



August 12, 1996

Ms. Sarah Kampwerth
Hackney Petroleum, Inc.
Post Office Box 50038
Knoxville, TN 37950-0038

**RE: Initial Site Characterization Report - NCAC Title 15A Subchapter 2N.0704
Amoco #209 Convenience Store - Russ Avenue, Waynesville, North Carolina
AES #6256.01-P2**

Dear Ms. Kampwerth:

Alpha Environmental Sciences, Inc. has completed the Initial Site Characterization Report for the above referenced facility in accordance with the 2N Underground Storage Tank guidelines and as detailed in our proposal dated **June 17, 1996**. The report has been prepared in outline format following the format as given in the regulations under 2N.0704 as adopted from the federal regulations 40 CFR 280.63. A copy of our Initial Site Characterization Report will be submitted to the Asheville Regional Office of the Department of Environment, Health, and Natural Resources - Division of Water Quality (DEHNR-DWQ) upon your approval.

Should you have any question with regard to the information in this report, please do not hesitate to contact us.

Sincerely,

Alpha Environmental Sciences, Inc.

A handwritten signature in cursive script that reads "Roger D. Moore".

Roger D. Moore, P.G.
Senior Geologist/Project Manager

RDM/ng

Attachments

PROFESSIONAL ENVIRONMENTAL CONSULTING
Engineering Services Provided by Alpha Engineering Services, PA

Corporate Office:
400 DELLWOOD ROAD, SUITE A-2, P.O. BOX 31
WAYNESVILLE, NC 28786 · 704-452-3449 · FAX 452-7828

Service Office:
WAPPOO EXEC. PARK, 105 WAPPOO CREEK DR., SUITE 4-A
CHARLESTON, SC 29412 · 803-795-1220 · FAX 795-1296

ALPHA

ENVIRONMENTAL SCIENCES INC.

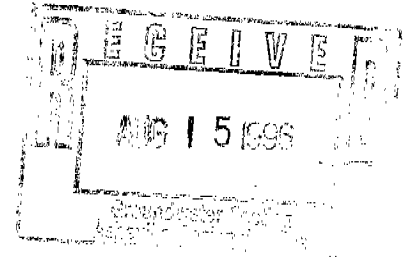
INITIAL SITE CHARACTERIZATION REPORT

For

**AMOCO #209
RUSS AVENUE
WAYNESVILLE, NORTH CAROLINA
AES #6256.01-P2**

Prepared For:

**Ms. Sarah Kampwerth
Hackney Petroleum, Inc.
Knoxville, Tennessee**



Prepared By:

**Alpha Environmental Sciences, Inc.
Post Office Box 31
Waynesville, NC 28786**

August, 1996

PROFESSIONAL ENVIRONMENTAL CONSULTING
Engineering Services Provided by Alpha Engineering Services, PA

Corporate Office:
400 DELLWOOD ROAD, SUITE A-2, P.O. BOX 31
WAYNESVILLE, NC 28786 · 704-452-3449 · FAX 452-7828

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CHARLESTON, SC 29412 · 803-795-1220 · FAX 795-1296

INITIAL SITE CHARACTERIZATION REPORT

- a,1 The nature of the release has been confirmed as gasoline by analysis of the soil samples from the subsurface as well as water samples collected by both grab sampling and from the monitoring well installed on-site. The quantity of product released is unknown at this time; however, the suspect source of the release, the underground storage tank, has been removed from service. Remaining product in the tank has been removed. The tank will either be closed in-place or closed by removal within the next six months.
- a,2 The subject site lies within the Town of Waynesville, Haywood County, North Carolina. See Figure 1 in the attachments to this report. The population of Waynesville is approximately 9420, based on a 1994 census. The site is located within the northwest portion of town near the intersection of US 276 and US 23/74. The approximate mean elevation of the area is 2550 feet above sea level.

Municipal water and sewer service is provided by the Town of Waynesville in this area. Within the surrounding area of the Amoco station facility are a number of drinking water wells at residential locations. The wells are located at distances of from 1000 to 2000 feet from the subject site in generally a northeasterly direction. Outside the Town of Waynesville limits, water service is not currently available to serve these locations, and the wells are in use for supplying drinking water.

During the course of the previous Phase II investigation, the subsurface conditions at the site were found to consist of both fill soils, former roadbed material, and natural soils. The area of the existing tank pit was formerly a portion of an old road which has now been abandoned by the town and re-routed. Remnants of old concrete and asphalt, as well as aggregate base course were noted in several locations on-site surrounding the existing tank pit. The natural soils encountered included reddish brown to gray, sandy silts and clayey silts characteristic of the weathering products of the geology in the area. Groundwater was encountered at a relatively shallow depth of approximately 5 to 5.5 feet below grade. At several locations, apparent bedrock was encountered at a depth of approximately 8 to 10 feet below the existing site grade. The boring performed for the installation of the shallow monitoring well encountered bedrock at approximately 8.5 feet.

The Public Utilities Department of the Town of Waynesville supplied mapping showing the subsurface utilities including water lines, sanitary sewer lines, and other underground utilities. The Division Office of the North Carolina Department of Transportation was contacted concerning the routing of storm sewers in the area of the subject site, and a map from the division is included.

The local and regional climatic conditions generally consist of moderate to temperate climate with an average annual temperature of approximately 58 degrees. In the area of Waynesville, rainfall conditions are highly variable. Westerly facing mountain slopes and peaks in Haywood County and surrounding counties, often receive as much as 70 to 80 inches of rain annually. Areas at lower elevations and on the eastward slopes of the ranges generally receive on the order of 50 to 60 inches of rain annually with low rainfall being toward the eastern side of the county in the area of Canton with an average annual rainfall of approximately 46 inches per year. The area surrounding the Amoco #209 facility is generally commercial businesses and offices. Adjacent to the property on the southeast side is a BP Service Station containing petroleum underground storage tanks for commercial purposes. Directly across US 276 on the northwest side of the property is a former Shell Service Station which has now been shutdown due to noncompliance with the UST regulations. The underground storage tanks have apparently been pumped of any remaining product and are currently under temporary closure. Areas to the northeast and southwest of the subject site are residential, consisting of both brick and frame residential structures. Adjacent to the facility on the northeast side is an automobile dealership. The surrounding property to the east includes a shopping center, restaurants, and other small shops.

- a,3 As required under the site check portion of the regulations, a shallow monitoring well was installed on-site in order to determine if impact to the surficial aquifer had occurred due to the petroleum release. The monitoring well was installed using a trailer-mounted, rotary, hollow-stem auger drilling rig. The monitoring well was completed using 2-inch I.D. PVC well materials, including five feet of 0.010-inch slot screen and solid casing to the surface. The boring advanced for the monitoring well encountered apparent bedrock at a depth of approximately 8.1 feet, and the boring was terminated. The well was installed at this depth, and the annulus of the boring surrounding the screen was backfilled with coarse filter sand to a depth of approximately 0.5 feet above the top of the screen. A 1-foot layer of bentonite pellets was then installed as a well seal, and the remainder of the boring annulus was backfilled with a cement bentonite grout to the surface. An 8-inch diameter bolt-down well cover was flush-mounted above the monitoring well. A locking, expandable well plug was used for security, securing the well.

Upon completion of the installation of the monitoring well, the well conditions were allowed to stabilize for a minimum of 24 hours. The water level in the well was then accurately measured using electronic water level meter with an accuracy of 0.01 feet. The well was properly developed and then allowed to recover and purged and sampled in accordance with EPA and DEM standard protocol and procedures.

The water sample was collected using a dedicated, disposable plastic bailer with a proper VOC sample tube for placement of the sample in the sample container. The collected groundwater sample was placed in 40-ml glass vial with teflon septa, labeled, and placed in an ice-filled cooler on-site. A chain-of-custody record was completed at the time of sampling and submitted with the groundwater sample to a NC certified, analytical testing laboratory. The sample was tested in accordance with EPA Method 602 for BTEX and MTBE. The analytical results of the testing are attached to this report. The sample exceeded the North Carolina 2L Groundwater Standards for both benzene and MTBE. Other gasoline constituents were detected in the sample; however, they did not exceed the 2L Groundwater Standards. The sample contained 76 ppb of benzene and 590 ppb of MTBE. A table showing the results and comparison with the 2L Groundwater Standards is attached to this report.

- a,4 The monitoring well installed on-site was checked for accumulating free product using an oil/water interface probe which measured to the nearest 0.01 feet. Free product was not detected at any time during our subsurface exploration work nor during measurements in the monitoring well. Free product has not been detected on the surface of the groundwater at the site at the locations observed to-date. However, if free product does begin to accumulate within the monitoring well, free product recovery will begin immediately, initially with passive collection by means of a collective canister and/or absorbent collectors in the monitoring well.

- b This report will be submitted in a timely fashion in order to meet the requirements of this subheading and provide the information required in "a" above.

Recommendations and Conclusions

Based on the results of previous soil and groundwater grab sampling and analysis, the vapor readings reported in the site check report and the results of the monitoring well installation, sampling, and analysis; we would recommend that a Comprehensive Site Assessment (CSA) be performed. The CSA would determine the lateral and vertical extent of contamination in soil and groundwater, determine the potential receptors at risk from the contamination, and provide a preliminary exposure assessment and preliminary evaluation of remedial alternatives.

Based on a review of this report and other previous data, the groundwater staff in the Asheville Regional Office will determine the need for further assessment and prioritize the site based on the recently revised (7/96) site ranking system. We would be happy to provide any additional assessment and reporting as necessary. We appreciate the opportunity to provide services for this project.

TABLE 1

TABLE 1

*Monitoring Well
Analytical Results*

**Hackney Amoco #209
Russ Avenue
Waynesville, NC
AES # 6256.01**

*EPA 602 (BTEX + MTBE)
Analytes in Parts per Billion*

	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	EDB
MW-1	76	1.5	5.6	15	590	BDL
NCAC 2L Standard	1.0	1000	29.0	530	200	4.0×10^{-7}

BDL = Below Detection Limit
MTBE = Methyl Ter Butyl Ether
EDB = Ethylene Dibromide

**ANALYTICAL RESULTS
AND
CHAIN-OF-CUSTODY**



ANALYTICAL, INC.

Asbestos - Lead - Environmental - Materials

New Jersey

08/02/1996

Corporate Office
Main Laboratory
108 Haddon Avenue
Westmont, NJ 08108
(609) 858-4800

Attention: Ken Berry
Alpha Environmental Sciences
400 Dellwood Road -Bldg. A Suite 2
Box 31
Waynesville, NC 28786

3 Cooper Street
Westmont, NJ 08108
(609) 858-4800

Piscataway, NJ
(908) 981-0550

The following report covers the analysis performed on samples submitted to EMSL Analytical on 08/01/1996. The results are tabulated on the attached data pages for the following client designated project:

6256.01-P2

New York

New York, NY
(212) 290-0051

Carle Place, NY
(516) 997-7251

California

San Mateo, CA
(415) 570-5401

The reference number for these samples is EMSL Project #96096810.

Georgia

Smyrna, GA
(770) 333-6066

Please use this reference when calling about these samples.

Kentucky

Lexington, KY
(606) 293-1590

If you have any questions, please do not hesitate to contact me at (609) 858-9573.

Michigan

Ann Arbor, MI
(313) 668-6810

North Carolina

Charlotte, NC
(704) 567-1521

Greensboro, NC
(910) 297-1487

Texas

Dallas, TX
(214) 831-9725

Houston, TX
(713) 686-3635

Washington

Seattle, WA
(206) 233-9617

Reviewed and Approved By:

Paul Laraja, Jr.
Laboratory Manager
NJ Certification No:04653





Attention: Ken Berry
Alpha Environmental Sciences
400 Dellwood Road -Bldg. A Suite 2
Box 31
Waynesville NC 28786

Date of Report: 08/02/96
Project Number: 96096810
Lab ID: 96-0039872
Date Collected: 07/31/96 00:00
Collected By: Client
Date Received: 08/01/96 10:00

Client Project: 6256.01-P2

Client Designation: MW-1

Conc. Unit

ORGANIC

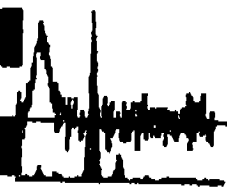
Volatiles

BTEX by 602

Methyl tertiary-butyl ether

see attached ug/l

see attached ug/L



BTEX/MTBE/EDB BY GC/HALL/PID (METHODS 601/602/8020/8010)

Lab ID : 9639872 MW-1

NO.	NAME	RESULTS ug/L	COMMENTS
1	Benzene	76	
2	Toluene	1.5	
3	Ethylbenzene	5.6	
4	Xylenes (total)	15	
5	Methyl tertiary butyl ether	590	
6	Ethylene dibromide	2	U

Comments:

U= Not detected

J= Detected but below Method Detection limit

B= Compound found in Blank

Report Prepared By: EMSL Analytical
3 Cooper Street
Westmont, NJ 08108
(609) 858-9573

Chain of Custody / Analysis Request Form

3 Cooper Street
Westmont, New Jersey 08108
609-658-9573
609-658-4571 (Fax)

EMSL Project # 96096810
PO # _____

Custody and Sample Information - Print ALL information. Put N/A in blanks not applicable. Press firmly.

1. Report to: Ken Barry		2. Bill to: ATPHA ENV. Waynesville, N.C.		Project: 0256.01-P2 Hickney Amoco		Indicate Analysis Requested		Number of Containers	
3. Sampled by (Signature): <i>Ken Barry</i>		4. # of Samples in Shipment: 1		5. Date of Sample Shipment: 7/31/96		6. Date Results Needed		Laboratory Number	
Tel #: 704-452-3449		FAX #: 704-452-7828		Method Preserved		Sampling		Date	
GRAB		COMP		WATER		AIR		SLUDGE	
OTHER		HCl		HNO3		H2SO4		NONE	
OTHER		ICE		OTHER		Time		Date	
Sample Number		Station Location / Sample ID		Date Released		Date/Time Received		Condition Noted	
1 AW-1				7/31/96		8/1 10:24		39872	
2									
3									
4									
5									
6									
7									
8									
9									
Released by (Signature): <i>Ken Barry</i>		Date/Time Released: 7/31/96		Delivery Method: Fed-X		Received by (Signature): <i>[Signature]</i>		Company/Agency Affiliation: DMS	
Please indicate turnaround time: standard 10D 5D 2HR 48HR 24HR (Must call for quick turn)		Comments: Sample is not preserved. 08/1/96		Please indicate reporting requirements: 1) Results only 2) Results & OC 3) Reduced Deliverables					

**MONITORING WELL
CONSTRUCTION RECORD**

FOR OFFICE USE ONLY	
Quad. No. _____	Serial No. _____
Lat. _____	Long. _____ Pc _____
Minor Basin _____	
Basin Code _____	
Header Ent. _____	GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR Alpha Environmental Sciences, Inc.
 DRILLER REGISTRATION NUMBER _____

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

1. WELL LOCATION: (Show sketch of the location below)
 Nearest Town: Waynesville

 (Road, Community, or Subdivision and Lot No.)
 OWNER Hackney Petroleum, Inc.
 ADDRESS PO Box 50038
Knoxville (Street or Route No.)

 City or Town State Zip Code

County: Haywood

Depth		DRILLING LOG Formation Description
From	To	
0.0	1.0	Asphalt/Gravel
1.0	8.1	Dark gray, black sandy silt with Petroleum odor

3. DATE DRILLED 7/25/96 USE OF WELL Monitoring
 TOTAL DEPTH 8.1' CUTTINGS COLLECTED Yes No
 DOES WELL REPLACE EXISTING WELL? Yes No
 6. STATIC WATER LEVEL: 5.3 FT. above TOP OF CASING.
 below
 TOP OF CASING IS 0' FT. ABOVE LAND SURFACE.
 7. YIELD (gpm): _____ METHOD OF TEST _____
 WATER ZONES (depth): _____

9. CHLORINATION: Type _____ Amount _____
 10. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>3.1</u> Ft.	<u>2"</u>	<u>Sch 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____
From _____ To _____ Ft.	_____	_____	_____

If additional space is needed use back of form.

LOCATION SKETCH
 (Show direction and distance from at least two State Roads, or other map reference points)

11. GROUT:

Depth	Material	Method
From <u>0</u> To <u>1.1</u> Ft.	<u>Portland</u>	_____
From _____ To _____ Ft.	_____	_____

12. SCREEN:


Depth	Diameter	Slot Size	Material
From <u>3.1</u> To <u>8.1</u> Ft.	<u>2"</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____
From _____ To _____ Ft.	_____	_____	_____

13. GRAVEL PACK:

Depth	Size	Material
From <u>2.1</u> To <u>8.1</u> Ft.	<u>#2</u>	<u>Sand</u>
From _____ To _____ Ft.	_____	_____

14. REMARKS: _____

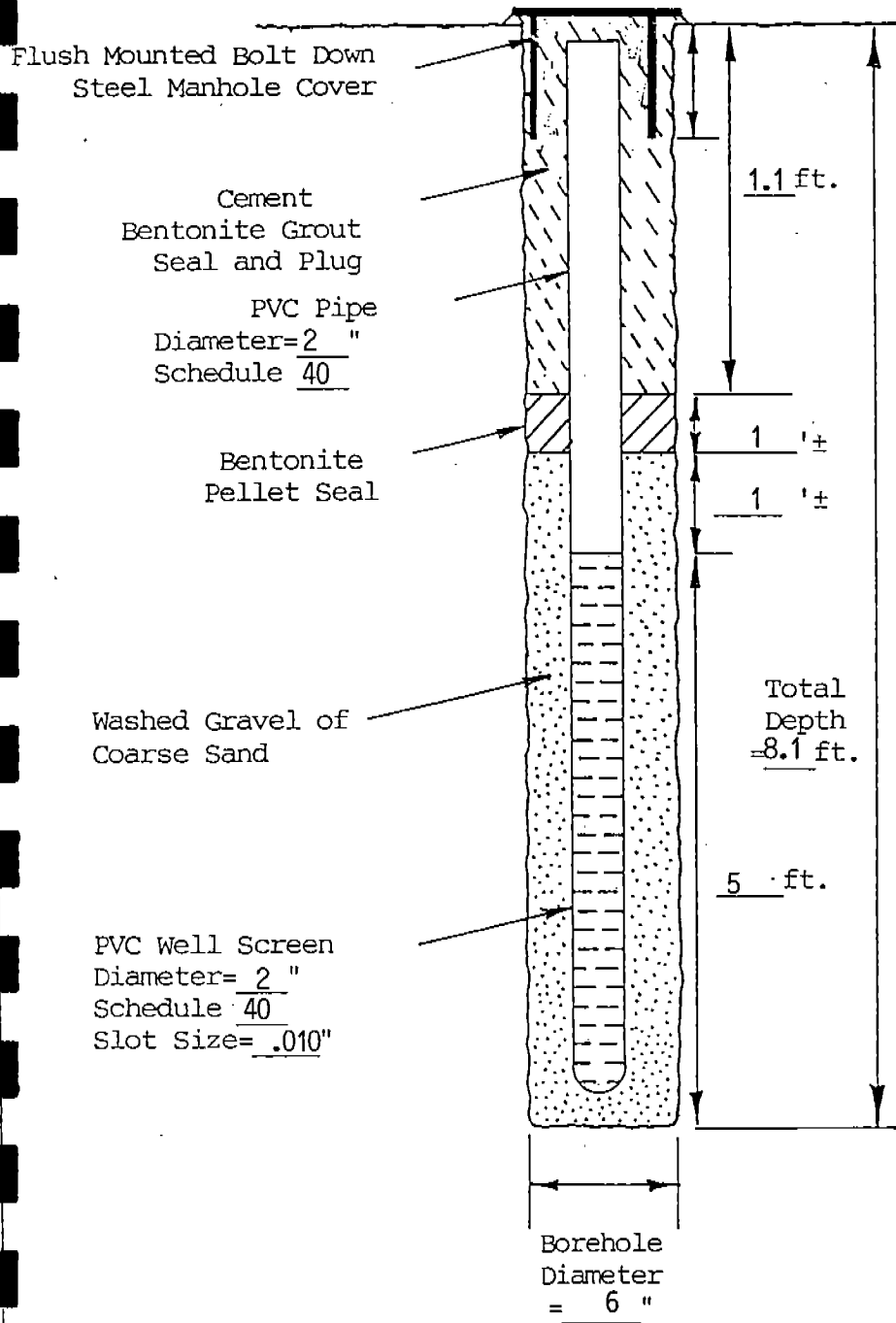
I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.


8/13/96

SIGNATURE OF CONTRACTOR OR AGENT DATE

**MONITORING WELL
CONSTRUCTION DIAGRAM**

FIELD MONITORING WELL INSTALLATION DIAGRAM FOR WELL NO. MW-1



MONITORING WELL DATA

1. Water Level From Top of PVC
 Date: 8/12 Depth: (ft) 5.3'

2. Well Developed by _____
 Date: _____ Gallons: _____

3. Elevations:
 Ground Surface = _____ ft.
 Top of PVC _____ ft.

Suggested Warning Label

WARNING
 For Monitoring Only
 Not To Be Used For
 Portable Water

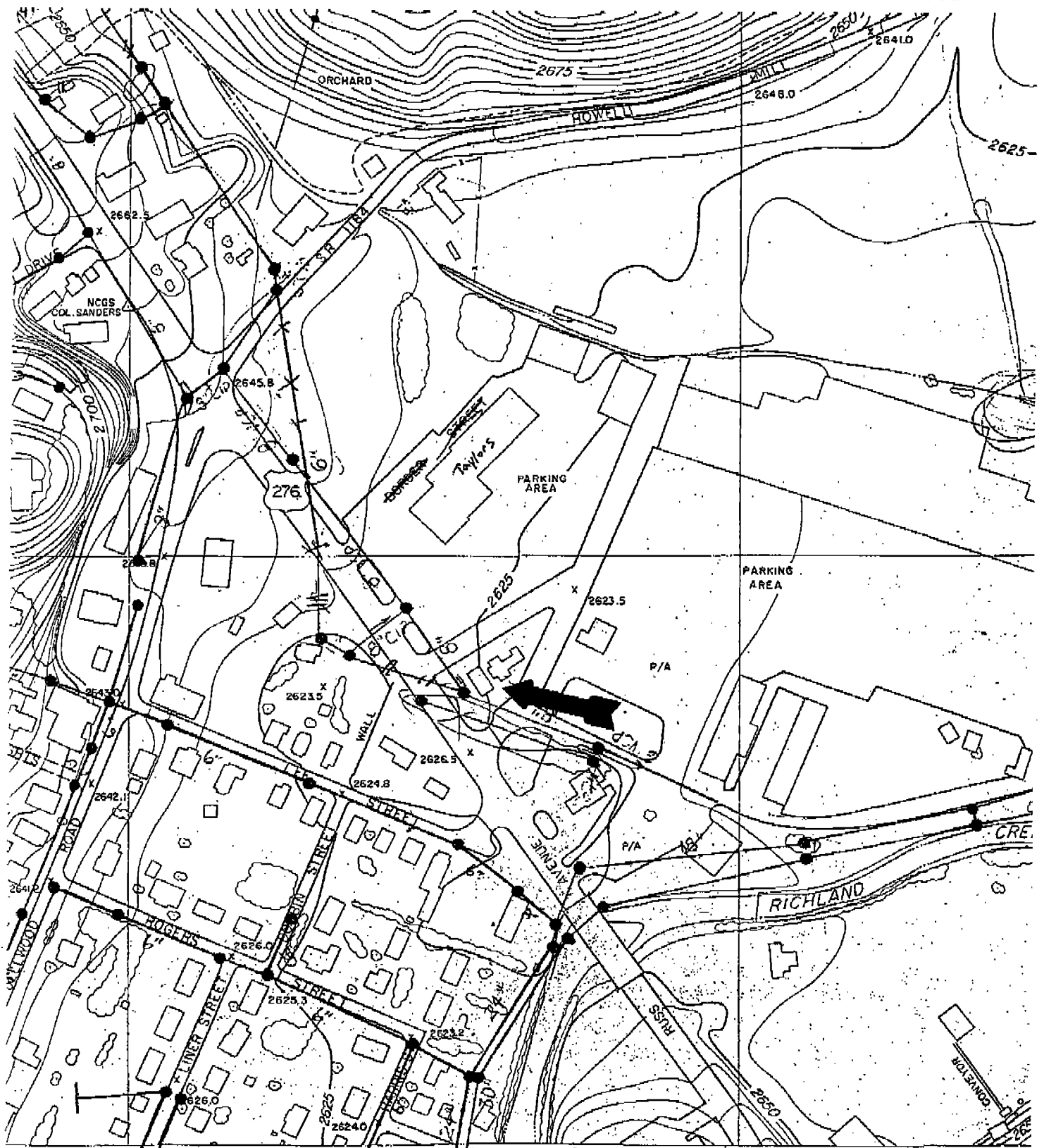
Date Installed: 7-25-96 Drill Rig: SIMCO Crew: Ken Berry/Frank/Howard

Hackney Amoco #209
 Russ Ave. Waynesville, NC

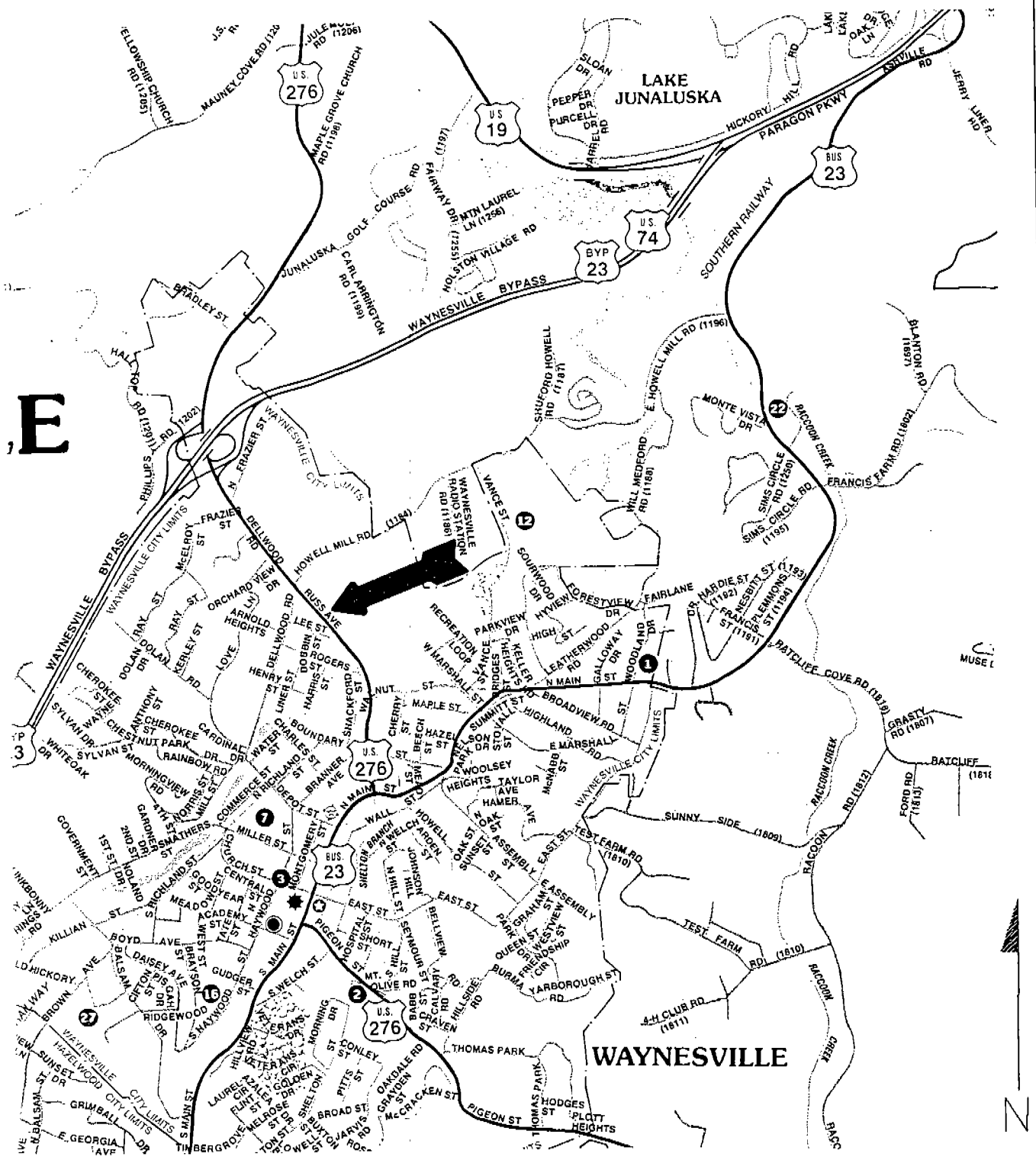
ALPHA
 ENVIRONMENTAL SCIENCES INC.
400 DELLWOOD ROAD • BUILDING A, SUITE 2
 P.O. BOX 31 • WAYNESVILLE, NC 28786

SCALE	Drawn:	Job No.
	Checked:	Dwg. No.
	Date:	

**SITE LOCATION
DIAGRAM**

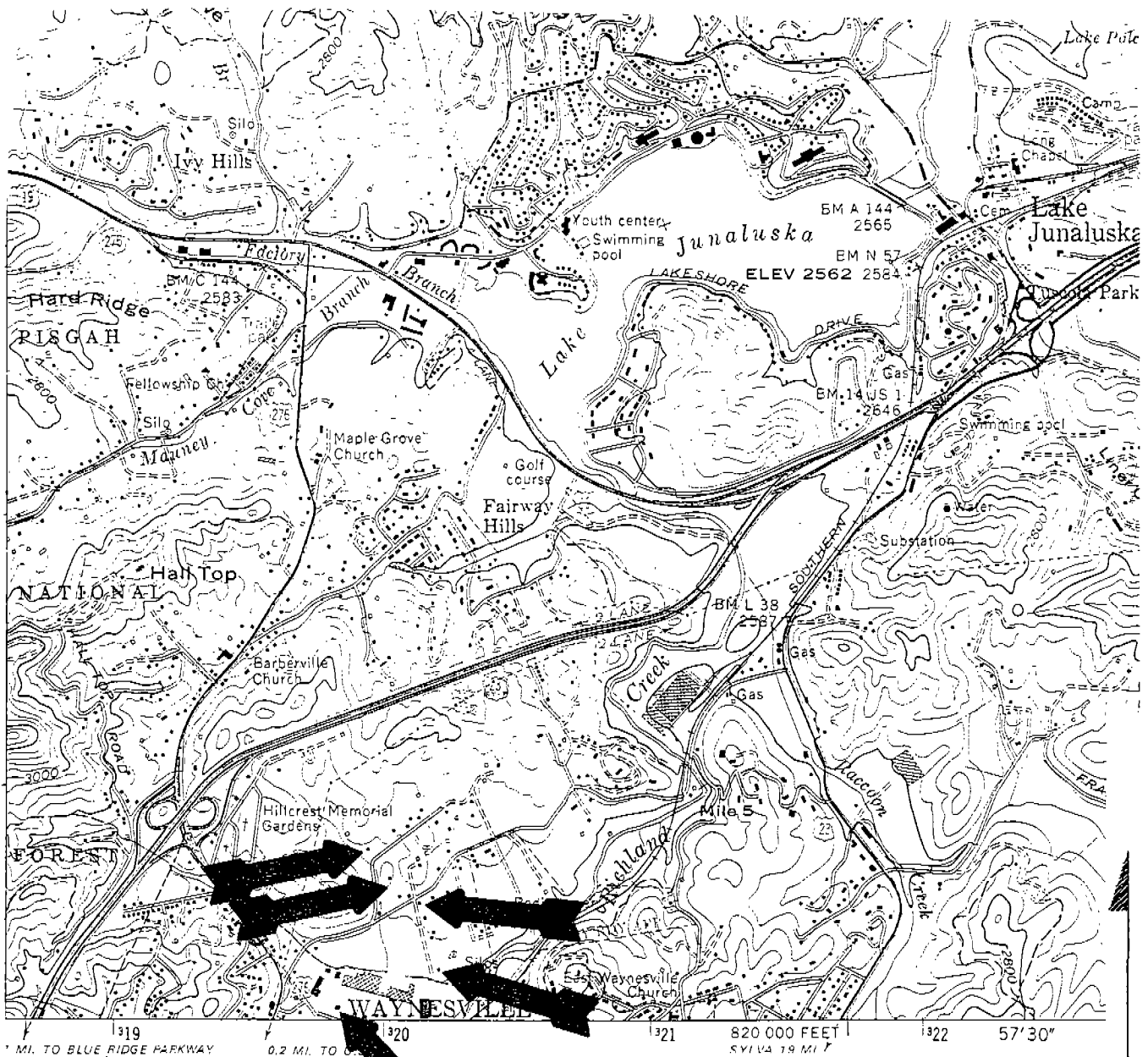


E



Hackney Petroleum Amoco # 209 Waynesville, N.C.	
Site Location Map	
Scale:	ALPHA Environmental Sciences, Inc.
Drawn By: KMB	
Date: 8/12/96	Drawing No. Fig 1

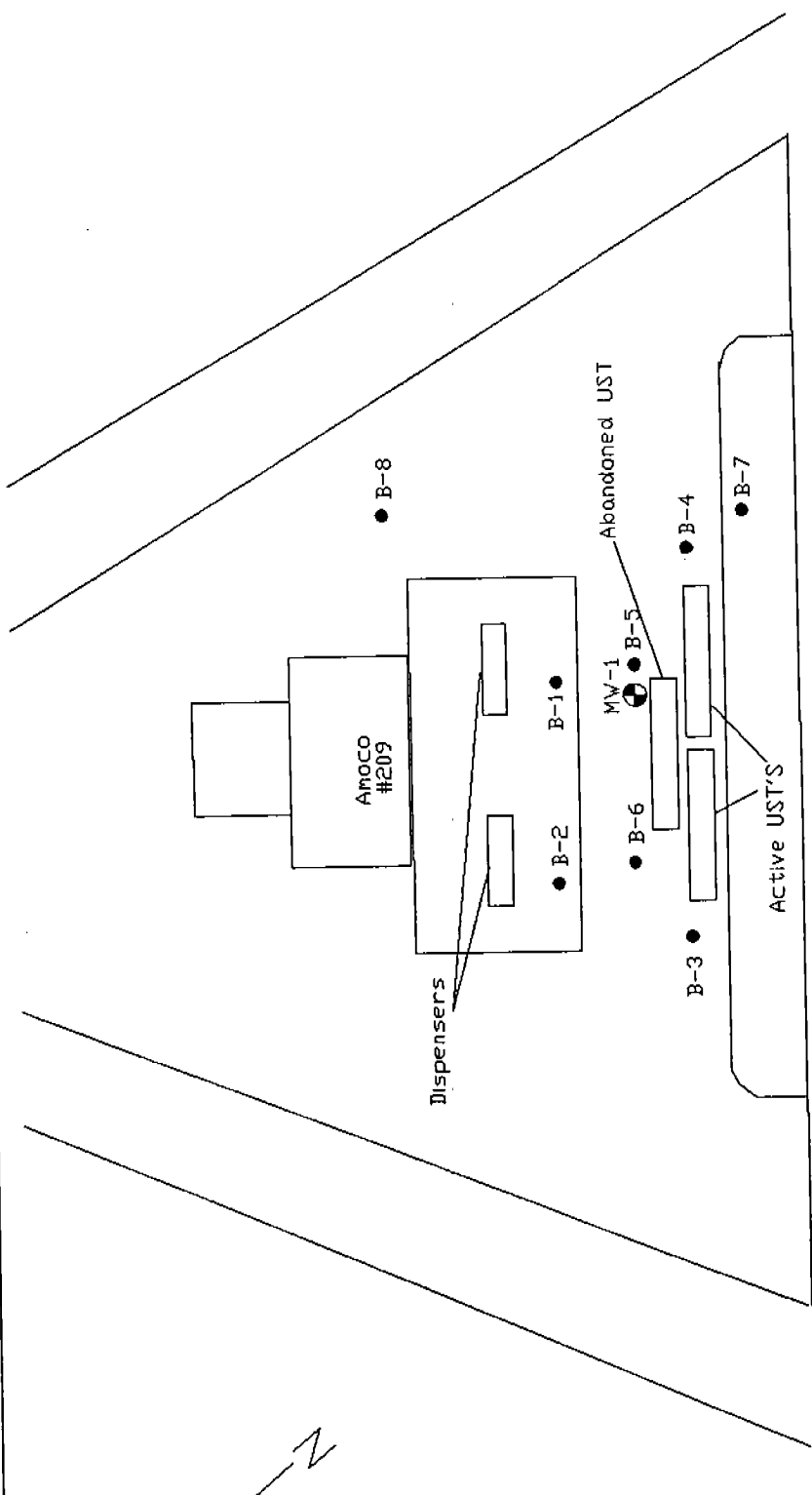
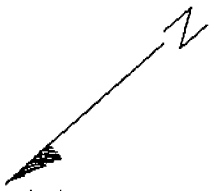
**WELL SURVEY
DIAGRAM**



1319 0.2 MI. TO BLUE RIDGE PARKWAY 1320 1321 820 000 FEET 1322 57'30" N

Hackney Petroleum Amoco #209 Waynesville	
USGS Topographical Map Well Receptor Map	
Scale: 1"=2000'	ALPHA Environmental Sciences, Inc.
Drawn By: KMB	
Date: 8/12/96	Drawing No. Fig. 1

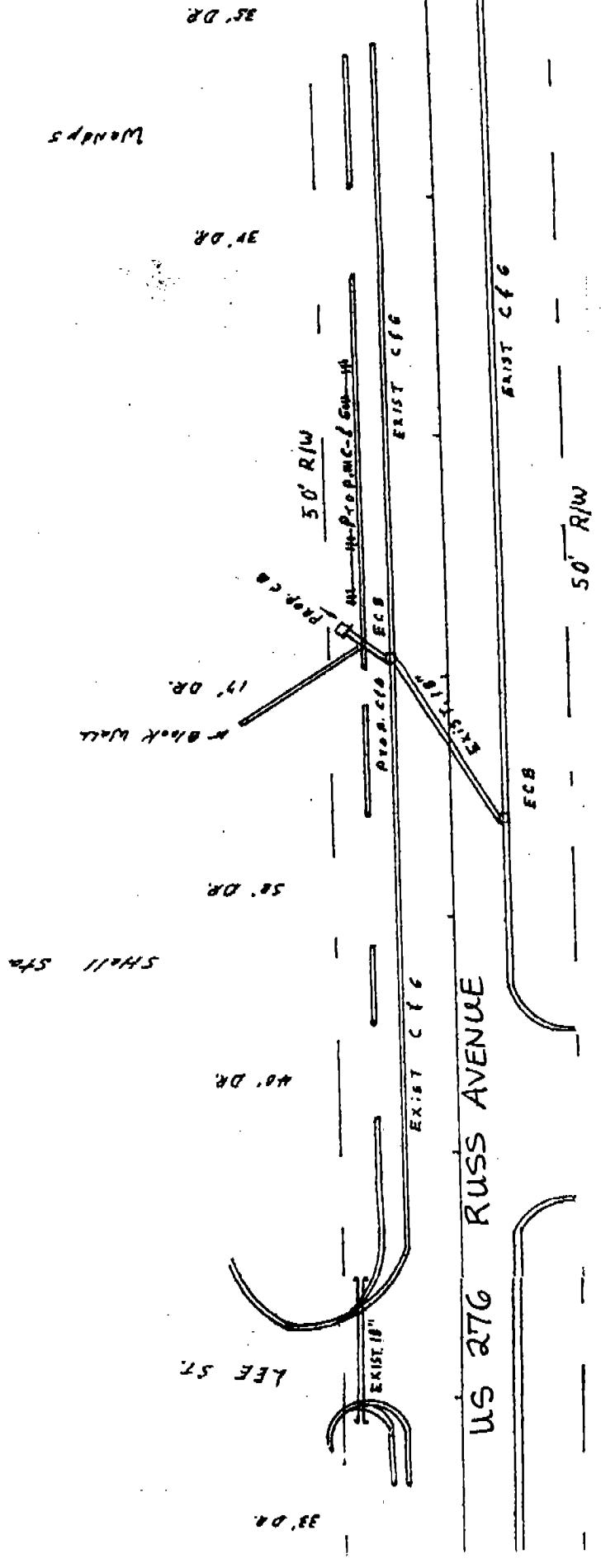
**BORING & MONITORING WELL
LOCATION DIAGRAM**



Amoco #209 Waynesville, NC	
Site Map	
Scale:	ALPHA
Drawn By:	BYIKMB Environmental Sciences, Inc.
Date:	8/12/96
Drawing No. Fig. 2	

NC DOT
STORM DRAINAGE

Page 2



HACKNEY
AMOCO
209

HWC0
13745
AMOCO FOOD SHOP #209
QA 8/15/96 LETTER OF TRANSMITTAL

**ALPHA ENVIRONMENTAL SCIENCES,
INCORPORATED**

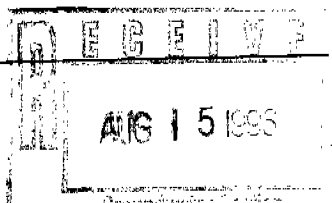
Post Office Box 31
Waynesville, NC 28786
(704) 452-3449
(704) 452-7828

Date: 8-14-96 Project # 6256.01

Attention: SARAH KAMPWERTH

To: HACKNEY PETROLEUM INC. RE: HACKNEY AMOCO # 209
P.O. BOX 50038
KNOXVILLE, TN 37950-0038

RUSS AVENUE
WAYNESVILLE, NC



We are sending you the following items:

- Plans Prints Specifications Documents
- Air/Lead Mon.Report(s) Environmental Report(s) Geotechnical Report(s)
- Const./Materials Testing Report(s)

Transmittal Details

<u>Copies</u>	<u>Date</u>	<u>Description</u>
<u>2</u>	<u>8/12/96</u>	<u>INITIAL SITE CHARACTERIZATION REPORT</u>

Transmitted For:

- For Approval For Your Use As Requested For Review
- For Bids Due
- Approved As Submitted Resubmit Copies for Approval
- Approved As Noted Submit Copies for Distribution
- Returnedd for Correction Resubmit Copies

Remarks: _____

cc: NC DEHNR - DWQ Signed: _____
ASHEVILLE REGIONAL OFFICE