

Final

Workplan and Sampling and Analysis Plan  
for the  
Expanded Site Inspection for Installation  
Restoration Program Site 17 (Building 279)  
St. Juliens Creek Annex  
Chesapeake, Virginia



Prepared for

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

LANTDIV CLEAN II Program  
Contract No. N62470-95-D-6007  
CTO-150

January 2001

Prepared by

**CDM** Federal Programs Corporation

Submitted by

**CH2MHILL**

01.09-01/01/01-00158

Final  
Work Plan  
and  
Sampling and Analysis Plan

Expanded Site Inspection for Installation Restoration  
Program Site 17 (Building 279)

St. Juliens Creek Annex  
Chesapeake, Virginia

Contract Task Order 150

January, 2001

Prepared for

Department of the Navy  
Atlantic Division  
Naval Facilities Engineering Command

Under the

LANTDIV CLEAN II Program  
Contract N62470-95-D-6007

Prepared by

**CDM** Federal Programs Corporation

Submitted by



**CH2MHILL**

Herndon, Virginia

# Table of Contents

---

Section	Page
Table of Contents .....	i
Acronyms .....	iii
<b>Section 1 Introduction .....</b>	<b>1-1</b>
1.1 Project Objective.....	1-1
1.2 Work Plan Organization.....	1-1
1.3 Site Physical Setting.....	1-1
1.4 Site History .....	1-2
1.5 Initial Evaluation.....	1-2
<b>Section 2 Sampling Rationale and Sampling Locations.....</b>	<b>2-1</b>
<b>Section 3 Technical Approach and Work Plan Rationale.....</b>	<b>3-1</b>
3.1 Task 1: Project Planning.....	3-1
3.1.1 Project Management.....	3-1
3.1.2 Meetings.....	3-1
3.1.3 Work Plan.....	3-1
3.2 Task 2: Field Investigation.....	3-3
3.2.1 Field Work Support Activities .....	3-3
3.2.2 Field Sampling .....	3-4
3.2.3 Sample Designation.....	3-4
3.2.5 RI-Derived Waste Disposal .....	3-9
3.2.6 Surveying and Mapping.....	3-10
3.3 Task 3: Sample Analysis and Data Validation.....	3-10
3.3.1 Sample Analysis.....	3-10
3.3.2 Field Quality Control Procedures .....	3-10
3.3.3 Data Validation .....	3-11
3.4 Task 4: Site Investigation Report .....	3-11
3.4.1 Data Evaluation.....	3-11
3.4.2 Ecological Risk Assessment .....	3-11
3.4.3 Human Health Risk Assessment.....	3-12
3.4.4 Draft Site Investigation Report.....	3-12
3.4.5 Final Site Investigation Report.....	3-12
3.5 Task 5 – Engineering Evaluation/Cost Analysis (EC) .....	3-13
3.6 Task 6 – Post Site Investigation Support .....	3-13
<b>Section 4 Staff Organization .....</b>	<b>4-1</b>
4.1 Project Management.....	4-1
4.2 Project-Specific Organization.....	4-1
<b>Section 5 Contractual Services .....</b>	<b>5-1</b>
<b>Section 6 Project Schedule.....</b>	<b>6-1</b>

**Tables**

1-1 Detected Compounds in Groundwater, Relative Risk Ranking Data, Site 17, St. Juliens Creek Annex..... 1-6

1-2 Detected Compounds in Soil, Relative Risk Ranking Data, Site 17, St. Juliens Creek Annex..... 1-7

3-1 Summary of Soil Samples to be Submitted for Analysis ..... 3-6

3-2 Summary of Sample Identification Schema ..... 3-8

**Figures**

1-1 Site Location Map, St. Juliens Creek Annex ..... 1-3

1-2 Site Map ..... 1-4

1-3 RRR Sampling Locations..... 1-5

2-1 Proposed Surface Soil Sample Locations ..... 2-2

4-1 Project Organization ..... 4-2

6-1 Schedule..... 6-2

Attachment A - Site Specific Plan Checklists

Attachment B – Health and Safety Emergency Contacts and Hospital Route

# Acronyms

---

AOC	Area of Concern
bgs	below ground surface
BOA	Basic Ordering Agreements
BTAG	Biological Technical Assistance Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
COC	Chain of Custody
COPC	Chemical of Potential Concern
CTO	Contract Task Order
DD	Decision Document
DDD	Dichlorodiphenyldichloroethene
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DQO	Data Quality Objectives
EE/CA	Engineering Evaluation/Cost Analysis
Eh	Oxidation-Reduction Potential
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
GPS	Global Positioning System
HASP	Health and Safety Plan
IDWMP	Investigation Derived Waste Master Plan
IRP	Installation Restoration Program
LANTDIV	U.S. Naval Facilities Engineering Command, Atlantic Division
LCPAH	Low Concentrations Polynuclear Aromatic Hydrocarbon
LQAP	Laboratory Quality Assurance Plan
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NFA	No Further Action
NFEC	Naval Facilities Engineering Command
NTR	Navy Technical Representative
PAHs	Polynuclear Aromatic Hydrocarbons

---

PCB	Polychlorinated BiPhenyls
PRAP	Proposed Remedial Action Plan
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RBC	Risk Based Concentration
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RRR	Relative Risk Ranking
SAP	Sampling and Analysis Plan
SI	Site Investigation
SJCA	St. Juliens Creek Annex
SOP	Standard Operating Procedures
SVOCs	Semivolatile Organic Compounds
TAL	Target Analyte List
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
VDEQ	Virginia Department of Environmental Quality
VOC	Volatile Organic Compounds
WP	Work Plan

# Introduction

---

This work plan describes the work necessary to conduct an Expanded Site Investigation (SI) at Site 17, the Storage Pad at Building 279, at the St. Juliens Creek Annex, Chesapeake, Virginia. The work plan is based on a scope of work provided by Naval Facilities Engineering Command (NFEC) U.S. Naval Facilities Engineering Command, Atlantic Division (LANTDIV) on January 31, 2000 as part of Navy Contract N62470-95-D-6007 Comprehensive Long-Term Environmental Action Navy (C.L.E.A.N.), District III, Contract Task Order - 150. This scope was modified by the St. Juliens Creek Partnering Team on January 23, 2001, and this Work Plan incorporates the modifications.

## 1.1 Project Objective

During the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) (A.T. Kearney, March 1989) Site 17 (AOC-A) was identified for further action. The objective of this project is to collect, evaluate, and document sufficient data from Site 17 to determine if this site will require No Further Action (NFA), or determine that there is sufficient evidence of contamination to require further investigation. To accomplish this objective, CDM Federal Programs Corporation (CDM Federal) will collect and analyze four surface soil samples from locations adjacent to the concrete pad and in the swale beneath Building 279.

## 1.2 Work Plan Organization

The general background and physical setting of the St. Juliens Creek Annex facility is described in Section 1 of this work plan. Section 2 presents the sampling rationale and sampling locations. Section 3 describes the technical approach and rationale for the work plan tasks, and Section 4 presents general information on project management and staff organization. Section 5 documents the anticipated subcontract services required for completing tasks documented in this work plan. Section 6 presents the schedule for the completion of the tasks. The Final Master Work Plan for St. Juliens Creek Annex (SJCA), Chesapeake, Virginia (CDM Federal, July 2000) will be referenced for Site Background and Physical Setting information in Section 1, and for field sampling procedures in the site-specific plan checklists which are included as Attachment A to this Work Plan.

## 1.3 Site Physical Setting

The physical setting of the annex, including the surrounding land use, climate, topography, and geology and hydrogeology, and the operational and regulatory history of the facility, are described in the Final Master Project Plan, Naval Station Norfolk, St. Juliens Creek

Annex (SJCA), Chesapeake, Virginia (CDM Federal 2000). The location of Site 17 within the annex is shown in Figure 1-1.

Site 17 is a small structure located within the industrial area, in the southeast portion of SJCA. The site consists of a concrete storage pad located outside, and along the east side, of Building 279 (Figure 1-2). The storage pad is curbed along the south edge and is also divided with a curb that runs from the building to the road. Runoff from the storage pad would therefore be expected to be off the un-curbed north edge of the pad. From there, runoff potentially runs through an opening under the building at the northeast corner. Building 279 is constructed on concrete piers allowing drainage to run under the building and into a drainage feature that flows to the pond at Site 2 (Landfill B). This pond is tidally influenced because it is connected to St. Juliens Creek via a culvert. Under very high tide conditions, water from the pond may flow up the drainage feature and underneath Building 279. Runoff channels are evident beneath the building.

## 1.4 Site History

Information was obtained primarily from the St. Juliens Creek Annex Facility, Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) report prepared by A.T. Kearney, Inc., 1989, and the Relative Risk Ranking (RRR) System Data Collection Report prepared by CH2M Hill Federal Group, Ltd., 1996.

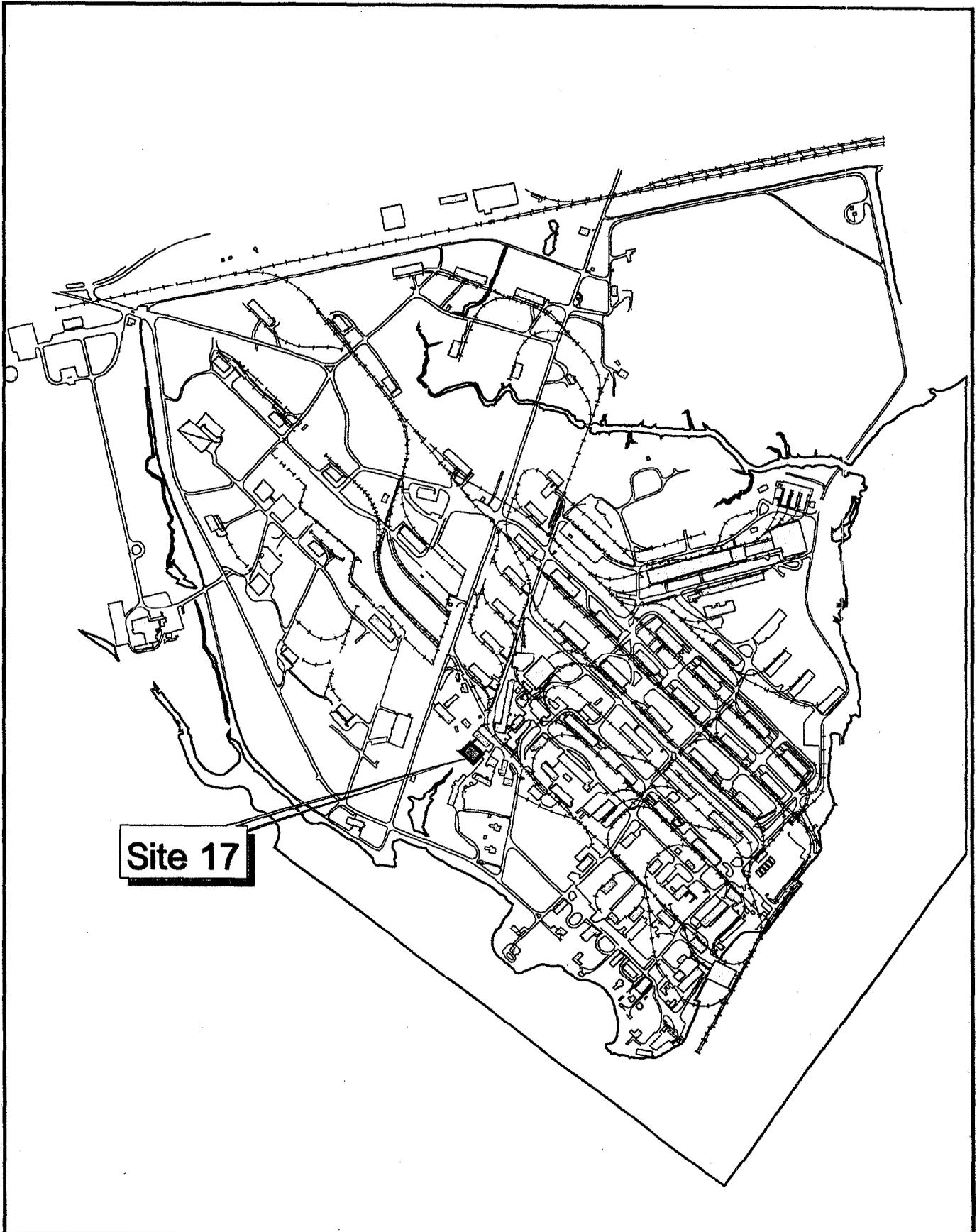
According to the Navy Assessment and Control of Installation Pollutants (Navy, 1981), the building was used for lead battery maintenance after 1954. Waste acid electrolyte was collected in containers and transported off Base for disposal.

During the RFA, observations indicated a concrete storage pad was used to store two 55-gallon drums of PD-860, a commercial product used as a degreaser. Stains on the ground near the pad, as well as indications of poor management (overflowing catchbucket under drum spigot) were noted during the RCRA site visit.

## 1.5 Initial Evaluation

The site was originally identified as a satellite storage area during the 1989 RFA performed by A.T. Kearney. At that time it was identified as Area of Concern (AOC) A. No samples were collected during the RFA.

Soil and groundwater samples were collected during the RRR data collection study and analyzed for VOCs, SVOCs, pesticides/Polychlorinated Biphenyls (PCBs) and Target Analyte List (TAL) inorganics. The locations of these samples are shown on Figure 1-3. The soil sample was located along the eastern side of the building, and the groundwater sample was collected south of the building, between the building and the drainage feature that leads to Site 2 (Landfill B). This would presumably be downgradient of the building.



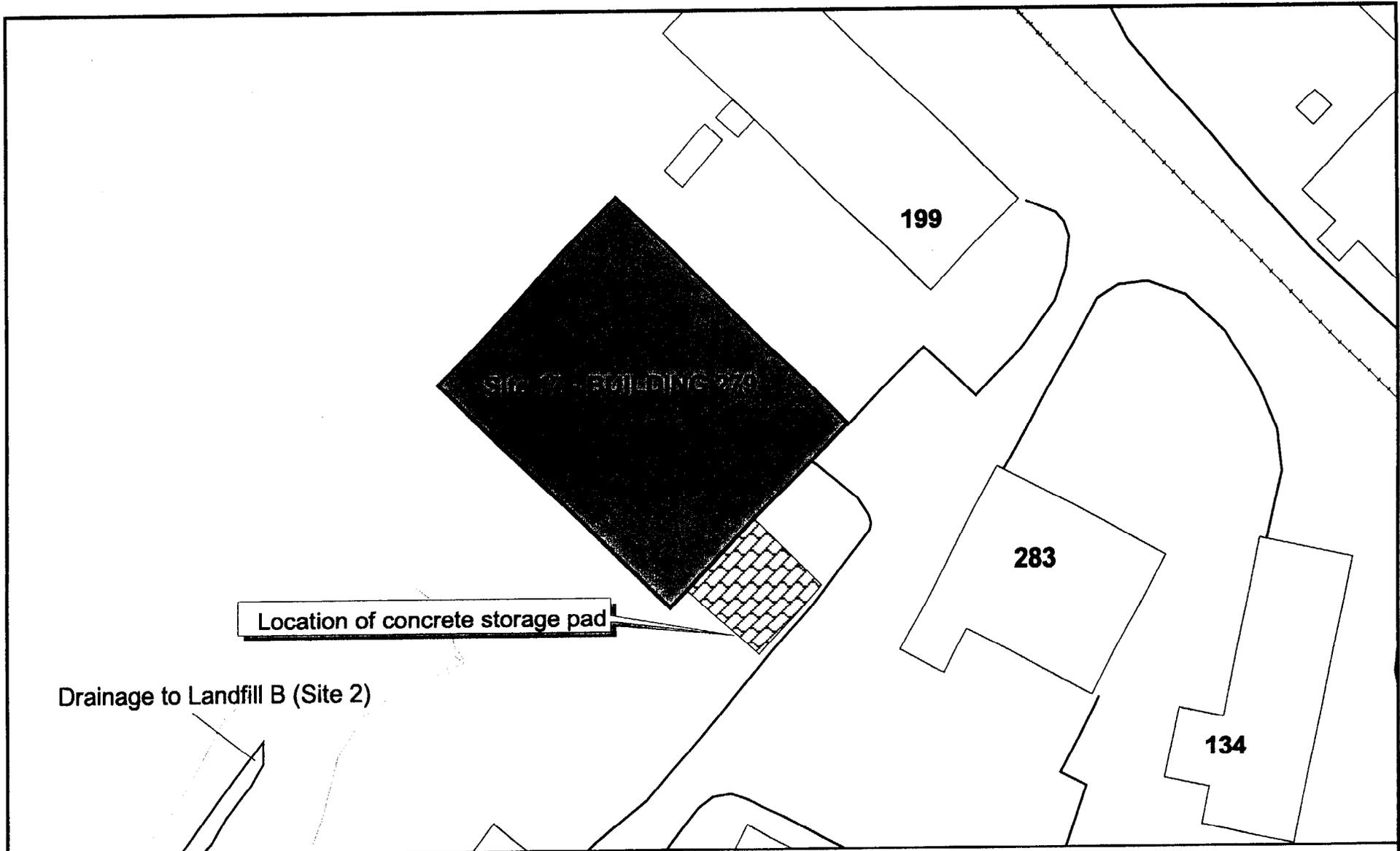
**Site 17**

- LEGEND**
-  Buildings
  -  Surface Water
  -  Roads
  -  Railroads



0      700      1400 Feet

Figure 1-1  
 Site Location Map  
 Expanded Site Inspection  
 St. Juliens Creek Annex



**LEGEND**

-  Roads
-  Railroads
-  Storm System Utilities
-  Buildings
-  Surface Water

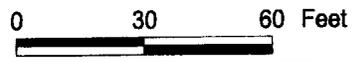
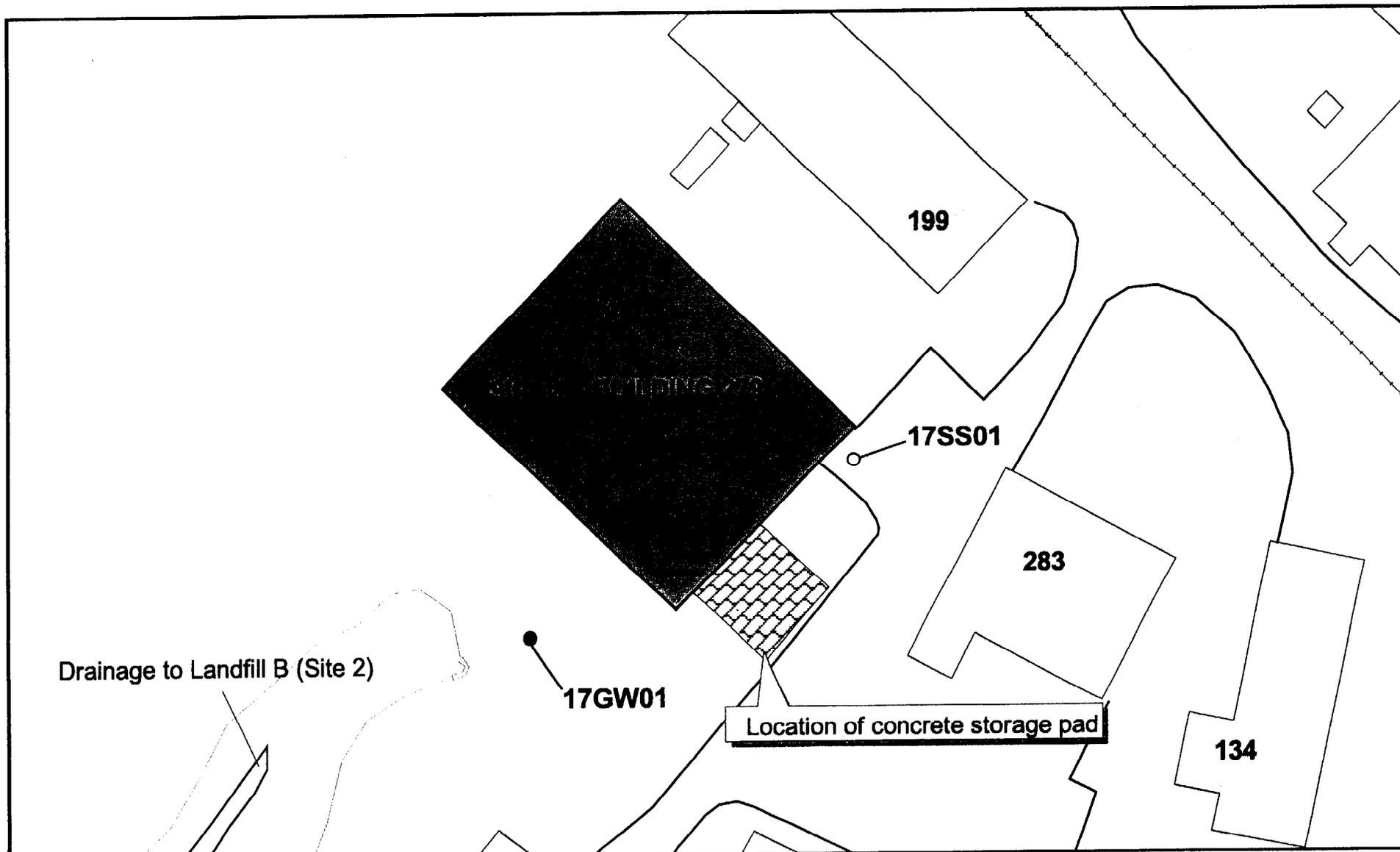


Figure 1-2  
 Site Map  
 Expanded Site Inspection  
 Site 17  
 St. Juliens Creek Annex



**LEGEND**

- RRR Groundwater Sampling Location
- RRR Soil Sampling Location
- ∧ Roads
- ⊗ Storm System Utilities
- ⊗ Railroads
- ▭ Surface Water
- ▭ Buildings

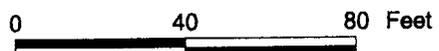


Figure 1-3  
RRR Sample Locations  
Expanded Site Inspection  
St. Juliens Creek Annex

One soil sample was collected from a depth of 0 to 1 ft below ground surface (bgs) with a decontaminated stainless steel trowel. In addition to inorganic constituents, the following organic constituents were detected in site soils: DDD, DDE, DDT, alpha-chlordane, Aroclor-1254, dieldrin, gamma-chlordane, bis (2-ethylhexyl)phthalate, and several polynuclear aromatic hydrocarbons (PAHs). One ground water sample was collected from the water table aquifer using a Geoprobe®. Several common inorganic constituents were detected but no organic constituents were detected in the groundwater sample. Table 1-1 and Table 1-2 list the concentrations of detected constituents in the groundwater and soil samples collected during the RRR data collection activities.

**TABLE 1-1**  
Detected Compounds in Groundwater  
Relative Risk Ranking Data  
Site 17  
St. Juliens Creek Annex

INORGANICS (mg/kg)	SJC17GW01
Aluminum	547
Barium	24.8B
Calcium	13800
Cobalt	12.3B
Copper	6.1B
Iron	1320
Lead	3.3
Magnesium	10500
Manganese	2550
Nickel	10.6B
Potassium	2030B
Sodium	72800
Zinc	23.6

B = Compound also detected in blank

**Table 1-2**  
**Detected Compounds in Soil**  
**Relative Risk Ranking Data**  
**Site 17**  
**St. Juliens Creek Annex**

INORGANICS (mg/kg)	SJC17SS01
Aluminum	2910
Arsenic	2.4
Barium	58.1
Beryllium	.23B
Cadmium	7.3
Calcium	2340
Chromium	29.9
Cobalt	2.9B
Copper	72.3
Iron	10000
Lead	211
Magnesium	962
Manganese	138
Mercury	.11
Nickel	27.4
Potassium	852B
Sodium	57.1B
Vanadium	103
Zinc	272
<b>PESTICIDES/PCB (ug/kg)</b>	
4,4'-DDD	81P
4,4'-DDE	180P
4,4'-DDT	240P
Alpha-Chlordane	4.1P
Aroclor-1254	420P
Dieldrin	27
Gamma-Chlordane	4.7P
<b>SEMIVOLATILE ORGANICS (ug/kg)</b>	
Benzo(A)Anthracene	520J
Benzo(A)Pyrene	470J
Benzo(B)Fluoranthene	740J
Bis(2-Ethylhexel)Phthalate	620J
Chrysene	430J
Fluoranthene	1200J
Phenanthrene	430J
Pyrene	710J

B = Compound also detected in blank

J = Estimated value

P = Concentration showed greater than 25% difference between columns; the lower of the 2 values is reported

## Section 2

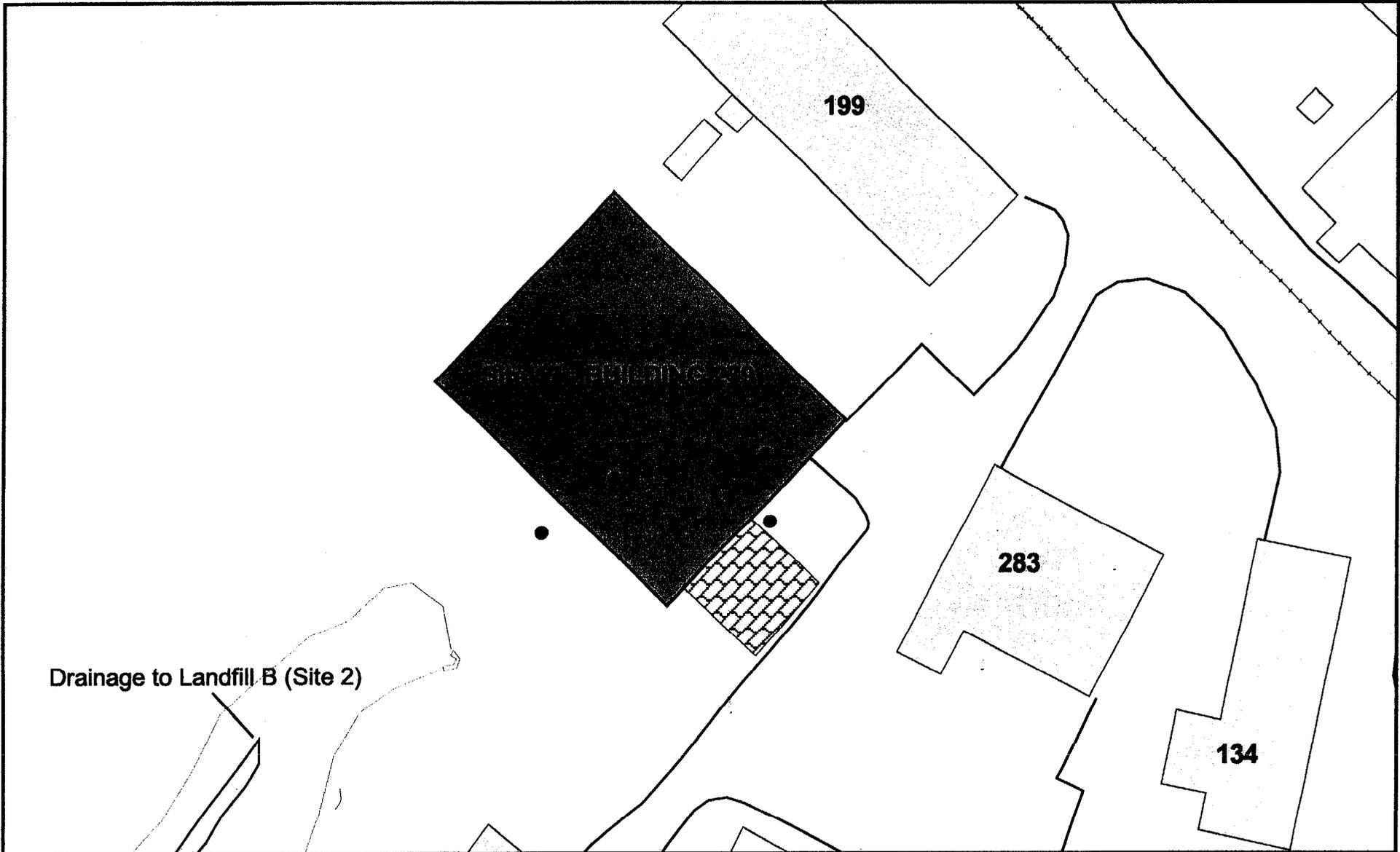
# Sampling Rationale and Sampling Locations

---

This Section provides the sampling rationale and the sampling locations for the Expanded SI. In order to meet the objective of the investigation, a field sampling program has been designed to collect surface soil samples from the most likely runoff pathway for a spill occurring on the concrete pad.

Contaminants released during a spill from the site would have flowed off the un-curbed north edge of the concrete pad, and onto the adjacent soils. Along the edge of the building, north of the concrete pad, there is an opening to the space beneath the building. It is expected that runoff from the pad would flow from the edge of the pad, to the opening, and then along the swale that runs under the building, to the drainage feature that enters Landfill B (Site 2). Due to the relative small volume of material that was stored on the pad at any time, the extent of contamination would be expected to be limited to the area immediately around the concrete pad and in the swale. The soil sampling locations, shown on Figure 2-1, include one sample immediately adjacent to the uncurbed north edge of the pad, between the pad and the opening to the sub-building space, two samples in the swale beneath the building, and one sample from the swale between the building and the drainage feature that enters the pond at Landfill B.

Downgradient surface water and sediment samples are not required for the SI due to the RI sampling activities associated with Landfill B (Site 2) located adjacent to Site 17.



**LEGEND**

- Proposed Surface Soil Sample Locations
- ▭ Buildings
- ▭ Surface Water
- ∩ Roads
- ≡ Railroads
- ∩ Storm System Utilities



**Figure 2-1**  
**Proposed Surface Soil Sample Locations**  
**Expanded Site Inspection**  
**St. Juliens Creek Annex**

## Section 3

# Technical Approach and Work Plan Rationale

---

This section details the technical approach developed to perform the Expanded SI activities. The tasks included in the technical approach are listed below. The remainder of the section contains a detailed discussion of each task.

Task 1 - Project Planning

Task 2 - Field Investigation

Task 3 - Sample Analysis and Data Validation

Task 4 - Site Investigation Report

Task 5 - Engineering Evaluation/Cost Analysis (EE/CA) Report

Task 6 - Post Site Investigation Support

## 3.1 Task 1: Project Planning

This task consists of project management, meetings, and the preparation of this work plan.

### 3.1.1 Project Management

The project management activities include daily technical support and guidance, budget and schedule review and tracking, preparation and review of invoices, personnel-resource planning and allocation, subcontractor coordination, preparation of monthly progress reports, and communication and coordination of events with LANTDIV and the Annex. Project management will occur over the duration of the project, which is estimated to be completed in 12 months.

### 3.1.2 Meetings

Three one-day meetings are planned to address technical issues for this assignment. All three meetings will be held with the VADEQ, USEPA, and BTAG. Meetings may be used for the following: to finalize sampling locations, to develop the preliminary problem formulation for the ecological risk assessment, and to discuss alternatives developed for the EE/CA feasibility study. One meeting will be held in each of the following locations: Philadelphia, Norfolk, and Richmond. All meetings will be attended by the CDM Federal Activity Manager, CDM Federal Project Manager.

A one-day meeting will be held at St. Juliens Creek Annex with the CDM Federal Activity Manager, CDM Federal Project Manager, LANTDIV, CNRMA personnel to kick-off the field effort. In addition, the CDM Federal Project Manager will present the findings of the SI Report to the SJCA Restoration Advisory Board (RAB). The CH2M HILL Activity Manager will present the EE/CA during the public participation session, which will be held concurrent to a RAB meeting.

### 3.1.3 Work Plan

A Master Work Plan (WP), a Master Sampling and Analysis Plan (SAP), and a Master Health and Safety Plan (HASP) have been prepared for the activities to be performed for IRP investigations at St. Juliens Creek (Final Master Project Plan, St. Juliens Creek Annex,

July 2000). The Master SAP consists of three documents: the Master Field Sampling Plan (FSP), the Master Quality Assurance Project Plan (QAPP), and the Master Investigation-Derived Waste Management Plan (IDWMP). LANTDIV has agreed that one set of Master plans will provide the background information needed to understand base-wide site conditions, the approach to be used for investigations and general types of activities to be accomplished.

Site-specific details will be provided in the site-specific plans. The site-specific plans will supplement the Master Plans and will present information specific to each site. The site-specific work plans (HASP, FSP, QAPP, and IDWMP) are presented as checklists of items based on the existing Master Work Plans (including other supporting documentation, and additions/deviations from the Master Plan). A set of site specific plans has been developed for the Site 17 Expanded SI, and is included as Attachment A to this Work Plan.

The following presents a description of each element of the site-specific work plan.

- Site-Specific Work Plan: The site-specific Work Plan describes the site background; previous investigations and analytical results; location of the site in relation to the entire Base; discussion of field activities to be performed at the site; staff organization and task order management; and the task order schedule.
- Site-Specific Field Sampling Plan Checklist: The site-specific FSP checklist describes the field tasks to be performed; the field measurements to be taken; the sampling program (i.e. nomenclature); sampling locations; and applicable standard operating procedures (SOPs).
- Site-Specific Quality Assurance Project Plan Checklist: The site-specific QAPP checklist describes the data quality objectives (DQOs); samples to be collected and analyses to be performed; analytical quantitation limits; quality assurance/quality control (QA/QC) acceptance criteria; data reduction, validation, and reporting; internal QC procedures (field and laboratory); and corrective action.

The QAPP describes the Quality Assurance and Quality Control procedures used for conducting sampling and analytical activities. In addition, field sampling will not begin at any site until the Navy Technical Representative (NTR) receives confirmation that laboratory QAPP requirements have been met for the sites. The subcontracted analytical laboratory will conform to their approved Laboratory Quality Assurance Plan (LQAP).

- Site-Specific Investigation-Derived Waste Plan Checklist: The site-specific IDWMPs will describe procedures used for the handling and disposal of waste materials generated during the Expanded SI. These waste materials are expected to be minimal, and will include personal protective equipment and decontamination fluids. The plan also describes the potential means of disposal, if deemed necessary.
- Site-Specific Health and Safety Plan Checklist: The site-specific HASP addresses activity-specific precautions, such as HAZWOPER-regulated tasks; hazards of

concern; contaminants of concern; personnel; instrumentation required; and decontamination procedures.

The HASP will be reviewed and approved by both the NTR and the Safety/Health Officer of the facility. This plan governs all aspects of the project. To prevent accidents, the onsite portion of the study shall not begin until this plan has been approved by the NTR.

## **3.2 Task 2: Field Investigation**

This task involves efforts related to fieldwork support, the field investigation, surveying, sample management, and data evaluation for the Site 17 Expanded SI.

### **3.2.1 Field Work Support Activities**

#### **Subcontractor Procurements**

As part of the initial field mobilization to St. Juliens Creek Annex, CH2M HILL, in consultation with CDM Federal, will procure IDW disposal, analytical laboratory, and data validation services for this work at the Base. The analytical laboratory will meet NFESC Level D quality control. The firms providing these services shall be procured using the Basic Ordering Agreements (BOAs) under the CLEAN II contract. In cases where BOAs are not in place for services required under this task order, CH2M HILL will provide subcontractor services in accordance with procedures that will be established between CH2M HILL's contract administrator and LANTDIV's contracting officer.

#### **Mobilization/Demobilization**

Mobilization includes procurement of necessary field equipment, and initial transport to the site. Equipment and supplies will be brought on site when the CDM Federal field team mobilizes for field activities.

Demobilization activities include time for IDW management and general site restoration prior to the return transport of field equipment and crew. Time has also been included for recalibration, storage and shipping of equipment subsequent to the field effort. IDW generated during field activities will be containerized in 55-gallon drums. Equipment decontamination water will be containerized in 55-gallon drums for storage. The 55-gallon drums will be properly labeled and stored at a location designated by the Navy prior to disposal.

It is assumed that the IDW generated will be eligible for disposal offsite as non-hazardous waste. The IDW subcontractor will be responsible for sampling the waste for disposal purposes. The IDW Management Plan will address specific plans for sampling and disposal of IDW.

#### **Utility Clearance**

Utility Clearance will not be required at this site because there are no planned subsurface activities. If it becomes necessary to perform subsurface work, utility clearances will be performed prior to the start of that work. CDM Federal will coordinate subsurface utility clearances with the Miss Utility group and the Public Works Center (PWC) at St. Juliens

Creek. CDM Federal will be responsible for insuring that all appropriate contacts have been made with Base personnel and that clearances have been given for proposed sample locations.

### **3.2.2 Field Sampling**

The goal of the sampling effort is to collect sufficient information to make a determination that the site requires No Further Action, or to determine that further investigation is required.

#### **Surface Soil Sampling**

At Site 17 surface soil samples will be collected from four locations: 1) adjacent to the uncurbed north edge of the concrete pad, along the runoff path that leads to the swale beneath the building, 2) beneath the building at the point that where runoff from the concrete pad would enter swale, 3) midway along the swale beneath the building, and 4) between the building and the drainage feature that enters Site 2.

Samples will be collected from a depth of 0 to 6 inches below surface using a stainless steel hand bowl and spoon. All surface soil samples will be collected according to the sampling techniques described in Master Field Sampling Plan (See SOPs 4.1 Soil Sampling and 4.2, Shallow Soil Sampling).

The locations of the surface soil samples shown are on Figure 2-1. Various field conditions, such as the presence of obvious drainage pathways, will be considered when selecting the final sampling locations.

All surface soil samples will be analyzed for target compound list (TCL) VOCs, TCL SVOCs, low concentration polynuclear aromatic hydrocarbons (LCPAHs) TCL Pesticides/PCBs and TAL inorganics (metals and cyanide). A summary of soil samples to be submitted for analysis, including field Quality Control samples, is presented in Table 3-1. Contract Laboratory Program (CLP) procedures, will be followed during sample analysis. Details concerning the analytical methods and QA/QC sampling are located in the Site-Specific QAPP.

### **3.2.3 Sample Designation**

Sampling locations and sampled media collected during the Expanded SI will be assigned unique designations to allow the sampling information and analytical data to be entered into the St. Juliens Creek Annex Geographic Information System (GIS) Data Management System. The following sections describe the sample designation specifications.

**TABLE 3-1**

Summary of Soil and Sediment Samples to be Submitted for Analysis— St. Juliens Creek Annex Expanded Site Investigation

Matrix	Laboratory Parameter	Samples	Field Duplicates <sup>1</sup>	Field Blanks <sup>2</sup>	Trip Blank <sup>3</sup>	MS/MSDs <sup>4</sup>	Equipment Blanks <sup>5</sup>	Solids Total <sup>6</sup>	Aqueous Total <sup>7</sup>
Soil	TCL VOCs	4	1	1	1	1	1	6	3
	Low Conc. PAHs	4	1	1		1	1	6	2
	TCL SVOCs	4	1	1		1	1	6	2
	TCL Pest/PCBs	4	1	1		1	1	6	2
	TAL Inorganics	4	1	1		1	1	6	2

**Notes:**
<sup>1</sup> Field duplicates are collected at a rate of 1 per 20 samples per matrix.1

<sup>2</sup> Field Blanks are collected at a rate of 1 per week per matrix.

<sup>3</sup> Trip Blanks are shipped at a rate of 1 per cooler for VOCs only.

<sup>4</sup> Matrix Spikes/Matrix Spike Duplicates (MS/MSDs) are collected at a frequency of 1 per 20 per matrix. MS/MSDs represent samples for which extra volume must be collected for the laboratory to perform required QC analyses. Triple the normal volumes will be collected for all analyses.

<sup>5</sup> Equipment Blanks are shipped at a rate of 1 per day per matrix.

<sup>6</sup> Solids total consists of the samples, their field duplicates, and the MS/MSDs.

<sup>7</sup> Aqueous field QC samples will be analyzed by the TCL organics method (not low concentration).

PCB = polychlorinated biphenyl

Pest = pesticide

QC = quality control

SVOC = semivolatile organic compound

TAL = target analyte list

TCL = target compound list

VOC = volatile organic compound

PAH = polynuclear aromatic hydrocarbon

This table is based on Navy QA/QC requirements.

### Specifications for Field Location Data

Field station data consists of information assigned to a physical location in the field where a sample is collected. For example, a surface soil sample that has been collected will require a name that will uniquely identify it with respect to other surface soil locations, or other types of sampling locations. The station name provides for a key in the database to which any samples collected from that location can be linked to form a relational database.

A listing of the location identification numbers will be maintained by the field team leader, who will be responsible for enforcing the use of the standardized numbering system during all field activities. Each station will be designated by an alphanumeric code that will identify the station location by facility, site number, sample type, sample location, and sequential location number. The schema that will be used to identify field station data is documented in Section 3 of the Master Field Sampling Plan and summarized in Table 3-3.

**TABLE 3-2**  
Summary of Sample Identification Schema

First Segment	Second Segment		Third Segment
Naval Installation	Site Number	Sample Type	Sample Location, Sample Depth (Soil), Sampling Round (Water), Qualifier
AA	ANN	AA	NNNNN

Notes: "A"= alphabetic "N"= numeric

<u>Installation:</u>	<u>Sample Type:</u>	<u>Sample Location:</u>	<u>Sample Round (Water)</u>
SJ = St. Juliens Creek Annex	SB = Subsurface Soil Sample	Sequential Location Number	NNN = last 2 digits of year A = quarter of the year sampled:
<u>Site Number:</u>	SS = Surface Soil Sample	<u>Qualifier:</u>	A = 1 <sup>st</sup> Quarter B = 2 <sup>nd</sup> Quarter C = 3 <sup>rd</sup> Quarter D = 4 <sup>th</sup> Quarter
Site Number is assigned to a defined area (e.g. Site 17). Site numbers are associated with particular environmental programs as defined by Site Type. Base-wide and background do not have site numbers associated with them.	SD = Sediment Sample	P = Duplicate sample	<u>Sample Depth (soil)</u>
	SW = Surface Water Sample		00 = surface to 0.5 ft bgs 01 = 1 to 3 ft bgs 02 = 2 to 4 ft bgs 04 = 4 to 6 ft bgs 06 = 6 to 8 ft bgs 08 = 8 to 10 ft bgs 10 = 10 to 12ft bgs
	MW =Monitoring Well		
	TB = Trip Blank		
	EQ = Equipment Blank		
	FB = Field Blank		

### Electronic Deliverable File Format

This effort includes checking the data from the laboratory and converting it into an electronic format that can be incorporated into the GIS Data Management system for St. Juliens Creek Annex. An offsite laboratory will analyze the Site 17 Expanded SI samples and tabulate the results in an electronic format specified by CH2M HILL. The data validator will add data validation qualifiers to the table of analytical results. In addition to the hard copy data package deliverable, CDM Federal will receive an electronic file from the

data validator in a table format that will facilitate downloading into a database. A summary of the analytical data electronic deliverable format is presented below.

### Analytical Data Electronic Deliverable

Analytical data must be delivered in Microsoft Excel.

Field Name	Field Type	Description
Sample_ID	A	The CDM Federal sample ID (taken from the Chain of Custody)
Sample_Analysis	A	The analysis performed on the sample. We classify our samples into six main groups: VOA, SVOA, METAL, PEST/PCB, WCHEM (for TOC), and FMETAL (for filtered samples).
Date_Analyzed	D10	The date the sample was analyzed.
Date_Received	D10	The date the sample was received in the lab.
Date_Collected	D10	The date the sample was collected.
Lab_Sample_ID	A	The lab sample ID.
Dilution_Factor	N	The dilution factor used, if applicable.
SDG_Number	A	The SDG number.
CAS_Number	A6-A2-A1	CAS Number of the compound being analyzed (Note that the CAS number must consist of three number segments of defined length, separated by dashes). For TOC, use TOC as a CAS Number. For pH, use PH as a CAS Number.
Chem_Name	A	The compound being analyzed.
Ana_Value	N	The analytical result.
Std_Qual	A	The lab qualifiers, if any (e.g., U, UJ, B)
DV_Qual	A	The data validation qualifier (e.g., J, R)
Units	A	The unit of the result (e.g., MG/L)
Detect_Limit	N	The detection limit for the compound.
Method	A	Analytical method used to analyze the sample fraction.

### 3.2.4 RI-Derived Waste Disposal

A subcontracted waste disposal contractor will sample the investigation-derived waste for disposal purposes and subsequent removal from the Annex. This work will be coordinated and supervised by CDM Federal.

### **3.2.5 Surveying and Mapping**

The location of the surface soil samples to be surveyed using a global positioning system (GPS) or, if under the building, will be measured in by the field sampling crew relative to known points. All survey data will be tied to the Virginia State Planar coordinate system.

## **3.3 Task 3: Sample Analysis and Data Validation**

This task involves efforts related to the sample management and data validation. CDM Federal will be responsible for tracking sample analysis and obtaining results from the laboratory. All of the analytical data generated during the field program will be validated by an independent data validation subcontractor, according to EPA standard procedures.

### **3.3.1 Sample Analysis**

All analyses of surface soil will be conducted at a contracted laboratory that fulfills all requirements of the U.S. Navy's QA/QC Program Manual and EPA's Contract Laboratory Program. A signed certificate of analysis will be provided with each laboratory analysis, along with a certificate of compliance certifying that all work was performed in accordance with the applicable federal, state, and local regulations.

### **3.3.2 Field Quality Control Procedures**

Quality control duplicate samples and blanks are used to provide a measure of the internal consistency of the samples and to provide an estimate of the components of variance and the bias in the analytical process. The QC samples to be collected during the Expanded SI field sampling are summarized on Tables 3-1 and 3-2.

#### **Blanks**

Blanks provide a measure of cross-contamination sources, decontamination efficiency, and other potential errors that can be introduced from sources other than the sample. ASTM Type II water will be used for blanks. Four types of blanks can be generated during sampling activities: trip blanks, field blanks, equipment rinsate blanks, and temperature blanks.

One trip blank will be included in each cooler used for the shipment of VOC samples. If more than one cooler is being sent on a given day, all of the VOC samples should be placed in one cooler, if possible, to minimize the number of trip blanks needed. The trip blanks will be prepared before each sampling event, shipped or transported to the field with the sampling bottles, and returned unopened for analysis. Trip blanks will indicate if there is contamination during shipment to the field, from storage in the field, or from shipment from the field to the analytical laboratory.

One equipment blank per sample medium will be obtained for each day of sampling. Equipment blanks will give an indication of the efficiency of decontamination procedures.

A temperature blank will be included in each cooler containing samples for CLP analyses so that the laboratory can record the temperature without disturbing the samples. The temperature blank will be labeled, but will not be given a sample number nor will it be listed as a sample on the Chain of Custody (COC) form.

## **Duplicates**

Field duplicate samples will be collected at a frequency of 1 per 10 field samples per matrix. The location from which the duplicates are taken will be randomly selected. Each duplicate sample will be split evenly into two sample containers and submitted for analysis as two independent samples.

## **Matrix Spike/Matrix Spike Duplicate (MS/MSD)**

Matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a frequency of 1 for every 20 field soil samples collected. Analytical results of these samples indicate the impact the matrix (soil) has on extracting the analyte for analysis. MS/MSD samples give an indication of the laboratory's analysis accuracy and precision within the sample matrix. Data validators will use these results to evaluate the accuracy of the analytical data. Matrix spike/matrix spike duplicate samples are not required for low concentration CLP analysis (OLC02) for groundwater samples.

### **3.3.3 Data Validation**

All data will be validated before the project staff interprets the data. The data validation will be performed by an independent subcontractor, and will conform to the requirements in the Master Work Plan, Section 5.4.3. Data that should be qualified will be flagged with the appropriate symbol. Results for QA/QC samples will be reviewed and the data will be qualified further, if necessary. Finally, the data set as a whole will be examined for consistency, anomalous results, and reasonableness.

## **3.4 Task 4: Site Investigation Report**

This task includes evaluating the site data and generating a Draft and Final Site Investigation Report. The historical data and data generated under this CTO will be reviewed, and figures and tables summarizing the data will be generated.

### **3.4.1 Data Evaluation**

CDM Federal will evaluate the validated laboratory data and field-generated data such as soil descriptions. During the data evaluation process, data will be examined for its usability by looking at validation information as well as determining whether sufficient information is available to complete the objectives of this Work Plan.

### **3.4.2 Ecological Risk Assessment**

The Screening Ecological Risk Assessment will include a comparison of the SI data against the appropriate EPA Region III BTAG screening values to identify contaminants of potential concern (COPC). Alternate EPA-approved values previously submitted by the Navy will also be utilized in the screening process as appropriate. The results of the SI data and the comparison with the BTAG screening values will be utilized during the preliminary problem formulation/conceptual site model development. The potential risk from COPCs will be evaluated using food chain modeling.

### 3.4.3 Human Health Risk Assessment

The human health risk assessment activity will include a semi-quantitative assessment considering plausible and complete pathways, exposed populations (residential and industrial receptors). Maximum values detected in groundwater will initially be screened against EPA MCLs. Detected values which are above the MCLs or which no MCL value has been established will be screened against Region III risk-based screening values. All soil sample detected will be screened against Region III risk-based screening values. These screenings will provide a list of preliminary COPCs. The latest version of EPA Region III's RBCs will be used for screening. Consistent with EPA Region III guidance, for RBCs that are based on noncarcinogenic effects, the RBC will be divided by 10 to account for the potential for exposure to multiple contaminants. For RBCs that are based on carcinogenic effects, the RBC provided in the RBC table will be used. Site-specific risk-based screening values will be developed to be used to further refine the list of chemicals.

The human health risk assessment will be a screening only and not be quantitative. It will not include data evaluation, exposure assessment, toxicity assessment or risk characterization. It will not include a lead evaluation or toxicity profiles. It will only be a screening of site investigation data against published risk-based levels. Site specific exposure assumptions will be provided by the Navy and site specific Preliminary Remediation Goals (PRG) will be developed for the preliminary COPCs.

### 3.4.4 Draft Site Investigation Report

The results of the site investigations and the human health and ecological risk assessments for Site 17 will be presented in the draft SI report. The Draft Site Investigation Report will include, at a minimum, the following items:

1. Introduction
  - 1.1 Site History
  - 1.2 Site Description
2. Field Investigation Activities
  - 2.1 Sample Collection (number and type of samples, sample designation, analyses performed)
  - 2.2 Analytical Results
3. Risk Characterization
  - 3.1 Human Health Risk Assessment Results
  - 3.2 Ecological Risk Assessment Results
4. Conclusions and Recommendations

Supporting figures also will be incorporated into the document to show the location of the Site, sampling locations, and locations of samples exceeding the screening criteria. Tables will be incorporated to present analytical results that exceed selected screening values, including residential and industrial RBCs.

### 3.4.5 Final Site Investigation Report

The Final Site Investigation Report will address the comments received on the Draft Site Investigation Report from LANTDIV, VADEQ and USEPA.

### **3.5 Task 5 – Engineering Evaluation/Cost Analysis (EC)**

If it is determined that an Engineering Evaluation/Cost Analysis (EE/CA) is necessary, CDM Federal will be prepared the EE/CA for Site 17. The EE/CA will follow the format provided in the EPA Guidance document "Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA". It is anticipated that the EE/CA will consider up to four alternatives including no action, two excavation and offsite disposal alternatives, and one treatment alternative (e.g., thermal desorption). In addition, CDM Federal will prepare a Responsiveness Summary to address public comments received on the Final EE/CA.

### **3.6 Task 6 – Post Site Investigation Support**

If it is determined that a Proposed Remedial Action Plan (PRAP) will be necessary, CDM Federal will be prepared the PRAP for Site 17. The PRAP will summarize the information presented in the EE/CA. Following implementation of the Remedial Action, a joint No Further Action (NFA) Decision Document (DD) will also be prepared for Site 17. This document will utilize information presented in the PRAP and provide additional discussion on the rationale for selecting the remedial action.

## Staff Organization

---

### 4.1 Project Management

Project management will include overall coordination of all work to be performed at the site. The management structure for CH2M HILL is designed so that there is one central administrative point of contact, the Activity Manager, and multiple technical project managers who will manage the technical tasks as their expertise is required. The Activity Manager will maintain close contact with the LANTDIV NTR.

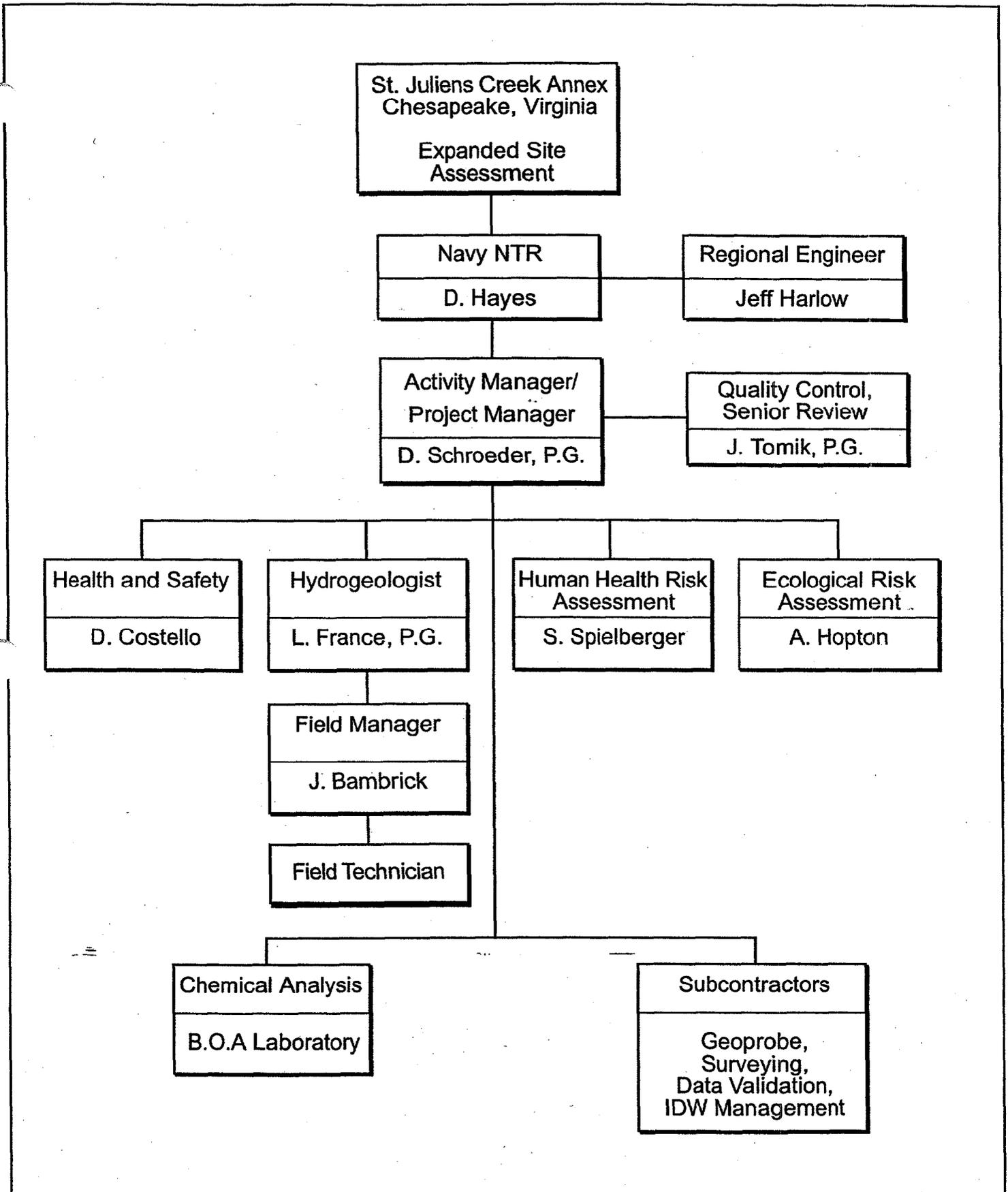
The Activity Manager will oversee and coordinate each project to maintain overall project schedule and will coordinate the monthly progress report effort. The Activity Manager will maintain routine communication with the LANTDIV NTR and provide general program support, interaction with client and regulatory agencies, and documentation of decisions on technical issues that might affect future work at the Base.

The responsibilities of the technical project managers include such activities as the preparation and submittal of Navy CLEAN daily reports, daily technical support and oversight, budget and schedule review and tracking, preparation and review of invoices, personnel-resource planning and allocation, and project-specific coordination with LANTDIV, the Activity, and subcontractors.

### 4.2 Project-Specific Organization

The Activity Manager, Mr. John Tomik, will be the primary point of contact for the project and will provide guidance to the Project Manager. The Project Manager, Mr. Dave Schroeder of CDM Federal, will be responsible for such activities as budget and schedule review and tracking, preparation and review of invoices, personnel-resource planning and allocation, and coordination with LANTDIV, Naval Base, Norfolk, the Annex, and subcontractors. The field investigation tasks will be performed by supporting field personnel. The project organization is depicted in Figure 4-1.

CH2M HILL and CDM Federal will notify LANTDIV and the Annex about which CDM Federal personnel will mobilize to the site before initiating field activities. CDM Federal also will notify appropriate Annex personnel to acquire site access and utility clearances. The NTR, Ms. Dawn Hayes, will be advised of all site activities and schedules before site operations begin.



Section 5

## **Contractual Services**

---

This section documents the anticipated subcontract services required for completing the tasks documented in this work plan. CH2M HILL will use existing BOAs to procure subcontractors for this work. BOAs will be negotiated with new subcontractors as needed.

The Site 17 SI field and sampling program will require subcontract services from the following:

- IDW Subcontractor
- Analytical Laboratory
- Data Validation

Section 6

# Project Schedule

---

This section describes the project schedule and the due dates of deliverables.

The project will be performed in accordance with the schedule and milestones presented in Figure 6-1.

Figure 6-1  
Expanded Site Inspection  
Site 17 Schedule

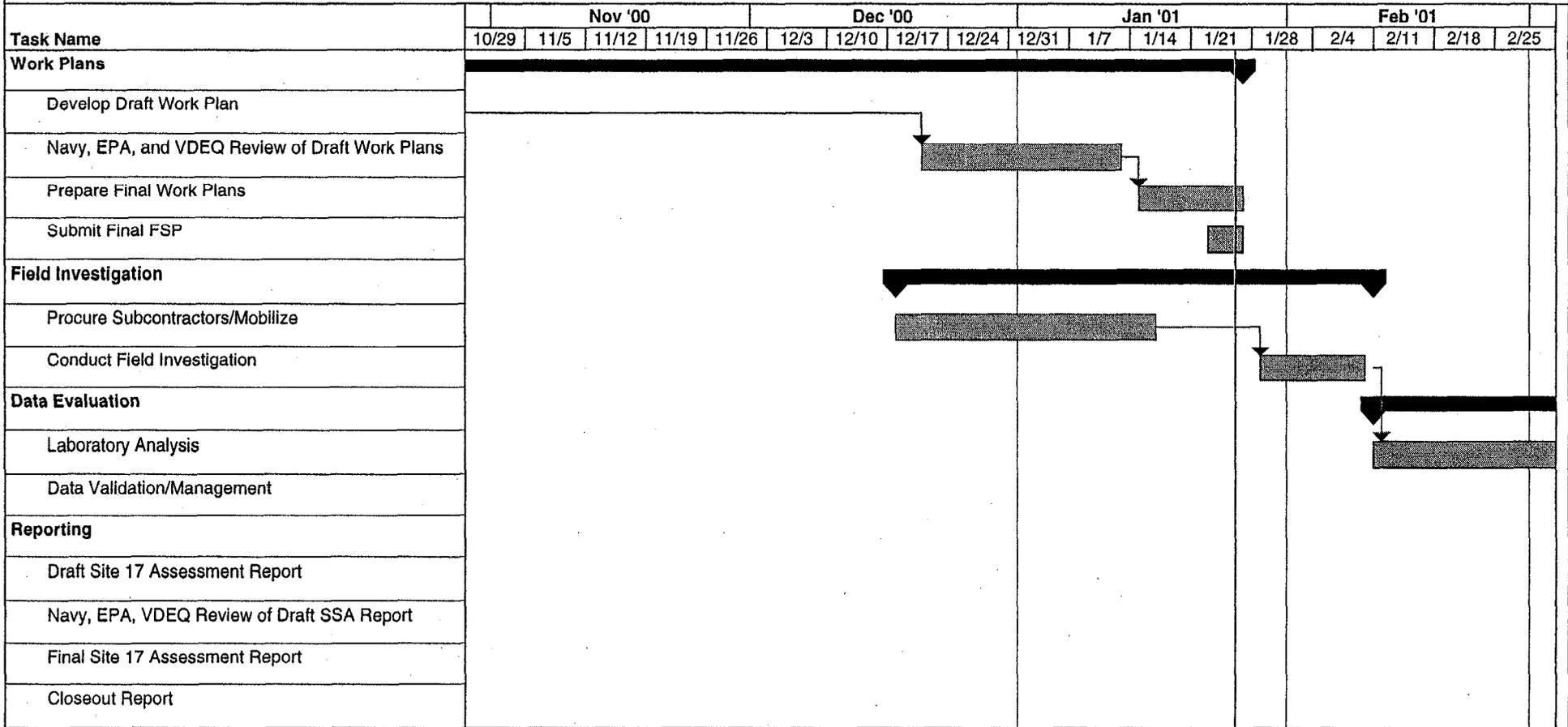
Task Name	Duration	Start	Finish	Aug '00			Sep '00				Oct '00				
				8/13	8/20	8/27	9/3	9/10	9/17	9/24	10/1	10/8	10/15	10/22	
<b>Work Plans</b>	<b>114 days</b>	<b>Tue 8/22/00</b>	<b>Fri 1/26/01</b>												
Develop Draft Work Plan	16 days	Tue 8/22/00	Tue 9/12/00												
Navy, EPA, and VDEQ Review of Draft Work Plans	17 days	Thu 12/21/00	Fri 1/12/01												
Prepare Final Work Plans	10 days	Mon 1/15/01	Fri 1/26/01												
Submit Final FSP	4 days	Tue 1/23/01	Fri 1/26/01												
<b>Field Investigation</b>	<b>40 days</b>	<b>Mon 12/18/00</b>	<b>Sat 2/10/01</b>												
Procure Subcontractors/Mobilize	30 edays	Mon 12/18/00	Wed 1/17/01												
Conduct Field Investigation	10 days	Mon 1/29/01	Sat 2/10/01												
<b>Data Evaluation</b>	<b>41 days</b>	<b>Sat 2/10/01</b>	<b>Mon 4/9/01</b>												
Laboratory Analysis	28 edays	Sat 2/10/01	Sat 3/10/01												
Data Validation/Management	30 edays	Sat 3/10/01	Mon 4/9/01												
<b>Reporting</b>	<b>72 days</b>	<b>Mon 3/26/01</b>	<b>Wed 7/4/01</b>												
Draft Site 17 Assessment Report	29 edays	Mon 3/26/01	Tue 4/24/01												
Navy, EPA, VDEQ Review of Draft SSA Report	28 edays	Tue 4/24/01	Tue 5/22/01												
Final Site 17 Assessment Report	10 edays	Tue 5/22/01	Fri 6/1/01												
Closeout Report	30 edays	Mon 6/4/01	Wed 7/4/01												

Project: CTO 150  
Expanded Site Inspection - Site 17

Task

Summary

Figure 6-1  
Expanded Site Inspection  
Site 17 Schedule



Project: CTO 150  
Expanded Site Inspection - Site 17

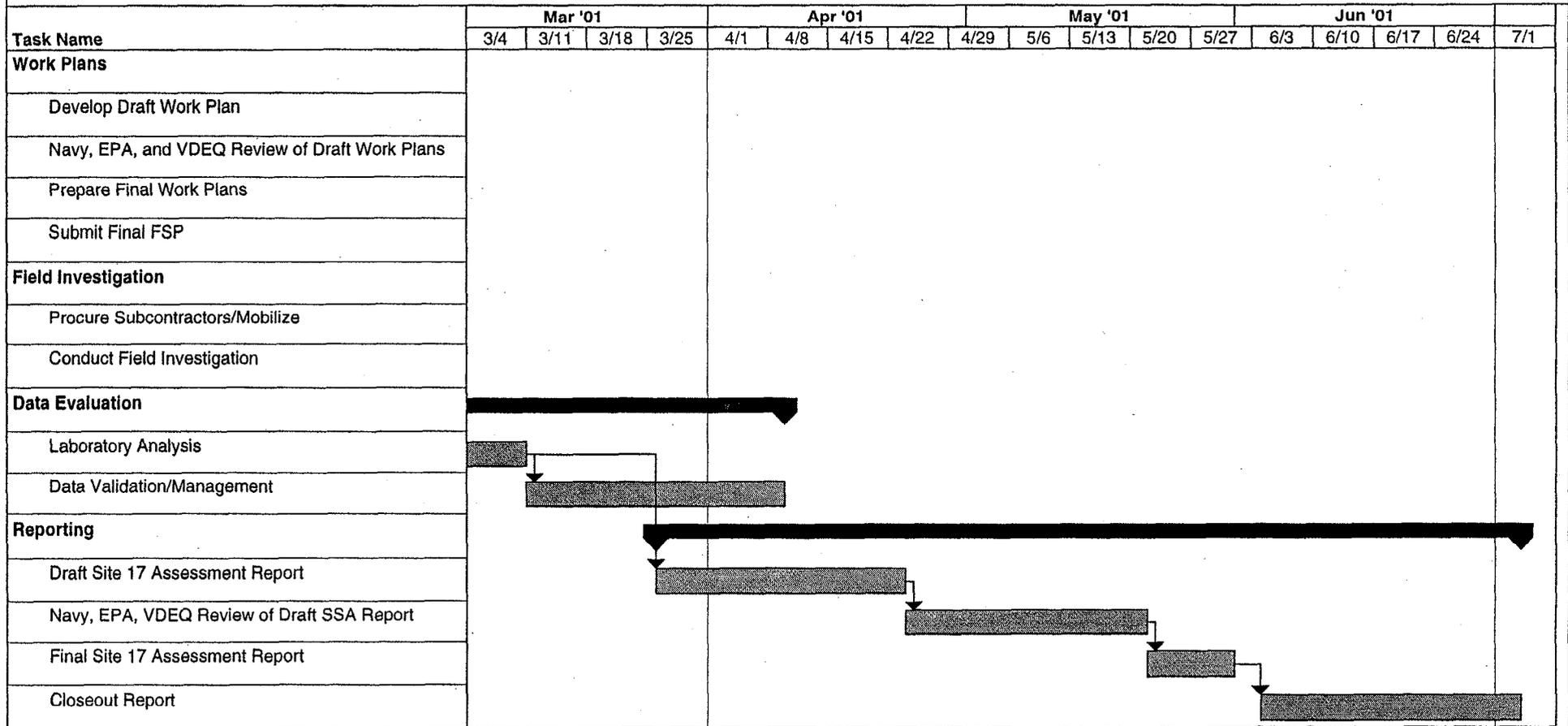
Task



Summary



Figure 6-1  
Expanded Site Inspection  
Site 17 Schedule



Project: CTO 150  
Expanded Site Inspection - Site 17

Task



Summary



# **Attachment A**

## **Site Specific Plan Checklist**

## Site-Specific Investigation-Derived Waste Plan Checklist For Site 17 SI

This checklist supplements the Master IDW Plan with site-specific information. Once completed for a specific project, it provides necessary IDW information for each investigation. It is to be taken into the field with the Master IDW Plan.

Site: IRP Site 17

1. IDW Media:  Soil cuttings  
 Well development or purge water  
 Decontamination wastewater  
 PPE or disposable equipment  
 Other \_\_\_\_\_
  
2. Expected Regulatory Status:  Hazardous  
 Solid Waste  
 Unknown  
 Other \_\_\_\_\_
  
3. Site Location: This Site is located at Building 279, on the east side of Craddock Street.
  
4. Nature of Contaminants Expected:  
 Petroleum contamination  Herbicides  
 Polyaromatic hydrocarbon  PCBs  
 Pesticides  Metals  
 Other: Will have analytical results soil at time of IDW disposal.
  
5. Volume of IDW Expected: <1 drum solvent and water (5-10 gallons), < 1 drum PPE, < 1 drum decon water ( 10-20 gallons)
  
6. Compositing Strategy for Sample Collection: Composite all Groundwater (development and purge water).
  
7. IDW Storage  
 As per Master IDW Plan  Other \_\_\_\_\_
  
8. Waste Disposal  
 As per Master IDW Plan  Other \_\_\_\_\_

## Site-Specific Quality Assurance Project Plan Checklist For Site 17

This checklist supplements the Master QAPP with site-specific information. Once completed for a specific project, it provides necessary quality assurance information for each investigation. It is to be taken into the field with the Master QAPP.

Site: IRP Site 17

1. List sampling tasks: Surface soil
2. List data quality objectives: High, as defined in the Master QAPP, p.4-1. PARCC Parameters as listed in Table 4-1 of the Master QAPP.
3. Organization:
 

LANTDIV IR Section Head	<u>Paul A. Rakowski</u>
LANTDIV Navy Technical Representative	<u>Dawn Hayes</u>
USEPA Remedial Project Manager	<u>Todd Richardson</u>
VDEQ Federal Facilities Project Manager	<u>Devlin Harris</u>
CH2M HILL Activity Manager	<u>John Tomik</u>
CDM Federal Project Manager	<u>Dave Schroeder</u>
Quality Control Senior Review	<u>John Tomik</u>
Technical Project Manager	<u>Dave Schroeder</u>
Field Team Leader	<u>John Bambrick</u>
4. Table of samples with analyses to be performed and associated QC samples: (See attached)
5. Analytical Quantitation Limits:
 

<u>X</u> As per Table 8-2 of Master QAPP	<u>X (LC-PAH) Other</u> (attached)
--	------------------------------------
6. QA/QC Acceptance Criteria (e.g., precision, accuracy)
 

<u>X</u> As per Table 4-1 of Master QAPP	_____ Other (attached)
--	------------------------
7. Data reduction, validation, and reporting:
 

<u>X</u> As per Section 9 of Master QAPP	_____ Other (attached)
--	------------------------
8. Internal QC Procedures (field and laboratory):
 

<u>X</u> As per Section 10 of Master QAPP	_____ Other (attached)
---	------------------------
9. Corrective Action:
 

<u>X</u> As per Section 14 of Master QAPP	_____ Other (attached)
---	------------------------
10. Other deviations from Master QAPP \_\_\_\_\_

4 (cont.) Table of samples with analyses to be performed and associated QC samples

**TABLE 1**

Summary of Soil and Sediment Samples to be Submitted for Analysis— St. Juliens Creek Annex Expanded Site Investigation

Matrix	Laboratory Parameter	Samples	Field Duplicates <sup>1</sup>	Field Blanks <sup>2</sup>	Trip Blank <sup>3</sup>	MS/MSDs <sup>4</sup>	Equipment Blanks <sup>5</sup>	Solids Total <sup>6</sup>	Aqueous Total <sup>7</sup>
Soil	TCL VOCs	4	1	1	1	1	1	6	3
	Low Conc. PAHs	4	1	1		1	1	6	2
	TCL SVOCs	4	1	1		1	1	6	2
	TCL Pest/PCBs	4	1	1		1	1	6	2
	TAL Inorganics	4	1	1		1	1	6	2

**Notes:**

- <sup>1</sup> Field duplicates are collected at a rate of 1 per 20 samples per matrix.
- <sup>2</sup> Field Blanks are collected at a rate of 1 per week per matrix.
- <sup>3</sup> Trip Blanks are shipped at a rate of 1 per cooler for VOCs only.
- <sup>4</sup> Matrix Spikes/Matrix Spike Duplicates (MS/MSDs) are collected at a frequency of 1 per 20 per matrix. MS/MSDs represent samples for which extra volume must be collected for the laboratory to perform required QC analyses. Triple the normal volumes will be collected for all analyses.
- <sup>5</sup> Equipment Blanks are shipped at a rate of 1 per day per matrix.
- <sup>6</sup> Solids total consists of the samples, their field duplicates, and the MS/MSDs.
- <sup>7</sup> Aqueous field QC samples will be analyzed by the TCL organics method (not low concentration).
  - PCB = polychlorinated biphenyl
  - Pest = pesticide
  - QC = quality control
  - SVOC = semivolatile organic compound
  - TAL = target analyte list
  - TCL = target compound list
  - VOC = volatile organic compound
  - PAH = polynuclear aromatic hydrocarbon

This table is based on Navy QA/QC requirements.

5 (cont.) Low Concentration Polynuclear Aromatic Hydrocarbons Analytical Quantitation Limits

Analyte	ug/kg	Analyte	ug/kg
Napthalene	75	Chrysene	75
Acenaphthalene	75	Benzo(b)fluoranthene	75
Fluorene	75	Benzo(k)fluoranthene	75
Phenanthrene	75	Benzo(a) pyrene	75
Anthracene	75	Indeno(1,2,3-cd) pyrene	75
Fluoranthene	75	Dibenzo(a,h)anthracene	75
Benzo(a) anthracene	75	Acenaphthene	75

## Site-Specific Field Sampling Plan Checklist For Site 17 SI

This checklist supplements the Master Field Sampling Plan with site-specific information. Once completed for a specific project, it provides necessary field sampling information for each investigation. It is to be taken into the field with the Master FSP.

Site: IRP Site 17

1. Tasks to be performed

Geophysical surveys

- |  |   |
|--|---|
| <input type="checkbox"/> Soil gas surveys<br><input type="checkbox"/> Surface water and sediment sampling<br><input checked="" type="checkbox"/> Surface soil sampling<br><input type="checkbox"/> Soil boring installation<br><input type="checkbox"/> Subsurface soil sampling<br><input type="checkbox"/> Monitoring well installation and development<br><input type="checkbox"/> Monitoring well abandonment<br><input type="checkbox"/> Groundwater sampling | <input type="checkbox"/> In-situ groundwater sampling<br><input type="checkbox"/> Aquifer testing<br><input type="checkbox"/> Hydrogeologic measurements (water levels)<br><input type="checkbox"/> Biota sampling<br><input type="checkbox"/> Trenching<br><input type="checkbox"/> Land surveying (GPS)<br><input type="checkbox"/> Investigation derived waste sampling<br><input checked="" type="checkbox"/> Decontamination<br><input type="checkbox"/> Other _____ |
|--|---|

2. Field measurements to be taken:

- |  |  |
|--|--|
| <input type="checkbox"/> temperature<br><input type="checkbox"/> pH<br><input type="checkbox"/> dissolved oxygen<br><input type="checkbox"/> turbidity<br><input type="checkbox"/> specific conductance<br><input type="checkbox"/> organic vapor monitoring<br><input type="checkbox"/> geophysical parameters (list):<br><input type="checkbox"/> electromagnetic induction<br><input type="checkbox"/> ground-penetrating radar | <input checked="" type="checkbox"/> surveying (GPS)<br><input type="checkbox"/> magnetometry<br><input type="checkbox"/> global positioning system<br><input type="checkbox"/> soil gas parameters (list):<br><input type="checkbox"/> combustible gases<br><input type="checkbox"/> water-level measurements<br><input type="checkbox"/> pumping rate<br><input type="checkbox"/> other _____ |
|--|--|

3. Sampling program (nomenclature, etc.):

- |  |                                      |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> As per Section 3.1 of Master FSP | <input type="checkbox"/> Other _____ |
|--|--------------------------------------|

4. Map of surface soil sampling locations: (See Figure 2-1)

5. Table of field samples to be collected: (See Table 1 in the Site-Specific QAPP Checklist)

6. Applicable SOPs - pages in Master FSP:

Soil Sampling – page 4.1-1

Homogenization of Soil and Sediment Samples – page 9.5-1

Field Rinse Blank Preparation – page 9.3-1

Packaging and Shipping Procedures – page 9.6-1

Chain-of-Custody – page 9.7-1

Decontamination of Personnel and Equipment - page 10.2-1

7. Site-specific procedures or updates to protocols established in the Master FSP:  
Health and safety monitoring using a photoionization detector will be performed in accordance with the instrument operating manual.

## Site-Specific Health and Safety Plan

This checklist must be used in conjunction with the Master HASP. This checklist is intended for use by CDM Federal and CH2M HILL employees only. All CDM Federal and CH2M HILL employees performing tasks under this checklist must read and sign both this checklist and the Master HASP and agree to abide by their provisions (see EMPLOYEE SIGNOFF attached to the checklist).

Site: IRP Site 17

Location(s) See Figure 1-2

This document shall be maintained on site with the Master Health and Safety Plan. It will include as attachments from the Work Plan a site map and the site characterization and objectives for this site.

The procedures described in the Master Health and Safety Plan will be followed unless otherwise specified in this Site-Specific Health and Safety Plan.

### 1. HAZWOPER-Regulated Tasks

- |   |   |
|---|---|
| <input type="checkbox"/> Test pit and excavation                  | <input type="checkbox"/> Groundwater sampling   |
| <input type="checkbox"/> Soil boring installation                 | <input type="checkbox"/> Aquifer testing  |
| <input type="checkbox"/> Geoprobe boring                          | <input type="checkbox"/> Hydrologic measurements  |
| <input type="checkbox"/> Geophysical surveys                      | <input type="checkbox"/> Surface water sampling   |
| <input type="checkbox"/> Hand augering                            | <input type="checkbox"/> Biota sampling   |
| <input type="checkbox"/> Subsurface soil sampling                 | <input type="checkbox"/> Investigation-derived waste (drum) sampling and disposal           |
| <input checked="" type="checkbox"/> Surface soil sampling         | <input checked="" type="checkbox"/> Observation of loading of material for offsite disposal |
| <input type="checkbox"/> Soil gas surveys                         | <input type="checkbox"/> Oversight of remediation and construction                          |
| <input type="checkbox"/> Sediment sampling                        | <input type="checkbox"/> Other _____  |
| <input type="checkbox"/> Monitoring well/drive point installation |   |
| <input type="checkbox"/> Monitoring well abandonment              |   |

### 2. Hazards of Concern:

- |   |  |
|---|--|
| <input type="checkbox"/> Heat stress                            | <input type="checkbox"/> Confined space entry              |
| <input checked="" type="checkbox"/> Cold stress                 | <input type="checkbox"/> Trenches, excavations             |
| <input type="checkbox"/> Buried utilities, drums, tanks         | <input checked="" type="checkbox"/> Protruding objects     |
| <input type="checkbox"/> Inadequate illumination                | <input type="checkbox"/> Vehicle traffic                   |
| <input type="checkbox"/> Drilling                               | <input type="checkbox"/> Ladders, scaffolds                |
| <input type="checkbox"/> Heavy equipment                        | <input type="checkbox"/> Fire                              |
| <input type="checkbox"/> Working near water                     | <input type="checkbox"/> Working on water                  |
| <input type="checkbox"/> Flying debris                          | <input checked="" type="checkbox"/> Snakes or insects      |
| <input type="checkbox"/> Gas cylinders                          | <input checked="" type="checkbox"/> Poison ivy, oak, sumac |
| <input type="checkbox"/> Noise                                  | <input checked="" type="checkbox"/> Ticks                  |
| <input checked="" type="checkbox"/> Slip, trip, or fall hazards | <input type="checkbox"/> Radiological                      |
| <input type="checkbox"/> Back injury                            | <input type="checkbox"/> Other _____                       |

3. Contaminants of.

<u>PCB</u>	<u>Chlordane</u>	<u>Caustic (acids)</u>
<u>DDT</u>	<u>Solvents</u>	<u>Metals (lead)</u>

4. Personnel:

Field team leader(s)	John Bambrick	703-968-0900
Site safety coordinator(s)	John Bambrick	703-968-0900
Field team members	Lynne France	
	Dave Michailof	

5. Contractors/Subcontractors

Procedures as per Master HASP

Other \_\_\_\_\_

Name: \_\_\_\_\_

Contact: \_\_\_\_\_

Telephone: \_\_\_\_\_

6. Level of personal protective equipment (PPE) required: Level D  
Refer to Table 5.1 of Master HASP, SOPs, and Respiratory Protection, Section 2 of the Site Safety Notebook.

7. Air monitoring instruments to be used:

<input checked="" type="checkbox"/> PID	<input type="checkbox"/> FID
<input type="checkbox"/> CGI	<input type="checkbox"/> Dust monitor
<input type="checkbox"/> O <sub>2</sub>	

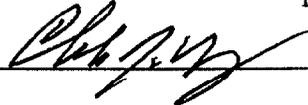
8. Decontamination procedures:

As per Section 7 of Master HASP

Other \_\_\_\_\_

Other

---

9. List any other deviations or variations from the Master HASP:
10. Emergency Response: (See Sections 11 and 12 in the Master HASP and summary of Contingency Plans in Attachment B, Emergency Contacts)
11. Map to hospital: (See Attachment B)
12. Emergency Contacts: (See Attachment B)
13. Approval. This prepared site-specific checklist must be approved Chuck Myers/CDM Federal or other authorized representative  
Name  Title Mgr. H&S Date 1/29/01
14. Employee Signoff. All CDM Federal and CH2M HILL employees working at the site must sign the attached Employee Signoff for the checklist as well as for the Master HASP.



# **Attachment B**

## **Health And Safety Emergency Contacts and Hospital Route**

**SAFETY AND HEALTH PLAN FORM**

**ST. JULIENS CREEK ANNEX  
SITE SCREENING ASSESSMENT  
CTO-150**

**CDM FEDERAL PROGRAMS CORPORATION**

CDM Federal Safety and Health Program

EMERGENCY CONTACTS			EMERGENCY CONTACTS		NAME	PHONE
Subcontractors	TBA		Health and Safety Manager	Chuck Myers		1-703-968-0900
Site Telephone	TBA	(Mobile Phone)	Project Manager	Dave Schroeder		1-703-968-0900
EPA Release Report No.	1-800-424-8802		Health & Safety Coordinator	Dean Costello		1-703-968-0900
CDM 24-Hour Emergency	1-703-754-0700	Chuck Myers (home)	Client Contact	Dawn Hayes		1-757-322-4792
Facility Management	1-757-396-3221	Shipyards Duty Desk	Other (specify)			
Site Spills	1-757-322-2866	COMNAVBASE Duty Desk	Environmental Agency	EPA Region III		1-215-597-9800
Emergencies	1-757-396-3333	Shipyards Emergency #	State Spill Number	Virginia Waste Management Department		1-800-468-8892
			Fire Department	Shipyards Fire Dept.		1-757-396-3335
			Police Department	Shipyards Security Dept.		1-757-396-5111
<p><b>CONTINGENCY PLANS</b> Summarize below:</p> <p>Evacuate site if any unexpected hazardous conditions are encountered. Site staff, if evacuated, will congregate upwind of the site in a predesignated area (to be announced at the daily health and safety meeting). If a work team observes hazards for which they have not been prepared, they will withdraw from the area and call the CDM Federal CHSM or the local Health &amp; Safety Coordinator for guidance. Without regard to monitoring instrument reading, CDM Federal personnel will leave site and upgrade their level of protection if they experience nausea or dizziness.</p>			State Police	Virginia State Police		1-757-494-2434
			Health Department	Chesapeake Health Dept.		1-757-382-8600
			Poison Control Center	National		1-800-332-6633
			Occupational Physician	Dr. Thomas Winters		1-800-350-4511
			<b>MEDICAL EMERGENCY</b>			
			Hospital Name:	Mayview Hospital		1-757-398-2200
			Hospital Address:	Oakley Street		
<b>HEALTH AND SAFETY PLAN APPROVALS</b>			Name of Contact at Hospital: Emergency Room			
Prepared by:	<i>John Hombach</i>	Date:	1/29/01		Name of 24-Hour Ambulance: Shipyards Emergency	
SHSC Signature:	<i>John Hombach</i>	Date:	1/29/01		1-757-396-3333	
HSM Signature:	<i>Chad A. W.</i>	Date:	1/29/01		Route to Hospital (Attach map with route to hospital) Leave main gate of Annes and take left onto Victory Blvd. At Route 17 (George Wash. Hwy) take a right and go north. Make left onto Frederick Blvd. And continue on Frederick Blvd. Until it dead ends. Make left onto High Street, hospital is on the right at first light.	
Distance to Hospital: Approximately 5 miles						

St. Juliens Creek Annex

CTO-141

Maryview Hospital

Route

