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May 13, 2003

NC Department of Transportation
Geotechnical Unit
Geoenvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589

Attention Mr. Cyrus F. Parker

Re: Preliminary Site Assessment
Webster Medlin Property (Parcel #44)
State Project 8.1661001 (R-2533CA)
Near Mt. Pleasant, North Carolina
H&H Project ROW-003

Dear Cyrus:

1.0 Introduction

This letter summarizes Hart & Hickman's (H&H) Preliminary Site Assessment (PSA) of environmental soil conditions at the Medlin property, a former gas station located at 7600 NC Highway 49 in Mount Pleasant, North Carolina and this site is also known as Parcel # 44. This work was conducted in accordance with H&H's March 13, 2003 proposal and the North Carolina Department of Transportation's (DOT) March 17, 2003 Notice to Proceed. This work conducted concurrently with PSAs on a total of six properties along the rights-of-way associated with the proposed widening of NC 49 near the town of Mount Pleasant, North Carolina.

The PSA at the Medlin property was conducted to determine if existing subsurface impacted by petroleum hydrocarbons due to historical operations at the abandoned service station, specifically in areas near former product dispensers, product lines, or underground storage tanks (USTs).

2.0 Background

The site is a former gas station owned by Medlin & Medlin Associates and is now vacant. It is located in the southeastern quadrant of the intersection of Highways NC 49 and NC 73 in Mount Pleasant, North Carolina. The property address is 7600 NC Highway 49. According to figures and site maps provided to H&H by DOT, the entire parcel is located within the proposed right-of-way of NC 49. A site location map excerpted from the United States Geological Survey topographic map is provided as Figure 1 A site layout is included as Figure 2. Site photographs are presented in Appendix A.

According to the property owner's son, Mr. Steve Medlin, the site formerly contained two or three USTs that were removed many years ago with no indication of a release. At the time of site activities conducted by H&H, the gas station building was vacant and there were no existing dispensers, dispenser islands, or ASTs observed on the site property. H&H reviewed the North Carolina Department of Environment and Natural Resources (DENR) databases and files, and did not find any records associated with this site. Additionally, H&H observed no indications of present or previous USTs (i.e., vent pipes, fill ports, etc.). H&H did observe an area within the asphalt drive that appears to have been the location of the former dispenser island.

Schnabel Engineering Associates, Inc. (Schnabel), a DOT contractor, conducted a geophysical survey at the site prior to H&H's field activities. Schnabel indicated that the geophysical data did not provide evidence of any underground storage tanks (USTs) or other buried items of potential environmental concern at the site. However, there was potential geophysical interference due to steel-reinforced concrete underlying the asphalt drive area, which may have obstructed geophysical determination of underlying USTs.

3.0 Sample Collection and Results

In general, H&H used the information prepared by Schnabel, along with independent observations and background evaluation, to locate borings in areas most likely to be impacted by site operations. Schnabel established an x and y metric coordinate grid as reference for the geophysical activities (Figure 2).

Field Activities

On April 21, 2003, H&H advanced ten borings at the site and collected soil samples using a direct push technology (DPT) rig at the locations indicated on Figure 2. Three borings (44-1, 44-2 and 44-3) were advanced in the immediate vicinity of the former dispenser island. The other borings were advanced to horizontally delineate suspected impacts surrounding the former dispenser island, or were exploratory in nature and placed in areas likely to have previously contained the site USTs based on site layout. Soil borings were advanced to depths up to 3.7 meters (12 ft) below ground surface (bgs) except where refusal was encountered. Ground water was not encountered in any of the borings during advancement. H&H encountered no indication of current USTs or dispenser lines at the site.

During boring advancement, soils were evaluated for the presence of staining, odors, and elevated organic vapor analyzer (OVA) readings. OVA readings were measured using a photo ionization detector (PID). Soils were selected for further laboratory analyses based on evidence of stains, odors, and/or PID readings. If no indicators of impact were noted, the samples for laboratory analysis were selected based on the soil depths most likely to be impacted (ex. dispenser line depth or estimated bottom of USTs, etc.).

Samples Collected

A total of seven samples from the borings were submitted to the DOT contract laboratory for chemical analysis. One sample from borings 44-1, 44-3, 44-4, 44-5, and 44-6, and two samples (one near surface and one deeper) from boring 44-2 were submitted. No samples were submitted from borings 44-7 through 44-10 because no elevated PID readings, stains, or odors were noted within soils from these borings. Table indicates boring information and sampling depths. Each submitted sample was analyzed for total petroleum hydrocarbons in the gasoline range (TPH-GRO) and total petroleum hydrocarbons in the diesel range (TPH-DRO) by EPA Methods 5030 and 3550, respectively.

Soil samples for laboratory analyses were placed in laboratory-provided containers, labeled (including sample identification, depth, analyses requested, date and time of collection), placed on ice in a cooler, and hand-delivered to Prism Laboratories, Inc. (Prism), a North Carolina certified laboratory, for analysis. Samples were submitted using chain-of-custody protocol. Individual laboratory analytical data sheets and chain-of-custody documentation are included in Appendix B

Results

Analytical results are summarized in Table 1 and laboratory reports are provided in Appendix B. Target analytes were detected in two samples collected in the vicinity of the former dispenser island from borings 44-2 and 44-3. No target analytes were detected in the remaining samples.

The near surface sample submitted from boring 44-2 at 1 to 4 ft below ground surface (bgs) contained 53 mg/kg TPH-GRO and 110 mg/kg TPH-DRO. This sample had an elevated PID reading of 52.1 parts per million (ppm) and the presence of petroleum odors. No staining or petroleum odors were observed in the soils below this sample. The sample from 2.4 to 3.3

meters (8-10 ft) at boring 44-2 did not contain TPH-GRO or TPH-DRO above their respective laboratory method detection limits. PID readings were approximately 10 ppm in soils at the bottom of the boring (depth of 3.6 meters (12 ft) bgs). Therefore it is suspected that petroleum hydrocarbons are present from the surface to 1.2 meters (4 ft).

The near surface sample collected from 0.3 to 1.2 meters (1 to 4 ft) bgs at boring 44-3 and contained 600 mg/kg TPH-GRO and 390 mg/kg TPH-DRO. This sample had an elevated PID reading of 60.2 ppm and petroleum odors. No staining or petroleum odors were observed in soil samples below 1.2 meters. PID readings from deeper soils dropped with depth from 15.8 ppm at 1.2 to 1.8 meters (4 to 6 ft) bgs to 6.9 ppm at 1.8 to 2.1 meters (6 to 7 ft) bgs. Refusal was encountered at a depth of 2.1 meters (7 ft) in this boring.

Based on field observations, PID readings, and the results of the laboratory analyses, it appears petroleum-impacted soils are present in the near surface soils only, at a depth of 0.3 to 1.2 meters (1 to 4 ft) bgs in the central and western portion of the former dispenser island. This interval corresponds with typical depths of dispenser lines.

4.0 Summary

H&H advanced a total of ten soil borings at the site. These borings were located in the area of a former dispenser island and at locations suspected to formerly have contained product lines, USTs or ASTS. Based on field indications, H&H submitted seven soil samples to Prism Laboratories for analysis of TPH-GRO and TPH-DRO.

Petroleum hydrocarbons were detected in the near surface soils, 0.3 to 1.2 meters (1 to 4 ft) at the approximate center (boring 44-2) and in the western portion (boring 44-3) of the former

dispenser island. Since TPH-GRO or TPH-DRO was not detected in borings surrounding the former dispenser island, it appears the boring locations sufficiently delineate the soils containing petroleum-related hydrocarbons.

H&H estimates the area of soils containing petroleum-impacted soils be approximately 12 meters (39 ft) long by 5 meters (16 ft) wide and 1.5 meters (5 ft) deep (Figure 2). The total estimated volume of soils containing petroleum-related hydrocarbons is 90 m^3 (approximately 120 yds^3 or 180 tons).

Please contact us if you have any questions or require further assistance.

Sincerely,

Hart & Hickman, PC

Michael S. Crouch, PG, PE
Project Manager

Attachments

Table 1
Summary of Soil Analytical Results
Webster Medlin Property (Parcel #44)
Mt. Pleasant, North Carolina
H&H Job No. ROW-003

Boring ID	Sample Depth (ft)	Sample Date	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Reason Submitted to Laboratory for Analysis
44-1	2 - 4	4/21/03	<1.0	<10	Interval with highest PID reading
44-2	1 - 4*	4/21/03	53	110	Interval with highest PID reading & slight odors
	8 - 10	4/21/03	<1.0	<10	Interval with highest PID reading below 1 - 4 ft depth
44-3	1 - 4*	4/21/03	600	390	Interval with highest PID reading & slight odors. Refusal @ 7 ft
44-4	2 - 4	4/21/03	<1.0	<10	Interval with highest PID reading
44-5	2 - 4	4/21/03	<1.0	<10	Interval with highest PID reading
44-6	6 - 8	4/21/03	<1.0	<10	Interval with highest PID reading
44-7	No sample submitted to laboratory. Highest PID reading was at or near background concentrations, no stains or odors observed				
44-8	No sample submitted to laboratory. Highest PID reading was at or near background concentrations, no stains or odors observed				
44-9	No sample submitted to laboratory. Highest PID reading was at or near background concentrations, no stains or odors observed				
44-10	No sample submitted to laboratory. Highest PID reading was at or near background concentrations, no stains or odors observed				

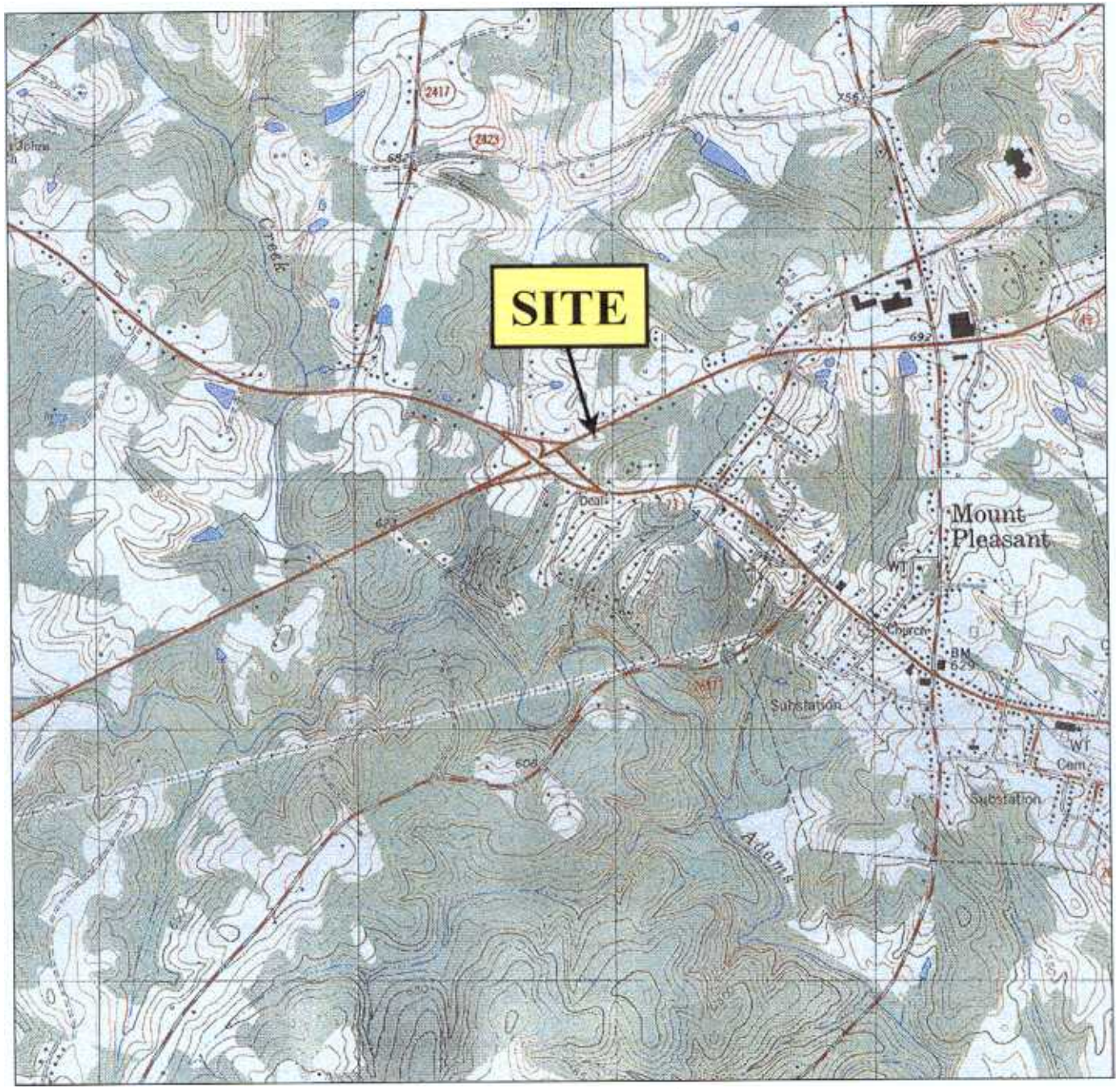
Note:

TPH-GRO = total petroleum hydrocarbons - gasoline range organics by EPA Method 5030

TPH-DRO = total petroleum hydrocarbons - diesel range organics by EPA Method 3550

*Sample 44-2 and 44-3 collected from 1 to 4 ft interval due to limited sample recovery from 0 to 2 ft interval. (0 to 2 ft interval highest PID)

PID = photoionization detector; mg/kg = milligrams per kilogram



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APPROXIMATE

0 2000 4000

SCALE IN FEET

U.S.G.S. QUADRANGLE MAP

MT. PLEASANT, NC 1980

QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE	SITE LOCATION MAP
PROJECT	WEBSTER MEDLIN PROPERTY (Parcel # 44) MT. PLEASANT, NORTH CAROLINA

Hart & Hickman
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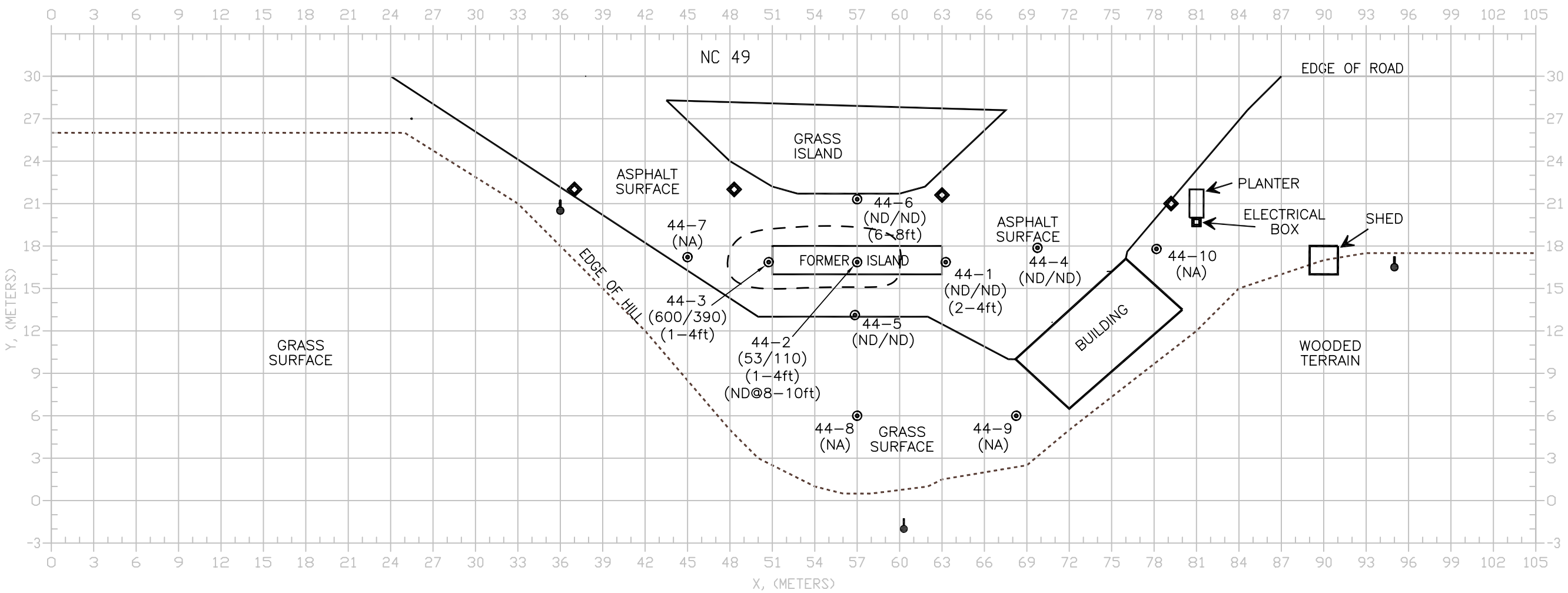
Charlotte, North Carolina 28217
(704)-586-0007 (704)-586-0373 fax

DATE:	4-30-03	REVISION NO:	0
JOB NO:	ROW-003	FIGURE NO:	1



LEGEND

	UTILITY POLE
	PROTECTIVE POLES
44-1	BORING LOCATION
(10/5)	TPH-GRO/TPH-DRO CONCENTRATION IN MILLIGRAMS PER KILOGRAMS
ND	NOT DETECTED ABOVE LABORATORY DETECTION LIMIT
NA	NOT ANALYZED
(1-2ft)	DEPTH OF SAMPLE
TPH-GRO	TOTAL PETROLEUM HYDROCARBONS IN GASOLINE RANGE
TPH-DRO	TOTAL PETROLEUM HYDROCARBONS IN DIESEL RANGE
	ESTIMATED AREA CONTAINING PETROLEUM HYDROCARBONS

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APPROXIMATE
0 8 16
SCALE IN METERS

NOTES:
1. ENTIRE PROPERTY WITHIN RIGHT-OF-WAY LIMITS
2. BASE MAP MODIFIED FROM FIGURE BY SCHNABEL ENGINEERING ASSOCIATES, INC. (APRIL 2003)

TITLE
SITE LAYOUT WITH BORING LOCATIONS

PROJECT
WEBSTER MEDLIN PROPERTY – PARCEL #44
MOUNT PLEASANT, NORTH CAROLINA

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DATE: 5-13-03	REVISION NO. 0
JOB NO: ROW-003	FIGURE NO. 2

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