

GWI 6119 & 7188



**CORRECTIVE ACTION PLAN
BY AIR SPARGING**

**STRAWBERRY ROAD SITE
7105 STRAWBERRY ROAD
GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER INCIDENT NO. 6119 & 7188
PRIORITY RANKING B/170 AND B/205
S&ME PROJECT NO. 1584-97-022**

Prepared For:

Guilford County
Planning and Development Department
201 South Eugene Street
Greensboro, North Carolina 27301

Prepared By:

S&ME, Inc.
3718 Old Battleground Road
Greensboro, North Carolina 27410



M. Reid Beebe, III
M. Reid Beebe, III, PE
Project Manager

Wayne H. Watterson
Wayne H. Watterson, PE
Environmental Department Manager

May, 1997

EXECUTIVE SUMMARY

S&ME, Inc. has completed a Corrective Action Plan (CAP) for the Strawberry Road site at 7105 Strawberry Road in Guilford County, North Carolina. The CAP outlines a procedure to remediate soil and groundwater at the site affected by the release of petroleum hydrocarbons into the subsurface. Based on our review of available records for the site, petroleum hydrocarbons were identified at Simpson's Auto Parts in late 1990 and at U-Fill'er-Up in March 1991 during respective environmental assessments.

According to available files at the Guilford County Department of Public Health, all underground storage tanks (UST's) have been removed from the site. Total petroleum hydrocarbon (TPH) contamination in the gasoline and diesel range has been identified in the soil in excess of the "Groundwater Section Guideline for the Investigation and Remediation of Soils and Groundwater" established by the North Carolina Department of Environmental Health and Natural Resources (NCDEHNR). The following groundwater constituents have been identified at concentrations which exceed the limits established by Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 2L: 1,2 dichloroethane, methyl tert-butyl ether (MTBE), benzene, toluene, ethyl benzene, xylenes, and lead.

S&ME has therefore completed this CAP on behalf of Guilford County. The CAP recommends remediation by in-situ air sparging. The recommended air sparging will be performed with a permanent on-site system consisting primarily of a compressor and a network of air sparge wells.

Operation of the remediation system is anticipated to continue until the clean up goals have been achieved.

1.0 INTRODUCTION

1.1 GENERAL SITE INFORMATION

This report presents a Corrective Action Plan (CAP) to remediate soil and groundwater at the Strawberry Road site at 7105 Strawberry Road in Guilford County, North Carolina which has been affected by the release of petroleum hydrocarbons into the subsurface. The referenced Strawberry Road site is a combination of two leaking Underground Storage Tank (UST) sites which were formerly addressed as the U-Fill'er-Up site and the Simpson's Auto Parts site. Contamination at the site resulted from the release of petroleum products from gasoline underground storage tank (UST) systems. The release at the Simpson's Auto Parts site was first detected in November of 1990 (Incident # 6119, Priority Ranking B/170) during an environmental investigation. The release was first detected at the U-Fill'er-Up site in March of 1991 (Incident # 7188, Priority Ranking B/205) during an environmental assessment of the site. **Figure 1** (7.5 Minute USGS Quad Map) and **Figure 2** (County Road Map) show the location of the site. **Figure 3** presents a Site Base Map which displays pertinent site features. The property is owned by Guilford County and the City of Greensboro.

1.2 PURPOSE

The purpose of this CAP is to respond to a Notice of Violation (NOV) of the North Carolina Administrative Code (NCAC) Title 15A Subchapter 2L issued by the North Carolina Department of Environment, Health and Natural Resources (NCDEHNR) for the petroleum hydrocarbon release at the site. The most recent NOV for the U-Fill'er-Up site and the Simpson's Auto Parts site was issued on February 10, 1995.

The cause of the releases from the UST systems is unknown.

The following substances have been identified in the groundwater above the allowable limit established in the NCAC Title 15A Subchapter 2L (2L standard) with the highest known concentration, in micrograms per liter ($\mu\text{g/l}$), shown in parentheses: lead (745); 1,2-dichloroethane (780); benzene (19,000); toluene (36,000); ethylbenzene (3,100); xylenes (16,000); and MTBE (2,700).

Laboratory analysis of soil samples indicated that Total Petroleum Hydrocarbon (TPH) concentrations exceed the concentrations in the NCDEHNR "Groundwater Section Guidelines for the Investigation and Remediation of Soils and Groundwater". The highest known concentrations, in milligrams per kilogram (mg/kg) are as follows: Method 5030 - 6,800 mg/kg; Method 3550 - 1,730 mg/kg.

Groundwater at the site is presumed to be GA quality based on local usage of the groundwater as a drinking water supply. Groundwater classified as GA, according to definitions given in the 2L standard, is considered to be an existing or potential drinking water supply for humans. GA groundwaters have chloride concentrations of 250 milligrams per liter or less and are considered suitable for drinking in their natural state, but may require treatment to improve quality related to natural conditions.

S&ME identified free product at the Simpson's Auto Parts site in groundwater monitoring well MW-3 (Figure 3) on March 12, 1997 while taking water level measurements in preparation for the air sparge pilot test. The thickness of the free product measured 1.79 feet with an electronic oil/water interface probe on March 12, 1997. After hand bailing the free product on March 12, 1997, the free product thickness measured 0.38 feet on March 13, 1997.

1.3 SUMMARY OF REMEDIAL AND ASSESSMENT ACTIVITIES TO DATE

SIMPSON'S AUTO PARTS SITE

- The five USTs (1 - 250 gallon fuel oil, 3 - 1,000 gallon gasoline, 1 - 2,000 gallon gasoline) were taken out of service on November 8, 1984.
- The USTs were closed by removal (**Figure 3**) in March 1990 based on a "Receiving Report" from Safeway Tank Disposal, Inc. dated March 23, 1990. The closure contractor was Bobby's Backhoe Service, Inc.
- Griffin Enterprises performed an environmental site assessment dated November 28, 1990 which identified soil and groundwater contamination.
- Turner Environmental Consultants performed a Comprehensive Site Assessment (CSA) and Corrective Action Plan (CAP) dated October 8, 1992 and January 10, 1994 respectively.

U-FILL'ER-UP SITE

- Bain, Palmer & Associates performed an environmental assessment of the site in March 1991 which identified soil and groundwater contamination.
- YWC Southeast, Inc. conducted an additional assessment of the site in July 1991.
- Pyramid Environmental, Inc. closed by removal two 6,000 gallon gasoline USTs and one 2,000 gallon kerosene UST in June 1995 (**Figure 3**).

- Following the UST closure, Pyramid Environmental, Inc. performed soil excavation and sampling in June 1995. Contaminated soil (1021.07 tons) was excavated and disposed of at Carlisle Farms, Inc. in Autryville, North Carolina.

Pyramid Environmental, Inc. also performed combination CSA and CAP reports for both sites which were dated May 17, 1996 and June 1, 1996 respectively.

1.4 PREVIOUSLY SUBMITTED REPORTS

The following reports have been previously prepared for this site according to records available in the Guilford County Department of Public Health:

- Griffen Enterprises - "Phase I Environmental Investigation for Petroleum Hydrocarbons" (Simpson's Auto Parts site) November 28, 1990
- Bain, Palmer & Associates - "Environmental Assessment of the Bryant Cummings Property" (U-Fill'er-Up site) April 23, 1991
- YWC Southeast, Inc. - "U-FILL'ER-UP Service Station Site" September 16, 1991
- Turner Environmental Consultants - "Comprehensive Site Assessment Report" (Simpson's Auto Parts site) Report Date: October 8, 1992, File Date: October 9, 1992
- Turner Environmental Consultants - "Corrective Action Plan Report" (Simpson's Auto Parts site) Report Date: January 10, 1994, File Date: January 11, 1994
- Pyramid Environmental, Inc. - "Underground Storage Tank Closure Assessment" (U-Fill'er-Up site) Report Date: June 26, 1995, File Date: July 11, 1995

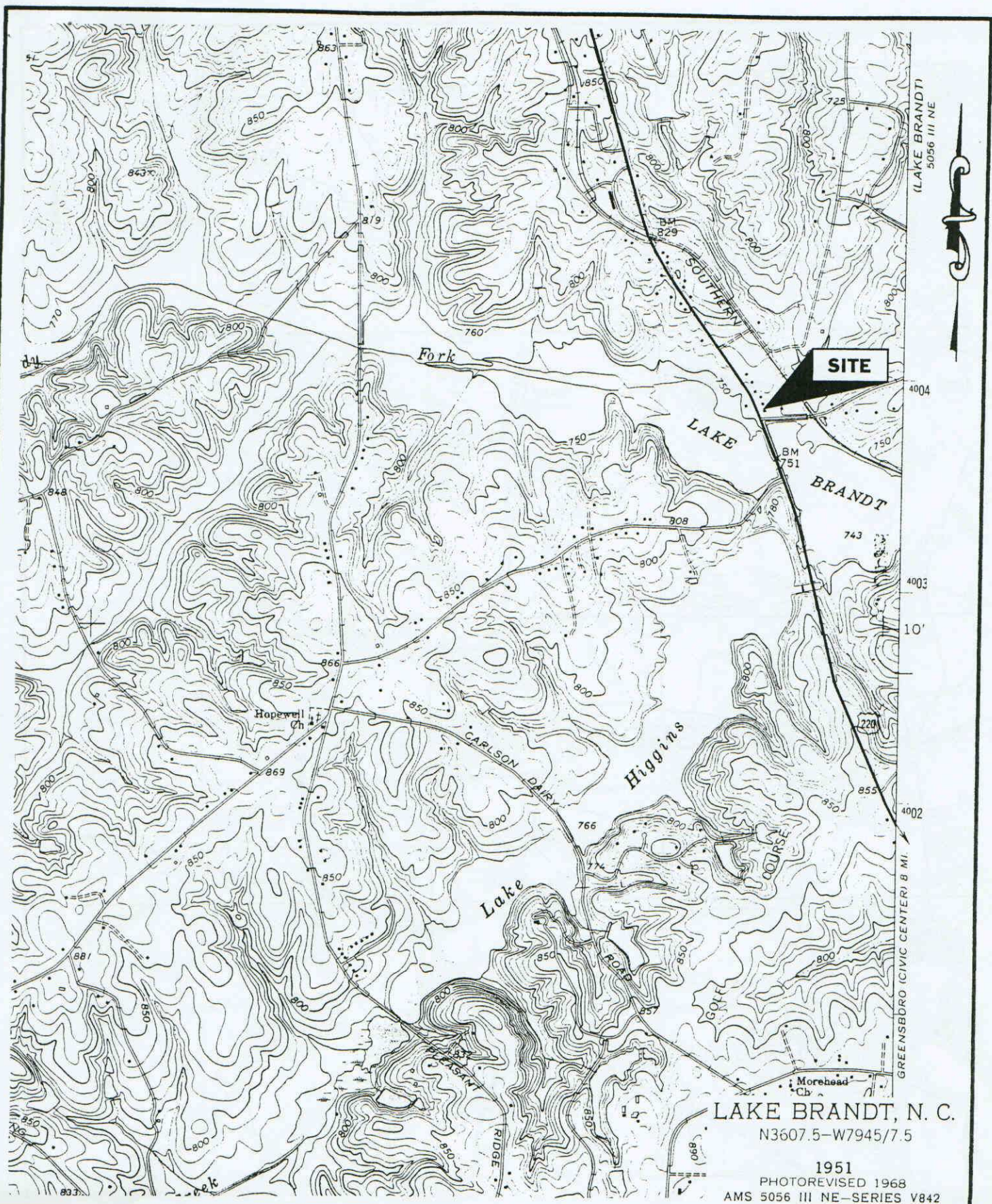
Corrective Action Plan by Air Sparging
7105 Strawberry Road, Guilford County, N.C.

S&ME Project No. 1584-97-022
May 19, 1997

- Pyramid Environmental, Inc. - "Soil Excavation and Sampling Investigation" (U-Fill'er-Up site)
Report Date: July 7, 1995, File Date: July 15, 1995
- Pyramid Environmental, Inc. - "Comprehensive Site Assessment" (Strawberry Road site) Report
Date: May 17, 1996, File Date: May 20, 1996
- Pyramid Environmental, Inc. - "Corrective Action Plan" (Strawberry Road site) Report Date: July
1, 1996, File Date: July 11, 1996

1.5 PREVIOUS PERMITS/CERTIFICATES

No remediation or discharge permits are known to have been issued for the subject site.



LAKE BRANDT, N. C.
 N3607.5-W7945/7.5

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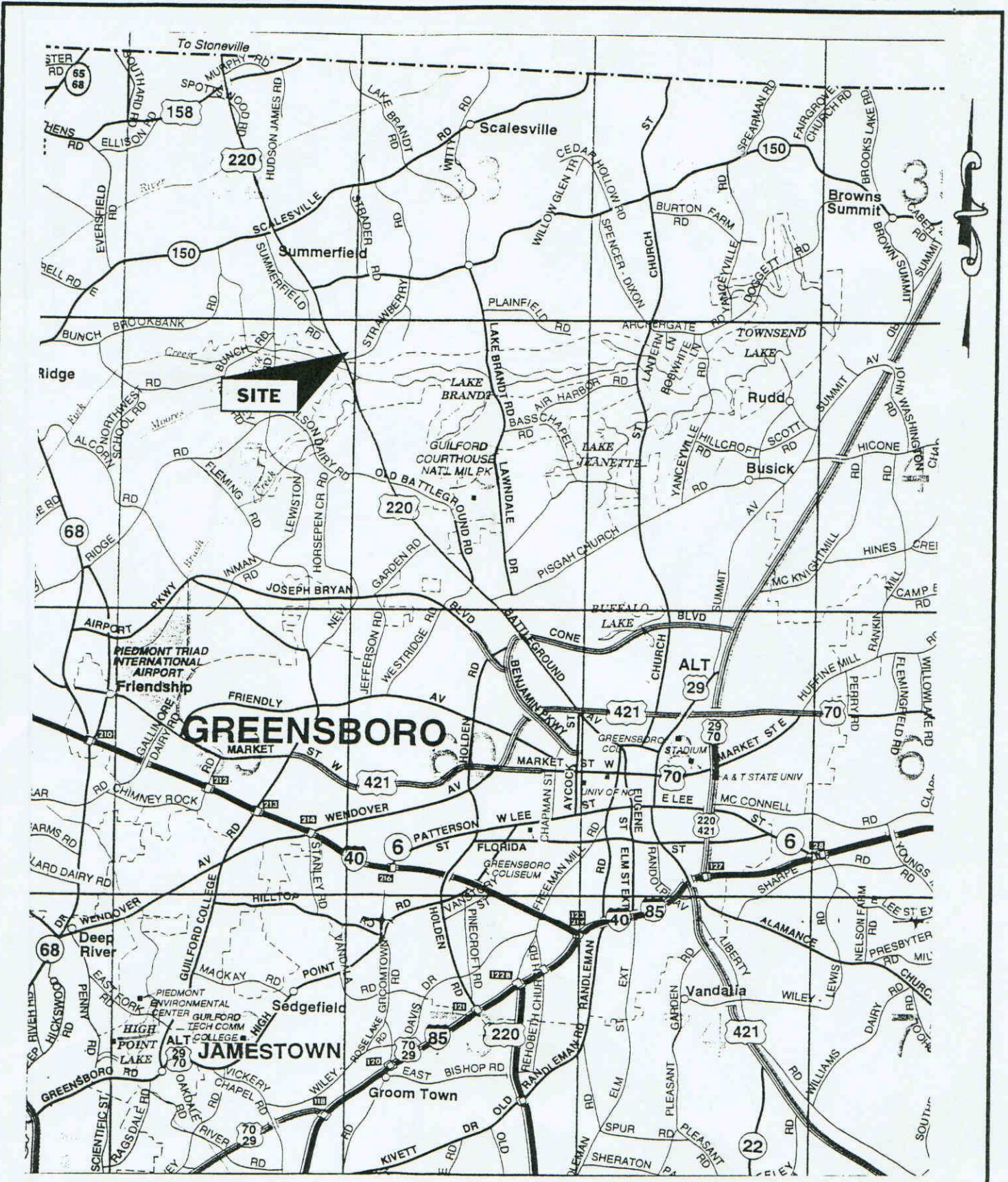
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 CHECKED BY: MRB
 DRAWN BY: RDM
 DATE: MAY, 1997



SITE VICINITY MAP
 STRAWBERRY ROAD SITE
 SUMMERFIELD, NORTH CAROLINA

JOB NO. 1584-97-022

FIGURE NO.
 1

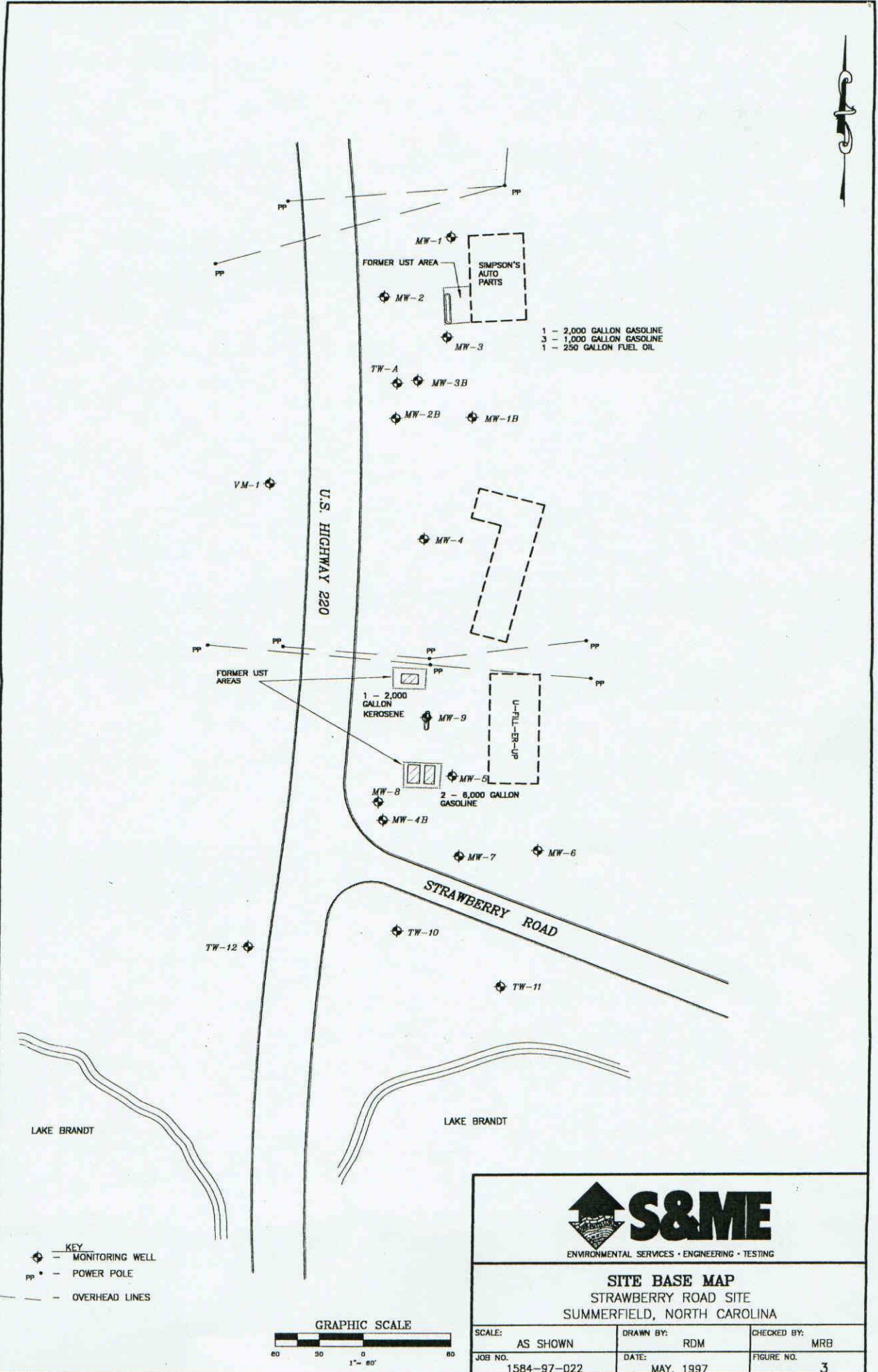


APPROXIMATE SCALE:
 1" = 3,960'
 CHECKED BY: MRB
 DRAWN BY: RDM
 DATE: MAY, 1997



COUNTY ROAD MAP
 STRAWBERRY ROAD SITE
 SUMMERFIELD, NORTH CAROLINA
 JOB NO. 1584-97-022

FIGURE NO.
 2



1 - 2,000 GALLON GASOLINE
 3 - 1,000 GALLON GASOLINE
 1 - 250 GALLON FUEL OIL

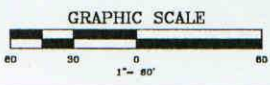
U.S. HIGHWAY 220

STRAWBERRY ROAD

LAKE BRANDT

LAKE BRANDT

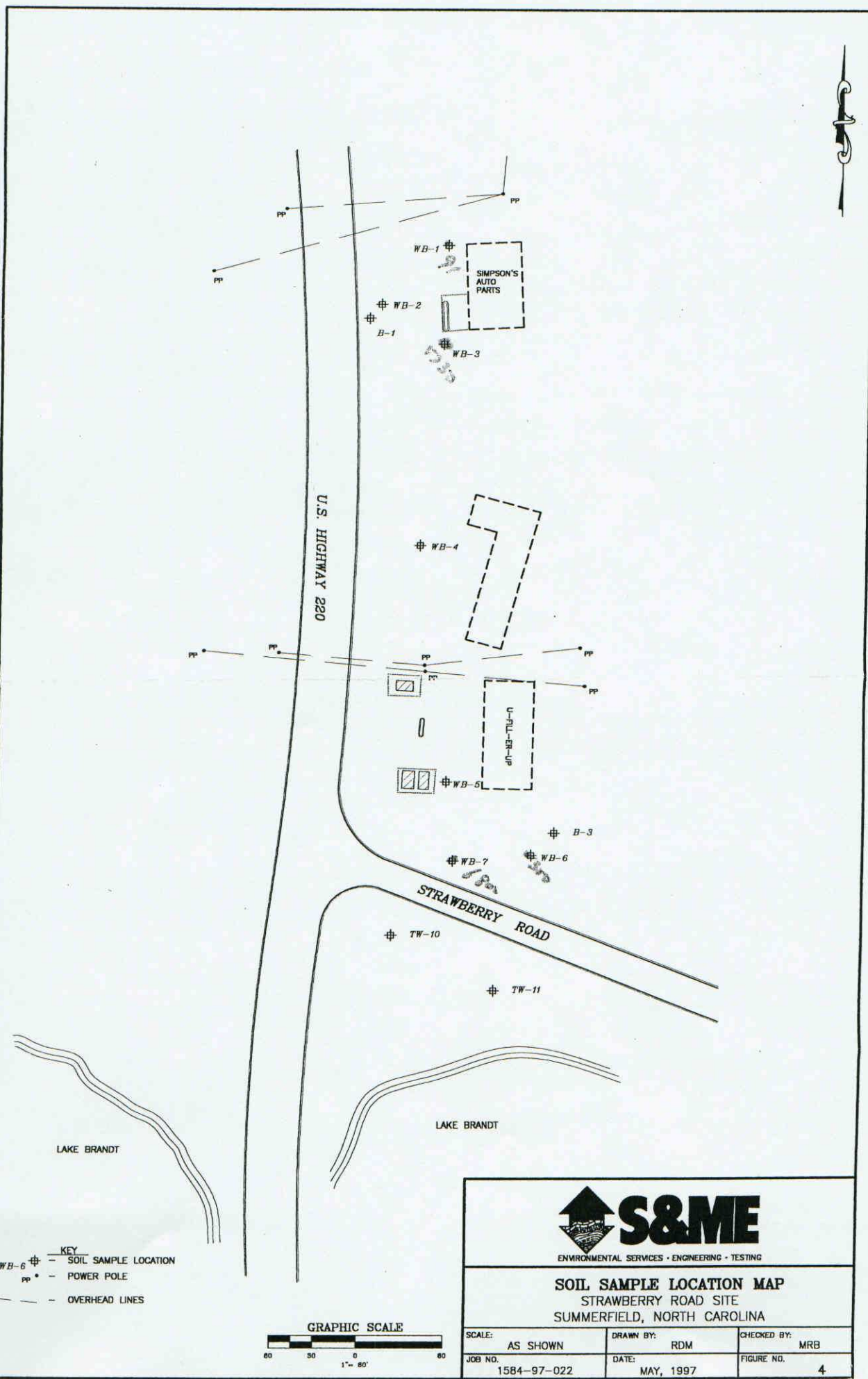
KEY
 ◆ - MONITORING WELL
 PP - POWER POLE
 --- OVERHEAD LINES



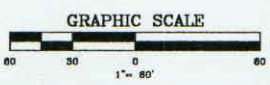
SITE BASE MAP
 STRAWBERRY ROAD SITE
 SUMMERFIELD, NORTH CAROLINA

SCALE: AS SHOWN	DRAWN BY: RDM	CHECKED BY: MRB
JOB NO. 1584-97-022	DATE: MAY, 1997	FIGURE NO. 3

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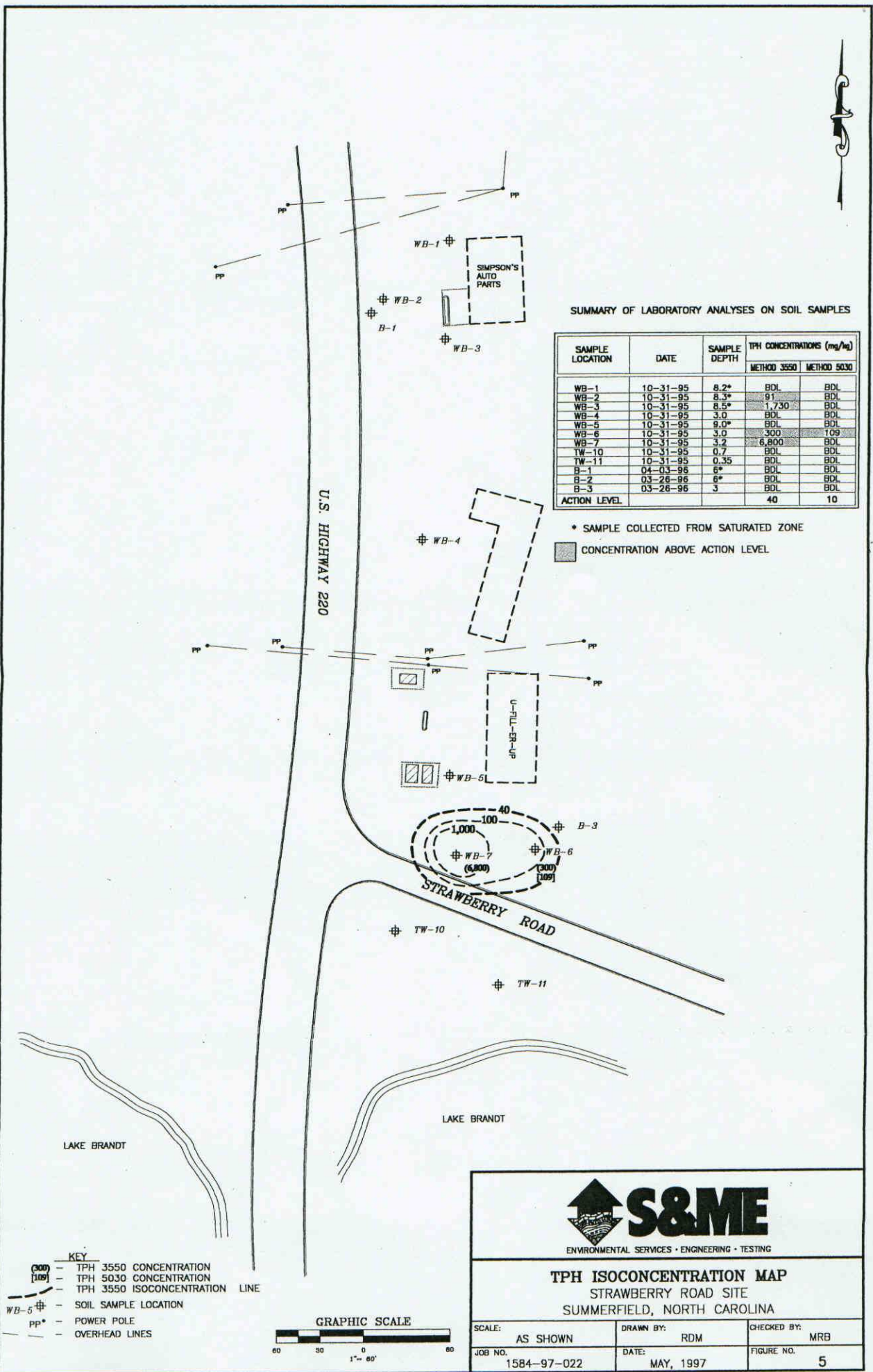
KEY
 ⊕ - SOIL SAMPLE LOCATION
 PP • - POWER POLE
 --- OVERHEAD LINES



SOIL SAMPLE LOCATION MAP
 STRAWBERRY ROAD SITE
 SUMMERFIELD, NORTH CAROLINA

SCALE: AS SHOWN	DRAWN BY: RDM	CHECKED BY: MRB
JOB NO. 1584-97-022	DATE: MAY, 1997	FIGURE NO. 4

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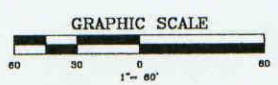


SUMMARY OF LABORATORY ANALYSES ON SOIL SAMPLES

SAMPLE LOCATION	DATE	SAMPLE DEPTH	TPH CONCENTRATIONS (mg/kg)	
			METHOD 3550	METHOD 5030
WB-1	10-31-95	8.2*	BDL	BDL
WB-2	10-31-95	8.3*	91	BDL
WB-3	10-31-95	8.5*	1,730	BDL
WB-4	10-31-95	3.0	BDL	BDL
WB-5	10-31-95	9.0*	BDL	BDL
WB-6	10-31-95	3.0	300	109
WB-7	10-31-95	3.2	6,800	BDL
TW-10	10-31-95	0.7	BDL	BDL
TW-11	10-31-95	0.35	BDL	BDL
B-1	04-03-96	6*	BDL	BDL
B-2	03-26-96	6*	BDL	BDL
B-3	03-26-96	3	BDL	BDL
ACTION LEVEL			40	10

* SAMPLE COLLECTED FROM SATURATED ZONE
 [Hatched Box] CONCENTRATION ABOVE ACTION LEVEL

KEY
 (300) - TPH 3550 CONCENTRATION
 (109) - TPH 5030 CONCENTRATION
 --- - TPH 3550 ISOCONCENTRATION LINE
 ⊕ - SOIL SAMPLE LOCATION
 PP* - POWER POLE
 --- - OVERHEAD LINES



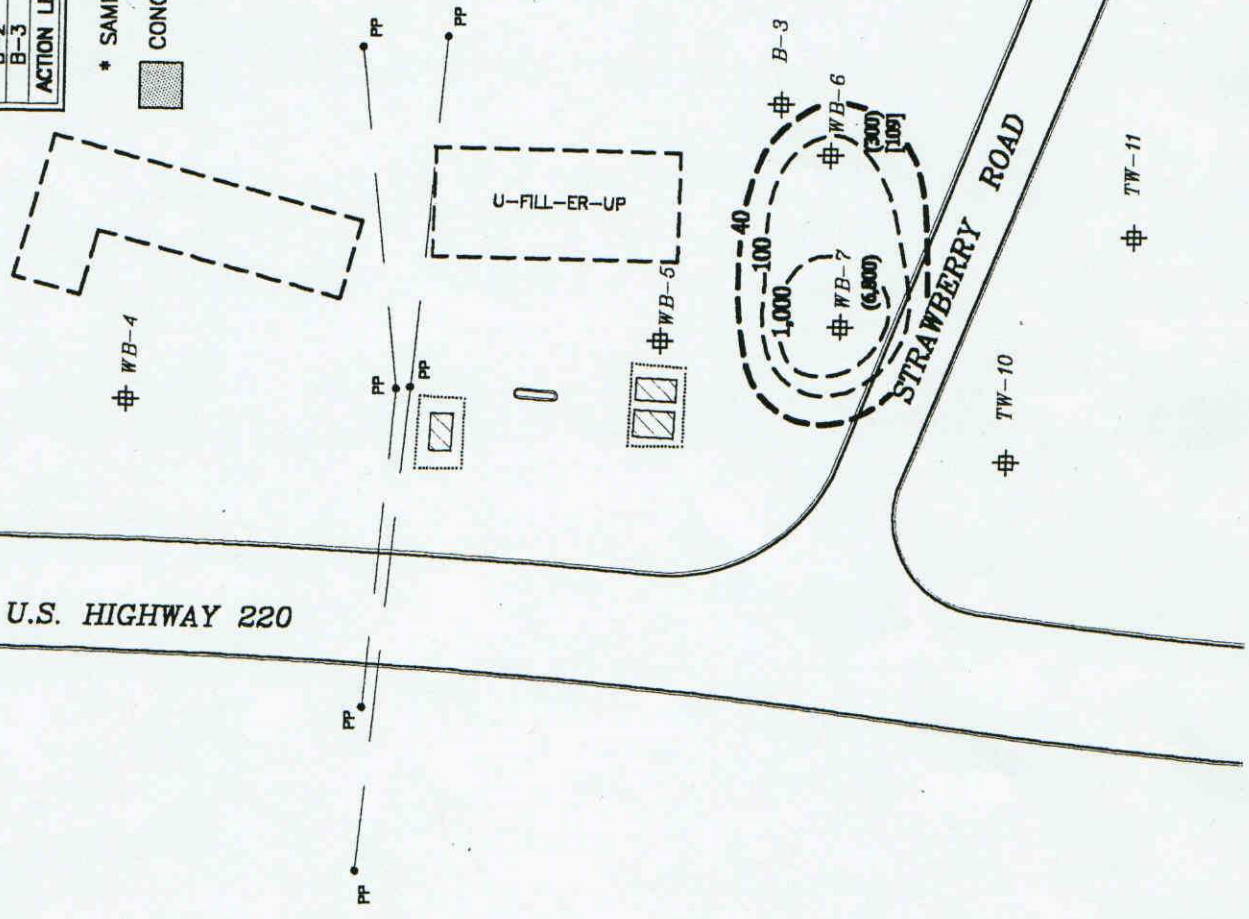
TPH ISOCONCENTRATION MAP
 STRAWBERRY ROAD SITE
 SUMMERFIELD, NORTH CAROLINA

SCALE: AS SHOWN	DRAWN BY: RDM	CHECKED BY: MRB
JOB NO. 1584-97-022	DATE: MAY, 1997	FIGURE NO. 5

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SAMPLE LOCATION	DATE	SAMPLE DEPTH	TPH CONCENTRATIONS (mg/kg)	
			METHOD 3550	METHOD 5030
WB-1	10-31-95	8.2*	BDL	BDL
WB-2	10-31-95	8.3*	BDL	BDL
WB-3	10-31-95	8.5*	91	BDL
WB-4	10-31-95	3.0	1,730	BDL
WB-5	10-31-95	9.0*	BDL	BDL
WB-6	10-31-95	3.0	BDL	BDL
WB-7	10-31-95	3.0	500	109
TW-10	10-31-95	3.2	6,800	BDL
TW-11	10-31-95	0.7	BDL	BDL
B-1	04-03-96	0.35	BDL	BDL
B-2	03-26-86	6*	BDL	BDL
B-3	03-26-86	6*	BDL	BDL
ACTION LEVEL		3	40	10

* SAMPLE COLLECTED FROM SATURATED ZONE
 CONCENTRATION ABOVE ACTION LEVEL



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