

Contractor shall maintain an accurate log of all test procedures and results and submit a report of procedures and results to the NTR for approval.

3.8 OPERATIONS

The IAS system shall be operated and maintained by the Contractor for a period of 180 days. The 180-day operational period shall start only after all components of the system have been through the startup and initial testing and the NTR has accepted the system in its entirety. A registered engineer, or certified professional geologist shall monitor the IAS system's operation, and provide an initial and a final report containing hours of operation, water levels and dissolved oxygen measurements, and water quality laboratory analysis. After 180 days of operation by the Contractor, the Government shall assume responsibility for operation of the equipment. The Contractor shall provide training (minimum of 16 hours) for Government personnel in how to properly operate and maintain the system.

3.8.1 Water Quality Analysis and System Performance Data

Water quality analysis of IAS system groundwater monitoring wells shall be for volatile organic compounds and inorganics as required to evaluate system performance. Contractor shall submit a Sampling and Analysis Plan outlining all sampling and analytical methods, procedures and frequencies. The data shall also be used to evaluate if the air sparging system is causing the precipitation of iron and manganese oxyhydroxides.

Water quality samples and system performance data shall be collected using the following schedule:

a. Week 1 of operation: Collect one (1) round of groundwater samples and system performance data prior to startup, one (1) round at day 3, and one (1) round at day 6.
b. Weeks 2 through 8: Collect one (1) round of groundwater samples and system performance data each week.
c. Weeks 9 through 26: Collect one (1) round of groundwater samples and system performance data every 4 weeks.

System performance data of the IAS system shall include the following parameters:

a. Water level readings from monitoring wells and piezometers hydraulically upgradient and downgradient of the system.
b. Dissolved Oxygen (DO) concentrations at monitoring points hydraulically upgradient and downgradient of the system.
c. DO concentrations along the length of the air sparging system, to determine the distribution of air in the trench.
d. Pressure levels along the length of the air sparging system, to determine the distribution of air in the trench.
e. Analytical data from water quality analysis.
f. Soil vapor samples, to be analyzed for VOC's collected from one or more permanent monitoring points located in the vadoze zone of the IAS trench. Soil vapor monitoring point(s) shall be suitable for collecting soil vapor samples.
g. Ambient air samples, to be analyzed for VOC's, collected from points surrounding the IAS trench, and between the trench and the proposed highway right-of-way.

The system performance data shall be used to evaluate the effectiveness of the air sparge system in meeting the cleanup goals provided in this section.

3.9 FINAL TESTING

Upon completion and before final acceptance of the work, the IAS system shall be tested as in service to determine compliance with the contract requirements and warranty. Each new piping system and all pressure vessels shall be pneumatically tested at not less than 1.5 times maximum system operating pressure and shall show no leakage or reduction in gauge pressure after 4 hours. All equipment shall be tested in operation for a continuous period of not less than 180 days. During the tests, all equipment shall be tested under every condition of operation. All controls shall be tested to demonstrate performance of their required function. All piping shall be thoroughly flushed and cleaned before being placed in operation. The Contractor shall furnish instruments, connecting devices and personnel for the test. Each system shall be completely tested for compliance with specification and all conditions thereof, and all adjusting and balancing shall be completed to the satisfaction of the NTR. Adjustment of controls and balancing of systems shall extend for one year after the completed systems are put in operation.

-- End of Section --

SECTION 15011

MECHANICAL GENERAL REQUIREMENTS

03/95

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C2	(1993) National Electrical Safety Code

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 117	(1994) Operating Salt Spray (Fog) Testing Apparatus

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.147	Control of Hazardous Energy (Lock Out/Tag Out)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA MG 1	(1993) Motors and Generators
NEMA MG 10	(1983; R 1988) Energy Management Guide for Selection and Use of Polyphase Motors
NEMA MG 11	(1977; R 1992) Energy Management Guide of Selection and Use of Single-Phase Motors

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1993) National Electrical Code

1.2 RELATED REQUIREMENTS

This section applies to Division 2, "Site Work"; and Division 16, "Electrical" unless specified otherwise in the individual section.

1.3 QUALITY ASSURANCE

1.3.1 Material and Equipment Qualifications

Provide materials and equipment that are standard products of manufacturers regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. Standard products shall have been in satisfactory commercial or industrial use for 2-years prior to bid

opening. The 2-year use shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the 2-year period.

1.3.2 Alternative Qualifications

Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturer's factory or laboratory tests, can be shown.

1.3.3 Service Support

The equipment items shall be supported by service organizations. Submit a certified list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations shall be reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

1.3.4 Manufacturer's Nameplate

Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.3.5 Modification of References

In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "shall" had been substituted for "should" wherever it appears. Interpret references in these publications to the "authority having jurisdiction," or words of similar meaning, to mean the Contracting Officer.

1.4 DELIVERY, STORAGE, AND HANDLING

Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with the manufacturer's recommendations, and as approved by the Contracting Officer. Replace damaged or defective items.

1.5 SAFETY REQUIREMENTS

1.5.1 Equipment Safety

Provide positive means of locking out equipment so that equipment cannot be accidentally started during maintenance procedures.

1.5.2 Lockout of Energy Sources

Provide appropriate lockout devices for machines or other equipment to prevent unexpected start-up or release of stored electrical, mechanical or other energy in accordance with 29 CFR 1910.147. Electrical isolation

of machines or other equipment shall be in accordance with requirements of DIVISION 16 "Electrical."

1.6 ELECTRICAL REQUIREMENTS

Furnish motors, controllers, disconnects and contactors with their respective pieces of equipment. Furnish internal wiring for components of packaged equipment as an integral part of the equipment. Extended voltage range motors will not be permitted. Controllers and contactors shall have a maximum of 120 volt control circuits, and shall have auxiliary contacts for use with the controls furnished. When motors and equipment furnished are larger than sizes indicated, the cost of additional electrical service and related work shall be included under the section that specified that motor or equipment.

1.7 INSTRUCTION TO GOVERNMENT PERSONNEL

When specified in other sections, furnish the services of competent instructors to give full instruction to the designated Government personnel in the adjustment, operation, and maintenance (including pertinent safety requirements) of the specified equipment or system. Instructors shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over to the Government for regular operation. One 8-hour man-day of instruction shall be provided. When significant changes or modifications in the equipment or system are made under the terms of the contract, provide additional instruction to acquaint the operating personnel with the changes or modifications.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PAINTING OF NEW EQUIPMENT

Equipment painting, factory applied or shop applied, shall be as specified herein, and provided under each individual section.

3.1.1 Factory Painting Systems

Manufacturer's standard factory painting systems may be provided subject to certification that the factory painting system applied will withstand 125 hours in a salt-spray fog test conducted in accordance with ASTM B 117. Acceptance criteria for the test shall be as follows: immediately after completion of the test, the paint shall show no signs of blistering, wrinkling, or cracking, and no loss of adhesion; and the specimen shall show no signs of rust creepage beyond 0.125 inch on either side of the scratch mark. The film thickness of the factory painting system applied on the equipment shall not be less than the film thickness used on the test specimen. If manufacturer's standard factory painting system is being proposed for use on surfaces subject to temperatures above 120 degrees F, submit certifications that the manufacturer's standard factory painting

system conforms to the heat resistance requirement in addition to other certifications.

3.1.2 Shop Painting Systems for Metal Surfaces

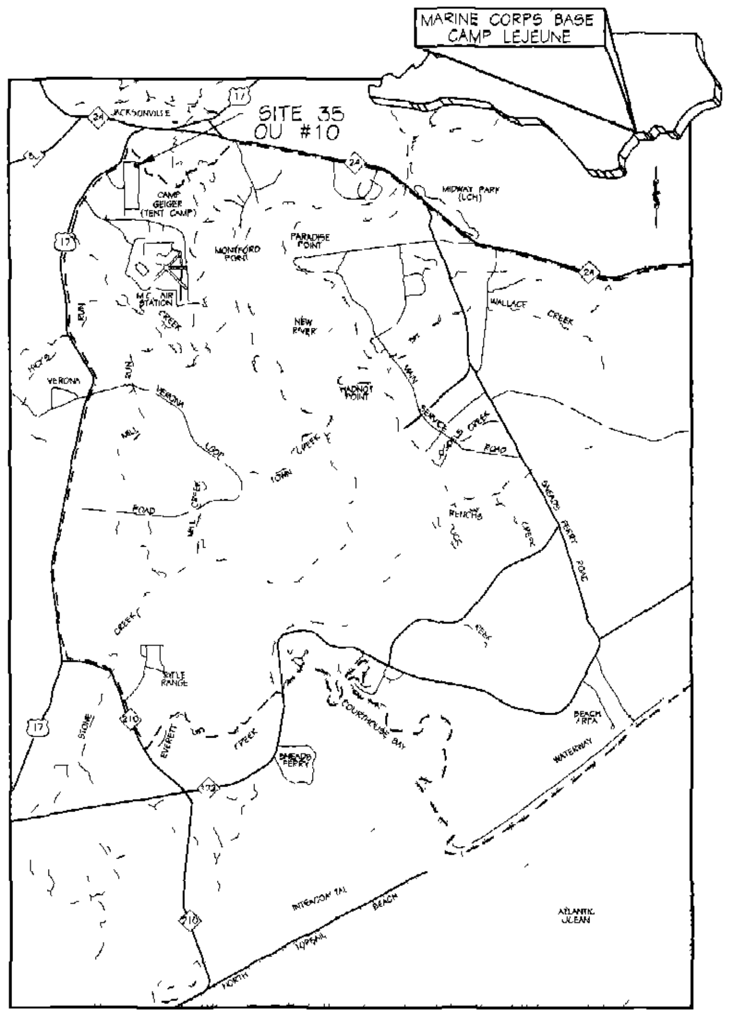
Clean, pretreat, prime and paint metal surfaces. Aluminum surfaces need not be painted. Apply coatings to clean dry surfaces. Clean surfaces to remove dust, dirt, rust, oil and grease by wire brushing and solvent degreasing prior to application of paint. Metal surfaces subject to temperatures in excess of 120 degrees F shall be cleaned to bare metal. Where more than one coat of paint is specified, apply the second coat after the preceding coat is thoroughly dry. Lightly sand damaged painting and retouch before applying each succeeding coat. Color of finish coat shall be aluminum or light gray.

a. Metal surfaces subject to temperatures less than 120 Degrees F: Immediately after cleaning, surfaces shall receive one coat of pretreatment primer applied to a minimum dry film thickness of 0.3 mil, one coat of primer applied to a minimum dry film thickness of one mil; and two coats of enamel applied to a minimum dry film thickness of one mil per coat.

-- End of Section --

PHASE 1 INTERIM REMEDIAL ACTION AT OPERABLE UNIT NO. 10, SITE 35

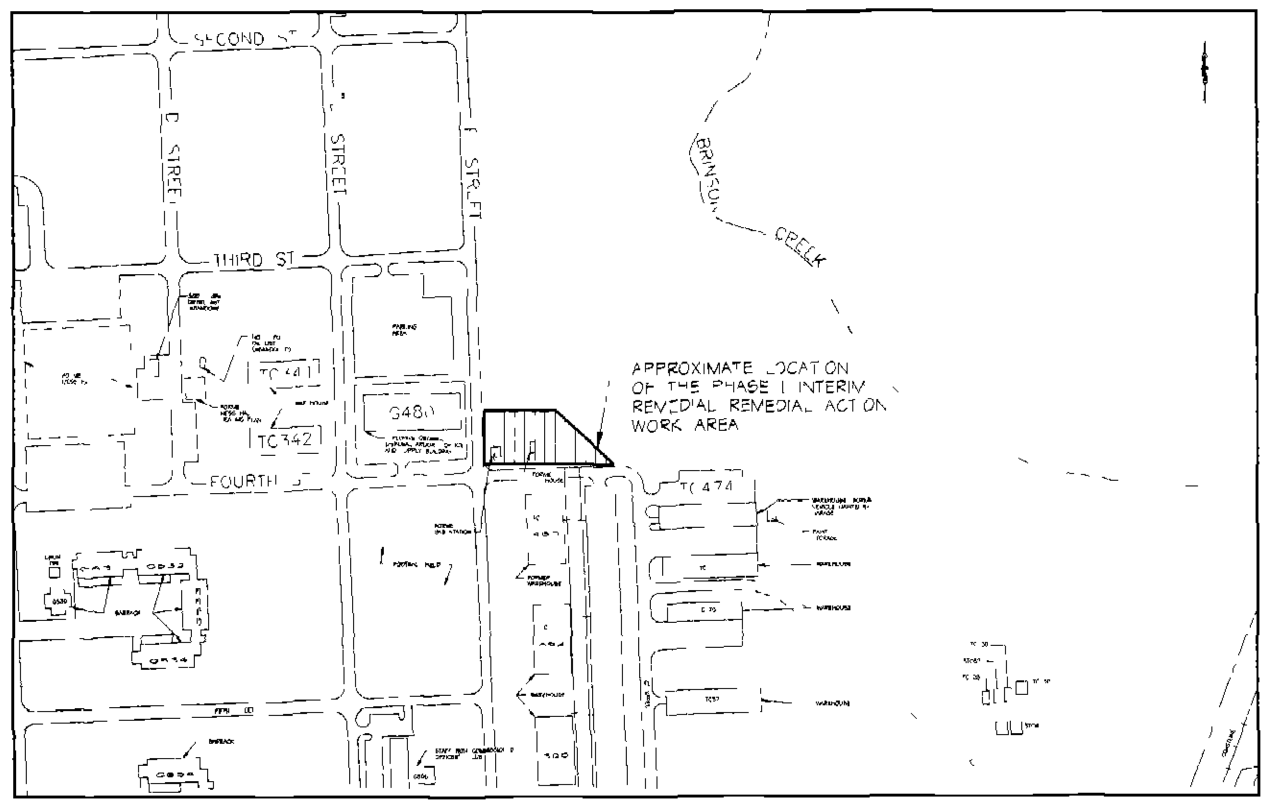
MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA



VICINITY MAP

2 0 1 2

1 INCH = 2 MILE



LOCATION MAP - SITE 35

100 200

NDEX OF SHEETS

EFD DWG NO	NAVFAC DWG NO	SHEET NO	TITLE
		T 1	COVER SHEET AND GENERAL NOTES
		1	EXISTING SITE PLAN
		2	[illegible]

ABBREVIATIONS

CMP	CORRUGATED METAL PIPE	NTS	NOT TO SCALE
CONC	CONCRETE	OHD	OVERHEAD
EL	ELEVATION	SE	SOUTHEAST
	FEET	SMH	SANITARY SEWER MANHOLE
FOUND	FOUNDATION	STA	STATION
"	INCHES	TBD	TO BE DETERMINED
MH	MANHOLE	TEMP	TEMPORARY
N	NORTH	U/G	UNDERGROUND
NCDOT	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	US	UNITED STATES
NTR	NAVY TECHNICAL REPRESENTATIVE		

GENERAL NOTES

1. MAPPING FOR SHEET C-1 WAS PREPARED BY LANIER SURVEYING COMPANY OF JACKSONVILLE NORTH CAROLINA AND IS DATED SEPTEMBER 8 1997. MAPPING FOR SHEET C-2 WAS PREPARED BY [illegible] ENGINEERING INC OF BALTIMORE MARYLAND AND IS DATED AUGUST 26 1994
2. ELEVATIONS SHOWN ARE IN FEET AND REFER TO NATIONAL GEODETIC VERTICAL DATUM NAD-83
3. ELEVATIONS SHOWN ARE REFERENCED TO BENCHMARKS 'STATE' EL 5.855 METERS (19.209 FEET NGVD) AND 'WASHETTE' EL 7.71 METERS (25.315 FEET NGVD) ONSLOW COUNTY NORTH CAROLINA. 'STATE' (N 364 176.8312 E 2 462 865.650) IS LOCATED APPROXIMATELY 1.7 MILES WSW OF JACKSONVILLE [illegible] MILES SOUTH ALONG U.S. ROUTE 17 FROM THE INTERSECTION OF U.S. ROUTE 17 AND U.S. ROUTE 258. 'WASHETTE' (N 363 087.9623 E 2 460 [illegible]) IS 1.5 MILES SOUTH ALONG U.S. ROUTE 17 FROM THE INTERSECTION OF U.S. ROUTE 17 AND U.S. ROUTE 258
4. GRID IS BASED ON NORTH CAROLINA STATE PLANE COORDINATE SYSTEM (SOUTH ZONE) AND APPLIES TO SHEETS C-1 AND C-2
5. REMOVE LAYDOWN AND SOIL STAGING AREA MATERIALS, SILT FENCING, SAFETY FENCING AND ANY OTHER TEMPORARY FACILITIES AFTER CONSTRUCTION AND DISPOSE OF IN ACCORDANCE WITH THE SPECIFICATIONS
6. CONTRACTOR TO MINIMIZE CLEARING AND GRUBBING ONLY AS NECESSARY TO COMPLETE THE WORK. DISPOSE OF STUMPS AND OTHER DEBRIS IN ACCORDANCE WITH THE SPECIFICATIONS
7. CONTRACTOR SHALL VERIFY EXACT DEPTHS AND LOCATIONS OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF FIELD ACTIVITIES. CONTRACTOR SHALL REPAIR ALL DAMAGED UTILITIES

QUALITY CONTROL REVIEW

SIGNATURE DATE

Baker

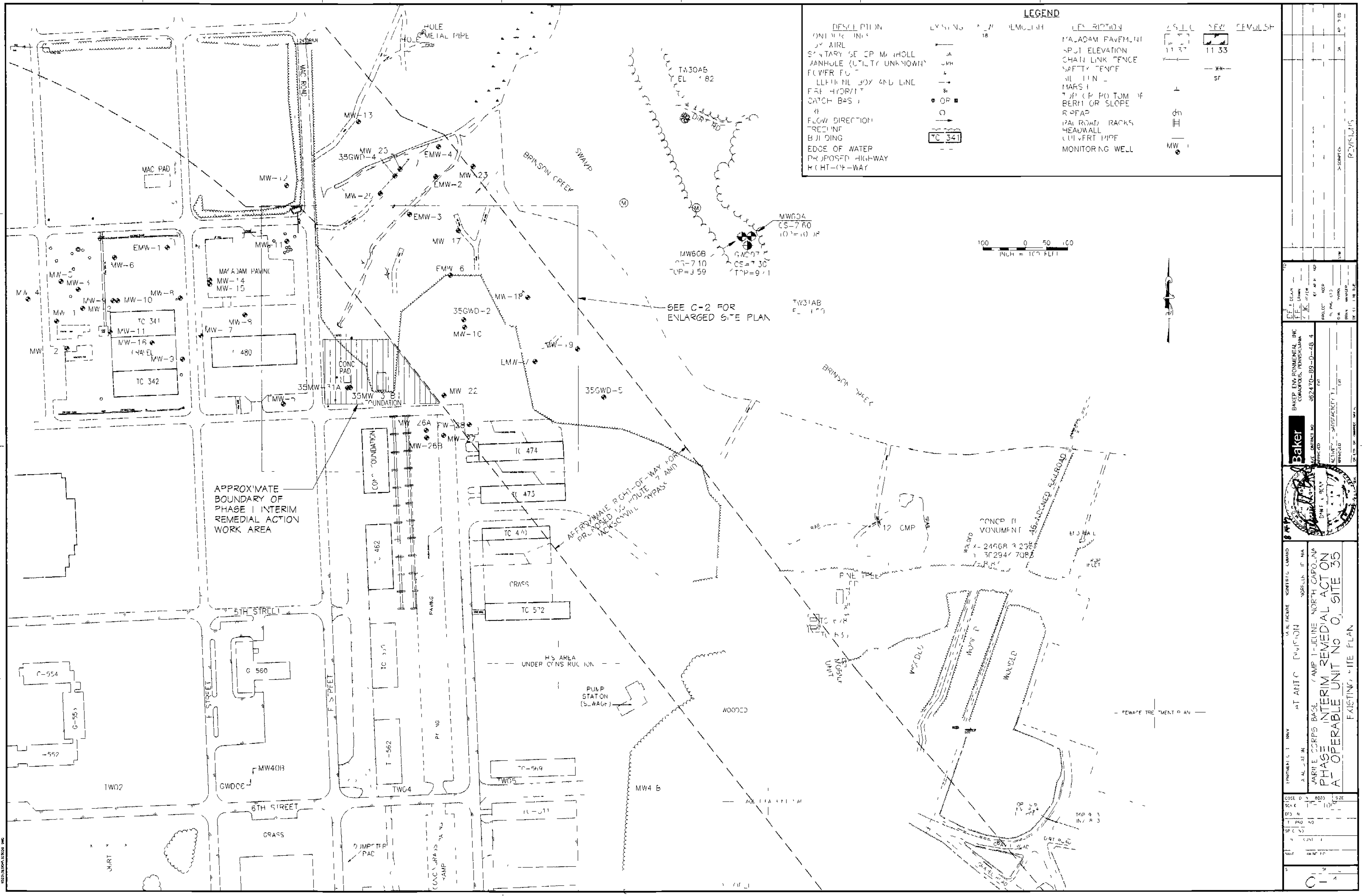
BAKER ENVIRONMENTAL INC CORAOPOLIS PENNSYLVANIA

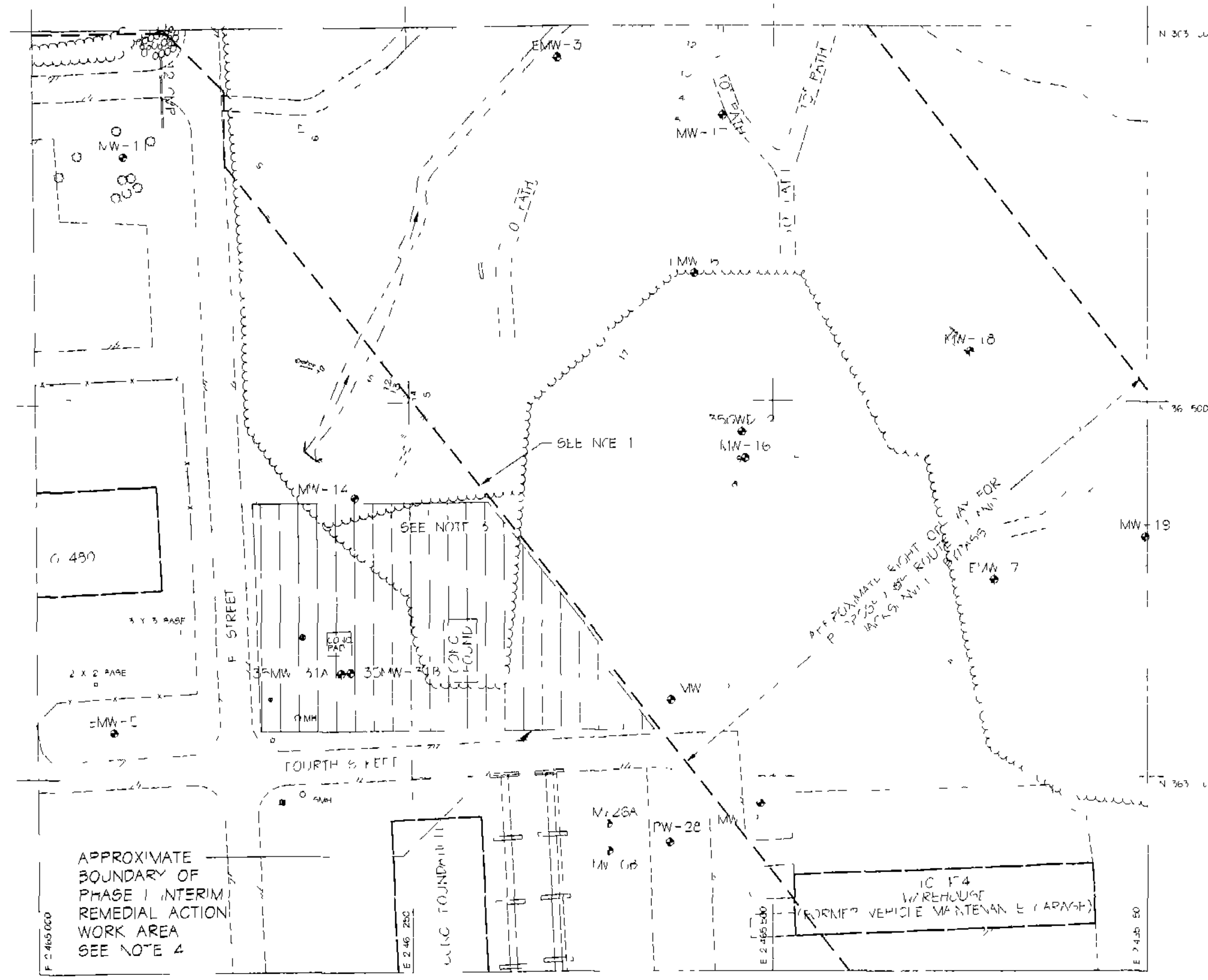
ATLANTIC DIVISION

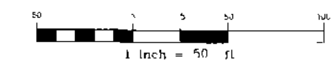
MARINE CORPS BASE CAMP LEJEUNE NORTH CAROLINA
PHASE 1 INTERIM REMEDIAL ACTION AT OPERABLE UNIT NO 10 SITE 35
COVER SHEET AND GENERAL NOTES

T-1

01755DDB1X


LEGEND
MONITORING WELL
SEE C-2 FOR ENLARGED SITE PLAN
APPROXIMATE BOUNDARY OF PHASE I INTERIM REMEDIAL ACTION WORK AREA
BRINSON CREEK
SWAMP
MACADAM PAVING
TC 341
TC 342
TC 474
TC 473
TC 572
5TH STREET
6TH STREET
F STREET
E STREET
G 560
WOODED
PUMP STATION (SEWAGE)
ABANDONED RAILROAD
CONCRETE MONUMENT
MW-13
MW-23
35GWD-4
EMW-4
EMW-2
EMW-3
MW-17
EMW-6
35GWD-2
MW-10
MW-18
MW-19
MW-22
35GWD-5
35GWD-1
MW40B
TW02
TW04
BAKER ENVIRONMENTAL, INC. CORAOPOLIS, PENNSYLVANIA
MARINE CORPS BASE CAMP LEJEUNE NORTH CAROLINA
PHASE I INTERIM REMEDIAL ACTION AT OPERABLE UNIT No. 10, SITE 35
EXISTING SITE PLAN
C-1





LEGEND

DESCRIPTION	EXISTING	NEW	DEMOLISH
CONTOUR LINES			
GUY WIRE	•		
SANITARY SEWER MANHOLE	OSMH		
MANHOLE (UTILITY UNKNOWN)	OMH		
POWER POLE			
TELEPHONE BOX AND LINE			
FIRE HYDRANT			
CATCH BASIN			
TREE	O		
FLOW DIRECTION			
TREE LINE			
BUILDING	TC 341		
EDGE OF WATER			
PROPOSED HIGHWAY RIGHT-OF-WAY			

DESCRIPTION	EXISTING	NEW	DEMOLISH
MACADAM PAVEMENT			
SPOT ELEVATION	11 33	33	
CHAIN LINK FENCE			
SAFETY FENCE			
SILT FENCE		SF	
MARSH			
TOP OR BOTTOM OF BERM OR SLOPE			
RIPRAP			
RAILROAD TRACKS			
HEADWALL			
CULVERT PIPE			
MONITORING WELL	MW 1		

WORK NOTES

1 THE CONTRACTOR SHALL VERIFY THE ... OF THE PROPOSED US ROUTE 17 HIGHWAY RIGHT OF WAY

THE LOCATION OF ... CONTRACTOR STAGING AREA SHALL BE APPROVED BY MCB CAMP LEJEUNE

3 CLEAR EXISTING TREES AS INDICATED

4 ... CONTRACT SPECIFICATIONS AS SUPPLEMENTED BY THE CONTRACTOR'S WORK PLANS ... PHASE I ... PARKING ... SHALL BE LOCATED NO ... THAN 25 FEET FROM THE HIGHWAY RIGHT-OF-WAY

REVISIONS

BAKER ENVIRONMENTAL INC CORAOPOLIS, PENNSYLVANIA

N62470-89-D-4814

ATLANTIC DIVISION

MARINE CORPS BASE CAMP LEJEUNE NORTH CAROLINA

PHASE I INTERIM REMEDIAL ACTION AT OPERABLE UNIT No 10, SITE 35

ENLARGED SITE PLAN

SCALE 1" = 50'

C-2