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Final

Non-Time Critical Removal Action
Operable Unit No. 19
Site 84 - Building 45 Area
MCB Camp Lejeune, North Carolina



Prepared For
Department of the Navy
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia

Contract No. N62470-95-D-6007
CTO-0219

January 2002

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QC Review Page

Non-Time Critical Removal Action
OU No. 19, Site No. 84, Building 45
MCB Camp Lejeune

Jacksonville, North Carolina

Contract Task Order Number - 0219
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Navy CLEAN II Program

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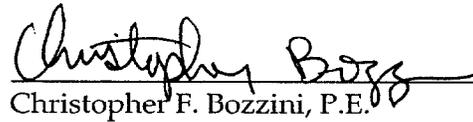

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TABLE OF CONTENTS

	<u>Page</u>
STATEMENT OF WORK	1
1.0 GENERAL INTENTION.....	1
1.1 General Description	2
2.0 BACKGROUND INFORMATION	4
2.1 Site Description and History	4
2.2 Results from Previous Investigations.....	5
2.3 Description of Contaminants Present.....	5
2.4 Justification for a non-TCRA	6
3.0 NON TIME CRITICAL REMOVAL ACTION WORK BREAKDOWN	8
3.1 Mobilization and Preparatory Work.....	8
3.2 Monitoring, Sampling, Testing, and Analysis	9
3.2.1 Soil Sampling	9
3.2.1.1 Field Screening	9
3.2.1.2 PCB "Hot Spot" Removal for soils exceeding 50 PPM	9
3.2.1.3 Non-TSCA regulated PCBs (Soils not exceeding 50 PPM).....	10
3.2.1.4 Non Impacted Soils Incidental to the Foundation Removal Action	10
3.2.1.5 Concrete and Steel Associated with the Building	11
3.2.2 Contractor-Generated Waste.....	11
3.2.3 Testing and Analysis.....	11
3.3 Site Work.....	12
3.4 Surface Water Collection and Control.....	12
3.5 Air Pollution Collection and Control.....	12
3.6 Solids Collection and Containment	12
3.7 Liquid, Sediment, and Sludge Collection and Containment	14
3.8 Disposal (Commercial).....	14
3.9 Demobilization	14

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

Table 1 Soil Clean-up Criteria

LIST OF FIGURES

Figure 1 Site Location Map
Figure 2 Surface Soil Removal
Figure 3 Subsurface Soil Removal
Figure 4 PCB Analytical Results of Detections Surface Soils
Figure 5 PCB Analytical Results of Detections Subsurface Soils
Figure 6 Organic Exceedences of Screening Criteria – Surface Soils
Figure 7 Organic Exceedences of Screening Criteria – Subsurface Soils
Figure 8 VPH and EPH Results in Surface and Subsurface Soils
Figure 9 Positive Detections of Pesticides in Surface Soil
Figure 10 Detection of Inorganics Above Screening Criteria in Surface Soils
Figure 11 Positive Detections of Pesticides in Subsurface Soil
Figure 12 Overall Flowchart of Required Actions
Figure 13 Site Setup and Removal Preparation
Figure 14 Management of TSCA Regulated Soils
Figure 15 Soil and Building Removal Actions

LIST OF ATTACHMENTS

Attachment A Historical Figures and JA Jones Treatment System Specifics
Attachment B Technical Specifications

STATEMENT OF WORK

1.0 GENERAL INTENTION

The general intention of this non-Time Critical Removal Action (non-TCRA) is to secure polychlorinated biphenyl (PCB) contamination as well as Polyaromatic Hydrocarbon (PAH) and pesticide-contaminated soil removal and remediation incidental to removal of the remaining Building 45 foundation (Operable Unit No. 19, Site 84), Marine Corps Base, Camp Lejeune (refer to Figure 1 for site location). A non-TCRA is being conducted at Site 84 because the PCB and/or PAH and pesticide-contaminated soil may present a threat to human health and the environment. In addition, removing the foundation of Building 45 is necessary for general site safety and aesthetics.

Because PCBs and other contaminants were detected in the soil at concentrations in excess of acceptable levels identified within the USEPA document entitled Guidance on Remedial Actions for Superfund Sites with PCB Contamination (USEPA, 1990), remediation levels were developed based on the lower-limit of the preliminary cleanup goal for residential use. Table 1 identifies the remediation levels and maximum detected concentrations for the contaminants of concern.

Soils to be excavated include material adjacent to the Building 45 foundation where samples indicated concentrations of PCBs, greater than remediation goals; the "assumed excavation area" as well as the temporary removal of non-impacted soils incidental to the foundation removal are indicated on Figures 2 and 3. Excavated (impacted) soil will be sampled for the purposes of determining if PCB concentrations are greater than or less than 50 mg/kg (i.e., determines soil disposal). Similar testing of the removed foundation concrete, steel waste piles, and non-impacted incidental soils also will be conducted to assure proper waste management. The excavation will be terminated when the groundwater table is reached (anticipated to be ~ 12'-15' bgs). Portions of an existing air sparging/soil vapor extraction (SVE) treatment system operated by JA Jones will require removal as part of the non-TCRA. The system is addressing petroleum contamination at the site and therefore must be re-installed as soon as site conditions permit. The Remedial Action Contractor (RAC) must coordinate operations related to the air sparging/SVE treatment system with the Environmental Management Division (EMD) at Marine Corps Base, Camp Lejeune and the Navy Technical Representative (NTR). Please refer to Section 1.1 for further details.

Following completion of confirmatory testing to document remaining conditions, the excavated area will be immediately backfilled with the clean soils and locally obtained fill, as needed in conjunction with site restoration needs. In the unlikely event impacted soils remain (in excess of the stated cleanup objectives) once the excavation has reached the prescribed outer limits of the work (as depicted on Figure 2) the excavation will be terminated and the area backfilled in a manner consistent to that described above.

1.1 General Description

The non-TCRA document includes a Description of Cleanup Goals, Reference Drawings, and this Statement of Work and Technical Specifications. All of these documents have been prepared by CH2M Hill and Baker Environmental, Inc. (Baker) for presentation to the Department of the Navy (DoN), Naval Facilities Engineering Command, Atlantic Division (LANTDIV) under Navy CLEAN Contract Number N62470 (Contract Task Order 0219).

The work required to complete the non-TCRA at Site 84 (Building 45 area) includes preparation by a Remedial Action Contractor (RAC) of a work plan and associated submittals, and providing all labor, supervision, tools, materials, equipment and transportation necessary to execute the removal and remediation of the PCB and/or PAH contaminated soils incidental to the removal of the remaining basement of Building 45. Components of this project include, but are not limited to, obtaining the necessary work permits; temporary relocation of an active in-situ remediation operated by JA Jones, Inc. (JA Jones) locating any underground utilities (active and inactive); clearing and grubbing; excavation of contaminated soil in the areas identified on the non-TCRA drawings; transportation of contaminated soil to an off-site disposal/treatment facility; confirmatory soil sampling in all disturbed areas; demolition of the remaining portion of Building 45, backfilling all excavated areas with clean soil; site restoration; and other related, miscellaneous work.

The area of the proposed non-TCRA of PCB-contaminated soil at Site 84 and in particular, the area occupied by Building 45 is identified on Figures 2 and 3. Four discrete areas have been highlighted on these figures to delineate impacted soils. The discrete areas denote the magnitude of contamination as well as the proper waste management procedure to be employed for handling and disposal. Delineation of these areas is necessary to determine the appropriate method for disposal of the contaminated soils. Impacted soils with cumulative PCB concentrations (the cumulative total of all detected Arochlors) in excess of 50 ppm is approximately 110 cubic yards, while the volume of soil

necessary for the foundation removal which requires screening and controlled management in accordance with the plan (as the soils may be impacted with PCBs) is 3400 cubic yards. Allowing for additional soil removal (to the limits of the pre-determined excavation boundary limits depicted on the drawings), this value may extend to 7180 cubic yards. Additional field and laboratory PCB sampling will be conducted during the non-TCRA to further delineate these boundaries once excavation commences and to assure proper management of all site soils.

As noted earlier, JA Jones operates an in-situ air sparging/SVE treatment system adjacent to the limits of this work, portions of which pass through the non-TCRA work site (refer to Attachment A, Figures A and B for treatment system specifics). An evaluation of this system is currently being conducted by EMD with recommendations forthcoming on the specifics of relocating the system while site operations are underway. Further, it is expected that EMD will include with their recommendations what portions of the system will require re-installation and which RAC is responsible for the work (i.e., Installation Restoration Program RAC or Underground Storage Tank Program RAC). It is expected the RAC completing the non-TCRA will integrate these actions into their efforts.

Please note that LANTDIV intends to use a RAC to implement the non-TCRA. In this document, the terms "RAC" and "Contractor" are used interchangeably. The technical specifications which support this non-TCRA are provided in Attachment B.

2.0 BACKGROUND INFORMATION

The focus of this non-TCRA is to remove the remaining foundations associated with the inter-related buried structures (i.e. cooling tower foundations, inactive buried utilities associated with the former operation and the building foundation) which lie above the groundwater table as well as contaminated soils in the immediate vicinity of the building. This section presents background information relevant to the non-TCRA including: 1) a description of Site 84 and its history; 2) results from the previous investigations; 3) remediation levels and the area of concern; and 4) the scope of this non-TCRA.

2.1 Site Description and History

Site 84 is located within the northeast portion of the facility, and is accessed by way of the public highway Route 24 (LeJeune Blvd). Site 84 includes Building 45, which has already been partially demolished and is the focus of this effort. The building has been razed to ground level and the first floor, basement and foundations remain. A review of available historical site drawings depict a number of buried utilities interconnected to contiguous cooling towers and utility vaults: these in-ground structures also are believed to remain and are to be included within this effort. The historical drawings are included as Attachment A. Please note that all inactive buried structures above the groundwater are to be removed, but in the core of buried utility lines portions outside of the necessary contaminated soil removal action will remain inactive.

Building 45 was formerly used as a power substation from 1930's until approximately 1942 when MCB Camp Lejeune purchased the facility. Camp Lejeune converted this building to a maintenance facility for large machinery (possibly in 1965) and was used for this purpose until the early 1990s. The above ground portions of the building were demolished in 1999 and the area secured against trespass with a 6-foot high chain link fence. Soil sampling conducted by Baker in support of an RI/FS being conducted to determine appropriate actions for the entire 84 area indicates that surface soils around the building foundation (inside the fence) are contaminated with PCBs, PAHs, and pesticides. Concrete chip samples collected in 1999 from portions of exposed basement walls and the floor indicate that there is no significant PCB contamination within the concrete.

Soils to be excavated include soil adjacent to the Building 45 foundation where samples indicated concentrations of PCBs, PAHs and pesticides, greater than remediation goals; the "assumed excavation areas" as well as the temporary removal of non-impacted soils incidental to the foundation

removal are indicated on Figures 2 and 3. Excavated (impacted) soil will be sampled for the purposes of determining if PCB concentrations are greater than or less than 50 mg/kg (determines what landfills or recycling facilities may accept waste). Similar testing of the removed foundation concrete, steel waste piles, and non-impacted incidental soils also will be conducted to assure proper waste management. The excavation will be terminated when the groundwater table is reached. Following completion of confirmatory testing to document remaining conditions, the excavated area will be immediately backfilled with the non-impacted soils and locally-obtained fill, as needed, in conjunction with site restoration needs. In the unlikely event impacted soils remain (in excess of the stated cleanup objectives) once the excavation has reached the prescribed outer limits of the work (as depicted on Figure 2) the excavation will be terminated and the area backfilled in a manner consistent to that described above.

2.2 Results from Previous Investigations

Baker has recently completed the field investigation and is in the process of completing the Draft RI/FS document for Site 84. Attached for reference are seven drawings that depict relevant surficial and subsurface soil sampling results for the Building 45 area. Figures 4 through 11 depict sample results. These drawings form the basis for this non-TCRA effort and in particular, define the limits of excavation of the various impacted "hot-spots" that require specialized management. A further description of the contaminants present, and their subsequent management is presented in the following section.

2.3 Description of Contaminants Present

At Site 84, the analytical results to date have identified PCB contamination in excess of the determined CERCLA remedial goal of 1 mg/kg. In addition, a number of PAH and/or pesticide compounds also exceed acceptable criteria. Table 1 presents a summary of the intended cleanup goals for those individual parameters, which have been shown, through analytical testing to currently exceed this criteria. The Region IX Residential PRGs have been chosen as the clean up criteria as existing groundwater data near Building 45 do not indicate exceedances of North Carolina Water Quality Standards. The results of the chemical analyses performed to date, for both the surface and subsurface soil samples, are included for reference within this document.

The source of this contamination has not been determined; however, the location and extent of the contamination, as well as the past common use of oil (which may have contained PCBs) to suppress dust creation may explain the presence of these contaminants. A similar conclusion regarding the practice of applying oil to site roads was reached at Operable Unit No. 6 (Site 36) through an investigative process conducted by Water and Air Research, Inc. (WAR) in 1983. A review of that Site's contamination footprint and characteristic appeared to be very similar to that exhibited by recent testing at this site. In particular; 1) the areal extent of surficial soil contamination; 2) the lack of impacted walls and floors within the remaining basement of Building 45; and 3) the presence of multiple Arochlor compounds all support this conclusion.

Given the lack of an identifiable PCB source and antidotal evidence that used oils were historically applied to site roads, no definitive statement or conclusion can be reached at this time regarding the initial source contributing to this contamination, the date that the site was impacted, or initial PCB concentration. The Toxic Substance Control Act (TSCA), regulates the management and disposal of PCBs in those instances where the initial source was known to contain PCBs in excess of 50 ppm and the PCB was actively managed after May 4, 1987. In situations where historical releases can not be linked to a definitive source, practice has been to use the existing analytical source as the initial source, and only manage those site soils still in excess of 50 ppm under the TSCA regulations. Conversations between the Base and State of North Carolina regulators concur with this strategy. Accordingly, for purposes of managing the PCB contamination associated with Building 45 at Site 84, three small discrete areas of soil which exhibit PCB's in excess of 50 ppm will be managed in accordance with the TSCA regulations. Afterwards, the remaining site soils, which exhibit PCB concentrations less than the regulatory threshold (less than 50 ppm) may be disposed at the base landfill as long as representative samples exhibit: 1) PCBs less than 50 ppm; 2) no free liquids; 3) no other hazardous waste characteristics and meet base landfill physical sizing/property guidelines.

2.4 Justification for a non-TCRA

PCB-contaminated soil will be addressed by this non-TCRA for the following reasons:

- When the area of concern is removed, risk associated with soil exposure will be within CERCLA guidelines as determined by the USEPA with respect to PCB contamination and industrial use.

- Demolition of the remainder of Building 45 and associated site restoration actions will eliminate the hazards to the public posed by the partially razed building structure and an open basement.

3.0 NON TIME CRITICAL REMOVAL ACTION WORK BREAKDOWN

The following sections of this plan describe the removal action by hazardous, toxic, and radiological waste (HTRW) account numbers, as defined by the Remedial Action Contracts Delivery Order Requirements Package Guide, Parts 1 and 2, NEESA 20.2-062 dated June 1992.

Figures 12 through 15 are flowcharts depicting the sequence and actions necessary to complete the work, and are to compliment the following narrative text.

3.1 Mobilization and Preparatory Work

Mobilization involves the acquisition, delivery, and setup of equipment, material, and personnel at the work site, which are necessary to accomplish the scope of work outlined for the removal action.

In addition, during the mobilization period, the Contractor shall prepare all necessary pre-construction submittals as described in Section 01010, "General Paragraphs" of the technical specifications. These specifications allow the Contractor up to sixty (60) days to prepare and submit the necessary pre-construction submittals. These submittals include:

- Work Plan
- Environmental Protection Plan
- Site Health and Safety Plan
- Sampling and Analysis Plan

The Contractor shall provide temporary facilities, including an equipment decontamination/laydown area, a soil stockpile area, and temporary utilities, as necessary to complete the work.

In addition, the Contractor shall be required to coordinate and obtain any necessary construction permits (such as temporary excavation permits) and clearances prior to the start of construction. The Contractor shall also be responsible for coordinating all required inspections approvals and communication with the base.

3.2 Monitoring, Sampling, Testing, and Analysis

The Contractor will submit to LANTDIV for approval a Sampling and Analysis Plan (SAP) describing the proposed sampling, analytical, and quality control procedures for the chemical data collected during the performance of work (see Section 01010, “General Paragraphs” of the technical specifications). The SAP will ensure that all analytical data generated are scientifically accurate and legally defensible. The SAP will describe the quantity, frequency, and location of samples to be collected and analyses to be performed.

The type and quantity of testing shall be based on the requirements set forth in the technical specifications and the Contractor’s Health and Safety Plan (HASP). Additional monitoring, sampling, testing and analyses shall be carried out as required during the project with the approval of the Navy Technical Representative (NTR) or their agent.

3.2.1 Soil Sampling

Confirmatory soil samples shall be tested for a number of parameters, as listed within these specifications. A general description of the different types of required testing is presented below.

3.2.1.1 Field Screening

Throughout the course of the work, it will be advisable to conduct field screening with Ensys test kits. The purpose of the tests is to confirm previous site information as well as to gain real-time information on the effectiveness of the removal action. Field screening will be conducted on actual site conditions, and will be determined by the RAC. At this time, it is assumed a ratio of approximately one test per 100 cy will be conducted.

3.2.1.2 PCB “Hot Spot” Removal for soils exceeding 50 PPM

Three discrete areas are noted on Figures 1 and 2 where site soils exceed 50 ppm. Given the presence of PCBs in excess of 50 ppm, and their management under the TSCA regulations, these soils will be segregated from all other site soils. Laboratory confirmatory grid style sampling will be conducted at the conclusion of the excavation event to confirm the effectiveness of the removal action and include any structures and or utilities which transect the excavation. The actual footprint for the confirmatory sample grid will be determined in the field, and will be based upon visual observation and PCB field screening test results. Actual sampling grid layout, sample compositing, and location will be as defined by the TSCA guidance documents.

3.2.1.3 Non-TSCA regulated PCBs (Soils containing PCBs, but less than 50 ppm)

After the successful removal of TSCA regulated soils, the RAC will remove those soils designated on Figures 2 and 3 as exhibiting PCB contamination less than 50 ppm but greater than 1 ppm. Concurrent with the excavation, field screening with Ensys test kits for PCBs will be conducted to aid in the determination of the limits of the soil removal action. Consistent with the greater than 50 ppm soils, these soils will remain segregated and managed independently from other site soils (TSCA-managed soils and non-impacted soils removed incidental to the demolition action). The excavations will proceed until field screening indicates less than 1 ppm PCB. Once this limit has been reached, confirmatory laboratory samples will be collected and analyzed. Soils samples will be collected from the floor and sidewalls of each excavation area and analyzed for target compound list (TCL) PCBs, Pesticides, and PAHs. The analytical results will be compared to the predetermined remediation levels to confirm that all contaminated soil has been removed or the limit of excavation have been met. At a minimum, one confirmation sample shall be collected for every 25 feet, or fraction thereof, along each excavation sidewall, and floor (unless groundwater is encountered, in which case no floor samples will be collected). The RAC may composite floor and wall samples from a similar side (i.e. north, south, east or west side of the former building) into one composite sample for analysis. In the event the composite sample is determined to exceed the listed cleanup criteria, additional testing of the individual sample grids will be necessary to define subsequent removal actions.

3.2.1.4 Non Impacted Soils Incidental to the Foundation Removal Action

After the successful completion, by the RAC, of all site-impacted soils, the RAC will conduct, as necessary, additional soil cuts to facilitate removal of the building foundation. Concurrent with the excavation, field screening with Ensys test kits for PCBs will be conducted to assure proper management of the excavated materials. Soils exhibiting non-impacted results will be stockpiled for future use on-site as backfill material. Those soils, if any, which exhibit unacceptable soil conditions for PCBs will be co-mingled with the appropriate (similar) stockpiled waste. Field screening will be conducted, at minimum, at a rate of 1 sample for every 100 cubic yards removed. Prior to use as backfill, laboratory analysis will be conducted to document the soil conditions. Again, soil samples for analysis will be conducted at a ratio of no more than 1 sample for every 100 cubic yards of stockpiled material.

3.2.1.5 Concrete and Steel Associated with the Building

Previous testing has indicated that building materials are not impacted with significant levels of PCBs and may be managed as demolition debris. However, to assure proper management of the removed materials, field screening and subsequent laboratory testing will be conducted to document actual material conditions at the time of disposal. Actual screening ratios will be determined in the field by the RAC and will be based on field observations. Laboratory testing will be conducted on the rubble concrete at a minimum ratio of 1 sample for every 100 cubic yards, and for the stockpiled steel, a minimum of 1 sample for every 100 tons of steel.

3.2.2 Contractor-Generated Waste

Characterization samples shall be collected from all Contractor-generated waste (for example, decontamination fluids) generated during the removal action. These characterization samples determine appropriate transportation and disposal requirements and will be as determined by the permit requirements of the off-site disposal facility. However, at a minimum, the testing requirements will include PCBs and PAHs.

3.2.3 Testing and Analysis

The Contractor shall perform analytical testing of samples collected during removal action. The Contractor may consider the use of immunoassay field screening, along with 20% laboratory confirmation samples. The Contractor shall adhere to established EPA chain-of-custody procedures during the collection, transport, and analysis of all samples. Laboratory analyses of all samples shall conform with accepted Quality Assurance (QA) requirements. All confirmatory soil samples shall be analyzed with a maximum of 48 hours turnaround time to minimize the amount of time the excavations must remain open.

3.3 Site Work

Site work includes all clearing and grubbing, preparation of an equipment decontamination/laydown area, soil stockpile area preparation (if needed), utility clearance and isolation, as necessary, building and buried structure demolition and removal, construction of safety and/ or, silt fencing, and other miscellaneous civil-support activities.

3.4 Surface Water Collection and Control

The Contractor shall be required to provide devices and facilities as necessary to prevent surface water from contacting contaminated materials (e.g., contaminated equipment) throughout the course of all construction activities. The Contractor shall be required to keep all excavated areas dewatered during construction and to collect, sample, analyze, and dispose of any water accumulated in the excavation and staging areas. The liquid that accumulates within the excavated areas, as well as the liquid collected following contact with contaminated materials and equipment shall not be allowed to flow outside of the limits of the construction. It should be noted that ponded water within the excavations would be managed if and when water collects within those excavations located above the groundwater table. Since this non-TCRA is focused on the removal of building foundations and impacted soils located above the groundwater table and does not include the removal of said objectives below the groundwater table, no effort, at this time, will be made to de-water groundwater collecting within the excavations. Accordingly, actions at, or below the groundwater table will be managed under the RI/FS being prepared for the entire Site 84 area.

3.5 Air Pollution Collection and Control

Dirt roads and other areas disturbed by the remediation operations will be treated with clean water in order to suppress dust generation. The use of water shall be minimized to prevent development of mud.

3.6 Solids Collection and Containment

The excavation of contaminated soil shall be performed with earth moving equipment, such as excavators and front-end loaders.

The extent of excavation coincides with the area of concern defined in Section 2.4. The extent of excavation is also indicated on the design drawings. The estimated in-place volume of contaminated soil that will be excavated is approximately 3400 cubic yards. This volume is based upon an assumed depth of 15-feet and the assumed minimum excavation area necessary to facilitate the foundation removal (1.5:1 backslope). This volume is depicted on the drawings (refer to Figures 2 and 3) on the hatched portion contiguous to the building, the building measures approximately 150 feet by 85 feet and is approximately 12 feet deep. Also included on the drawings is a maximum limit of excavation boundary. This boundary is intended to allow for the limited removal of additional PCB-contaminated soils surrounding the building after the initial soil removal. This limits established 35 ft outside the limits of the building would add an additional 3780 cubic yards of soil (for a total of 7180 cubic yards of soil excavated, screened, and managed in accordance with this plan). Excavation beyond the designated initial area of concern shall be conducted at approximate 5 foot intervals or at the guidance of field screening kits, and only following the NTR's or their agent's approval.

The excavated materials will be transferred directly into dump trucks for transport to the treatment/disposal facility. However, due to the limited capacity of dump trucks and the quantity of soil that must be excavated, screened and tested, it may be necessary to temporarily store the excavated soil on site. If necessary, excavated soil will be placed in a temporary stockpile area located near the excavation area. The stockpile area will be lined with an impervious sheeting and surrounded by a straw bale berm. The stockpile itself, including the surrounding berm, will be covered with 6 mil reinforced polyethylene sheeting. The edges of the sheeting will be secured with weights to keep it in place.

Once the Contractor has excavated to the specified limits, an on-site analysis consisting of a visual inspection will be performed on the surrounding soil at each excavation area. If the visual inspection reveals evidence of PCB-contaminated soil, the Contractor will consult with the NTR, or their agent, to determine the overall extent of additional excavation. When the exposed excavation surfaces do not contain visual evidence of contaminated soil, confirmation samples will be collected and analyzed for TCL PCBs in the field (immunoassay field test kits) and as specified at a fixed-based laboratory.

If the analytical results of confirmation sampling exceed remediation levels, the NTR, or their agent, shall determine the next appropriate action. If the analytical results do not exceed remediation levels, the excavation of soil will be considered complete and site restoration will begin.

General construction debris shall be stockpiled for subsequent disposal at the Base sanitary landfill.

3.7 Liquid, Sediment, and Sludge Collection and Containment

The Contractor shall provide a decontamination pad to collect liquids from the decontamination of personnel and construction equipment. The Contractor shall also collect ponded water that may collect in the excavation areas as described above. The resulting fluids shall be collected for analysis and proper disposal or treatment.

3.8 Disposal (Commercial)

Contaminated soil shall be loaded into approved storage containers that are transportable and leak-proof. The loaded waste shall be manifested by a licensed hazardous waste hauler and transported to an approved, permitted treatment or disposal facility.

Contractor-generated waste (e.g., liquids generated through decontamination procedures) shall be containerized, manifested, and transported to an approved treatment or disposal facility.

The excavated areas shall be backfilled with clean material from the borrow area at Camp Lejeune, and regraded to the original contours. Then the excavated areas shall be vegetated as directed in the technical specifications.

3.9 Demobilization

All temporary facilities, equipment, and supplies acquired for this contract shall be decontaminated and removed from the site upon completion of the remedial action.

Post-construction submittals shall include: 1) a punch list showing correction of all listed items; identifies or deficiencies/deviation during the work 2) a letter from the Contractor certifying completion of all contracted work in accordance with the contract conditions, applicable regulations, and standards of practice; 3) a completed project current condition with an as-built survey for the entire site; 4) submittal, in one collated document, of all quality control daily reports, samples, results of the sample analyses, corrective actions taken to correct unacceptable deviations from required quality standards (if required) results of corrective actions; problems encountered and resolved, and lessons learned; 5) submittal in one collated document of all quality assurance samples, sample

analyses results, and corrective actions taken to correct unacceptable deviations from required quality standards (if required) and, 6) copies of all disposal-related correspondence, acceptance letters, and shipping documents.

The Contractor shall submit a detailed report summarizing the removal action, lessons learned, and recommendations for inclusion in future similar contracts.

TABLES

Table 1

Soil Clean-Up Criteria
Site 84 - Non-Time Critical Removal Action
Marine Corps Base Camp Lejeune

Analyte	Soil Clean-Up Criteria			
	SSL ⁽¹⁾ (µg/kg)	Region IX PRG ⁽²⁾		CERCLA
		Residential PRG (µg/kg)	Industrial PRG (µg/kg)	Residential Human Health (mg/kg)
PCBs (mg/kg)	--	--	--	1
Semivolatiles (PAHs) (µg/kg)				
Acenaphthene	8,160	3,700,000	38,000,000	
Anthracene	995,000	22,000,000	390,000,000	
Benzo(a)anthracene	360	620	2,900	
Benzo(a)pyrene	90	60	290	
Benzo(b)fluoranthene	1,160 ⁽⁴⁾	620	2,900	
Benzo(g,h,i)perylene	772,000	230,000⁽⁵⁾	--	
Benzo(k)fluoranthene	11,600 ⁽⁴⁾	6,200	29,000	
Chrysene	39,800	30,000	290,000	
Dibenzo(a,h)anthracene	170	60	40,000	
Fluoranthene	276,000	2,300,000	30,000,000	
Fluorene	44,300	2,600,000	33,000,000	
Indeno(1,2,3-cd)pyrene	3,260	620	2,900	
Naphthalene	590	56,000	190,000	
Phenanthrene	59,600	2,300,000⁽⁵⁾	--	
Pyrene	286,000	2,300,000	54,000,000	
Pesticides				
Heptachlor		110	550	
Heptachlor Epoxide		53	270	
alpha-chlordane	--	1,600⁽⁶⁾	11,000	
gamma-chlordane		1,600⁽⁶⁾	11,000	
TPH (µg/kg)	North Carolina UST Residential Goal ⁽³⁾			
TPH (as Diesel)				
TPH (as Gasoline)		10,000		

Notes:

(1) SSL = A Soil Screening Level is a soil concentration below which groundwater clean-up goals will not be exceeded if the contaminant leaches from soil.

(2) PRG = Preliminary Remediation Goal (based on risk); USEPA Region IX PRG Tables

(3) NC UST remedial goal is for Total TPH

(4) Calculated using the NC Hazardous Waste Section, SSL Guidance.

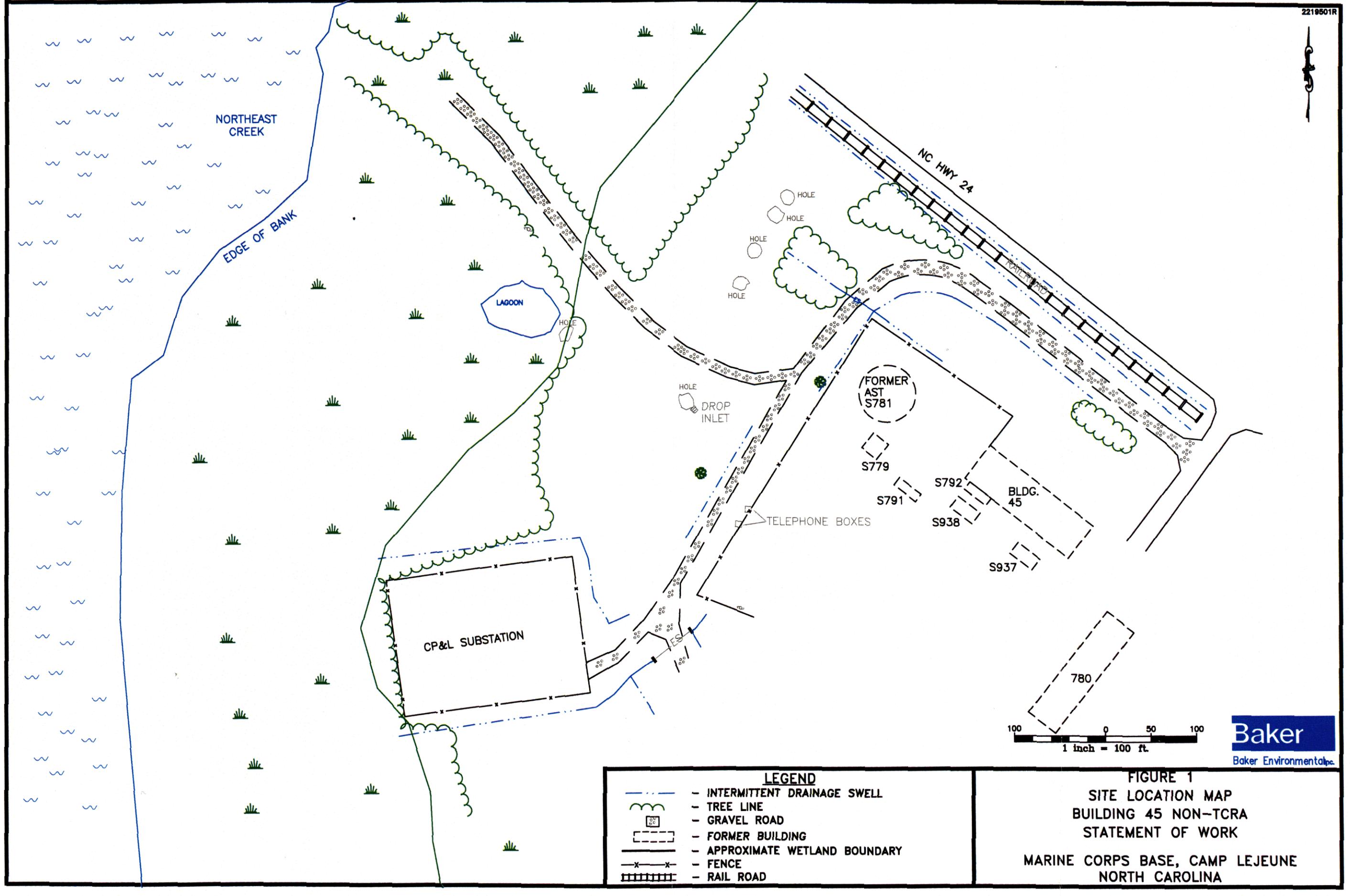
(5) Risk based estimate based on pyrene as a surrogate.

(6) Risk based estimate based on chlordane as a surrogate.

-- = Not Established

BOLD indicates the selected clean-up criteria

FIGURES



LEGEND

	- INTERMITTENT DRAINAGE SWELL
	- TREE LINE
	- GRAVEL ROAD
	- FORMER BUILDING
	- APPROXIMATE WETLAND BOUNDARY
	- FENCE
	- RAIL ROAD

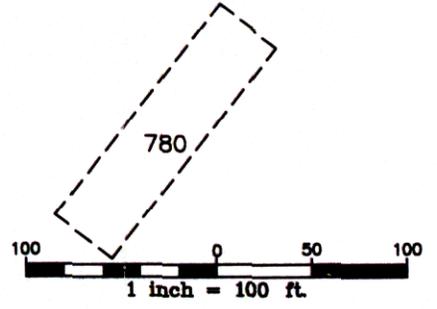
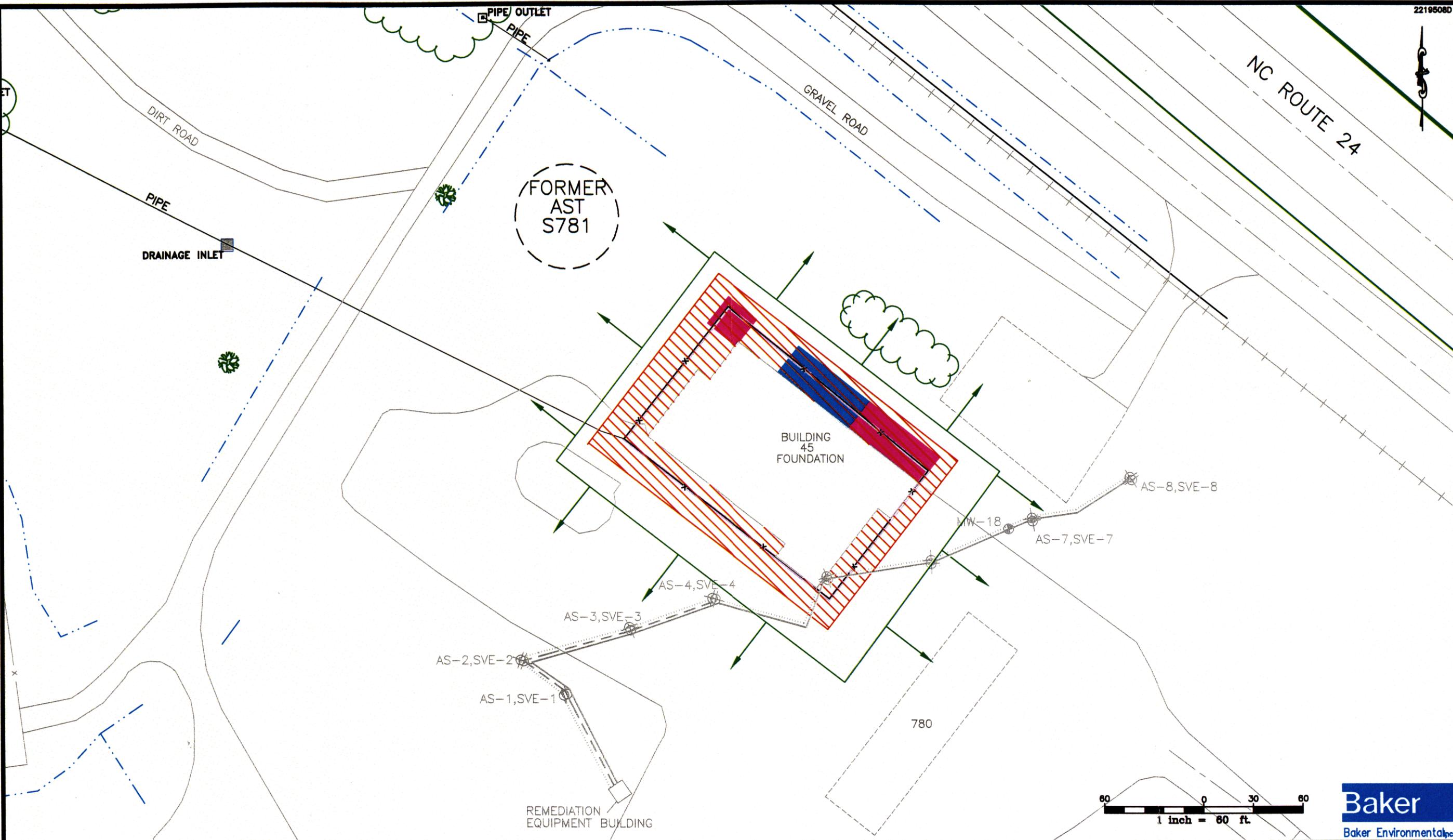


FIGURE 1
SITE LOCATION MAP
BUILDING 45 NON-TCRA
STATEMENT OF WORK
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



- APPROXIMATE LOCATION OF NON-TSCA REGULATED SOILS (1 < PCBs < 50 ppm)
- APPROXIMATE LOCATION OF TSCA REGULATED SOILS (> 50 ppm PCBs)

NOTE: PRIOR TO EXCAVATION ACTIVITIES REFER TO FIGURE A AND B (J. A. JONES FIGURES C-3 AND C-6) FOR DETAIL LOCATION OF SOIL VAPOR EXTRACTION LINE NO. 1 AND 2 AND AIR SPARGE COMPRESSED AIR LINE AND VERIFY LOCATION.

LEGEND

- MINIMUM EXCAVATION AREA REQUIRED FOR SAFE FOUNDATION REMOVAL TO BE ESTABLISHED BY RAC (COULD VARY BETWEEN 1:1 AND 2:1)
- FENCE TO BE REMOVED
- LIMITS OF EXCAVATION (NO EXCAVATION TO BE DONE BEYOND THIS LIMIT)
- JA JONES SVE SYSTEM (UNDERGROUND)

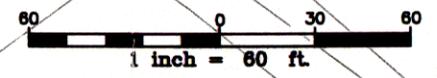
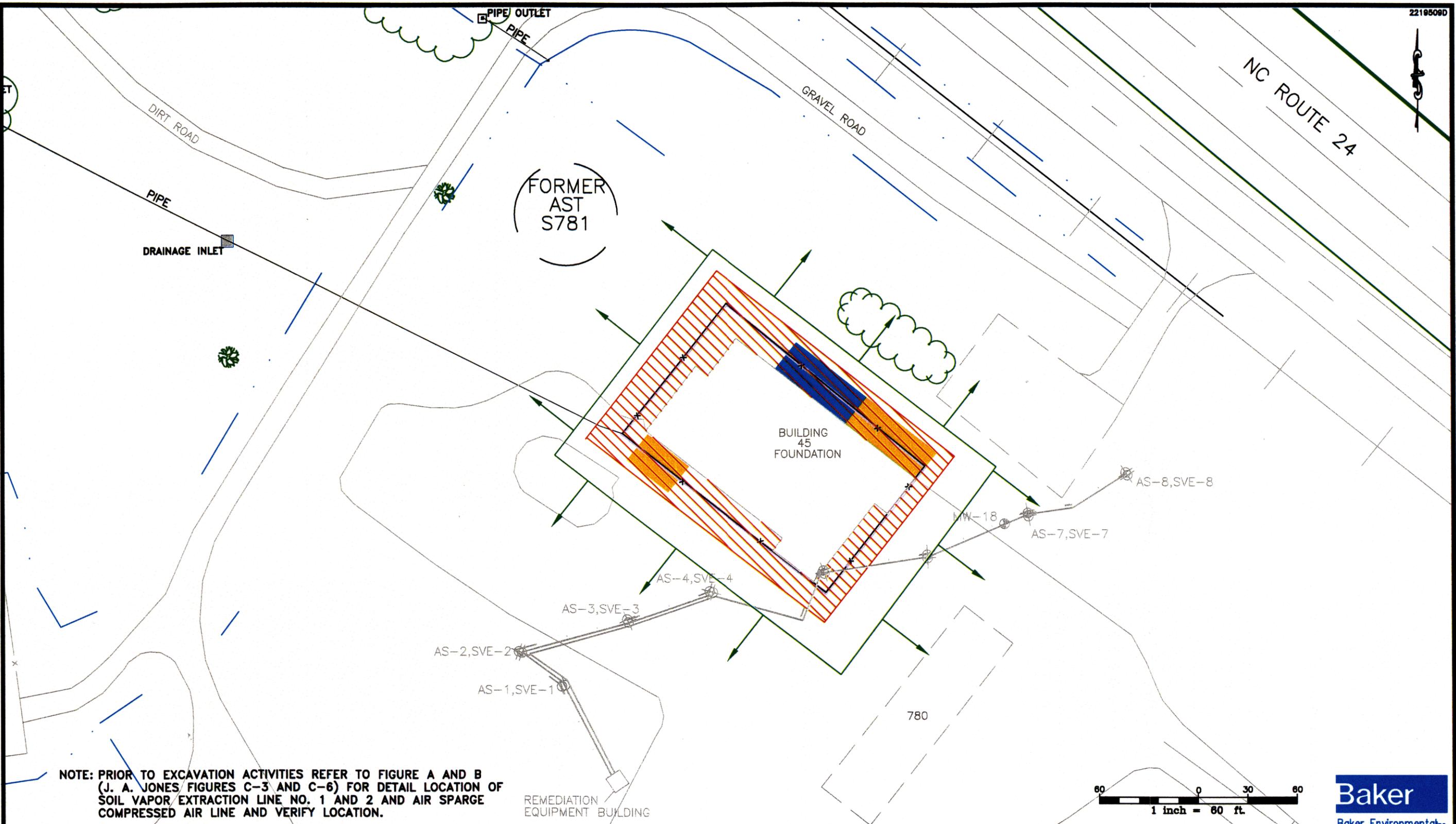


FIGURE 2
SURFACE SOIL REMOVAL
BUILDING 45 NON-TCRA
STATEMENT OF WORK
 MARINE CORPS BASE, CAMP LEJEUNE
 NORTH CAROLINA



NOTE: PRIOR TO EXCAVATION ACTIVITIES REFER TO FIGURE A AND B (J. A. JONES FIGURES C-3 AND C-6) FOR DETAIL LOCATION OF SOIL VAPOR EXTRACTION LINE NO. 1 AND 2 AND AIR SPARGE COMPRESSED AIR LINE AND VERIFY LOCATION.

- APPROXIMATE LOCATION OF NON-TSCA REGULATED SOILS (1 < PCBs < 50 ppm), 3 TO 5 FEET DEEP
- APPROXIMATE LOCATION OF NON-TSCA REGULATED SOILS (1 < PCBs < 50 ppm), 1 TO 3 FEET DEEP

LEGEND

- MINIMUM EXCAVATION AREA REQUIRED FOR SAFE FOUNDATION REMOVAL TO BE ESTABLISHED BY RAC (COULD VARY BETWEEN 1:1 AND 2:1)
- FENCE TO BE REMOVED
- LIMITS OF EXCAVATION (NO EXCAVATION TO BE DONE BEYOND THIS LIMIT)
- JA JONES SVE SYSTEM (UNDERGROUND)

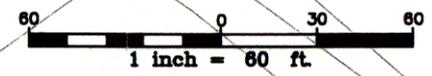
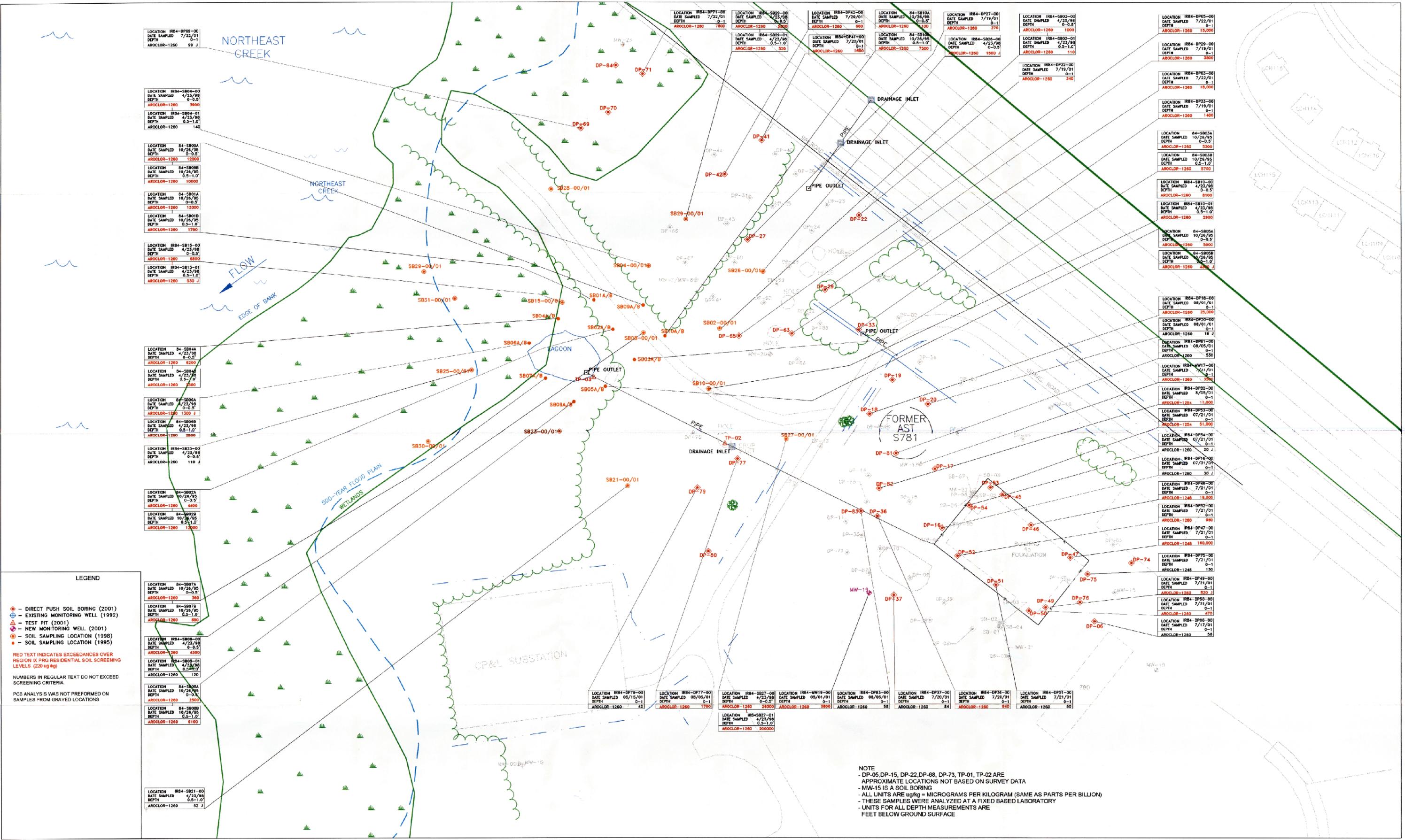


FIGURE 3
SUBSURFACE SOIL REMOVAL
BUILDING 45 NON-TCRA
STATEMENT OF WORK
 MARINE CORPS BASE, CAMP LEJEUNE
 NORTH CAROLINA



LEGEND

- ⊕ - DIRECT PUSH SOIL BORING (2001)
- ⊕ - EXISTING MONITORING WELL (1992)
- ⊕ - TEST PIT (2001)
- ⊕ - NEW MONITORING WELL (2001)
- ⊕ - SOIL SAMPLING LOCATION (1998)
- ⊕ - SOIL SAMPLING LOCATION (1995)

RED TEXT INDICATES EXCEEDANCES OVER REGION IX PRD RESIDENTIAL SOIL SCREENING LEVELS (220 ug/kg)

NUMBERS IN REGULAR TEXT DO NOT EXCEED SCREENING CRITERIA

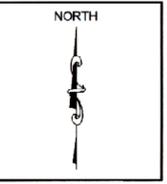
PCB ANALYSIS WAS NOT PERFORMED ON SAMPLES FROM GRAYED LOCATIONS

NOTE

- DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
- MW-15 IS A SOIL BORING
- ALL UNITS ARE ug/kg = MICROGRAMS PER KILOGRAM (SAME AS PARTS PER BILLION)
- THESE SAMPLES WERE ANALYZED AT A FIXED BASED LABORATORY
- UNITS FOR ALL DEPTH MEASUREMENTS ARE FEET BELOW GROUND SURFACE

REVISIONS

DRAWN
REVIEWED
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MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

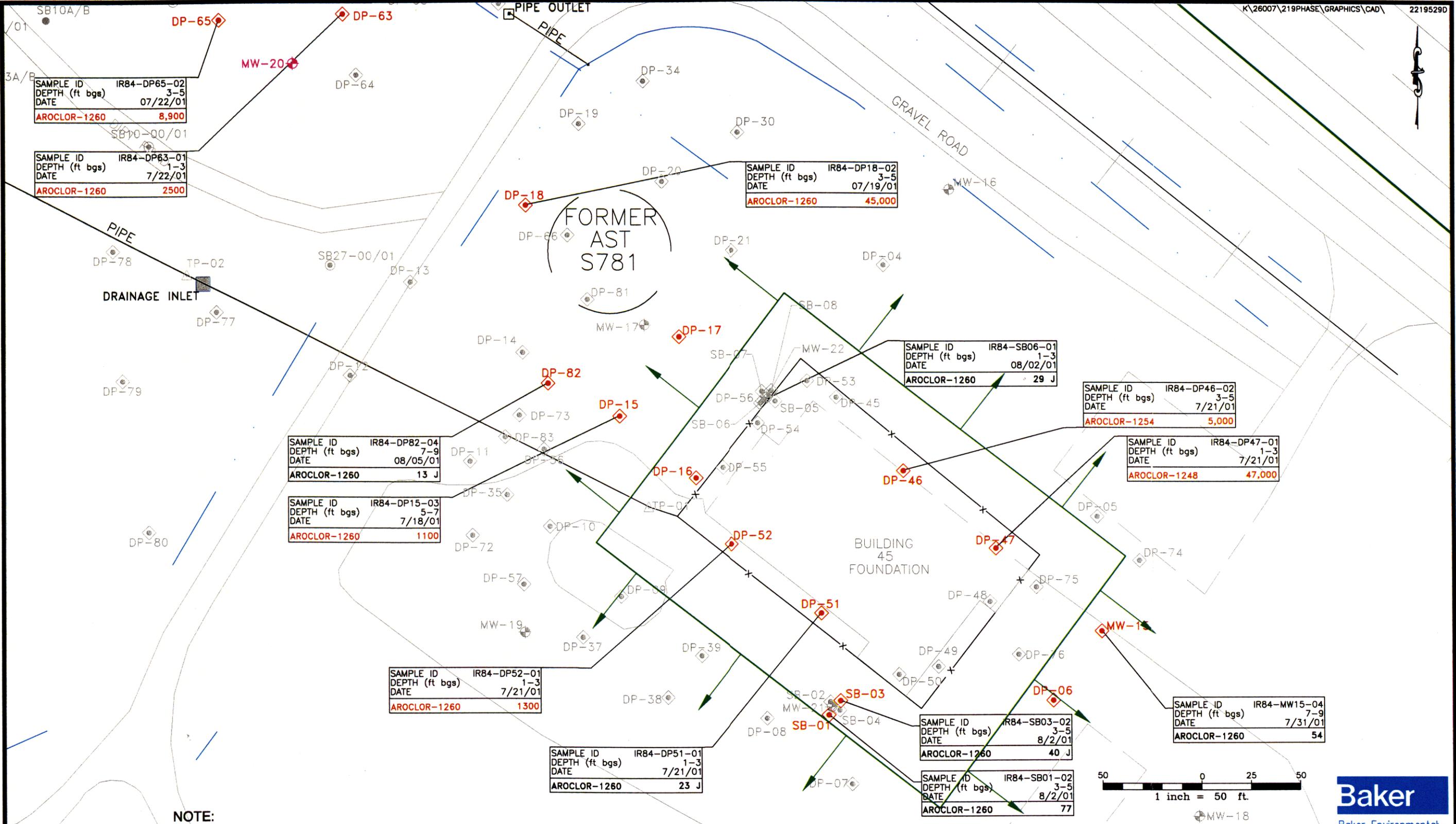
BAKER ENVIRONMENTAL, Inc.
Coraopolis, Pennsylvania



PCB ANALYTICAL RESULTS OF
DETECTIONS IN SURFACE SOIL
BUILDING 45 NON-TCRA
STATEMENT OF WORK

SCALE 1" = 50'
DATE DECEMBER 2001

SHEET NO.
4



SAMPLE ID	IR84-DP65-02
DEPTH (ft bgs)	3-5
DATE	07/22/01
AROCLOR-1260	8,900

SAMPLE ID	IR84-DP63-01
DEPTH (ft bgs)	1-3
DATE	7/22/01
AROCLOR-1260	2500

SAMPLE ID	IR84-DP18-02
DEPTH (ft bgs)	3-5
DATE	07/19/01
AROCLOR-1260	45,000

SAMPLE ID	IR84-SB06-01
DEPTH (ft bgs)	1-3
DATE	08/02/01
AROCLOR-1260	29 J

SAMPLE ID	IR84-DP46-02
DEPTH (ft bgs)	3-5
DATE	7/21/01
AROCLOR-1254	5,000

SAMPLE ID	IR84-DP47-01
DEPTH (ft bgs)	1-3
DATE	7/21/01
AROCLOR-1248	47,000

SAMPLE ID	IR84-DP82-04
DEPTH (ft bgs)	7-9
DATE	08/05/01
AROCLOR-1260	13 J

SAMPLE ID	IR84-DP15-03
DEPTH (ft bgs)	5-7
DATE	7/18/01
AROCLOR-1260	1100

SAMPLE ID	IR84-DP52-01
DEPTH (ft bgs)	1-3
DATE	7/21/01
AROCLOR-1260	1300

SAMPLE ID	IR84-DP51-01
DEPTH (ft bgs)	1-3
DATE	7/21/01
AROCLOR-1260	23 J

SAMPLE ID	IR84-SB03-02
DEPTH (ft bgs)	3-5
DATE	8/2/01
AROCLOR-1260	40 J

SAMPLE ID	IR84-SB01-02
DEPTH (ft bgs)	3-5
DATE	8/2/01
AROCLOR-1260	77

SAMPLE ID	IR84-MW15-04
DEPTH (ft bgs)	7-9
DATE	7/31/01
AROCLOR-1260	54

NOTE:
 - DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
 - MW-15 IS A SOIL BORING
 ALL UNITS ARE IN $\mu\text{g}/\text{kg}$ = MICROGRAMS PER KILOGRAM
 - CONCENTRATIONS IN RED TEXT EXCEED THE REGION IX PRG RESIDENTIAL SOIL SCREENING CRITERIA (220 $\mu\text{g}/\text{kg}$)
 - PCB ANALYSIS WAS NOT PERFORMED ON SAMPLES FROM GRAYED LOCATIONS

LEGEND	
	- DIRECT PUSH SOIL BORING (2001)
	- TEST PIT (2001)
	- NEW MONITORING WELL (2001)
	- SOIL SAMPLING LOCATION (1998)
	- SOIL SAMPLING LOCATION (1995)
	- LIMITS OF EXCAVATION (NO EXCAVATION TO BE DONE BEYOND THIS LIMIT)

FIGURE 5
 PCB ANALYTICAL RESULTS OF DETECTIONS IN SUBSURFACE SOILS BUILDING 45 NON-TCRA STATEMENT OF WORK MARINE CORPS BASE, CAMP LEJEUNE NORTH CAROLINA



SAMPLE ID	IR84-DP84-00
DEPTH	0 - 1
SAMPLE DATE	08-03-2001
VOLATILES (ug/kg)	
Xylenes (total)	8.7 J

SAMPLE ID	IR84-DP84-00
DEPTH	0 - 1
SAMPLE DATE	08-03-2001
SEMIVOLATILES (ug/kg)	
2-Methylnaphthalene	92,000
Acenaphthene	2,800 J
Anthracene	4,100 J
Benzo(a)anthracene	1,800 J
Benzo(ghi)perylene	1,500 J
Chrysene	2,800 J
Fluoranthene	1,700 J
Fluorene	9,000 J
Phenanthrene	24,000
Pyrene	16,000

SAMPLE ID	IR84-MW20-00
DEPTH	0 - 1
SAMPLE DATE	08-01-2001
SEMIVOLATILES (ug/kg)	
bis(2-Ethylhexyl) phthalate	140 J

SAMPLE ID	IR84-DP82-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
VOLATILES (ug/kg)	
Ethylbenzene	330 J
Xylenes (total)	120 J

SAMPLE ID	IR84-DP82-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
SEMIVOLATILES (ug/kg)	
Fluorene	580 J
Phenanthrene	910 J

SAMPLE ID	IR84-DP46-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
SEMIVOLATILES (ug/kg)	
Acenaphthene	20,000 J
Anthracene	56,000
Benzo(a)anthracene	190,000
Benzo(a)pyrene	150,000
Benzo(b)fluoranthene	170,000
Benzo(ghi)perylene	55,000
Benzo(k)fluoranthene	120,000
Carbazole	38,000 J
Chrysene	180,000
Dibenz(a,h)anthracene	17,000 J
Dibenzofuran	8,900 J
Fluoranthene	300,000
Fluorene	19,000 J
Indeno(1,2,3-cd)pyrene	59,000
Naphthalene	7,500 J
Phenanthrene	180,000
Pyrene	250,000

SAMPLE ID	IR84-DP47-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
SEMIVOLATILES (ug/kg)	
2-Methylnaphthalene	120 J
Acenaphthene	910
Anthracene	1,100
Benzo(a)anthracene	2,500
Benzo(a)pyrene	2,300
Benzo(b)fluoranthene	2,200
Benzo(ghi)perylene	1,200
Benzo(k)fluoranthene	2,000
Carbazole	2,700 J
Chrysene	2,700
Dibenz(a,h)anthracene	2,400 J
Dibenzofuran	2,560
Fluoranthene	5,600
Fluorene	880
Hexachlorocyclopentadiene	410 J
Indeno(1,2,3-cd)pyrene	1,200
Naphthalene	240 J
Phenanthrene	5,300
Pyrene	3,200

SAMPLE ID	IR84-DP48-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
SEMIVOLATILES (ug/kg)	
Acenaphthene	140 J
Anthracene	210 J
Benzo(a)anthracene	520
Benzo(a)pyrene	470
Benzo(b)fluoranthene	540
Benzo(ghi)perylene	260 J
Benzo(k)fluoranthene	340 J
Carbazole	130 J
Chrysene	560
Dibenz(a,h)anthracene	70 J
Dibenzofuran	84 J
Fluoranthene	1,200
Fluorene	130 J
Indeno(1,2,3-cd)pyrene	250 J
Phenanthrene	950
Pyrene	760

SAMPLE ID	IR84-DP49-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
SEMIVOLATILES (ug/kg)	
Acenaphthene	890
Anthracene	1,100
Benzo(a)anthracene	3,100
Benzo(a)pyrene	3,000
Benzo(b)fluoranthene	3,600
Benzo(ghi)perylene	1,500
Benzo(k)fluoranthene	2,100
Carbazole	650 J
Chrysene	3,300
Dibenz(a,h)anthracene	460 J
Dibenzofuran	400 J
Fluoranthene	7,200
Fluorene	680 J
Indeno(1,2,3-cd)pyrene	1,500
Naphthalene	140 J
Phenanthrene	6,000
Pyrene	6,100

SAMPLE ID	84-MW17-00
DEPTH	0 - 1
SAMPLE DATE	07-31-2001
SEMIVOLATILES (ug/kg)	
2-Methylnaphthalene	350 J
Acenaphthene	2,300
Anthracene	3,500
Benzo(a)anthracene	5,900
Benzo(a)pyrene	5,800
Benzo(b)fluoranthene	7,100
Benzo(ghi)perylene	3,200
Benzo(k)fluoranthene	3,800
Carbazole	2,100
Chrysene	6,700
Dibenz(a,h)anthracene	1,200 J
Dibenzofuran	1,800 J
Fluoranthene	16,000
Fluorene	2,600
Indeno(1,2,3-cd)pyrene	3,200
Naphthalene	640 J
Phenanthrene	15,000
Pyrene	10,000

SAMPLE ID	IR84-DP53-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
SEMIVOLATILES (ug/kg)	
Acenaphthene	1,100 J
Anthracene	1,500
Benzo(a)anthracene	3,600
Benzo(a)pyrene	3,300
Benzo(b)fluoranthene	4,400
Benzo(ghi)perylene	1,600
Benzo(k)fluoranthene	2,000
Carbazole	930 J
Chrysene	3,900
Dibenz(a,h)anthracene	570 J
Dibenzofuran	710 J
Fluoranthene	8,400
Fluorene	960 J
Indeno(1,2,3-cd)pyrene	1,600
Naphthalene	300 J
Phenanthrene	7,100
Pyrene	8,100 J

SAMPLE ID	IR84-DP45-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
SEMIVOLATILES (ug/kg)	
Acenaphthene	460 J
Anthracene	910 J
Benzo(a)anthracene	3,800
Benzo(a)pyrene	3,300
Benzo(b)fluoranthene	4,300
Benzo(ghi)perylene	1,600
Benzo(k)fluoranthene	1,800
Carbazole	570 J
Chrysene	3,900
Dibenz(a,h)anthracene	530 J
Dibenzofuran	250 J
Fluoranthene	5,900
Fluorene	410 J
Indeno(1,2,3-cd)pyrene	1,500
Naphthalene	3,500
Pyrene	5,400

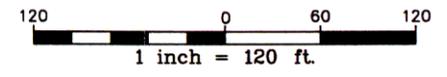
SAMPLE ID	IR84-DP51-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
VOLATILES (ug/kg)	
SEMIVOLATILES (ug/kg)	
Benzo(ghi)perylene	74 J

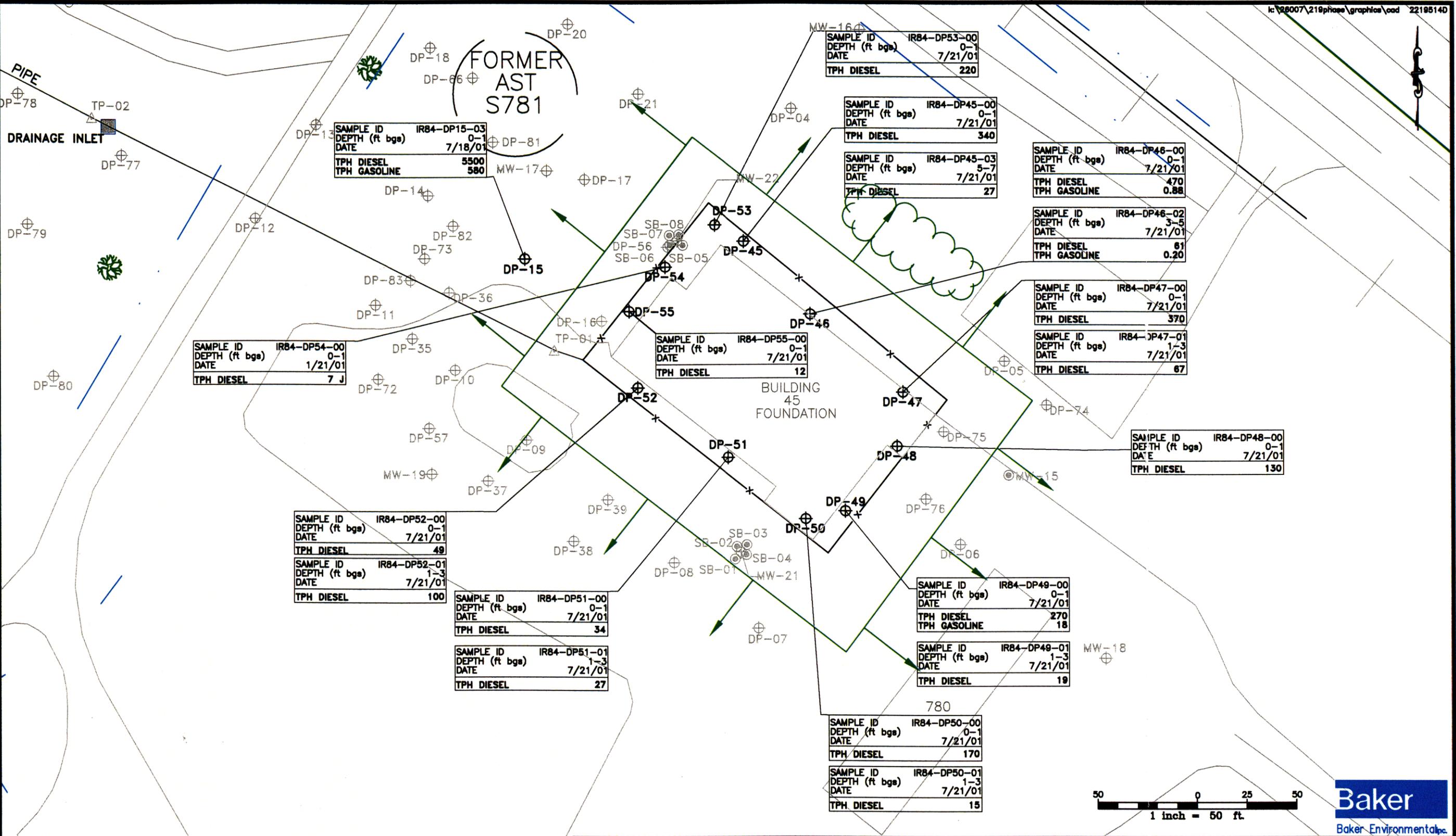
CONCENTRATIONS IN RED TYPE ARE EXCEEDANCES OF EPA REGION IX PRG RESIDENTIAL SOIL VALUES

NOTE
 - DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
 - MW-15 IS A SOIL BORING
 - ug/kg = MICROGRAMS PER KILOGRAM (SAME AS PARTS PER BILLION)
 - VOC AND SVOC ANALYSIS WAS NOT PERFORMED ON SAMPLES FROM GRAYED LOCATIONS

- LEGEND**
- ◆ - DIRECT PUSH SOIL BORING (2001)
 - ⊕ - EXISTING MONITORING WELL (1992)
 - △ - TEST PIT (2001)
 - ⊕ - NEW MONITORING WELL (2001)
 - ⊙ - SOIL SAMPLING LOCATION (1998)
 - - SOIL SAMPLING LOCATION (1995)

FIGURE 6
 ORGANIC EXCEEDANCES OF SCREENING CRITERIA - SURFACE SOIL BUILDING 45 NON-TCRA
 STATEMENT OF WORK
 MARINE CORPS BASE, CAMP LEJEUNE
 NORTH CAROLINA



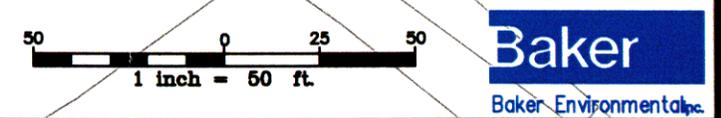


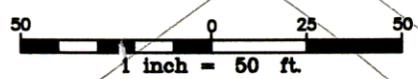
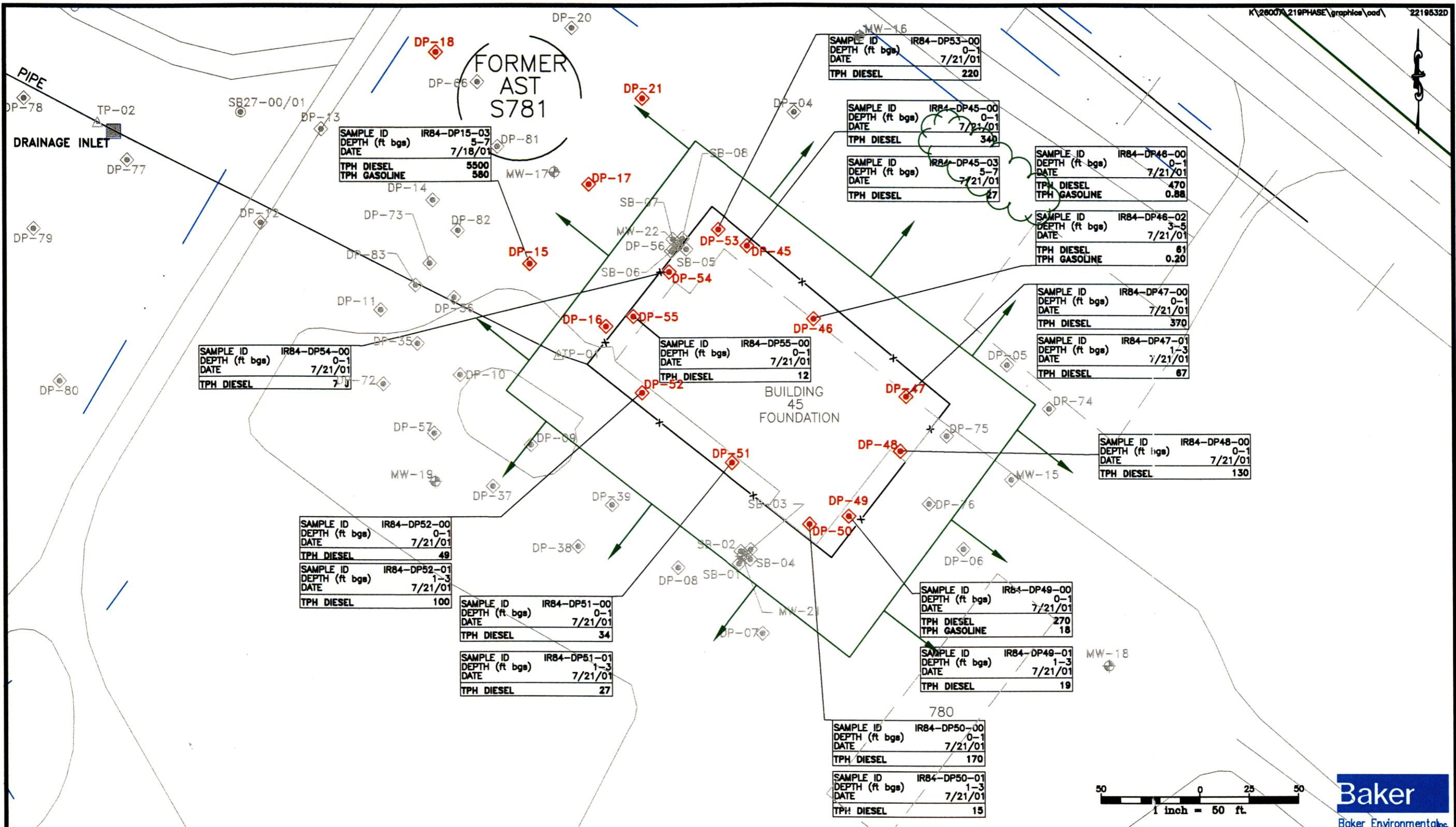
NOTE:
 - DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
 - MW-15 IS A SOIL BORING
 ALL UNITS ARE IN mg/kg = MILLIGRAMS PER KILOGRAM

LEGEND

- ⊕ - SOIL SAMPLE ANALYZED FOR TPH
- ⊙ - SOIL SAMPLE NOT ANALYZED FOR TPH
- ⊗ - EXISTING MONITORING WELL
- ⊙ - SOIL BORING NOT ANALYZED FOR TPH
- ⊙ - TEST PIT NOT ANALYZED FOR TPH
- LIMITS OF EXCAVATION (NO EXCAVATION TO BE DONE BEYOND THIS LIMIT)

FIGURE 7
 VPH AND EPH RESULTS IN SURFACE AND SUBSURFACE SOILS
 BUILDING 45 NON-TCRA
 STATEMENT OF WORK
 MARINE CORPS BASE, CAMP LEJEUNE
 NORTH CAROLINA



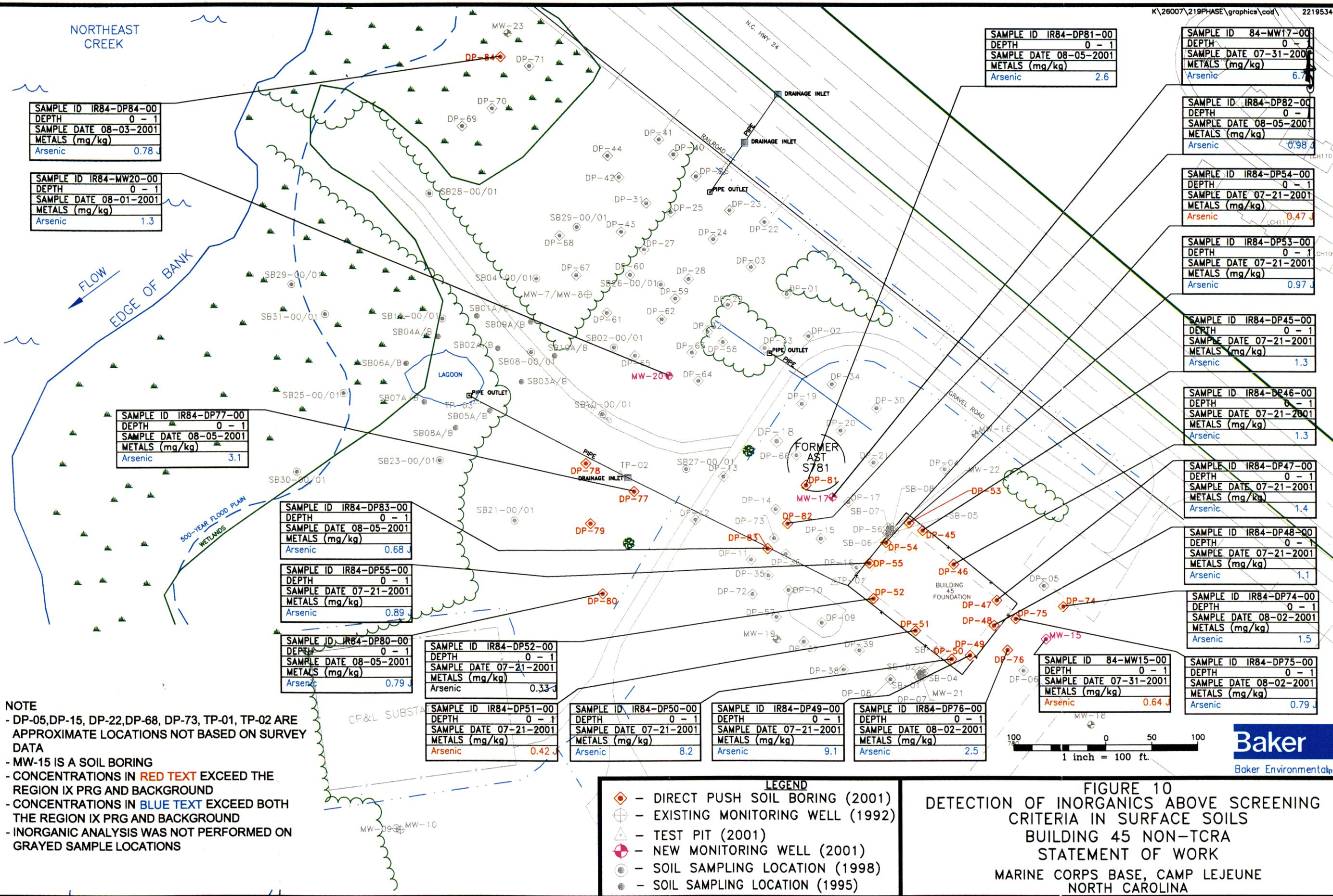


NOTE:
 - DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
 - MW-15 IS A SOIL BORING
 ALL UNITS ARE IN mg/kg = MILIGRAMS PER KILOGRAM
 - TPH ANALYSIS WAS NOT PERFORMED ON SAMPLES FROM GRAY LOCATIONS

LEGEND

- ◆ - DIRECT PUSH SOIL BORING (2001)
- - EXISTING MONITORING WELL (1992)
- △ - TEST PIT (2001)
- ⊕ - NEW MONITORING WELL (2001)
- - SOIL SAMPLING LOCATION (1998)
- ⊙ - SOIL SAMPLING LOCATION (1995)
- - - LIMITS OF EXCAVATION (NO EXCAVATION TO BE DONE BEYOND THIS LIMIT)

FIGURE 8
VPH AND EPH RESULTS IN SURFACE AND SUBSURFACE SOILS
BUILDING 45 NON-TCRA
STATEMENT OF WORK
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



SAMPLE ID	IR84-DP84-00
DEPTH	0 - 1
SAMPLE DATE	08-03-2001
METALS (mg/kg)	
Arsenic	0.78

SAMPLE ID	IR84-MW20-00
DEPTH	0 - 1
SAMPLE DATE	08-01-2001
METALS (mg/kg)	
Arsenic	1.3

SAMPLE ID	IR84-DP77-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
METALS (mg/kg)	
Arsenic	3.1

SAMPLE ID	IR84-DP83-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
METALS (mg/kg)	
Arsenic	0.68

SAMPLE ID	IR84-DP55-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	0.89

SAMPLE ID	IR84-DP80-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
METALS (mg/kg)	
Arsenic	0.79

SAMPLE ID	IR84-DP52-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	0.33

SAMPLE ID	IR84-DP51-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	0.42

SAMPLE ID	IR84-DP50-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	8.2

SAMPLE ID	IR84-DP49-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	9.1

SAMPLE ID	IR84-DP76-00
DEPTH	0 - 1
SAMPLE DATE	08-02-2001
METALS (mg/kg)	
Arsenic	2.5

SAMPLE ID	IR84-DP81-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
METALS (mg/kg)	
Arsenic	2.6

SAMPLE ID	84-MW17-00
DEPTH	0 - 1
SAMPLE DATE	07-31-2001
METALS (mg/kg)	
Arsenic	6.7

SAMPLE ID	IR84-DP82-00
DEPTH	0 - 1
SAMPLE DATE	08-05-2001
METALS (mg/kg)	
Arsenic	0.98

SAMPLE ID	IR84-DP54-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	0.47

SAMPLE ID	IR84-DP53-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	0.97

SAMPLE ID	IR84-DP45-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	1.3

SAMPLE ID	IR84-DP46-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	1.3

SAMPLE ID	IR84-DP47-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	1.4

SAMPLE ID	IR84-DP48-00
DEPTH	0 - 1
SAMPLE DATE	07-21-2001
METALS (mg/kg)	
Arsenic	1.1

SAMPLE ID	IR84-DP74-00
DEPTH	0 - 1
SAMPLE DATE	08-02-2001
METALS (mg/kg)	
Arsenic	1.5

SAMPLE ID	84-MW15-00
DEPTH	0 - 1
SAMPLE DATE	07-31-2001
METALS (mg/kg)	
Arsenic	0.64

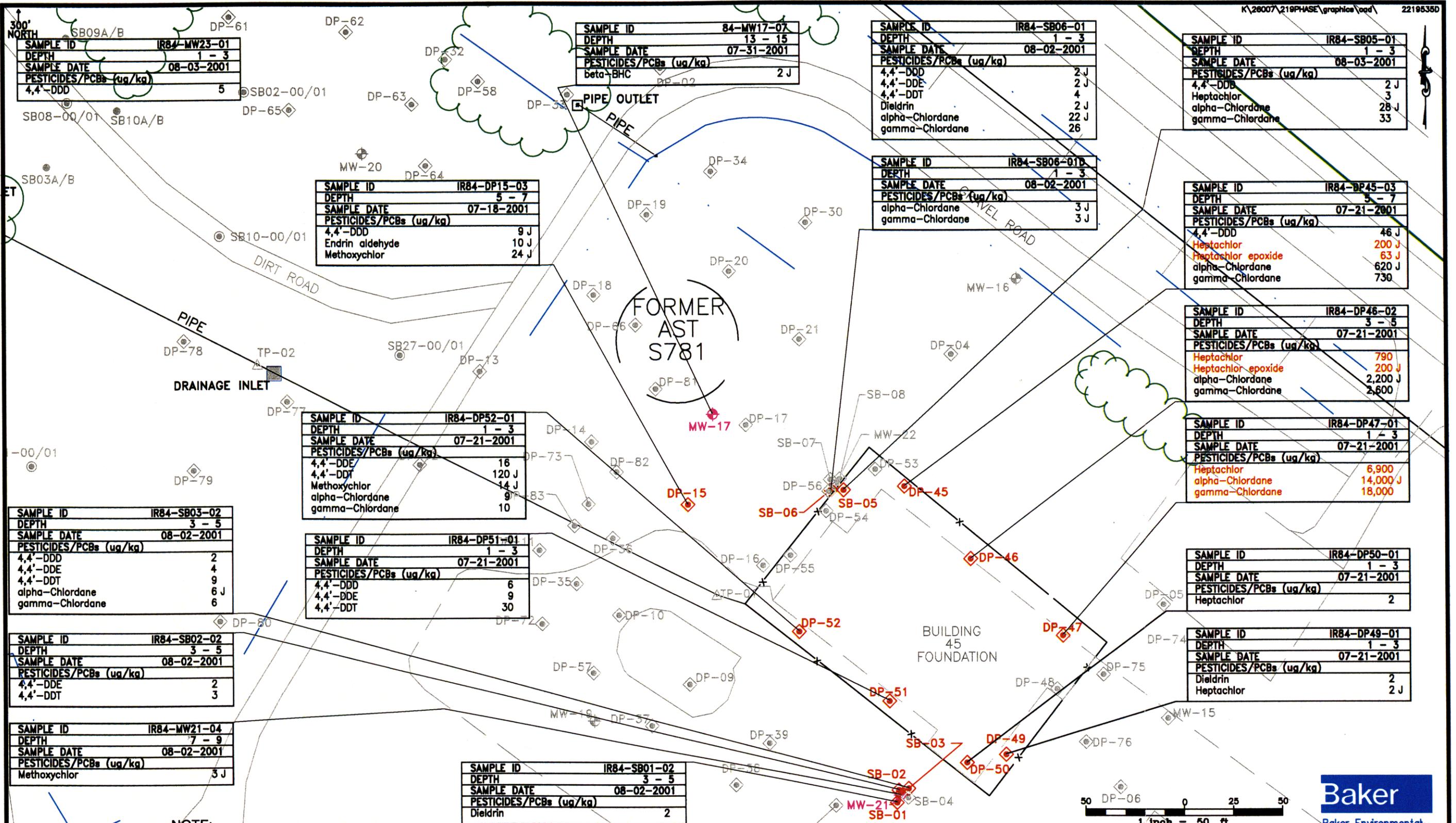
SAMPLE ID	IR84-DP75-00
DEPTH	0 - 1
SAMPLE DATE	08-02-2001
METALS (mg/kg)	
Arsenic	0.79

NOTE
 - DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
 - MW-15 IS A SOIL BORING
 - CONCENTRATIONS IN RED TEXT EXCEED THE REGION IX PRG AND BACKGROUND
 - CONCENTRATIONS IN BLUE TEXT EXCEED BOTH THE REGION IX PRG AND BACKGROUND
 - INORGANIC ANALYSIS WAS NOT PERFORMED ON GRAYED SAMPLE LOCATIONS

- LEGEND**
- ◆ - DIRECT PUSH SOIL BORING (2001)
 - ⊕ - EXISTING MONITORING WELL (1992)
 - △ - TEST PIT (2001)
 - ⊕ - NEW MONITORING WELL (2001)
 - - SOIL SAMPLING LOCATION (1998)
 - - SOIL SAMPLING LOCATION (1995)

FIGURE 10
 DETECTION OF INORGANICS ABOVE SCREENING CRITERIA IN SURFACE SOILS BUILDING 45 NON-TCRA STATEMENT OF WORK
 MARINE CORPS BASE, CAMP LEJEUNE NORTH CAROLINA





SAMPLE ID	IR84-SB03-02
DEPTH	3 - 5
SAMPLE DATE	08-02-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDD	2
4,4'-DDE	4
4,4'-DDT	9
alpha-Chlordane	6 J
gamma-Chlordane	6

SAMPLE ID	IR84-SB02-02
DEPTH	3 - 5
SAMPLE DATE	08-02-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDE	2
4,4'-DDT	3

SAMPLE ID	IR84-MW21-04
DEPTH	7 - 9
SAMPLE DATE	08-02-2001
PESTICIDES/PCBs (ug/kg)	
Methoxychlor	3 J

SAMPLE ID	IR84-DP52-01
DEPTH	1 - 3
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDE	16
4,4'-DDT	120 J
Methoxychlor	14 J
alpha-Chlordane	9
gamma-Chlordane	10

SAMPLE ID	IR84-DP51-01
DEPTH	1 - 3
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDD	6
4,4'-DDE	9
4,4'-DDT	30

SAMPLE ID	IR84-SB01-02
DEPTH	3 - 5
SAMPLE DATE	08-02-2001
PESTICIDES/PCBs (ug/kg)	
Dieldrin	2

SAMPLE ID	84-MW17-07
DEPTH	13 - 15
SAMPLE DATE	07-31-2001
PESTICIDES/PCBs (ug/kg)	
beta-BHC	2 J

SAMPLE ID	IR84-SB06-01
DEPTH	1 - 3
SAMPLE DATE	08-02-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDD	2 J
4,4'-DDE	2 J
4,4'-DDT	4
Dieldrin	2 J
alpha-Chlordane	22 J
gamma-Chlordane	26

SAMPLE ID	IR84-SB05-01
DEPTH	1 - 3
SAMPLE DATE	08-03-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDD	2 J
Heptachlor	3
alpha-Chlordane	28 J
gamma-Chlordane	33

SAMPLE ID	IR84-SB08-01D
DEPTH	1 - 3
SAMPLE DATE	08-02-2001
PESTICIDES/PCBs (ug/kg)	
alpha-Chlordane	3 J
gamma-Chlordane	3 J

SAMPLE ID	IR84-DP45-03
DEPTH	5 - 7
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
4,4'-DDD	46 J
Heptachlor	200 J
Heptachlor epoxide	63 J
alpha-Chlordane	620 J
gamma-Chlordane	730

SAMPLE ID	IR84-DP46-02
DEPTH	3 - 5
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
Heptachlor	790
Heptachlor epoxide	200 J
alpha-Chlordane	2,200 J
gamma-Chlordane	2,600

SAMPLE ID	IR84-DP47-01
DEPTH	1 - 3
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
Heptachlor	6,900
alpha-Chlordane	14,000 J
gamma-Chlordane	18,000

SAMPLE ID	IR84-DP50-01
DEPTH	1 - 3
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
Heptachlor	2

SAMPLE ID	IR84-DP49-01
DEPTH	1 - 3
SAMPLE DATE	07-21-2001
PESTICIDES/PCBs (ug/kg)	
Dieldrin	2
Heptachlor	2 J

NOTE:
 - DP-05, DP-15, DP-22, DP-68, DP-73, TP-01, TP-02 ARE APPROXIMATE LOCATIONS NOT BASED ON SURVEY DATA
 - MW-15 IS A SOIL BORING
 ALL UNITS ARE IN $\mu\text{g}/\text{kg}$ = MICROGRAMS PER KILOGRAM
 CONCENTRATIONS IN **RED TEXT** EXCEED EPA REGION IX PRG RESIDENTIAL SOIL VALUES
 - PESTICIDE ANALYSIS WAS NOT PERFORMED ON GRAYED SAMPLE LOCATIONS

LEGEND

- ◆ - DIRECT PUSH SOIL BORING (2001)
- ⊕ - EXISTING MONITORING WELL (1992)
- △ - TEST PIT (2001)
- ⊕ - NEW MONITORING WELL (2001)
- ⊙ - SOIL SAMPLING LOCATION (1998)
- ⊙ - SOIL SAMPLING LOCATION (1995)

FIGURE 11
 POSITIVE DETECTIONS OF PESTICIDES
 IN SUBSURFACE SOIL
 BUILDING 45 NON-TCRA
 STATEMENT OF WORK
 MARINE CORPS BASE, CAMP LEJEUNE
 NORTH CAROLINA

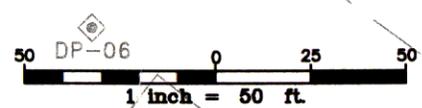


FIGURE 12

OVERALL FLOWCHART OF REQUIRED ACTIONS

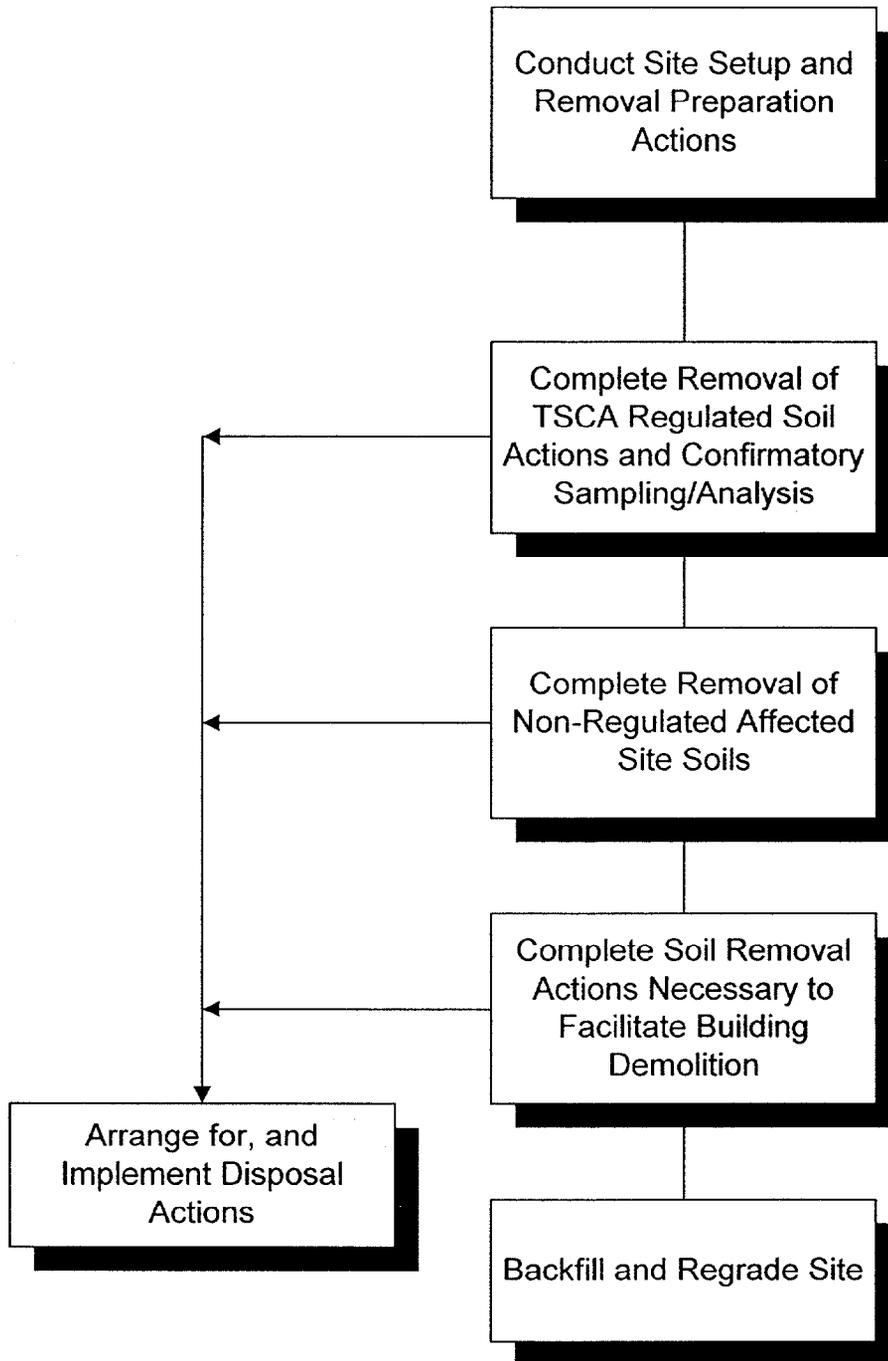


FIGURE 13

SITE SET-UP AND REMOVAL PREPARATION

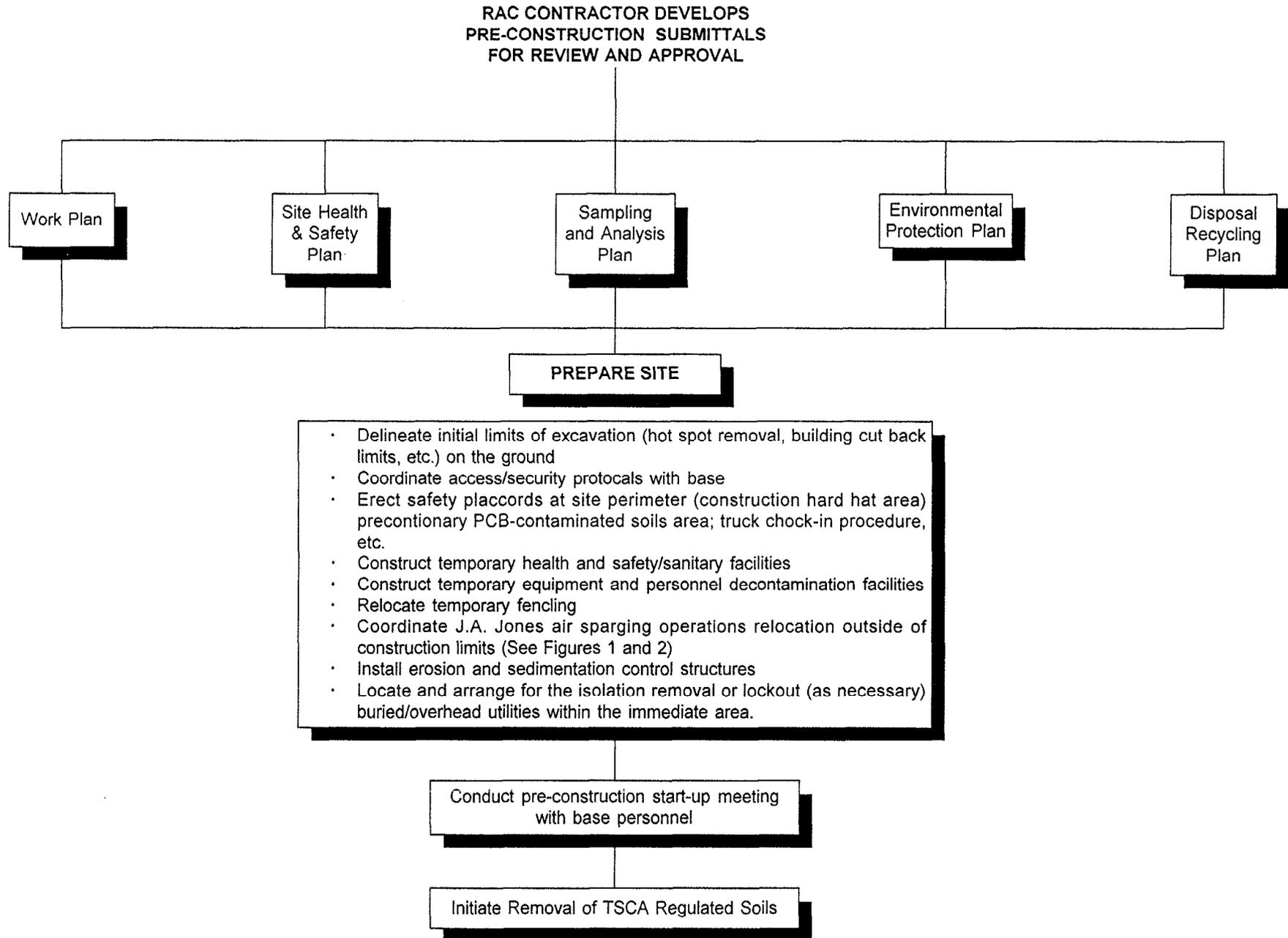


FIGURE 14

MANAGEMENT OF TSCA REGULATED SOILS

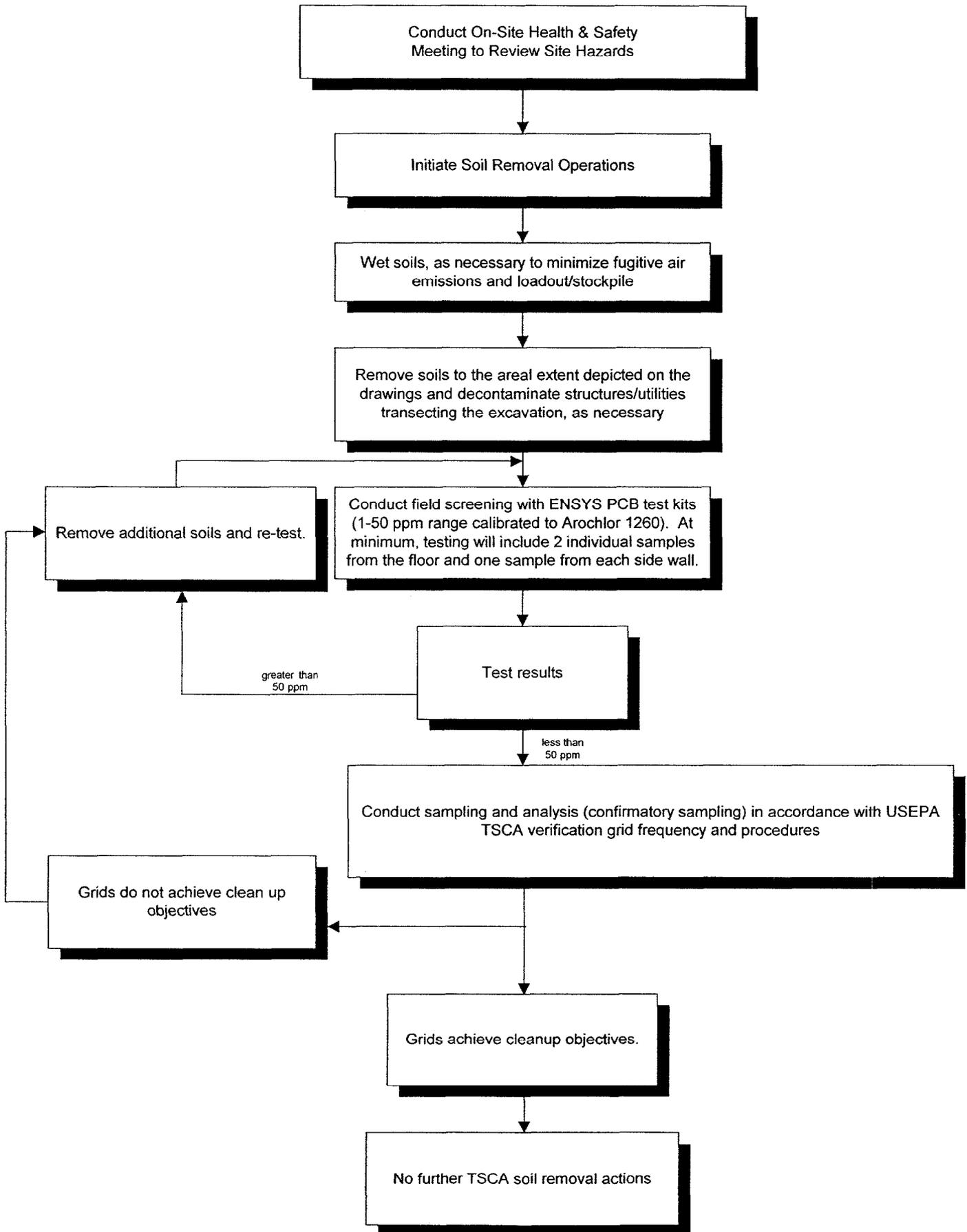
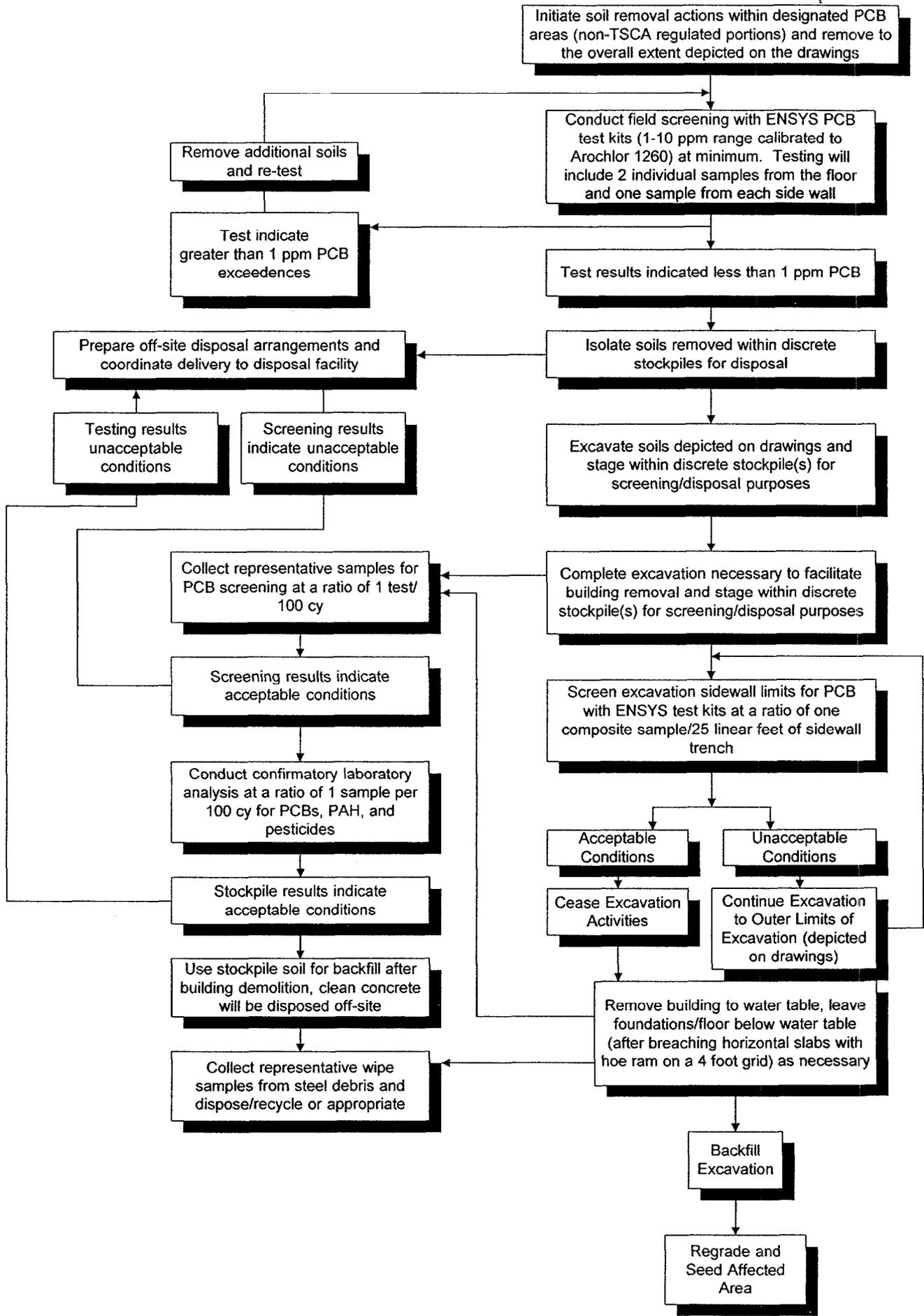
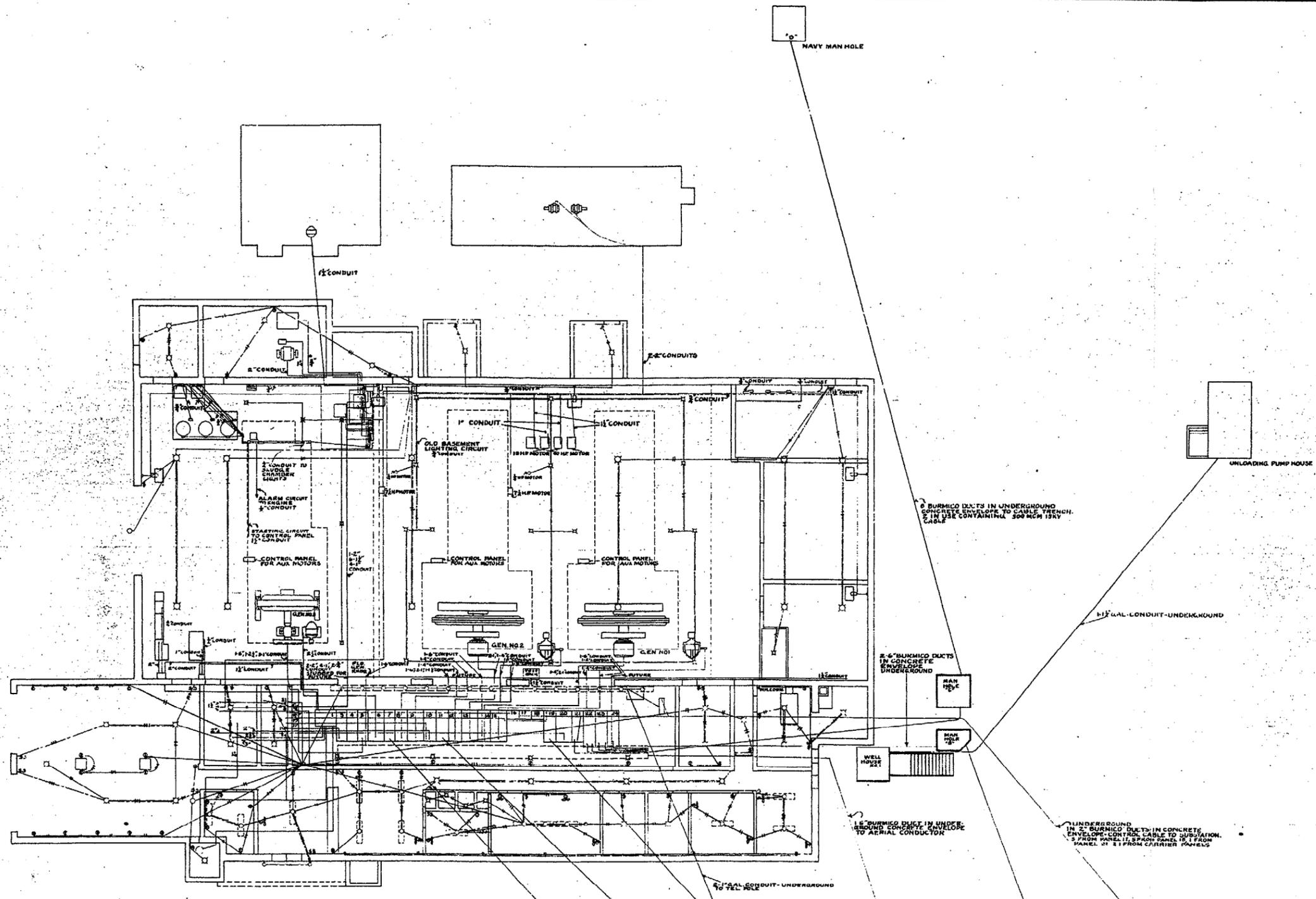


FIGURE 15

SOIL AND BUILDING REMOVAL ACTIONS



ATTACHMENT A
HISTORICAL FIGURES AND
JA JONES TREATMENT SYSTEM SPECIFICS

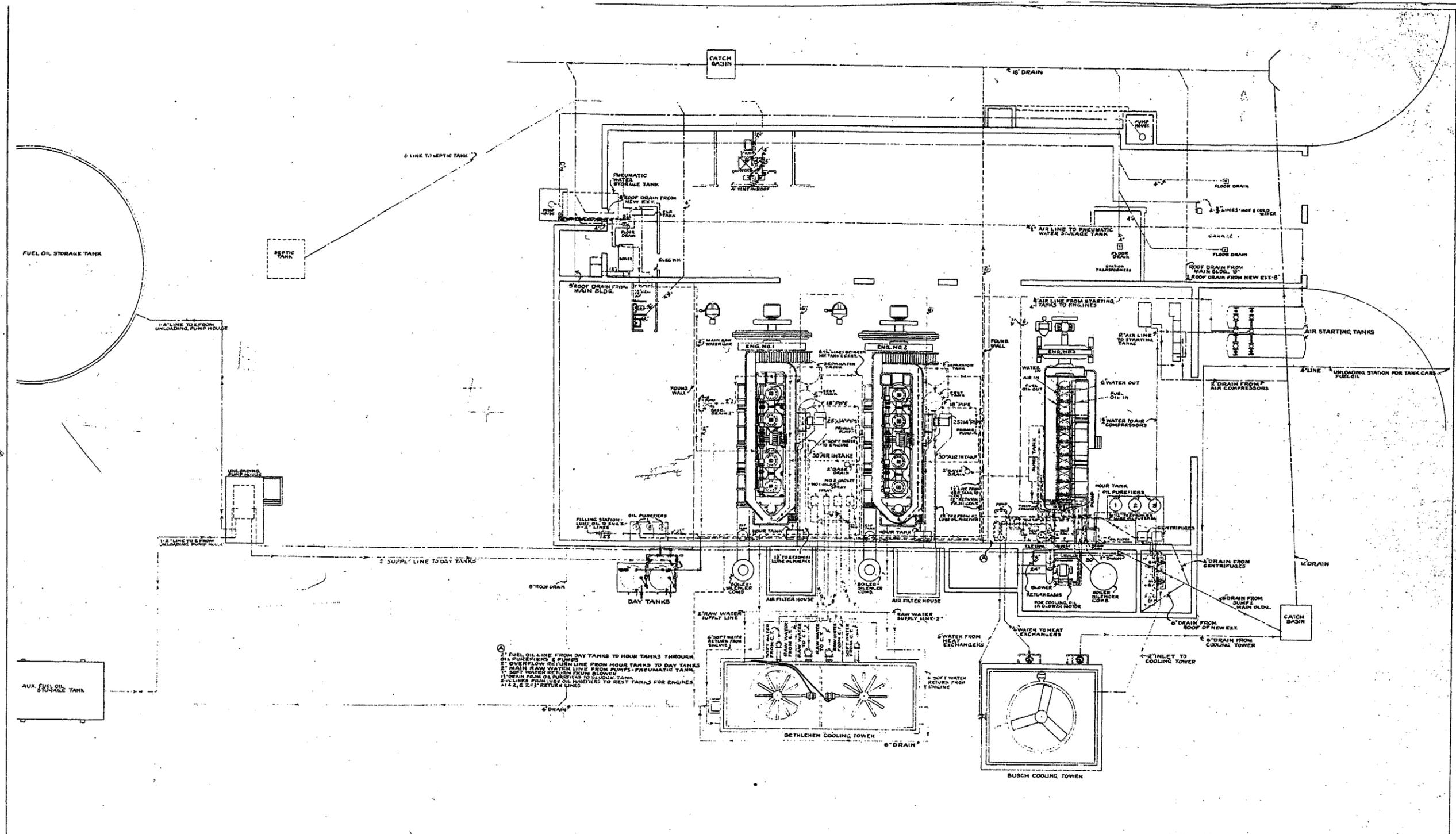


REVISIONS	JONES ONSLOW ELECTRIC MEMB CORP JACKSONVILLE, NORTH CAROLINA R.E.A.N. C43 G. JONES
	ELECTRICAL SYSTEM - CONDUITS, DUCTS & CABLE NEW RIVER DIESEL GENERATING PLANT
	THE LEWIS ELECTRIC CO. ENGINEERS BEDFORD, INDIANA
	DWG. NO. 208-45G DRAWN BY REESE B. WALTER SCALE 1/8"=1' APPROVED BY <i>[Signature]</i> AS CONSTRUCTED SUPERVISING ENGINEER

FIGURE A-1
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

Baker

0302/FB2Z

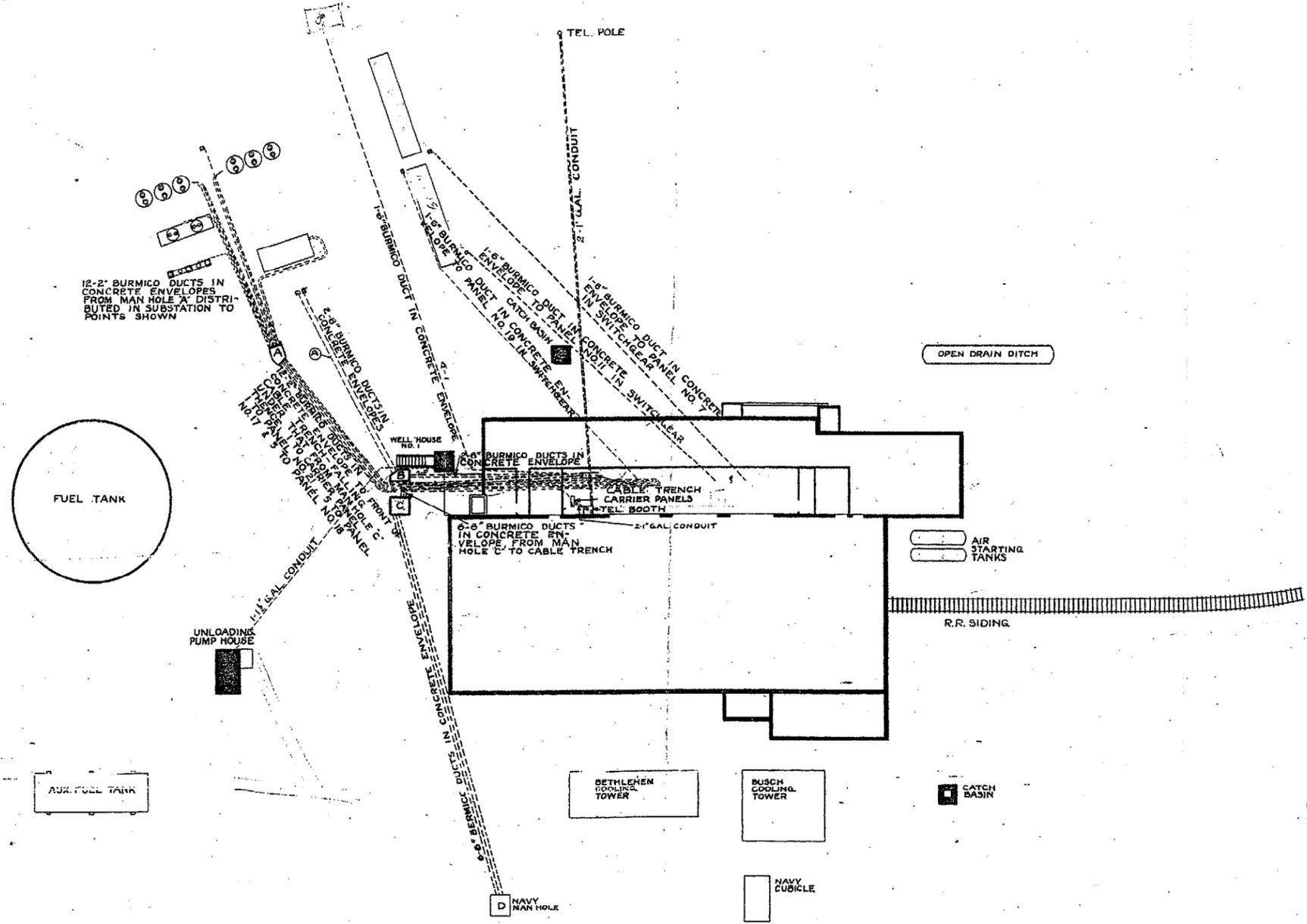


- 1. FUEL OIL LINE FROM DAY TANKS TO HOUR TANKS THROUGH OIL PURIFIERS & PUMPS
- 2. OVERFLOW RETURN LINE FROM HOUR TANKS TO DAY TANKS
- 3. MAIN FRESH WATER LINE FROM PUMPS - PNEUMATIC TANK
- 4. HOT WATER RETURN FROM BLOWER
- 5. DRAIN FROM OIL PURIFIERS TO DAY TANK
- 6. 2\"/>

REVISIONS	JONES ONSLOW ELECTRIC MEMB. CORP. JACKSONVILLE, NORTH CAROLINA R.E.A. 45 G. JONES
	PIPING LAYOUT NEW RIVER DIESEL GENERATING PLANT
	THE LEWIS ELECTRIC CO. ENGINEERS BEDFORD, INDIANA
	DWG. NO. 4/21/44 SCALE 1/8\"/>
	DRAWN BY REESE, B. WALTER APPROVED BY SUPERVISOR

FIGURE A-2
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

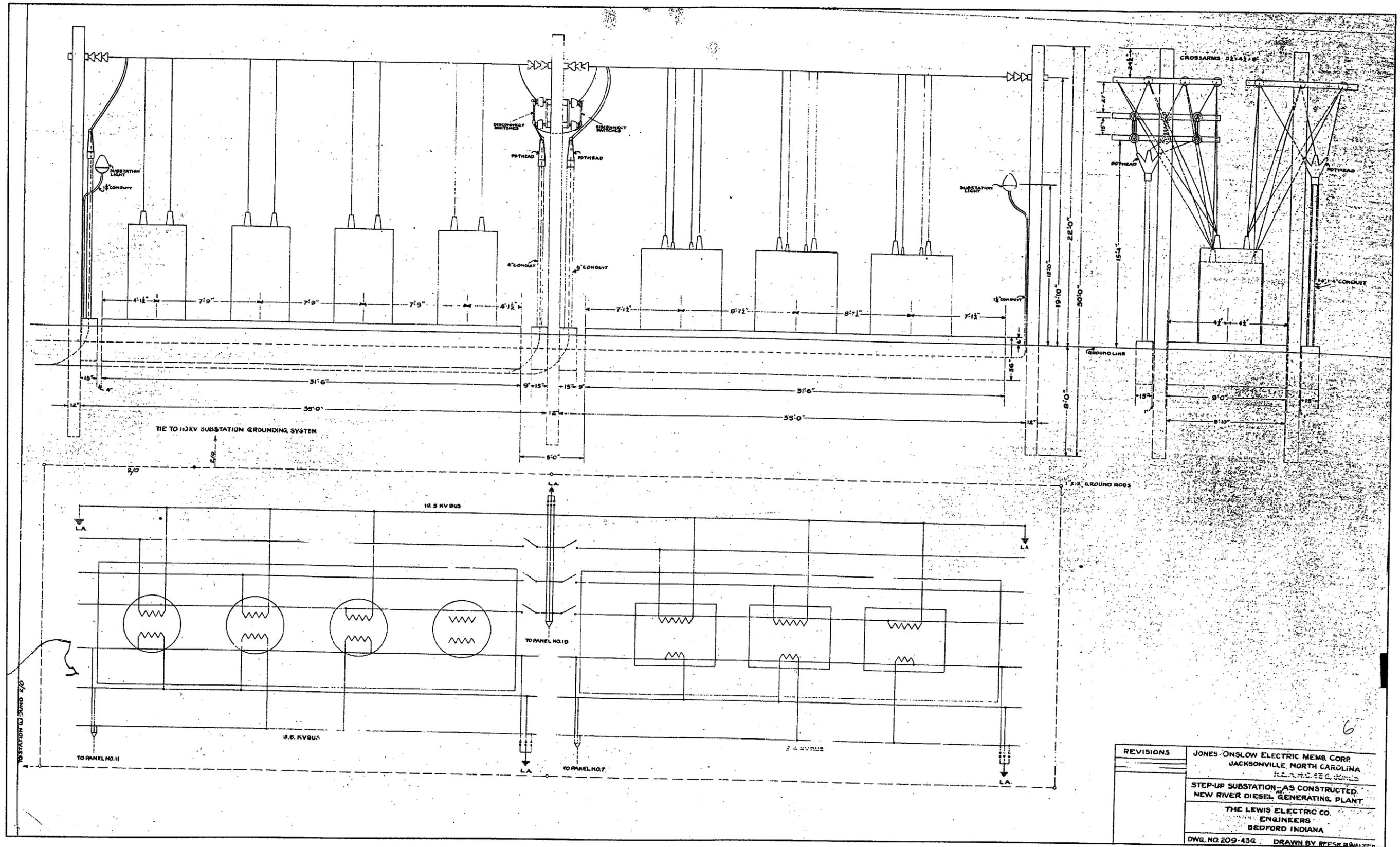




REVISIONS	JONES ONSLOW ELECTRIC MEMB. CORP JACKSONVILLE, NORTH CAROLINA R.E.A. 43 G. JONES
	UNDERGROUND DUCTS, MAN HOLES & CABLE NEW RIVER DIESEL GENERATING PLANT
	THE LEWIS ELECTRIC CO. ENGINEERS BEDFORD, INDIANA
	DWG. NO. 209-436-B DRAWN BY REESE WALKER
	SCALE 1"=1' APPROVED BY <i>[Signature]</i>
	DATE 10-1-54

FIGURE A-3
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

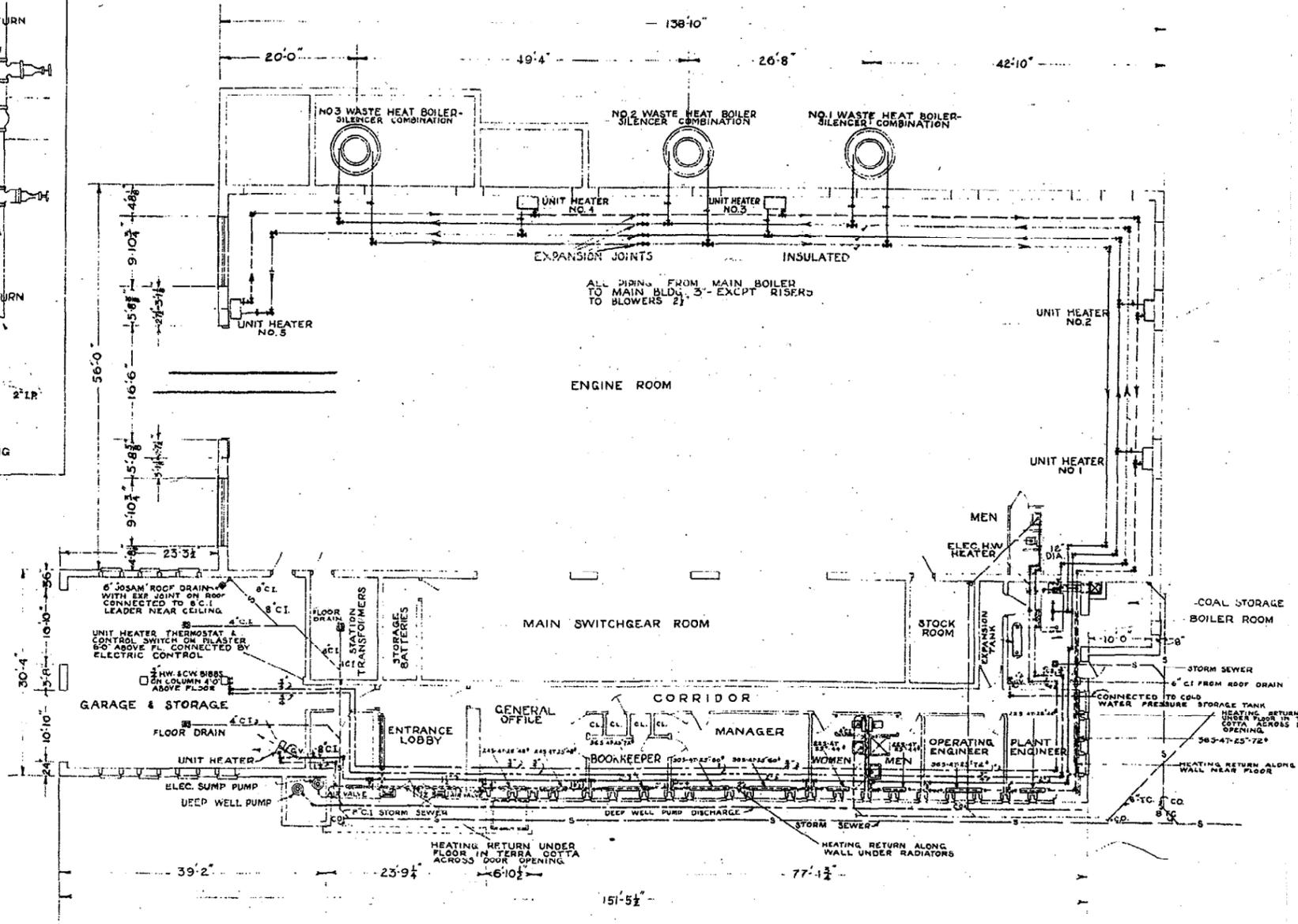
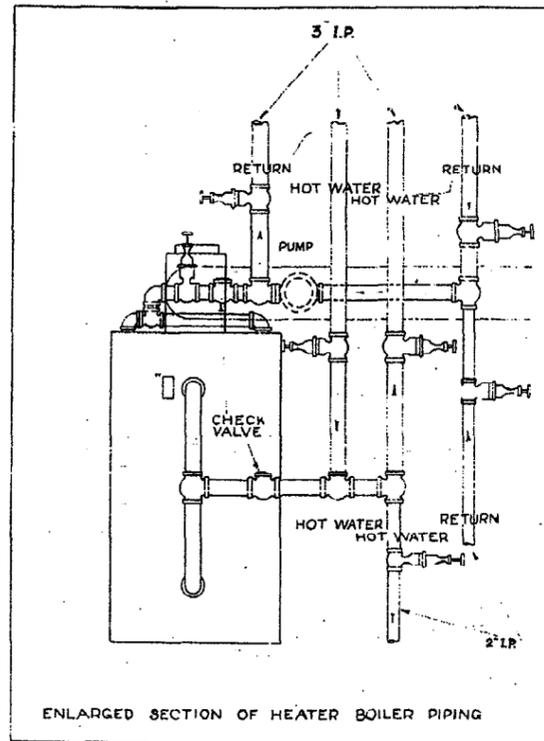




REVISIONS	JONES-ONSLOW ELECTRIC MEMB. CORP JACKSONVILLE, NORTH CAROLINA R.C.O. NO. 436, JONES
	STEP-UP SUBSTATION - AS CONSTRUCTED NEW RIVER DIESEL GENERATING PLANT
	THE LEWIS ELECTRIC CO. ENGINEERS BEDFORD INDIANA
	DWG. NO. 209-436 DRAWN BY RFESE

FIGURE A-4
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

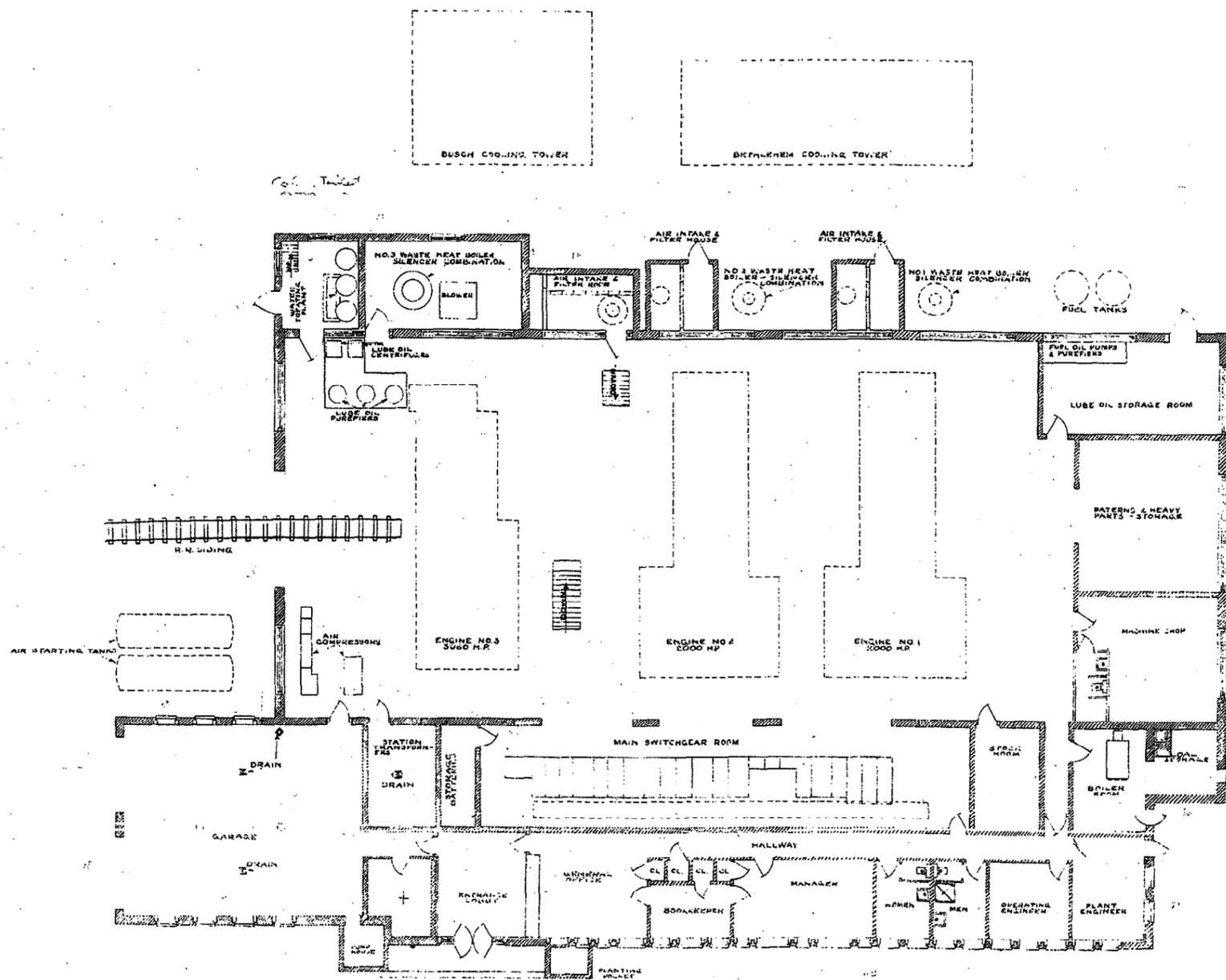




REVISIONS	JONES ONGLOW ELECTRIC MEMB. CORP. JACKSONVILLE, NORTH CAROLINA R.E.A. N.C. 45 G. JONES
	BUILDING HEATING
	NEW RIVER DIESEL GENERATING PLANT
	DWG. NO. 203-430
	12-20-43
	SCALE 1/4" = 1'-0"
	LEWIS ELECTRIC CO. BEDFORD, IND.
	DRAWN BY REESE SWALTER APPROVED BY <i>[Signature]</i> SUPERVISING ENGINEER

FIGURE A-5
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

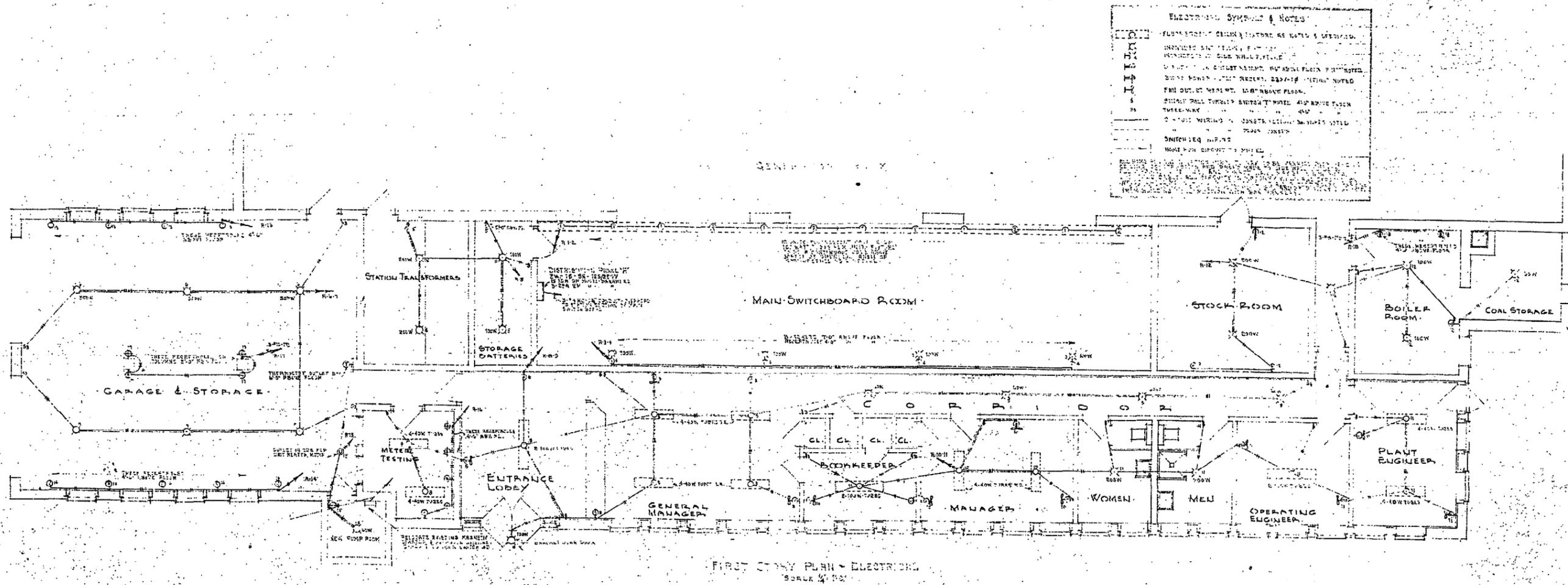




REVISIONS	JONES ONSLOW ELECTRIC MEMB. CORP. JACKSONVILLE NORTH CAROLINA R.E.A. 43 G. JONES
	FLOOR PLAN - AS CONSTRUCTED NEW RIVER DIESEL GENERATING PLANT
	THE LEWIS ELECTRIC CO. ENGINEERS BEDFORD, INDIANA
	DWG. NO. 200-436 (DRAWN BY DEWEL)

FIGURE A-6
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA





ELECTRICAL SYMBOLS & NOTES

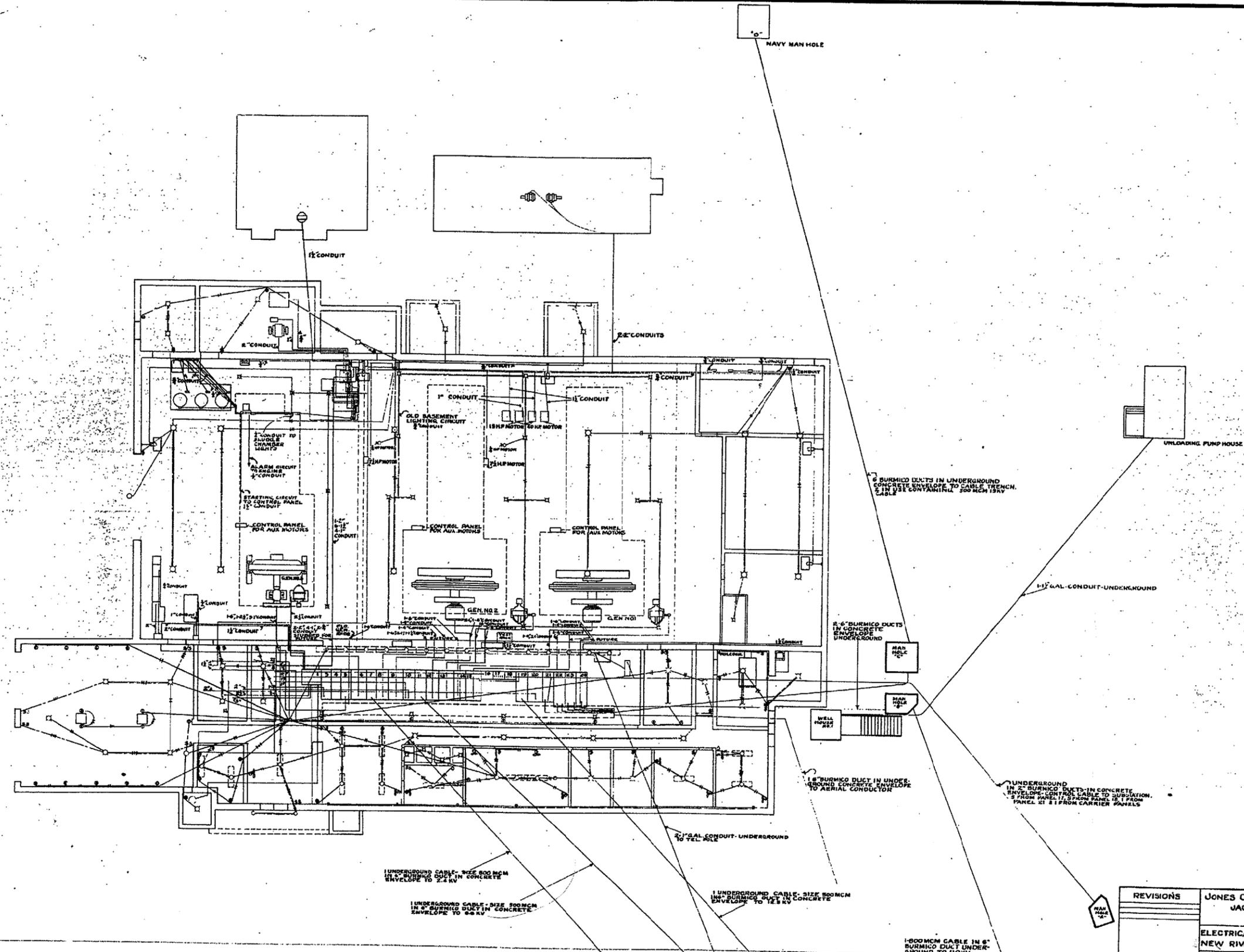
1. ELECTRICAL SYMBOLS SHOWN AS NOTED & DESCRIBED.
 2. UNLESS NOTED OTHERWISE, ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 4. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 5. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 6. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 7. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 8. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 9. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 10. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

SEE SHEET 1-A FOR REVISIONS (1-15-43)

ELECTRICAL PLAN		REVISIONS
DRAWN BY E.T.N.	BUILDING EXTENSION & ADDITIONS	
CHECKED BY	THE JONES'ONSLOW ELECTRIC MEMBERSHIP COOP	
SCALE AS NOTED	JACKSONVILLE, N.C.	
DATE JULY 19-43	JOHN J. ROWLAND ARCHITECT	SHEET NO. 3-E
E. THOMAS NICHOLS CONSULTING ENGINEER	KINSTON, NORTH CAROLINA	

FIGURE A-7
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

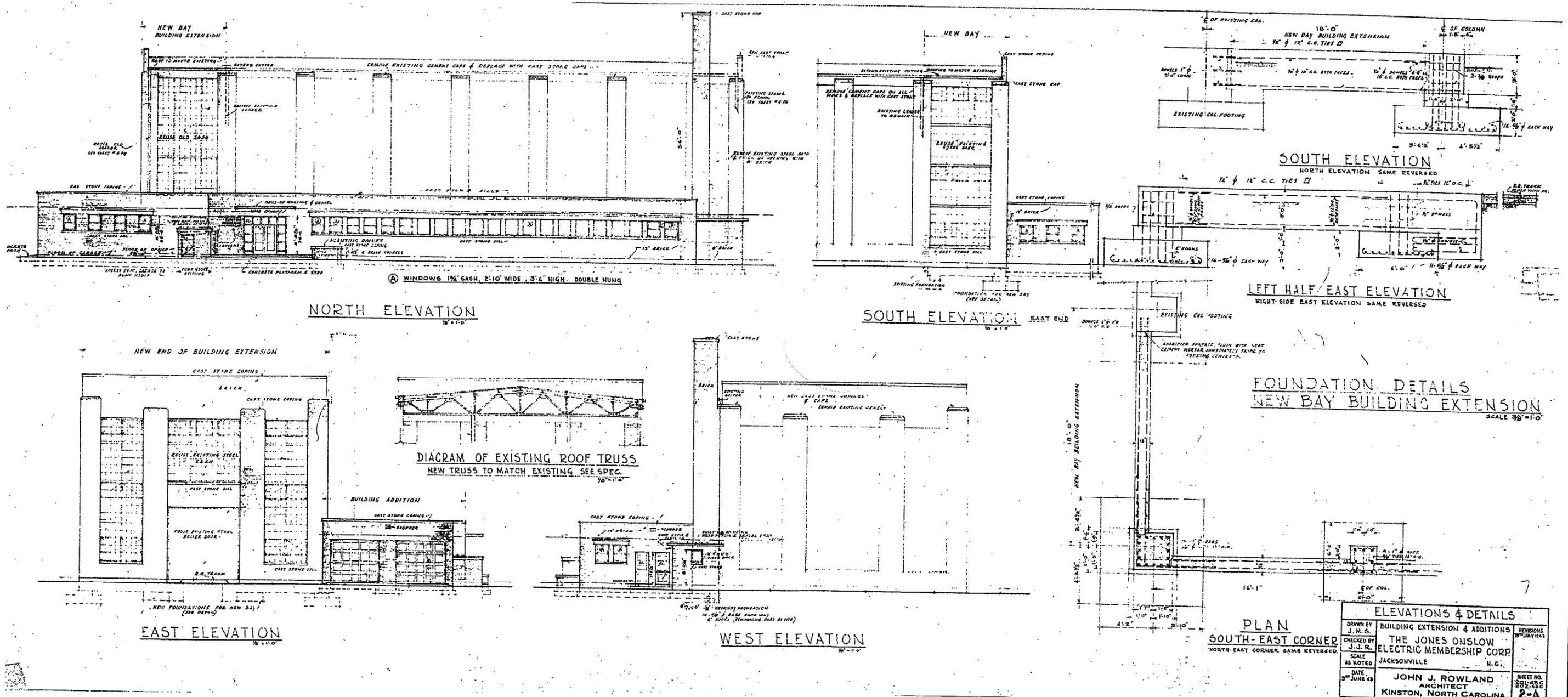




REVISIONS	JONES ONSLOW ELECTRIC MEMB. CORP JACKSONVILLE, NORTH CAROLINA R.E.A.N. C.43 G. JONES
	ELECTRICAL SYSTEM-CONDUITS, DUCTS & CABLE NEW RIVER DIESEL GENERATING PLANT
	THE LEWIS ELECTRIC CO. ENGINEERS BEDFORD, INDIANA
	DWG. NO. 208-454 SCALE 1/4"=1' AS CONSTRUCTED
	DRAWN BY REESE G. WALTER APPROVED BY <i>[Signature]</i> SUPERVISING ENGINEER

FIGURE A-8
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA





ELEVATIONS & DETAILS		
DRAWN BY J. M. S.	BUILDING EXTENSION & ADDITIONS	REVISIONS JULY 1949
CHECKED BY J. J. R.	THE JONES ONSLOW ELECTRIC MEMBERSHIP CORP.	
SCALE AS NOTED	JACKSONVILLE N.C.	
DATE 5th JUNE 49	JOHN J. ROWLAND ARCHITECT KINSTON, NORTH CAROLINA	SHEET NO. 285-439 2-A

ATTACHMENT B
TECHNICAL SPECIFICATIONS

PROJECT TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

01310 ADMINISTRATIVE REQUIREMENTS
01320 CONSTRUCTION PROGRESS DOCUMENTATION
01330 SUBMITTAL PROCEDURES
01430 WASTE SAMPLING REQUIREMENTS
01450 QUALITY CONTROL
01500 TEMPORARY FACILITIES AND CONTROLS
01525 SAFETY REQUIREMENTS
01561 EROSION AND SEDIMENT CONTROL
01572 WASTE MANAGEMENT
01575 TEMPORARY ENVIRONMENTAL CONTROLS
01770 CLOSEOUT PROCEDURES

DIVISION 02 - SITE WORK

02050 DEMOLITION AND REMOVAL
02220 SITE DEMOLITION
02231 CLEARING AND GRUBBING
02315 EXCAVATION AND FILL

DIVISION 13 - SPECIAL CONSTRUCTION

13283 REMOVAL AND DISPOSAL OF LEAD-CONTAINING PAINT
13285 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS

-- End of Project Table of Contents --

SECTION 01310

ADMINISTRATIVE REQUIREMENTS
09/00

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)

- | | |
|------------|--|
| 15 CFR 772 | Individual Validated Licenses and Amendments |
| 15 CFR 773 | Special Licensing Procedures |

1.2 SUBMITTALS

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

SD-01 Preconstruction Submittals

List of contact personnel; G

1.3 MINIMUM INSURANCE REQUIREMENTS

Procure and maintain during the entire period of performance under this contract the following minimum insurance coverage:

- a. Comprehensive general liability: \$500,000 per occurrence
- b. Automobile liability: \$200,000 per person, \$500,000 per occurrence for bodily injury, \$20,000 per occurrence for property damage
- c. Workmen's compensation as required by Federal and State workers' compensation and occupational disease laws.
- d. Employer's liability coverage of \$100,000, except in States where workers compensation may not be written by private carriers,
- e. Others as required by State law.

1.4 CONTRACTOR PERSONNEL REQUIREMENTS

1.4.1 Subcontractors and Personnel

Furnish a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

1.4.2 Identification Badges

Identification badges, if required, will be furnished without charge. Application for and use of badges will be as directed. Immediately report instances of lost or stolen badges to the NTR.

1.4.3 Subcontractor Special Requirements

1.4.3.1 Asbestos Containing Material

All contract requirements of Section 13281, "Engineering Control of Asbestos Containing Materials" assigned to the Private Qualified Person (PQP) shall be accomplished directly by a first tier subcontractor.

1.4.4 Contractor Personnel Requirements

Failure to obtain entry approval will not affect the contract price or time of completion.

1.5 SUPERVISION

Have at least one qualified supervisor capable of reading, writing, and conversing fluently in the English language on the job site during working hours. In addition, if a Quality Control (QC) representative is required on the contract, then that individual shall also have fluent English communication skills.

1.6 SUPERVISION

Provide at least one (1) qualified Project Manager and one (1) on-site Project Superintendent per project capable of reading, writing, and conversing fluently in both English and Italian languages. The Project Manager must have a minimum 10 years experience as a Project Manager or Superintendent on projects like this contract or similar in size and complexity. The Project Superintendent must have a minimum of 10 years experience as a Superintendent on projects similar in size and complexity.

In addition to the above experience requirements, the Project Manager and on-site Project Superintendent shall complete the course entitled "Construction Quality Management for Contractors" prior to the start of construction. This course is periodically offered at ROICC Northern Italy, Aviano Air Force Base.

The Project Manager in this context shall mean the individual with the responsibility for the overall management of the project and the Project Superintendent shall mean the individual with the responsibility for quality and production. Both the Project Manager and Project Superintendent are subject to removal by the NTR for non-compliance with requirements specified in the contract and for failure to manage the project to insure timely completion. Furthermore, the NTR may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time for excess costs or damages by the Contractor.

Approval of Project Manager and on-site Project Superintendent is required prior to start of construction. Provide resumes for the proposed Project Manager and on-site Project Superintendent describing their experience with references and qualifications to the NTR for approval. The NTR reserves the right to interview the proposed Project Manager and on-site Project

Superintendent at any time in order to verify the submitted qualifications.

1.7 PRECONSTRUCTION CONFERENCE

After award of the contract but prior to commencement of any work at the site, meet with the NTR to discuss and develop a mutual understanding relative to the administration of the value engineering and safety program, preparation of the schedule prices, shop drawings, and other submittals, scheduling programming, and prosecution of the work. Major subcontractors who will engage in the work shall also attend.

1.8 FAIR LABOR STANDARDS ACT FOR PUERTO RICO

Bidders are hereby informed that the Fair Labor Standards Act may apply to part or all employees on this contract. The Wage and Hour Division of the U.S. Department of Labor has responsibility for administration of this statute, including its interpretation and enforcement. Any information desired by bidders with respect to possible application of the Fair Labor Standards Act to employees on this contract should be requested from the U.S. Department of Labor, Wage and Hour Division, Federal Building, Room 403, Chardon Street, Hato Rey, Puerto Rico 09910, telephone (809) 753-4263/4463, or the Wage and Hour Administrator, U.S. Department of Labor, Washington, D.C.

1.9 EXPORT LICENSES FOR OVERSEAS PROJECTS

Obtain individual export licenses and project export licenses required by the Department of Commerce regulations (15 CFR 772 and 15 CFR 773) so that no delays are experienced in shipping from the United States of America to a foreign country. For additional information, the Contractor may contact one of the U.S. and Foreign Commercial Service District Offices of the Department of Commerce which are located in almost every State.

1.10 WAIVER FOR WORKER'S COMPENSATION

In addition to "FAR 52.228-4, Workers' Compensation and War Hazard Insurance Overseas," the Secretary of Labor has granted a waiver. The waiver does not apply to employees who are hired in the United States, or who are residents, or citizens of the United States.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01320

CONSTRUCTION PROGRESS DOCUMENTATION
09/00

PART 1 GENERAL

1.1 SUBMITTALS

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

SD-01 Preconstruction Submittals

Construction schedule; G

Equipment delivery schedule; G

1.2 CONSTRUCTION SCHEDULE

Within 21 days after receipt of the Notice of Award, prepare and submit to the Navy's Technical Representative (NTR) for approval a construction schedule in the form of a progress chart in accordance with the terms in Contract Clause "FAR 52.236-15, Schedules for Construction Contracts," except as modified in this contract.

1.2.1 HVAC TAB Milestones

Requirements for the milestones related to HVAC TAB work, Section 15950, "HVAC Testing/Adjusting/Balancing," are specified in Section 01200, "Price and Payment Procedures."

1.3 EQUIPMENT DELIVERY SCHEDULE

1.3.1 Initial Schedule

Within 15 calendar days after approval of the proposed construction schedule, submit for NTR approval a schedule showing procurement plans for materials, plant, and equipment. Submit in the format and content as prescribed by the NTR, and include as a minimum the following information:

- a. Description.
- b. Date of the purchase order.
- c. Promised shipping date.
- d. Name of the manufacturer or supplier.
- e. Date delivery is expected.
- f. Date the material or equipment is required, according to the current construction schedule.

1.4 UPDATED SCHEDULES

Update the construction schedule and equipment delivery schedule at monthly

intervals or when schedule has been revised. Reflect any changes occurring since the last update. Submit copies of the purchase orders and confirmation of the delivery dates as directed.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01330

SUBMITTAL PROCEDURES

03/00

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Government-Furnished Information

Submittal register will be delivered to the contractor, by contracting officer on 3 1/2 inch disk. Register will have the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-04 Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Column (f): Indicate approving authority for each submittal. A "G" indicates approval by contracting officer; a blank indicates approval by QC manager.

The database and submittal management program will be extractable from the disk furnished to contractor, for operation on contractor's IBM compatible personal computer with 640kb RAM, a hard drive, and 3 1/2 inch high density floppy disk drive.

1.2 DEFINITIONS

1.2.1 Submittal

Shop drawings, product data, samples, and administrative submittals presented for review and approval. Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.2.2 Types of Submittals

All submittals are classified as indicated in paragraph "Submittal Descriptions (SD)". Submittals also are grouped as follows:

a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by contractor or through contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate portion of work.

b. Product data: Preprinted material such as illustrations, standard

schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.

- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.
- d. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

1.2.3 Submittal Descriptions (SD)

SD-01 Preconstruction Submittals

Certificates of insurance
Surety bonds, or required
List of proposed subcontractors
List of proposed products
Construction Progress Schedule
Submittal schedule
Schedule of values
Health and safety plan
Work plan
Quality control plan
Environmental protection plan
Sampling and Analysis plan
Disposal/Recycling plan

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the contractor for integrating the product or system into the project.

Drawings prepared by or for the contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and

establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

SD-10 Operation and Maintenance Data

Data intended to be incorporated in operations and maintenance manuals.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

As-built drawings

Special warranties

Posted operating instructions

Training plan

1.2.4 Approving Authority

Person authorized to approve submittal.

1.2.5 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce construction and materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.3 SUBMITTALS

Submit the following in accordance with the requirements of this section.

SD-11 Closeout Submittals

Submittal register; G

1.4 USE OF SUBMITTAL REGISTER

Prepare and maintain submittal register, as the work progresses. Use electronic submittal register program furnished by the Government or any other format. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by government; retain data which is output in columns (a), (g), (h), and (i) as approved.

1.4.1 Submittal Register

Submit submittal register as an electronic database, using submittals management program furnished to contractor. Submit with quality control plan and project schedule required by Section 01450, "Quality Control" and Section 01321, "Network Analysis Schedules." Section 01320, "Construction Progress Documentation." Do not change data in columns (c), (d), (e), and (f) as delivered by the government. Verify that all submittals required for project are listed and add missing submittals. Complete the following

on the register:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date contractor needs approval of submittal.

Column (i) Contractor Material: Date that contractor needs material delivered to contractor control.

1.4.2 Contractor Use of Submittal Register

Update the following fields in the government-furnished submittal register program or equivalent fields in program utilized by contractor.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

1.4.3 Approving Authority Use of Submittal Register

Update the following fields in the government-furnished submittal register program or equivalent fields in program utilized by contractor.

Column (b).

Column (l) List date of submittal receipt.

Column (m) through (p).

Column (q) List date returned to contractor.

1.4.4 Contractor Action Code and Action Code

Entries used will be as follows (others may be prescribed by Transmittal Form):

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

1.4.5 Copies Delivered to the Government

Deliver one copy of submitted register updated by contractor to government with each invoice request. Deliver in electronic format, unless a paper copy is requested by contracting officer.

1.5 PROCEDURES FOR SUBMITTALS

1.5.1 Reviewing, Certifying, Approving Authority

QC organization shall be responsible for reviewing and certifying that submittals are in compliance with contract requirements. Approving authority on submittals is QC manager unless otherwise specified for specific submittal. At each "Submittal" paragraph in individual specification sections, a notation "G," following a submittal item, indicates contracting officer is approving authority for that submittal item.

1.5.2 Constraints

- a. Submittals listed or specified in this contract shall conform to provisions of this section, unless explicitly stated otherwise.
- b. Submittals shall be complete for each definable feature of work; components of definable feature interrelated as a system shall be submitted at same time.
- c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.
- d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.5.3 Scheduling

- a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.
- b. Except as specified otherwise, allow review period, beginning with receipt by approving authority, that includes at least 15 working days for submittals for QC manager approval and 20 working days for submittals for contracting officer approval. Period of review for submittals with contracting officer approval begins when Government receives submittal from QC organization. Period of review for each resubmittal is the same as for initial submittal.
- c. For submittals requiring review by fire protection engineer, allow review period, beginning when government receives submittal from QC organization, of 30 working days for return of submittal to the contractor. Period of review for each resubmittal is the same as for initial submittal.

1.5.4 Variations

Variations from contract requirements require Government approval pursuant to contract Clause entitled "FAR 52.236-21, Specifications and Drawings for Construction" and will be considered where advantageous to government.

1.5.4.1 Considering Variations

Discussion with contracting officer prior to submission, will help ensure functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

1.5.4.2 Proposing Variations

When proposing variation, deliver written request to the contracting officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to government. If lower cost is a benefit, also include an estimate of the cost saving. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.5.4.3 Warranting That Variation Are Compatible

When delivering a variation for approval, contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.5.4.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.5.5 Contractor's Responsibilities

- a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.
- b. Transmit submittals to QC organization in accordance with schedule on approved Submittal Register, and to prevent delays in the work, delays to government, or delays to separate contractors.
- c. Advise contracting officer of variation, as required by paragraph entitled "Variations."
- d. Correct and resubmit submittal as directed by approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the contractor shall provide copy of that previously submitted transmittal including all reviewer comments for use by approving authority. Direct specific attention in writing or on resubmitted submittal, to revisions not requested by approving authority on previous submissions.
- e. Furnish additional copies of submittal when requested by contracting officer, to a limit of 20 copies per submittal.
- f. Complete work which must be accomplished as basis of a submittal in time to allow submittal to occur as scheduled.
- g. Ensure no work has begun until submittals for that work have been returned as "approved," or "approved as noted", except to the extent that a portion of work must be accomplished as basis of submittal.

1.5.6 QC Organization Responsibilities

- a. Note date on which submittal was received from contractor on each submittal.
- b. Review each submittal; and check and coordinate each submittal with requirements of work and contract documents.
- c. Review submittals for conformance with project design concepts and compliance with contract documents.
- d. Act on submittals, determining appropriate action based on QC organization's review of submittal.

(1) When QC manager is approving authority, take appropriate action on submittal from the possible actions defined in paragraph entitled, "Actions Possible."

(2) When contracting officer is approving authority or when variation has been proposed, forward submittal to Government with certifying statement or return submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's review of submittal determines appropriate action.

- e. Ensure that material is clearly legible.
- f. Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.

(1) When approving authority is contracting officer, QC organization will certify submittals forwarded to contracting officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number [____], is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Certified by QC manager _____, Date _____"
(Signature)

(2) When approving authority is QC manager, QC manager will use the following approval statement when returning submittals to contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with contract Number [____], is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is _____ approved for use.

Certified by Submittal Reviewer _____, Date _____

(Signature when applicable)

Approved by QC manager _____, Date _____"
(Signature)

- g. Sign certifying statement or approval statement. The person signing certifying statements shall be QC organization member designated in the approved QC plan. The signatures shall be in original ink. Stamped signatures are not acceptable.
- h. Update submittal register as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by contracting officer.
- i. Retain a copy of approved submittals at project site, including contractor's copy of approved samples.

1.5.7 Government's Responsibilities

When approving authority is contracting Officer, the Government will:

- a. Note date on which submittal was received from QC manager, on each submittal for which the contracting officer is approving authority.
- b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.
- c. Identify returned submittals with one of the actions defined in paragraph entitled "Actions Possible" and with markings appropriate for action indicated.

1.5.8 Actions Possible

Submittals will be returned with one of the following notations:

- a. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by contractor or for being incomplete, with appropriate action, coordination, or change.
- b. Submittals marked "approved" "approved as submitted" authorize contractor to proceed with work covered.
- c. Submittals marked "approved as noted" authorize contractor to proceed with work as noted provided contractor takes no exception to the notations.
- d. Submittals marked "revise and resubmit" or "disapproved" indicate submittal is incomplete or does not comply with design concept or requirements of the contract documents and shall be resubmitted with appropriate changes. No work shall proceed for this item until resubmittal is approved.

1.6 FORMAT OF SUBMITTALS

1.6.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels, to office of approving authority. Transmit submittals with transmittal form prescribed by contracting officer and standard for project. The transmittal form shall identify contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample panels and sample installations.

1.6.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction contract number.
- c. Section number of the specification section by which submittal is required.
- d. Submittal description (SD) number of each component of submittal.
- e. When a resubmission, alphabetic suffix on submittal description, for example, SD-10A, to indicate resubmission.
- f. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier contractor associated with submittal.
- g. Product identification and location in project.

1.6.3 Format for Product Data

- a. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.
- b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.
- c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project.

1.6.4 Format for Shop Drawings

- a. Shop drawings shall not be less than 8 1/2 by 11 inches nor more than 30 by 42 inches.
- b. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

- c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."
- d. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the contract drawings. Identify materials and products for work shown.

1.6.5 Format of Samples

- a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:
 - (1) Sample of Equipment or Device: Full size.
 - (2) Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.
 - (3) Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.
 - (4) Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.
 - (5) Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.
 - (6) Color Selection Samples: 2 by 4 inches.
 - (7) Sample Panel: 4 by 4 feet.
 - (8) Sample Installation: 100 square feet.
- b. Samples Showing Range of Variation: Where variations are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range.
- c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples shall be in undamaged condition at time of use.
- d. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.
- e. When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.6.6 Format of Administrative Submittals

- a. When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply contractor's approval stamp to document, but to a

separate sheet accompanying document.

- b. Operation and Maintenance Manual Data: Submit in accordance with Section 01781, "Operation and Maintenance Data." Include components required in that section and the various technical sections.

1.7 QUANTITY OF SUBMITTALS

1.7.1 Number of Copies of Product Data

- a. Submit six copies of submittals of product data requiring review and approval only by QC organization and seven copies of product data requiring review and approval by contracting officer. Submit three copies of submittals of product data for operation and maintenance manuals.

1.7.2 Number of Copies of Shop Drawings

Submit shop drawings in compliance with quantity requirements specified for product data.

1.7.3 Number of Copies of Administrative Submittals

- a. Unless otherwise specified, submit administrative submittals compliance with quantity requirements specified for product data.
- b. Submit administrative submittals required under "SD-19 Operation and Maintenance Manuals" to conform to Section 01781, "Operation and Maintenance Data."

1.8 FORWARDING SUBMITTALS

1.8.1 Samples Required of the Contractor

Submit samples to Commander, LANTNAVFACENCOM, 1510 Gilbert Street, Norfolk, Virginia 23511-2699, Architect-Engineer: CH2M Hill/Baker Environmental, Inc.

1.8.2 Shop Drawings, Product Data, and O&M Data

As soon as practicable after award of the contract, and before procurement or fabrication, submit, except as specified otherwise, to the Commander, LANTNAVFACENCOM, Code 04A1, 1510 Gilbert Street, Norfolk, Virginia 23511-2699, Architect-Engineer: Baker Environmental, Inc., the shop drawings, product data and O&M Data required in the technical sections of this specification. The Architect-Engineer for this project LANTNAVFACENCOM will review and provide surveillance for the NTR to determine if Contractor-approved submittals comply with the contract requirements, and will review and approve for the NTR those submittals not permitted to be Contractor approved to determine if submittals comply with the contract requirements. One copy of the transmittal form for submittals shall be forwarded to the Resident Officer in Charge of Construction.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Site 84, Building 45

CTO219

Not used.

-- End of Section --

SECTION 01430

WASTE SAMPLING REQUIREMENTS

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 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-540/S-97/500	Technology Alternatives for the Remediation of Soils Contaminated with As, Cd, Cr, Hg, and Pb
EPA-540/F-96/020	Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills
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)
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1.2 SUBMITTALS

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

1.2.1 SD-08, Statements

- a. Sample Log

1.2.2 SD-12, Field Test Reports

- a. Waste Sampling Analysis Results

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 contaminated materials existing at the site prior to the commencement of contract work.

1.3.3 Confirmation Sampling

Confirmation sampling shall include all sampling conducted in the open excavations during the post-removal stage to confirm the removal of all contaminated soil. Confirmation sampling and validation of analytical data is not the responsibility of the Contractor.

1.4 DESCRIPTION OF WORK

1.4.1 Contractor Generated Wastes

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

1.4.2 Government Generated Waste

Collect and analyze samples of Government generated waste to determine applicable transportation and disposal requirements. Samples shall be collected only for materials to be transported off site for disposal. The material may include, but not be limited to: PCB and/or PAH-contaminated soil and decontamination solutions resulting from lead-based paint, demolition, and debris. Confirmation sampling of materials to remain on site will be the responsibility of the Contractor.

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 shall also be in accordance with Federal, State and local 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.

3.1.1 Sample Acquisition

Sampling procedures shall be consistent with NEESA 20.2-047B Guidelines.

3.1.1.1 Contractor Generated Waste Samples

Collect samples from Contractor generated waste to determine applicable transportation and disposal requirements. Analyze Contractor generated waste samples for the following parameters:

1. TAL Metals - EPA Methods 6010, 7060, 7080, 7131, 7191, 7421, 7470, 7760, 7740
2. TCL Volatiles - EPA Method 3550/EPA Method 8240
3. TCL Semi-Volatiles - EPA Method 3550/EPA Method 8270

3.1.1.2 Government Generated Waste

Samples shall be collected of materials that will be transported off site for disposal. These samples will determine the applicable transportation and disposal requirements. One thoroughly mixed composite sample shall be collected per disposal facility requirements.

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

For materials such as metal and rubber that will be transported off site for recycling or other disposition, the Contractor shall perform wipe sampling to determine applicable transportation and disposal/recycling facility requirements. Wipe samples shall be at a frequency or collected and analyzed for parameters in accordance with the disposal facility requirements and per all Federal, State, and Local regulations, or as specified within the Scope of Work.

3.1.2 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.

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.

3.1.3 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 01450
QUALITY CONTROL
09/00

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 FOR TESTING AND MATERIALS (ASTM)

ASTM A 880	(1995) Criteria for Use in Evaluation of Testing Laboratories and Organization for Examination and Inspection of Steel, Stainless Steel, and Related Alloys
ASTM C 1077	(1997) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D 3666	(1996) Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials
ASTM D 3740	(1996) Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1995; Rev. C) Agencies Engaged in the Testing and/or Inspection of Materials Used on Construction
ASTM E 543	(1996) Agencies Performing Nondestructive Testing

CORPS OF ENGINEERS (COE)

COE EM-385-1-1	(1996) Safety and Health Requirements Manual
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1.2 SUBMITTALS

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

SD-01 Preconstruction Submittals

Quality Control (QC) plan; G

Submit a QC plan within 20 calendar days after receipt of Notice of Award.

The QC Plan shall include a preliminary submittal of the list of definable features of work that shall cover the first 180 days of construction.

Submit the completed list of definable features of work in conjunction with the Accepted Network Analysis Schedule.

Any approval by the Government of the QC Plan shall be considered to be "approved as noted, resubmittal required" and will be in effect only until the completed list of definable features of work is received and approved. If the completed list of definable features of work and accepted network schedule is not received within the time indicated in the paragraph entitled "Accepted Network Analysis Schedule" of Section 01321, "Network Analysis Schedules," the QC Plan will become disapproved and all work, except for the work authorized in the paragraph entitled "Preliminary Work Authorized Prior to Approval," will stop.

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the Navy's Technical Representative (NTR), or by calling the local EFD/EFA QA Coordinator for an electronic version of the report forms. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control Report, Contractor Quality Control Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log. Other reports referenced below may be in formats customarily used by the Contractor, Testing Laboratories, etc. and will contain the information required by this specification.

Deliver the following to the NTR:

- a. Contractor Quality Control Report; original and 1 copy, by 10:00 AM the next working day after each day that work is performed.
- b. Contractor Production Report: Original and 1 copy, by 10:00 AM the next working day after each day that work is performed, attached to the Contractor Quality Control Report.
- c. Preparatory Phase Checklist: Original attached to the original Contractor Quality Control Report and 1 copy attached to each copy.
- d. Initial Phase Checklist: Original attached to the original Contractor Quality Control Report and 1 copy attached to each copy.
- e. QC specialist Reports: Originals and 1 copy, by 10:00 AM the next working day after each day that work is performed, attached to the Contractor Quality Control Report.
- f. Field Test Reports: 2 copies, within 2 working days after the test is performed, attached to the Contractor Quality Control Report.
- g. Monthly Summary Report of Tests: 2 copies attached to the Contractor Quality Control Report.
- h. Testing Plan and Log, 2 copies, at the end of each month.

- i. Rework Items List: 2 copies, by the last working day of the month.
- j. QC Meeting Minutes: 2 copies, within 2 working days after the meeting.
- k. QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC Organization, a QC Plan, a QC Plan Meeting, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC Manager is on the work site. The QC Manager shall report to an officer of the firm and shall not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the Quality Control Manager is the primary individual responsible for quality control, all three individuals will be held responsible for the quality of work on the job. The project superintendent will be held responsible for the quality of production.

Establish and maintain a QC program as described in this section. The QC program consists of a QC Organization, a QC Plan, a QC Plan Meeting, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC Manager is on the work site. The QC Manager shall report to the project superintendent. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the Quality Control Manager is the primary individual responsible for quality control, all three individuals will be held responsible for the quality of work on the job. The project superintendent will be held responsible for the quality of production.

1.4.1 Preliminary Work Authorized Prior to Approval

The only work that is authorized to proceed prior to the approval of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.2 Approval

Approval of the QC Plan is required prior to the start of construction. The NTR reserves the right to require changes in the QC Plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The NTR reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organization personnel shall be subject to

acceptance by the NTR. The NTR may require the removal of any individual for non-compliance with quality requirements specified in the contract.

1.4.3 Notification of Changes

Notify the NTR, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to acceptance by the NTR.

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The only duties and responsibilities of the QC Manager are to manage and implement the QC program on this contract. The QC Manager shall not be designated as the safety competent person as defined by COE EM-385-1-1. The QC Manager is required to attend the QC Plan Meeting, attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control except for those phases of control designated to be performed by QC specialists, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by the QC specialists, Testing Laboratory personnel and any other inspection and testing personnel required by this Contract.

1.5.1.2 Qualifications

An individual with a minimum of 10 years experience as a superintendent, inspector, QC Manager, project manager, or construction manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual must be familiar with the requirements of COE EM-385-1-1, and have experience in the areas of hazard identification and safety compliance.

A graduate of a four year accredited college program in one of the following disciplines: Engineering, Architecture, Construction Management, Engineering Technology, Building Construction, or Building Science, with a minimum of 4 years experience as a superintendent, inspector, QC Manager, project manager, or construction manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual must be familiar with the requirements of COE EM-385-1-1, and have experience in the areas of hazard identification and safety compliance.

1.5.1.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager shall have completed the course entitled "Construction Quality Management for Contractors." The QC Manager shall have obtained the CQM course certification within 90 days of award.

1.5.2 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager shall be the same as for the QC manager.

1.6 QUALITY CONTROL (QC) PLAN

1.6.1 Requirements

Provide, for approval by the NTR, a QC plan submitted in a 3-ring binder with pages numbered sequentially that covers both on-site and off-site work and includes the following:

- a. A table of contents listing the major sections identified with tabs in the following order:

I.	QC ORGANIZATION
II.	NAMES AND QUALIFICATIONS
III.	DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL
IV.	OUTSIDE ORGANIZATIONS
V.	APPOINTMENT LETTERS
VI.	SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER
VII.	TESTING LABORATORY INFORMATION
VIII.	TESTING PLAN AND LOG
IX.	PROCEDURES TO COMPLETE REWORK ITEMS
X.	DOCUMENTATION PROCEDURES
XI.	LIST OF DEFINABLE FEATURES
XII.	PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL
XIII.	PERSONNEL MATRIX
XIV.	PROCEDURES FOR COMPLETION INSPECTION

- b. A chart showing the QC organizational structure.
- c. Names and qualifications, in resume format, for each person in the QC organization. Include the CQM course certifications for the QC Manager and Alternate QC Manager as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QC Manager Duties and Qualifications".
- d. Duties, responsibilities and authorities of each person in the QC organization.
- e. A listing of outside organizations such as, architectural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.
- f. Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for implementing and managing the QC program as described in this contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of quality control, and their authority to stop work which is not in compliance with the contract. The QC Manager shall issue letters of direction to the Assistant QC Manager and all other QC specialists outlining their duties, authorities, and responsibilities. Copies of the letters shall be included in the

QC plan.

- g. Procedures for reviewing, approving and managing submittals. Provide the names of the persons in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in section entitled "Submittal Procedures."
- h. Testing laboratory information required by the paragraphs entitled "Accreditation Requirements" or "Construction Materials Testing Laboratory Requirements", as applicable.
- i. A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.
- j. Procedures to identify, record, track and complete rework items.
- k. Documentation procedures, including proposed report formats.
- l. List of definable features of work. A definable feature of work (DFOW) is a task which is separate and distinct from other tasks, has the same control requirements and work crews. The list shall be cross-referenced to the contractor's Construction Schedule and the specification sections. For projects requiring a Progress Chart, the list of definable features of work shall include but not be limited to all items of work on the schedule. For projects requiring a Network Analysis Schedule, the list of definable features of work shall include but not be limited to all critical path activities.
 - (1) Include all activities for which this specification requires QC specialists or Specialty Inspection Personnel.
- m. Procedures for Performing the Three Phases of Control. For each DFOW, provide the DFOW's Preparatory and Initial Phase Checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the contract documents. The Preparatory and Initial Phases and meetings shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems for each definable feature of work.
- n. A personnel matrix showing for each section of the specification who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.
- o. Procedures for Identifying and Documenting the Completion Inspection process. Include in these procedures the responsible party for punch out inspection, prefinal inspection, and final acceptance inspection.

1.7 QC PLAN MEETING

Prior to submission of the QC plan, meet with the NTR to discuss the QC plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC plan requirements prior to plan

development and submission.

1.8 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the QC Plan, and prior to the start of construction, meet with the NTR to present the QC program required by this Contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production and QC personnel. At the meeting, the Contractor will be required to explain in detail how three phases of control will be implemented for each definable feature of work. As a minimum, the Contractor's personnel required to attend shall include an officer of the firm, the project manager, project superintendent, QC Manager, A/E, and subcontractor representatives. Each subcontractor who will be assigned QC responsibilities shall have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, the A/E and the NTR. A copy of the signed minutes shall be provided to all attendees by the Contractor. Repeat the coordination and mutual understanding meeting when a new QC Manager is appointed.

Provide a room acceptable to the NTR for the one day meeting. The room shall be equipped with VCR and monitor equipment, overhead projector and a flip chart. Submit for NTR approval the location, date and agenda for this meeting.

1.9 QC MEETINGS

After the start of construction, the QC Manager shall conduct monthly QC meetings at the work site with the project superintendent. The QC Manager shall prepare the minutes of the meeting and provide a copy to the NTR within 2 working days after the meeting. The NTR may attend these meetings. The QC Manager shall notify the NTR at least 48 hours in advance of each meeting. As a minimum, the following shall be accomplished at each meeting:

- a. Review the minutes of the previous meeting;
- b. Review the schedule and the status of work:
 - (1) Work or testing accomplished since last meeting
 - (2) Rework items identified since last meeting
 - (3) Rework items completed since last meeting;
- c. Review the status of submittals:
 - (1) Submittals reviewed and approved since last meeting
 - (2) Submittals required in the near future;
- d. Review the work to be accomplished in the next 2 weeks and documentation required:
 - (1) Establish completion dates for rework items
 - (2) Update the schedule showing planned and actual dates of the preparatory, initial and follow-up phases, including testing and

any other inspection required by this contract

(3) Discuss construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable feature of work

(4) Discuss status of off-site work or testing

(5) Documentation required;

(6) Discuss upcoming Activity Hazard Analyses:

e. Resolve QC and production problems:

(1) Assist in resolving Request for Information issues; and

f. Address items that may require revising the QC plan:

(1) Changes in QC organization personnel

(2) Changes in procedures.

g. Review health and safety plan

1.10 THREE PHASES OF CONTROL

The Three Phases of Control shall adequately cover both on-site and off-site work and shall include the following for each definable feature of work.

1.10.1 Preparatory Phase

Notify the NTR at least 2 work days in advance of each preparatory phase. This phase shall include a meeting conducted by the QC Manager and attended by the superintendent, and the foreman responsible for the definable feature. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report and in the Preparatory Phase Checklist. Perform the following prior to beginning work on each definable feature of work:

a. Review each paragraph of the applicable specification sections;

b. Review the Contract drawings;

c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;

d. Review the testing plan and ensure that provisions have been made to provide the required QC testing;

e. Examine the work area to ensure that the required preliminary work has been completed;

f. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;

g. Discuss construction methods, construction tolerances, workmanship

standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable feature of work; and

- h. Review the safety plan and appropriate activity hazard analysis to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.

1.10.2 Initial Phase

Notify the NTR at least 2 work days in advance of each initial phase. When construction crews are ready to start work on a definable feature of work, conduct the initial phase with the superintendent, and the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of work to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily Contractor Quality Control Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each definable feature of work:

- a. Establish the quality of workmanship required;
- b. Resolve conflicts;
- c. Ensure that testing is performed by the approved laboratory, and
- d. Check work procedures for compliance with the Safety Plan and the appropriate activity hazard analysis to ensure that applicable safety requirements are met.

1.10.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary until the completion of each definable feature of work and document in the daily Contractor Quality Control Report:

- a. Ensure the work is in compliance with Contract requirements;
- b. Maintain the quality of workmanship required;
- c. Ensure that testing is performed by the approved laboratory;
- d. Ensure that rework items are being corrected; and
- e. Perform safety inspections.

1.10.4 Additional Preparatory and Initial Phases

Additional Preparatory and Initial Phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a definable feature is resumed after substantial period of inactivity, or if other problems develop.

1.10.5 Notification of Three Phases of Control for Off-Site Work

Notify the NTR at least two weeks prior to the start of the preparatory and

initial phases.

1.11 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in section entitled "Submittal Procedures."

1.12 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

1.12.1 Accreditation Requirements

Construction materials testing laboratories performing work for Navy construction contracts will be required to submit the following:

- a. A copy of the Certificate of Accreditation and Scope of Accreditation by an acceptable laboratory accreditation authority.

Construction materials testing laboratories performing work for Navy construction contracts must be accredited by one of the laboratory accreditation authorities. The laboratory's scope of accreditation must include the ASTM standards listed in the paragraph titled "Construction Materials Testing Laboratory Requirements" as appropriate to the testing field. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office".

1.12.2 Construction Materials Testing Laboratory Requirements

Provide an independent construction materials testing laboratory accredited by an acceptable laboratory accreditation authority to perform sampling and tests required by this Contract. Testing laboratories that have obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit to the NTR, a copy of the Certificate of Accreditation and Scope of Accreditation.

The scope of the laboratory's accreditation shall include the test methods required by the Contract. For testing laboratories that have not yet obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit an acknowledgment letter from one of the laboratory accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the NTR for approval, certified statements, signed by an official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.

- a. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E 329.
- b. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C 1077.
- c. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D 3666.
- d. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D 3740.

- e. Laboratories engaged in inspection and testing of steel, stainless steel, and related alloys will be evaluated according to ASTM A 880.
- f. Laboratories engaged in nondestructive testing (NDT) shall meet the requirements of ASTM E 543.
- g. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.

1.12.3 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities are the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO) program, ICBO Evaluation Service, Inc. (ICBO ES), and the American Association for Laboratory Accreditation (A2LA) program and the Washington Association of Building Officials (WABO) (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) (Approval authority by WACEL is limited to projects within the Chesapeake Division and Public Works Center Washington geographical area).

Furnish to the NTR, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the Contract.

1.12.4 Capability Check

The NTR retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

1.12.5 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify NTR immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the NTR via the QC Manager. Furnish a summary report of field tests at the end of each month. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.12.6 Test Reports and Monthly Summary Report of Tests

The QC Manager shall furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the NTR. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.13 QC CERTIFICATIONS

1.13.1 Contractor Quality Control Report Certification

Each Contractor Quality Control Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

1.13.2 Invoice Certification

Furnish a certificate to the NTR with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.

1.13.3 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the NTR attesting that "the work has been completed, inspected, tested and is in compliance with the Contract."

1.14 COMPLETION INSPECTIONS

1.14.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Include in the punch list any remaining items on the "Rework Items List" which were not corrected prior to the Punch-Out Inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the NTR. The QC Manager or staff shall make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final Inspection."

1.14.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the customer can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates.

1.14.3 Final Acceptance Inspection

The QC Manager, the QC specialists, the superintendent or other primary contractor management personnel, and the NTR's representative will be in attendance at this inspection. Additional Government personnel may be in attendance. The final acceptance inspection will be formally scheduled by the NTR based upon results of the "Pre-Final" inspection. Notice shall be given to the NTR at least 14 days prior to the final inspection stating

that all specific items previously identified to the Contractor as being unacceptable, along with all the remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the NTR to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction." When the NTR takes possession of partially completed work, it will be in accordance with Contract Clause "Use and Possession Prior to Completion".

1.15 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.15.1 Contractor Production Report

Reports are required for each day that work is performed and shall be attached to the Contractor Quality Control Report prepared for the same day. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Production Reports are to be prepared, signed and dated by the project superintendent and shall contain the following information:

- a. Date of report, report number, name of contractor, Contract number, title and location of Contract and superintendent present.
- b. Weather conditions in the morning and in the afternoon including maximum and minimum temperatures.
- c. Identify work performed by corresponding Schedule Activity No., PC#, Modification No., etc.
- d. A list of Contractor and subcontractor personnel on the work site, their trades, employer, work location, description of work performed, hours worked by trade, daily total work hours on work site this date (incl hours on continuation sheets), and total work hours from start of construction.
- e. A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met including the results on the following:
 - (1) Was a job safety meeting held this date? (If YES, attach a copy of the meeting minutes.)
 - (2) Were there any lost time accidents this date? (If YES, attach a copy of the completed OSHA report.)
 - (3) Was crane/manlift/trenching/scaffold/hv electrical/high work/hazmat work done? (If YES, attach a statement or checklist showing inspection performed.)
 - (4) Was hazardous material/waste released into the environment? (If YES, attach a description of incident and proposed action.)
- f. Identify Schedule Activity No. related to safety action and list

safety actions taken today and safety inspections conducted.

- g. Identify Schedule Activity No., Submittal # and list equipment/material received each day that is incorporated into the job.
- h. Identify Schedule Activity No., Owner and list construction and plant equipment on the work site including the number of hours used.
- i. Include a "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

1.15.1.1 Contractor Production Report (Continuation Sheet)

Additional space required to contain daily information on the Contractor Production Report will be placed on its Continuation Sheet(s). An unlimited number of Continuation Sheets may be added as necessary and attached to the Production Report.

1.15.2 Contractor Quality Control Report

Reports are required for each day that work is performed and for every seven consecutive calendar days of no-work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract.

The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Quality Control Reports are to be prepared, signed and dated by the QC Manager and shall contain the following information:

- a. Date of report, report number, Contract Number, and Contract Title.
- b. Indicate if Preparatory Phase work was performed today (Yes/No checkboxes).
- c. If Preparatory Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index # is a cross reference to the Preparatory Phase Checklist. An example of the Index # is: 0025-P01, where "0025" is the Contractor Quality Control Report Number, "P" indicates Preparatory Phase, and "01" is the Preparatory Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Preparatory Phase Checklist.
- d. Indicate if Initial Phase work was performed today (Yes/No checkboxes).
- e. If Initial Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index # is a cross reference to the Initial Phase Checklist. An example of the Index # is: 0025-I01, where "0025" is the Contractor Quality Control Report Number, "I"

indicates Initial Phase, and "01" is the Initial Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Initial Phase Checklist.

- f. Results of the Follow-up Phase inspections held today (including on-site and off-site work), including Schedule Activity No., the location of the definable feature of work, Specification Sections, etc. Indicate in the report for this definable feature of work that the work complies with the Contract as approved in the Initial Phase, work complies with safety requirements, and that required testing has been performed and include a list of who performed the tests.
- g. List the rework items identified, but not corrected by close of business; along with its associated Schedule Activity Number.
- h. List the rework items corrected from the rework items list along with the corrective action taken and its associated Schedule Activity Number.
- i. Include a "remarks" section in this report which will contain pertinent information including directions received, quality control problem areas, deviations from the QC plan, construction deficiencies encountered, QC meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the QC Organization and corrective action taken by the Contractor. For each remark given, identify the Schedule Activity No. that is associated with the remark.
- j. Contractor Quality Control Report certification, signature and date.

1.15.2.1 Contractor Quality Control Report (Continuation Sheet)

Additional space required to contain daily information on the Contractor Quality Control Report will be placed on its Continuation Sheet(s). An unlimited number of Continuation Sheets may be added as necessary and attached to the Contractor Quality Control Report.

1.15.3 Preparatory Phase Checklist

Each Definable Feature of Work that is in the Preparatory Phase shall have this checklist filled out for it. The checklist shall be identified by terminology consistent with the construction schedule. Attach this checklist to the Contractor Quality Control Report of the same date.

- a. Specification Section, date of report, and Contract number shall be filled out. Duplicate this information in the header of the second page of the report.
- b. Definable Feature of Work, Schedule Activity No. and Index # entry and format will match entry in the Preparatory Phase section of the Contractor Quality Control Report. Duplicate this information in the header of the second page of the report.
- c. Personnel Present: Indicate the number of hours of advance notice that was given to the Government Representative and indicate (Yes/No checkboxes) whether or not the Government Rep was notified. Indicate the Names of Preparatory Phase Meeting

attendees, their position and company/government they are with.

- d. Submittals: Indicate if submittals have been approved (Yes/No checkboxes), if no indicate what has not been submitted. Are materials on hand (Yes/No checkboxes) and if not, what items are missing. Check delivered material/equipment against approved submittals and comment as required.
- e. Material Storage: Indicate if materials/equipment is stored properly (Yes/No checkboxes) and if not, what action is/was taken.
- f. Specifications: Review and comment on Specification Paragraphs that describe the material/equipment, procedure for accomplishing the work and clarify any differences.
- g. Preliminary Work & Permits: Ensure preliminary work is in accordance with the contract documents and necessary permits are on file, if not, describe the action taken.
- h. Testing: Identify who performs tests, the frequency, and where tests are to occur. Review the testing plan, report abnormalities, and if the test facilities have been approved.
- i. Safety: Indicate if the activity hazard analysis has been approved (Yes/No checkboxes) and comment on the review of the applicable portions of the COE EM-385-1-1.
- j. Meeting Comments: Note comments and remarks during the Preparatory Phase Meeting that was not addressed in previous sections of this checklist.
- k. Other Items or Remarks: Note any other remarks or items that were a result of the Preparatory Phase.
- l. QC Manager will sign and date the checklist.

1.15.4 Initial Phase Checklist

Each Definable Feature of Work that is in the Initial Phase shall have this checklist filled out for it. The checklist shall be identified by terminology consistent with the construction schedule. Attach this checklist to the Contractor Quality Control Report of the same date.

- a. Specification Section, date of report, and Contract number shall be entered.
- b. Definable Feature of Work, Schedule Activity No. and Index # entry and format will match entry in the Initial Phase section of the Contractor Quality Control Report.
- c. Personnel Present: Indicate the number of hours of advance notice that was given to the Government Representative and indicate (Yes/No checkboxes) whether or not the Government Rep was notified. Indicate the Names of Initial Phase Meeting attendees, their position and company/government they are with.
- d. Procedure Compliance: Comment on compliance with procedures identified at Preparatory Phase of Control and assurance that work is in accordance with plans, specifications and submittals.

- e. Preliminary Work: Ensure preliminary work being placed is in compliance and if not, what action is/was taken.
- f. Workmanship: Identify where initial work is located; if a sample panel is required (Yes/No checkboxes); is the initial work the sample (Yes/No checkboxes); and if Yes, describe the panel location and precautions taken to preserve the sample.
- g. Resolution: Comment on any differences and the resolutions reached.
- h. Check Safety: Comment on the safety review of the job conditions.
- i. Other: Note any other remarks or items that were a result of the Initial Phase.
- j. QC Manager will sign and date the checklist.

1.15.5 Quality Control Validation

Establish and maintain the following in a series of 3 ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Government's Quality Assurance Team during all business hours.

- a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.
- b. All milestone inspections , arranged by Activity/Event Number.
- c. A current up-to-date copy of the Testing and Plan Log with supporting field test reports, arranged by specification section.
- d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
- e. A current up-to-date copy of the Rework Items List.
- f. Maintain up-to-date copies of all punch lists issued by the QC Staff on the Contractor and Sub-Contractors and all punch lists issued by the Government.

1.15.6 Reports from the QC Specialist(s)

Reports are required for each day that work is performed in their area of responsibility. QC specialist reports shall include the same documentation requirements as the Contractor Quality Control Report for their area of responsibility. QC specialist reports are to be prepared, signed and dated by the QC specialists and shall be attached to the Contractor Quality Control Report prepared for the same day.

1.15.7 Testing Plan and Log

As tests are performed, the QC Manager shall record on the "Testing Plan and Log" the date the test was conducted, the date the test results were forwarded to the NTR, remarks and acknowledgement that an accredited or NTR approved testing laboratory was used. Attach a copy of the updated "Testing Plan and Log" to the last daily Contractor Quality Control Report

of each month.

1.15.8 Rework Items List

The QC Manager shall maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily Contractor Quality Control Report of each month. The Contractor shall be responsible for including on this list items needing rework including those identified by the NTR.

1.15.9 As-Built Drawings

The QC Manager is required to ensure the as-built drawings, required by Section 01770, "Closeout Procedures," are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., Request for Information No., etc.). The QC Manager shall initial each deviation and each revision. Upon completion of work, the QC Manager shall furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the NTR.

1.15.10 Report Forms

The following forms, are acceptable for providing the information required by the paragraph entitled "Documentation." While use of these specific formats are not required, any other format used shall contain the same information:

- a. Contractor Quality Control Report w/ continuation sheet(s).
- b. Contractor Production Report w/ continuation sheet(s).
- c. Preparatory Phase Checklist.
- d. Initial Phase Checklist.
- e. Testing Plan and Log.
- f. Rework Items List.

1.16 NOTIFICATION ON NON-COMPLIANCE

The NTR will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the NTR may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time for excess costs or damages by the Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS
09/99

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 within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C511 (1997) Reduced-Pressure Principle Backflow Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)

FCCCHR-CCC Manual of Cross-Connection Control

FCCCHR-USC List of Approved Backflow Prevention Assemblies

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

FHWA MUTCD (1988) Manual on Uniform Traffic Control Devices

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (1999) National Electrical Code

NFPA 241 (1996) Safeguarding Construction, Alteration, and Demolition Operations

1.2 SUBMITTALS

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

SD-01 Preconstruction Submittals

Traffic control plan; G

SD-06 Test Reports

Backflow Preventer Tests; G

SD-07 Certificates

Backflow Tester Certification; G

Backflow Preventers Certificate of Full Approval

1.3 BACKFLOW PREVENTERS CERTIFICATE

Certificate of Full Approval from FCCCHR-USC, University of Southern California, attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval will not be acceptable.

1.3.1 Backflow Prevention Training Certificate

The Contractor shall submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

1.4 TEMPORARY UTILITIES

Reasonable amounts of the following utilities will be made available to the Contractor at the prevailing rates.

The point at which the Government will deliver such utilities or services and the quantity available is as indicated. The Contractor shall pay all costs incurred in connecting, converting, and transferring the utilities to the work. The Contractor shall make connections, including providing backflow-preventing devices on connections to domestic water lines; providing meters; and providing transformers; and make disconnections.

1.4.1 Contractor Utilities

The Contractor shall provide his own utilities.

1.4.2 Utilities at Special Locations

Reasonable amounts of utilities will be made available to the Contractor at the prevailing Government rates. These rates may be obtained upon application to the Commanding Officer, by way of the NTR. The Contractor will be responsible for making connections, providing transformers and meters, and making disconnections; and for providing backflow preventer devices on connections to domestic water lines.

Reasonable amounts of utilities will be made available to the Contractor at the prevailing Government rates and may be obtained upon application to the Base Maintenance Officer, Bldg. 1202, Marine Corps Base, Camp Lejeune. A refundable security deposit to the Resident Officer in Charge of Construction shall be made prior to application for services. The Contractor shall be responsible for providing transformers, meter bases, electrical service poles and drops for electrical services, and backflow preventer devices on connections to domestic water lines. Final taps and tie-ins to the Government utility grid will be made by Base Maintenance who will also provide and seal a 120 or 208 volt, three-wire kWh meter. Tap-in cost, if any, shall be the responsibility of the Contractor. Tampering or movement of a sealed meter without notification to base maintenance is grounds for discontinuance of electrical service. The Contractor shall be responsible for providing larger meters required if not available from the Government. The Contractor shall be responsible for the cost of utility services required until the date of Government acceptance. Under no circumstances will taps to base fire hydrants be allowed for obtaining domestic water.

1.5 BACKFLOW TESTER CERTIFICATION

Prior to testing, submit to the NTR certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester shall not be affiliated with any company participating in any other phase of this Contract.

1.6 STATION OPERATION AFFECT ON CONTRACTOR OPERATIONS

1.6.1 Restricted Access Areas

The Government will monitor work in areas indicated. Notify NTR at least 14 calendar days prior to starting work in these areas.

1.6.2 Special Restrictions Regarding Access of Vehicles and Parking

1.6.2.1 Interruption of Vehicular Traffic

If during the performance of work, it becomes necessary to modify vehicular traffic patterns at any locations, notify the NTR at least 15 calendar days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plan shall be in accordance with State and local regulations and the FHWA MUTCD, Part VI. Make all notifications and obtain any permits required for modification to traffic movements outside Station's jurisdiction. Provide cones, signs, barricades, lights, or other traffic control devices and personnel required to control traffic.

1.7 STORAGE AREAS

The Contract Clause entitled "FAR 52.236-10, Operations and Storage Areas" and the following apply:

1.8 TEMPORARY SANITARY FACILITIES

Provide adequate sanitary conveniences of a type approved for the use of persons employed on the work, properly secluded from public observation, and maintained in such a manner as required and approved by the NTR. Maintain these conveniences at all times without nuisance. Upon completion of the work, remove the conveniences from the premises, leaving the premises clean and free from nuisance. Dispose of sewage through connection to a municipal, district, or station sanitary sewage system. Where such systems are not available, use chemical toilets or comparably effective units, and periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Include provisions for pest control and elimination of odors.

1.9 TEMPORARY BUILDINGS

Locate these facilities where indicated.

1.9.1 Maintenance of Temporary Facilities

Suitably paint and maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal.

PART 2 PRODUCTS

2.1 Backflow Preventers

Reduced pressure principle type conforming to the applicable requirements AWWA C511. The particular make, model/design, and size of backflow preventers to be installed shall be included in the latest edition of the List of Approved Backflow Prevention Assemblies issued by the FCCCHR-USC and shall be accompanied by a Certificate of Full Approval from FCCCHR-USC.

PART 3 EXECUTION

3.1 TEMPORARY PHYSICAL CONTROLS

3.1.1 Access Controls

3.1.1.1 Temporary Barricades

Contractor shall provide for barricading around all work areas to prevent public access.

3.1.1.2 Fencing

Fencing shall be provided along the construction site at all open excavations and tunnels to control access by unauthorized people. Fencing must be installed to be able to restrain a force of at least 250 pounds against it.

3.1.1.3 Signs

Place warning signs at the construction area perimeter designating the presence of construction hazards requiring unauthorized persons to keep out. Signs must be placed on all sides of the project, with at least one sign every 300 feet. All points of entry shall have signs designating the construction site as a hard hat area.

3.1.1.4 Traffic Work

All work around/involving roadways, to include roadway excavations and utility crossings, will be conducted in accordance with Manual of Traffic Control Devices. Contractors shall provide and ensure appropriate road closure and detour signs are established as necessary for motor traffic management. All road closures shall be coordinated with the NTR in advance. Self-illuminated (lighted) barricades shall be provided during hours of darkness. Brightly-colored (orange) vests are required for all personnel working in roadways. Road closures shall require a road closure plan showing the location of signage.

3.2 TEMPORARY WIRING

Provide temporary wiring in accordance with NFPA 241 and NFPA 70, Article 305-6(b), Assured Equipment Grounding Conductor Program. Program shall include frequent inspection of all equipment and apparatus.

3.3 REDUCED PRESSURE BACKFLOW PREVENTERS

Provide an approved reduced pressure backflow prevention assembly at each location where the Contractor taps into the Government potable water supply.

A certified tester(s) shall perform testing of backflow preventer(s) for proper installation and operation and provide subsequent tagging. Backflow preventer tests shall be performed using test equipment, procedures, and

certification forms conforming to those outlined in the latest edition of the Manual of Cross-Connection Control published by the FCCCHR-CCC. Test and tag each reduced pressure backflow preventer upon initial installation (prior to continued water use) and monthly thereafter. Tag shall contain the following information: make, model, serial number, dates of tests, results, maintenance performed, and signature of tester. Record test results on certification forms conforming to requirements cited earlier in this paragraph.

-- End of Section --

SECTION 01525

SAFETY REQUIREMENTS
09/00

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 A10.14 | (1991) Construction and Demolition Operations - Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use |
| ANSI Z359.1 | (1992) Safety Requirements for Personal Fall Arrest Systems |

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

- | | |
|-------------|---------------------------------|
| ASME B30.5 | (1994) Mobile Cranes |
| ASME B30.22 | (1993) Articulating Boom Cranes |

CODE OF FEDERAL REGULATIONS (CFR)

- | | |
|--------------------|---|
| 29 CFR 1910.94 | Ventilation |
| 29 CFR 1910.120 | Hazardous Waste Operations and Emergency Response |
| 29 CFR 1926.65 | Hazardous Waste Operations and Emergency Response |
| 29 CFR 1926.502(f) | Warning Line Systems |

CORPS OF ENGINEERS (COE)

- | | |
|----------------|--|
| COE EM-385-1-1 | (1996) Safety and Health Requirements Manual |
|----------------|--|

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- | | |
|----------|---|
| NFPA 10 | (1995) Portable Fire Extinguishers |
| NFPA 70 | (1999) National Electrical Code |
| NFPA 241 | (1996) Safeguarding Construction, Alteration, and Demolition Operations |

1.2 DEFINITIONS

- a. Certified Industrial Hygienist. An industrial hygienist is an

individual who is certified by the American Board of Industrial Hygiene.

- b. Certified Safety Professional. A safety manager, safety specialist, or safety engineer that has passed the CSP exam administered by the Board of Certified Safety Professionals.
- c. Competent Person. A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- d. Confined Space. A space which by design has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include, but are not limited to storage tanks, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.
- e. First Aid. First aid is any one-time treatment, and any follow-up visit for the purpose of observation, of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care, even though provided by a physician or registered professional personnel.
- f. Health and Safety Plan (HASP). The HASP is the Navy equivalent Army term of SHP or SSHP used in COE EM-385-1-1. "USACE" property and equipment specified in COE EM-385-1-1 should be interpreted as Government property and equipment.
- g. Lost Workdays. The number of days (consecutive or not) after, but not including, the day of injury or illness during which the employee would have worked but could not do so; that is, could not perform all or part of his normal assignment during all or any part of the workday or shift; because of the occupational injury or illness.
- h. Medical Treatment. Medical treatment includes treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.
- i. Multi-employer work site (MEWS). A multi-employer work site, as defined by OSHA, is one in which many employers occupy the same site. The Navy considers the prime contractor to be the "controlling authority" for all work site safety and health of the subcontractors.
- j. Operating Envelope. There is an "operating envelope" around any crane, and inside the envelope are the operator, riggers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).
- k. Qualified Person. One who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge,

training, and experience, has successfully demonstrated his or her ability to solve or resolve problems related to the subject matter, the work or the project.

1. Recordable Occupational Injuries or Illnesses. Any occupational injuries or illnesses which result in:
 - (1) Fatalities, regardless of the time between the injury and death, or the length of the illness; or
 - (2) Lost Workday Cases, other than fatalities, that result in lost workdays, or
 - (3) Non-Fatal Cases without lost workdays which result in transfer to another job or termination of employment, or require medical treatment (other than first aid) or involve: loss of consciousness or restriction of work or motion. This category also includes any diagnosed occupational illnesses which are reported to the employer but are not classified as fatalities or lost workday cases.
- m. Safety Officer. The superintendent or other qualified or competent person who is responsible for the on-site safety required for the project. The contractor quality control person cannot be the safety officer, even though the QC has safety inspection responsibilities as part of the QC duties.
- n. Serious Accidents. Any work-related incident, which results in, a fatality, in-patient hospitalization of three or more employees, or property damage in excess of \$200,000.
- o. Significant Accident. Any contractor accident which involves falls of (4 feet) or more, electrical accidents, confined space accidents, diving accidents, equipment accidents, crane accident or fire accidents, which, result in property damage of \$10,000 or more, but less than \$200,000; or when fire department or emergency medical treatment (EMT) assistance is required.
- p. Weight Handling Equipment (WHE) Accident. A WHE accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; and collision, including unplanned contact between the load, crane, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.).

1.3 SUBMITTALS

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

SD-07 Certificates

Accident Prevention Plan (APP); G

Activity Hazard Analysis (AHA); G

Health and Safety Plan (HASP); G

SD-11 Closeout Submittals

Daily Confined Space Entry Permit

Submit one copy of each permit attached to each Daily Production Report.

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Crane Reports

Crane Critical Lift Plan

Certificate of Compliance

1.4 QUALITY ASSURANCE

1.4.1 Safety Specialist

Provide a Safety Specialist at the work site to perform safety management, surveillance, inspections, and safety enforcement for the contractor. The Safety Specialist shall be the safety "competent person" as defined by COE EM-385-1-1. The Safety Specialist shall be at the work site at all times whenever work or testing is being performed, shall conduct daily safety inspections and shall have no other duties other than safety management, inspections, and safety enforcement on this contract.

1.4.2 Qualifications

a. Qualifications of Safety Officer:

- (1) Ability to manage the on-site contractor safety program through appropriate management controls.
- (2) Ability to identify hazards and have the capability to expend resources necessary to abate the hazards.
- (3) Must have worked on similar types of projects that are equal to or exceed the scope of the project assigned with the same responsibilities.
- (4) Shall, as a minimum, have attended an OSHA training qualification class including at least 10 hours of classroom instruction.

b. Qualifications of Qualified Person, Confined Space Entry. The qualified person shall be capable (by education and specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a

confined space. This person shall be capable of specifying necessary control and protective action to ensure worker safety. Since this work involves marine operations that handle combustible or hazardous materials, this qualified person shall be a NFPA certified marine chemist.

- c. Qualification of Crane Operators. Crane operators shall meet the requirements in COE EM-385-1-1, Appendix G.

1.4.3 Meetings

1.4.3.1 Preconstruction Conference

The safety officer shall attend the preconstruction conference.

1.4.3.2 Meeting on Work Procedures

- a. Meet with NTR to discuss work procedures and safety precautions required by the APP. Ensure the participation of the contractor's superintendent, the quality control, and the CSP or CIH.
- b. Meet with NTR to discuss work procedures and safety precautions required by the HASP. Ensure the participation of the contractor's superintendent, the quality control, and the CSP or CIH.

1.4.3.3 Weekly Safety Meetings

Hold weekly at the project site. Attach minutes showing contract title, signatures of attendees and a list of topics discussed to the QC Contractor Quality Control daily report.

1.4.3.4 Work Phase Meetings

The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection.

1.4.3.5 New Employee Indoctrination

New employees will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

1.4.4 Certifications

1.4.4.1 Accident Prevention Plan (APP)

Submit the APP at least 15 calendar days prior to start of work at the job site, following Appendix A of COE EM-385-1-1. Make the APP site specific. Notice To Proceed will be given after Government finds the APP acceptable.

1.4.4.2 Activity Hazard Analysis (AHA)

Submit the AHA for review at least 15 calendar days prior to the start of each phase. Format subsequent AHA as amendments to the APP. In accordance with contract quality control requirements each AHA will be reviewed during an on-site preparatory inspection.

1.4.4.3 Health and Safety Plan (HASP)

Submit the HASP for projects involving the handling of hazardous materials and allow 30 calendar days for review by Naval Environmental Health Center (NEHC) for health hazard review and Naval Facilities Engineering Command, Engineering Field Division (EFD) or Engineering Field Activity (EFA) construction safety manager. The NTR will act on the HASP only after 30 day NEHC and EFD/EFA safety manager reviews.

1.4.5 Reports

1.4.5.1 Crane Reports

Submit crane inspection reports required in accordance with COE EM-385-1-1 and as specified herein with Daily Reports of Inspections.

1.4.5.2 Crane Critical Lift Plan

Submit crane critical lift plan COE EM-385-1-1 section 16 when crane loads meet or exceed 75 percent of the crane load capacity in any configuration.

1.4.5.3 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering a Naval activity under this contract (see ROICC for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. For cranes at Naval activities in foreign countries, the Contractor shall certify that the crane and rigging gear conform to the appropriate host country safety standards. The Contractor shall also certify that all of its crane operators working on the Naval activity have been trained not to bypass safety device (e.g., anti-two block devices) during lifting operations. These certifications shall be posted on the crane.

1.5 ACCIDENT PREVENTION PLAN (APP)

Prepare the APP in accordance with the required and advisory provisions of COE EM-385-1-1 including Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan," and as modified herein. Include the associated AHA and other specific plans, programs and procedures listed on Pages A-3 and A-4 of COE EM-385-1-1, some of which are listed below.

1.5.1 Contents of the Accident Prevention Plan

- a. Name and safety related qualifications of safety officer (including training and any certifications).
- b. Qualifications of competent and of qualified persons.
- c. Identity of the individual who will complete exposure data (hours worked); accident investigations, reports and logs; and immediate notification of accidents to include subcontractors.
- d. Emergency response plan. Conform to COE EM-385-1-1, paragraph 01.E and include a map denoting the route to the nearest emergency

care facility with emergency phone numbers. Contractor may be required to demonstrate emergency response.

- e. Confined Space Entry Plan. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)
- f. Hazardous Material Use. Provisions to deal with hazardous materials, pursuant to the Contract Clause "FAR 52.223-3, Hazardous Material Identification and Material Safety Data." And the following:
 - (1) Inventory of hazardous materials to be introduced to the site with estimated quantities.
 - (2) Plan for protecting personnel and property during the transport, storage and use of the materials.
 - (3) Emergency procedures for spill response and disposal, including a site map with approximate quantities on site at any given time. The site map will be attached to the inventory, showing where the hazardous substances are stored.
 - (4) Material Safety Data Sheets for inventoried materials not required in other section of this specification.
 - (5) Labeling system to identify contents on all containers on-site.
 - (6) Plan for communicating high health hazards to employees and adjacent occupants.
- g. Hazardous Energy Control Plan. For hazardous energy sources, comply with COE EM-385-1-1, paragraph 12.A.07.
- h. Critical Lift Plan. Weight handling critical lift plans shall be prepared and signed in accordance with COE EM-385-1-1, paragraph 16.c.18.
- i. Alcohol and Drug Abuse Plan
 - (1) Describe plan for random checks and testing with pre-employment screening in accordance with the DFAR Clause subpart 252.223-7004, "Drug Free Work Force."
 - (2) Description of the on-site prevention program
- j. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A qualified person shall prepare the plan. The plan shall include fall protection and prevention systems, equipment and methods employed, responsibilities, rescue and escape equipment and

- operations, training requirements, and monitoring methods. FP&P Plan shall be revised once every six months for lengthy projects, to reflect any new changes during the course of construction, due to changes of personnel, equipment, systems or work habits.
- k. Silica Exposure Reduction. The plan shall include specific procedures to prevent employee silica inhalation exposures.
 - l. Lead Abatement Plan. The safety and health aspects of lead-based paint removal, prepared in accordance with Section 13283, "Removal and Disposal of Lead Containing Paint".
 - m. Site Demolition Plan. The safety and health aspects prepared in accordance with Section 02220, "Site Demolition" and referenced sources. Include engineering survey as applicable.
 - n. Excavation Plan. The safety and health aspects prepared in accordance with Section 02302, "Excavation, Backfilling, and Compacting for Utilities"
 - o. Training Records and Requirements. List of mandatory training and certifications which are applicable to this project (e.g. explosive actuated tools, confined space entry, fall protection, crane operation, vehicle operator, forklift operators, personal protective equipment); list of requirements for periodic retraining/certification; outline requirements for supervisory and employee safety meetings.
 - p. Severe Weather Plan. Procedures of ceasing on-site operations during lightning or upon reaching maximum allowed wind velocities.
 - q. Emergency Lighting and Power Systems Plan (e.g. periodic testing of batteries for emergency lighting.)

1.5.2 Hazardous Material Use

Each hazardous material must receive approval prior to bringing onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material. Any work or storage involving hazardous chemicals or materials must be done in a manner that will not expose government employees to any unsafe or unhealthful conditions. Adequate protective measures must be taken to prevent government employees from being exposed to any hazardous condition that could result from the work or storage. Approval by the NTR of protective measures and storage area is required prior to the start of the work.

1.6 ACTIVITY HAZARD ANALYSIS (AHA)

Prepare for each phase of the work. As a minimum, define activity being performed, sequence of work, specific hazards anticipated, control measures to eliminate or reduce each hazard to acceptable levels, training requirements for all involved, and the competent person in charge of that phase of work. For work with fall hazards, including fall hazards associated with scaffold erection and removal, identify the appropriate fall arrest systems. For work with materials handling equipment, address safeguarding measures related to materials handling equipment. For work requiring excavations, include excavation safeguarding requirements. The appropriate AHA shall be reviewed and attendance documented by the

Contractor at the preparatory, initial, and follow-up phases of quality control inspection.

1.7 HEALTH AND SAFETY PLAN (HASP)

Prepare as required by 29 CFR 1910.120 and COE EM-385-1-1.

1.7.1 Qualified Personnel

Retain a Certified Industrial Hygienist (CIH) or a Certified Safety Professional (CSP) to prepare the HASP, conduct activity hazard analyses, and prepare detailed plan for demolition, removal, and disposal of materials. Retain the CIH or CSP for duration of contract.

1.7.2 Contents

In addition to the requirements of COE EM-385-1-1, Table 28-1, the HASP must include:

- a. Location, size, and details of control areas.
- b. Location and details of decontamination systems.
- c. Interface of trades involved in the construction.
- d. Sequencing of work.
- e. Disposal plan.
- f. Sampling protocols.
- g. Testing labs.
- h. Protective equipment.
- i. Pollution control.
- j. Evidence of compliance with 29 CFR 1910.120 and 29 CFR 1926.65.
- k. Training and certifications of CIH, CSP or other competent persons.

1.8 DRUG PREVENTION PROGRAM

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employees either use illegal drugs or consume alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine or saliva specimens and test injured employee's influence. A copy of the test shall be made available to the NTR upon request.

1.9 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

1.9.1 Scaffolds

Delineate the fall protection requirements necessary during the erection and dismantling operation of scaffolds used on the project in the Fall Protection and Prevention (FP&P) plan and activity hazard analysis for the phase of work.

1.9.2 Training

Institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, Contractor shall provide training for each employee who might be exposed to fall hazards.

1.10 DUTIES OF THE SAFETY OFFICER

- a. Ensure construction hazards are identified and corrected.
- b. Maintain applicable safety reference material on the job site.
- c. Maintain a log of safety inspections performed.
- d. Attend the pre-construction conference as required.
- e. Identify hazardous conditions and take corrective action. Failure to do so will result in a dismissal from the site, with a work stoppage pending approval of suitable replacement personnel.

1.11 DISPLAY OF SAFETY INFORMATION

Display the following information in clear view of the on-site construction personnel:

- a. Map denoting the route to the nearest emergency care facility with emergency phone numbers.
- b. AHA
- c. Confined space entry permit.
- d. A sign indicating the number of hours worked since last lost workday accident.

1.12 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturers' manuals.

1.13 HIGH HAZARD WORK AND LONG DURATION

Work under this contract is potentially hazardous. Pursuant to contract clause "FAR 52.236-13, Accident Prevention, Alternate I," submit in writing additional proposals for effecting accident prevention under hazardous conditions. Meet in conference with NTR to discuss and develop mutual understanding relative to the administration of the overall safety program.

1.14 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment. However, if emergency medical care is rendered by Navy medical services, charges may be billed to Contractor at prevailing rates established in BUMED Instruction 6320.4 series. Reimbursement shall be made by Contractor to Naval Regional Medical Center Collection Agent upon receipt of monthly statement.

1.15 REPORTS

1.15.1 Accident Reports

- a. For recordable occupational injuries and illnesses, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the Navy Contractor Significant Incident Report (CSIR) form and provide to the NTR within 5 calendar days of the accident. The NTR will provide a copy of the CSIR form.
- b. For a weight handling equipment accident the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the WHE Accident Report form and provide to the NTR within 30 calendar days of the accident. The NTR will provide a blank copy of the WHE accident report form.

1.15.2 Notification

Notify the NTR as soon as practical, but not later than four hours, of any accident meeting the definition of Recordable Occupational Injuries or Illnesses or Significant Accidents. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; and brief description of accident (to include type of construction equipment used, PPE used, etc.).

1.15.3 Monthly Exposure Report

Monthly exposure reporting, to the NTR is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor.

1.15.4 OSHA Citations and Violations

Provide the NTR with a copy of each OSHA citation, OSHA report and contractor response. Correct violations and citations promptly and provide written corrective actions to the NTR.

1.15.5 Crane Notification

Notify NTR at least 15 days prior to bringing any crane equipment on-site so that the contracting officer may arrange for any additional quality assurance spot checks necessary by the government.

PART 2 PRODUCTS

2.1 FALL PROTECTION ANCHORAGE

Fall protection anchorage, conforming to ANSI Z359.1, will be left in place and so identified for continued customer use.

2.2 CONFINED SPACE SIGNAGE

Provide permanent signs integral to or securely attached to access covers for new permit required confined spaces. Signs wording: "DANGER--PERMIT REQUIRED CONFINED SPACE - DO NOT ENTER -" on bold letters a minimum of one

inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" shall be red and readable from 5 feet.

PART 3 EXECUTION

3.1 CONSTRUCTION

Comply with COE EM-385-1-1, NFPA 241, the accident prevention plan, the activity hazard analysis and other related submittals and activity fire and safety regulations.

3.1.1 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. Exceptions to the use of any of the above excluded materials may be considered by NTR upon written request by Contractor.

3.1.2 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and nonfriable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the NTR immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages a minimum of 15 days in advance. As a minimum, the request should include the location of the outage, utilities being effected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the ROICC and the Station Utilities Department to review the scope of work and the lock out/tag out procedures for worker protection. No work will be performed on energized electrical equipment unless proven impassable. Working equipment "hot" must be considered the last option.

3.3 PERSONNEL PROTECTION

3.3.1 Hazardous Noise

Provide hazardous noise signs, and hearing protection, wherever equipment and work procedures produce sound-pressure levels greater than 85 dBA steady state or 140 dBA impulse, regardless of the duration of the exposure.

3.3.2 Fall Protection

Enforce use of the fall protection device designated for each specific work

activity in the FP&P plan and/or AHA all times when an employee is on a surface 6 feet or more above lower levels. Personal fall arrest systems are required when working from an articulating or extendible boom, scissor lifts, swing stages, or suspended platform. Fall protection must comply with ANSI A10.14.

3.3.2.1 Personal Fall Arrest Device

Personal fall arrest device equipment, systems, subsystems, and components shall meet ANSI Z359.1, "Safety Requirements for Personal Fall Arrest Systems". Only a full-body harness with a shock absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest device. Body belts may only be used as a positioning device system such as steel reinforcing assembly and in conjunction with another fall arrest system. Harnesses shall have a fall arrest attachment, which is a connector, affixed to the body support (usually a D-ring) and specifically designated for attachment to the rest of the system. Only double locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber.

3.3.2.2 Safety Nets

If safety nets are used as the selected fall protection system on the project, they shall be provided at unguarded workplaces, over water, machinery, dangerous operations and leading edge work.

3.3.2.3 Existing Anchorage

Existing anchorages, used for attachment of personal fall arrest equipment, if to be used by the Contractor, shall be re-certified by the contractor's fall protection engineer (QP).

3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Stair towers or ladders built into scaffold systems in accordance with USACE EM 385-1-1 Appendix J are required for work platforms greater than 20 feet in height. Contractor shall ensure that employees that are qualified perform scaffold erection. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection plan. Minimum platform size shall be based on the platform not being greater in height than three times the dimension of the smallest width dimension for rolling scaffold. Some Baker type scaffolding has been found not to meet these requirements. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Outrigger brackets used to extend scaffold platforms on self supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

3.5 EQUIPMENT

3.5.1 Material Handling Equipment

- a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees

unless specifically delineated in the manufacturer's printed operating instructions.

- b. The use of hooks on equipment for lifting of material must be in accordance with manufacturers printed instructions.

3.5.2 Weight Handling Equipment

- a. Cranes must be equipped with:
 - (1) Load Indicating Devices (LIDs) and a Boom Angle or Radius Indicator,
 - (2) or Load-Moment Indicating Devices (LMIs).
 - (3) Anti-two-block prevention devices.
 - (4) Boom Hoist Hydraulic Relief Valve, Disconnect, or Shutoff (stops hoist when boom reaches a predetermined high angle).
 - (5) Boom Length Indicator (for telescoping booms).
 - (6) Device to prevent uncontrolled lowering of a telescoping hydraulic boom.
 - (7) Device to prevent uncontrolled retraction of a telescoping hydraulic boom.
- b. The Contractor shall notify the NTR, in advance, of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated.
- c. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturers recommended procedures.
- d. The Contractor shall comply with ASME B30.5 for mobile cranes, and ASME B30.22 for articulating boom cranes.
- e. Each load shall be rigged/attached independently to the hook/master-link in such a fashion that the load cannot slide or otherwise become detached. Christmas-tree lifting (multiple rigged materials) is not allowed.
- f. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of ASME B30.5 or ASME B30.22 as applicable.
- g. Crane supported work platforms shall only be used in extreme conditions if the Contractor proves that using any other access to the work location would provide a greater hazard to the workers. Personnel shall not be lifted with a live hoist or friction crane.
- h. A fire extinguisher having a minimum rating of 10BC and a minimum nominal capacity of 5lb of extinguishing agent shall be available

at all operator stations or cabs of cranes. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

- i. All employees shall be kept clear of loads about to be lifted and of suspended loads.
- j. A weight handling equipment operator shall not leave his position at the controls while a load is suspended.
- k. A Contractor Crane Operation Checklist shall be used by the CQC representative during oversight of contractor crane operations (refer to COE EM-385-1-1 Appendix H and ROICC for copies).
- l. Only contractor crane operators who have met the requirements of 29 CFR 1910.94, 29 CFR 1910.120, 29 CFR 1926.65, 29 CFR 1926.502(f), COE EM-385-1-1, ASME B30.5, and ASME B30.22 and other local and state requirements shall be authorized to operate the crane.
- m. Cribbing shall be utilized by the Contractor when performing lifts on outriggers.
- n. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.
- o. A physical barricade must be positioned to prevent personnel from entering the tailswing area of the crane.
- p. A substantial and durable rating chart containing legible letters and figures shall be provided with each crane and securely mounted onto the crane cab in a location allowing easy reading by the operator while seated in the control station.
- q. Certification records which include the date of inspection, signature of the person performing the inspection along with the serial number or other identifier of the crane which was inspected. This record will always be available for review by contracting officer personnel.
- r. Written reports listing the load test procedures utilized along with any repairs or alterations performed on the crane will be available for review by the contracting officer personnel.
- s. Contractor shall certify that all of the crane operators have been trained not to bypass safety devices (e.g. anti-two block devices) during lifting operations.

3.6 Excavations

The competent person for excavation performed as a result of contract work shall be on-site when work is being performed in excavation, and shall inspect excavations prior to entry by workers. The competent person must evaluate for all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly. Prior to digging the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a utility locating service and coordinated with Station Utility Departments. The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools

when any adjacent construction work is expected to come within three feet of the underground system. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30 m (100 feet) if parallel within 5 feet of the excavation. Trench and shoring systems must be identified in the accepted safety plan and activity hazard analysis. Extreme care must be used when excavating near direct burial electric underground cables. Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file in the project site office or trailer.

3.7 ELECTRICAL

3.7.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cable intended to be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the NTR and Station Utilities for identification. The NTR will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cutting remotely. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. Insulating blankets, hearing protection, and switching suits may be required, depending on the specific job and as delineated in the Contractor AHA.

3.7.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered.

3.8 WORK IN CONFINED SPACES

Comply with the requirements in Section 06.I of COE EM-385-1-1. Any potential for a hazard in the confined space requires a permit system to be used.

- a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of COE EM-385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

- b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained.
- c. Ensure the use of rescue and retrieval devices in confined spaces greater than 5 feet in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of COE EM-385-1-1.
- d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.
- e. Include training information for employees who will be involved as entrant attendants for the work. Conform to Section 06.I.06 of COE EM-385-1-1.
- f. Entry Permit. Use ENIFORM 5044-R or other form with the same minimum information for the Daily Confined Space Entry Permit, completed by the qualified person. Post the permit in a conspicuous place close to the confined space entrance.

3.9 CRYSTALLINE SILICA

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and COE EM-385-1-1, (Appendix C). The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

3.10 HOUSEKEEPING

3.10.1 Clean-up

All debris in work areas shall be cleaned up daily or more frequently as necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

3.10.2 Dust Control

In addition to the dust control measures required elsewhere in the contract documents dry cutting of brick or masonry shall be prohibited. Wet cutting must address control of water run off.

3.11 ACCIDENT SCENE PRESERVATION

For serious accidents, and accidents involving weight handling equipment, ensure the accident site is secured and evidence is protected remaining undisturbed until released by the NTR.

3.12 FIELD QUALITY CONTROL

3.12.1 Inspections

Include safety inspection as a part of the daily Quality Control inspections required in Section 01450, "Quality Control".

3.13 FLAMMABLE AND COMBUSTIBLE LIQUID HANDLING AND STORAGE

3.13.1 Safety Gas Containers

Handling of flammable and combustible liquids shall be in safety containers with flame arresters, with not more than 5 gallons capacity, having a spring-closing lid and spout cover and designed to safely relieve internal pressures under fire exposures. Flammable and combustible Liquids shall be stored in separate NFPA approved storage cabinets 50 feet away from any sources of ignition with suitable NO SMOKING OR OPEN FLAME signs posted in all such areas.

-- End of Section --

SECTION 01561

EROSION AND SEDIMENT CONTROL
12/98

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 FOR TESTING AND MATERIALS (ASTM)

ASTM A 185	(1997) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
ASTM D 3787	(1989) Bursting Strength of Knitted Goods - Constant-Rate-of-Transverse (CRT) Ball Burst Test
ASTM D 4355	(1992) Deterioration of Geotextiles From Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1996) Grab Breaking Load and Elongation of Geotextiles
ASTM D 5141	(1996) Determining Filtering Efficiency and Flow Rate of a Geotextile for Silt Fence Application Using Site-Specific Soil

VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

VDOT RBS	(1991) Road and Bridge Specifications
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VIRGINIA SOIL AND WATER CONSERVATION COMMISSION (VSWCC)

VSWCC VESCH	(1992) Virginia Erosion and Sediment Control Handbook
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1.2 DESCRIPTION OF WORK

The work includes the provision of temporary and permanent erosion control measures to prevent the pollution of air, water, and land within the project limits and in areas outside the project limits where work is accomplished in conjunction with the project.

1.3 SUBMITTALS

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

1.3.1 SD-02 Manufacturer's Catalog Data

- a. Silt Fence
- b. Dust Suppressors

1.3.2 SD-04 Drawings

- a. Erosion Control Plan G

1.3.2.1 Erosion Control Plan

Submit, for approval, four copies of a Contractor furnished erosion and sediment control plan to the Navy's Technical Representative (NTR), a minimum of 14 days prior to start of construction. The plans shall not be a reproduction of the contract documents. The erosion and sediment control plan shown on the drawings indicates minimum erosion control requirements and shall be site adapted and modified to suit the sequence of construction operations. As a minimum, the Contractor furnished erosion and sediment control plan shall indicate the following:

- a. Clearing limits
- b. New construction and existing construction affected by new construction
- c. Grading sequence shown with installation sequence of temporary and permanent erosion control features
- d. Type, size, and location of temporary erosion control features

1.3.2.2 General Guidance

Design to accommodate the runoff of a local 10 year storm. The following publications shall be used as a guide for developing the Contractor furnished plan:

- a. Guide for sediment control on construction sites - USDA Soil Conservation Service
- b. Processes, Procedures, and Methods To Control Pollution Resulting From All Construction Activity - EPA
- c. Guidelines for erosion and sediment control planning and implementation - EPA
- d. Erosion and Sediment Control Handbook - DC Department of Consumer and Regulatory Affairs.

1.3.3 SD-08 Statements

- a. Construction Sequence Schedule G

1.3.3.1 Construction Sequence Schedule

Submit a Contractor furnished construction work sequence schedule, with the erosion control plan. The work schedule shall coordinate the timing of land disturbing activities with the provision of erosion control measures to reduce on site erosion and off site sedimentation. Installation of temporary erosion control features shall be coordinated with the construction of permanent erosion control features to assure effective and

continuous control of erosion and pollution.

PART 2 PRODUCTS

2.1 SILT FENCE

2.1.1 Posts

One by two inch seasoned wood posts, 1 1/2 inch diameter seasoned wood posts or 1.0 pound per linear foot steel posts. Posts shall be minimum 3 feet long.

2.1.2 Wire Fabric

ASTM A 185, 6 by 6, minimum 14-1/2 gage.

2.1.3 Filter Fabric

A woven or nonwoven polypropylene, nylon, or polyester containing stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet, and with the following properties:

- a. Minimum grab strength (TF 25 #1/ASTM D 4632) 90 pounds
- b. Elongation (TF 25 #1/ASTM D 4632) 15 percent (minimum) to 50 percent (maximum) (at 45 pounds grab)
- c. Minimum U.V. Resistance (ASTM D 4355) 70 percent strength retained at 500 hours.
- d. Minimum Filtering Efficiency (ASTM D 5141) 75 percent
- e. Minimum Flow Rate (ASTM D 5141) .2 gallons/minute/square foot

2.1.4 Standard Catalog Product

A manufacturer's standard catalog product for a preassembled filter barrier may be provided in lieu of the indicated catch basin protection, except that the filter fabric shall be as specified, and the height of the structure shall be as indicated.

2.2 CONSTRUCTION ENTRANCE

2.2.1 State Standard Construction Entrance

2.2.1.1 Aggregate

VSWCC VESCH Standard 3.02.

2.2.1.2 Filter Fabric Underliner

A woven or nonwoven polypropylene, nylon, or polyester containing stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet, and with the following properties:

- a. Minimum grab tensile strength (TF 25 #1/ASTM D 4632) 180 pounds
- b. Minimum Puncture (TF 25 #4/ASTM D 3787) 75 psi in the weakest direction

c. Apparent Opening Size 40-80 (U.S. Sieve Size)

d. Minimum Trapezoidal tear strength (TF 25 #2/ASTM D 4533) 50 pounds

2.3 DUST SUPPRESSORS

Calcium chloride, or other standard manufacturer's spray on adhesives designed for dust suppression.

2.4 TEMPORARY SEEDING

2.4.1 Standard Temporary Seeding

2.4.1.1 Seed

Provide State certified seed of the latest season's crop. Seed shall be a mixture of Hybrid Fescue, Red Top and Bermuda.

2.4.1.2 Fertilizer

Fertilizer, with 10 percent nitrogen, 20 percent available phosphoric acid, and 10 percent potash.

2.4.1.3 Mulch

Hay or straw. Provide in an air dried condition for placement with commercial mulch blowing equipment.

PART 3 EXECUTION

3.1 SILT FENCES

Install posts a maximum of 1829 mm 6 feet on center and at an angle between 2 degrees and 20 degrees towards the potential silt load area. The height of the silt fence shall not exceed 36 inches, and the posts shall be driven a minimum of 16 inches into the ground. Do not attach filter fabric to existing trees. Secure filter fabric to the post and wire fabric using staples, tie wire, or hog rings. Imbed the filter fabric into the ground as indicated. Splice filter fabric at support pole using a 152 mm 6 inch overlap and securely seal. Top of filter fabric shall have a 1 inch tuck or a reinforced top end section.

3.2 DUST SUPPRESSORS

Immediately dampen the surface before calcium chloride application. Apply dust suppressors on unsurfaced base, subbase and other unsurfaced travel ways. Apply calcium chloride at the rate of 4.9 to 6.1 kilograms per square meter 1.0 to 1.25 pounds per square yard of surface for pellets for the initial application. For subsequent applications of calcium chloride, application rates may be approximately 75 percent of initial application rates. Do not apply when raining or the moisture conditions exceed that required for proper application. Apply other dust suppressors in accordance with manufacturers instructions. Protect treated surfaces from traffic for a minimum of 2 hours after treatment. Repeat application of dust suppressors as required to control dust emissions.

3.3 TEMPORARY SEEDING

3.3.1 Time Restrictions

Within 48 hours after attaining the grading increment specified herein, provide seed, fertilizer, mulch and water on graded areas when any of the following conditions occur:

- a. Grading operations stop for an anticipated duration of 30 days or more.
- b. When it is impossible or impractical to bring an area to finish grade so that permanent seeding operations can be performed without serious disturbance from additional grading.
- c. When an immediate cover is required to minimize erosion, or when erosion has occurred.
- d. Provide on erosion control devices constructed using soil materials.

3.3.2 Seeding Requirements

3.3.2.1 General Requirements

Loosen soil to a depth of 4 inches. Uniformly apply the seed, fertilizer, and mulch at the specified application rates. Do not seed or fertilize when the Contracting Officer determines conditions are unfavorable. Provide fertilizer at the rate of 1000 pounds per acre. Spread mulch at the rate of 1.5 tons per acre and anchor by crimping mulch with a disc. Provide water on a regular basis to promote turf growth. Areas which fail to establish vegetative cover adequate to prevent rill erosion shall be reseeded as soon as these areas are identified. Provide seed type and quantity (pounds per acre) as follows:

Feb 1 - Apr 15

SEED TYPE	Nov 16 - Jan 31	Oct 16 - Nov 15	Apr 16 - Oct 15
Hybrid Fescue	200	200	
Red Top	6	6	6
Bermuda	45 (unhulled)	45 (unhulled)	100 (hulled)

3.3.2.2 Permanent Seeding

Temporary seeding shall be removed, and permanent seeding shall be provided during the specified planting season as specified in Section 02921, "Turf".

3.4 MAINTENANCE AND INSPECTION

Inspect erosion control devices after each rainfall and daily during prolonged rainfall. Remove sediment deposits after each rainfall or when sediment reaches approximately one-half the barrier height. Immediately repair damaged erosion control devices and damaged areas around and underneath the devices. Maintain erosion control devices to assure continued performance of their intended function. Modify the Contractor furnished erosion control plan as required to control problem areas noticed after each inspection. Modifications shall be approved by the NTR.

3.5 CLEAN UP

At the completion of the job, or when directed or approved by the NTR, temporary erosion control devices shall be removed. Erosion control devices and areas immediately adjacent to the device shall be filled (where applicable), shaped to drain and to blend into the surrounding contours, and provided with permanent seeding.

-- End of Section --

SECTION 01572

WASTE MANAGEMENT
09/99

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Construction and Demolition Waste

Solid wastes such as building materials, packaging and rubble resulting from construction, remodeling, demolition and repair of buildings/facilities, paving and infrastructure.

1.1.2 Recyclable Materials

Products and materials that can be recovered and remanufactured into a new product. Recyclable materials include, but are not limited to, the following:

- a. Metals (ferrous and non-ferrous), including banding, metal studs, ductwork, piping
- b. Asphaltic concrete paving
- c. Portland cement concrete
- d. Land clearing debris including trees and plant materials
- e. Native rock and granular fill
- f. Gypsum products
- g. Paper and cardboard
- h. Wood products, including structural, finish, crates and pallets
- i. Brick and masonry
- j. Carpet and padding
- k. Plastics
- l. Copper wiring
- m. Mechanical and electrical products and equipment

1.1.3 Recycling Facility

A business that specializes in collecting, handling, processing, distributing, or remanufacturing waste materials generated by demolition and new construction projects, into products or materials that can be used for this project or by others.

1.1.4 Salvage and Reuse

Existing usable product or material that can be saved and reused in some

manner on the project site. Materials that can be salvaged and reused must comply with the applicable technical specifications and include, but are not limited to, the following:

- a. Dimensional lumber and other wood products
- b. Structural steel
- c. Soil
- d. Masonry products

1.1.5 Salvage for Resale

Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.

1.1.6 Trash

Product or material unable to be salvaged for resale, salvaged and reused, returned, or recycled.

1.1.7 Waste Materials

Product or material that can be salvaged for resale, salvaged and reused, returned to vendors, or recycled.

1.2 SUBMITTALS

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

SD-01 Preconstruction Submittals

Waste Management Plan; G

1.3 CONSTRUCTION WASTE MANAGEMENT

1.3.1 General Intent

The Contractor shall use all means available to divert to the greatest extent practical and economically feasible, construction and demolition waste from landfills and incinerators.

1.3.2 Construction Waste Management Operations

Take a pro-active, responsible role in management of construction waste and require all subcontractors, vendors, and suppliers to participate in the effort. Establish a construction waste management program that includes the following categories:

- a. Minimizing Packaging Waste
- b. Salvage and reuse
- c. Salvage for resale or donation
- d. Recycling

e. Disposal

Salvage and reuse is a better waste management method than recycling because little or no reprocessing is necessary, thus less pollution is created when items are reused in their original form. Therefore, a diligent effort shall be made to salvage and reuse products and materials. Waste materials that cannot be salvaged and reused, and have value as being recyclable, shall be recycled. Only trash shall be transported to a landfill or incinerator. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling construction waste for this project. Revenues or other savings obtained for recycling or returns shall accrue to the Contractor.

1.3.3 Construction Waste Management Plan

Perform a waste analysis to determine the types and quantity of construction waste anticipated and identify salvage for resale, salvage and reuse, recycling and disposal options available. Within 30 days after contract award and prior to performing any demolition work, submit a Waste Management Plan for review and approval. The Waste Management Plan shall include the following:

- a. Project waste analysis.
- b. Projected cost of disposing of all trash and waste materials as if there would be no salvage or recycling on this project.
- c. Name, address and phone number for each landfill or incinerator facility to be utilized.
- d. Tipping fee for each landfill or incinerator.
- e. A list of waste materials that will be salvaged for resale, salvaged and reused, and recycled.
- f. Identification of each recycling facility to be utilized.
- g. Anticipated net cost savings determined by subtracting the cost of separating and recycling from the following:
 1. Savings due to reuse of demolished materials.
 2. Revenue from the sale of salvaged and recycled materials.
 3. Landfill or incinerator tipping fees saved due to diversion of materials to recycling.
- h. Description of the method to be employed in recycling waste materials and description of the method that will be used to protect recycled materials from contamination.
- i. Description of the means of transportation of recyclable materials and the destination of the materials.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PROGRAM IMPLEMENTATION AND MONITORING

Implement and maintain, for the duration of the project, the construction waste management program. Establish a method of monitoring and documenting the program, and submit a periodic report with each application for payment that includes the following:

- a. Amount (by weight) and type of waste materials disposed of in a landfill or incinerator, the tip fee per ton, and the total cost of disposal including transportation costs, container rental costs, etc.
- b. Amount (by weight) and type of materials salvaged for sale, salvaged for reuse, and recycled. Provide destination, means of transportation, cost of transportation and handling, tipping fee savings and revenue generated for each material.
- c. Cost savings due to salvaging, reusing, and recycling materials.

3.1.1 Hazardous Materials/Hazardous Wastes

If any non-acceptable materials such as hazardous materials or hazardous wastes are encountered, notify the NTR.

3.2 SALVAGE AND REUSE

Encourage the practice of efficient waste management when, sizing, cutting, and installing products and materials.

3.3 SEPARATION OF RECYCLABLE WASTE MATERIALS

Provide the necessary containers and bins, to facilitate the waste management program, that are clearly and appropriately marked. Prevent contamination of recyclable materials from incompatible products and materials. Separate construction waste at the project site by one of the following methods:

- a. Source Separated Method: Waste products and materials, that are recyclable, are separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Trash is transported to a landfill or incinerator.
- b. Co-Mingled Method: All construction waste is placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed and the remaining trash is transported to a landfill or incinerator.
- c. Other methods proposed by the Contractor and approved by the NTR.

-- End of Section --

SECTION 01575

TEMPORARY ENVIRONMENTAL CONTROLS
03/00

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 1910.1200	Hazard Communication
40 CFR 112	Oil Pollution Prevention
40 CFR 122.26	EPA National Pollutant Discharge Elimination System Permit Regulations
40 CFR 173	Title
40 CFR 241	Guidelines for Disposal of Solid Waste
40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 258	Subtitle D Landfill Requirements
40 CFR 260	Hazardous Waste Management Systems: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 264	Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administrated Permit Programs: The

	Hazardous Waste Permit Program
40 CFR 271	Requirements for Authorization of State Hazardous Waste Programs
40 CFR 272	Approved State Hazardous Waste Management Programs
40 CFR 273	Universal Waste Management
40 CFR 279	Used Oil Regulations
40 CFR 280	Owners and Operators of Underground Storage Tanks
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	EPA Toxic Chemical Release Reporting Regulations
40 CFR 716	Health and Safety Data Reporting
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 173	Shipments and Packagings
49 CFR 178	Packagings

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(1996) Evaluating Solid Waste (Physical/Chemical Methods)
EPA 832-R-92-005	Storm Water Management for Construction Activities

1.2 DEFINITIONS

1.2.1 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.2 Solid Waste

Garbage, refuse, debris, sludge, or other discharged material (except hazardous waste as defined in paragraph entitled "Hazardous Waste" or hazardous debris as defined in paragraph entitled "Hazardous Debris"), including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations. Material not regulated as solid waste are: nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges;

regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

- a. Green waste: The vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.
- b. Surplus soil: Existing soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included.
- c. Inert construction and demolition debris: Broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may only be co-disposed with re-inforced contain ferrous wire, rods, accessories and weldments or approved by the landfill accepting the waste.
- d. Wood: Dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated and/or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included.
- e. Scrap metal: Scrap and excess ferrous and non-ferrous metals such as re-inforcing steel, structural shapes, pipe and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.
- f. Paint cans: Metal cans that are empty of paints, solvents, thinners and adhesives. If permitted by the paint can label, a thin dry film may remain in the can.
- g. Recyclables: Materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable. Metal meeting the definition of lead contaminated or lead based paint contaminated may be included as recyclable if sold to a scrap metal company. Paint cans may not be included as recyclable if sold to a scrap metal company. The scrap metal company must be notified in writing, of the lead bearing paint material prior to shipment.

1.2.3 Debris

Non-hazardous solid material generated during the construction, demolition, or renovation of a structure which exceeds 2.5 inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.4 Hazardous Debris

As defined in paragraph entitled "Debris" of this section, debris that contains listed hazardous waste (either on the debris surface, or in its

interstices, such as pore structure) per 40 CFR 261; or debris that exhibits a characteristic of hazardous waste per 40 CFR 261.

1.2.5 Chemical Wastes

This includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.

1.2.6 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.7 Hazardous Waste

Hazardous waste as defined in 40 CFR 261 or as defined by applicable State and local regulations.

1.2.8 Oily Waste

Petroleum products and bituminous materials.

1.2.9 Regulated Waste

Those solid waste that have specific additional Federal, state, or local controls for handling, storage, or disposal.

1.2.10 Class I Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of The Clean Air Act and includes the following chemicals:

chlorofluorocarbon-11 (CFC-11)	chlorofluorocarbon-213 (CFC-213)
chlorofluorocarbon-12 (CFC-12)	chlorofluorocarbon-214 (CFC-214)
chlorofluorocarbon-13 (CFC-13)	chlorofluorocarbon-215 (CFC-215)
chlorofluorocarbon-111 (CFC-111)	chlorofluorocarbon-216 (CFC-216)
chlorofluorocarbon-112 (CFC-112)	chlorofluorocarbon-217 (CFC-217)
chlorofluorocarbon-113 (CFC-113)	halon-1211
chlorofluorocarbon-114 (CFC-114)	halon-1301
chlorofluorocarbon-115 (CFC-115)	halon-2402
chlorofluorocarbon-211 (CFC-211)	carbon tetrachloride
chlorofluorocarbon-212 (CFC-212)	methyl chloroform

1.2.11 Hazardous Materials

Any material that is regulated as a hazardous material in accordance with 49 CFR 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261. Throughout this specification, hazardous material includes hazardous chemicals.

1.3 SUBMITTALS

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

SD-01 Preconstruction Submittals

Environmental protection plan; G

Environmental Quality Board Permits; G]

SD-06 Test Reports

Laboratory analysis

SD-11 Closeout Submittals

Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain on-site a separate three-ring Environmental Records binder and submit at the completion of the project. Make separate parts to the binder corresponding to each of the applicable subitems listed below.

Preconstruction survey

Solid waste disposal permit

Waste determination documentation

Disposal documentation for hazardous and regulated waste

Contractor 40 CFR employee training records

Regulatory notification

Erosion and sediment control inspection reports

Solid waste disposal report

Contractor Hazardous Material Inventory Log; G

1.4 LABORATORY ANALYSIS

Submit a copy of a laboratory analysis of solid waste and debris with the potential of becoming classified as a hazardous waste (i.e., abrasive/sand blasting debris, etc.). Waste stream determinations are required at the point of generation and must sufficiently document whether the waste will be a solid waste, hazardous waste, or Resource Conservation and Recovery Act (RCRA) exempt waste. Determinations must use EPA approved methods and provide written rationale for whether the waste is classified as hazardous or non-hazardous. The Contractor shall bear the cost of the waste stream determinations, and the NTR reserves the right to request waste stream determinations on questionable waste streams.

1.5 REPORTS

1.5.1 Preconstruction Survey

Perform a preconstruction survey of the project site with the NTR, and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record.

1.5.2 Solid Waste Disposal Permit

Submit one copy of a State and local permit or license showing such

agencies' approval of the disposal plan before transporting wastes off Government property.

1.5.3 Waste Determination Documentation

The Contractor shall complete a Waste Determination form (provided at the pre-construction conference) for all contractor derived wastes to be generated. The waste determination must be based upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, or laboratory analysis (Material Safety Data Sheets (MSDS) by themselves are not adequate). All support documentation must be attached to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

1.5.4 Disposal Documentation for Hazardous and Regulated Waste

Submit a copy of the applicable EPA and State permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities.

1.5.5 Contractor 40 CFR Employee Training Records

Prepare and maintain employee training records throughout the term of the contract meeting applicable 40 CFR requirements. The Contractor shall ensure every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with Federal, State and local regulatory requirements for RCRA Large Quantity Generator. The Contractor shall provide a Position Description for each employee, by subcontractor, based on the Davis-Bacon Wage Rate designation or other equivalent method, evaluating the employee's association with hazardous and regulated wastes. This Position Description shall include training requirements as defined in 40 CFR 265 for a Large Quantity Generator facility. Submit these training records to the NTR at the conclusion of the project, unless otherwise directed.

1.5.6 Regulatory Notification

The Contractor is responsible for all regulatory notification requirements in accordance with Federal, State and local regulations. The Contractor shall forward copies to the NTR prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, NPDES defined site work, remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.5.7 Solid Waste Disposal Report

Monthly the Contractor shall submit a solid waste disposal report to the NTR. For each waste, the report shall state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste. The Contractor shall include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor may submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor

certification shall include the receiver's tax identification number and business, EPA or State registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the Contractor for his own use, the Contractor shall submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received shall not be reported to the NTR unless required by other provisions or specifications of this Contract or public law.

1.6 CLASS I ODS PROHIBITION

Class I ODS as defined and identified herein shall not be used in the performance of this contract, nor be provided as part of the equipment. This prohibition shall be considered to prevail over any other provision, specification, drawing, or referenced documents.

1.7 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, State, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

Environmental Brief: Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the activity; types and quantities of wastes/wastewater that may be generated during the contract.

1.7.1 Facility Hazardous Waste Generator Status

Camp Lejeune is designated as a Large Quantity Generator. All work conducted within the boundaries of this activity must meet the regulatory requirements of this generator designation. The Contractor shall comply with all provisions of Federal, State and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of all construction derived wastes.

1.7.2 Licenses and Permits

For permits obtained by the NTR, whether or not required by the permit, the Contractor is responsible to perform quality control inspections of the work in progress, and to submit notifications and certifications to the applicable regulatory agency, via the NTR, that the work conforms to the contract and permit requirements. The inspections and certifications shall be provided through the services of a Professional Engineer, registered in the State where the work is being performed. As a part of the quality control plan, which is required to be submitted for approval by the quality control section, provide a subitem containing the name, P.E. registration number, address, and telephone number of the professional engineer(s) who will be performing the inspections and certifications for each permit listed above.

1.7.3 Contractor Liabilities for Environmental Protection

The Contractor is advised that this project and the station are subject to Federal, State, and local regulatory agency inspections to review compliance with environmental laws and regulations. The Contractor shall fully cooperate with any representative from any Federal, State or local regulatory agency who may visit the job site and shall provide immediate notification to the NTR, who shall accompany them on any subsequent site inspections. The Contractor shall complete, maintain, and make available to the NTR, station, or regulatory agency personnel all documentation relating to environmental compliance under applicable Federal, State and local laws and regulations. The Contractor shall immediately notify the NTR if a Notice of Violation (NOV) is issued to the Contractor.

The Contractor shall be responsible for all damages to persons or property resulting from Contractor fault or negligence as well as for the payment of any civil fines or penalties which may be assessed by any Federal, State or local regulatory agency as a result of the Contractor's or any subcontractor's violation of any applicable Federal, State or local environmental law or regulation. Should a Notice of Violation (NOV), Notice of Noncompliance (NON), Notice of Deficiency (NOD), or similar regulatory agency notice be issued to the Government as facility owner/operator on account of the actions or inactions of the Contractor or one of its subcontractors in the performance of work under this contract, the Contractor shall fully cooperate with the Government in defending against regulatory assessment of any civil fines or penalties arising out of such actions or inactions.

1.8 ENVIRONMENTAL MANAGER

The Contractor shall appoint in writing an Environmental Manager for the project site. The Environmental Manager shall be directly responsible for coordinating contractor compliance with Federal, State, local, and station requirements. The Environmental Manager shall ensure compliance with Hazardous Waste Program requirements (including hazardous waste handling, storage, manifesting, and disposal); implement the Environmental Protection Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers). This can be a collateral position; however the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all Contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out.

1.9 ENVIRONMENTAL PROTECTION PLAN

Five days after the award of contract, the Contractor shall meet with the NTR to discuss the proposed Environmental Protection Plan and develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, and other measures to be taken. The Environmental Protection Plan shall be submitted in the following format and shall, at a minimum, address the following elements (also refer to paragraph entitled "Protection of Natural

Resources" in this section):

- a. Description of the Environmental Protection Plan
 - (1) General overview and purpose
 - (2) General site information
 - (3) A letter signed by an officer of the firm appointing the Environmental Manager and stating that he/she is responsible for managing and implementing the Environmental Program as described in this contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.
- b. Protection of Natural Resources
 - (1) Land resources
 - (2) Tree protection
 - (3) Replacement of damaged landscape features
 - (4) Temporary construction
 - (5) Stream crossings
 - (6) Fish and wildlife resources
 - (7) Wetland areas
- c. Protection of Historical and Archaeological Resources
 - (1) Objectives
 - (2) Methods
- d. Storm Water Management and Control
 - (1) Ground cover
 - (2) Erodible soils
 - (3) Temporary measures
 - (a) Mechanical retardation and control of runoff
 - (b) Vegetation and mulch
 - (4) Storm Water Pollution Prevention Measures and Notice of Intent 40 CFR 122.26, EPA 832-R-92-005. Provide a "Storm Water Pollution Prevention Plan" (SWPPP) for the project. The SWPPP shall meet the requirements of the EPA State of North Carolina general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intent, Notice of Termination, and appropriate permit fees, via the NTR, to the appropriate Federal State agency for approval, a minimum of 14 calendar days prior to the start of construction. A copy of the approved SWPPP shall be kept at the construction on-site office,

and continually updated as regulations require to reflect current site conditions.

- (a) Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.
 - (b) Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge associated with industrial activity at the construction site.
 - (c) Ensure compliance with terms of EPA state general permit for storm water discharge.
 - (d) Select applicable management practices from EPA 832-R-92-005.
 - (e) Provide completed copy of "Notice of Intent" and "Notice of Termination" except for effective date.
- e. Prevention of Releases to the Environment
- (1) Procedures to prevent releases to the environment
 - (2) Notifications in the event of a release to the environment
- f. Protection of the Environment from Waste Derived from Contractor Operations
- (1) Control and disposal of solid and sanitary waste
 - (2) Control and disposal of hazardous waste (Hazardous Waste Management Section)

This item shall consist of the management procedures for all hazardous waste to be generated. The elements of those procedures shall coincide with the Activity Hazardous Waste Management Plan. A copy of the Activity Hazardous Waste Management Plan will be provided by the NTR. As a minimum, include the following:

- (a) Procedures to be employed to ensure a written waste determination is made for appropriate wastes which are to be generated;
- (b) Sampling/analysis plan;
- (c) Methods of hazardous waste accumulation/storage (i.e., in tanks and/or containers);
- (d) Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted);
- (e) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268);
- (f) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and the like;

- (g) Used oil management procedures in accordance with 40 CFR 279;
- (h) Pollution prevention\hazardous waste minimization procedures;
- (i) Plans for the disposal of hazardous waste by permitted facilities;
- (j) Procedures to be employed to ensure all required employee training records are maintained.

1.9.1 Environmental Protection Plan Review

Fourteen days after the environmental protection meeting, submit the proposed Environmental Protection Plan for further discussion, review, and approval. Commencement of work shall not begin until the environmental protection plan has been approved.

1.10 UNFORESEEN HAZARDOUS OR REGULATED MATERIAL

All known hazardous or regulated materials are indicated in the contract documents. If material that is not indicated in the contract documents is encountered that may be dangerous to human health upon disturbance during construction operations, stop that portion of work and notify the NTR immediately. Intent is to identify materials such as PCB, lead paint, mercury, petroleum products, and friable and nonfriable asbestos. Within 14 calendar days the Government will determine if the material is hazardous. If the material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If the material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

1.11 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

Submit the "Contractor Hazardous Material Inventory Log" (copy at end of section), which provides information required by (EPCRA Sections 312 and 313) along with corresponding Material Safety Data Sheets (MSDS) to the NTR at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the contract. Documentation for any spills/releases, environmental reports or off-site transfers may be requested by the NTR.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.

3.1.1 Land Resources

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the NTR's permission. Do not fasten or

attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the NTR. Where such use of attached ropes, cables, or guys is authorized, the Contractor shall be responsible for any resultant damage.

3.1.1.1 Protection of Trees

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed.

3.1.1.2 Replacement

Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain NTR's approval before replacement.

3.1.2 Water Resources

3.1.2.1 Stream Crossings

The NTR's approval is required before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain NTR's approval prior to installation. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition or as indicated or as specified.

3.1.2.2 Oily and Hazardous Substances

Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm shall be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.

3.1.3 Fish and Wildlife Resources

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

3.2 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the NTR historical and archaeological items or human skeletal remains discovered in the course of work. Upon discovery notify the NTR. Stop work in the immediate area of the discovery until directed by the NTR to resume work. The Government retains ownership and control over historical and archaeological resources.

3.3 EROSION AND SEDIMENT CONTROL MEASURES

3.3.1 Burnoff

Burnoff of the ground cover is not permitted.

3.3.2 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

3.3.3 Temporary Protection of Erodible Soils

Use the following methods to prevent erosion and control sedimentation:

3.3.3.1 Mechanical Retardation and Control of Runoff

Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, berms, and use of silt fences and straw bales to retard and divert runoff to protected drainage courses.

3.3.3.2 Sediment Basins

Trap sediment in temporary sediment basins. Select a basin size to accommodate the runoff of a local 10-year storm. Pump dry and remove the accumulated sediment, after each storm. Use a paved weir or vertical overflow pipe for overflow. Remove collected sediment from the site. Institute effluent quality monitoring programs.

3.3.3.3 Vegetation and Mulch

Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

- a. Seeding: Provide new seeding where ground is disturbed. Include topsoil or nutriment during the seeding operation necessary to establish/reestablish a suitable stand of grass.

3.4 CONTROL AND DISPOSAL OF SOLID WASTES

Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Recycling is encouraged and can be coordinated with the NTR and the activity recycling coordinator. Remove all solid waste (including non-hazardous debris) from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with most stringent local, State, and Federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

3.5 CONTROL AND DISPOSAL OF HAZARDOUS WASTES

3.5.1 Hazardous Waste/Debris Management

The Contractor shall identify all construction activities which will

generate hazardous waste/debris. The Contractor must provide a documented waste determination for all resultant waste streams. Hazardous waste/debris shall be identified, labeled, handled, stored, and disposed of in accordance with all Federal, State, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268. Hazardous waste shall also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities shall be identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, all hazardous waste manifests must be signed by activity personnel from the Station Environmental Office. No hazardous waste shall be brought onto Government property. Provide to the NTR a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D. For hazardous wastes spills, verbally notify the NTR immediately.

3.5.1.1 Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas

If the work requires the temporary storage/collection of regulated or hazardous wastes, the Contractor shall request the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area, or a 90 Day Storage Area at the point of generation. The Contractor must submit a request in writing to the NTR providing the following information:

<u>Contract Number</u>	_____	<u>Contractor</u>	_____
<u>Haz/Waste or Regulated Waste POC</u>	_____	<u>Phone Number</u>	_____
<u>Type of Waste</u>	_____	<u>Source of Waste</u>	_____
<u>Emergency POC</u>	_____	<u>Phone Number</u>	_____

Location of the Site : _____
(Attach Site Plan to the Request)

Attach a waste determination form. Allow ten working days for processing this request.

3.5.1.2 Sampling and Analysis of HW

a. Sampling

The Contractor shall sample waste in accordance with EPA SW-846. Each sampled drum or container shall be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed.

b. Analysis

The Contractor shall follow the analytical procedure and methods in accordance with the 40 CFR 261. The Contractor shall provide all analytical results and reports performed to the NTR

c. Analysis Type

Identification of waste hazardous material/hazardous waste shall be accomplished by analyzing for the following properties as a minimum: ignitability, corrosiveness, total chlorides, BYTU value, PCBs, TCLP for heavy metals, and cyanide.

3.5.1.3 Asbestos Certification

- a. Asbestos containing material: Items, components, or materials which are specified to be worked on under this contract may involve asbestos. Other materials especially thermal insulation, in the general work area may also contain asbestos. All thermal insulation, in all work areas should be considered to be asbestos unless positively identified by conspicuous tags or previous laboratory analysis certifying asbestos free. The Contractor shall not remove or perform work on any such materials without the prior approval of the NTR. The Contractor shall not engage in any activity, which would remove or damage such materials of cause the generation of fibers from such materials. The Contractor shall immediately stop all work which would generate further damage to the material, evacuate the potential asbestos exposed area, and notify the NTR for resolution of the situation prior to resuming normal work activities in the affected area.

3.5.1.4 Hazardous Waste Disposal

COMPLETE AS APPLICABLE WITH THE DETAILS OF THE CONTRACT. THE SECTIONS WITH () SHOULD BE MARKED AS APPLICABLE WITH AN 'X'.

Controlled of stored waste, packaging, sampling, analysis, and disposal shall be determined by the details in the contract. The requirements for jobs in the following paragraphs shall be used as the guidelines for disposal of any hazardous waste generated.

(a) Responsibilities for Contractor's Disposal

Any generation of WHM/HW requiring Contractor disposal of solid waste or liquid.

- a. The Contractor agrees to provide all service necessary for the final treatment/disposal of the hazardous material/waste in accordance with all local, State and Federal laws and regulations, and the terms and conditions of the contract within sixty (60) days after the materials have been generated. These services shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation, including manifesting or completing waste profile sheets, equipment, and the compilation of all documentation is required).
- b. Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 761.
- c. Obtaining a representative sample of the material generated for each job done to provide waste stream determination.
- d. Analyzing for each sample taken and providing analytical results to the NTR. Provide two copies of the results.

- e. Determine the DOT proper shipping names for all waste (each container requiring disposal) and shall demonstrate how this determination is developed and supported by the sampling and analysis requirements contained herein to the NTR for Code 106's review.

Government Responsibilities

To review all documentation submitted by the Contractor for accuracy. Provide guidance to the Contractor in reference to environmental compliance.

Interim Waste Generation Site for Contractor Disposal of WHM/HW

The Contractor shall request approval of the Government for an area suitable for packaging WHN/HW requiring disposal. The Contractor shall comply with the requirements of the Virginia Department of Waste Management Regulations. The area will be barricaded and a sign identifying as follows:

Signage- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

With additional custody sign indicating:

- (1) Site #
- (2) Controlled by
Call Mr./Ms. (To be determined) at

Barricade Type: Yellow and black three (3) inch plastic tape. Corner barricades shall be provided by the Government.

Contractor Disposal Turn-In Requirements

For any waste hazardous materials or hazardous waste generated which requires the Contractor to dispose of, the following conditions must be complied with:

- a. Call Code 106.322 dispatcher, at 396-7231 ext. 161 and provide the following information:
 - (1) Your name and company
 - (2) Service/contract number
 - (3) ROICC/Code 460 number
 - (4) Telephone number where you can be reached
 - (5) Material requiring disposal
 - (6) Location of material
 - (7) Volume of material in each container
- b. All material must meet the following conditions in order to be acceptable for disposal
 - (1) Drums compatible with waste contents and drums meet DOT requirements for 49 CFR 173 for transportation of materials.

- (2) Drums banded to wooden pallets. No more than three (3) 55 gallon drums to a pallet, or two (2) 85 gallon over packs.
- (3) Band using 1-1/4 inch minimum band on upper third of drum.
- (4) Recovery materials label (provided by Code 106.321) located in middle of drum, filled out to indicate actual volume of material, name of material manufacturer, other vendor information as available.
- (5) Always have three (3) to five (5) inches of empty space above volume of material. This space is called 'outage'.

(b) Responsibilities for Government's Disposal

Any generation of WHM/HW requiring Government disposal of solid waste or liquid.

Contractor's Representative

- a. Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 271, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 716.
- b. Providing identification of material requiring disposal to permit safe opening, storage and handling by the Government.

Government Responsibilities

- a. Sample material requiring disposal.
- b. Analyzing each sample taken.
- c. Determine the DOT proper shipping names for all waste (each container requiring disposal) and shall demonstrate how this determination is developed and supported by the sampling and analysis requirements.
- d. Accepting and disposing of all WHM/HW properly turned in by the Contractor for disposal.

Acceptance of WHM/HW for Disposal

Upon completion of all above applicable requirements (i.e. sample, analysis, identification, packaging, etc.), the Contractor shall notify the NTR three (3) working days in advance for review and acceptance by the Environmental Programs Division, Code 106.3. The Contractor shall correct all discrepancies not conforming to this contract at his expense. Upon acceptance by the Environmental Programs, the waste will be removed from the Contractor's work site within three (3) days.

Interim Waste Generation Site for Government Disposal of WHM/HW

The Contractor shall request approval of the Government for an area suitable for packaging WHM/KHW requiring disposal. The area will be barricaded and a sign identifying as follows:

Signage- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

With additional custody sign indicating:

- (1) Site #
- (2) Controlled by
- (3) Call Mr./Ms. (To be determined) at

Barricade Type: Yellow and black three (3) inch plastic tape. Corner barricades shall be provided by the Government.

Government Disposal Turn-In Requirements

- a. Call Code 106.322 dispatcher, at 396-7231 ext. 161 and provide the following information:
 - (1) Your name and company
 - (2) Service/contract number
 - (3) ROICC/Code 460 contact number
 - (4) Telephone Number where you can be reached
 - (5) Material requiring disposal
 - (6) Location of material
 - (7) Volume of material in each container
- b. All material must meet the following conditions in order to be acceptable for disposal:
 - (1) Drums compatible with waste contents and drums meet DOT requirements for 40 CFR 173 for transportation of materials.
 - (2) Drums banded to wooden pallets. No more than three (3) 55 gallon drums to pallet, or two (2) 85 gallon over packs.
 - (3) Band using 1-1/4 inch minimum band on upper third of drum.
 - (4) Recovery materials label (provided by Code 106.321) located in middle of drum, filled out to indicate actual volume of material, name of material manufacturer, other vendor information as available.
 - (5) Always have three (3) to five (5) inches of empty space above volume of material. This space is called 'outage'.
 - (6) Code 106.321 must be notified within 24 hours of filling any drum of material requiring disposal. Date on recovery material label shall be Code 106.321 notification date

3.5.2 Pollution Prevention/Hazardous Waste Minimization

The Contractor shall actively pursue minimizing the use of hazardous materials and the generation of hazardous waste while on-base. The Hazardous Waste Management Section of the Environmental Protection Plan shall include the Contractor's procedures for pollution prevention/hazardous waste minimization. For preparing this part of the plan, the

Contractor may consult the activity Environmental Office for suggestions and to obtain a copy of the installation's pollution prevention/hazardous waste minimization plan for reference material. If no written plan exists, the Contractor may obtain information by contacting the NTR. The Contractor shall describe the types of the hazardous materials expected to be used in the construction when requesting information.

3.5.3 Hazardous Material Control

The Contractor shall include hazardous material control procedures in the Safety Plan. The procedures shall address and ensure the proper handling of hazardous materials, including the appropriate transportation requirements. The Contractor shall submit a MSDS and estimated quantities to be used for each hazardous material to the NTR prior to bringing the material on base. Typical materials requiring MSDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. At the end of the project, the Contractor shall provide the NTR with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used. The Contractor shall also ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. The Contractor shall ensure that all containers of hazardous materials have NFPA labels or their equivalent. Copies of the MSDS for hazardous materials shall be kept on site at all times and provided to the NTR at the end of the project. The Contractor shall certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

3.5.4 Petroleum Products

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. All used oil generated on site shall be managed in accordance with 40 CFR 279. The Contractor shall determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. In addition, used oil containing 1000 parts per million of solvents will be considered a hazardous waste and disposed of at Contractor's expense. Used oil mixed with a hazardous waste will also be considered a hazardous waste. All hazardous waste will be managed in accordance with the paragraph entitled Hazardous Waste/Debris Management of this section and shall be managed in accordance with the approved Environmental Protection Plan.

3.5.5 Releases/Spills of Oil and Hazardous Substances

Take precautions to prevent releases/spills of oil and hazardous substances. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Base or Activity Fire Department, the activity's Command Duty Officer, and the NTR. The Contractor is responsible for verbal and written notifications as required by the federal 40 CFR 355, State, local regulations and Navy Instructions. Spill response shall be in accordance with 40 CFR 300 and applicable State and local regulations. Contain and clean up these spills without cost to the Government. If Government assistance is requested or required, the Contractor shall reimburse the Government for such assistance. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

3.6 DUST CONTROL

Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

3.7 ABRASIVE BLASTING

3.7.1 Blasting Operations

The use of silica sand is prohibited in sandblasting.

Provide tarpaulin drop cloths and windscreens to enclose abrasive blasting operations to confine and collect dust, abrasive, agent, paint chips, and other debris in accordance with the requirements specified. Perform work involving removal of hazardous material in accordance with 29 CFR 1910.

3.7.2 Disposal Requirements

Submit analytical results of the debris generated from abrasive blasting operations per paragraph entitled Laboratory Analysis of this section. Hazardous waste generated from blasting operations shall be managed in accordance with paragraph entitled "Hazardous Waste\Debris Management" of this section and with the approved HWMP. Disposal of non-hazardous abrasive blasting debris shall be in accordance with paragraph entitled, "Control and Disposal of Solid Wastes".

3.8 REMOVAL FROM CAMP LEJEUNE, NC

Remove and dispose of rubbish and debris from Government property.

- a. Provide 24-hour advance written notice to the Contracting Office of Contractor's intention to dispose of off base.
- b. Disposal at sites or landfills 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 site without State permits and/or not in accordance with 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
- d. Metals will not be accepted at the Base Sanitary Landfill. Materials which may be deposited in the landfill include:

CATEGORY	CONSTRUCTION DEBRIS DISPOSAL - BASE SANITRY LANDFILL EXAMPLE/GENERAL INFORMATION FOR DEPOSIT IN THE LANDFILL
Mixed Debris	<p>The following materials may be placed in the landfill in a location designated by the landfill operator. These items may be mixed together.</p> <p>Sheetrock - plaster - glass (broken) Non asbestos insulation - (fiberglass and mineral wool shall be bagged).</p> <p>Packing paper, styrofoam, and pasteboard boxes Non-asbestos roofing materials such as shingles built-up and shingle roofing. Painted wood such as doors, windows, siding, and trim.</p> <p>Plastic/fiberglass such as pipe, electrical boxes, cover plates, etc. Ceramic and vinyl flooring or tile - ceiling tile.</p>
Masonry and Concrete	<p>Deliver concrete, block, brick, mortar to the landfill separate from any other items, and place in a location designated by the landfill operator. Reinforcement wire and rebar shall be removed flush with exposed surfaces.</p>
Nonrecyclable Cardboard	<p>Breakdown corrugated cardboard boxes and deliver to the Base Recycling Center located at Building 913. If Base personnel rejects the cardboard, take cardboard to the landfill.</p>
Nonrecyclable Wall Pallets	<p>Deliver usable pallets to the Base Recycling Center located at Building 913. If base personnel rejects the pallets, take pallets to the landfill.</p>
Treated Wood	<p>Deliver treated wood, and such as piling and power poles, to the landfill separated from any other items, and place in locations as designated by the landfill operator.</p>
Untreated/Unpainted Wood	<p>Deliver lumber, trees, stumps, limbs, tops, and shrubs to the landfill separated from any other items, and place in locations as designated by landfill operator.</p>
Organic Matter	<p>Deliver leaves, pine straw, grass clippings to the landfill separated from any other items, and place in locations as designated by landfill operator. No bags or containers are allowed.</p>
Fiberglass Tanks 550 gallons or less	<p>Clean tanks before delivery to landfill.</p>
Asphalt Pavement	<p>Remove pavement from Government property and</p>

CATEGORY	CONSTRUCTION DEBRIS DISPOSAL - BASE SANITARY LANDFILL EXAMPLE/GENERAL INFORMATION FOR DEPOSIT IN THE LANDFILL deliver to an asphalt-recycling establishment. Provide a record of the total tons of asphalt recycled and the corporate name and location of the recycling establishment receiving the removed asphalt.
Weigh each and every vehicle delivering debris	Separate each category of construction debris at the construction site and deliver separately to the landfill.
Weigh each and every vehicle delivering debris	Place each category of construction debris in the landfill at the location designated by the landfill operator.
Asbestos	Refer to Section 13281
Lead Based Paint and Materials	Refer to Section 13283
Metals	Metals will not be accepted at the landfill. Remove metals from each and every category before delivery to the landfill. (Example: Remove hardware from doors and windows Dispose of metal construction debris at Defense Reutilization Maintenance Office (DRMO) Building TC-861, Camp Geiger. Aluminum, brass, copper, lead, other metal, electrical wiring, cable (cut in 3 foot or less sections)

-- End of Section --

SECTION 01770

CLOSEOUT PROCEDURES
09/00

PART 1 GENERAL

1.1 SUBMITTALS

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

SD-10 Operation and Maintenance Data

Equipment/product warranty list

Submit Data Package 1 in accordance with Section 01781, "Operation and Maintenance Data."

SD-11 Closeout Submittals

As-built drawings; G

Record of materials; G

Utility as-built drawings; G

Equipment/product warranty tag; G

Hazardous material reporting; G

Certification of EPA Designated Items; G

1.2 Utility As-Built Drawings

In addition to as-built drawings provide for each exterior utility system a set of reproducible utility drawings, stamped and signed by a registered professional civil engineer or professional land surveyor, and two copies. Submit within ten working days after each system is in place, but no later than five working days before final inspection. Indicate exterior utilities from a point five feet from a building to the termination point or point of connection to existing system. Include the following:

- a. Horizontal and vertical controls for new utilities and existing utilities exposed during construction. Reference to station's horizontal and vertical control system.
- b. Sufficient dimensional control for all important features such as beginning and termination points, points of connection, inverts for sewer lines and drainage collection systems, top of pipe or conduit runs, manholes, cathodic protection appurtenances, valves, valve stem tops, backflow preventers, and other significant features.
- c. Indicate type and size of all materials used in the construction of the system.

- d. Indicate bearing and distance on tangent lines. On curves, indicate delta and radius of the curve, also provide X, Y, and Z coordinates at all BC and EC angle points. Indicate horizontal and vertical control for all intersecting and tangent points where utility alignment changes. Indicate X, Y, and Z coordinates at building line and point of connection for straight building laterals or services under 40 feet.
- e. Tolerances: Horizontal and vertical control dimensions, plus or minus 0.10 foot. Angular control, plus or minus 0 degrees 01 minute.

1.3 Certification of EPA Designated Items

Submit the Certification of EPA Designated Items as required by FAR 52.223-9, "Certification and Estimate of Percentage of Recovered Material Content for EPA Designated Items".

1.4 PROJECT RECORD DOCUMENTS

1.4.1 As-Built Drawings

"FAC 5252.236-9310, Record Drawings." In addition to the requirements of FAC 5252.236-9310, the Contractor shall survey the horizontal and vertical location of all underground utilities to within 0.1 feet relative to the station datum. All pipe utilities shall be surveyed at each fitting and every 100 LF of run length. Electrical and communication ductbank, direct buried conduit, and direct buried conductor shall be surveyed every 100 LF and at each change of direction. Locations and elevations shall be recorded on the Record Drawings. Submit drawings with QC certification. Submit drawings in CAD format.

1.5 CLEANUP

Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. [Clean] [Replace] filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 02050

DEMOLITION AND REMOVAL
06/95

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 A10.6 (1990) Demolition Operations

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 61-SUBPART M National Emission Standard for Asbestos

1.2 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the NTR. Remove rubbish and debris from the site daily. Store materials that cannot be removed daily in areas specified by the NTR.

1.3 SUBMITTALS

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

1.3.1 SD-08, Statements

- a. Demolition plan
- b. Notification of demolition and renovation

Submit proposed demolition and removal procedures to the NTR for approval before work is started. Include a disconnection or temporary connection schedule of utility services.

1.3.1.1 Required Data

Demolition plan shall include procedures for careful removal and disposition of materials specified to be demolished, coordination with other work in progress, a disconnection schedule of utility services, and a detailed description of methods and equipment to be used for each operation and of the sequence of operations.

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ANSI A10.6.

1.5 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris at the remediation site to avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris.

1.6 PROTECTION

1.6.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the NTR prior to beginning such work.

1.6.2 Existing Work

Protect existing work which is to remain in place, be reused, or remain the property of the Government. Repair items which are to remain and which are damaged during performance of the work to their original condition, or replace with new. Do not overload pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have NTR approval.

1.6.3 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Paving and Slabs

Sawcut and remove concrete and asphaltic concrete paving and slabs including aggregate base as indicated to a depth necessary to remove underlying contaminated soil. Provide neat sawcuts at limits of pavement removal as needed. Remove building foundation walls and floor to the limits detailed within the Scope of Work.

3.2 FILLING

Fill holes and other hazardous openings in accordance with Section 02220, "General Excavation, Filling and Backfilling".

3.3 DISPOSITION OF MATERIAL

3.3.1 Title to Materials

Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from Government property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the NTR of the Contractor's demolition and removal procedures, and authorization by the NTR to begin demolition. The Government will not be responsible for the condition or loss of, or damage to, such property after notice to proceed. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.4 CLEANUP

3.4.1 Debris and Rubbish

Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas. Clean up spillage from pavements, streets and adjacent areas.

-- End of Section --

SECTION 02220

SITE DEMOLITION
03/00

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 A10.6 (1990) Demolition Operations

AIR-CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

ARI Guideline K (1997) Containers for Recovered
Fluorocarbon Refrigerants

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 61-SUBPART M National Emission Standard for Asbestos

40 CFR 82 Protection of Stratospheric Ozone;
Refrigerant Recycling

49 CFR 173.301 Shipment of Compressed Gas Cylinders

DEFENSE LOGISTICS AGENCY (DLA)

DLA 4145.25 Storage and Handling of Compressed Gases
and Liquids in Cylinders

DEPARTMENT OF DEFENSE (DOD)

DOD 4000.25-1-M Requisitioning and Issue Procedures

MILITARY STANDARDS (MIL-STD)

MIL-STD-129 (Rev. N) Marking for Shipment and Storage

1.2 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the NTR. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the site. Store materials that cannot be removed daily in areas specified by the NTR. Demolish and remove materials containing asbestos, lead, PCBs in accordance with Section 13281, "Engineering Control of Asbestos Containing Materials"; Section 13282, "Removal and Disposal of Materials Containing Lead"; Section 13283, "Removal and Disposal of Lead-Containing Paint"; Section 13286, "Handling of PCB and Mercury Containing Lighting Ballasts and Lamps", and Section 01575, "Temporary Environmental Controls."]

1.3 DEFINITIONS

1.3.1 Class I and Class II Ozone Depleting Substance (ODS)

Class I and Class II ODS are defined in Section, 602(a) and (b), of The Clean Air Act.

1.4 SUBMITTALS

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

SD-07 Certificates

Demolition plan; G

Notifications; G

Notification of Demolition and Renovation forms; G

Submit proposed salvage, demolition and removal procedures to the NTR for approval before work is started.

SD-11 Closeout Submittals

Receipts

1.5 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ANSI A10.6.

1.5.1 Notifications

Furnish timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61-SUBPART M. Notify the Regional Office of the United States Environmental Protection Agency (USEPA), State's environmental protection agency and the NTR in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61-SUBPART M.

Complete and submit Notification of Demolition and Renovation forms to Federal and State authorities and NTR, postmarked or delivered at least ten working days prior to commencement of work, in accordance with 40 CFR 61-SUBPART M.

1.5.2 Receipts

Submit a shipping receipt or bill of lading for all containers of ozone depleting substance (ODS) shipped to the Defense Depot, Richmond, Virginia.

1.6 DUST [AND DEBRIS] CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.7 PROTECTION

1.7.1 Traffic Control Signs

Where driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the NTR prior to beginning such work.

1.7.2 Trees

Conform to Section 01575, "Temporary Environmental Controls," for protection of natural resources.

]1.7.3 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

]1.8 BURNING

Burning will not be permitted.

1.9 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by the NTR.

1.10 Required Data

Demolition plan shall include procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Structures

Remove indicated existing structures to depth depicted on the drawings and scope of work. Break up basement slabs to permit drainage.

3.1.2 Utilities and Related Equipment

Remove existing utilities, as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the NTR. Remove meters and related equipment and deliver to a location on site in accordance with instructions of the NTR. If utility lines are encountered that are not shown on drawings, contact the NTR for further instructions.

3.2 Transportation Guidance

Shipment of all ODS containers shall be in accordance with MIL-STD-129, DLA 4145.25 (also referenced one of the following: Army Regulation 700-68, Naval Supply Instruction 4440.128C, Marine Corps Order 10330.2C, and Air Force Regulation 67-12), 49 CFR 173.301, and DOD 4000.25-1-M.

3.3 CLEANUP

3.3.1 Debris and Rubbish

Remove and transport debris and rubbish in a manner that will prevent spillage on streets or adjacent areas.

-- End of Section --

SECTION 02231

CLEARING AND GRUBBING
09/99

PART 1 GENERAL

1.1 SUBMITTALS

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

SD-04 Samples

Tree wound paint

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

2.1 TREE WOUND PAINT

Bituminous based paint of standard manufacture specially formulated for tree wounds.

2.2 HERBICIDE

Comply with Federal Insecticide, Fungicide, and Rodenticide Act (Title 7 U.S.C. Section 136) for requirements on contractor's licensing, certification and record keeping. Contact the command Pest Control Coordinator prior to starting work.

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 01575, "Temporary Environmental Controls."

3.1.3 Utility Lines

Protect existing utility lines that are indicated to remain from damage. Notify the NTR 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 NTR in ample time to minimize interruption of the service. Refer to Section 01310, "Administrative Requirements," and Section 01575, "Temporary Environmental Controls," 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.

3.3.1 Nonsaleable Materials

Remove from the project site and dispose of off station.

-- End of Section --

SECTION 02315

EXCAVATION AND FILL
09/00

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 FOR TESTING AND MATERIALS (ASTM)

ASTM C 33	(1999; Rev. A) Concrete Aggregates
ASTM C 136	(1996; Rev. A) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(1991) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft (600 kN-m/m))
ASTM D 1140	(1997) Amount of Material in Soils Finer Than the No. 200 (75-Micrometer) Sieve
ASTM D 1556	(1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1991; R 1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m))
ASTM D 2321	(1989; R 1995) Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1996) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(1998) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C600	(1999) Installation of Ductile-Iron Water Mains and Their Appurtenances
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COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909 Fertilizer

CORPS OF ENGINEERS (COE)

COE EM-385-1-1 (1996) Safety and Health Requirements Manual

ENVIRONMENTAL PROTECTION AGENCY (EPA)

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

EPA 600/4-79-020 1983 Methods for the Chemical Analysis of Water and Wastes

1.2 DEFINITIONS

1.2.1 Hard Materials

Weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

1.2.2 Cohesive Materials

Materials ASTM D 2487 classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesive only when the fines have a plasticity index greater than zero.

1.2.3 Cohesionless Materials

Materials ASTM D 2487 classified as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the fines have a plasticity index of zero.

1.3 SUBMITTALS

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

SD-06 Test Reports

Borrow Site Testing; G

Fill and backfill test

Select material test

Density tests

1.4 DELIVERY, STORAGE, AND HANDLING

Perform in a manner to prevent contamination or segregation of materials.

1.5 REQUIREMENTS FOR OFF SITE SOIL

Soils brought in from off site for use as backfill shall be tested for TPH, BTEX and full TCLP including ignitability, corrosivity and reactivity.

Backfill shall contain less than 10 parts per million (ppm) of total petroleum hydrocarbons (TPH) and less than 1 ppm of the sum of Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) and shall not fail the TCPL test.

TPH concentrations shall be determined by using EPA 600/4-79-020 Method 418.1. BTEX concentrations shall be determined by using EPA SW-846 Method 5030/8020. TCLP shall be performed in accordance with EPA SW-846 Method 1311. Provide Borrow Site Testing for TPH, BTEX and TCLP from a composite sample of material from the borrow site, with at least one test from each borrow site. Material shall not be brought on site until tests have been approved by the NTR.

1.6 QUALITY ASSURANCE

1.6.1 Required Drawings

Submit drawings and calculations by a registered professional engineer. Drawings shall include material sizes and types, arrangement of members, and the sequence and method of installation and removal.

1.6.2 Required Data

Submit drawings and calculations by a registered professional engineer. Calculations shall include data and references used.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

Free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and frozen, deleterious, or objectionable materials. Unless specified otherwise, the maximum particle diameter shall be one-half the lift thickness at the intended location.

2.1.1 Common Fill

Approved, unclassified soil material with the characteristics required to compact to the soil density specified for the intended location.

2.1.2 Backfill and Fill Material

ASTM D 2487, classification GW, GP, GM, GC, SW, SP, SM, SC with a maximum ASTM D 4318 liquid limit of 35, maximum ASTM D 4318 plasticity index of 12, and a maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve.

2.1.3 Topsoil

Provide as specified in Section 02921, "Turf."

Natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth. Amend topsoil pH range to obtain a pH of 5.5 to 7.

2.1.4 Select Material

ASTM D 2487, classification GW, GP, SW, SP.

2.2 POROUS FILL FOR CAPILLARY WATER BARRIER

ASTM C 33 fine aggregate grading with a maximum of 3 percent by weight passing ASTM D 1140, No. 200 sieve, or coarse aggregate Size 57, 67, or 77 and conforming to the general soil material requirements specified in paragraph entitled "Soil Materials."

2.3 BORROW

If the Government borrow pit is used, the Contractor shall perform clearing, grubbing, and stripping required for providing access to suitable borrow material. Dispose of materials from clearing and grubbing operations at the Government landfill indicated. Strip top 12 inches of soil material from borrow area and stockpile. After removal of borrow material, regrade borrow pit using stockpiled soil material to contours which will blend in with adjacent topography. Maximum side slopes shall be two horizontal to one vertical. Excavation and backfilling of borrow pit shall ensure proper drainage.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

3.1.1 Clearing and Grubbing

Unless indicated otherwise, remove trees, stumps, logs, shrubs, and brush within the clearing limits. Remove stumps entirely. Grub out matted roots and roots over 2 inches in diameter to at least 18 inches below existing surface.

3.1.2 Stripping

Strip existing topsoil to a depth of 6 inches without contamination by subsoil material. Stockpile topsoil separately from other excavated material and locate convenient to finish grading area.

3.1.3 Unsuitable Material

Remove vegetation, debris, decayed vegetable matter, sod, mulch, and rubbish underneath paved areas or concrete slabs.

3.2 PROTECTION

3.2.1 Drainage and Dewatering

Provide for the collection and disposal of surface and subsurface water encountered during construction.

3.2.1.1 Drainage

So that construction operations progress successfully, completely drain construction site during periods of construction to keep soil materials sufficiently dry. The Contractor shall establish/construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and/or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess

the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed.

3.2.2 Underground Utilities

Location of the existing utilities indicated is approximate. The Contractor shall physically verify the location and elevation of the existing utilities indicated prior to starting construction. [The Contractor shall contact the NTR for assistance in locating existing utilities.

3.2.3 Machinery and Equipment

Movement of construction machinery and equipment over pipes during construction shall be at the Contractor's risk. Repair, or remove and provide new pipe for existing or newly installed pipe that has been displaced or damaged.

3.3 EXCAVATION

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Refill and compact to 95 percent of [ASTM D 698] [ASTM D 1557] maximum density. Unless specified otherwise, refill excavations cut below indicated depth and compact to 95 percent of [ASTM D 698] [ASTM D 1557] maximum density.

3.3.1 Pipe Trenches

Excavate to the dimension indicated. Grade bottom of trenches to provide uniform support for each section of pipe after pipe bedding placement.

3.4 FILLING AND BACKFILLING

Fill and backfill to contours, elevations, and dimensions indicated. Compact each lift before placing overlaying lift.

3.4.1 Common Fill Placement

Provide for general site and under pile-supported structures. Place in 12 inch lifts. Compact areas not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

3.4.2 Trench Backfilling

Backfill as rapidly as construction, testing, and acceptance of work permits. Place and compact backfill under structures and paved areas in 12 inch lifts to top of trench and in 6 inch lifts to one foot over pipe outside structures and paved areas.

3.4.2.1 Bedding Requirements

Except as specified otherwise in the individual piping section, provide

bedding for buried piping in accordance with AWWA C600, Type 4, except as specified herein. Backfill to top of pipe shall be compacted to 95 percent of ASTM D 698 maximum density. Plastic piping shall have bedding to spring line of pipe. Provide ASTM D 2321 materials as follows:

- a. Class I: Angular, 0.25 to 1.5 inches, graded stone, including a number of fill materials that have regional significance such as coral, slag, cinders, crushed stone, and crushed shells.
- b. Class II: Coarse sands and gravels with maximum particle size of 1.5 inches, including various graded sands and gravels containing small percentages of fines, generally granular and noncohesive, either wet or dry. Soil Types GW, GP, SW, and SP are included in this class as specified in ASTM D 2487.

3.5 BURIED WARNING AND IDENTIFICATION TAPE

Provide buried utility lines with utility identification tape. Bury tape 12 inches below finished grade; under pavements and slabs, bury tape 6 inches below top of subgrade.

3.6 BURIED DETECTION WIRE

Bury detection wire directly above non-metallic piping at a distance not to exceed 12 inches above the top of pipe. The wire shall extend continuously and unbroken, from manhole to manhole. The ends of the wire shall terminate inside the manholes at each end of the pipe, with a minimum of 3 feet of wire, coiled, remaining accessible in each manhole. The wire shall remain insulated over its entire length. The wire shall enter manholes between the top of the corbel and the frame, and extend up through the chimney seal between the frame and the chimney seal. For force mains, the wire shall terminate in the valve pit at the pump station end of the pipe.

3.7 COMPACTION

Expressed as a percentage of maximum density. Determine in-place density of existing subgrade; if required density exists, no compaction of existing subgrade will be required. Density requirements specified herein are for cohesionless materials. When cohesive materials are encountered or used, density requirements may be reduced by 5 percent.

3.7.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5 foot line of the structure to 85 percent of ASTM D 698 [ASTM D 1557].

3.8 FINISH OPERATIONS

3.8.1 Grading

Finish grades as indicated within one-tenth of one foot. Grade areas to drain water away from structures. For existing grades that will remain but which were disturbed by Contractor's operations, grade as directed.

3.8.2 Seed

Scarify existing subgrade. Provide 4 inches of topsoil for newly graded finish earth surfaces and areas disturbed by the Contractor. Additional topsoil will not be required if work is performed in compliance with

stripping and stockpiling requirements. If there is insufficient on-site topsoil meeting specified requirements for topsoil, provide topsoil required in excess of that available. Seed shall match existing vegetation. Provide seed at 5 pounds per 1000 square feet. Provide CID A-A-1909, Type I, Class 2, 10-10-10 analysis fertilizer at 25 pounds per 1000 square feet. Provide commercial agricultural limestone of 94-80-14 analysis at 70 pounds per 1000 square feet. Provide mulch and water to establish an acceptable stand of grass.

3.8.3 Protection of Surfaces

Protect newly graded areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.9 FIELD QUALITY CONTROL

3.9.1 Sampling

Take the number and size of samples required to perform the following tests.

3.9.2 Testing

Perform one of each of the following tests for each material used. Provide additional tests for each source change.

3.9.2.1 Fill and Backfill Material Testing

Test fill and backfill material in accordance with ASTM C 136 for conformance to ASTM D 2487 gradation limits; ASTM D 1140 for material finer than the No. 200 sieve; ASTM D 4318 for liquid limit and for plastic limit; ASTM D 698 or ASTM D 1557 for moisture density relations, as applicable.

3.9.2.2 Select Material Testing

Test select material in accordance with ASTM C 136 for conformance to ASTM D 2487 gradation limits; ASTM D 1140 for material finer than the No. 200 sieve; ASTM D 698 or ASTM D 1557 for moisture density relations, as applicable.

3.9.2.3 Porous Fill Testing

Test porous fill in accordance with ASTM C 136 for conformance to gradation specified in ASTM C 33.

3.9.2.4 Density Tests

Test density in accordance with ASTM D 1556, or ASTM D 2922 and ASTM D 3017. When ASTM D 2922 and ASTM D 3017 density tests are used, verify density test results by performing an ASTM D 1556 density test at a location already ASTM D 2922 and ASTM D 3017 tested as specified herein. Perform an ASTM D 1556 density test at the start of the job, and for every 10 ASTM D 2922 and ASTM D 3017 density tests thereafter. Test each lift at randomly selected locations every 2000 square feet of existing grade in fills for structures and concrete slabs, and every 2500 square feet for other fill areas and every 2000 square feet of subgrade in cut.

-- End of Section --

SECTION 13283

REMOVAL AND DISPOSAL OF LEAD-CONTAINING PAINT
09/00

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|------------|---|
| ANSI Z9.2 | (1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems |
| ANSI Z88.2 | (1992) Respiratory Protection |

CODE OF FEDERAL REGULATIONS (CFR)

- | | |
|-----------------|---|
| 29 CFR 1926.21 | Safety Training and Education |
| 29 CFR 1926.33 | Access to Employee Exposure and Medical Records |
| 29 CFR 1926.55 | Gases, Vapors, Fumes, Dusts, and Mists |
| 29 CFR 1926.59 | Hazard Communication |
| 29 CFR 1926.62 | Lead Exposure in Construction |
| 29 CFR 1926.65 | Hazardous Waste Operations and Emergency Response |
| 29 CFR 1926.103 | Respiratory Protection |
| 40 CFR 260 | Hazardous Waste Management Systems: General |
| 40 CFR 261 | Identification and Listing of Hazardous Waste |
| 40 CFR 262 | Generators of Hazardous Waste |
| 40 CFR 263 | Transporters of Hazardous Waste |
| 40 CFR 264 | Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities |
| 40 CFR 265 | Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities |
| 40 CFR 268 | Land Disposal Restrictions |

- 40 CFR 745 Lead; Requirements for Lead-Based Paint Activities
- 49 CFR 172 Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
- 49 CFR 178 Shipping Container Specification

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

- HUD Guidelines (1995) Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing

UNDERWRITERS LABORATORIES INC. (UL)

- UL 586 (1996) High-Efficiency, Particulate, Air Filter Units

1.2 DEFINITIONS

1.2.1 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8 hour period in an occupational/industrial environment.

1.2.2 Area Sampling

Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations but is not collected in the breathing zone of personnel.

1.2.3 Competent Person (CP)

As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations. An industrial hygienist or safety professional certified for comprehensive practice by the American Board of Industrial Hygiene or by the Board of Certified Safety Professionals is the best choice.

1.2.4 Contaminated Room

Room for removal of contaminated personal protective equipment (PPE).

1.2.5 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

1.2.6 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead to which an employee is exposed, averaged over an 8 hour workday as indicated in 29 CFR 1926.62.

1.2.7 High Efficiency Particulate Air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron or larger size particles.

1.2.8 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps.

1.2.9 Lead-Based Paint (LBP)

Paint or other surface coating that contains lead in excess of 1.0 milligrams per centimeter squared or 0.5 percent by weight.

1.2.10 Lead-Based Paint Hazard (LBP Hazard)

Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

1.2.11 Lead-Containing Paint (LCP)

Lead-based paint or other similar surface coating containing lead or lead compound in excess of 0.06 percent by weight of the total nonvolatile content of the paint.

1.2.12 Lead Control Area

An enclosed area or structure, constructed as a temporary containment equipped with HEPA filtered local exhaust, which prevents the spread of lead dust, paint chips, or debris existing as a condition of lead-based paint removal operations. The lead control area is also isolated by physical boundaries to prevent unauthorized entry of personnel.

1.2.13 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8 hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a work day, the PEL shall be determined by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. hrs worked per day}$$

1.2.14 Personal Sampling

Sampling of airborne lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employees' work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and centered at the nose or mouth of an employee.

1.2.15 Physical Boundary

Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area but

inside boundary."

1.3 DESCRIPTION OF WORK

Remove structural steel containing lead-based/lead-containing paint for recycle.

1.4 SUBMITTALS

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

SD-11 Closeout Submittals

Completed and signed hazardous waste manifest from treatment or disposal facility; G

Certification of medical examinations; G

Employee training certification; G

1.5 QUALIFICATIONS OF CP

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph entitled "Competent Person (CP) Responsibilities." Provide previous experience of the CP. Submit proper documentation that the CP is trained [and licensed] [and certified] in accordance with Federal, State, and local laws.

1.6 OCCUPATIONAL AND ENVIRONMENTAL SAMPLING RESULTS

Submit occupational and environmental sampling results to the NTR within three working days of collection, signed by the testing laboratory responsible official, the employee that performed the sampling, and the CP.

- a. The sampling results shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62.
- c. The initial monitoring shall determine the requirements for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCP) in accordance with 29 CFR 1926.62.

1.7 OCCUPATIONAL AND ENVIRONMENTAL ASSESSMENT DATA REPORT

Some LBP/LCP removal work may not require full implementation of the requirements of 29 CFR 1926.62. Based on the experience of the Contractor and/or the use of a specific process or method for performing the work, the Contractor may be able to provide historic data (previous 12 months) to demonstrate that airborne exposures are controlled below the action level. Such methods or controls shall be fully presented in the LBP/LCPRP. To reduce the full implementation of 29 CFR 1926.62, the Contractor shall

provide documentation in an Assessment Data Report.

Submit occupational and environmental assessment report to the NTR prior to start of work, signed by the testing laboratory responsible official, and the CP.

- a. Submit a report that supports the determination regarding the reduction of the need to fully implement the requirements of 29 CFR 1926.62 and supporting the LBP/LCP. The exposure assessment shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead for stated work.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62 with a complete process description in supporting a negative assessment.
- c. The initial assessment shall determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCPRP) in accordance with 29 CFR 1926.62.

1.8 QUALITY ASSURANCE

1.8.1 Medical Examinations

Initial medical surveillance as required by 29 CFR 1926.62 shall be made available to all employees exposed to lead at any time (1 day) above the action level. Full medical surveillance shall be made available to all employees on an annual basis who are or may be exposed to lead in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62. Adequate records shall show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62, and 29 CFR 1926.103.

1.8.1.1 Medical Records

Maintain complete and accurate medical records of employees for a period of at least 30 years or for the duration of employment plus 30 years, whichever is longer.

1.8.1.2 Medical Surveillance

Provide medical surveillance to all personnel exposed to lead as indicated in 29 CFR 1926.62.

1.8.2 Competent Person (CP) Responsibilities

- a. Certify training as meeting all federal, State, and local requirements.
- b. Review and approve lead-based paint/lead-containing paint removal plan for conformance to the applicable referenced standards.
- c. Continuously inspect lead-based paint removal work for conformance with the approved plan.

- d. Perform air and wipe sampling.
- e. Ensure work is performed in strict accordance with specifications at all times.
- f. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- g. Certify the conditions of the work as called for elsewhere in this specification.

1.8.3 Training

Train each employee performing paint removal, disposal, and air sampling operations prior to the time of initial job assignment and annually thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, and State and local regulations.

1.8.3.1 Training Certification

Submit a certificate for each employee, signed and dated by the approved training source, stating that the employee has received the required lead training.

1.8.4 Respiratory Protection Program

- a. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62.
- b. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR 1926.103, 29 CFR 1926.62, and 29 CFR 1926.55.

1.8.5 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

1.8.6 Hazardous Waste Management

The Hazardous Waste Management Plan shall comply with applicable requirements of federal, State, and local hazardous waste regulations and address:

- a. Identification and classification of hazardous wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and operator and a 24-hour point of contact. Furnish two copies of EPA State and local hazardous waste permit applications permits manifests and EPA Identification numbers.

- d. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
- e. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- f. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.
- g. Work plan and schedule for waste containment, removal and disposal. Wastes shall be cleaned up and containerized daily.
- h. Unit cost for hazardous waste disposal according to this plan.

1.8.7 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.62. Submit matters regarding interpretation of standards to the NTR for resolution before starting work.

Where specification requirements and the referenced documents vary, the most stringent requirement shall apply.

1.8.8 Pre-Construction Conference

Along with the CP, meet with the NTR to discuss in detail the hazardous waste management plan and the lead-based paint/lead-containing paint removal plan, including work procedures and precautions for the removal plan.

1.9 EQUIPMENT

1.9.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead dust. Respirators shall comply with the requirements of 29 CFR 1926.62.

1.9.2 Special Protective Clothing

Furnish personnel who will be exposed to lead-contaminated dust with proper disposable uncontaminated, reusable protective whole body clothing, head covering, gloves, and foot coverings as required by 29 CFR 1926.62.

Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

1.9.3 Rental Equipment Notification

If rental equipment is to be used during lead-based paint handling and disposal, notify the rental agency in writing concerning the intended use of the equipment. Furnish a copy of the written notification to the NTR.

1.9.4 Vacuum Filters

UL 586 labeled HEPA filters.

1.9.5 Equipment for Government Personnel

Furnish the NTR with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry into and inspection of the paint removal work within the lead controlled area. Personal protective equipment shall include disposable whole body covering, including appropriate foot, head, and hand protection. PPE shall remain the property of the Contractor. Respiratory protection for the NTR will be provided by the Government.

1.10 REMOVAL

1.10.1 Title to Materials

Materials resulting from demolition work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of in accordance with Section 02220, "Site Demolition," except as specified herein.

PART 2 PRODUCTS

2.1 CHEMICALS

Submit applicable Material Safety Data Sheets for all chemicals used in paint removal work. Use the least toxic product approved by the NTR.

2.2 MATERIALS

The soluble metal content and the total metal content shall not exceed values which would cause a material to be classified as a hazardous waste.

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Notification

Notify the NTR 20 days prior to the start of any paint removal work.

3.1.2 Lead Control Area Requirements

Establish a lead control area by situating critical barriers and physical boundaries around the area or structure where LBP/LCP removal operations will be performed.

Full containment - Contain removal operations by the use of [critical barriers] [and HEPA filtered exhaust] [a negative pressure enclosure system with decontamination facilities and with HEPA filtered exhaust if required by the CP]. For containment areas larger than 1,000 square feet install a minimum of two 18 inch square viewing ports. Locate ports to provide a view of the required work from the exterior of the enclosed contaminated area. Glaze ports with laminated safety glass.

3.1.3 Protection of Existing Work to Remain

Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its

original condition or better.

3.1.4 Boundary Requirements

Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that airborne concentrations of lead will not reach 30 micrograms per cubic meter of air outside of the lead control area.

3.1.4.1 Physical Boundary

Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that airborne concentrations of lead will not reach 30 micrograms per cubic meter of air outside of the lead control area.

3.1.4.2 Warning Signs

Provide warning signs at approaches to lead control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

3.1.5 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.

3.1.6 Eye Wash Station

Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

3.1.7 Mechanical Ventilation System

- a. Use adequate ventilation to control personnel exposure to lead in accordance with 29 CFR 1926.62.
- b. To the extent feasible, use fixed local exhaust ventilation connected to HEPA filters or other collection systems, approved by the CP. Local exhaust ventilation systems shall be designed, constructed, installed, and maintained in accordance with ANSI Z9.2.
- c. Vent local exhaust outside the building only and away from building ventilation intakes.
- d. Use locally exhausted, power actuated, paint removal tools.

3.1.8 Personnel Protection

Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with protective equipment.

3.2 WORK PROCEDURES

Perform removal of lead-based paint in accordance with approved lead-based paint/lead-containing paint removal plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when lead-based paint is removed in accordance with 29 CFR 1926.62, except as specified herein. Dispose of removed paint chips and associated waste in compliance with Environmental Protection Agency (EPA), federal, State, and local requirements.

3.2.1 Personnel Exiting Procedures

Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

- a. Vacuum themselves off.
- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.
- c. Wash hands and face at the site, don appropriate disposable or uncontaminated reusable clothing; move to an appropriate facility; shower.
- d. Change to clean clothes prior to leaving the physical boundary designated around the lead control area.

3.2.2 Air and Wipe Sampling

Air sample for lead in accordance with 29 CFR 1926.62 and as specified herein. Air and wipe sampling shall be directed or performed by the CP.

- a. The CP shall be on the job site directing the air and non-clearance wipe sampling and inspecting the lead-based paint removal work to ensure that the requirements of the contract have been satisfied during the entire lead-based paint removal operation.
- b. Collect personal air samples on employees who are anticipated to have the greatest risk of exposure as determined by the CP. In addition, collect air samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.
- c. Submit results of air samples, signed by the CP, within 72 hours after the air samples are taken. Notify the NTR immediately of exposure to lead at or in excess of the action level of 30 micrograms per cubic meter of air outside of the lead control area.
- d. Before any work begins, collect and analyze baseline or soil wipe samples in accordance with methods defined in federal, State, and local standards inside and outside of the physical boundary to assess the degree of dust contamination in the facility prior to lead-based paint removal.

3.2.2.1 Air Sampling During Paint Removal Work

Conduct area air sampling daily, on each shift in which lead-based paint

removal operations are performed, in areas immediately adjacent to the lead control area. Sufficient area monitoring shall be conducted to ensure unprotected personnel are not exposed at or above 30 micrograms per cubic meter of air. If 30 micrograms per cubic meter of air is reached or exceeded, stop work, correct the condition(s) causing the increased levels. Notify the NTR immediately. Determine if condition(s) require any further change in work methods. Removal work shall resume only after approval is given by the CP and the NTR. For outdoor operations, at least one sample on each shift shall be taken on the downwind side of the lead control area.

3.2.3 Lead-Based Paint Removal

Manual or power sanding of interior and exterior surfaces is not permitted. Provide methodology for removing LBP in work plan. Remove paint within the areas designated on the drawings in order to completely expose the substrate. Take whatever precautions necessary to minimize damage to the underlying substrate.

Avoid deterioration of the substrate. Provide surface preparations for painting in accord with Section 09900, "Paints and Coatings."

3.2.3.1 Outdoor Lead Paint Removal

Perform outdoor removal as indicated in federal, State, and local regulations and in the LBP/CPRP. The worksite preparation (barriers or containments) shall be job dependent and presented in the LBP/LCPRP.

3.2.3.2 Sampling After Paint Removal

After the visual inspection, conduct soil sampling if bare soil is present during external removal operations and collect air samples inside and outside the lead control area to determine the airborne levels of lead inside and outside the work area. Collect wipe samples according to the HUD protocol contained in HUD Guidelines to determine the lead content of settled dust and dirt in micrograms per square foot of surface area and parts per million (ppm) or micrograms per gram (ug/g) for soil.

3.2.4 Cleanup and Disposal

3.2.4.1 Cleanup

Maintain surfaces of the lead control area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the paint removal operation has been completed, clean the area of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner, wet mopping the area and wet wiping the area as indicated by the CP. Reclean areas showing dust or residual paint chips or debris. After visible dust, chips and debris is removed, wet wipe and HEPA vacuum all surfaces in the work area. If adjacent areas become contaminated at any time during the work, clean, visually inspect, and then wipe sample all contaminated areas. The CP shall then certify in writing that the area has been cleaned of lead contamination before restarting work.

3.2.4.2 Clearance Certification

The CP shall certify in writing that the final air samples collected inside and outside the lead control area are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62 and 40 CFR 745; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the NTR's acknowledgement of receipt of the CP certification.

A third party consultant shall certify surface wipe sample results collected inside and outside the work area are [less than 100 micrograms per square foot on uncarpeted floors, less than 500 micrograms per square foot on interior window sills and less than 800 micrograms per square foot on window troughs] [not significantly greater than the initial surface loading determined prior to work].

For exterior paint removal work, soil samples taken at the exterior of the work site shall be used to determine if soil lead levels had increased at a statistically significant level (significant at the 95 percent confidence limit) from the soil lead levels prior to the work. If soil lead levels do show a statistically significant increase above any applicable Federal or State standard for lead in soil, the soil shall be remediated back to the pre-work level..

[3.2.4.3 Testing of Lead-Based Paint Residue and Used Abrasive

Test paint residue and used abrasive in accordance with 40 CFR 261 for hazardous waste.]

3.2.4.4 Disposal

- a. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing which may produce airborne concentrations of lead particles. Label the containers in accordance with 29 CFR 1926.62 and 40 CFR 261. Dispose of lead-contaminated waste material at an [EPA] [or] [State] approved hazardous waste treatment, storage, or disposal facility off Government property.
- b. Store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums. Properly label each drum to identify the type of waste (49 CFR 172) and the date the drum was filled. The NTR or an authorized representative will assign an area for interim storage of waste-containing drums. Do not store hazardous waste drums in interim storage longer than 90 calendar days from the date affixed to each drum.
- c. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Comply with land disposal restriction notification requirements as required by 40 CFR 268.
- d. All material, whether hazardous or non-hazardous shall be disposed in accordance with laws and provisions and Federal, State, or local regulations. Ensure waste is properly characterized. The result of each waste characterization (TCLP for RCRA materials) will dictate disposal requirements.

3.2.5 Disposal Documentation

Submit written evidence that the hazardous waste treatment, storage, or disposal facility (TSD) is approved for lead disposal by the EPA and State or local regulatory agencies. Submit one copy of the completed manifest, signed and dated by the initial transporter in accordance with 40 CFR 262.

3.2.6 Payment for Hazardous Waste

Payment for disposal of hazardous waste will not be made until a signed copy of the manifest from the treatment or disposal facility certifying the amount of lead-containing materials delivered is returned and a copy is furnished to the Government.

-- End of Section --

SECTION 13285

REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS
09/99

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 within the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4397 (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response

29 CFR 1910.145 Accident Prevention Signs and Tags

29 CFR 1910.1000 Air Contaminants

40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

40 CFR 761.75 Chemical Waste Landfills

49 CFR 171 General Information, Regulations, and Definitions

49 CFR 172 Hazardous Materials, Tables, and Hazardous Materials Communications Regulations

49 CFR 173 Shipments and Packagings

49 CFR 174 Carriage by Rail

49 CFR 176 Carriage by Vessel

49 CFR 177 Carriage by Public Highway

49 CFR 178 Shipping Container Specification

49 CFR 179 Tank Cars

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846 (1986) Evaluating Solid Waste (Physical/Chemical Methods)

EPA 560/5-86-017 (1986) Grid Sampling of PCB Spill Sites to

Verify Cleanup

1.2 DEFINITIONS

1.2.1 PCB and PCBs (Polychlorinated Biphenyls)

40 CFR 761. PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such substance.

1.2.2 PCB Contaminated Soil

Soils containing concentrations greater than 1 part per million (ppm) PCBs when tested as specified herein.

1.2.3 PCB Contaminated Water

Water containing greater than 1.5 parts per billion (ppb) when tested as specified herein.

1.2.4 PCB Surface Contaminated Solids

Soils containing concentrations greater than 1 microgram PCB per square centimeter when tested as specified herein.

1.2.5 Permissible Exposure Limits (PEL)

PEL for PCBs is 3.10 E-08 pound per cubic feet on an 8-hour time weighted average basis.

1.3 DESCRIPTION OF WORK

The work includes removal and disposal of PCB contaminated soils . Perform work in accordance with 40 CFR 761, 29 CFR 1910.120, and the requirements specified herein or detailed within the Scope of Work. Excavate to the horizontal and vertical limits of the identified contaminated soil as indicated. After removing contaminated soil as indicated, sample, test, and excavate as specified until clean soil is encountered.

1.3.1 Existing Conditions

PCB contaminant levels range from ND "not detected" to 100 ppm.

1.4 METHOD OF MEASUREMENT

For the PCB contaminated soil material, which the NTR directs to be removed from site, the unit of measurement for excavation will be the ton. Tonnage to be paid for will be the number of tons removed from the site. Quantities will be verified from the certified disposal. The requirements of Contract Clause entitled "Variation in Estimated Quantity" do not apply to payment for removal of PCB contaminated soil.

1.5 QUALITY ASSURANCE

1.5.1 Training

Instruct employees on the dangers of PCB exposure, on respirator use, decontamination, and applicable OSHA and EPA regulations.

1.5.2 Certified Industrial Hygienist (CIH)

Obtain the services of an industrial hygienist certified by the American Board of Industrial Hygiene to certify training, and review and approve the PCB removal plan, including determination of the need for personnel protective equipment (PPE) in performing PCB removal work.

1.5.3 Regulation Documents

Maintain at the job site one readily available copy each of 29 CFR 1910.1000, 40 CFR 761, and all contractor prepared plans required under "Submittals" paragraphs.

1.5.4 Protection Plan

Prepare and submit a protection plan, prepared by the CIH, covering protection of workers and the environment from PCB hazards. Specific protection requirements shall be determined by the CIH and, as a minimum, as specified herein.

1.5.5 PCB Contaminated Soil Removal Plan

Prepare and submit, 15 calendar days prior to initiating work, plan describing methods, techniques, and phases of dealing with the contaminated soil, including: a schedule to be employed in the excavation, a sequence of operations, the method of excavation, hauling, and handling of the contaminated materials, and the proposed equipment. Define the Contractor's source for fill and method for importing the fill material. Ensure that work operations or processes involving PCB-contaminated materials are conducted in accordance with 40 CFR 761 and the applicable requirements of this section, including but not limited to:

- a. Obtaining advance approval of PCB storage sites.
- b. Notifying NTR prior to commencing the operation.
- c. Reporting leaks and spills to the NTR.
- d. Cleaning up spills.
- e. Maintaining an access log of employees working in a PCB control area and providing a copy to the NTR upon completion of the operation.
- f. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the NTR.
- g. Maintaining a spill kit
- h. Maintaining inspection, inventory, and spill records.

1.5.6 PCB Contaminated Water Handling Plan

Prepare and submit plan detailing methods and techniques for collection and treatment of PCB contaminated water. For treatment system, include size and location of equipment, catalog data on all components of system, size and arrangement of filters, type and quantity of filtering material, and method of containment.

1.5.7 Sampling and Testing Plan

Prepare and submit sampling and testing plan. Include the names of testing laboratories to be used to accomplish analysis of contaminated soil and water. Describe field and laboratory sampling procedures, testing methods, and quality control procedures. For sample reports, show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and quality control procedures. Maximum turnaround time of 4 calendar days is required for laboratory sample analyses in accordance with the standard work week of the contract.

1.5.8 Training Certification

Submit certificates signed and dated by the CIH and by each employee stating that the employee has received training.

1.5.9 CIH Qualifications

Submit the name, address, and telephone number of the industrial hygienist selected to perform the duties in paragraph entitled "Certified Industrial Hygienist." Submit proper documentation that the industrial hygienist is certified, including certification number and date of certification and recertification.

1.5.10 PCB Disposal Plan

Submit a PCB Disposal Plan within 15 calendar days after award of contract for NTR's approval. Comply with applicable requirements of Federal, State, and local PCB waste regulations and address:

- a. Identification of PCB wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two copies of EPA State and local PCB waste permits and EPA identification numbers.
- d. Names and qualifications (experience and training) of personnel who will be working on-site with PCB wastes.
- e. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- f. Spill prevention, containment, and cleanup contingency measures to be implemented.
- g. Location of state certified weigh station.
- h. Work plan and schedule for PCB waste containment, removal, and disposal. Clean up and containerize wastes daily.

1.5.11 Vehicle Decontamination Verification

Provide documentation verifying that vehicles and containers were

decontaminated prior to leaving the disposal site, were properly operating, and were covered, within 24 hours after removal of waste from the site.

1.5.12 Closeout Report

Prepare closeout report containing following items: test results including readings and locations, a diagram of the limits of the excavated area with sample locations indicated (indicate reference benchmark used), chain of custody forms, certificates of disposal, truck manifests, and description of the work completed.

1.6 SUBMITTALS

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

SD-03 Product Data

Field Screening Test

SD-07 Certificates

Protection Plan; G

PCB Contaminated Soil Removal Plan; G

PCB Contaminated Water Handling Plan; G

Sampling and Testing Plan; G

Confirmatory Grid Sampling Plan; G

Training certification

CIH qualifications; G

PCB Disposal Plan; G

Shipping documentation

Vehicle decontamination verification

Certificate of Disposal

SD-11 Closeout Submittals

Closeout Report; G

PART 2 PRODUCTS

2.1 PLASTIC SHEETING

ASTM D 4397.

2.2 FIELD SCREENING TEST

Field test capable of detecting PCBs down to at least 1 ppm, with less than 5 percent false negatives, and providing on site results within 2 hours of taking sample.

PART 3 EXECUTION

3.1 PROTECTION OF WORKERS AND THE ENVIRONMENT

Protect workers and the environment from PCB hazards in accordance with the PCB protection plan and, as a minimum, as specified herein.

3.1.1 Worker Safety

Provide portable decontamination and shower rooms. Workers shall wear and use PPE, as recommended by the industrial hygienist, upon entering a PCB control area. If PPE is not required by the CIH, specify in the PCB removal work plan. Keep work footwear inside work area until completion of the job. Have available one set of PPE required for use by NTR for inspection of work. Do not carry out PCB handling operations in confined spaces. Do not delay aid to a seriously injured worker for reasons of decontamination.

3.1.2 PCB Control Area

Establish a PCB control area to prevent unauthorized entry of personnel. Rope off area and provide 29 CFR 1910.145 signs at approaches and around perimeter. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Allow only personnel briefed on the elements and trained as specified herein into the area. Do not permit food, drink, or smoking materials in the control area. Smoking is not permitted within 50 feet of the PCB control area. Provide "No Smoking" signs as directed by the NTR.

3.1.3 Air Quality

Include provisions to ensure that airborne PCB concentrations below the PEL of air defined herein are not exceeded outside of the PCB control area or by workers inside the PCB control area. Provide air monitoring, personnel monitoring, and sampling to ensure workers safety as determined by the CIH and as specified herein. As a minimum, sample the air daily at the following locations: at locations being disturbed, within the breathing zone of workers, and at the downwind border of the control area. Measure using instrument capable of detecting airborne PCBs at concentrations below OSHA PEL, or use a direct reading total particulate meter correlated to a worst case amount of PCBs attached to the particulate. When airborne concentrations exceed PEL at the breathing zone of workers, provide respirators and additional worker protection as dictated in the Site Health and Safety Plan. If airborne concentration exceeds PEL at boundary of control area, immediately stop work and notify the NTR.

3.1.4 Special Hazards

- a. Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced.
- b. Do not heat PCBs to temperatures of 135 degrees F or higher without NTR's concurrence.

3.2 PCB SPILL PREVENTION

Use appropriate vehicles and operating practices to prevent spillage or leakage of contaminated materials from occurring during operations.

Inspect vehicles leaving the contaminated soil removal site to ensure that no contaminated soil adheres to the wheels or undercarriage. Immediately report any spills to the NTR and provide cleanup in accordance with 40 CFR 761, Subpart G.

3.3 EXCAVATION PROCEDURES

Notify the NTR at least 48 hours prior to the start of excavation of contaminated soils. Use methods and equipment that result in minimal disturbance to remaining soil beyond the excavation limits. Remove and dispose of any material that becomes contaminated as a result of the Contractor's operation at no additional cost to the Government. Stage operations to minimize the time the contaminated soil is exposed to the weather. Provide protection measures around the area of contaminated soils to divert runoff of water from within the excavation boundaries.

3.3.1 Underground Utilities

Location of the existing utilities indicated is approximate and other underground utilities may be present. Scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered. Physically verify the location and elevation of the existing utilities indicated prior to starting construction. If utilities other than those indicated are found, stop work and contact the NTR. Protect existing utilities from damage and intrusion of PCBs.

3.3.2 Dust Control

Maintain strict dust control at all times to prevent dust particles with PCB attached from becoming airborne. Sprinkle or treat the soil at the site and other areas disturbed by operations with dust suppressants or water.

3.3.3 Washdown of Solid Material

Remove asphalt pavement, concrete slabs, and structures encountered above or below the ground surface within the excavation limits. Brush to remove soil materials and clean to limit defined herein for PCB surface contaminated solids by double rinsing, and place in the adjacent rubble pile. Collect and dispose of washdown water as contaminated water. Sample each type of solid material using either wipe samples or destructive samples at locations as directed by the NTR. Analyze samples for PCBs in accordance with EPA SW-846, Method 8080. Collect and test field blanks and replicates in accordance with EPA protocol. Repeat cleaning process and testing until PCBs are below the limits specified herein.

3.3.3.1 Wipe Samples

40 CFR 761. A 10 cm by 10 cm template gauze pad or glass wool of known size which has been saturated in the laboratory with hexane and stored in sealed glass vials. Wipe immediately after exposing medium to air. Place sample in precleaned glass bottle, cap, label, and place in ice chest until analyzed.

3.3.3.2 Destructive Samples

EPA 560/5-86-017. Remove sufficient sample for analysis using chisel, hole saw, drills, etc. Take samples less than 3/8 inch deep and place in glass

precleaned sample bottle, cap, label, and place in ice chest.

3.3.4 Excavation Limits

Remove contaminated soil to the horizontal and vertical limits as indicated. Verify the limits of clean soils by testing and sampling. Handle and dispose of material within this area as PCB contaminated. After excavation to the indicated limits, conduct an analysis of the excavation to determine if any remaining PCB contaminated soils exist. Collect samples and test by field screening. When field screening results show PCB concentrations below the contamination level, test using confirmation sampling and testing. If groundwater is encountered prior to reaching the vertical limits, notify the NTR.

3.3.4.1 Field Screening

Collect soil samples at the same interval as determined for the confirmatory grid sampling plan along the bottom and along the sidewalls of the excavation, and test using field screening test.

3.3.4.2 Confirmation Sampling and Testing

When field screening results show PCB concentrations below the contaminated level, test using confirmation sampling and testing at the rate specified in the Scope of Work. Sample along the bottom and sidewalls of excavation. Use sampling grid scheme and number of samples as defined in EPA 560/5-86-017. Compositing of samples for analysis shall not be allowed. Submit and receive approval of Confirmatory Grid Sampling Plan scheme prior to starting work. Analyze samples in accordance with EPA SW-846, Method 8080 for PCBs. Determine moisture content of the sample in accordance with EPA Method 160.3. Provide quality control in accordance with EPA guidelines, and as a minimum as follows:

- a. Duplicate samples - collect and analyze duplicate soil samples at the rate of 10 percent of the total number of samples (rounded to the next highest number).
- b. Matrix spike and matrix spike duplicate - collect one matrix spike sample for every 20 samples collected (rounded to the next highest number). Split the matrix spike sample, and analyze both the matrix spike and the matrix spike duplicate.

3.3.5 Additional Excavations

If field screening results indicate the PCB contaminated soils remain, notify the NTR. Where directed, continue excavation horizontal and vertical limits as directed by the NTR. Collect and analyze additional confirmation samples in the new excavation areas. Screen and analyze after each excavation episode as required. Payment for additional excavation will be paid for at the contract unit price. Payment for additional sampling and testing will be paid for in accordance with the Changes Clause of the contract. Payment for additional excavation and testing will be made in accordance with the Changes Clause of the contract.

3.3.6 Stockpiled Material

Place soil removed from the excavation in a temporary containment area near the excavation area. Divert water from the containment area. Cover containment area with 30 mil polyethylene sheeting. Place excavated soil

on the impervious barrier and cover with 6 mil polyethylene sheeting. Provide straw bale berm around the outer limits of the containment area and cover with polyethylene sheets. Secure edges of sheets to keep the polyethylene sheeting in place. Cover excavated contaminated soil at all times when not being worked. Maintain sheeting and replace when worn or ripped. As an option, soil may be stockpiled in trucks suitable for carrying PCB contaminated soils as specified herein.

3.3.6.1 Composite Testing of Stockpiled Material

Take composite samples from stockpiled material prior to removing from site. Analyze a minimum of one composite sample as specified in the scope of work of soil to be disposed of from any one site. To develop a composite sample of the size necessary to run the required tests, take several samples from different areas along the surface and in the center of the stockpile. Combine these samples and thoroughly mix to develop the composite sample.

3.4 CONTAMINATED WATER

Collect washwater. Collect ground, surface, and rain water contaminated by operations including water collected in the open excavation pit or temporary containment. Soak up with absorbent material so that no free liquid is present. Containerize, sample, and analyze PCB absorbed material and dispose of as specified for contaminated soils.

3.5 COLLECTION, TREATMENT, AND DISCHARGE OF PCB-CONTAMINATED WATER

Furnish labor, materials, and equipment necessary for collecting, treating, and discharging of PCB-contaminated surface and subsurface water in excavations at the site. Conduct excavation and backfilling operations at the site in a manner that minimizes the amount of surface and subsurface water which may collect in the open excavation. Collect standing surface water in contact with PCB contaminated material.

3.5.1 Subsurface Drainage

Remove water by pumping or other methods to prevent softening of surfaces exposed by excavation. Provide water treatment necessary to treat water to levels specified herein. Operate dewatering system continuously until construction work below existing water levels is complete. After placement of initial backfill, water level may be allowed to rise, but never above one foot below the prevailing level of excavation or backfill. Submit performance records weekly. Measure and record performance of dewatering system at the same time each day by use of observation wells or piezometers installed in conjunction with the dewatering system.

3.5.2 Treatment System Requirements

The Contractor shall be responsible for all aspects of verifying design parameters designing, providing, installing, operating, maintaining, and removing collection, storage, and treatment facilities as required to discharge treated waters within the treatment limits required. The treatment system shall:

- a. Be capable of removing PCB contaminants to below the limit defined herein for contaminated water.
- b. Include effluent holding tanks designed to allow on-site testing

of water quality prior to discharge.

- c. Include recycle capability for retreatment of effluent not meeting the discharge requirements of this specification, as determined by on-site testing.

3.5.3 Treatment System Operations

Monitor, test, and adjust the treatment system in accordance with the work plan and Sampling and Analysis Plan, or as otherwise modified by special regulatory requirements. If there is a conflict between requirements, the more stringent requirement shall prevail. Test water in accordance with EPA Method 608.

3.5.4 Discharge of Treated Water

Do not discharge any water until tests results showing water is below PCB contaminated water limits as specified herein. Provide erosion control at outlet of piping to minimize erosion. Discharge for treated water shall be determined.

3.5.5 Cleanup and Removal of Treatment System

Upon completion of work, close and remove from the site the surface water and groundwater treatment system. Restore the site to its original condition. Decontaminate equipment in accordance with the Contractor's Site Health and Safety Plan. Containerize, sample, test, and dispose of carbon, residues, cleaning aids, decontamination liquids, and waste as specified for the contaminated soils.

3.6 TRANSPORTATION AND DISPOSAL

Furnish labor, materials, and equipment necessary to store, transport, and dispose of PCB contaminated material in accordance with Federal, State, and local requirements. Prepare and maintain waste shipment records and manifests required by the Resource Conservation and Recovery Act (RCRA), U.S. Federal Department of Transportation (DOT), and State transportation department.

3.6.1 Transportation

49 CFR 171, 49 CFR 172, 49 CFR 173, 49 CFR 174, 49 CFR 176, 49 CFR 177, 49 CFR 178 49 CFR 179. Transport PCB contaminated soils in vehicles designed to carry PCB contaminated soils in accordance with Federal and State requirements. Transport PCB contaminated solid material, articles, or equipment in DOT Specification 5, 5B, or 17C containers with removable heads. Store liquid PCBs in DOT Specification 17E containers. In addition to those requirements:

- a. Inspect and document vehicles and containers for proper operation and covering. Repair or replace damaged containers.
- b. Inspect 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.

3.6.1.1 Weight Certification

Weigh vehicles transporting PCB contaminated materials at a State-certified weigh scale within 15 miles of the project site.

3.6.1.2 Shipping Documentation

40 CFR 761. Before transporting the PCB waste, sign and date the manifest acknowledging acceptance of the PCB waste from the Government. Return a signed copy to the Government before leaving the job site. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities and EPA identification numbers. Within 35 days from shipment date, the transporter shall provide a copy of the manifest signed and dated by the disposer.

3.6.1.3 Payment Upon Furnishing Certificate of Disposal of PCBs

Payment will not be made until the certificate of disposal has been furnished to the NTR.

3.6.2 Disposal

Dispose of PCB contaminated soils in accordance with 40 CFR 761 at a TSCA regulated landfill meeting the requirements of 40 CFR 761.75. The disposer shall forward a copy of the manifest to the NTR within 30 days of receipt of PCBs.

3.6.2.1 Certificate of Disposal

Submit certificate of disposal to the Government within 30 calendar days of the date that the disposal of the PCB waste identified on the manifest was completed. Include:

- a. The identity of the disposal facility, by name, address, and EPA identification number.
- b. The identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment.
- c. A statement certifying the fact of disposal of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used.
- d. A certification as defined in 40 CFR 761, Section 3.

3.7 CLEANUP

Maintain surfaces of the PCB control area free of accumulations of PCBs. Restrict the spread of dust and debris; keep waste from being distributed over work area. Do not remove the PCB control area and warning signs prior to the NTR's approval. Reclean areas showing residual PCBs.

3.7.1 Solvent Cleaning

Clean contaminated tools, containers, etc., after use by rinsing three times with an appropriate solvent or by wiping down three times with a solvent wetted rag. Suggested solvents are stoddard solvent or hexane.

3.8 REPORTS

Prepare and submit a remediation closeout report at the completion of the work.

3.9 BACKFILLING, GRADING, TOPSOILING, AND SEEDING

Commence backfilling of the excavation within 10 calendar days after receiving confirmatory test results that indicate no further PCB contamination is present. Soils brought in from off site for use as backfill shall contain less than one part per million (ppm) PCBs. Provide borrow site testing for PCBs from composite sample of material from borrow site, with at least one test from each borrow site. Material shall not be brought on site until tests have been approved by the NTR. Provide backfill, compaction, grading, and seeding in accordance with Section 02315, "Excavation and Fill."

-- End of Section --