

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  
Gatha Austin Property (Parcel #26)  
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 Mount Pleasant Auto Mechanic Paint & Body located at 7337 NC Highway 49 in Mount Pleasant, North Carolina. The site is also known as Parcel # 26 (Gatha Austin property). This work was conducted in accordance with H&H's March 13, 2003 proposal and your the North Carolina Department of Transportation's (DOT) March 17, 2003 Notice to Proceed. This work was 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 site was conducted to determine if existing subsurface soil is impacted by petroleum hydrocarbons due to historical operations, specifically in areas near product dispensers, product lines, aboveground tanks (ASTs), or underground storage tanks (USTs).

## 2.0 Background

The Mount Pleasant Auto Mechanic Paint & Body is an operational facility located in the northwestern quadrant of the intersection of highways NC 49 and NC 73 in Mount Pleasant, North Carolina. The property address is 7337 NC Highway 49. According to figures and site maps provided to H&H, the entire parcel is located within the proposed right-of-way boundary of NC 49. A site location map excerpted from the United States Geological Survey topographic map is provided as Figure 1. A site layout indicating site features is included as Figure 2 and site photographs are included in Appendix A.

According to the property owner, Mr. Gatha Austin, the identified UST is an approximate 550-gallon heating oil tank installed 35 to 45 years ago that has since been filled with sand. H&H also noted two approximate 550-gallon unused above ground storage tanks (ASTs) located on the west side of the building in the area of the UST as indicated on Figure 2. 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.

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 provide evidence of the underground storage tank (UST) located approximately 2.4 meters (8 ft) west of the building and buried approximately 0.74 meters below ground surface (bgs). Based on the reported 550-gallon capacity, and the depth below ground surface to the top of UST, the base of the UST is estimated at approximately 2 meters (6.5 ft) bgs.

No other buried items of potential environmental concern were identified at the site during the geophysical survey, however the northern half of the site could not be surveyed due to the presence of inoperable vehicles.

### 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 six borings at the site and collected soil samples using a direct push technology (DPT) rig at the locations indicated on Figure 2 and 3. The borings were advanced in the vicinity of the UST and two approximately 550-gallon ASTs. Figure 3 is an enlarged detail of the site map and indicates the boring locations as well as the locations of the UST and ASTs. Borings 26-1 through 26-4 were advanced around the perimeter of the UST. Borings 26-5 and 26-6 were advanced to horizontally delineate potential impacts suspected in soils from borings 26-1 and 26-4, and to evaluate the soils in the vicinity of the two adjacent ASTs. Each boring was advanced to approximately 2.4 meters (8 ft) bgs, which is anticipated to be below the base of the UST. Ground water was encountered at a depth of approximately 2.1 to 2.4 meters (7 to 8 ft) bgs in each of the borings.

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 laboratory analyses based on evidence of

stains, odors, and/or PID readings (ex., soils with most staining, strongest odors or highest PID readings), or soil depths most likely to contain petroleum-related hydrocarbons (base of UST or AST). Table 1 indicates the specific rationale for submittal of each sample to the laboratory.

#### Samples Submitted for Laboratory Analysis

One sample from each boring was submitted to a DOT contract laboratory (Prism Laboratories, Inc.) for chemical analysis. Based on the presence of the UST and ASTs, each sample was analyzed for total petroleum hydrocarbons in the gasoline range (TPH-GRO) by EPA Method 5030 and in the diesel range (TPH-DRO) by EPA Method 3550. The samples were also analyzed for volatile organic compounds (VOCs) by EPA Method 8260 due to the potential presence of VOCs associated with the auto body repair shop. Table 1 indicates boring information and sampling depths.

Soil samples selected 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 delivered to 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

The analytical results are summarized on Table 1 and the laboratory reports are included in Appendix B. Additionally, the results are indicated on Figure 3. As indicated in Table 1, no VOCs, TPH-GRO or TPH-DRO were identified above the laboratory method detection limits in the samples submitted from borings 26-2, 26-5 or 26-6.

Low concentrations of VOCs were detected in the sample from boring 26-3. This boring is located between the UST and the building and the sample was collected from just above the water table surface at 1.8 to 2.4 meters (6 to 8 ft) bgs. It contained only 1,2,4-trimethylbenzene (15  $\mu\text{g}/\text{kg}$ ) and naphthalene (22  $\mu\text{g}/\text{kg}$ ) at concentrations well below the DENR soil-to-groundwater action levels for these constituents. However due to the proximity of the soil sample to the water table, the detections may be the result of impacted ground water.

The sample collected just north of the UST from boring 26-1 at 0 to 0.6 meters (0 to 2 ft) bgs contained 200 mg/kg TPH-DRO and 5 mg/kg TPH-GRO. Additionally, several VOCs at concentrations below their respective soil-to-ground water action levels were also detected. The soil sample from 0 to 0.6 meters had a PID reading of 68.2 parts per million (ppm) and the PID readings from soils below this sample dropped to 22.7 ppm at 1.2 to 1.8 meters (4 to 6 ft) bgs and 10.5 ppm at 1.8 to 2.4 meters (6 to 8 ft) bgs. No staining or petroleum odors were observed in the soils from this boring to a depth of 2.4 meters (8 ft) bgs. Due to the presence of the petroleum hydrocarbons in the surficial soils in the area north of the UST, it is likely the impact resulted from a release from the AST located adjacent to this boring location, or possibly from overfills of the former UST. Additionally, based on the field PID readings within this boring compared to laboratory analyses and PID reading of the remaining samples, it appears petroleum-impacted soils may be present from the ground surface down to the local water table at 8 ft bgs.

The sample collected just south of the UST from boring 26-4 at 0.6 to 1.2 meters (2 to 4 ft) bgs contained TPH-GRO at 440 mg/kg. No VOCs or TPH-GRO were detected in this sample. This sample had a PID reading of 20.0 ppm and the remaining PID readings ranged from 5.6 ppm at 1.8 to 2.4 meters (6 to 8 ft) bgs to 9.6 ppm at 0 to 0.6 meters (0 to 2 ft) bgs. No staining or petroleum odors were observed in the soils from this boring to a depth of 2.4 meters (8 ft) bgs.

Based on the field PID readings of this sample as compared to laboratory analyses and PID readings of the remaining samples, it appears petroleum-related hydrocarbons potentially exist within the soils from the near surface to the local water table surface.

#### 4.0 Summary

H&H advanced a total of six soil borings at the site in the vicinity of one UST and two ASTs and submitted six soil samples (one from each boring) to Prism Laboratories for analysis of VOCs, TPH-GRO and TPH-DRO.

Petroleum hydrocarbons were detected in the soils located to the north and south side of the identified UST. Based on the field observations and analytical results, it appears the soils in the immediate vicinity of the UST contain petroleum hydrocarbons from the surface and possibly to the ground water surface at 2.4 meters. Due to the presence of petroleum hydrocarbons in the surficial soils, it is likely the impacts result from overfills of the former UST and/or leakage from adjacent ASTs.

The area approximate are of impacted soil is shown on Figure 3. H&H estimates the volume of petroleum hydrocarbons impacted soils to be approximately 6 meters (20 ft) long by 3 meters (10 ft) wide by 2.4 meters (8 ft) deep, for a total volume of 43 m<sup>3</sup> (56 yds<sup>3</sup> or 83 tons).

H&H recommends that the existing, closed in place UST be removed from the site and the impacted soils removed and disposed of properly if construction activities are conducted in vicinity of the UST.

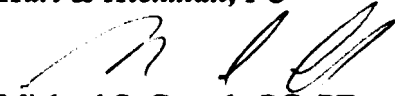
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Mr. Cyrus Parker  
May 13, 2003  
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Please contact us if you have any questions or require further assistance.

Sincerely,

*Hart & Hickman, PC*



Michael S. Crouch, PG, PE  
Project Manager

Attachments

**Table 1**  
**Summary of Soil Analytical Results**  
**Gatha Austin Property (Parcel #26)**  
**Mt. Pleasant, North Carolina**  
**H&H Job No. ROW-003**

Boring ID	Depth of Laboratory Sample (ft)	Volatile Organics (µg/kg)								TPH		Reason Submitted to Laboratory for Analysis
		N-Butylbenzene	sec-Butylbenzene	P-Isopropyltoluene	Naphthalene	N-Propylbenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	
26-1	0 - 2	14	8.8	6.7	100	6.6	<5.0	42	17	5	200	Interval with highest PID reading
26-2	4 - 6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<10	Interval with highest PID reading
26-3	6 - 8	<5.0	<5.0	<5.0	22	<5.0	15	<5.0	<5.0	<1.0	<10	Interval with highest PID reading
26-4	2 - 4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	440	Interval with highest PID reading
26-5	2 - 4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<10	Interval with highest PID reading
26-6	2 - 4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<10	Interval with highest PID reading
DENR Soil-to Groundwater Action Level		4,000	3,000	NS	580	2,000	2,600	8,000	7,000	NS	NS	

**Notes:**

VOCs = volatile organic compounds analyzed by EPA Method 8260

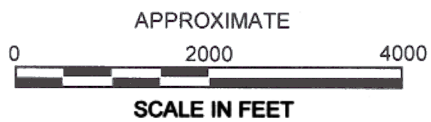
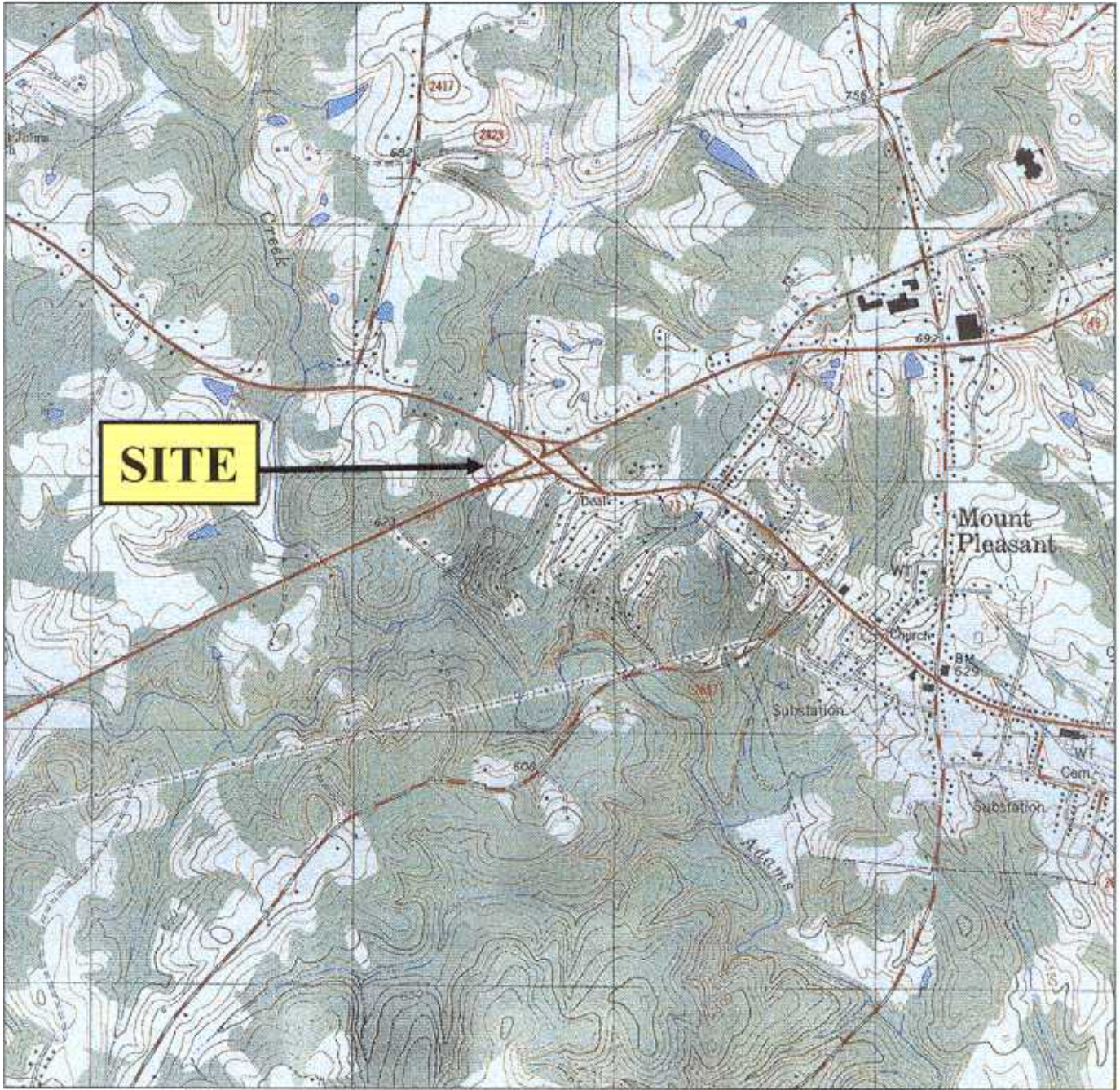
TPH-GRO = total petroleum hydrocarbons - gasoline range organics by EPA Method 5030

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

Only those constituents detected are listed above. For complete results refer to the laboratory report in Appendix B.

PID = photo ionization detector; NS = No Standard




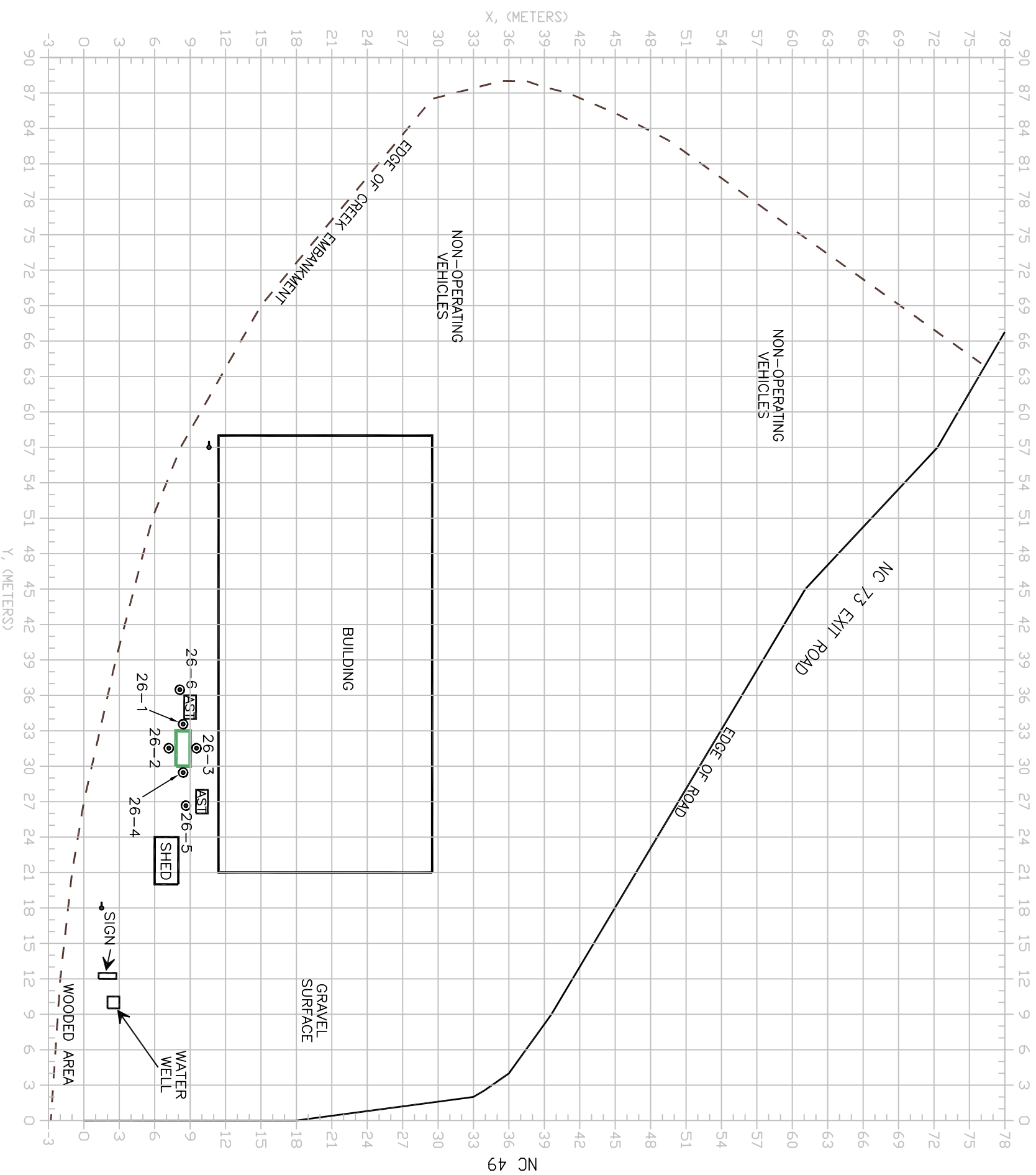


U.S.G.S. QUADRANGLE MAP

MT. PLEASANT, NC 1980

QUADRANGLE  
7.5 MINUTE SERIES (TOPOGRAPHIC)

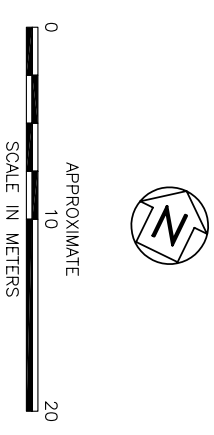
TITLE		SITE LOCATION MAP	
PROJECT		GATHA AUSTIN PROPERTY (Parcel # 26) MT. PLEASANT, NORTH CAROLINA	
 501 Minuet Lane-Suite 101 Charlotte, North Carolina 28217 A Professional Corporation (704)-586-0007 (704)-586-0373 fax			
DATE:	4-30-03	REVISION NO:	0
JOB NO:	ROW-003	FIGURE NO:	1




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

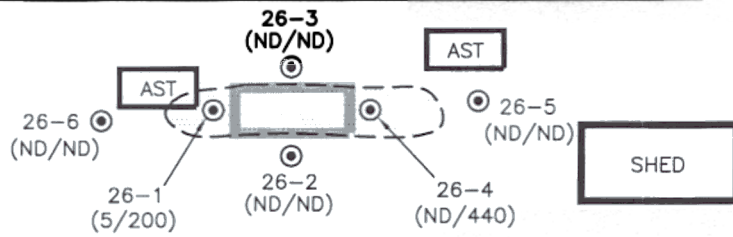
**LEGEND**

- UTILITY POLE
- ⊙ BORING LOCATION
- ASU ABOVEGROUND STORAGE TANK
- APPROXIMATE LOCATION OF UST AS DEFINED BY EM SURVEY CONDUCTED BY SCHNABEL



TITLE	
SITE LAYOUT WITH BORING LOCATIONS	
PRODUCT	
GATHA AUSTIN PROPERTY - PARCEL #26 MOUNT PLEASANT, NORTH CAROLINA	
 <b>Hart &amp; Hickman</b> A Professional Corporation 501 Minnet Lane Suite 101 Charlotte, North Carolina (704)586-0007 (704)586-0373-fax	
DATE: 5-13-03	REVISION NO. 0
JOB NO: ROW-003	FIGURE NO. 2






BUILDING

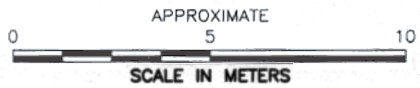



EDGE OF EMBANKMENT

SIGN

**LEGEND**

-  UTILITY POLE
- 26-1  BORING LOCATION
- (5/20) TPH-GRO/TPH-DRO CONCENTRATION IN MILLIGRAMS PER KILOGRAM
- ND NOT DETECTED
-  ABOVEGROUND STORAGE TANK
-  APPROXIMATE LOCATION OF PROBABLE UST AS DEFINED BY EM SURVEY CONDUCTED BY SCHNABEL
-  ESTIMATED AREA OF IMPACTED SOIL



TITLE	
UST AREA	
PROJECT GATHA AUSTIN PROPERTY PARCEL 26 MOUNT PLEASANT, NORTH CAROLINA	
 Hart & Hickman 501 Minuet Lane Suite 101 A Professional Corporation Charlotte, North Carolina (704)586-0007 (704)586-0373-fax	
DATE: 5-13-03	REVISION NO. 0
JOB NO: ROW-003	FIGURE NO. 3