

Brent, Thomas CIV NAVSURFWARCENDIV Crane, Code RP3-TB
From: Brent, Thomas CIV NAVSURFWARCENDIV Crane, Code RP3-TB
Sent: Friday, May 06, 2005 2:00 PM
To: Peter Ramanauskas (E-mail)
Cc: Gates, William H CIV EFDSOUTH; Roger Clark (E-mail)
Subject: FW: SWMU 9 WP Addendum

Pete,

Attached is the round 2 sampling plan for B55 at SWMU 9 which includes the additional borings agreed to during our conference call on May 5, 2005. Please review and let us know if you have any comments. Note that the a digging permit has been approved for the originally proposed borings (09SB18 - 09SB27, 09SW/SD07, and 09SW/SD08). Those samples will be collected beginning on Monday, May 9, 2005. The additional borings will tentatively be collected the week of May 16, 2005.

Thanks,
Tom

-----Original Message-----

From: Clark, Roger [mailto:ClarkR@ttnus.com]
Sent: Friday, May 06, 2005 11:29
To: Gates, William H CIV EFDSOUTH; Brent, Thomas CIV NAVSURFWARCENDIV Crane, Code RP3-TB
Cc: Francis, Mark; Rojahn, Terry; Basinski, Ralph; Schubert, Jeff; Goerd, James
Subject: SWMU 9 WP Addendum



work plan add ph 2
swmu 9 may ...

Attached please find a copy of the draft work plan addendum for SWMU 9 based on requests for additional samples by the EPA. <<work plan add ph 2 swmu 9 may 05.pdf>>

Roger A. Clark, Ph.D.
Senior Geologist/Program Manager
Tetra Tech NUS
661 Andersen Drive
Pittsburgh, PA 15220-2745
(412) 921-8415
clarkr@ttnus.com

WORK PLAN ADDENDUM FOR PHASE 2 ACTIVITIES
FOR
SWMU 9 (PESTICIDE CONTROL AREA)
NAVAL SURFACE WARFARE CENTER CRANE, INDIANA
COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0376

MAY 2005

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:

ROGER A. CLARK, Ph.D.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

DEBRA M. HUMBERT
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

WORK PLAN ADDENDUM FOR PHASE 2 ACTIVITIES FOR SWMU 9 (PESTICIDE CONTROL AREA)

Introduction

This document has been prepared as an attachment (Phase 2) to the Work Plan for Risk Assessment at SWMUs 4, 5, 9, and 10 Naval Surface Warfare Center Crane, Indiana, Tetra Tech NUS, August 2000 and the Addendum to the Work Plan (TiNUS, February 2005).

Results of Current Activities

Fieldwork for SWMU 9 Addendum activities was conducted in February and March 2005. The attached Figures 1 through 5 show the locations where soil, surface water and sediment and groundwater samples were collected during the 2005 field activities and their corresponding analytical results. The laboratory data for all media has been validated.

Seven soil borings were installed (SB12 through SB18) using DPT and samples were collected at three depths (shallow, intermediate and deep). These locations, along with corresponding analytical results are shown on the shallow, intermediate and deep soil maps (Figures 1,2, and 3). Shallow samples were collected from the surface to 2 feet bgs, intermediate depths ranged from 2 to 12 feet bgs and deep depths included samples up to 16 feet bgs. The deepest borings were collected from approximately 2 feet above the bedrock surface to the bedrock surface. Only a surface soil sample was collected from SB18 (an additional sample collected based on field observations). As indicated on the map, there is significant pesticide contamination west of Building 55 (09SB18) at the shallow depth (Figure 1) and minor detections in three intermediate depth samples (Figure 2). The highest concentrations of pesticides are located on the north, south and west sides of the building at these two depths. No pesticides or PCBs were detected at the deeper intervals (Figure 3).

One surface water/sediment sample (Figure 4) was collected from the small tributary stream west of Building 55 (downgradient). Six pesticides were detected in sediment and one pesticide was found in the surface water.

Three temporary well points were installed (Figure 5). TW1 was installed within boring location SB15 which is located within the west side of the former footprint of Building 55, and at two other locations; one (TW3) southwest (downgradient) of Building 55, and another (TW2) at a cross gradient location. Three pesticides were detected at TW1, and one PCB at TW2. TW3 had no detectable concentrations of either pesticides or PCBs.

Proposed Activities

Analytical results of samples collected during the February and March 2005 investigations indicated that elevated concentrations of pesticides exist in soil and sediment. One temporary well had an elevated concentration of PCBs. The following describes the rationale for sample collection and analyses of these contaminated media.

Because of the elevated concentrations of pesticides in soil samples on the north and west sides of the former Building 55, additional sampling is required to determine the nature and extent of pesticide contamination in the surrounding soils. Up to 12 soil borings will be installed as illustrated on Figure 6. The soil boring locations are identified as 09SB18 through 09SB30. It should be noted that field activities, including methods of sample collection and analysis, will be conducted as described in the approved Work Plan (TiNUS, August 2000).

A total of nine soil borings will be installed at locations north (cross gradient), south (cross gradient) and west (downgradient) of 09SB18. Boring 09SB18 is located due west and downgradient of former Building 55. Additionally, 09SB28 and 09SB29 will be installed north and west of 09SB16. Another boring, 09SB30 will be installed south of 09SB15. The rationale for these locations is to delineate the extent of soil contamination in the vicinity of 09SB18, 09SB16 and 09SB15.

Depending on accessibility, samples will be collected using a DPT rig or manually using a hand auger. Samples will be collected at three depths (0 to 2 feet, 2 - 4 feet (or at a depth based on PID readings, visual staining, or field judgment), and just above the water table- assumed to be 10 to 15 feet bgs). At boring location 09SB18 only the intermediate and deep sample will be collected because a shallow sample was collected at this location previously. It should be noted that in the event bedrock is encountered before reaching 15 feet bgs, three soil samples will still be collected. The depths of sampling will adhere to the above-listed plan if possible or will be determined in the field based on PID readings, visual staining, or field judgment.

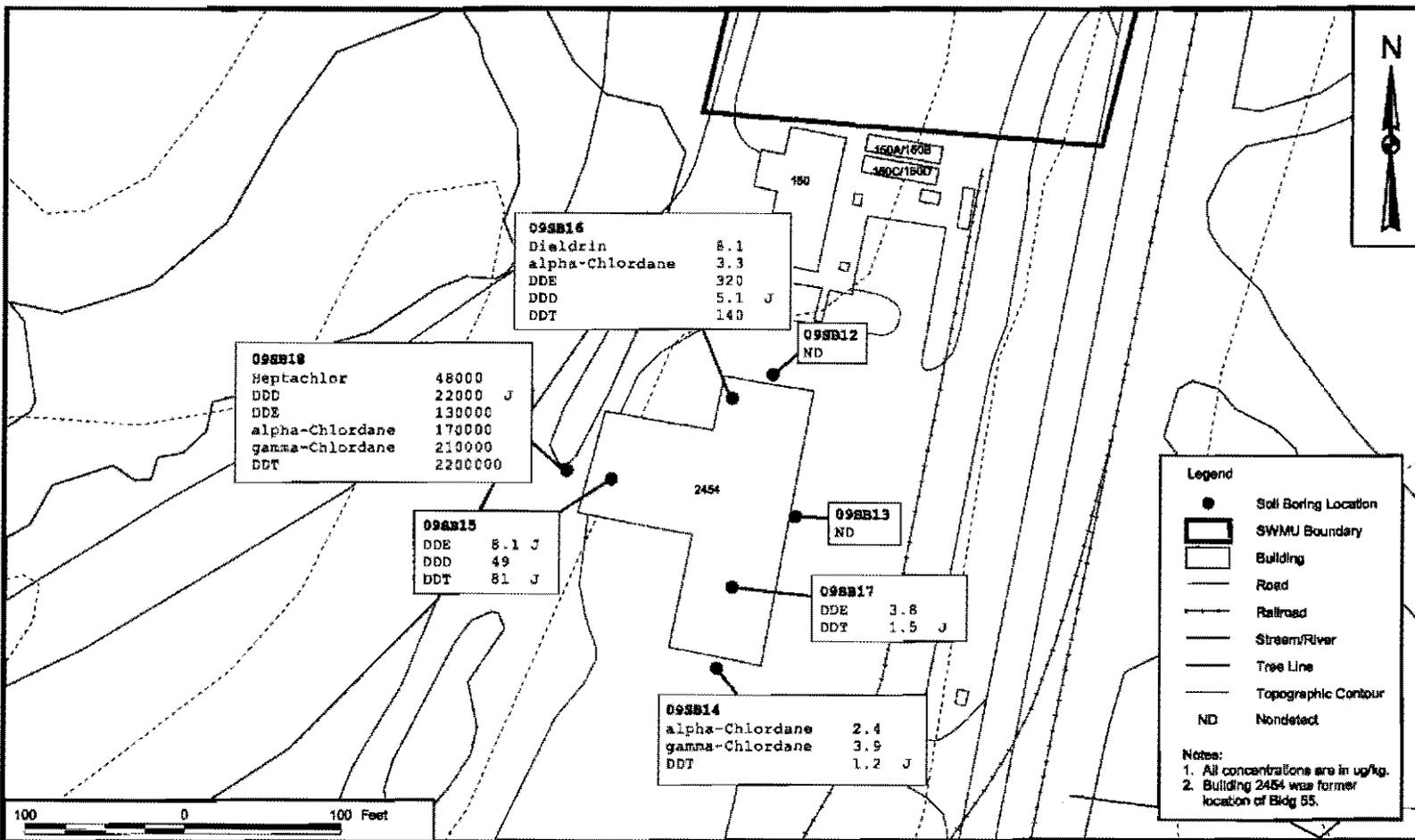
Up to three perched water samples (well points) from the above-listed soil borings will be collected if encountered. These are identified as 09TW04 through 09TW06 on Table 1. The specific number of water samples to be collected and their locations will be based on field judgment including the potential for the temporary well point to produce water of sufficient quantity for laboratory analysis.

One surface water and sediment sample (09SW/SD06) was collected during the February 2005 sampling event. With the exception of a minor detection of DDT, analytical results of the surface water were nondetect, although five pesticides were found in the sediment. Therefore, two additional surface water and sediment samples will be collected; one located approximately 25 feet upstream of the previous sample location and another 25 feet downstream.

Three temporary well points were installed during the previous field investigation. TW1 was located on the west side of the footprint of the former Building 55, another (TW3) was located approximately 200 feet downgradient of the former building and TW2 located approximately 300 feet south (cross gradient) of the former building. TW1 contained three detections of pesticides, all at very low concentrations. No detections of pesticides were found at the temporary well point downgradient of the former building (TW3). One PCB was detected at an elevated concentration (23 ug/L) at TW2. This elevated reading may be associated with historical operations at the site, or from contamination associated with laboratory analyses. In order to determine the validity of this sample result, five borings will be installed at the same approximate location as TW2 and at locations 25 feet north, east, south and west of this location. The borings will be installed to a depth of approximately 15 feet bgs. Soil samples will be collected at three depths (0 to 2 feet, 2 - 4 feet (or at a depth based on PID readings, visual staining, or field judgment), and just above the water table- assumed to be 10 to 15 feet bgs). It should be noted that in the event bedrock is encountered before reaching 15 feet bgs, three soil samples will still be collected. The soil samples (proposed locations SB31-SB35) will be collected and submitted to the laboratory and held for analyses pending the results of water samples collected from these borings. Perched water samples will be collected from any of the above-listed soil borings if so encountered. These water samples will be analyzed for pesticides and PCBs. If results of these indicate elevated concentrations, then the soils will also be analyzed for pesticides and PCBs.

Laboratory Analyses

The primary objective of the proposed field investigation is to collect field and laboratory data needed to evaluate the potential risks for those human health and ecological receptors identified in this investigation. Based on the results of previous analytical information and the historical operations conducted at SWMU 9, the Navy and the USEPA Region 5 have agreed that only pesticides and PCBs will be analyzed for all proposed media in the proposed data gap investigation for Building 55. Additionally, miscellaneous parameters will be analyzed including total organic carbon (TOC); pH; and cation exchange capacity (CEC) for soil samples. Table 1 summarizes the samples to be collected and the proposed analytical parameters.



09SB16	
Dieldrin	8.1
alpha-Chlordane	3.3
DDE	320
DDD	5.1 J
DDT	140

09SB18	
Heptachlor	48000
DDD	22000 J
DDE	130000
alpha-Chlordane	170000
gamma-Chlordane	210000
DDT	2200000

09SB15	
DDE	8.1 J
DDD	49
DDT	81 J

09SB12
ND

09SB13
ND

09SB17	
DDE	3.8
DDT	1.5 J

09SB14	
alpha-Chlordane	2.4
gamma-Chlordane	3.9
DDT	1.2 J

Legend

- Soil Boring Location
- ▭ SWMU Boundary
- ▭ Building
- Road
- Railroad
- Stream/River
- Tree Line
- Topographic Contour
- ND Nondetect

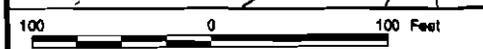
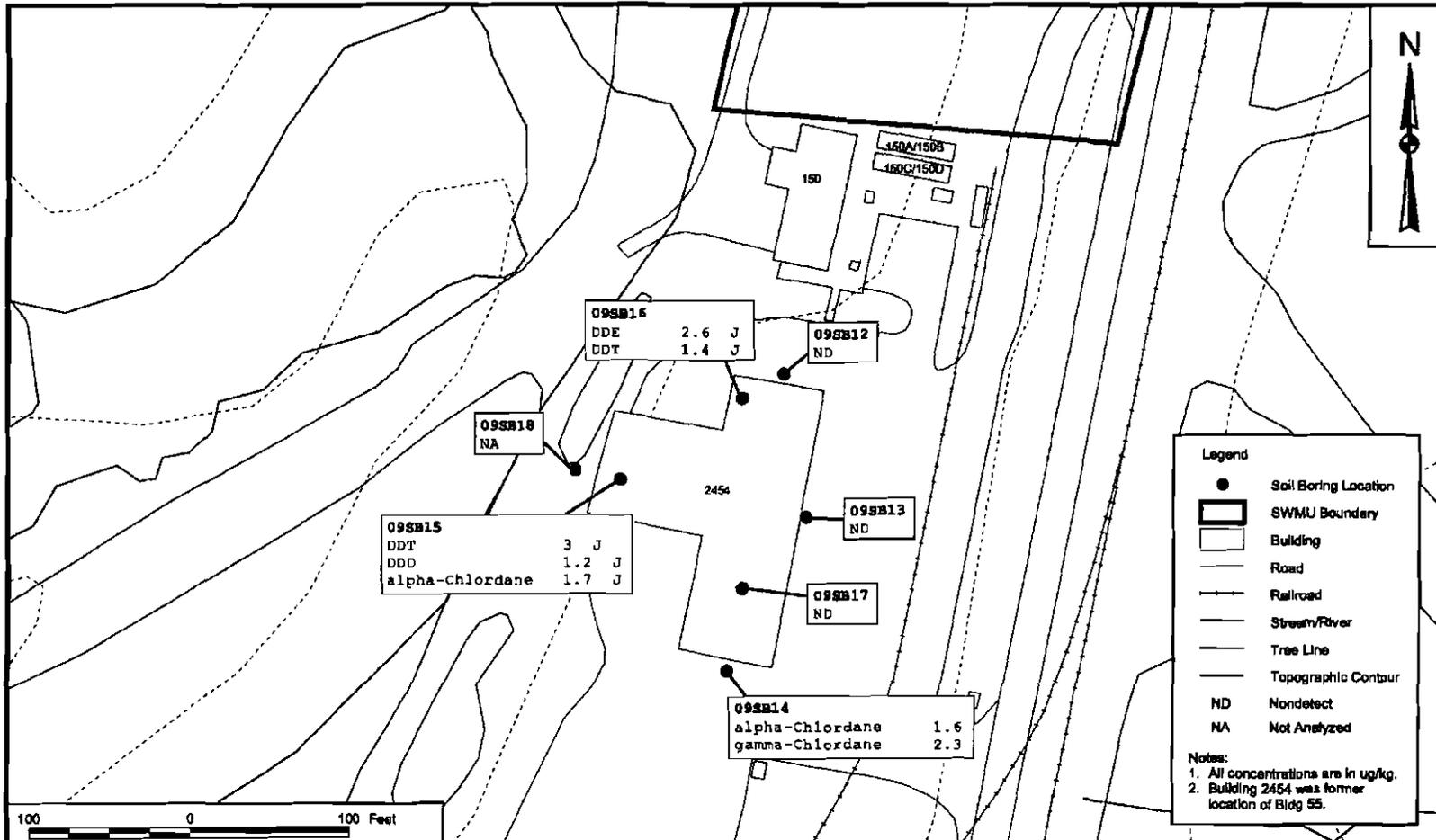
Notes:
 1. All concentrations are in ug/kg.
 2. Building 2454 was former location of Bldg 55.

DRAWN BY	DATE
C. FOSTER	4/7/05
CHECKED BY	DATE
R. CLARK	4/7/05
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SHALLOW SOIL BORINGS
SWMU 9 PESTICIDE CONTROL AREA
BUILDING 55
CRANE NSWC
CRANE, INDIANA

CONTRACT NUMBER 0042	
APPROVED BY R. CLARK	DATE 4/7/05
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV 0

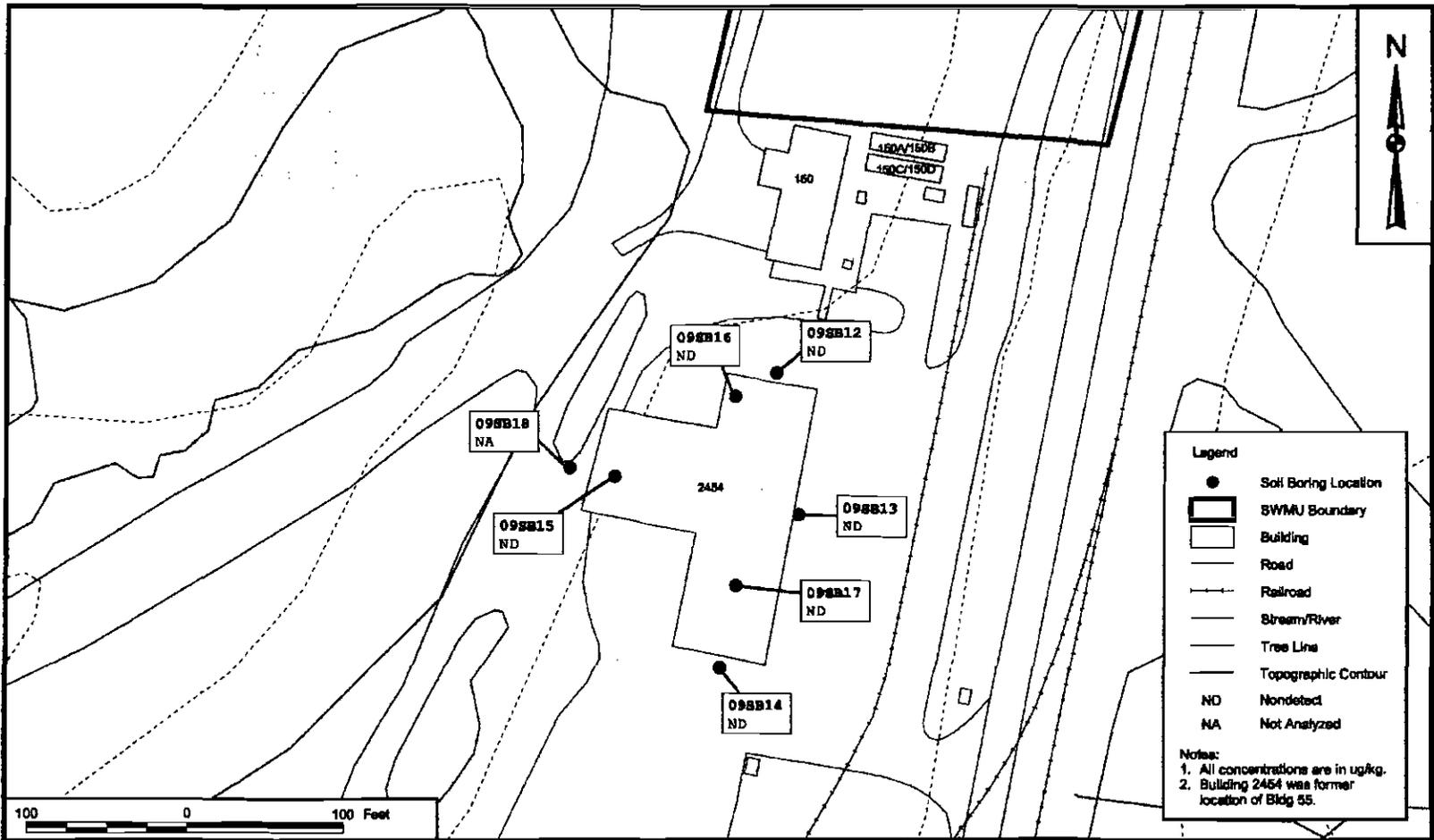


DRAWN BY	DATE
C. FOSTER	4/7/06
CHECKED BY	DATE
R. CLARK	4/7/06
C08178CH EDULS-AREA	
SCALE AS NOTED	



INTERMEDIATE SOIL BORINGS
SWMU 9 PESTICIDE CONTROL AREA
BUILDING 55
CRANE NSWC
CRANE, INDIANA

CONTRACT NUMBER	
0042	
APPROVED BY	DATE
R. CLARK	4/7/06
APPROVED BY	DATE
—	—
DRAWING NO.	REV
FIGURE 2	0

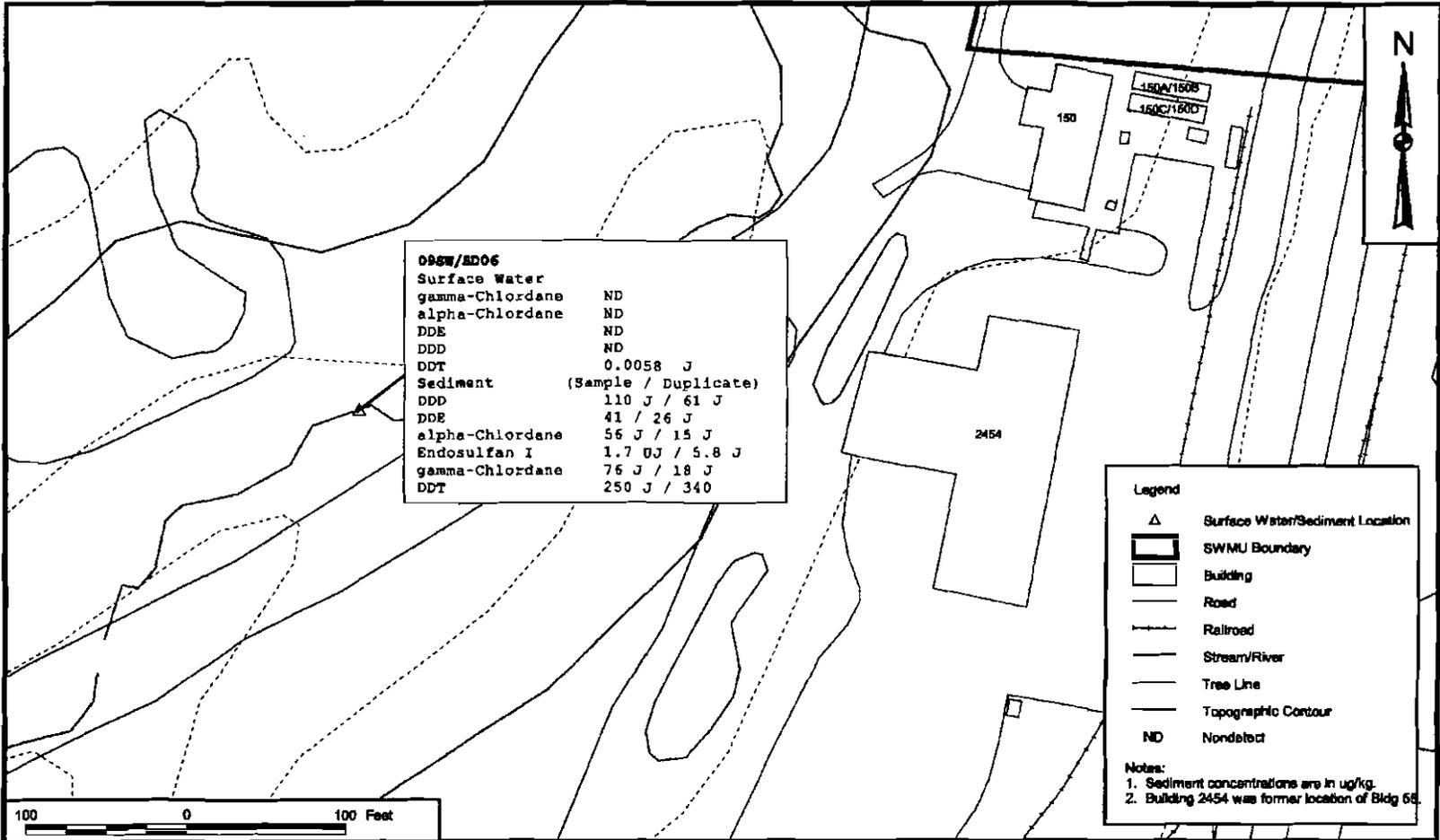


DRAWN BY C. POSTER	DATE 4/7/06
CHECKED BY R. CLARK	DATE 4/7/05
COST/SCHEDULE-AREA	
SCALE AS NOTED	



DEEP SOIL BORINGS
SWMU 9 PESTICIDE CONTROL AREA
BUILDING 55
CRANE NSWC
CRANE, INDIANA

CONTRACT NUMBER 0042	
APPROVED BY R. CLARK	DATE 4/7/05
APPROVED BY	DATE
DRAWING NO. FIGURE 3	REV D

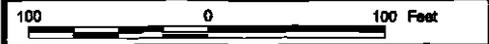


092W/8D06	
Surface Water	
gamma-Chlordane	ND
alpha-Chlordane	ND
DDE	ND
DDD	ND
DDT	0.0058 J
Sediment	(Sample / Duplicate)
DDD	110 J / 61 J
DDE	41 / 26 J
alpha-Chlordane	56 J / 15 J
Endosulfan I	1.7 0J / 5.8 J
gamma-Chlordane	76 J / 18 J
DDT	250 J / 340

Legend

- Surface Water/Sediment Location
- SWMU Boundary
- Building
- Road
- Railroad
- Stream/River
- Tree Line
- Topographic Contour
- ND Nondetect

Notes:
 1. Sediment concentrations are in ug/kg.
 2. Building 2454 was former location of Bldg 65.

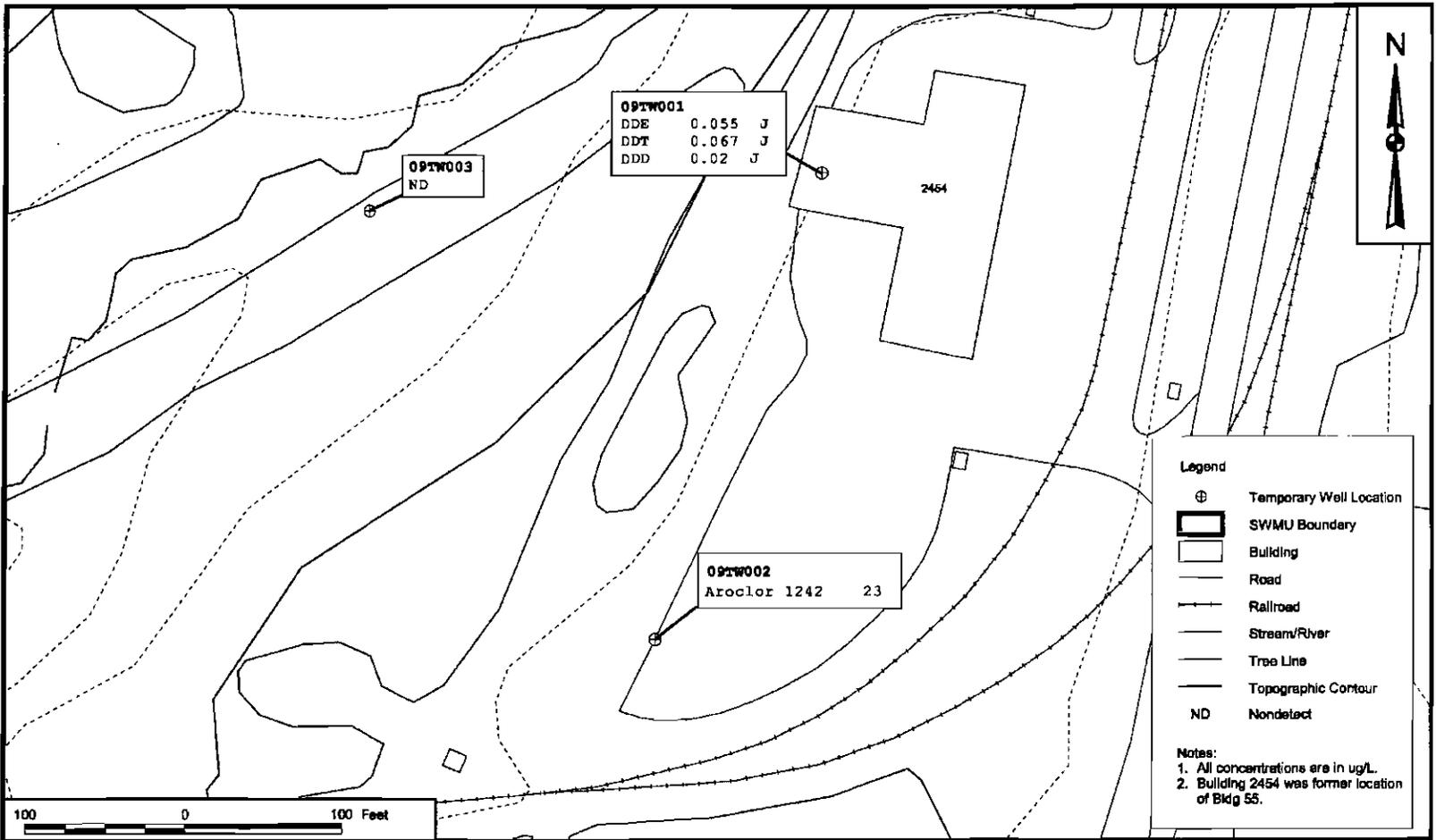


DRAWN BY	DATE
C. FORTER	4/7/06
CHECKED BY	DATE
R. CLARK	4/7/06
CONT/SCHEDULE-AREA	
SCALE AS NOTED	



SURFACE WATER AND SEDIMENT SAMPLE LOCATION
SWMU 9 PESTICIDE CONTROL AREA
BUILDING 55
CRANE NSWC
CRANE, INDIANA

CONTRACT NUMBER	
0042	
APPROVED BY	DATE
R. CLARK	4/7/06
APPROVED BY	DATE
DRAWING NO.	REV
FIGURE 4	0

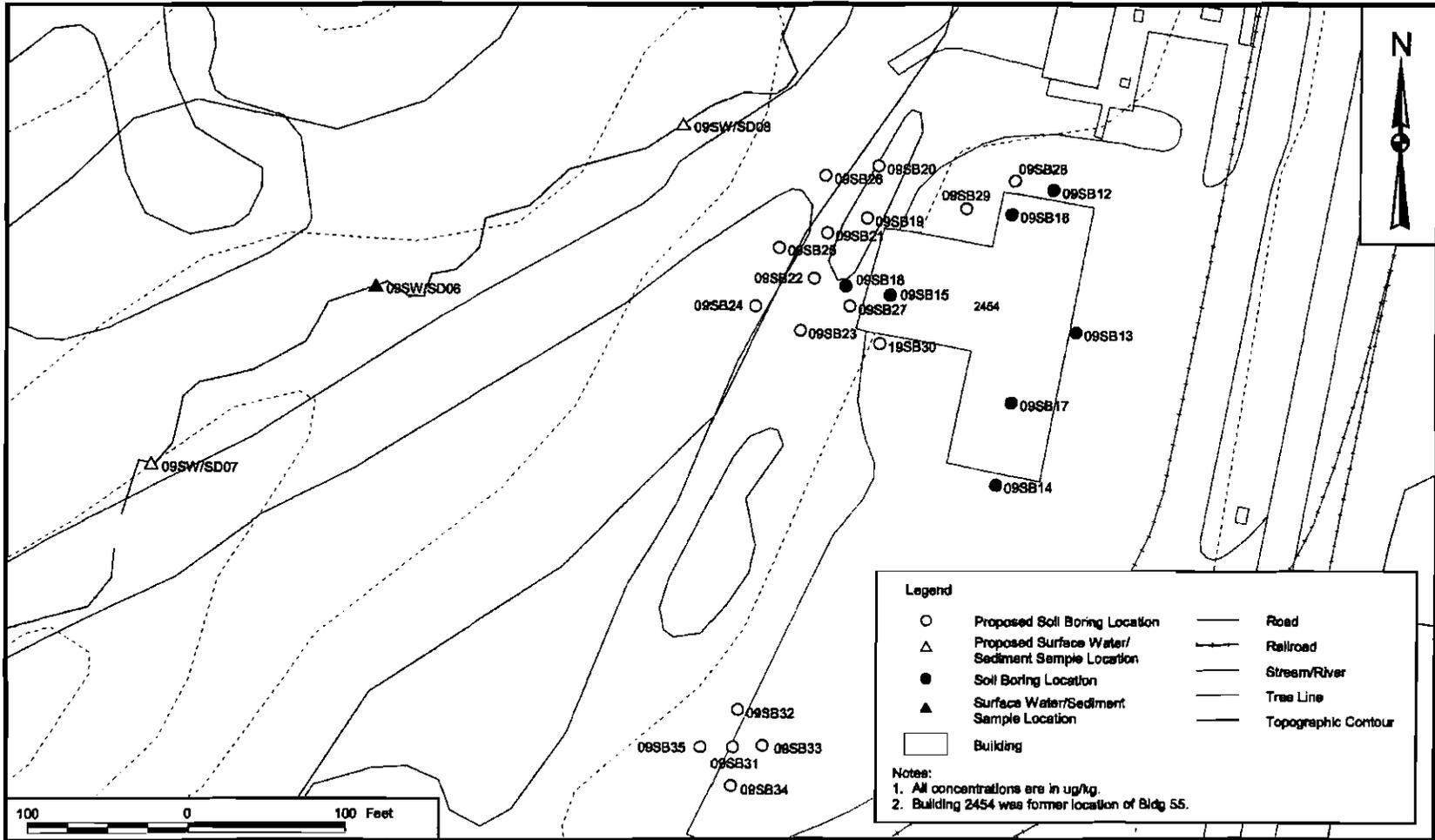


DRAWN BY	DATE
C. FOSTER	4/7/05
CHECKED BY	DATE
R. CLARK	4/7/05
COST/SCHEDULE-AREA	
SCALE AS NOTED	



TEMPORARY WELL LOCATIONS
SWMU 9 PESTICIDE CONTROL AREA
BUILDING 55
CRANE NSWC
CRANE, INDIANA

CONTRACT NUMBER 0042	
APPROVED BY R. CLARK	DATE 4/7/05
APPROVED BY	DATE
DRAWING NO. FIGURE 5	REV 0



DRAWN BY C. FOSTER	DATE 4/22/05
CHECKED BY R. CLARK	DATE 5/6/05
COST/SCHEDULE-AREA	
SCALE AS NOTED	



PROPOSED SAMPLE LOCATIONS
SWMU 9 PESTICIDE CONTROL AREA
BUILDING 55
CRANE NSW
CRANE, INDIANA

CONTRACT NUMBER 0042	
APPROVED BY R. CLARK	DATE 5/6/05
APPROVED BY	DATE
DRAWING NO. FIGURE 6	REV 0

TABLE 1
 CTO 376 SWMU 9 PESTICIDE CONTROL AREA
 WORK PLAN ADDENDUM PHASE 2
 SAMPLING PLAN

LOCATION	MATRIX	DEPTH	SAMPLE ID	ANALYTICAL PEST/PCBs	TSS	HARDNESS	TOC	Ph	CEC
09SB18	SOIL	2 TO 4'	09SB180204	X			x	X	X
09SB18	SOIL	FIELD CALL	09SB18xxxx	X					
09SB19	SOIL	0 TO 2'	09SB190002	X					
09SB19	SOIL	2 TO 4'	09SB190204	X					
09SB19	SOIL	FIELD CALL	09SB19XXXX	X			X	X	X
09SB20	SOIL	0 TO 2'	09SB200002	X			x	X	X
09SB20	SOIL	2 TO 4'	09SB200204	X					
09SB20	SOIL	FIELD CALL	09SB20XXXX	X					
09SB21	SOIL	0 TO 2'	09SB210002	X					
09SB21	SOIL	2 TO 4'	09SB210204	X			X	X	X
09SB21	SOIL	FIELD CALL	09SB21XXXX	X					
09SB22	SOIL	0 TO 2'	09SB220002	X					
09SB22	SOIL	2 TO 4'	09SB220204	X					
09SB22	SOIL	FIELD CALL	09SB22XXXX	X			x	X	X
09SB23	SOIL	0 TO 2'	09SB230002	X			X	X	X
09SB23	SOIL	2 TO 4'	09SB230204	X					
09SB23	SOIL	FIELD CALL	09SB23XXXX	X					
09SB24	SOIL	0 TO 2'	09SB240002	X					
09SB24	SOIL	2 TO 4'	09SB240204	X			x	X	X
09SB24	SOIL	FIELD CALL	09SB24XXXX	X					
09SB25	SOIL	0 TO 2'	09SB250002	X					
09SB25	SOIL	2 TO 4'	09SB250204	X					
09SB25	SOIL	FIELD CALL	09SB25XXXX	X			X	X	X
09SB26	SOIL	0 TO 2'	09SB260002	X			X	X	X
09SB26	SOIL	2 TO 4'	09SB260204	X					
09SB26	SOIL	FIELD CALL	09SB26XXXX	X					
09SB27	SOIL	0 TO 2'	09SB270002	X					
09SB27	SOIL	2 TO 4'	09SB270204	X			x	X	X
09SB27	SOIL	FIELD CALL	09SB27XXXX	X					
09SB28	SOIL	0 TO 2'	09SB280002	X					
09SB28	SOIL	2 TO 4'	09SB280204	X					
09SB28	SOIL	FIELD CALL	09SB28XXXX	X			x	X	X
09SB29	SOIL	0 TO 2'	09SB290002	X			x	X	X
09SB29	SOIL	2 TO 4'	09SB290204	X					
09SB29	SOIL	FIELD CALL	09SB29XXXX	X					
09SB30	SOIL	0 TO 2'	09SB300002	X					
09SB30	SOIL	2 TO 4'	09SB300204	X			x	X	X

TABLE 1
 CTO 376 SWMU 9 PESTICIDE CONTROL AREA
 WORK PLAN ADDENDUM PHASE 2
 SAMPLING PLAN

09SB30	SOIL	FIELD CALL	09SB30XXXX	X				
09SB31	SOIL	0 TO 2'	09SB310002	COLLECT AND HOLD				
09SB31	SOIL	2 TO 4'	09SB310204	COLLECT AND HOLD				
09SB31	SOIL	FIELD CALL	09SB31XXXX	COLLECT AND HOLD				
09SB32	SOIL	0 TO 2'	09SB320002	COLLECT AND HOLD				
09SB32	SOIL	2 TO 4'	09SB320204	COLLECT AND HOLD				
09SB32	SOIL	FIELD CALL	09SB32XXXX	COLLECT AND HOLD				
09SB33	SOIL	0 TO 2'	09SB330002	COLLECT AND HOLD				
09SB33	SOIL	2 TO 4'	09SB330204	COLLECT AND HOLD				
09SB33	SOIL	FIELD CALL	09SB33XXXX	COLLECT AND HOLD				
09SB34	SOIL	0 TO 2'	09SB340002	COLLECT AND HOLD				
09SB34	SOIL	2 TO 4'	09SB340204	COLLECT AND HOLD				
09SB34	SOIL	FIELD CALL	09SB34XXXX	COLLECT AND HOLD				
09SB35	SOIL	0 TO 2'	09SB350002	COLLECT AND HOLD				
09SB35	SOIL	2 TO 4'	09SB350204	COLLECT AND HOLD				
09SB35	SOIL	FIELD CALL	09SB35XXXX	COLLECT AND HOLD				
09TW04(1)	GW	PERCHED	09GWTW004	X				
09TW05(1)	GW	PERCHED	09GWTW005	X				
09TW06(1)	GW	PERCHED	09GWTW006	X				
09TW07(2)	GW	PERCHED	09GWTW007	X				
09TW08(2)	GW	PERCHED	09GWTW008	X				
09TW09(2)	GW	PERCHED	09GWTW009	X				
09TW10(2)	GW	PERCHED	09GWTW010	X				
09TW11(2)	GW	PERCHED	09GWTW011	X				
09SW07	SW	GRAB	09SW0701	X	X	X		
09SW08	SW	GRAB	09SW0801	X	X	X		
09SD07	SD	0 TO 6"	09SD070007	X			X	
09SD08	SD	1 TO 6"	09SD080008	X			X	
<p>(1) Of the borings SB18 through SB27, a perched water sample will be collected and analyzed from not more than three boring locations if water is encountered. Ideally, these should be downgradient of SB18.</p> <p>(2) Assuming that perched water is encountered, samples will be collected at these locations that correlate to SB31 to SB35.</p>								