



**GEONETICS CORPORATION**

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OCT 04 1994

Winston-Salem  
Regional Office

October 3, 1994

A/G & Co.

Ms. Cindy Rintoul  
DEHNR-DEM  
Winston-Salem Regional Office  
8025 North Point Blvd., Suite 100  
Winston-Salem, NC 27106-3203

Subject: Comprehensive Site Assessment  
Harold Hall Property, Jamestown, NC

Dear Ms. Rintoul:

Geonetics has completed the assessment of soil and groundwater impacted by a petroleum release at the subject site. This Comprehensive Site Assessment report describes the work performed at the site and presents the results of investigations along with our comments and recommendations.

This investigation was conducted and reported in response to the Notice of Violation dated March 18, 1993, issued by the North Carolina Department of Environment, Health and Natural Resources to Mr. Harold Hall. This report was prepared in accordance with the Groundwater Section Guidelines for the Investigation and Remediation of Soils and Groundwater, as published, March 1993.

If you have any questions concerning this report, please contact me or Ned Taylor at 704-265-1577.

Sincerely,

Keith C. Seramur, P.G.  
Senior Geologist

cc: Mr. and Mrs. Harold Hall

Attachments



## **GEONETICS CORPORATION**

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### **CERTIFICATION AND QUALIFICATIONS**

The activities and evaluative approaches used in this environmental assessment are consistent with those normally employed in an assessment of soil and groundwater quality of this type. The evaluation of site conditions is based on our understanding of the site, project information provided to us, data obtained during site exploration activities and the referenced materials. The general subsurface conditions utilized in our evaluation are based on interpolation of subsurface data between borings.

This report is intended to be responsive to the guidelines for a Comprehensive Site Assessment requested in the Notice of Violation, dated March 18, 1993 and the CSA Deadline letter from Ms. Cindy Rintoul, dated August 8 and 22, 1994.

*Keith C. Seramur*  
Keith C. Seramur, P.G.  
NC License #1136

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## EXECUTIVE SUMMARY

### Source Information

Seven UST were closed at the Harold Hall property in June of 1992. Soil sampling and analysis detected a release from the gasoline, kerosene and diesel UST systems. Elevated concentrations of TPH were detected in the UST excavations, along the piping and at the pump islands.

Mr. Hall had leased the service station from 1983 until May, 1992. Mr. Hall is not aware of any inventory discrepancies prior to the closing of the UST systems. The volume of the releases are not known.

### Initial Abatement/Emergency Response Information

The tank closures in June of 1992 eliminated the contaminant source. During the tank closures, 326.25 tons of petroleum contaminated soil were excavated and stockpiled at the Hall property. This soil was shipped to Terradyne Environmental Services for remediation.

Free product was observed on the bailing line during a sampling event in October, 1993. However, free product has not been detected in a measurable quantity in any of the wells.

The Town of Jamestown and residences and properties within 1500 feet of the site are supplied with municipal water.

### Damage/Extent of Release and Potential Receptors

Municipal water for the Town of Jamestown is supplied by the cities of High Point and Greensboro, NC. The City of High Point draws water from the dam on High Point Lake, approximately 2400 feet east of the Hall Property.

In our interviews with adjacent property owners, Town of Jamestown personnel, and personnel from the City of High Point Water Dept., Geonetics did not identify any water supply wells or other potential receptors. One of the adjacent properties has a basement, but the occupant has not noticed any problems with water or odors.

The Hall property is located in the Jamestown business district. The property to the south, southwest, east, and northeast of the site is used for retail sales and light industry. The property to the north and northwest of the site is residential. There is a school and public library

approximately 700 feet southwest of the site. All of these areas are supplied with municipal water.

The maximum TPH concentrations measured during the assessment phase were in soil sample S-2, adjacent to the gasoline UST excavation (141 ppm volatile TPH and 224 ppm semi-volatile TPH). The maximum groundwater contaminant concentrations were measured in wells MW-1 and MW-2. In the groundwater sample from MW-1, BTEX compounds were detected at 153.6 ppb and semi-volatile petroleum compounds were detected at >2000 ppb. In the groundwater sample from MW-2, BTEX compounds were detected at 2034 ppb and semi-volatile petroleum compounds were detected at 1406 ppb.

Groundwater at the site is flowing toward the south. As of the September 8, 1994 sampling event, the leading edge of the plume has been detected in well MW-6, 90 feet downgradient of the Hall property.

#### Conclusions/Recommended Corrective Action

The soil and groundwater contamination at this site will need to be addressed. The estimated volume of contaminated soil was 2,500 yds<sup>3</sup>. Excavation of this soil would be expensive due to volume of soil and impractical due to buried utilities and current operations at the site. It may be necessary to perform additional soil sampling (to assess the areas with the highest TPH concentration) in order to design a cost effective soil remediation system.

In order to assess the behavior of the dissolved phase petroleum plume, Geonetics recommends that a program of quarterly monitoring and analysis be initiated. This quarterly monitoring program should include sampling of wells MW-1A and MW-2A on the adjacent property. A Corrective Action Plan (CAP) should to be prepared for remediation of soil and groundwater. This CAP should consider in-situ remediation techniques for addressing the soil contamination.

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## 1.0 SITE HISTORY AND SOURCE CHARACTERIZATION

### 1.1 Site History

The subject site is located at 106 West Main Street in Jamestown, North Carolina (Figures 1 and 2). The site was a boarding house before Mr. Harold Hall purchased the property in 1964. Mr. Hall operated the facility as a service station (retail gasoline sales and automotive repair) from 1964 until 1983. The facility was then leased to Mr. Nelson Perez from 1983 through May, 1992 and continued to operate as a service station. The former UST systems were closed in June, 1992. A new upgraded UST system was installed in May, 1993 and the site is currently a service station (Dillon's Citgo) performing retail gasoline sales and automotive repair.

Potential onsite sources for the soil and groundwater contamination include the former UST systems at the site. Mr. Hall reported that a diesel UST was replaced sometime in the mid 1980's. The facility was under a lease agreement at the time and Mr. Hall was not certain of the circumstances that led to the replacement of the diesel UST.

The chemicals currently used and stored at the facility are listed in Table 5. These chemicals are used by Dillon's Service Station and were brought to the site since May, 1993. These chemicals are not considered potential sources of the petroleum contamination at the site.

### 1.2 Previous Environmental Investigations

Mr. Hall stated that he was not aware of any environmental investigations at this site prior to the closure of the UST systems in June, 1992.

### 1.3 Current Release Information

In June, 1992, seven underground storage tanks (UST) were closed at the subject site. The tank closure activities and soil sampling are described in the SPATCO Environmental, Report of Tank Closure, dated July 22, 1992. A release was detected in the former gasoline UST excavation along the northeast property boundary (Figure 3). Releases from the former diesel fuel and kerosene UST systems were detected in the UST excavations and adjacent to the pipeline along the northeast property boundary.

The dates and volumes of the releases are not known. The source of the petroleum contamination appears to be the former UST systems. The extent of contamination is discussed below in the soil and groundwater investigation (Sections 3.0 and 4.0).

Inventory discrepancies were not reported prior to the closure of the former UST systems. Geonetics Corp. is not aware of any tank tightness tests being performed on the former UST systems.

Odors and stained soils were noted during the assessment of soil and groundwater quality at the site. These observations and a description of the samples collected are presented in Sections 3.0 and 4.0 below. Free product was noted on the bailer rope from well MW-2 during the October 1993 sampling event. A measurable thickness of free product could not be detected in well MW-2 during a subsequent site visit in January 1994.

A Notice of Regulatory Requirements was issued on September 9, 1992 and a Notice of Violation was issued on March 18, 1993. To date, two previous reports have been completed, the SPATCO Environmental Report of Tank Removal, dated July 22, 1992 and the Engineering and Environmental Services (EES) Soil and Groundwater Quality Assessment Report, dated February 5, 1993.

#### 1.4 Corrective Actions to Date

The petroleum contaminated soil excavated during the tank closures (326.25 tons) was shipped to Terradyne Environmental Services for remediation. Approximately 225 gallons of petroleum contaminated water was pumped from an excavation at the site during construction activities by Jones and Frank. The water was shipped to A&D Environmental and Industrial Services of High Point, NC for treatment and disposal.

## **2.0 POTENTIAL RECEPTORS AND MIGRATION PATHWAYS**

### **2.1 Water Resources**

Mr. Winn Underhill of the Town of Jamestown reported that there were no water supply wells in Jamestown. The Town of Jamestown is supplied with water from the cities of High Point and Greensboro. Mr. Tom Gore of the city of High Point stated that one of the municipal surface water intakes for High Point is located at the dam on the southern end of High Point Lake (Figures 1 and 6). The Harold Hall property is approximately 2400 feet east of this surface water intake.

Groundwater flow and the topographic grade at the Hall property is due south towards the Deep River. The Deep River is approximately 2000 feet south of the Hall Property. The leading edge of the petroleum contaminant plume appears to have migrated as far as monitoring well MW-6, which is located approximately 90 feet from the site (Figure 3).

The nearest possible surface water intake along the Deep River is at the Oakdale Cotton Mills, approximately 1 mile downstream (Figure 1). Mr. Underhill reported that the town of Jamestown had previously purchased water from the Oakdale Cotton Mills, but that this water is now being used mainly as a water supply for local mills.

There are no known water supply wells in use within 1500 feet of the Hall Property (Figure 6). Mr. Hall reported that there had been a well on his property when he purchased it in 1964. That well was abandoned during construction of the service station.

### **2.2 Adjacent Property Owners**

The owners of the adjacent properties are illustrated on Figures 3 and 4 and listed in Table 1. Mr. Underhill reported that all businesses and residences within 1500 feet of the site are provided water by the Town of Jamestown.

Geonetics was not able to determine if water wells still exist on two adjacent lots (34 and 32) that were residences prior to the availability of city water (Figure 4). These former residential properties are now being used for retail sales. Both of these properties are using a municipal water supply. Geonetics personnel did not observe any evidence of the wells during a walk over of the properties on September 15, 1994.

The occupants of the adjacent properties were interviewed on September 15, 1994. The occupants confirmed that they were on a municipal water supply and no one reported any problems related to the subject site. The only property to have a basement was Morgan Hall, a consignment shop on lot 32 (Figure 4). The occupant Ms. Josie Gibboney stated that there has not been any sign of odors or water in this basement.

### 2.3 Migration Pathways

The location of subsurface utilities are illustrated on Figure 5. Based on a review of the assessment work completed to date, Geonetics did not find evidence that buried utilities have affected the movement of contaminants at the subject site.

During the assessment activities, a strong petroleum odor was noted in the coarse gravel base below the asphalt drive. This gravel appears to have been a conduit for migration of petroleum product in the vicinity of the former gasoline USTs at the eastern corner of the site. In the vicinity of well MW-2 soil contamination appears to extend along the asphalt to the entrance drive.

Based on the analytical data of soil and groundwater samples there appears to be two areas of significant contamination. These areas include the area around the former gasoline USTs at the eastern corner of the site and in the vicinity of the southeastern pump island (Figure 13, 14, 16, and 17).

At this time there does not appear to be any evidence that buried utilities have acted as a pathway for contaminant migration. Observations made during the field investigation indicate that the gravel base below the asphalt pavement has facilitated the migration of contaminants in the vicinity of well MW-2.

### 3.0 SITE GEOLOGY AND SOILS INVESTIGATION

#### 3.1 Site Geology

The Hall property is located in the Carolina Slate Belt of the Piedmont Physiographic Province. The Geologic Map of North Carolina (NC Dept. of Natural Resources and Community Development, 1985) describes this area as being underlain by a well foliated locally hornblende-rich metamorphosed granitic rock of Cambrian age. The site is overlain by saprolite, which is produced by in-place chemical weathering of the bedrock. The saprolite at the site varied from a sandy clayey silt to a sandy silt.

During the initial investigation of the site, a weathered rock was observed beneath the saprolite in the side of the kerosene and used oil UST excavation. Partially weathered bedrock was encountered in at least five of the borings drilled at the site. Partially weathered bedrock is defined here as competent formation material that results in a slow penetration of the air-rotary drill bit. The depth at which partially weathered bedrock was encountered in each boring is listed below.

<u>Well Boring Number</u>	<u>Partially Weathered Bedrock</u>
MW-1	5.0 to 13.0 ft.
MW-2	6.0 to 8.0 ft.
MW-3	8.5 to 14.0 ft.
MW-4	2.0 to 12.0 ft.
MW-5	Not Encountered
MW-6	2.0 to 10.0 ft. and 18.0 to 20.0 ft. (possibly fractured bedrock)
MW-7	37.0 to 53.0 (fractured bedrock)

A zone of partially weathered rock was encountered within the saprolite in borings MW-1 through MW-4 and in MW-6. Saprolite was encountered both above and below this partially weathered rock in each of these borings. Rock fragments recovered from split spoon samples in this zone of partially weathered rock were described as a fine grained black rock. Fractured bedrock was reportedly encountered in well MW-7 from 37.0 to 53.0 feet. The competent formation material encountered in well MW-6 from 18.0 feet to the bottom of the boring at 20.0 feet, could have been the top of the fractured bedrock.

On September 8, 1994, the top of the water table was measured within the partially weathered rock zone in wells MW-1, MW-3, MW-4 and

MW-6. The water table was measured in saprolite in wells MW-2 and MW-5. Groundwater does not appear to be affected by the partially weathered rock zone encountered in several of the borings at the site. At this time, a correlation between the partially weathered bedrock zones and contaminant migration has not been observed.

### 3.2 Soil Borings and Analyses

SPATCO Environmental reported soil contamination in three excavations; the diesel UST excavation, the kerosene UST excavation, and the former gasoline UST excavation. The soil samples that SPATCO collected from the diesel UST excavation and the gasoline UST excavation were collected from a depth below the water table.

A total of fourteen soil borings were drilled by EES and Geonetics at the subject site to assess the extent of soil contamination (Figure 8). Table 2 lists the sample depths and the results of the laboratory analyses.

Soil borings S-6, S-7, S-8 and S-9 were drilled in the vicinity of the former diesel USTs (Figure 8). Volatile TPH was not detected in any of the soil samples from these borings. Low concentrations of semi-volatile TPH (1.7 to 2.4 ppm) were detected in all four of these samples.

Soil boring S-1 was drilled adjacent to the gasoline UST excavation. Laboratory analysis of soil sample S-1 detected volatile TPH at 141 ppm and semi-volatile TPH at 224 ppm.

Soil borings S-2, S-3, S-4, S-5, S-10 and S-11 were drilled to assess the horizontal extent of soil contamination in the vicinity of the former gasoline UST system (Figure 8). Soil borings S-3 and S-4 were abandoned when field screening of the 5 foot sample indicated that the soil was contaminated.

Soil samples from borings S-2, S-5, S-10, and S-11 were analyzed for volatile and semi-volatile TPH. Petroleum constituents were not detected in soil samples S-10 and S-11. Semi-volatile petroleum constituents were detected in soil samples S-2 (3.5 ppm) and S-5 (1.7 ppm) at concentrations below the NC DEM Initial Cleanup Level (Table 2).

The horizontal extent of soil contamination in this area was delineated to the north by soil sample S-2, to the south by soil sample S-10, to the

east by soil sample S-11, and to the southwest by soil sample S-5 (Figures 13 and 14).

During the UST closures, SPATCO Environmental excavated contaminated soil from the UST excavations to a depth of 8 to 12 feet. Groundwater at the site fluctuates from depths of 8 to 11 feet. Therefore, it appears that the contaminated soil has been removed from the former tank pits. Petroleum constituents were not detected above NC DEM Initial Cleanup Levels in soil samples from around the former diesel UST excavation. It is possible that all of the contaminated soil in this area has been removed.

Contaminated soil remains in place adjacent to the former gasoline UST excavation and adjacent to the pump islands. Figures 13 and 14 illustrate the horizontal extent of volatile and semi-volatile petroleum contamination in this area. The vertical extent of volatile and semi-volatile petroleum contamination appears to extend to the water table as is illustrated on the subsurface soil profiles (cross-sections) on Figures 9 through 12.

The area of soil contamination in excess of the NC DEM Initial cleanup Level is approximately 6750 square feet. The soil contamination probably extends to the water table. The water table in this area is approximately 10 below the ground surface. The estimated maximum volume of contaminated soil is 2,000 cubic yards.

## 4.0 GROUNDWATER INVESTIGATION

### 4.1 Aquifer Characteristics

Groundwater flow at the site is through the saprolite, possibly through lenses of weathered rock and through fractured bedrock. This site is considered to have an unconfined aquifer with the saprolite/weathered rock acting as one anisotropic hydrologic unit and the fractured bedrock below acting as a separate hydrologic unit.

The generalized direction of groundwater flow at the site is toward the south and is illustrated on the Groundwater Contour Map (Figure 15). The hydraulic gradient calculated between wells MW-4 and MW-5 is 0.029 feet per foot. Groundwater occurs at 5 to 13 feet below the ground surface and in general shallows downgradient to the southwest (Table 3). The greatest fluctuation in the water table (measured to date) was 2.15 feet in well MW-2.

Wells MW-1, MW-3, MW-4 and MW-6 are screened within partially weathered rock. Wells MW-2 and MW-5 are screened in saprolite and well MW-7 is screened in fractured bedrock. The fluctuation of the water table appears to be fairly consistent across the site. Based on the data collected to date, it is not possible to distinguish significant differences in the wells screened in the weathered bedrock and wells screened in saprolite.

The deep aquifer well MW-7 can be used to evaluate the vertical hydraulic gradient at the site. The sandpack for well MW-7 is sealed at 47.0 feet. On September 8, 1994, the relative elevation of the potentiometric surface in well MW-7 was 87.62 feet. The water table at MW-7 is at an elevation slightly below 87.0 feet.

Thus, the hydraulic head at 37 feet below the water table is about 0.67 feet greater than at the water table. This indicates that there is an upward vertical gradient at the site. The upward vertical gradient suggests that at the time of these measurements, the saprolite at the site probably was not acting as a recharge source for groundwater in the fractured bedrock below. This could be a temporary condition that changes with variations in precipitation.

The presence of the dissolved phase chlorinated compounds in both the saprolite/weathered bedrock in the shallow wells and the fractured

bedrock in MW-7 indicates that there is a hydraulic connection between these hydrostratigraphic units.

#### 4.2 Plume Characteristics

The dissolved phase petroleum contaminant plume has been detected in the saprolite/weathered bedrock hydrostratigraphic unit at the site. The highest concentration of BTEX compounds were detected in well MW-2. The BTEX plume was detected in wells MW-1, MW-2 and MW-5 (Table 4). The highest concentration of semi-volatile petroleum constituents was detected in well MW-1. The semi-volatile petroleum plume was detected in wells MW-1, MW-2 and MW-3 (Table 4).

The downgradient extent of the BTEX and semi-volatile petroleum plume is delineated by well MW-6. The only petroleum constituent detected in well MW-6 was Isopropyl Ether (IPE) at a concentration of 7.9 ppb. This compound tends to migrate faster than the BTEX or semi-volatile compounds. The presence of IPE in well MW-6 indicates that the leading edge of the plume has migrated approximately 90 feet from the Hall property.

The upgradient extent of the BTEX and semi-volatile plumes are delineated by well MW-4 and wells MW-1A and MW-3A installed on the McKarem property. Geonetics requested but did not receive permission to sample the wells on the McKarem property prior to the report deadline. According to the Law Engineering CSA, dated April 6, 1994, groundwater samples from wells MW-1A, MW-2A and MW-3A were analyzed using EPA Methods 8240 and 8270. The Law Engineering report indicated that petroleum constituents were not detected in any of the wells on the McKarem property.

The horizontal extent of the dissolved phase plume covers an area of approximately 35,000 square feet. The interpreted horizontal extent of the dissolved phase petroleum plume is illustrated on the contaminant isoconcentration Maps (Figures 16 and 17).

Chemical analyses of the groundwater sample from well MW-7 did not detect any petroleum constituents. The sandpack in well MW-7 is sealed at a depth of 47.0 feet. The vertical extent of the petroleum contaminant plume extends from the top of the water table at approximately 10 feet below the ground surface to a depth of less than 47.0 feet. The vertical extent of the dissolved phase petroleum

contaminant plume is illustrated on subsurface profiles C-C' and D-D' (Figures 18, 19, and 20).

The volatile petroleum constituents are concentrated in the area of MW-1 and MW-2 and extend as far as MW-6. The semi-volatile petroleum constituents are concentrated in wells MW-1 and MW-2, but were also detected in well MW-3.

An estimate of the maximum volume of the aquifer that is contaminated can be calculated by multiplying the horizontal extent of the plume (35,000 ft.<sup>2</sup>) by the aquifer thickness (~37 ft.). This is equivalent to 1.29 million cubic feet. The volume of groundwater within the plume can be estimated by multiplying the aquifer volume ( $1.29 \times 10^6$ ) by the porosity of the aquifer (30%) and converting to gallons (7.48 gal/.ft.). The estimated volume of contaminated groundwater within the dissolved phase petroleum plume is  $2.9 \times 10^6$  gallons.

#### 4.3 Monitoring Well Installations

A total of 7 monitoring wells have been installed to assess the extent of petroleum contamination at the Hall property. Initially three shallow water table wells (MW-1, MW-2, and MW-3) were installed in areas of likely contamination, one in each tank pit and one well adjacent to the pump islands. Initially, volatile and semi-volatile petroleum constituents were detected in all three of these wells in excess of the 2L standards.

In the next phase of assessment, three additional shallow water table wells and one deep aquifer well were installed. Well MW-4 was installed to assess the upgradient extent of the plume, wells MW-5 and MW-6 were installed to assess the downgradient extent of the plume. Well MW-7 was installed to assess the vertical extent of the petroleum contaminant plume.

Wells MW-1 through MW-6 were all screened in order to intercept the top of the water table. The sandpack for well MW-7 was sealed at a depth of 47.0 feet approximately 30.0 feet below the bottom of the adjacent well MW-5.

Geonetics did not perform the well installations at the Hall property. However, the well information was obtained from our client Mr. Hall and the NC DEM files at the Winston-Salem Regional office. Table 6

lists the well information data. Well diagrams and well construction records are included in Appendix E.

## 5.0 RECOMMENDATIONS

The soil and groundwater contamination at this site will need to be addressed. The estimated volume of contaminated soil was 2,500 yds<sup>3</sup>. Excavation of this soil would be expensive and impractical due to buried utilities and current operations at the site. It may be necessary to perform additional soil sampling (to assess the areas with the highest TPH concentration) in order to design a cost effective soil remediation system.

In order to assess the behavior of the dissolved phase petroleum plume, Geonetics recommends that a program of quarterly monitoring and analysis be initiated. This quarterly monitoring program should include sampling of wells MW-1A and MW-2A on the adjacent property. A Corrective Action Plan (CAP) should to be prepared for remediation of soil and groundwater. This CAP should consider in-situ remediation techniques for addressing the soil contamination.

**APPENDIX A**

**REFERENCES**

## **Resource Materials Cited**

Domenico, P. A. and Schwartz, F. W., 1990, Physical and Chemical Hydrogeology. John Wiley and Sons, New York, 824 pp.

Engineering and Environmental Services, Soil and Groundwater Quality Assessment Report, February 5, 1994.

Engineering and Environmental Services, Re: letter of evidence for a single co-mingled contaminant plume, to Mr. George Matthis, November 1, 1993.

Engineering and Environmental Services, Re: Soil Sampling and Analysis, to Ms. Kelly C. Gage of Guilford County Department of Emergency Services, November 4, 1992.

Law Engineering, Report of Additional Assessment Services, 102 West Main Street, Jamestown, NC, July 18, 1994.

Law Engineering, Comprehensive Site Assessment, A Cleaner World, 102 West Main Street, Jamestown, NC, April 6, 1994.

SPATCO Environmental, Report of Tank Removal, 108 W. Main Street, Jamestown, NC, July 22, 1992.

North Carolina Department of Natural Resources and Community Development, 1985, Geologic Map of North Carolina.

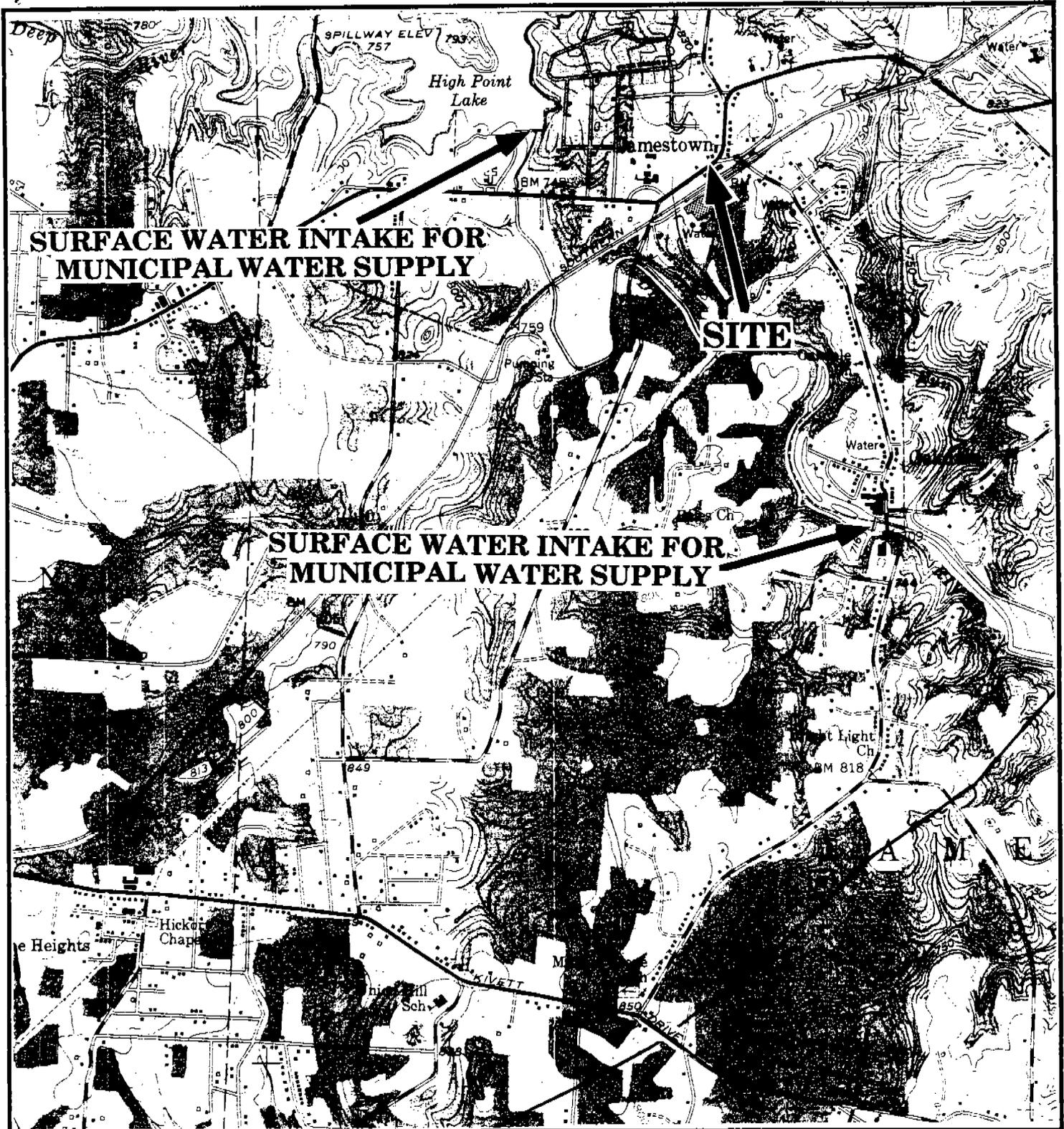
TABLE OF PERSONS INTERVIEWED

HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA

CONTACT AND DATE	ADDRESS AND PHONE	SUMMARY OF INTERVIEW
Bruce Dillan 9/8/94 & 9/15/94 No. 35 on Tax Map	Dillan's Citgo 106 W. Main St. Jamestown, NC 27282 910/454-1771	Occupant of Harold Hall Property. Discussed location of subsurface utilities and chemicals stored at the site.
Mr. Winn Underhill 9/28/94	Town of Jamestown 910/454-1138	Discussed the water supply for the Town of Jamestown and utility locations in the vicinity of the site.
Mr. & Mrs. Harold Hall 9/15/94	514 Forestdale Dr. Jamestown, NC 27282 910/454-2878	Property Owner. No water wells or basements at the site. Facility is heated with natural gas. Discussed site history
Mr. Neil Nelson 9/15/94 No. 34 on Tax Map	Nelson's 108 W. Main St. Jamestown, NC 27282 910/454-2213	Adjacent Property Occupant. Heating oil AST observed on the property but natural gas is presently being used for heat.
Ms. Josie Gibbany 9/15/94 No. 32 on Tax Map	101 W. Main St. Jamestown, NC 27282 910/454-5194	Adjacent Property Occupant. No water wells on property. Has not had a problem with water or odors in basement. Facility is heated with natural gas.
9/15/94 No. 36 on Tax Map	Employee A Cleaner World # 191 102 W. Main St. Jamestown, NC 27282 910/454-6061	Adjacent Property Occupant. No water wells or basements on property. Facility heated with natural gas.
Mr. Tom Gore 9/10/2/94	Dept. of Water and Sewer City of High Point 910/883-3166	Employee with the Dept. of Water and Sewer, City of High Point. The water intake for High Point Lake is at the dam on the northwest corner of Jamestown.

**APPENDIX B**

**FIGURES**



APPROX  
NORTH

0 2000  
FEET



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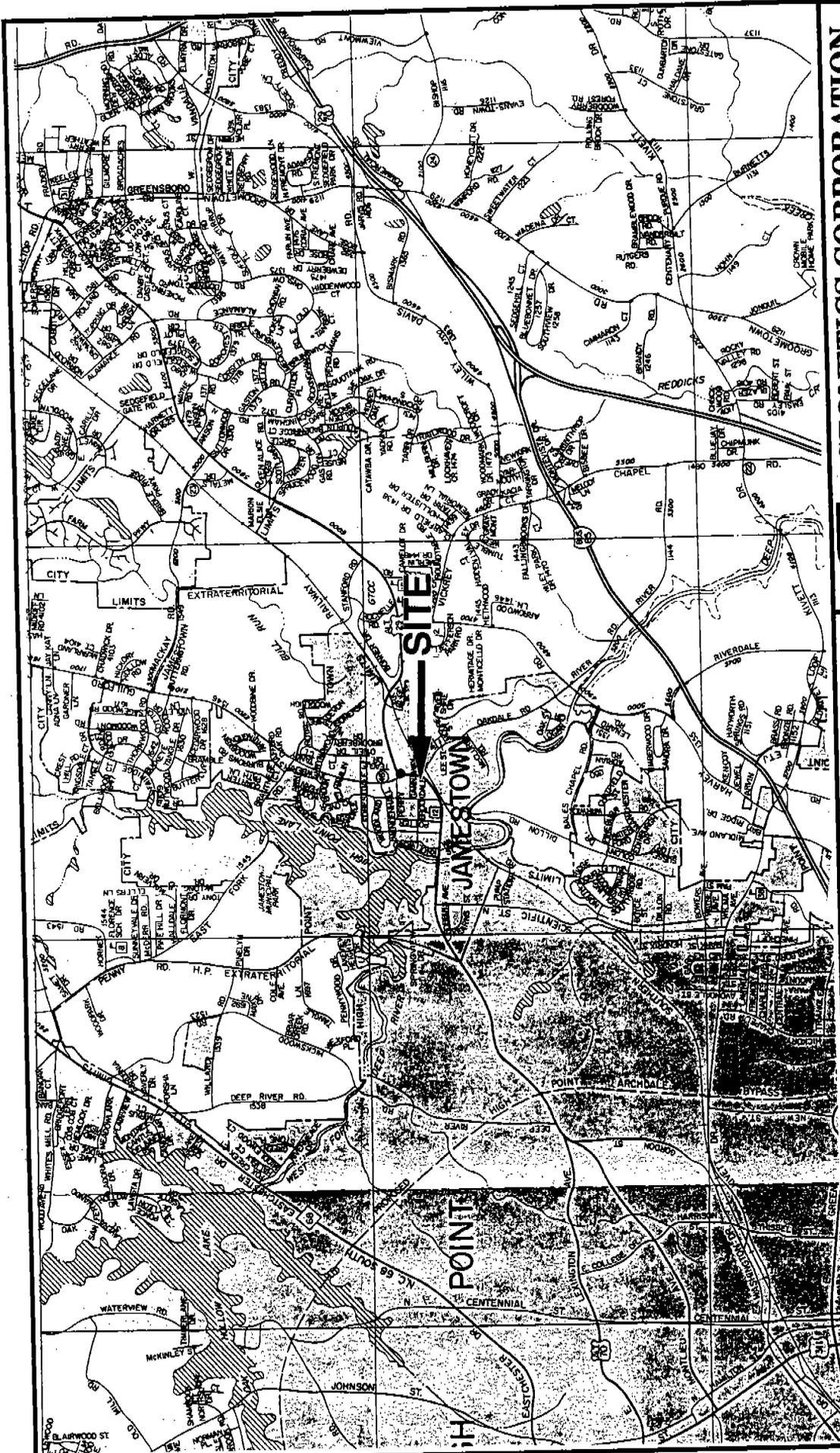
**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO.  
11594

**SITE LOCATION  
MAP**

**FIGURE 1**

KCS 9/22/94



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**HAROLD HALL PROPERTY**  
**JAMESTOWN, NORTH CAROLINA**

**FIGURE 2**  
 ROAD MAP  
 GUILFORD COUNTY

JOB NO.  
 11594

REF.: GUILFORD COUNTY, NORTH CAROLINA  
 Official Street Name/Address Map, Dated 1989

KCS 9/22/94



ALLEN P. SMITH PROPERTY  
(UNDEVELOPED)

JOHN W. BLANCHARD PROPERTY  
(FORMER CONVENIENCE STORE)

SAMUEL S. AND SHIRLEY B.  
MCKAREM PROPERTY  
(FORMER GAS STATION)

MARY E. RAGSDALE  
PROPERTY

THOMAS C. RAGSDALE, JR.  
AND JOHN R. RAGSDALE  
PROPERTY

APPROX. PROPERTY BOUNDARY

APPROX. PROPERTY BOUNDARY

FORMER  
KEROSENE AND  
USED OIL USTs

FORMER  
DIESEL  
FUEL  
USTs

FORMER  
GASOLINE  
USTs

DILLON'S  
CITYGO

EXISTING  
GASOLINE USTs

FRAME  
SHOP

OAKDALE ROAD

WEST MAIN STREET

MW-6

MW-5

MW-7

MW-1

MW-2

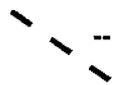
MW-4

MW-3

APPROX.  
NORTH

0 60  
FEET

**EXPLANATION**

-  -- APPROXIMATE LOCATION OF MONITORING WELL
-  -- FORMER LOCATION OF CLOSED USTs
-  -- LOCATION OF CURRENT USTs
-  -- AREA COVERED BY PAVEMENT
-  -- FORMER FUEL PIPELINE
-  -- EXISTING FUEL PIPELINE

REF.: GUILFORD COUNTY TAX MAP 94-7039,  
JAMESTOWN TOWNSHIP AND SITE  
VISITS BY GEONETICS PERSONNEL



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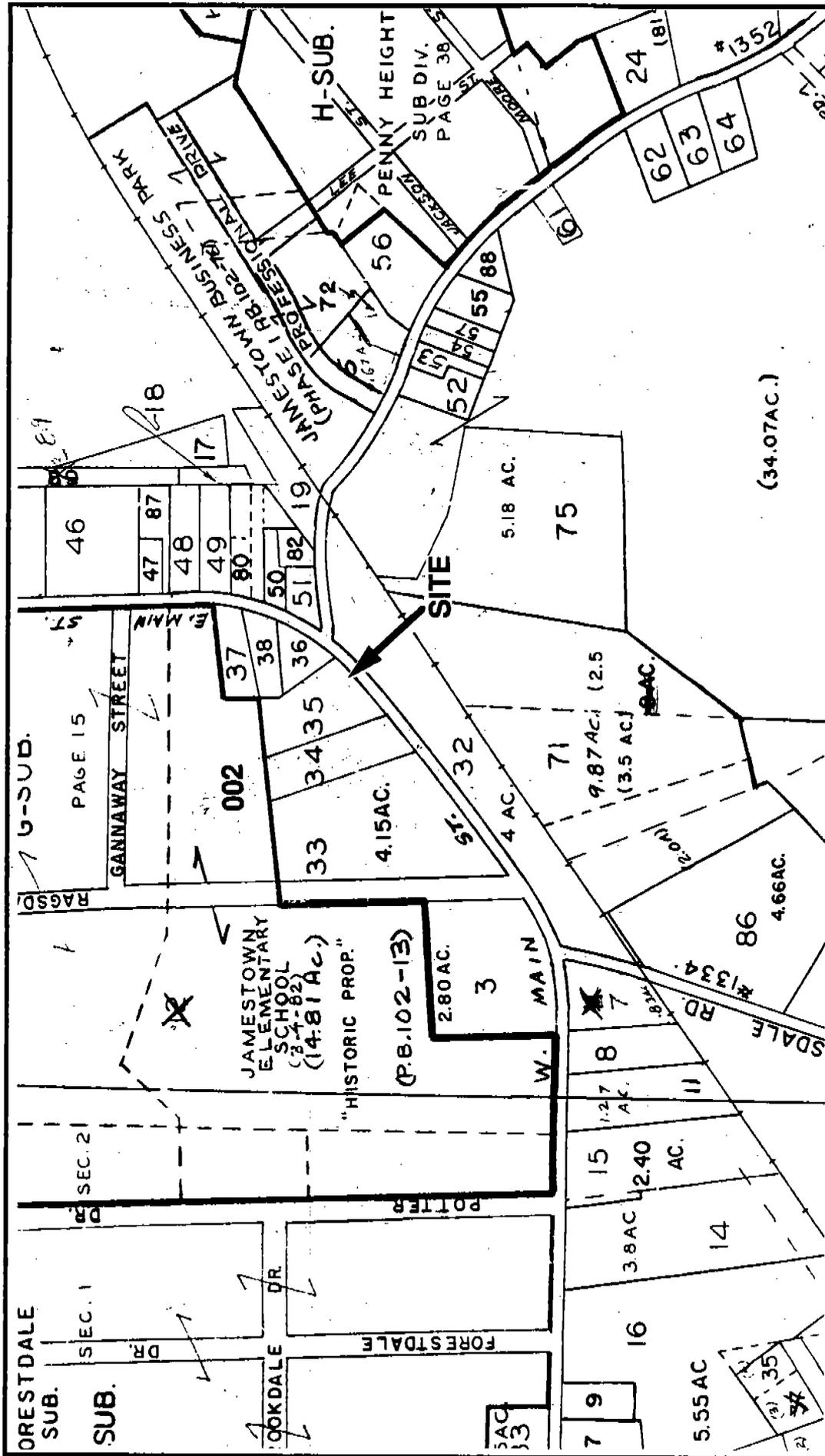
**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO.  
11594

**SITE PLAN**

**FIGURE 3**

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**HAROLD HALL PROPERTY  
 JAMESTOWN, NORTH CAROLINA**

JOB NO. 11594  
 MAP OF ADJACENT PROPERTY OWNERS

**FIGURE 4**

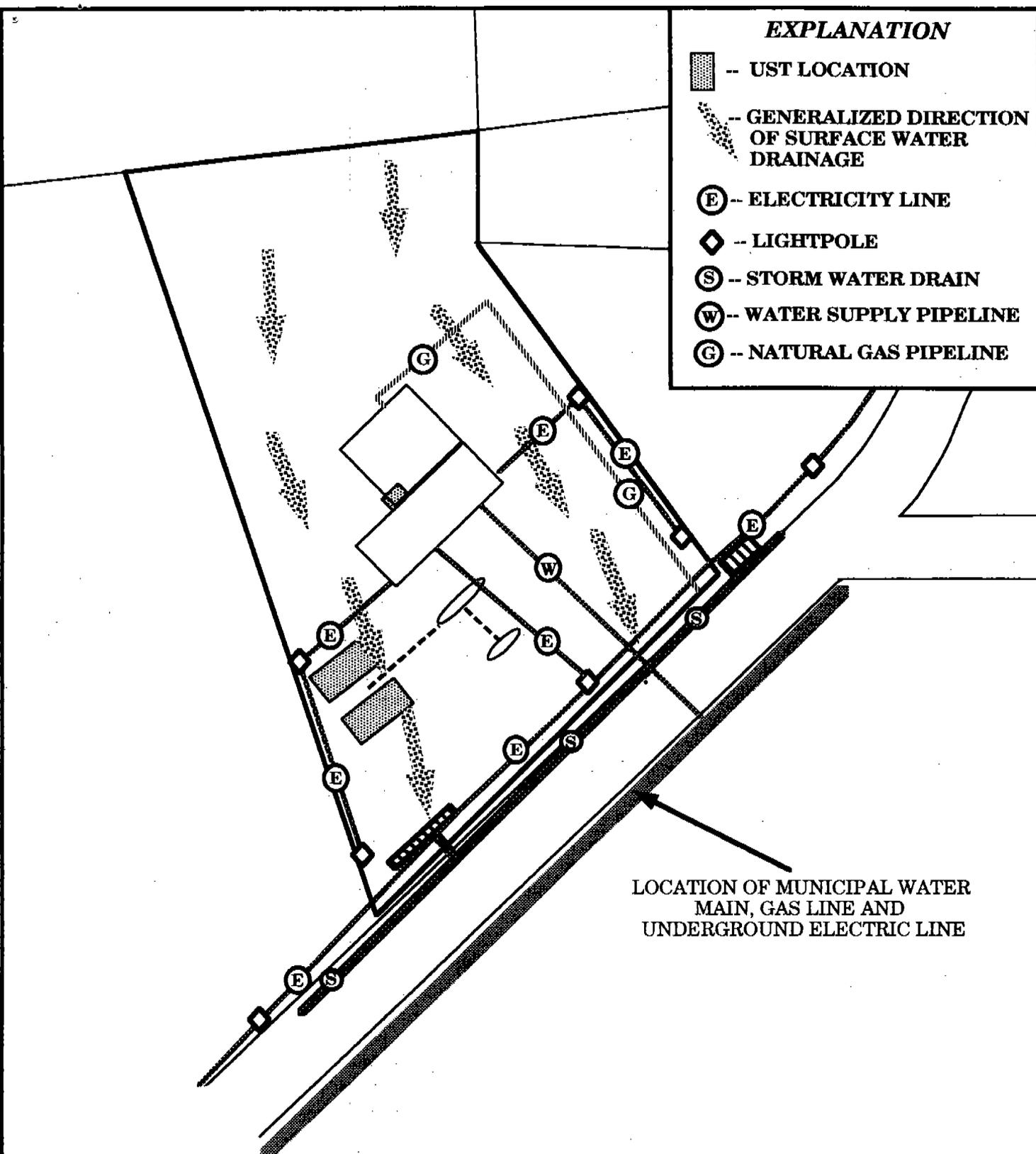


REF.: GUILFORD COUNTY TAX MAP 94-7039,  
 JAMESTOWN TOWNSHIP

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**EXPLANATION**

-  -- UST LOCATION
-  -- GENERALIZED DIRECTION OF SURFACE WATER DRAINAGE
-  -- ELECTRICITY LINE
-  -- LIGHTPOLE
-  -- STORM WATER DRAIN
-  -- WATER SUPPLY PIPELINE
-  -- NATURAL GAS PIPELINE



LOCATION OF MUNICIPAL WATER MAIN, GAS LINE AND UNDERGROUND ELECTRIC LINE

APPROX.  
NORTH



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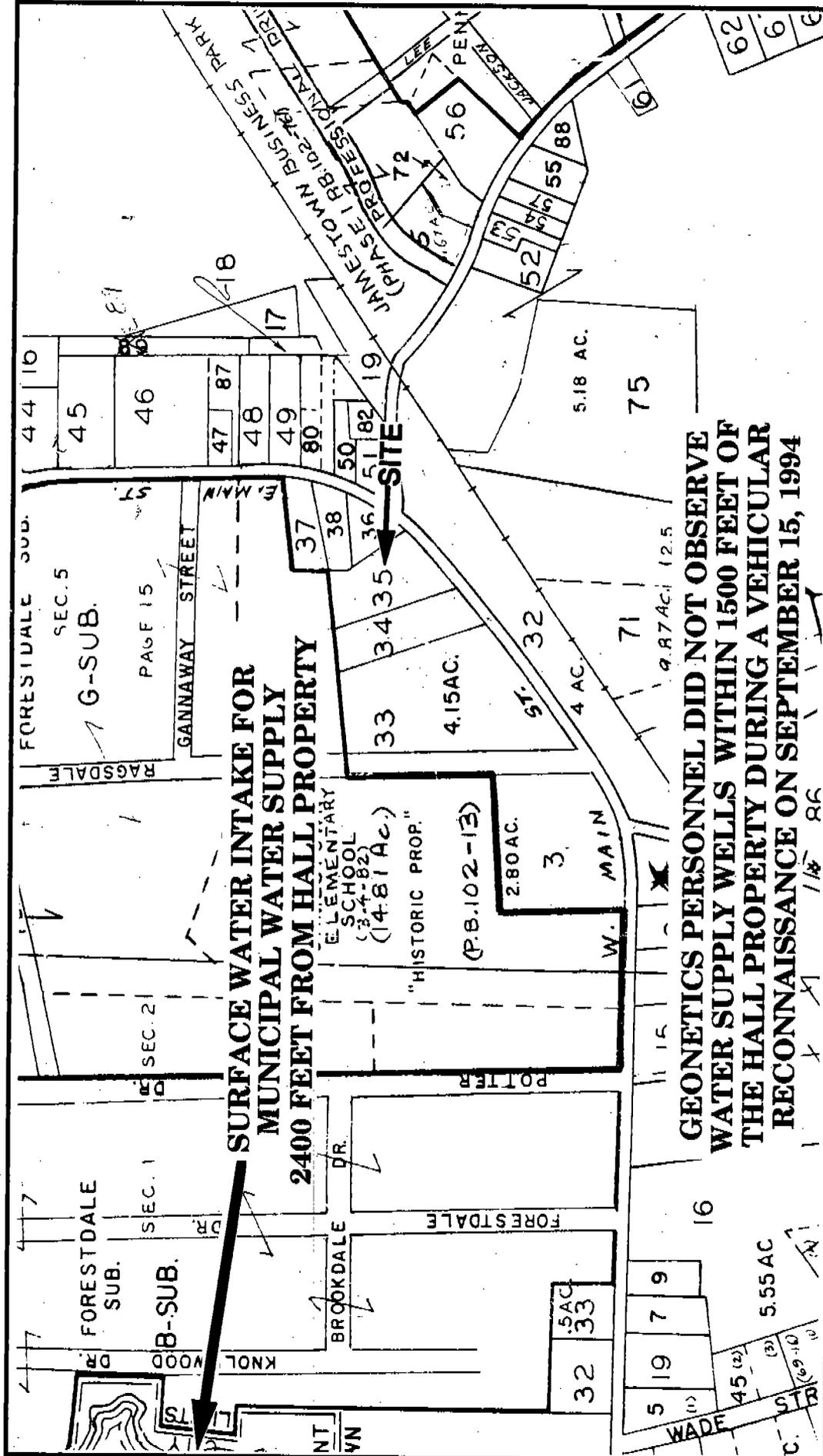
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**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO.  
11594

**SUBSURFACE  
UTILITIES MAP**

**FIGURE 5**

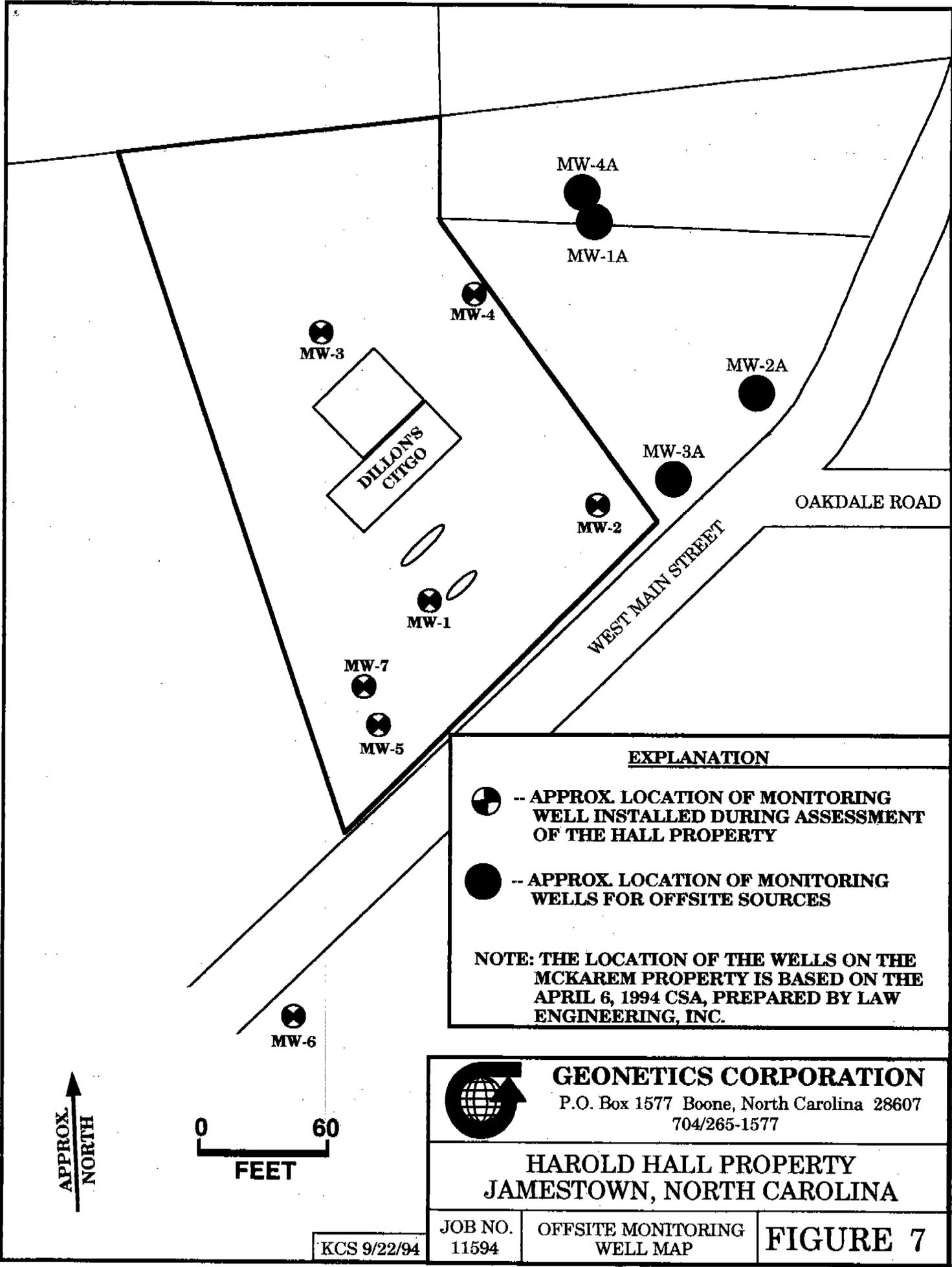


**SURFACE WATER INTAKE FOR  
MUNICIPAL WATER SUPPLY  
2400 FEET FROM HALL PROPERTY**

**GEONETICS PERSONNEL DID NOT OBSERVE  
WATER SUPPLY WELLS WITHIN 1500 FEET OF  
THE HALL PROPERTY DURING A VEHICULAR  
RECONNAISSANCE ON SEPTEMBER 15, 1994**

	
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<b>HAROLD HALL PROPERTY JAMESTOWN, NORTH CAROLINA</b>	
JOB NO. 11594	<b>RECEPTOR WELL MAP</b>
<b>FIGURE 6</b>	

<p>REF.: GUILFORD COUNTY TAX MAP 94-7039, JAMESTOWN TOWNSHIP</p>	
<p>KCS 9/22/94</p>	
<p>APPROX. NORTH</p>	
<p>0 400 FEET</p>	



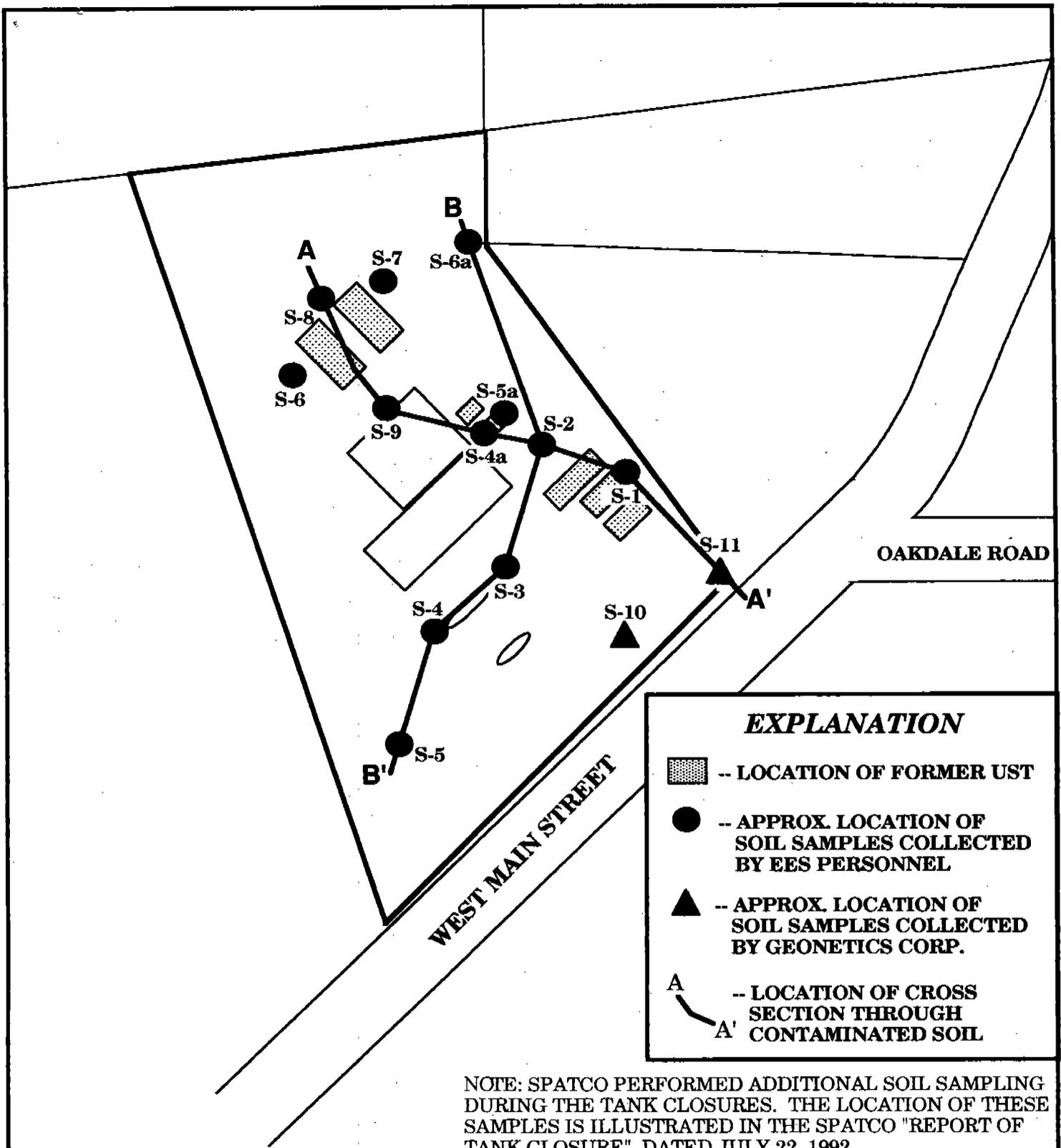
**EXPLANATION**

 -- APPROX. LOCATION OF MONITORING WELL INSTALLED DURING ASSESSMENT OF THE HALL PROPERTY  
 -- APPROX. LOCATION OF MONITORING WELLS FOR OFFSITE SOURCES

**NOTE: THE LOCATION OF THE WELLS ON THE MCKAREM PROPERTY IS BASED ON THE APRIL 6, 1994 CSA, PREPARED BY LAW ENGINEERING, INC.**

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<b>HAROLD HALL PROPERTY          JAMESTOWN, NORTH CAROLINA</b>		
JOB NO. 11594	OFFSITE MONITORING WELL MAP	<b>FIGURE 7</b>

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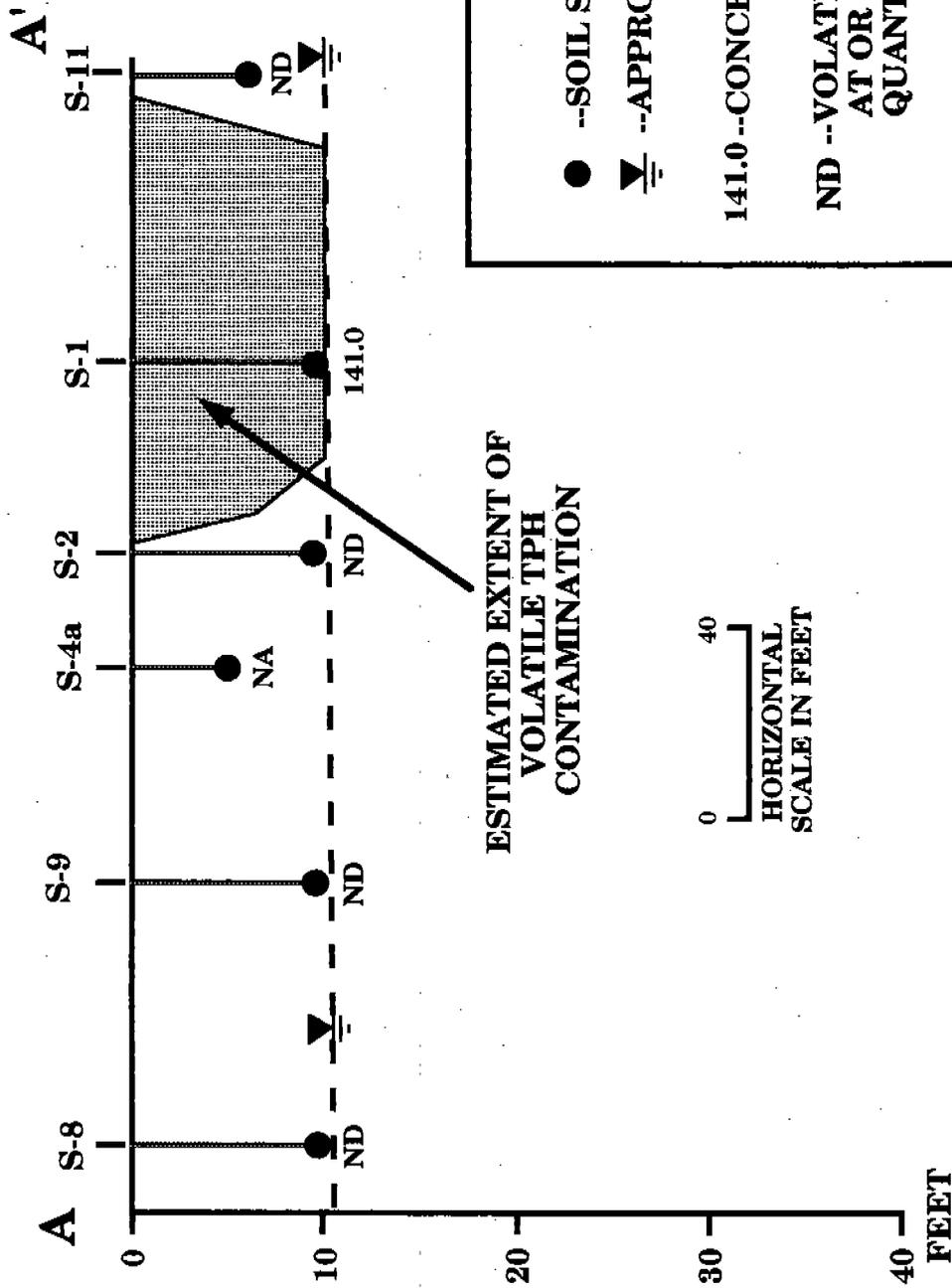
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**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO.  
11594

**SOIL SAMPLING  
PLAN**

**FIGURE 8**



**EXPLANATION**

● --SOIL SAMPLE COLLECTION POINT

▽ --APPROXIMATE PIEZOMETRIC SURFACE

141.0 --CONCENTRATION OF VOLATILE TPH IN PPM

ND -- VOLATILE TPH WAS NOT DETECTED AT OR ABOVE PRACTICAL QUANTIFICATION LIMITS

NA --SAMPLE WAS NOT ANALYZED FOR VOLATILE TPH

ESTIMATED EXTENT OF VOLATILE TPH CONTAMINATION

0 40  
HORIZONTAL SCALE IN FEET



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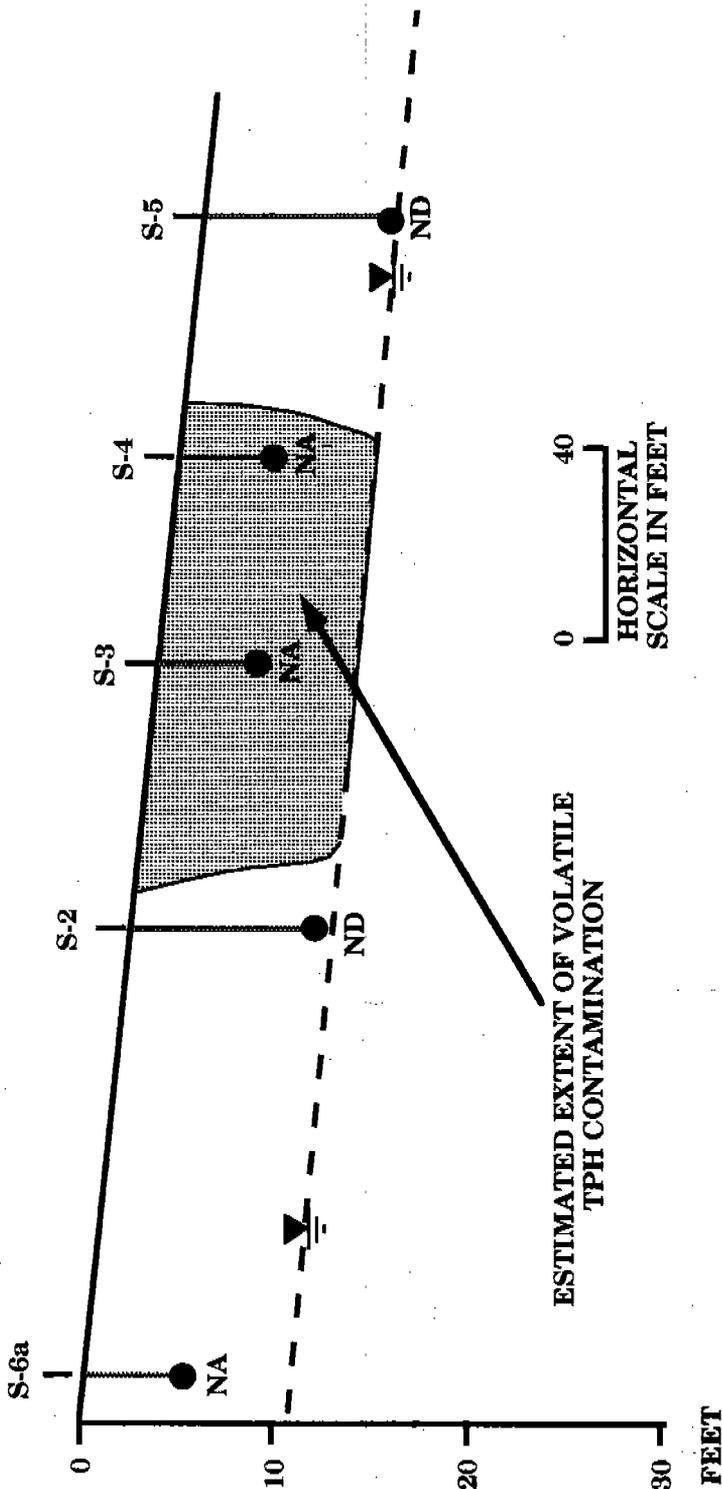
HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA

JOB NO. VOLATILE TPH-SOIL  
11594 PROFILE A-A'

**FIGURE 9**

KCS 9/27/94

B'



ESTIMATED EXTENT OF VOLATILE TPH CONTAMINATION

0 40 HORIZONTAL SCALE IN FEET

**EXPLANATION**

- --SOIL SAMPLE COLLECTION POINT
- ▽ --APPROXIMATE PIEZOMETRIC SURFACE
- ND --VOLATILE TPH WAS NOT DETECTED AT OR ABOVE PRACTICAL QUANTIFICATION LIMITS
- NA --SAMPLE WAS NOT ANALYZED FOR VOLATILE TPH

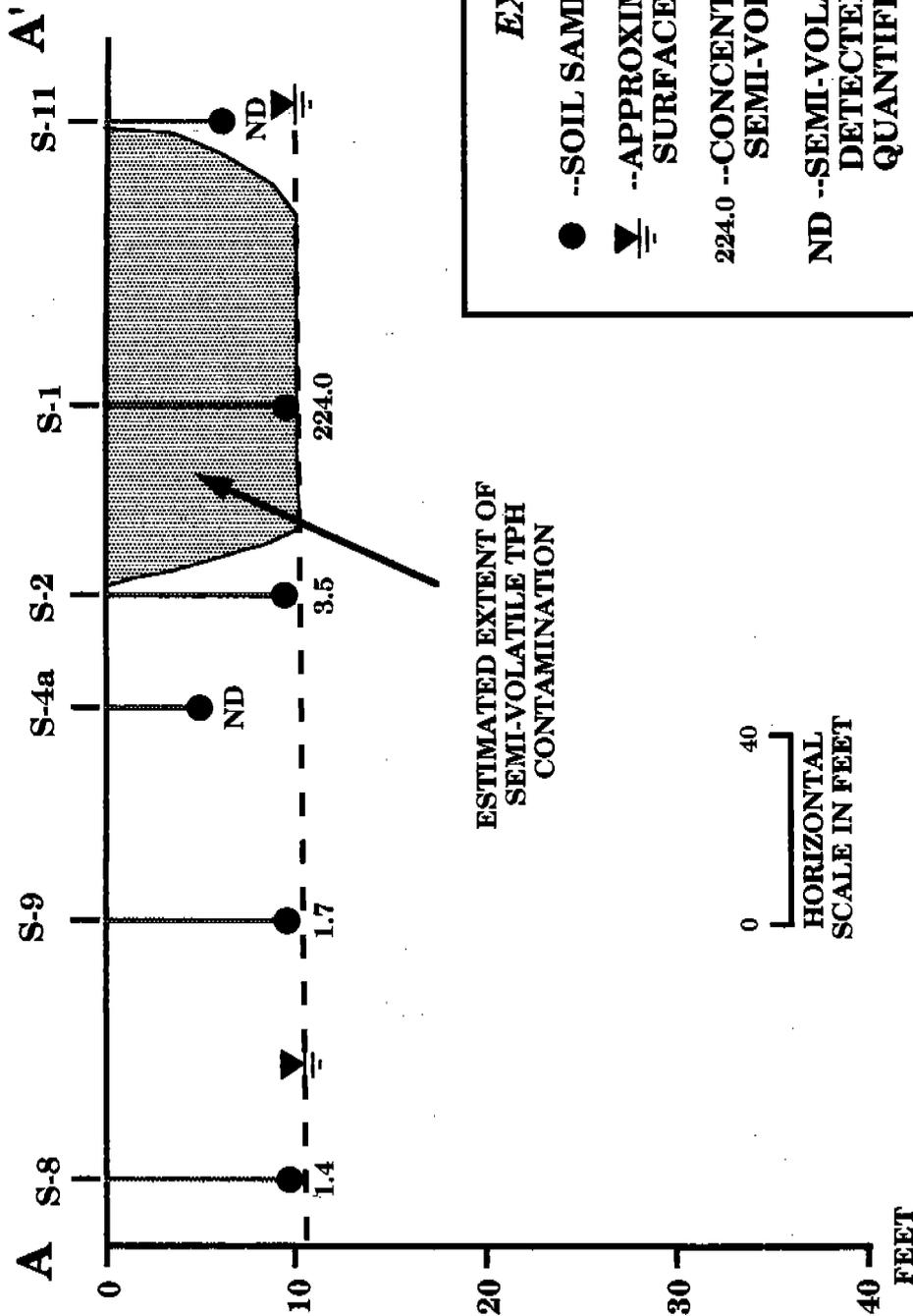
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**HAROLD HALL PROPERTY  
 JAMESTOWN, NORTH CAROLINA**

JOB NO. 11594  
 VOLATILE TPH-SOIL PROFILE B-B'

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**FIGURE 10**



ESTIMATED EXTENT OF SEMI-VOLATILE TPH CONTAMINATION

0 40  
HORIZONTAL SCALE IN FEET

**EXPLANATION**

- --SOIL SAMPLE COLLECTION POINT
- ▽ --APPROXIMATE PIEZOMETRIC SURFACE
- 224.0 --CONCENTRATION OF SEMI-VOLATILE TPH IN PPM
- ND --SEMI-VOLATILE TPH WAS NOT DETECTED AT OR ABOVE PRACTICAL QUANTIFICATION LIMITS



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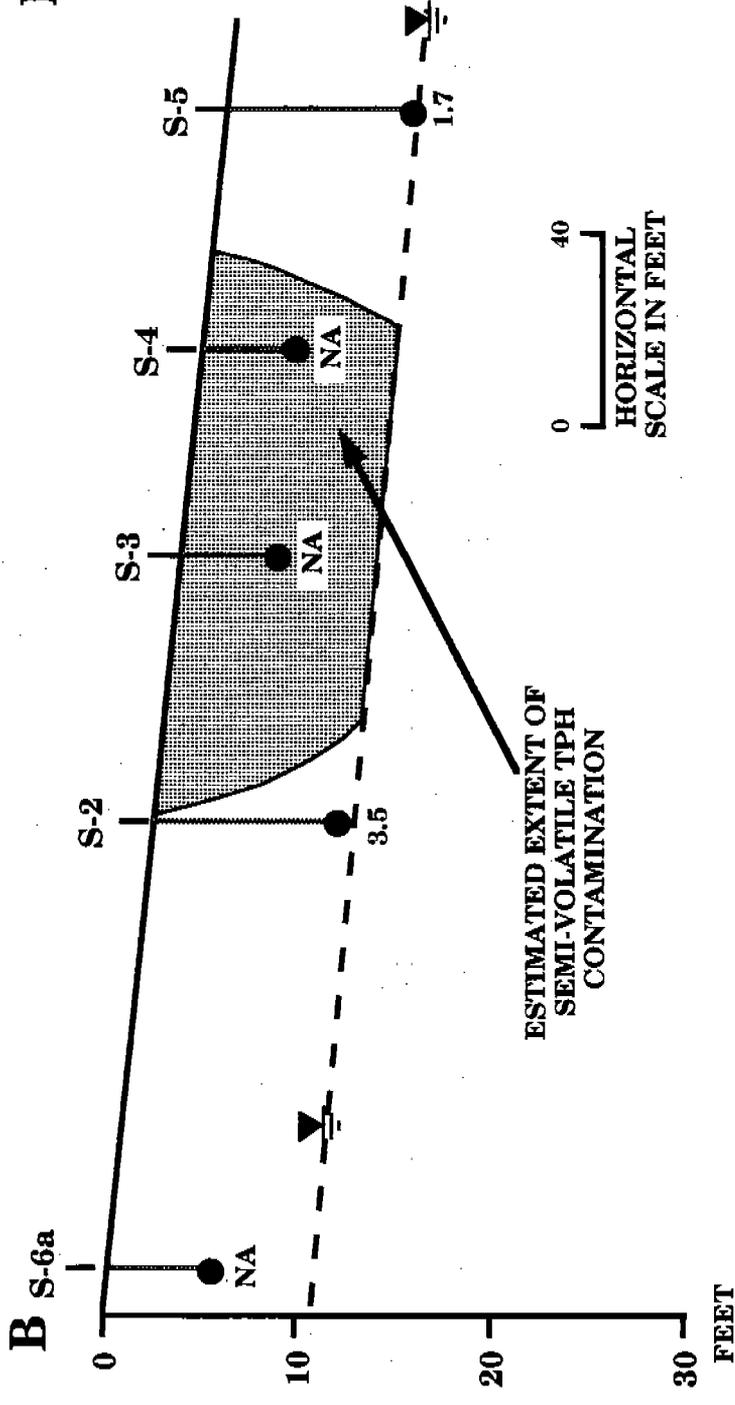
**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO. SEMI-VOLATILE TPH  
11594 SOIL PROFILE A-A'

**FIGURE 11**

KCS 9/27/94

B'



ESTIMATED EXTENT OF SEMI-VOLATILE TPH CONTAMINATION

HORIZONTAL SCALE IN FEET

**EXPLANATION**

- --SOIL SAMPLE COLLECTION POINT
- ▽ --APPROXIMATE PIEZOMETRIC SURFACE
- 3.5 --CONCENTRATION OF SEMI-VOLATILE TPH IN PPM
- NA --SAMPLE WAS NOT ANALYZED FOR SEMI-VOLATILE TPH



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**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

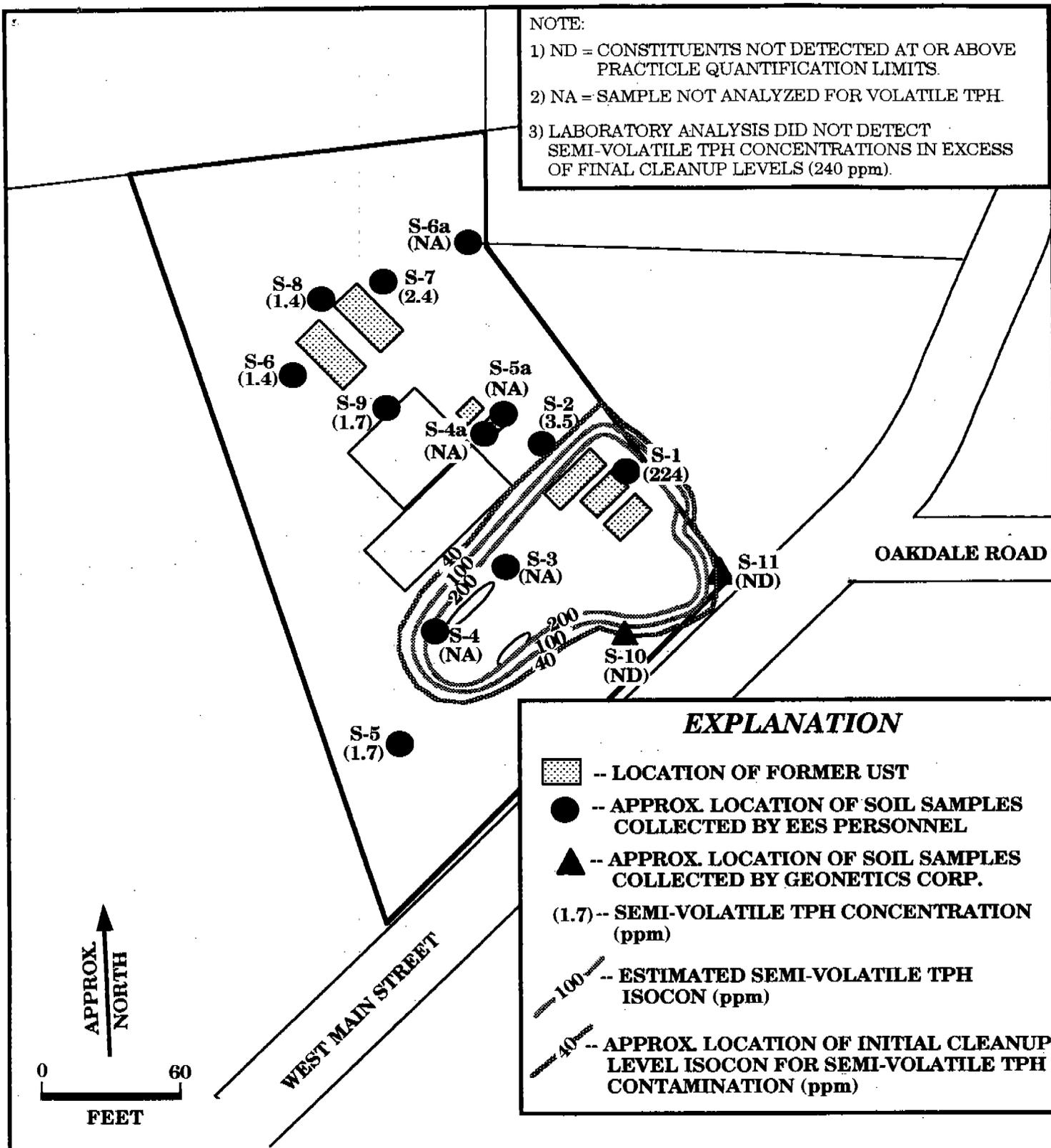
JOB NO. SEMI-VOLATILE TPH  
11594 SOIL PROFILE B-B'

**FIGURE 12**

KCS 9/27/94

**NOTE:**

- 1) ND = CONSTITUENTS NOT DETECTED AT OR ABOVE PRACTICE QUANTIFICATION LIMITS.
- 2) NA = SAMPLE NOT ANALYZED FOR VOLATILE TPH.
- 3) LABORATORY ANALYSIS DID NOT DETECT SEMI-VOLATILE TPH CONCENTRATIONS IN EXCESS OF FINAL CLEANUP LEVELS (240 ppm).



**EXPLANATION**

- LOCATION OF FORMER UST
- APPROX. LOCATION OF SOIL SAMPLES COLLECTED BY EES PERSONNEL
- APPROX. LOCATION OF SOIL SAMPLES COLLECTED BY GEONETICS CORP.
- (1.7) -- SEMI-VOLATILE TPH CONCENTRATION (ppm)
- 100 --- -- ESTIMATED SEMI-VOLATILE TPH ISOCON (ppm)
- 40 --- -- APPROX. LOCATION OF INITIAL CLEANUP LEVEL ISOCON FOR SEMI-VOLATILE TPH CONTAMINATION (ppm)



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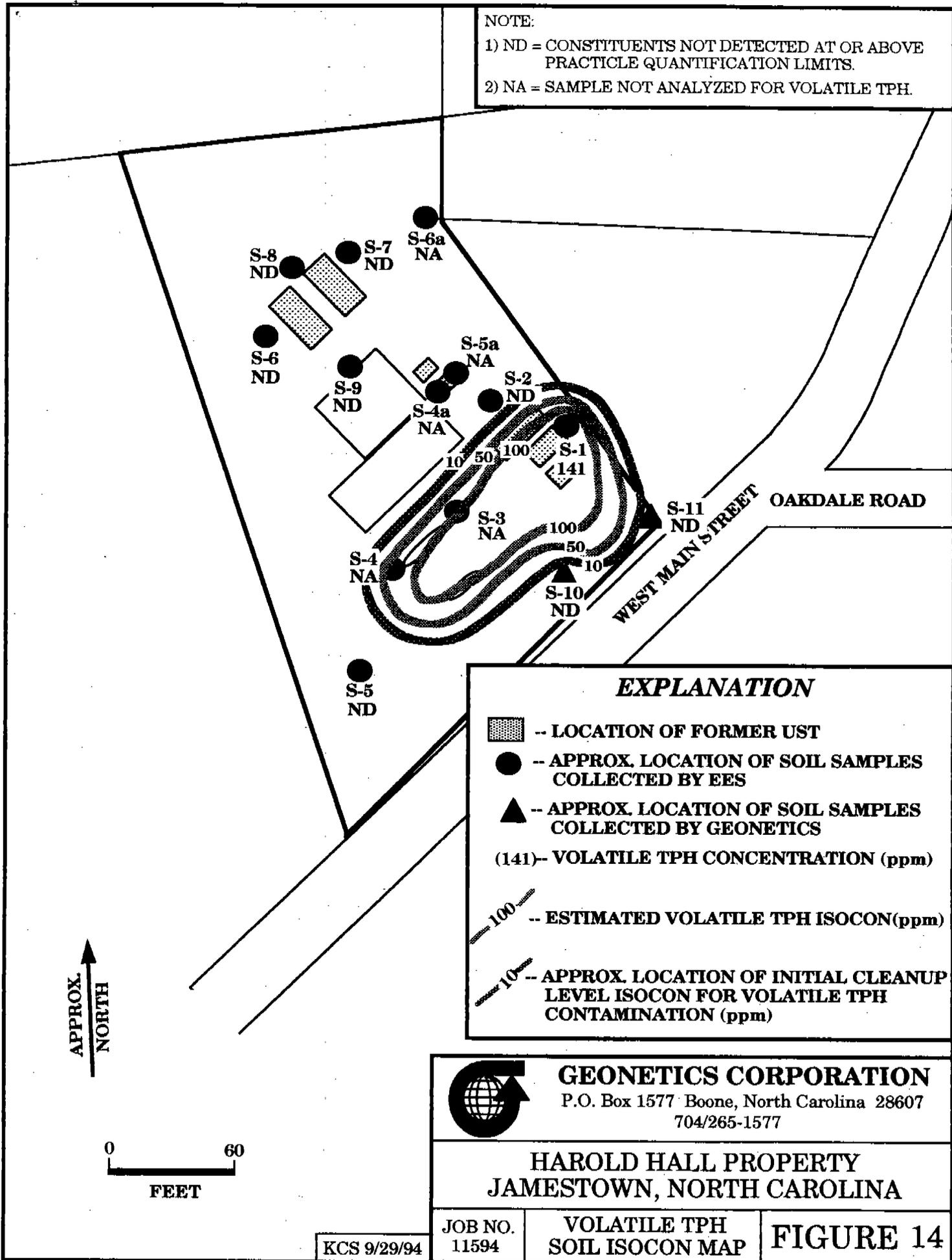
**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO. 11594	SEMI-VOLATILE TPH SOIL ISOCON MAP	<b>FIGURE 13</b>
------------------	--------------------------------------	------------------

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**NOTE:**

- 1) ND = CONSTITUENTS NOT DETECTED AT OR ABOVE PRACTICE QUANTIFICATION LIMITS.
- 2) NA = SAMPLE NOT ANALYZED FOR VOLATILE TPH.



**EXPLANATION**

- LOCATION OF FORMER UST
- APPROX. LOCATION OF SOIL SAMPLES COLLECTED BY EES
- APPROX. LOCATION OF SOIL SAMPLES COLLECTED BY GEONETICS
- (141) -- VOLATILE TPH CONCENTRATION (ppm)
- ESTIMATED VOLATILE TPH ISOCON(ppm)
- APPROX. LOCATION OF INITIAL CLEANUP LEVEL ISOCON FOR VOLATILE TPH CONTAMINATION (ppm)



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JAMESTOWN, NORTH CAROLINA**

JOB NO.  
11594

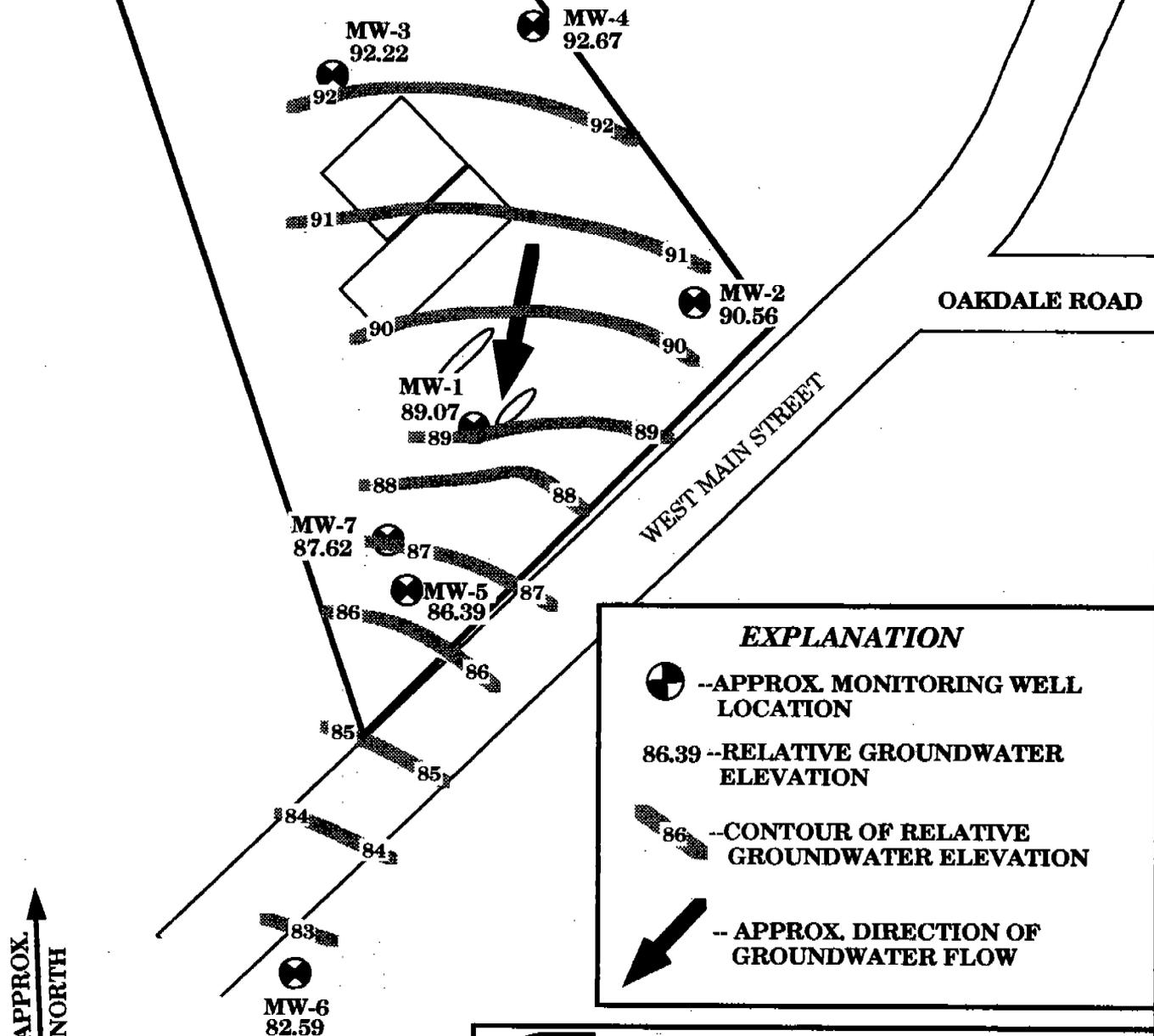
**VOLATILE TPH  
SOIL ISOCON MAP**

**FIGURE 14**

KCS 9/29/94

**NOTE:**

- 1) Groundwater elevations were measured relative to an assigned datum of 100.00 feet at the top of pipe in well MW-1.
- 2) Groundwater elevations were measured on 9/8/94.
- 3) Groundwater is not currently being pumped from on-site wells.
- 4) The groundwater gradient across the site (between MW-4 and MW-5) is 0.0296 feet per foot.



**EXPLANATION**

-  --APPROX. MONITORING WELL LOCATION
- 86.39 --RELATIVE GROUNDWATER ELEVATION
-  --CONTOUR OF RELATIVE GROUNDWATER ELEVATION
-  -- APPROX. DIRECTION OF GROUNDWATER FLOW



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**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

JOB NO.  
11594

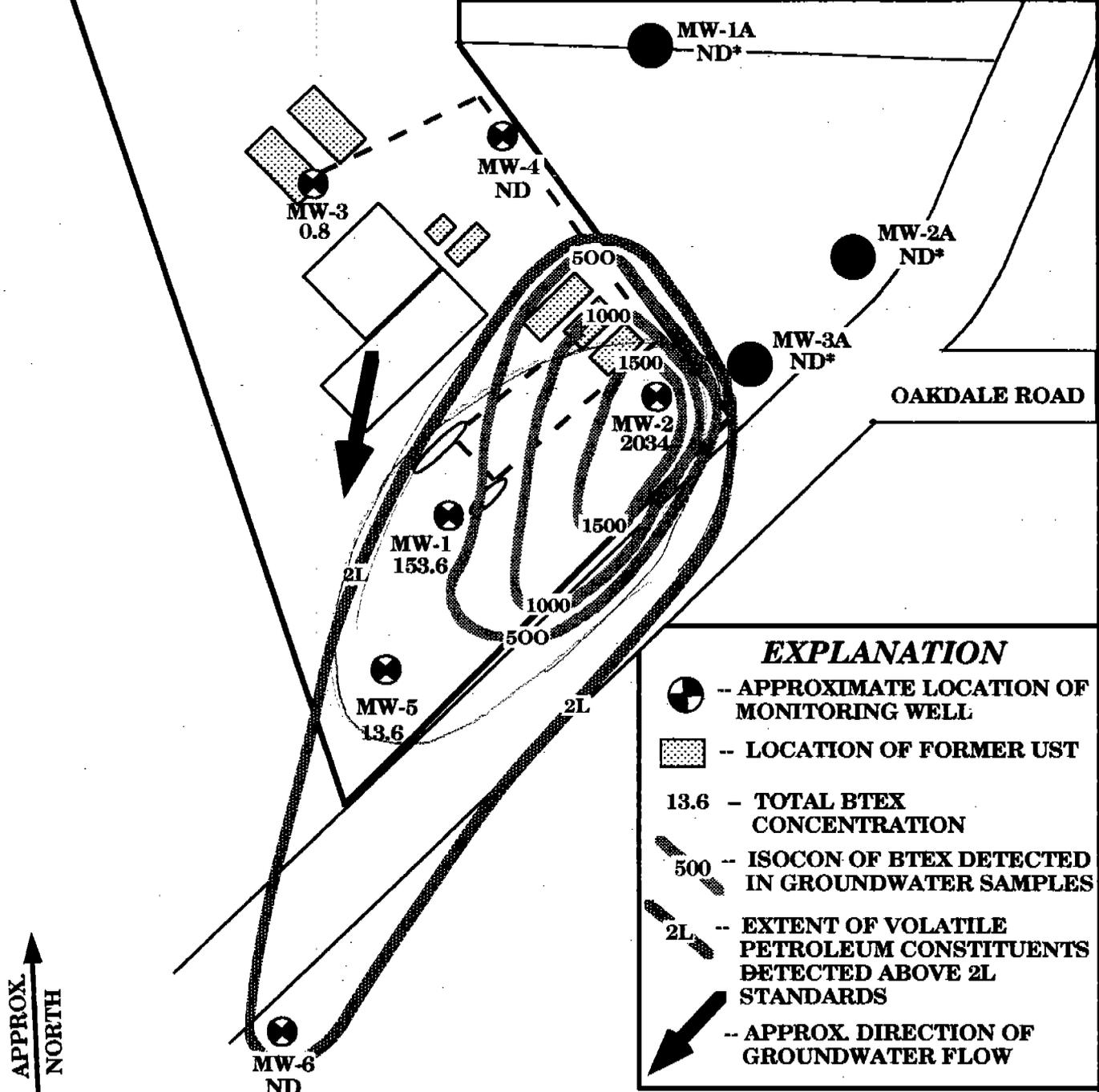
**GROUNDWATER  
CONTOUR MAP**

**FIGURE 15**

KCS 9/28/94

**NOTE:**

- 1) GROUNDWATER SAMPLES WERE COLLECTED ON SEPTEMBER 8, 1994.
- 2) ALL BTEX CONCENTRATIONS ARE REPORTED IN PARTS PER BILLION (ppb).
- 3) \* = ANALYTICAL DATA FROM OFFSITE WELLS WAS REPORTED IN THE LAW ENG., INC. CSA, DATED 4/6/94.
- 4) ND = NOT DETECTED AT OR ABOVE PRACTICAL QUANTIFICATION LIMITS.



**EXPLANATION**

- APPROXIMATE LOCATION OF MONITORING WELL
- LOCATION OF FORMER UST
- 13.6 -- TOTAL BTEX CONCENTRATION
- 500 -- ISOCON OF BTEX DETECTED IN GROUNDWATER SAMPLES
- 2L -- EXTENT OF VOLATILE PETROLEUM CONSTITUENTS DETECTED ABOVE 2L STANDARDS
- APPROX. DIRECTION OF GROUNDWATER FLOW

APPROX. NORTH

0 60  
FEET



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**HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

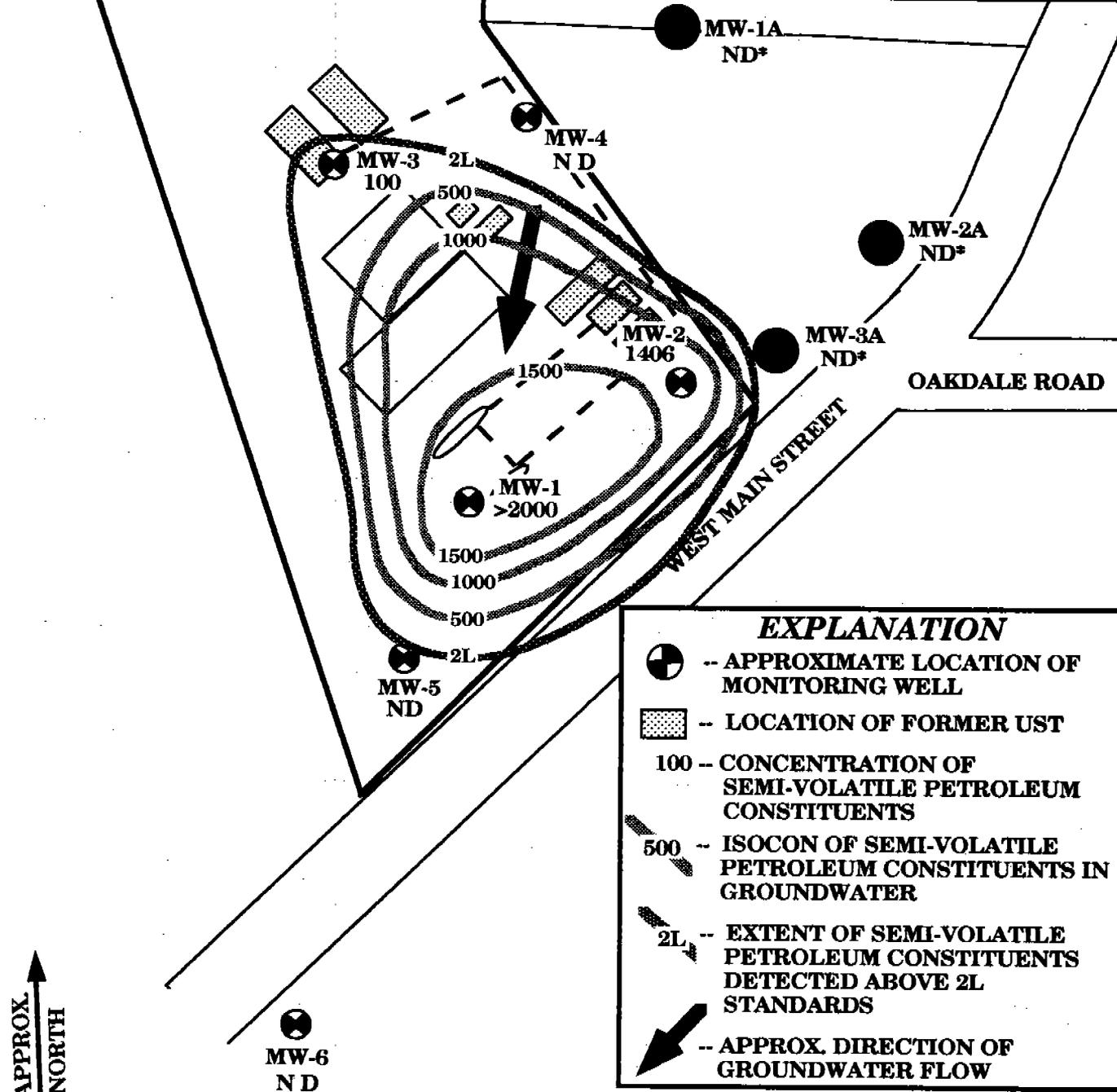
KCS 9/29/94

JOB NO.  
11594

GROUNDWATER ISOCON  
MAP - BTEX

**FIGURE 16**

**NOTE:**  
 1) GROUNDWATER SAMPLES WERE COLLECTED ON SEPTEMBER 8, 1994.  
 2) CONCENTRATION OF SEMI-VOLATILE PETROLEUM CONSTITUENTS ARE REPORTED IN PARTS PER BILLION (ppb).  
 3) \* = ANALYTICAL DATA FROM OFFSITE WELLS WAS REPORTED IN THE LAW ENG., INC. CSA, DATED 4/6/94.  
 4) ND = NOT DETECTED AT OR ABOVE PRACTICE QUANTIFICATION LIMITS.



**EXPLANATION**

- APPROXIMATE LOCATION OF MONITORING WELL
- LOCATION OF FORMER UST
- 100 -- CONCENTRATION OF SEMI-VOLATILE PETROLEUM CONSTITUENTS
- 500 -- ISOCON OF SEMI-VOLATILE PETROLEUM CONSTITUENTS IN GROUNDWATER
- 2L -- EXTENT OF SEMI-VOLATILE PETROLEUM CONSTITUENTS DETECTED ABOVE 2L STANDARDS
- APPROX. DIRECTION OF GROUNDWATER FLOW

APPROX.  
NORTH

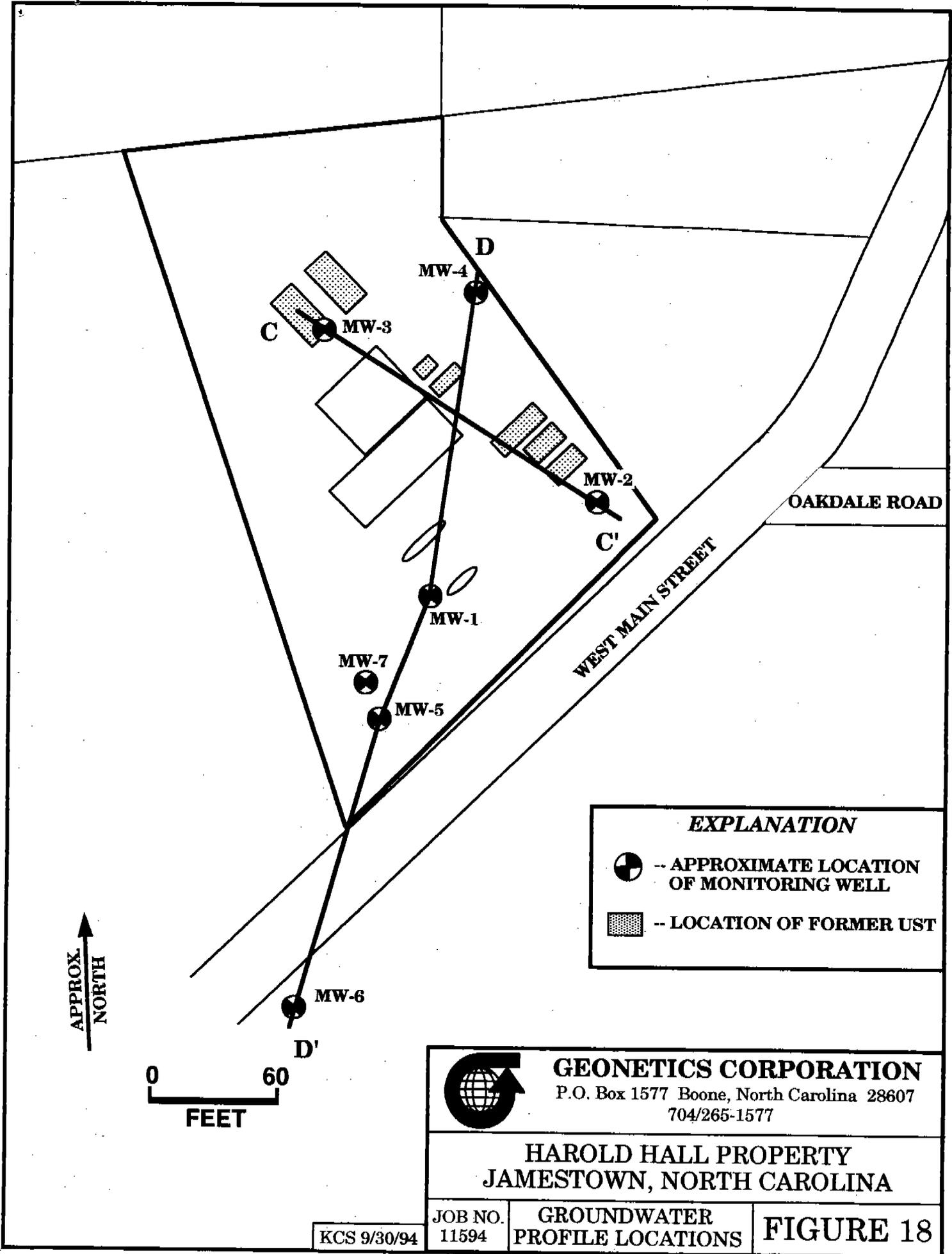
0 60  
FEET

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**HAROLD HALL PROPERTY  
 JAMESTOWN, NORTH CAROLINA**

JOB NO. 11594	GROUNDWATER ISOCON MAP - SEMI-VOLATILES	<b>FIGURE 17</b>
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**EXPLANATION**

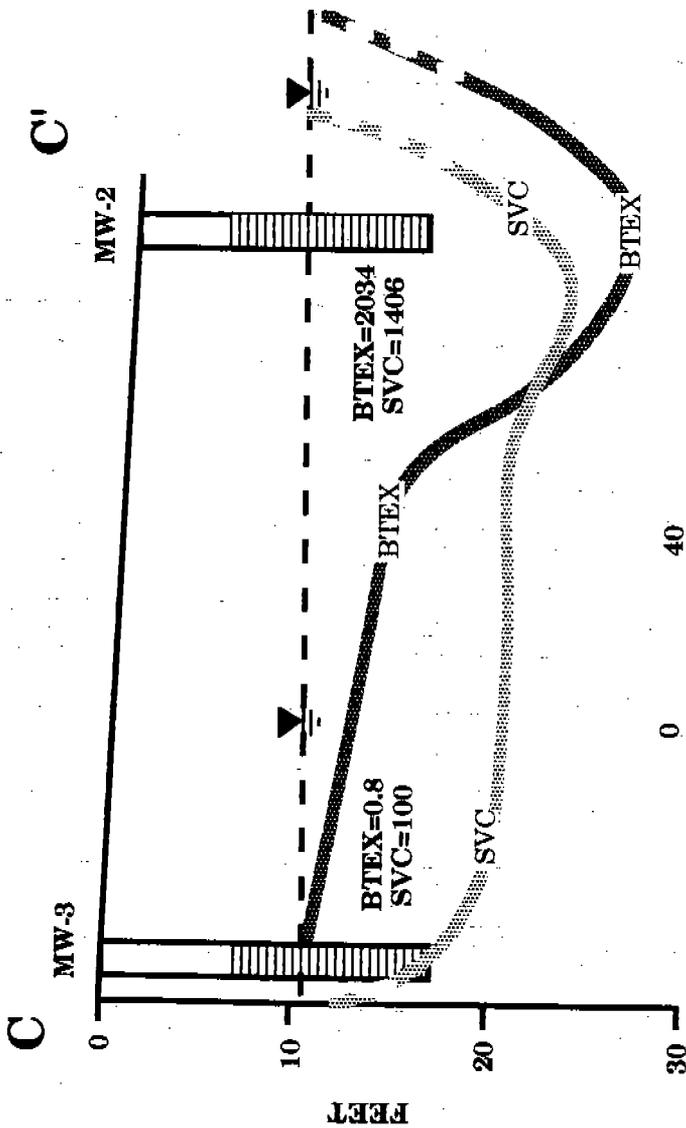
-  -- APPROXIMATE LOCATION OF MONITORING WELL
-  -- LOCATION OF FORMER UST

APPROX.  
NORTH

0 60  
FEET

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	<b>HAROLD HALL PROPERTY</b> <b>JAMESTOWN, NORTH CAROLINA</b>	
JOB NO. 11594	GROUNDWATER PROFILE LOCATIONS	<b>FIGURE 18</b>

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**NOTE:**

- 1) HORIZONTAL GRADIENT AT SITE IS 0.029 FEET PER FOOT. AN UPWARD VERTICAL GRADIENT WAS MEASURED IN WELL MW-7 ON SEPTEMBER 8, 1994
- 2) ANALYTICAL DATA IS BASED ON THE RESULTS FROM THE SEPTEMBER 15, 1994 SAMPLING EVENT

**EXPLANATION**

- BTEX -- CONCENTRATION OF BTEX COMPOUNDS (in ppb)
- SVC -- CONCENTRATION OF SEMI-VOLATILE ORGANIC COMPOUNDS (in ppb)
- APPROXIMATE PIEZOMETRIC SURFACE
- BTEX -- INTERPOLATED EXTENT OF THE BTEX COMPOUND PLUME
- SVC -- INTERPOLATED EXTENT OF THE SEMI-VOLATILE PETROLEUM CONSTITUENT PLUME



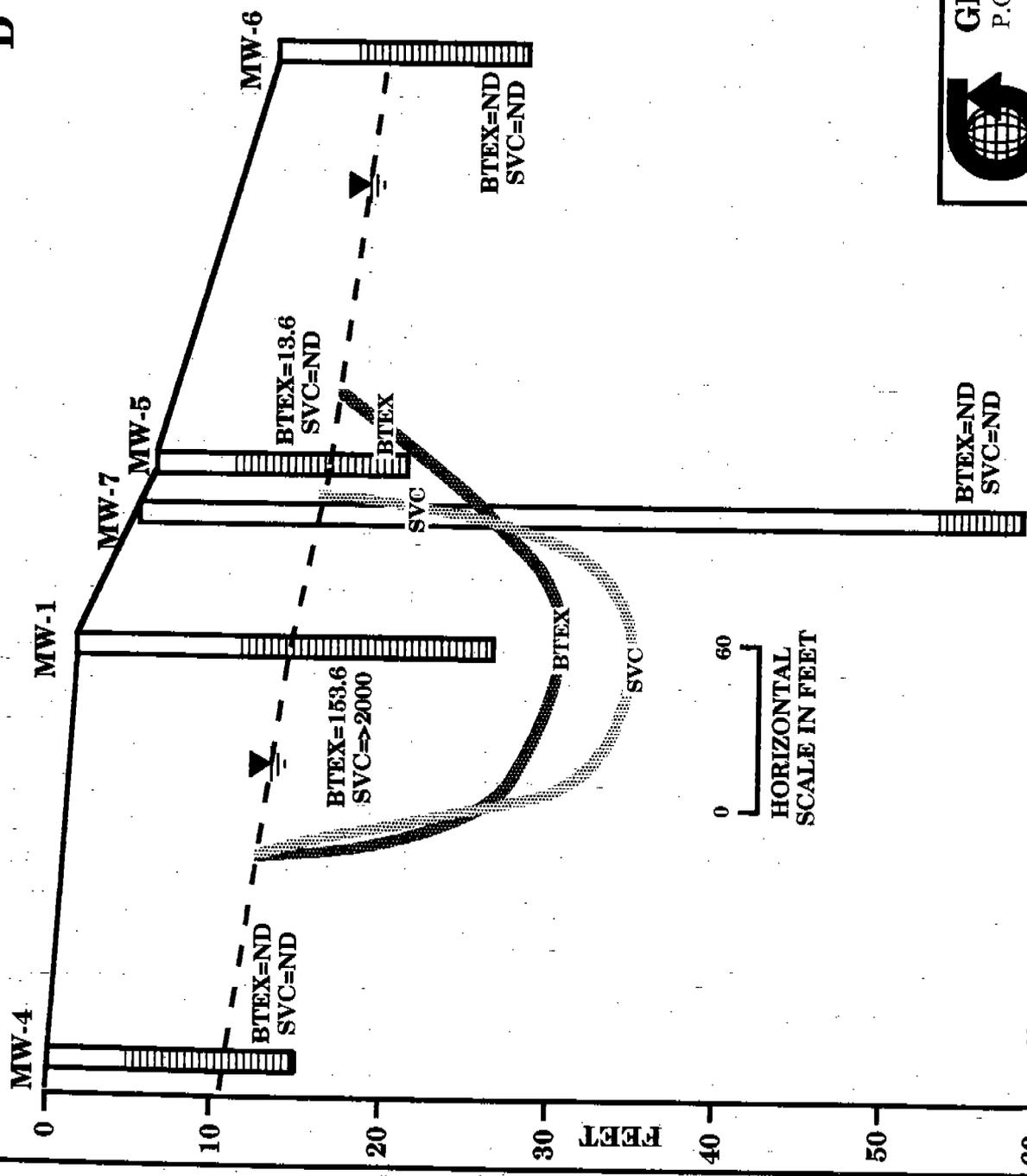
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**HAROLD HALL PROPERTY  
 JAMESTOWN, NORTH CAROLINA**

**JOB NO. 11594  
 GROUNDWATER PROFILE C-C'  
 FIGURE 19**

KCS 9/30/94

D' D



**EXPLANATION**

BTEX -- CONCENTRATION OF BTEX COMPOUNDS (in ppb)

SVC -- CONCENTRATION OF SEMI-VOLATILE ORGANIC COMPOUNDS (in ppb)

ND -- NOT DETECTED AT OR ABOVE PRACTICAL QUANTIFICATION LIMITS.

--- APPROXIMATE PIEZOMETRIC SURFACE

--- INTERPOLATED EXTENT OF BTEX OF THE BTEX PLUME

--- INTERPOLATED EXTENT OF THE SEMI-VOLATILE PETROLEUM PLUME

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**HAROLD HALL PROPERTY**  
**JAMESTOWN, NORTH CAROLINA**

JOB NO. 11594  
 GROUNDWATER PROFILE D-D'  
**FIGURE 20**

NOTE:

- HORIZONTAL GRADIENT AT SITE IS 0.029 FEET PER FOOT. AN UPWARD VERTICAL GRADIENT WAS MEASURED IN WELL MW-7 ON SEPTEMBER 8, 1994
- ANALYTICAL DATA IS BASED ON THE RESULTS FROM THE SEPTEMBER 15, 1994, SAMPLING EVENT

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**APPENDIX C**

**TABLES**

**TABLE 1****ADJACENT PROPERTY OWNERS  
HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

<b>LOT NUMBER ON MAP</b>	<b>OWNER OF RECORD</b>	<b>OCCUPANT</b>	<b>CONTACT</b>
32	Mary E. Ragsdale Magnolia Farm	Morgan Hall Retail Store	Ms. Josie Gibboney 101 W. Main St. Jamestown, NC 27282 910/454-5194
34	Thomas C. Ragsdale, Jr. and John R. Ragsdale	Nelson's Frame Shop	Mr. Neil Nelson 108 W. Main St. Jamestown, NC 27282 910/454-2213
36	Samuel S. and Shirley B. McKarem	A Cleaner World No. 191	Manager 102 W. Main St. Jamestown, NC 27282 910/454-6061
38	John W. Blanchard	Vacant Convenience Store/Gasoline Station	Mr. John W. Blanchard 1630 Revlon Pl. Charlotte, NC 28212-7136
002	Allen P. Smith	Undeveloped Property	Mr. Allen P. Smith 2711 Friends Ave. High Point, NC 27260-7040

TABLE 2

SOIL SAMPLING DATA  
 HAROLD HALL PROPERTY  
 JAMESTOWN, NORTH CAROLINA

SAMPLE NUMBER	DATE SAMPLED	SAMPLE TYPE	DEPTH OF SAMPLE	VOLATILE TPH 5030	SEMI-VOLATILE TPH 3550	OIL & GREASE EPA METHOD 9071
S-1	11/5/93	SPLIT SPOON	10.0	141	224	NA
S-2	11/5/93	SPLIT SPOON	10.0	ND	3.5	NA
S-3	11/5/93	SPLIT SPOON	5.0	NA	NA	NA
S-4	11/5/93	SPLIT SPOON	5.0	NA	NA	NA
S-5	11/5/93	SPLIT SPOON	10.0	ND	1.7	NA
S-6	11/5/93	SPLIT SPOON	10.0	ND	1.4	NA
S-4a	10/21/92	HAND AUGER	6.0	NA	NA	84
S-5a	10/21/92	HAND AUGER	6.0	NA	NA	182
S-6a	10/21/92	HAND AUGER	2.0	NA	NA	258
S-7	11/5/93	SPLIT SPOON	10.0	ND	2.4	NA
S-8	11/5/93	SPLIT SPOON	10.0	ND	1.4	NA
S-9	11/5/93	SPLIT SPOON	10.0	ND	1.7	NA
S-10	9/15/94	HAND AUGER	4.2	ND	ND	NA
S-11	9/15/94	HAND AUGER	5.9	ND	ND	NA

NOTE:

- 1). All results are reported in parts per million (ppm).
- 2). ND= Not detected at or above minimum quantification limits.
- 3). NA = Not analyzed for this constituent.
- 4). Soil samples S-3 and S-4 were not analyzed because field screening indicated that the samples were contaminated.

**TABLE 3**  
**GROUNDWATER ELEVATION DATA**  
**HALL PROPERTY**  
**JAMESTOWN, NORTH CAROLINA**

<b>WELL NUMBER</b>	<b>DATE</b>	<b>RELATIVE T.O.P. ELEVATION</b>	<b>DEPTH TO WATER</b>	<b>RELATIVE GROUNDWATER ELEVATION</b>
MW-1	9/8/94	100.00	10.93	89.07
MW-2	9/8/94	100.87	10.31	90.56
MW-3	9/8/94	101.87	9.65	92.22
MW-4	9/8/94	102.18	9.51	92.67
MW-5	9/8/94	95.11	8.72	86.39
MW-6	9/8/94	88.03	5.44	82.59
MW-7	9/8/94	97.09	9.47	87.62

**NOTE:**

- 1). All measurements are in feet.
- 2). T.O.P. = Top of Pipe (casing)

TABLE 4

**GROUNDWATER ANALYTICAL RESULTS  
HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

<b>PARAMETER (ug/l)</b>	<b>MW-1</b>	<b>MW-2</b>	<b>MW-3</b>	<b>MW-4</b>	<b>MW-5</b>	<b>MW-6</b>	<b>MW-7</b>
DICHLORODIFLUORO- METHANE	ND	ND	1.1	ND	9.7	16.9	70.8
TETRACHLOROETHENE	0.9	ND	92.2	12.6	94.1	20.0	42.5
1,2-DICHLOROETHANE	ND	0.8	ND	ND	ND	ND	ND
TRICHLOROETHENE	0.7	ND	ND	ND	13.6	0.6	ND
BENZENE	29.1	433	0.8	ND	13.6	ND	ND
TOLUENE	54.8	690	ND	ND	ND	ND	ND
ETHYL BENZENE	3.9	208	ND	ND	ND	ND	ND
XYLENES	65.8	703	ND	ND	ND	ND	ND
METHYL-T-BUTYL ETHER	584	1017	ND	ND	93.4	ND	ND
ISOPROPYL ETHER	12.2	66.6	ND	ND	108	7.9	ND
NAPHTHALENE	ND	182	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	83	44	ND	90	ND	ND	21
2,6-DIMETHYL NAPHTHALENE	>1000	ND	ND	ND	ND	ND	ND
TRIDECANE	>1000	ND	ND	ND	ND	ND	ND
1,2,4-TRIMETHYL BENZENE	ND	900	ND	ND	ND	ND	ND
ETHYL DIMETHYL BENZENE	ND	124	ND	ND	ND	ND	ND
DIMETHYL BENZENE	ND	200	ND	ND	ND	ND	ND
2-METHYL NAPHTHALENE	ND	ND	50	ND	ND	ND	ND
1,7-DIMETHYL NAPHTHALENE	ND	ND	50	ND	ND	ND	ND
2-ETHYL-1-HEXANOL	ND	ND	ND	40	40	ND	ND
LEAD	ND	90	ND	ND	60	ND	ND

NOTE: ND = Not detected at or above minimum quantification limits.

TABLE 5

CHEMICALS STORED ON SITE  
 HAROLD HALL PROPERTY  
 JAMESTOWN, NORTH CAROLINA

Motor Oil	Freon For Automobile A/C	Ethylene Glycol
Brake Fluid	275 Gal. Used Motor Oil AST	"Super Clean" - Cleaner & Detergent
Windshield Washer Fluid	Restroom Cleaning Detergent	Carburetor Cleaner
Automobile Batteries	Non-Chlorinated Brake Cleaner	Wheel Bearing Grease
X-Tend (Oil System Cleaner)	"Sparkle"- Serviced Parts Washer	Radiator Flush
Acetylene Welder	Rear-End Grease	Starting Fluid
Chassis Grease	Air-Tool Oil	Fifty Plus (Oil Treatment)
5-56 Non-Chlorinated Lubricant	Latex Paint	Rain-X
WD-40	Windshield D-Icer	10-Minute Flush
Wire Wheel Cleaner	Radiator Pressure Seal	Air Intake Cleaner
Carburetor & Choke Cleaner	Alkaline Butyl - Degreaser / Cleaner	Disc Brake Cleaner
S I Lubricant	"Stop Rust"	STP Oil Treatment
Car Polish	Anti-Seize Lubricant	1 Gal. Paint Reducer
1 Gal. Paint Primer	1 Gal. Paint Thinner	10,000 Gal. Gasoline UST
Brake Cleaner		

Note: This is a list of chemicals that Mr. Bruce Dillon identified during a site visit by Geonetics personnel on September 15, 1994.

**TABLE 6**

**WELLS DRILLED TO DATE  
HAROLD HALL PROPERTY  
JAMESTOWN, NORTH CAROLINA**

<b>WELL NUMBER</b>	<b>DATE DRILLED</b>	<b>WELL DIAMETER</b>	<b>TOTAL DEPTH OF WELL</b>	<b>SCREENED INTERVAL</b>
MW-1	1/14/93	2"	27.0'	10.0' to 25.0'
MW-2	1/14/93	2"	20.0'	5.0' to 15.0'
MW-3	1/14/93	2"	28.0'	7.0' to 17.0'
MW-4	9/29/93	2"	16.0'	5.0' to 15.0'
MW-5	9/29/93	2"	17.0'	5.0' to 15.0'
MW-6	9/29/93	2"	20.0'	5.0' to 15.0'
MW-7	1/25/94	2"	53.0'	48.0' to 53.0'

**APPENDIX D**

**STANDARD OPERATING PROCEDURES**

## **STANDARD OPERATING PROCEDURES**

Most phases of soil sampling, field screening and monitoring well installation were conducted by Engineering and Environmental Services (EES) of Hickory, North Carolina. Operating procedures used at the site by EES for soil sampling, field screening, equipment decontamination and monitoring well construction were obtained from the Soil and Groundwater Quality Assessment Report, dated February 5, 1994, on file at the Winston-Salem Regional Office and from a letter to Ms. Kelly C. Gage of the Guilford County Department of Emergency Services, dated November 4, 1992.

### **Soil Sampling and Field Screening**

Borings S-1 through S-9 were drilled with 8 inch hollow stem augers under the direction of EES. These borings were advanced to a depth of 10 feet or until contaminated soil was observed in the soil cuttings or in the split-spoon samples. Soil samples were collected at 5 feet and at 10 feet with a split-spoon sampler.

Three borings, S-4a through S-6a, were hand augered by EES personnel. Two soil samples, S-4a and S-5a, were collected from the used motor oil UST excavation at depth of approximately 6 feet. A background sample, S-6a, was collected from the northeast corner of the site at a depth of approximately 2 feet.

Two additional soil borings, S-10 and S-11 were hand augered by Geonetics personnel on September 15, 1994. Samples from borings S-10 and S-11 were taken from depths of 4.2 feet and 5.9 feet, respectively. The locations of all soil borings are illustrated in Figure 8.

Soil samples were placed in sealed plastic bags and the head space in each of the bags was field screened for organic vapors using a HNu Photoionization Detector (PID). Confirmatory samples were placed in laboratory cleaned sample jars with Teflon-lined lids and chilled for transport to Blue Ridge Labs, Inc. in Lenoir, North Carolina. Chains of Custody were initiated and accompanied the samples to the laboratory. Soil samples were analyzed for volatile and semi-volatile Total Petroleum as Hydrocarbons (TPH) using EPA Methods 5030 and 3550, and for oil and grease by EPA Method 9071. Soil sampling data can be found in Table 2. The laboratory reports and Chain of Custody records for soil samples are included in Appendix F.

## **Monitoring Well Construction and Groundwater Sampling**

Monitoring wells MW-1 through MW-6 were drilled using an air-rotary percussion rig to advance the nominally 5-inch bit. These monitoring wells consist of a 2-inch PVC pipe (schedule 40 with flush-threaded joints) with a section of manufactured well screen with 0.010-inch wide openings at the base of the well. Wells MW-2 through MW-6 have 10 feet of well screen; well MW-1 has 15 foot screened section.

A Type 3 monitoring well was installed at MW-7 consisting of an outer casing of 6-inch diameter Schedule 40 PVC pipe with flush threaded joints. This outer casing was tremie grouted into place using a neat cement. The inner casing consists of 2-inch PVC pipe (schedule 40 with flush-threaded joints) with a 5-foot section of manufactured well screen with 0.010-inch wide openings at the base of the well.

In each of the monitoring wells, washed medium sand was placed around the outside of the well screen. The sand pack is used to stabilize the formation and to help yield a less turbid groundwater sample. A 2 to 3-foot bentonite seal was installed on top of the sand pack to seal each monitoring well at the desired level. The boreholes were then grouted to the ground surface and concrete pads were installed around flush mounted steel manholes with bolt-down covers.

Prior to sampling, all monitoring wells were purged to bring fresh formation water into the wells. The wells were purged by bailing at least three well volumes of water or by bailing the well dry.

The groundwater samples were obtained from the monitoring wells with disposable Teflon bailers and new nylon cord on September 8, 1994. The samples were placed in laboratory-cleaned jars, sealed with Teflon-lined lids, labeled and chilled, and a Chain of Custody was initiated. The groundwater samples were analyzed by Blue Ridge Labs for purgeable aromatics (EPA Method 602), purgeable halocarbons (EPA Method 601) and semi-volatile organic compounds (EPA Method 625). During water sampling events, water temperature and electrical conductivity were measured at each well. Laboratory reports and Chain of Custody records are included in Appendix F.

## **Decontamination**

To minimize the potential for cross-contamination, hand augers, drilling tools and soil sampling equipment were decontaminated between soil sample collection and between each boring. The drilling tools were cleaned with a steam pressure wash. The hand augers were decontaminated by washing with potable water and phosphate-free detergent followed by a potable water rinse, an alcohol rinse and a final rinse with deionized water. Clean latex gloves were used during each sampling event.

## **Surveying and Field Measurements**

Horizontal locations of monitoring wells and soil borings were identified by measuring with a tape and estimating right angles, referencing site features. Approximate elevations of the top of the well casings were measured with a level and rod, referencing the top of casing in well MW-1 and assigning that point an elevation of 100.00 feet.

**APPENDIX E**

**WELL DIAGRAMS AND  
WELL CONSTRUCTION RECORDS**

# WELL CONSTRUCTION AND DRILLING LOG

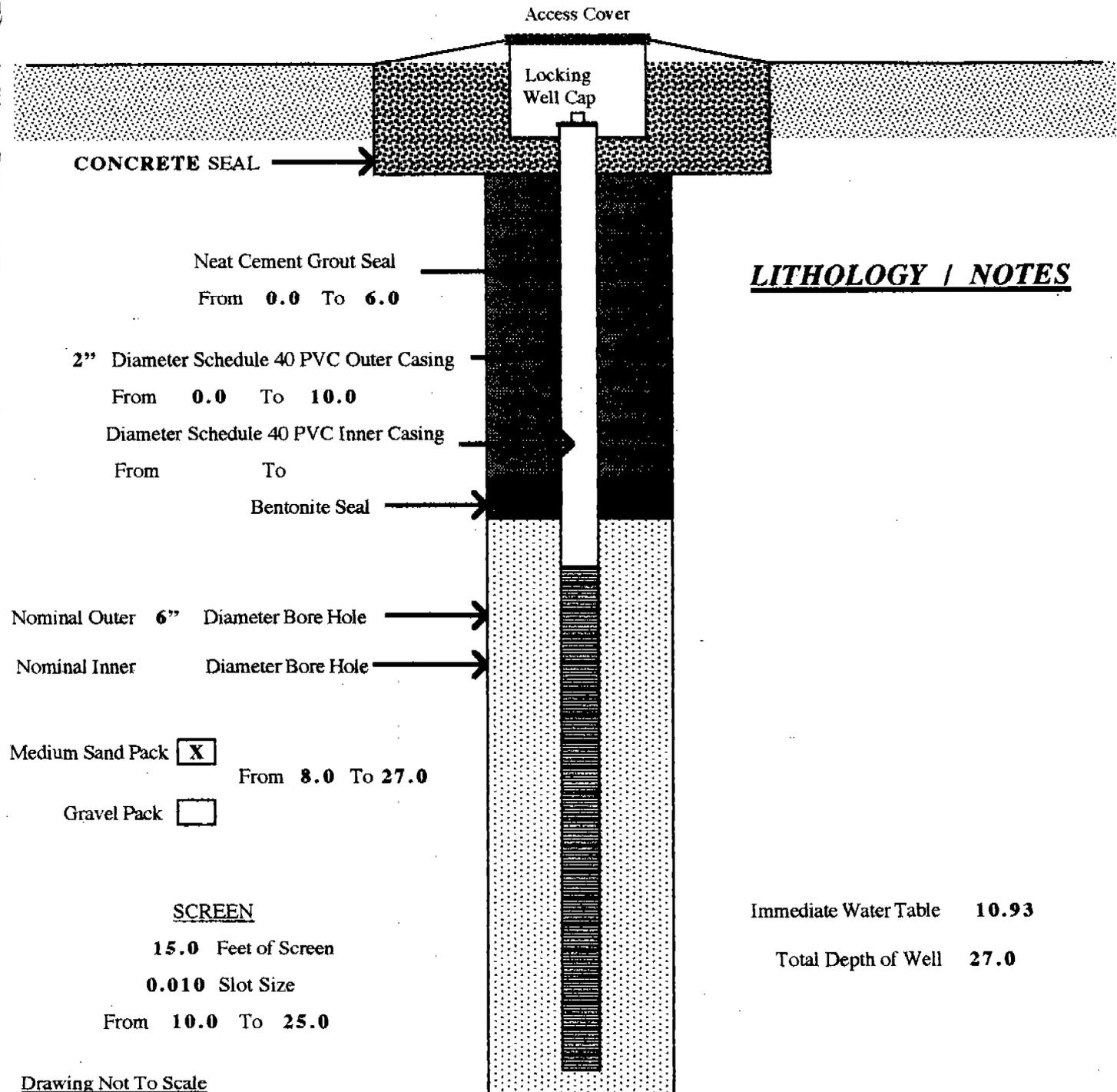
PERMIT NUMBER: **401076WM0502**      PROJECT NUMBER: **11594**

WELL NUMBER: **MW-1**      INSTALLATION DATE: **1/14/93**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



## LITHOLOGY / NOTES

Immediate Water Table    **10.93**

Total Depth of Well    **27.0**

SCREEN

**15.0** Feet of Screen

**0.010** Slot Size

From **10.0** To **25.0**

Drawing Not To Scale

# WELL CONSTRUCTION AND DRILLING LOG

PERMIT NUMBER: **401076WM0502**

PROJECT NUMBER: **11594**

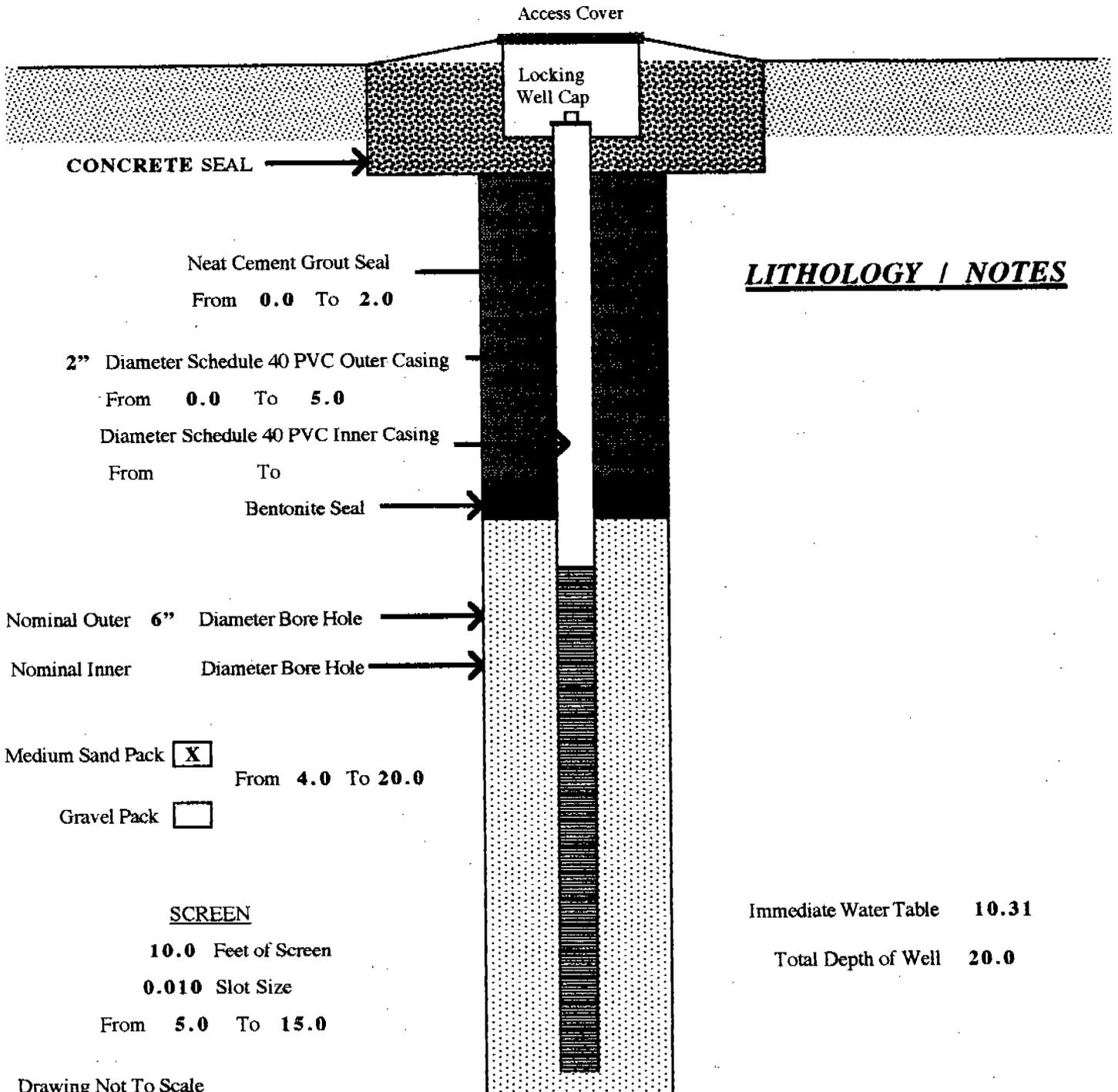
WELL NUMBER: **MW-2**

INSTALLATION DATE: **1/14/93**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



## LITHOLOGY / NOTES

Immediate Water Table **10.31**

Total Depth of Well **20.0**

Drawing Not To Scale

# WELL CONSTRUCTION AND DRILLING LOG

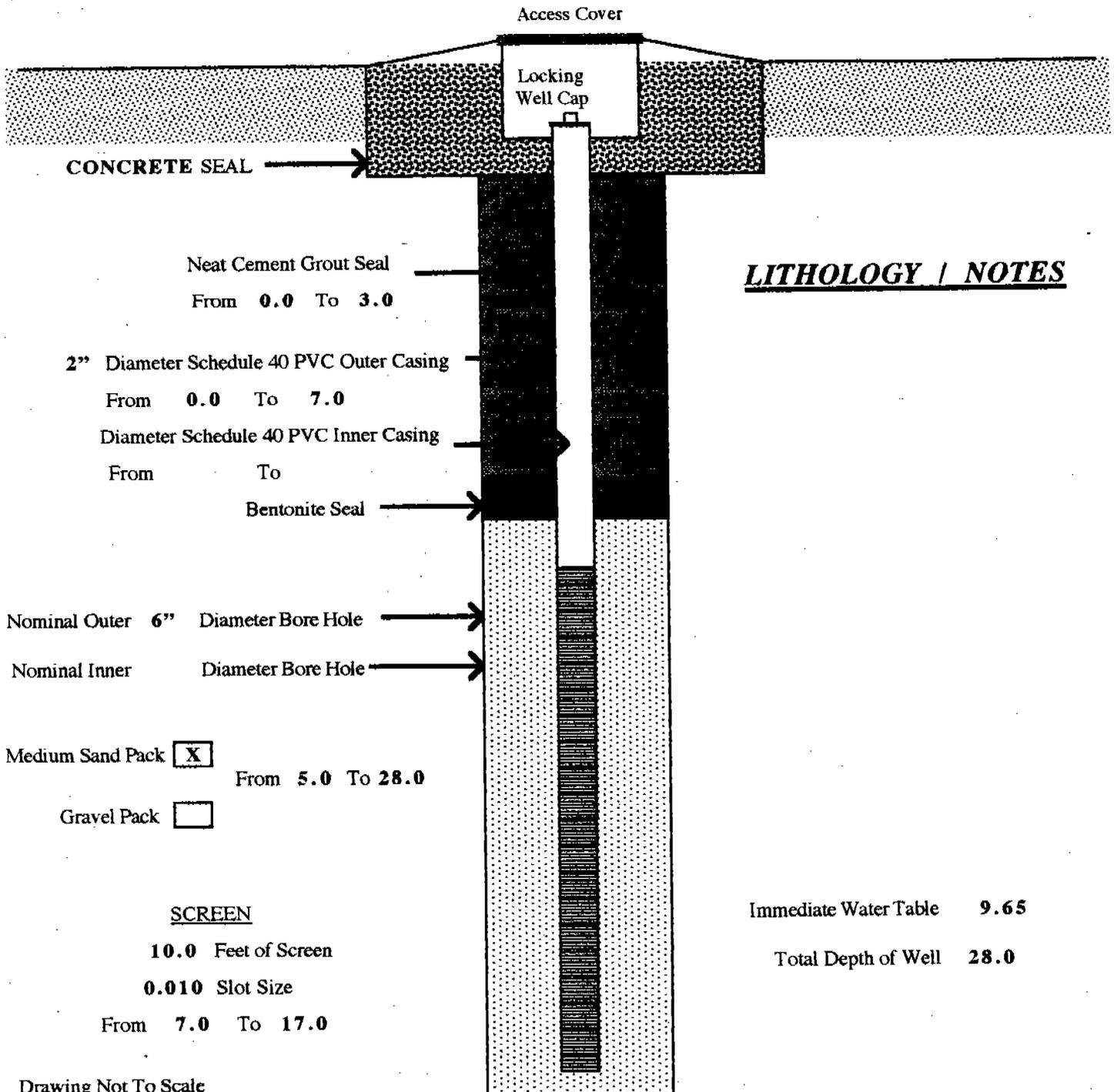
PERMIT NUMBER: **401076WM0502** PROJECT NUMBER: **11594**

WELL NUMBER: **MW-3** INSTALLATION DATE: **1/14/93**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



## LITHOLOGY / NOTES

Immediate Water Table **9.65**

Total Depth of Well **28.0**

Drawing Not To Scale

# WELL CONSTRUCTION AND DRILLING LOG

PERMIT NUMBER: **401076WM0502**

PROJECT NUMBER: **11594**

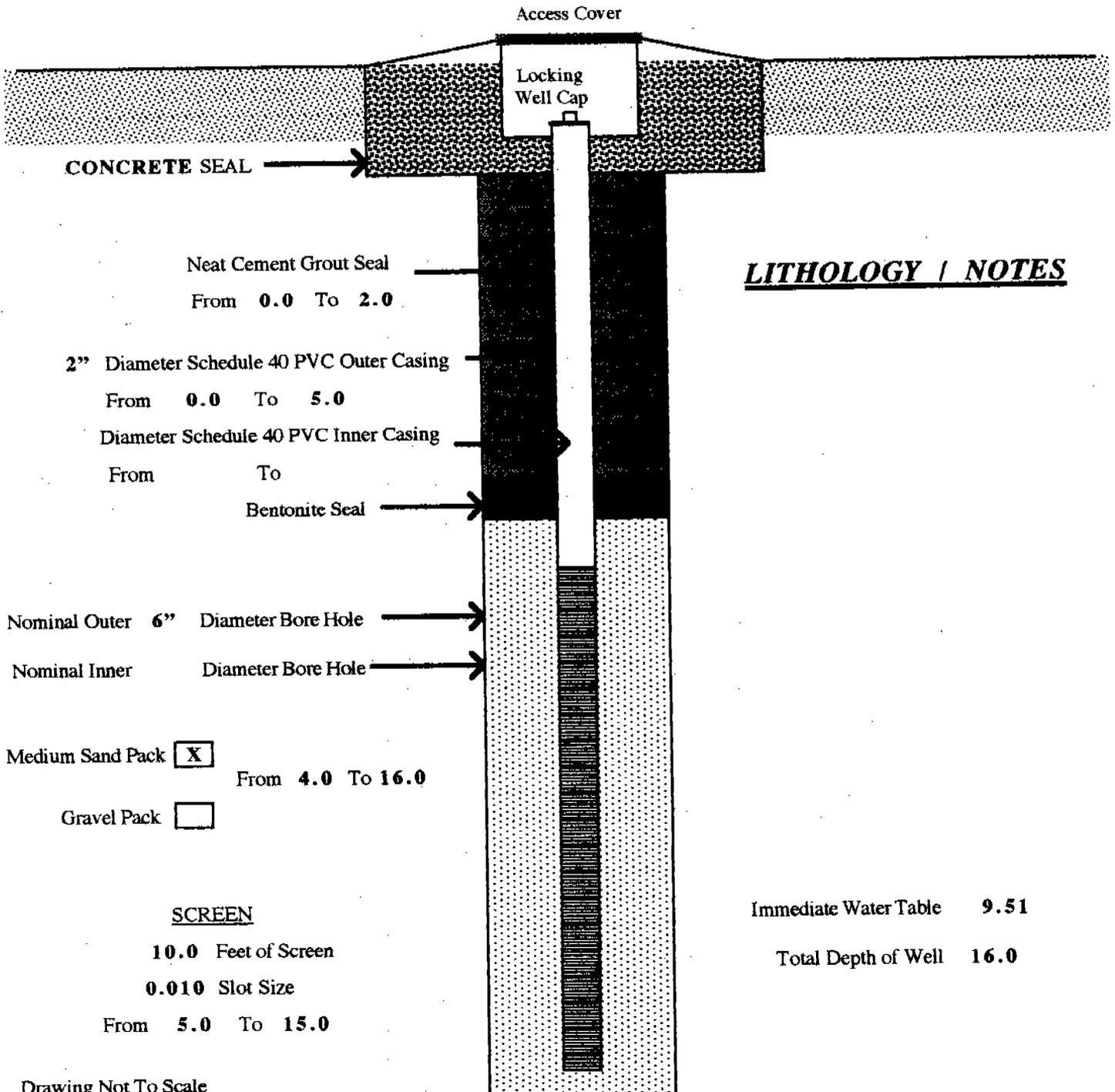
WELL NUMBER: **MW-4**

INSTALLATION DATE: **9/29/93**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



Drawing Not To Scale

# WELL CONSTRUCTION AND DRILLING LOG

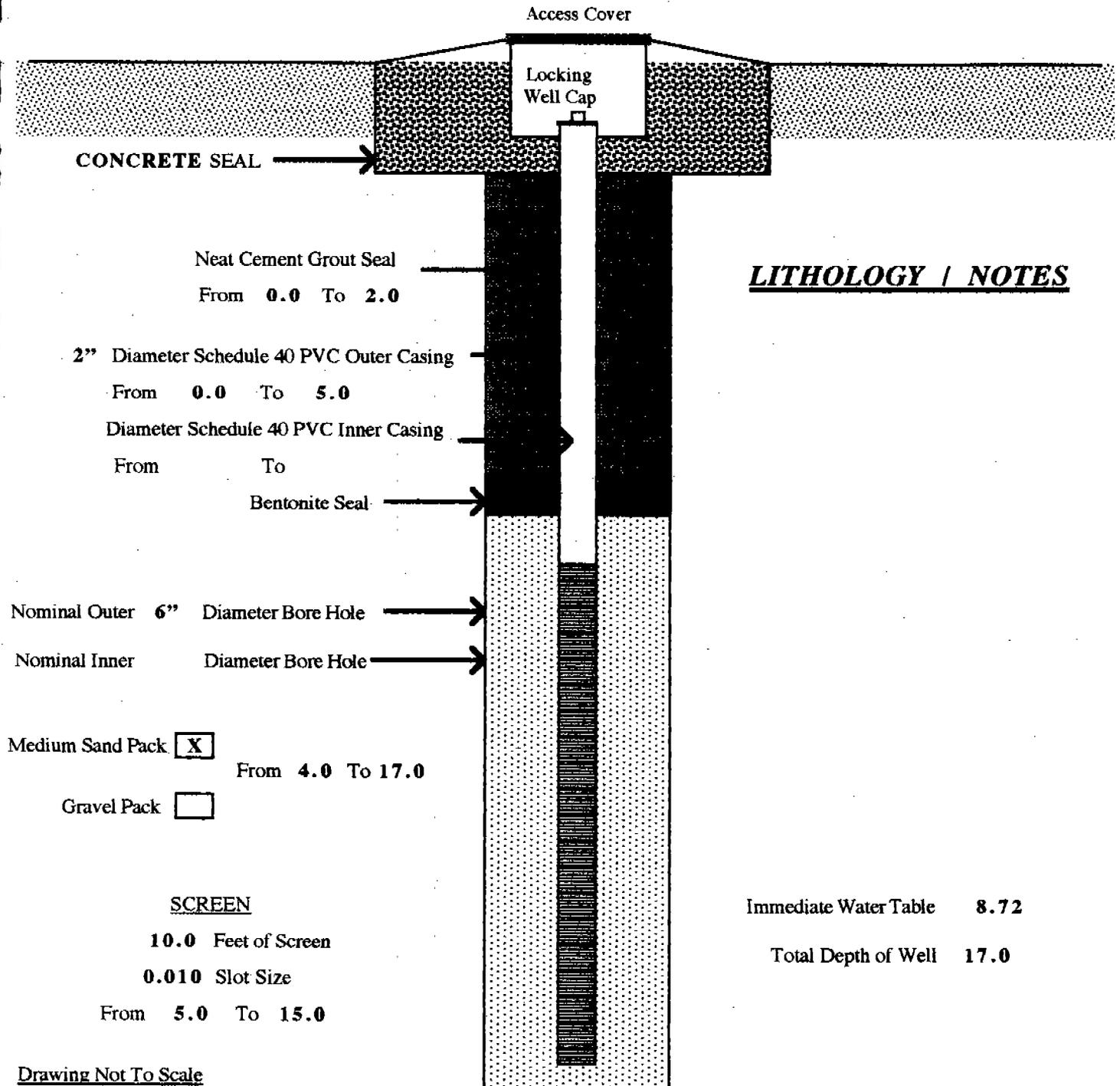
PERMIT NUMBER: **401076WM0502**      PROJECT NUMBER: **11594**

WELL NUMBER: **MW-5**      INSTALLATION DATE: **9/29/93**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



**LITHOLOGY / NOTES**

Neat Cement Grout Seal  
From 0.0 To 2.0

2" Diameter Schedule 40 PVC Outer Casing  
From 0.0 To 5.0

Diameter Schedule 40 PVC Inner Casing  
From                      To

Bentonite Seal

Nominal Outer 6" Diameter Bore Hole

Nominal Inner Diameter Bore Hole

Medium Sand Pack  From 4.0 To 17.0

Gravel Pack

SCREEN  
10.0 Feet of Screen  
0.010 Slot Size  
From 5.0 To 15.0

Immediate Water Table      8.72  
Total Depth of Well      17.0

Drawing Not To Scale

# WELL CONSTRUCTION AND DRILLING LOG

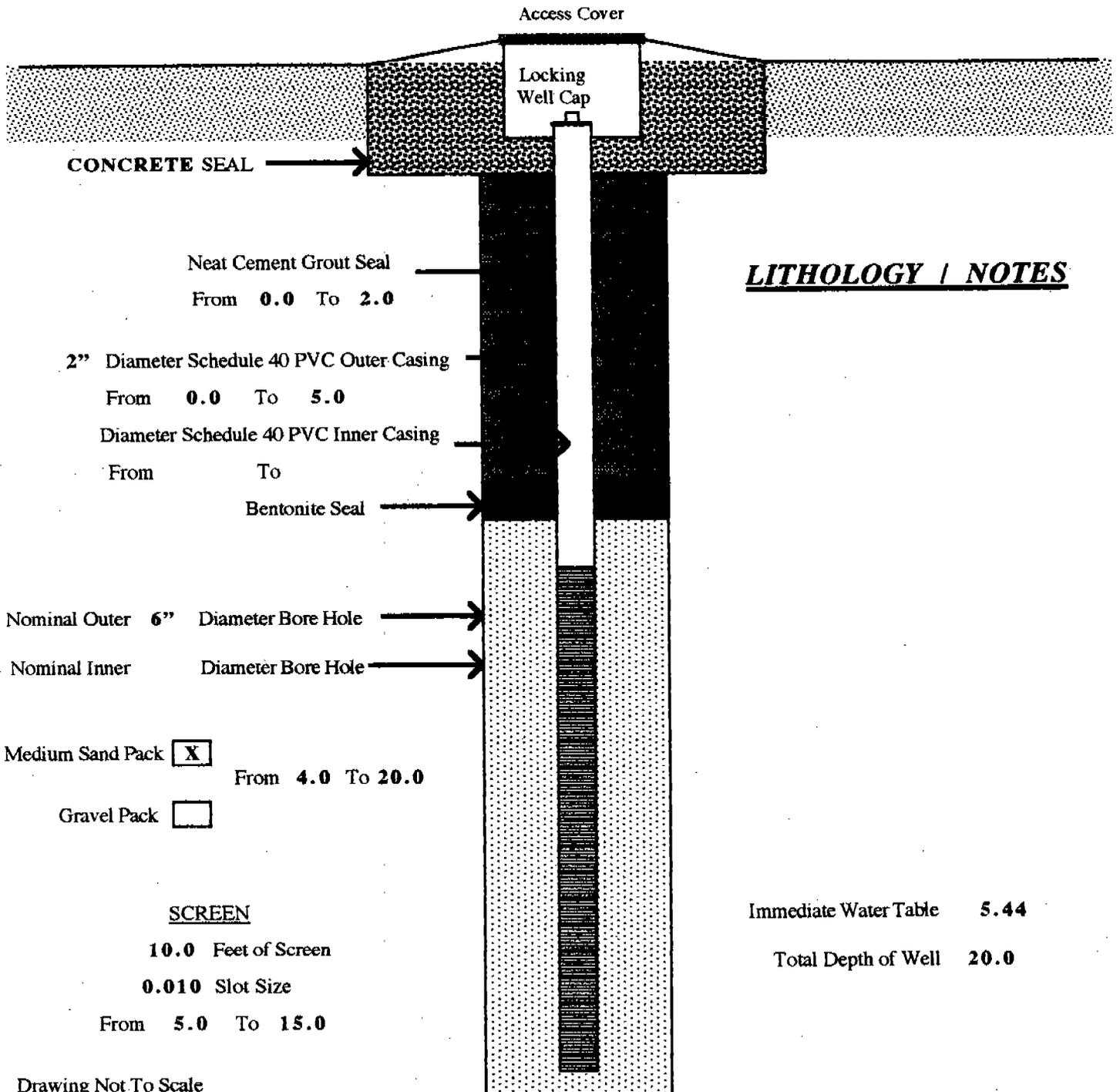
PERMIT NUMBER: **401076WM0502** PROJECT NUMBER: **11594**

WELL NUMBER: **MW-6** INSTALLATION DATE: **9/29/93**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



Drawing Not To Scale

# WELL CONSTRUCTION AND DRILLING LOG

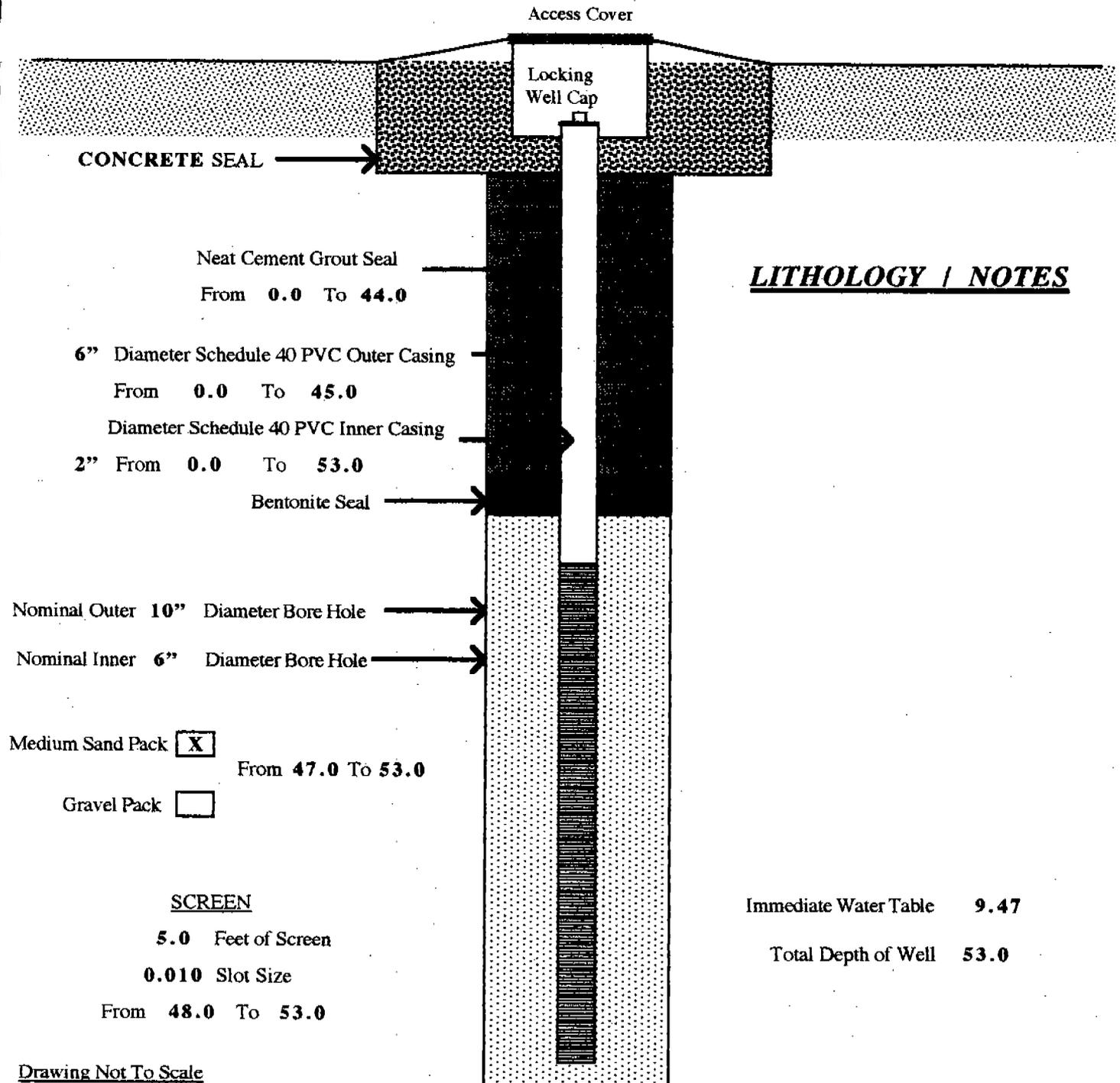
PERMIT NUMBER: **401076WM0502**      PROJECT NUMBER: **11594**

WELL NUMBER: **MW-7**      INSTALLATION DATE: **1/25/94**

CITY: **Jamestown, NC**

PROJECT LOCATION: **Harold Hall Property**

COUNTY: **Guilford**



**LITHOLOGY / NOTES**

Immediate Water Table    **9.47**  
 Total Depth of Well    **53.0**

**SCREEN**

**5.0** Feet of Screen  
**0.010** Slot Size  
 From **48.0** To **53.0**

Drawing Not To Scale

FOR OFFICE USE ONLY		
QUAD. NO. _____	SERIAL NO. _____	
Lat _____	Long. _____	Pc _____
Minor Basin _____		
Basin Code _____		
Header Ent. _____		GW-1 Ent. _____

**WELL CONSTRUCTION RECORD** MW-1

DRILLING CONTRACTOR: Engineering Techtonics

STATE WELL CONSTRUCTION  
 PERMIT NUMBER: 40-1076-WM-0502

DRILLER REGISTRATION NUMBER: 835

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

Nearest Town: Jamestown County: Guilford

108 West Main Street

(Road, Community, or Subdivision and Lot No.)

2. OWNER James Hall

ADDRESS P O Box 396

(Street or Route No.)

Jamestown, NC 27292  
 City or Town State Zip Code

3. DATE DRILLED: 1/14/93 USE OF WELL Monitoring

4. TOTAL DEPTH 27.0 feet

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: 10.51 FT.

(Use "+" if Above Top of Casing)

8. TOP OF CASING IS -.12 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): \_\_\_\_\_

11. CHLORINATION: Type \_\_\_\_\_ Amount \_\_\_\_\_

12. CASING:

From	Depth	To	Diameter	Wall Thickness or Weight/Ft.	Material
0	10.0	Ft.	2 inch	Sched. 40	PVC
From _____	To _____	Ft.	_____	_____	_____
From _____	To _____	Ft.	_____	_____	_____

13. GROUT:

From	Depth	To	Material	Method
0	6.0	Ft.	Neat Cement	other
From _____	To _____	Ft.	_____	_____

14. SCREEN:

From	Depth	To	Diameter	Slot Size	Material
10.0	25.0	Ft.	2.0 in.	0.01 in.	Sched. 40 PVC
From _____	To _____	Ft.	_____ in.	_____ in.	_____
From _____	To _____	Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

From	Depth	To	Size	Material
8.0	27.0	Ft.	Medium	Sand
From _____	To _____	Ft.	_____	_____

16. REMARKS:

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

*Kerr C Swan*

SIGNATURE OF CONTRACTOR OR AGENT

1-29-93

DATE

Submit original to Division of Environmental Management and copy to well owner.

FOR OFFICE USE ONLY		
QUAD. NO. _____	SERIAL NO. _____	
Lat. _____	Long. _____	Pc _____
Minor Basin _____		
Basin Code _____		
Header Ent. _____		GW-1 Ent. _____

**WELL CONSTRUCTION RECORD** MW-2

DRILLING CONTRACTOR: Engineering Techtonics

DRILLER REGISTRATION NUMBER: 835

STATE WELL CONSTRUCTION

PERMIT NUMBER: 40-1076-WM-0502

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

Nearest Town: Jamestown County: Guilford

108 West Main Street  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER Harold E. Hall

ADDRESS P O Box 396  
 (Street or Route No.)

Jamestown, NC 27292  
 City or Town State Zip Code

3. DATE DRILLED 1/14/93 USE OF WELL Monitoring

4. TOTAL DEPTH 20.0 feet

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: 9.33 FT.  
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS -.22 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): - METHOD OF TEST -

10. WATER ZONES (depth): -

11. CHLORINATION: Type - Amount -

12. CASING:

From	Depth	To	Diameter	Wall Thickness or Weight/Ft.	Material
<u>0</u>	<u>5.0</u>	<u>Ft.</u>	<u>2 inch</u>	<u>Sched. 40</u>	<u>PVC</u>
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

13. GROUT:

From	Depth	To	Material	Method
<u>0</u>	<u>2.0</u>	<u>Ft.</u>	<u>Neat Cement</u>	<u>other</u>
From _____	To _____	Ft. _____	_____	_____

14. SCREEN:

From	Depth	To	Diameter	Slot Size	Material
<u>5.0</u>	<u>15.0</u>	<u>Ft.</u>	<u>2.0</u>	<u>0.01</u>	<u>Sched. 40 PVC</u>
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

15. SAND/GRAVEL PACK:

From	Depth	To	Size	Material
<u>4.0</u>	<u>20.0</u>	<u>Ft.</u>	<u>Medium</u>	<u>Sand</u>
From _____	To _____	Ft. _____	_____	_____

16. REMARKS:

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

Kerr C. Scraper

1-29-93

SIGNATURE OF CONTRACTOR OR AGENT

DATE

Submit original to Division of Environmental Management and copy to well owner.



FOR OFFICE USE ONLY		
QUAD. NO. _____	SERIAL NO. _____	
Lat _____	Long. _____	Pc _____
Minor Basin _____		
Basin Code _____		
Header Ent. _____		GW-1 Ent. _____

**WELL CONSTRUCTION RECORD** MW-4

DRILLING CONTRACTOR: Southeastern Geotech

DRILLER REGISTRATION NUMBER: 1373

STATE WELL CONSTRUCTION PERMIT NUMBER: N/A

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

Nearest Town: Jamestown County: Guilford

106 West Main Street

(Road, Community, or Subdivision and Lot No.)

2. OWNER Harold E. Hall

ADDRESS P O Box 396

Jamestown, NC 27292

City or Town State Zip Code

3. DATE DRILLED 9/29/93 USE OF WELL monitoring

4. TOTAL DEPTH 16.0 feet

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: 10.28 FT.

(Use "+" if Above Top of Casing)

8. TOP OF CASING IS -0.4 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): - METHOD OF TEST -

10. WATER ZONES (depth): -

11. CHLORINATION: Type - Amount -

12. CASING:

From	Depth	To	Diameter	Wall Thickness or Weight/Ft.	Material
0	5.0	Ft.	2 inch	Sched 40	PVC
From _____	To _____	Ft.	_____	_____	_____
From _____	To _____	Ft.	_____	_____	_____

13. GROUT:

From	Depth	To	Material	Method
0	2.0	Ft.	Concrete	other
From _____	To _____	Ft.	_____	_____

14. SCREEN:

From	Depth	To	Diameter	Slot Size	Material
5.0	15.0	Ft.	2 in.	.010 in.	Sched 40 PVC
From _____	To _____	Ft.	_____ in.	_____ in.	_____
From _____	To _____	Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

From	Depth	To	Size	Material
4.0	16.0	Ft.	medium	sand
From _____	To _____	Ft.	_____	_____

16. REMARKS: Bentonite Seal: 2.0 - 4.0 feet

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

*[Signature]*

SIGNATURE OF CONTRACTOR OR AGENT

10/22/93  
DATE

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)

See attached Site Location Map.

FOR OFFICE USE ONLY			
QUAD. NO.	SERIAL NO.		
Lat	Long.	Pc	
Minor Basin			
Basin Code			
Header Ent.		GW-1 Ent	

**WELL CONSTRUCTION RECORD** MW-5

DRILLING CONTRACTOR: Southeastern Geotech

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 1373

PERMIT NUMBER: N/A

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

Nearest Town: Jamestown County: Guilford

106 West Main Street

(Road, Community, or Subdivision and Lot No.)

2. OWNER Harold E. Hall

ADDRESS P O Box 396

(Street or Route No.)

Jamestown, NC 27292

City or Town

State

Zip Code

3. DATE DRILLED 9/29/93 USE OF WELL monitoring

4. TOTAL DEPTH 17.0 feet

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: 10.04 FT.

(Use "+" if Above Top of Casing)

8. TOP OF CASING IS -0.28 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued  
 in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): \_\_\_\_\_

11. CHLORINATION: Type \_\_\_\_\_ Amount \_\_\_\_\_

12. CASING:

From	Depth	To	Diameter	Wall Thickness or Weight/Ft.	Material
0	5.0	Ft.	2 inch	Sched 40	PVC
_____	_____	Ft.	_____	_____	_____
_____	_____	Ft.	_____	_____	_____

13. GROUT:

From	Depth	To	Material	Method
0	2.0	Ft.	Concrete	other
_____	_____	Ft.	_____	_____

14. SCREEN:

From	Depth	To	Diameter	Slot Size	Material
5.0	15.0	Ft.	2 in.	.010 in.	Sched 40 PVC
_____	_____	Ft.	_____	_____	_____
_____	_____	Ft.	_____	_____	_____

15. SAND/GRAVEL PACK:

From	Depth	To	Size	Material
4.0	17.0	Ft.	medium	sand
_____	_____	Ft.	_____	_____

16. REMARKS: Bentonite Seal: 2.0 - 4.0 feet

DEPTH		DRILLING LOG
From	To	Formation Description
0	17.0 feet	Saprolite
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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)

See attached Site Location Map

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

*[Signature]*

SIGNATURE OF CONTRACTOR OR AGENT

10/22/93

DATE





**APPENDIX F**

**LABORATORY REPORTS AND CHAIN OF  
CUSTODY RECORDS**



**CLIENT:**

Engineering and Environmental Services  
 P.O. Box 3009  
 Hickory, N.C. 28603

Attention: Mr. R. Bannister

**DATE RECEIVED:**

January 20, 1993

**DATE REPORTED:**

January 22, 1993

**DATE REISSUED:**

January 29, 1993 \*\*

**SAMPLE NUMBER**

**SAMPLE DESCRIPTION**

301-0133A  
 301-0133B  
 301-0133C  
 301-0133D  
 301-0133E  
 301-0133F  
 301-0133G

Soil; 92095-11593- S1 for 5030 & 3550.  
 Soil; 92095-11593- S2 for 5030 & 3550.  
 Soil; 92095-11593- S5 for 5030 & 3550.  
 Soil; 92095-11593- S6 for 5030 & 3550.  
 Soil; 92095-11593- S7 for 5030 & 3550.  
 Soil; 92095-11593- S8 for 5030 & 3550.  
 Soil; 92095-11593- S9 for 5030 & 3550.

**PARAMETER**

**RESULTS**

**ML**

**DATE STARTED**

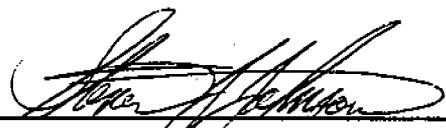
<u>PARAMETER</u>	<u>RESULTS</u>	<u>ML</u>	<u>DATE STARTED</u>
301-0133A - 5030	141	1.0 mg/kg	1/20/93
- 3550	224	1.0 mg/kg	1/20/93
301-0133B - 5030	*	1.0 mg/kg	1/20/93
- 3550	3.5	1.0 mg/kg	1/20/93
301-0133C - 5030	*	1.0 mg/kg	1/20/93
- 3550	1.7	1.0 mg/kg	1/20/93

\*\* NOTE: Re-issued due to typographic error.

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>SQL</u>	<u>DATE STARTED</u>
301-0133D - 5030	*	1.0 mg/kg	1/20/93
- 3550	1.4	1.0 mg/kg	1/20/93
301-0133E - 5030	*	1.0 mg/kg	1/20/93
- 3550	2.4	1.0 mg/kg	1/20/93
301-0133F - 5030	*	1.0 mg/kg	1/20/93
- 3550	1.4	1.0 mg/kg	1/20/93
301-0133G - 5030	*	1.0 mg/kg	1/20/93
- 3550	1.7	1.0 mg/kg	1/20/93

REPORTED BY:

  
 \_\_\_\_\_  
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

# ENGINEERING AND ENVIRONMENTAL SERVICES

P O BOX 3009  
(704) 328-2991

HICKORY, NC 28603  
FAX (704) 322-2268

## CHAIN OF CUSTODY

PO# 931013      DATE 1-20-93

301-0133

LAB RECEIVING BLUE RIDGE LABS

SAMPLE # 92095-11593-S21  
DESCRIPTION Soil

SAMPLE # 92095-11593-S7  
DESCRIPTION Soil

LOCATION S-2  
DATE 1-15-93 TIME 9:00  
PROCESS 3550/5020  
PRESERVATIVE chill to 4°C  
SAMPLED BY PRD

LOCATION S-7  
DATE 1-15-93 TIME 10:30  
PROCESS 3550/5030  
PRESERVATIVE chill to 4°C  
SAMPLED BY PRD

SAMPLE # 92095-11593-S2  
DESCRIPTION Soil

SAMPLE # 92095-11593-S8  
DESCRIPTION Soil

LOCATION S-2  
DATE 1-15-93 TIME 9:30  
PROCESS 3550/5030  
PRESERVATIVE chill to 4°C  
SAMPLED BY PRD

LOCATION S-8  
DATE 1-15-93 TIME 11:30  
PROCESS 3550/5030  
PRESERVATIVE \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_

SAMPLE # 92095-11593-S5  
DESCRIPTION Soil

SAMPLE # 92095-11593-S6  
DESCRIPTION Soil

LOCATION S-5  
DATE 1-15-93 TIME 10:00  
PROCESS 5030/3550  
PRESERVATIVE chill to 4°C  
SAMPLED BY PRD

LOCATION S-6  
DATE 1-15-93 TIME 11:00  
PROCESS 5030/3550  
PRESERVATIVE chill to 4°C  
SAMPLED BY PRD

RELINQUISHED BY  
[Signature]

TIME/DATE  
4:30 / 1-20-93

RELINQUISHED TO  
[Signature]

**ENGINEERING AND ENVIRONMENTAL SERVICES**  
P O BOX 3009  
(704) 328-2991  
HICKORY, NC 28603  
FAX (704) 322-2268

**CHAIN OF CUSTODY**

PO# 931013 DATE 1-20-93

LAB RECEIVING BLUE RIDGE LABS

SAMPLE # 92095-11593-59  
DESCRIPTION Soil

SAMPLE # \_\_\_\_\_  
DESCRIPTION \_\_\_\_\_

LOCATION S-9  
DATE 1-15-93 TIME 1200  
PROCESS 3550/5030  
PRESERVATIVE chill to 4°C  
SAMPLED BY PRD

LOCATION \_\_\_\_\_  
DATE \_\_\_\_\_ TIME \_\_\_\_\_  
PROCESS \_\_\_\_\_  
PRESERVATIVE \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_

SAMPLE # \_\_\_\_\_  
DESCRIPTION \_\_\_\_\_

SAMPLE # \_\_\_\_\_  
DESCRIPTION \_\_\_\_\_

LOCATION \_\_\_\_\_  
DATE \_\_\_\_\_ TIME \_\_\_\_\_  
PROCESS \_\_\_\_\_  
PRESERVATIVE \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_

LOCATION \_\_\_\_\_  
DATE \_\_\_\_\_ TIME \_\_\_\_\_  
PROCESS \_\_\_\_\_  
PRESERVATIVE \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_

SAMPLE # \_\_\_\_\_  
DESCRIPTION \_\_\_\_\_

SAMPLE # \_\_\_\_\_  
DESCRIPTION \_\_\_\_\_

LOCATION \_\_\_\_\_  
DATE \_\_\_\_\_ TIME \_\_\_\_\_  
PROCESS \_\_\_\_\_  
PRESERVATIVE \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_

LOCATION \_\_\_\_\_  
DATE \_\_\_\_\_ TIME \_\_\_\_\_  
PROCESS \_\_\_\_\_  
PRESERVATIVE \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_

RELINQUISHED BY  
[Signature]

TIME/DATE  
4:30 / 1-20-93

RELINQUISHED TO  
[Signature]



CLIENT: Geonetics Corp.  
 P.O. Box 1577  
 Boone, NC 28607  
 Attention: Mr. N. Taylor

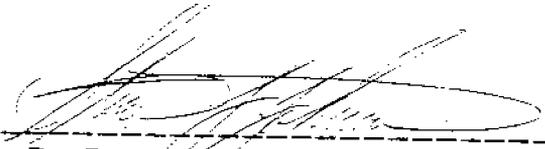
DATE RECEIVED: September 16, 1994

DATE REPORTED: September 20, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1998A	Soil; 11594-S10 for 5030/3550.
409-1998B	Soil; 11594-S11 for 5030/3550.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1998A- 5030	*	1.0 mg/kg	9/19/94
3550	*	5.0 mg/kg	9/19/94
409-1998B- 5030	*	1.0 mg/kg	9/19/94
3550	*	5.0 mg/kg	9/19/94

REPORTED BY:

  
 -----  
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

409-1773



### CHAIN OF CUSTODY RECORD

CLIENT: Geonetics Corp  
P.O. Box 1577  
Boone NC 28607

PROJECT NAME: Hall Property P.O. Number: 11594

Sample I.D.	Sample Type	Collection		Pres.		Temp	Int.	Requested Analysis
		Date	Time	pH<2	pH>12			
11594-510	Soil	9-15	1200					TPH 5030/3550
11594-511	Soil	9-15	1:40					TPH 5030/3550

RELINQUISHED BY:

DATE

RECEIVED BY:

[Signature]

9-16-94

[Signature]

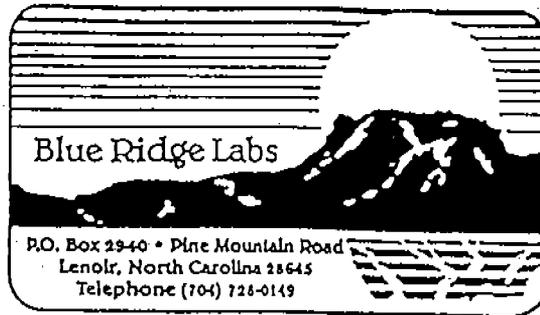
Page \_\_\_ of .

Post-it® Fax Note 7671

To <u>STEVE</u>	Date	# of pages
Co./Dept.	From <u>KEITH</u>	
Phone #	Co. <u>Geonetics</u>	
Fax #	Phone #	
	Fax #	

1.3/9/94

Here is the Chain for those samples



CLIENT: Engineering and Environmental Services  
 P.O. Box 3009  
 Hickory, N.C. 28603

Attention: Mr. R. Bannister

DATE RECEIVED: October 21, 1992

DATE REPORTED: November 2, 1992

SAMPLE NUMBER

SAMPLE DESCRIPTION

210-1850A	Soil; 92095-102092-S1A for 5030 & 3550.
210-1850B	Soil; 92095-102092-S2A for 5030 & 3550.
210-1850C	Soil; 92095-102092-S3A for 5030, 3550, 9071, & TCLP Metals.
<del>210-1850D</del>	<del>Soil; 92095-102092-S4A for 9071.</del>
<del>210-1850E</del>	<del>Soil; 92095-102092-S5A for 9071.</del>
<del>210-1850F</del>	<del>Soil; 92095-102092-S6A for 9071.</del>

PARAMETER

RESULTS

MDL

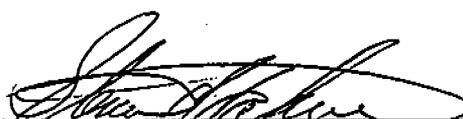
DATE STARTED

<u>PARAMETER</u>		<u>RESULTS</u>	<u>MDL</u>	<u>DATE STARTED</u>
210-1850A - 5030	<i>Stock pile compos.</i>	71.8	1.0 mg/kg	10/23/92
- 3550		37.0	1.0 mg/kg	10/23/92
210-1850B - 5030	"	7.5	1.0 mg/kg	10/23/92
- 3550		122	1.0 mg/kg	10/23/92
210-1850C - 5030	"	9.7	1.0 mg/kg	10/23/92
- 3550		11.1	1.0 mg/kg	10/23/92
- 9071		339	3.0 mg/kg	10/22/92

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>		<u>RESULTS</u>	<u>MDL</u>	<u>DATE STARTED</u>
210-1850C - TCLP Metals				
- As		*	0.001 mg/l	10/22/92
- Ba		*	0.10 mg/l	10/22/92
- Cd		0.006	0.001 mg/l	10/22/92
- Cr		*	0.01 mg/l	10/22/92
- Hg		*	0.001 mg/l	11/2/92
- Pb		0.04	0.01 mg/l	10/22/92
- Se		*	0.001 mg/l	10/22/92
- Ag	<i>Soil Sample #</i>	*	0.01 mg/l	10/22/92
210-1850D - 9071	<i>54A</i>	84	3.0 mg/kg	10/22/92
210-1850E - 9071	<i>55A</i>	182	3.0 mg/kg	10/22/92
210-1850F - 9071	<i>56A</i>	258	3.0 mg/kg	10/22/92

REPORTED BY:

  
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

# ENGINEERING AND ENVIRONMENTAL SERVICES

P O BOX 3009  
(704) 328-2991

HICKORY, NC 28603  
FAX (704) 322-2268

## CHAIN OF CUSTODY

PO# 921163

DATE 10-21-92

LAB RECEIVING BLUE RIDGE LABS

SAMPLE # 92095-102092-51  
DESCRIPTION Soil  
2-4oz Jars  
LOCATION S-1  
DATE 10-20-92 TIME 12:23  
PROCESS 3550 5030  
PRESERVATIVE chill to 4°C  
SAMPLED BY KCS

SAMPLE # 92095-102092-54  
DESCRIPTION Soil  
1-4oz Jar  
LOCATION S-4  
DATE 10-20-92 TIME 11:9  
PROCESS 9071  
PRESERVATIVE chill to 4°C  
SAMPLED BY KCS

SAMPLE # 92095-102092-52  
DESCRIPTION Soil  
12-4oz Jars  
LOCATION S-2  
DATE 10-20-92 TIME 12:42  
PROCESS 3550 5030  
PRESERVATIVE chill to 4°C  
SAMPLED BY KCS

SAMPLE # 92095-102092-55  
DESCRIPTION Soil  
1-4oz Jar  
LOCATION S-5  
DATE 10-20-92 TIME 1:20  
PROCESS 9071  
PRESERVATIVE chill to 4°C  
SAMPLED BY KCS

SAMPLE # 92095-102092-53  
DESCRIPTION Soil  
3-4oz jars  
LOCATION S-3  
DATE 10-20-92 TIME 1:05  
PROCESS 3550 5030 TCA Pretals  
PRESERVATIVE chill to 4°C  
SAMPLED BY KCS

SAMPLE # 92095-102092-56  
DESCRIPTION Soil  
1-4oz Jar  
LOCATION S-6  
DATE 10-20-92 TIME 1:35  
PROCESS 9071  
PRESERVATIVE chill to 4°C  
SAMPLED BY KCS

SRCA Metals

RELINQUISHED BY

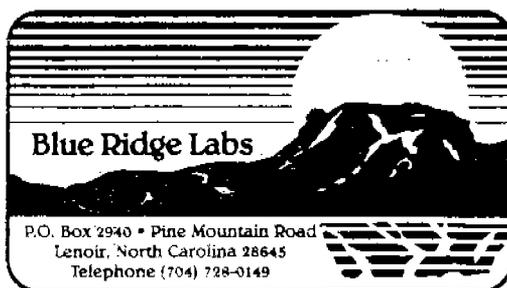
TIME/DATE

RELINQUISHED TO

[Signature]

5:01 / 10-21-92

[Signature]



CLIENT: Geonetics Corp.  
P.O. Box 1577  
Boone, NC 28607  
  
Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1953A	Water; 11594-MW-1 for 3030C Pb.
409-1953B	Water; 11594-MW-1 for 601/602.
409-1953C	Water; 11594-MW-1 for 625.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953A - 3030C Pb	*	0.1 mg/l	9/09/94
409-1953B - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>ML</u>	<u>DATE STARTED</u>
409-1953B- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	*	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene	0.9	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	0.7	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1953B - 602			
- Benzene	29.1	0.5 ug/l	9/12/94
- Chlorobenzene	*	0.5 ug/l	9/12/94
- 1,2-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,3-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,4-Dichlorobenzene	*	0.5 ug/l	9/12/94
- Ethyl Benzene	3.9	0.5 ug/l	9/12/94
- Toluene	54.8	0.5 ug/l	9/12/94
- Xylenes	65.8	0.5 ug/l	9/12/94
- MTBE**	584	0.5 ug/l	9/12/94
- IPE	12.2	0.5 ug/l	9/12/94

\*\*NOTE: Estimated value, beyond linear range.

409-1953C - 625 (See attached)

REPORTED BY:   
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid Base Neutral Component List

Sample ID 409-1953C
Date Ran 9-13-94
Date Extracted 9-12-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	ML ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Benzo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	83	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1953C

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	ML ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutadiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	*	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

COMPOUND Acids	CONC ug/l	EPA METHOD	ML ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

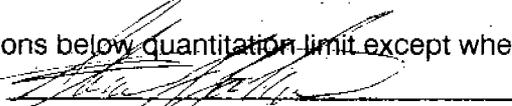
CLEAN AIR, CLEAN WATER, CLEAN EARTH

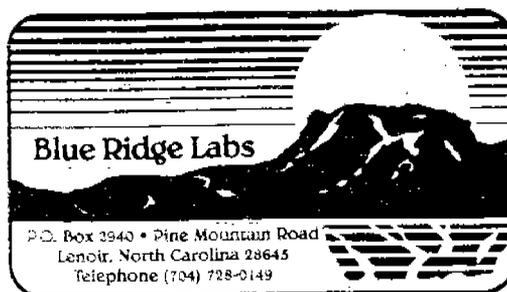
Sample ID 409-1953C

COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
2,6-dimethyl Naphthalene	156	>1000	65	17.36	2160	yes
Tridecane	184	>1000	67	22.94	3140	yes

Internal Standard	Retention Time (Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information
Naphthalene D-8	13.36	30m X 0.25 mm, 25 um DB-5
Acenaphthene D-10	17.83	He carrier @ 30 cm/min
Phenanthrene D-10	21.57	40 C (4 min) 300 C, 10 C/min
Chrysene D-12	28.32	
Perylene D-12	31.95	Library size = 64,000 compounds

\* Concentrations below quantitation limit except where noted  
 Reported By:   
 D.R. Wessinger - General Manager



CLIENT: Geonetics Corp.  
 P.O. Box 1577  
 Boone, NC 28607  
 Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1953D	Water; 11594-MW-2 for 3030C Pb.
409-1953E	Water; 11594-MW-2 for 601/602.
409-1953F	Water; 11594-MW-2 for 625.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953D - 3030C Pb	0.09	0.1 mg/l	9/09/94
409-1953E - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

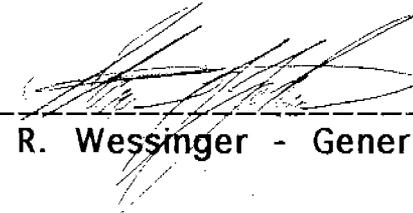
<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953E- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	0.8	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene	*	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	*	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1953E - 602			
- Benzene**	433	0.5 ug/l	9/12/94
- Chlorobenzene	*	0.5 ug/l	9/12/94
- 1,2-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,3-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,4-Dichlorobenzene	*	0.5 ug/l	9/12/94
- Ethyl Benzene**	208	0.5 ug/l	9/12/94
- Toluene**	690	0.5 ug/l	9/12/94
- Xylenes**	703	0.5 ug/l	9/12/94
- MTBE**	1017	0.5 ug/l	9/12/94
- IPE	66.6	0.5 ug/l	9/12/94

\*\*NOTE: Estimated values, beyond linear range.

409-1953F - 625 (See attached)

REPORTED BY:   
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid Base Neutral Component List

Sample ID 409-1953F
Date Ran 9-13-94
Date Extracted 9-12-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	MQL ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Benzo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	44	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1953F

COMPOUND	CONC	EPA	MQL
Base Neutrals	ug/l	METHOD	ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutadiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	182	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

COMPOUND	CONC	EPA	MQL
Acids	ug/l	METHOD	ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

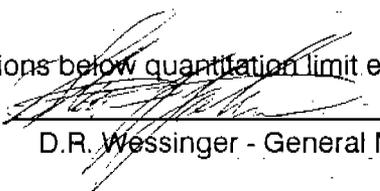
Sample ID 409-1953F

COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
1,2,4-trimethylbenzene	120	900	95	10.67	990	yes
Ethyl dimethyl Benzene	134	124	63	11.86	1190	yes
Dimethyl Benzene	106	200	90	7.99	530	yes

Internal Standard	Retention Time(Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information
Naphthalene D-8	13.36	30m X 0.25 mm, 25 um DB-5
Acenaphthene D-10	17.83	He carrier @ 30 cm/min
Phenanthrene D-10	21.57	40 C (4 min) 300 C, 10 C/min
Chrysene D-12	28.32	
Perylene D-12	31.95	Library size = 64,000 compounds

\* Concentrations below quantitation limit except where noted

Reported By:   
D.R. Wessinger - General Manager



CLIENT: Geonetics Corp.  
P.O. Box 1577  
Boone, NC 28607  
  
Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1953G	Water; 11594-MW-3 for 3030C Pb.
409-1953H	Water; 11594-MW-3 for 601/602.
409-1953I	Water; 11594-MW-3 for 625.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953G - 3030C Pb	*	0.1 mg/l	9/09/94
409-1953H - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953H- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	1.1	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	*	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene**	92.2	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	*	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1953H - 602			
- Benzene	0.8	0.5 ug/l	9/12/94
- Chlorobenzene	*	0.5 ug/l	9/12/94
- 1,2-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,3-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,4-Dichlorobenzene	*	0.5 ug/l	9/12/94
- Ethyl Benzene	*	0.5 ug/l	9/12/94
- Toluene	*	0.5 ug/l	9/12/94
- Xylenes	*	0.5 ug/l	9/12/94
- MTBE	*	0.5 ug/l	9/12/94
- IPE	*	0.5 ug/l	9/12/94

\*\*NOTE: Estimated value, beyond linear range.

409-1953I - 625 (See attached)

REPORTED BY:   
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid Base Neutral Component List

Sample ID 409-1953I
Date Ran 9-13-94
Date Extracted 9-12-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	MQL ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Benzo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	*	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1953I

COMPOUND	CONC	EPA	MLQ
Base Neutrals	ug/l	METHOD	ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutadiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	*	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

COMPOUND	CONC	EPA	MLQ
Acids	ug/l	METHOD	ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

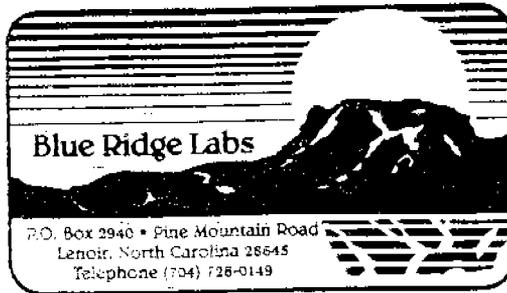
CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1953I			
COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
2-methyl naphthalene	142	50	75	15.72	1857	yes
1,7-dimethyl Naphthalene	156	50	78	17.26	2125	yes

Internal Standard	Retention Time (Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information 30m X 0.25 mm, 25 um DB-5 He carrier @ 30 cm/min 40 C (4 min) 300 C, 10 C/min
Naphthalene D-8	13.36	
Acenaphthene D-10	17.83	
Phenanthrene D-10	21.57	
Chrysene D-12	28.32	
Perylene D-12	31.95	Library size = 64,000 compounds

\* Concentrations below quantitation limit except where noted  
 Reported By: *D.R. Wessinger*  
 D.R. Wessinger - General Manager



CLIENT: Geonetics Corp.  
P.O. Box 1577  
Boone, NC 28607

Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1953J	Water; 11594-MW-4 for 3030C Pb.
409-1953K	Water; 11594-MW-4 for 601/602.
409-1953L	Water; 11594-MW-4 for 625.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953J - 3030C Pb	*	0.1 mg/l	9/09/94
409-1953K - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1953K- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	*	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene	12.6	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	*	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.



CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid-Base Neutral Component List

Sample ID 409-1953L
Date Ran 9-14-94
Date Extracted 9-13-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	MLL ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Benzo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	90	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1953L

COMPOUND	CONC	EPA	MQL
Base Neutrals	ug/l	METHOD	ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutadiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	*	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

COMPOUND	CONC	EPA	MQL
Acids	ug/l	METHOD	ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1953L

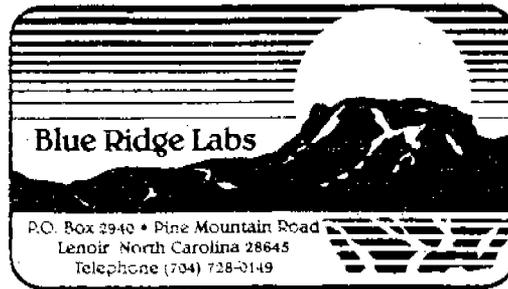
COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
2-ethyl-1-hexanol	130	40	77	28.9	4370	Yes

Internal Standard	Retention Time(Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information 30m X 0.25 mm, 25 um DB-5 He carrier @ 30 cm/min 40 C (4 min) 300 C, 10 C/min  Library size = 64,000 compounds
Naphthalene D-8	13.36	
Acenaphthene D-10	17.83	
Phenanthrene D-10	21.57	
Chrysene D-12	28.32	
Perylene D-12	31.95	

\* Concentrations below quantitation limit except where noted

Reported By: D.R. Wessinger  
D.R. Wessinger - General Manager



CLIENT: Geonetics Corp.  
 P.O. Box 1577  
 Boone, NC 28607  
 Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1953M	Water; 11594-MW-5 for 3030C Pb.
409-1953N	Water; 11594-MW-5 for 601/602.
409-1953O	Water; 11594-MW-5 for 625.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>ML</u>	<u>DATE STARTED</u>
409-1953M - 3030C Pb	0.06	0.1 mg/l	9/09/94
409-1953N - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1953N- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	9.7	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	*	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene**	94.1	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	13.6	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

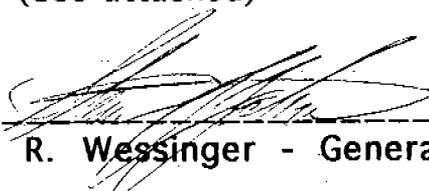
\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1953N - 602			
- Benzene	13.6	0.5 ug/l	9/12/94
- Chlorobenzene	*	0.5 ug/l	9/12/94
- 1,2-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,3-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,4-Dichlorobenzene	*	0.5 ug/l	9/12/94
- Ethyl Benzene	*	0.5 ug/l	9/12/94
- Toluene	*	0.5 ug/l	9/12/94
- Xylenes	*	0.5 ug/l	9/12/94
- MTBE**	93.4	0.5 ug/l	9/12/94
- IPE**	108	0.5 ug/l	9/12/94

\*\*NOTE: Estimated values, beyond linear range.

409-19530 - 625 (See attached)

REPORTED BY:

  
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid Base Neutral Component List

Sample ID 409-1953O
Date Ran 9-15-94
Date Extracted 9-12-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	ML ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Berizo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	*	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-19530

COMPOUND	CONC	EPA	SQL
Base Neutrals	ug/l	METHOD	ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutadiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	*	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

COMPOUND	CONC	EPA	SQL
Acids	ug/l	METHOD	ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

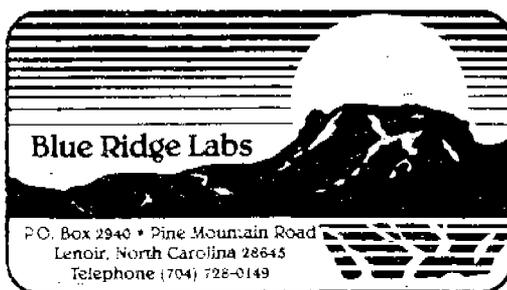
Sample ID 409-19530			
COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
2-ethyl-1-hexanol	130	40	76	30	5150	Yes
No additional peaks found						

Internal Standard	Retention Time (Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information 30m X 0.25 mm, 25 um DB-5 He carrier @ 30 cm/min 40 C (4 min) 300 C, 10 C/min
Naphthalene D-8	13.36	
Acenaphthene D-10	17.83	
Phenanthrene D-10	21.57	
Chrysene D-12	28.32	
Perylene D-12	31.95	Library size = 64,000 compounds

\* Concentrations below quantitation limit except where noted

Reported By: D.R. Wessinger  
D.R. Wessinger - General Manager



CLIENT: Geonetics Corp.  
 P.O. Box 1577  
 Boone, NC 28607  
 Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

<u>SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
409-1954A	Water; 11594-MW-6 for 3030C Pb.
409-1954B	Water; 11594-MW-6 for 601/602.
409-1954C	Water; 11594-MW-6 for 625 + Top 10.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>ML</u>	<u>DATE STARTED</u>
409-1954A - 3030C Pb	*	0.1 mg/l	9/09/94
409-1954B - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1954B- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	16.9	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	*	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene	20.0	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	0.6	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>ML</u>	<u>DATE STARTED</u>
409-1954B - 602			
- Benzene	*	0.5 ug/l	9/12/94
- Chlorobenzene	*	0.5 ug/l	9/12/94
- 1,2-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,3-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,4-Dichlorobenzene	*	0.5 ug/l	9/12/94
- Ethyl Benzene	*	0.5 ug/l	9/12/94
- Toluene	*	0.5 ug/l	9/12/94
- Xylenes	*	0.5 ug/l	9/12/94
- MTBE	*	0.5 ug/l	9/12/94
- IPE	7.9	0.5 ug/l	9/12/94

409-1954C - 625 (See attached)

REPORTED BY: 

D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid Base Neutral Component List

Sample ID 409-1954C
Date Ran 9-14-94
Date Extracted 9-12-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	SQL ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Benzo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	*	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1954C

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	ML ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutadiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	*	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

COMPOUND Acids	CONC ug/l	EPA METHOD	ML ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1954C

COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
No additional peaks found						

Internal Standard	Retention Time (Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information 30m X 0.25 mm, 25 um DB-5 He carrier @ 30 cm/min 40 C (4 min) 300 C, 10 C/min Library size = 64,000 compounds
Naphthalene D-8	13.36	
Acenaphthene D-10	17.83	
Phenanthrene D-10	21.57	
Chrysene D-12	28.32	
Perylene D-12	31.95	

\* Concentrations below quantitation limit except where noted

Reported By: D.R. Wessinger  
D.R. Wessinger - General Manager



CLIENT: Geonetics Corp.  
 P.O. Box 1577  
 Boone, NC 28607

Attention: Mr. N. Taylor

DATE RECEIVED: September 09, 1994

DATE REPORTED: September 23, 1994

SAMPLE NUMBER

SAMPLE DESCRIPTION

409-1954D Water; 11594-MW-7 for 3030C Pb.  
 409-1954E Water; 11594-MW-7 for 601/602.  
 409-1954F Water; 11594-MW-7 for 625 + Top 10.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1954D - 3030C Pb	*	0.1 mg/l	9/09/94
409-1954E - 601			
- Bromodichloromethane	*	0.5 ug/l	9/12/94
- Bromoform	*	1.0 ug/l	9/12/94
- Bromomethane	*	0.5 ug/l	9/12/94
- Carbon Tetrachloride	*	0.5 ug/l	9/12/94
- Chloroethane	*	0.5 ug/l	9/12/94
- 2-Chloroethylvinyl Ether	*	1.0 ug/l	9/12/94
- Chloroform	*	0.5 ug/l	9/12/94
- Chloromethane	*	5.0 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MQL</u>	<u>DATE STARTED</u>
409-1954E- 601			
- Dibromochloromethane	*	0.5 ug/l	9/12/94
- Dichlorodifluoromethane	70.8**	0.5 ug/l	9/12/94
- 1,1-Dichloroethene	*	0.5 ug/l	9/12/94
- trans-1,2-Dichloroethene	*	0.5 ug/l	9/12/94
- 1,2-Dichloropropane	*	0.5 ug/l	9/12/94
- 1,1-Dichloroethane	*	0.5 ug/l	9/12/94
- 1,2-Dichloroethane	*	0.5 ug/l	9/12/94
- cis-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- trans-1,3-Dichloropropene	*	0.5 ug/l	9/12/94
- Ethyl Dibromide (EDB)	*	1.0 ug/l	9/12/94
- Methylene Chloride	*	5.0 ug/l	9/12/94
- 1,1,2,2-Tetrachloroethane	*	0.5 ug/l	9/12/94
- Tetrachloroethene	42.5	0.5 ug/l	9/12/94
- 1,1,1-Trichloroethane	*	0.5 ug/l	9/12/94
- 1,1,2-Trichloroethane	*	0.5 ug/l	9/12/94
- Trichloroethene	*	0.5 ug/l	9/12/94
- Trichlorofluoromethane	*	0.5 ug/l	9/12/94
- Vinyl Chloride	*	0.5 ug/l	9/12/94

\* Concentrations are below Minimum Quantification Limit except where noted.

<u>PARAMETER</u>	<u>RESULTS</u>	<u>MOQ</u>	<u>DATE STARTED</u>
409-1954E - 602			
- Benzene	*	0.5 ug/l	9/12/94
- Chlorobenzene	*	0.5 ug/l	9/12/94
- 1,2-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,3-Dichlorobenzene	*	0.5 ug/l	9/12/94
- 1,4-Dichlorobenzene	*	0.5 ug/l	9/12/94
- Ethyl Benzene	*	0.5 ug/l	9/12/94
- Toluene	*	0.5 ug/l	9/12/94
- Xylenes	*	0.5 ug/l	9/12/94
- MTBE	*	0.5 ug/l	9/12/94
- IPE	*	0.5 ug/l	9/12/94

\*\*NOTE: Estimated value, beyond linear range.

409-1954F - 625 (See attached)

REPORTED BY:   
 D. R. Wessinger - General Manager

\* Concentrations are below Minimum Quantification Limit except where noted.

NC Laboratory Certificate No. 275.

CLEAN AIR, CLEAN WATER, CLEAN EARTH

EPA 625 Acid Base Neutral Component List

Sample ID 409-1954F
Date Ran 9-14-94
Date Extracted 9-13-94

COMPOUND Base Neutrals	CONC ug/l	EPA METHOD	MQL ug/l
Acenaphthene	*	625	20
Acenaphthylene	*	625	20
Anthracene	*	625	20
Benzo[a]anthracene	*	625	20
Benzo[b]fluoranthene	*	625	20
Benzo[k]fluoranthene	*	625	20
Benzo[ghi]perylene	*	625	20
Benzo[a]pyrene	*	625	20
Benzidine	*	625	50
bis(2-Chloroethoxy)methane	*	625	20
bis(2-Chloroethyl)ether	*	625	20
bis(2-Chloroisopropyl)Ether	*	625	20
bis(2-Ethylhexyl)phthalate	21	625	20
4-Bromophenyl phenyl ether	*	625	20
Butylbenzylphthalate	*	625	20
2-Chloronaphthalene	*	625	20
4-Chlorophenyl phenyl ether	*	625	20
Dibenz[a,h]anthracene	*	625	20
1,2-Dichlorobenzene	*	625	20
1,3-Dichlorobenzene	*	625	20
1,4-Dichlorobenzene	*	625	20
3,3'-Dichlorobenzidine	*	625	20
Di-n-butyl phthalate	*	625	20
Diethyl phthalate	*	625	20
Di-n-octyl phthalate	*	625	20

CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1954F

COMPOUND	CONC	EPA	ML
Base Neutrals	ug/l	METHOD	ug/l
Dimethyl phthalate	*	625	20
2,4-Dinitrotoluene	*	625	20
2,6-Dinitrotoluene	*	625	20
Fluoranthene	*	625	20
Fluorene	*	625	20
Hexachlorobenzene	*	625	20
Hexachlorobutandiene	*	625	20
Hexachlorocyclopentadiene	*	625	20
Hexachloroethane	*	625	20
Indno[1,2,3-cd]pyrene	*	625	20
Isophorone	*	625	20
Naphthalene	*	625	20
Nitrobenzene	*	625	20
N-Nitrosodimethylamine	*	625	20
N-Nitrodiphenylamine	*	625	20
N-Nitrosodi-n-propylamine	*	625	20
Phenanthrene	*	625	20
Pyrene	*	625	20
1,2,4-Trichlorobenzene	*	625	20
Chrysene	*	625	20

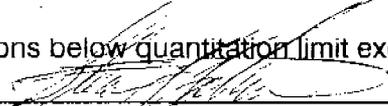
COMPOUND	CONC	EPA	ML
Acids	ug/l	METHOD	ug/l
Phenol	*	625	20
4-Chloro-3-methylphenol	*	625	20
2-Chlorophenol	*	625	20
2,4-Dichlorophenol	*	625	20
2,4-Dimethylphenol	*	625	20
4,6-Dinitro-2-methylphenol	*	625	50
2,4-Dinitrophenol	*	625	50
Pentachlorophenol	*	625	50
2-Nitrophenol	*	625	20
4-Nitrophenol	*	625	50
2,4,6-Trichlorophenol	*	625	20

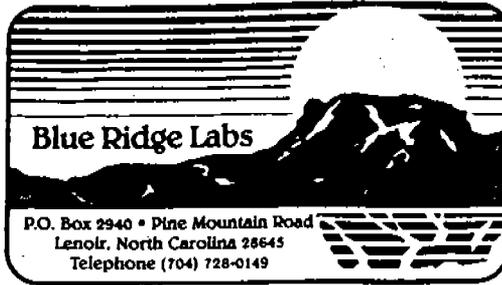
CLEAN AIR, CLEAN WATER, CLEAN EARTH

Sample ID 409-1954F			
COMPOUND SURROGATES	CONC ug/l	METHOD	Recovery Percent
Nitrobenzene d-5	100	625	
2-fluorobiphenyl	100	625	
p-terphenyl d-14	100	625	
2-fluorophenol	100	625	
Phenol d-5	100	625	
2,4,6-tribromophenol	100	625	

TOP TEN COMPOUNDS	Probable Molecular Wt	Estimated Conc. (ug/l)	Library Match (%)	Retention Time (RT) (Min)	Scan Number	ID Basis Library Match
No additional peaks found						

Internal Standard	Retention Time(Min)	Complete only if non-targeted compounds present
1,4-Dichlorobenzene D-4	10.22	EPA 625 Column Information
Naphthalene D-8	13.36	30m X 0.25 mm, 25 um DB-5
Acenaphthene D-10	17.83	He carrier @ 30 cm/min
Phenanthrene D-10	21.57	40 C (4 min) 300 C, 10 C/min
Chrysene D-12	28.32	
Perylene D-12	31.95	Library size = 64,000 compounds

\* Concentrations below quantitation limit except where noted  
 Reported By:   
 D.R. Wessinger - General Manager



409-1953 ✓  
409-1954 ✓

CHAIN OF CUSTODY RECORD

CLIENT: Geonetics Corp.  
PO Box 1577  
Boone NC 28607

PROJECT NAME: Harold Hall Prop. P.O. Number: 11594

Sample I.D.	Sample Type	Collection		Pres.			Int.	Requested Analysis
		Date	Time	pH<2	pH>12	Temp		
11594-MW-1	water	9894	17:42					See RFA
11594-MW2	water	9894	16:53					See RFA
11594-MW3	water	9894	15:25					See RFA
11594-MW4	water	9894	15:17					See RFA
11594-MW5	water	9894	16:24					See RFA
11594-MW6	water	9894	15:15					See RFA
11594-MW7	water	9894	16:08					See RFA

RELINQUISHED BY:

DATE

RECEIVED BY:

Kenn C Seranin

9-9-94

[Signature]

**APPENDIX G**  
**PERMITS AND SSE FORM**



State of North Carolina  
Department of Environment, Health, and Natural Resources  
Winston-Salem Regional Office

James G. Martin, Governor  
William W. Cobey, Jr., Secretary

Margaret Plemmons Foster  
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT  
GROUNDWATER SECTION

December 14, 1992

Mr. and Mrs. Harold E. Hall  
P.O. Box 396  
Jamestown, NC 27292

SUBJECT: MONITOR WELL CONSTRUCTION  
PERMIT NO. 40-1076-WM-0502  
GUILFORD COUNTY  
FILE NAME: Hall Property, Harold

Dear Mr. and Mrs. Hall:

In accordance with your application received November 30, 1992, we are forwarding herewith Monitor Well Construction Permit No. 40-1076-WM-0502 for the construction of three monitor wells or more as needed in the Charlotte Belt Hydrogeologic Unit.

Henceforth, correspondence and data relating to these wells shall be designated as specified in the subject heading above.

This Permit will be effective from the date of its issuance and shall be subject to the conditions and limitations as specified therein.

Sincerely,

*Sherri V. Knight*

Sherri V. Knight  
Groundwater Supervisor

LDC/SVK/ahl  
Enclosure

cc: Groundwater Section - Central Office  
Guilford County Division of Emergency Management  
WSRO Files  
Engineering and Environmental Services



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

JAMES B. HUNT JR.  
GOVERNOR

SAM HUNT  
SECRETARY

P. O. Box 14996  
Greensboro, NC 27415-4996  
July 2, 1993

Guilford County

Subject: Encroachment Agreement - Mr. Harold Hall  
Installation of a Groundwater Monitoring Well  
on SR 1486

Mr. Harold E. Hall  
P. O. Box 396  
Jamestown, NC 27282

Dear Mr. Hall:

Attached is Right of Way Encroachment Agreement which has been properly executed.

The Department of Transportation does not guarantee the right of way on this road, nor will it be responsible for any claim for damages brought by any property owner by reason of the installation.

Approval is given subject to posting a \$2,500.00 Performance and Indemnity Bond with the Department of Transportation.

All signing shall be in conformance with the Manual on Uniform Traffic Control Devices.

All disturbed areas shall be repaired with the following rates of seed, fertilizer, and limestone in pounds per acre, and the areas properly mulched and tacked:



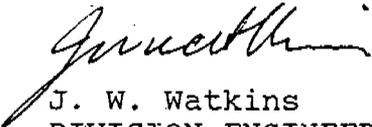
Mr. Harold E. Hall  
July 2, 1993  
Page 2

25# Reliant Hard Fescue  
100# Alta or Ky. 31 Tall Fescue  
25# Kenblue Ky. Bluegrass  
1000# 5-10-10 Fertilizer  
4000# Limestone

It will be necessary for you or your contractor to notify Mr. T. A. Kallam, Assistant District Engineer, upon receipt of this letter to schedule any necessary Preconstruction Conference, to provide your anticipated date of starting, or to review any plan revisions made by the District Office prior to construction beginning on this encroachment. Mr. Kallam can be reached at (919) 334-3161 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

When the work has been completed, please notify Mr. Kallam by letter at P. O. Box 14996, Greensboro, NC 27415-4996 in order that a final inspection can be made.

Sincerely,

  
J. W. Watkins  
DIVISION ENGINEER

JWW/JMM/cl  
Atta.

cc: Mr. John B. Williamson, Jr.  
Mr. S. L. Hall  
Town of Jamestown

Table 1

**Site Sensitivity Evaluation (SSE)**

## Site Characteristics Evaluation (Step 1)

HAROLD HALL PROPERTY

Characteristic	Condition	Rating	
Grain Size*	Gravel	150	
	Sand	100	
	Silt	50	75
	Clay	0	
Are relict structures, sedimentary structures, and/or textures present in the zone of contamination and underlying "soils"?	Present and intersecting the water table.	10	
	Present but <u>not</u> intersecting the water table.	5	
	None present.	0	
			10
Distance from location of deepest contaminated soil** to water table.	0 - 5 feet	20	
	(C, D & E sites only)	20	
	5 - 10 feet	10	
	>10 - 40 feet	0	
	> 40 feet		20
Is the top of bedrock or transmissive indurated sediments located above the water table?	Yes	20	
	No	0	
			20
Artificial conduits present within the zone of contamination.	Present and intersecting the water table.	10	
	Present but <u>not</u> intersecting the water table.	5	
	Not present.	0	
			5

**Total Site Characteristics Score:**

130

\* **Predominant** grain size based on Unified Soil Classification System or U.S. Dept. of Agriculture's Soil Classification Method.

\*\* (>10 ppm TPFH by Method 5030; >40 ppm TPFH by Method 3550; >250 ppm O&G by Method 9071)

# Site Sensitivity Evaluation (SSE)

Initial Cleanup Level  
(Step 2)

HAROLD HALL PROPERTY

Final Cleanup Level  
(Step 3)

## EPA Method 5030 for Low Boiling Point Hydrocarbons such as Gasoline, Aviation Fuels, Gasohol

Total Site Characteristics Score	Initial Cleanup Level TPFH (ppm)	Select Site Category*	Final Cleanup Level
<p>&gt;150</p> <p><u>121-150</u></p> <p>91-120</p> <p>61-90</p> <p>31-60</p> <p>0-30</p>	<p>≤10</p> <p><u>20</u></p> <p>40</p> <p>60</p> <p>80</p> <p>100</p>	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80px;">                     Select Site Category*                      →                 </div>	<p>Category A &amp; B (Multiply initial cleanup level by 1)      1 x _____ = _____ ppm</p> <p>Category C &amp; D (Multiply initial cleanup level by 2)      2 x _____ = _____ ppm</p> <p>Category E (Multiply initial cleanup level by 3)      3 x <u>20</u> = <u>60</u> ppm</p>

## EPA Method 3550 for High Boiling Point Hydrocarbons such as Kerosene, Diesel, Varsol, Mineral Spirits, Naphtha

Total Site Characteristics Score	Initial Cleanup Level TPFH (ppm)	Select Site Category*	Final Cleanup Level
<p>&gt;150</p> <p><u>121-150</u></p> <p>91-120</p> <p>61-90</p> <p>31-60</p> <p>0-30</p>	<p>≤40</p> <p><u>80</u></p> <p>160</p> <p>240</p> <p>320</p> <p>400</p>	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80px;">                     Select Site Category*                      →                 </div>	<p>Category A &amp; B (Multiply initial cleanup level by 1)      1 x _____ = _____ ppm</p> <p>Category C &amp; D (Multiply initial cleanup level by 2)      2 x _____ = _____ ppm</p> <p>Category E (Multiply initial cleanup level by 3)      3 x <u>80</u> = <u>240</u> ppm</p>

## EPA Method 9071 for Heavy Fuels - Oil & Grease (O&G) such as Fuel Oil #4, #5, #6, Motor Oil, Hydraulic Fluid

Total Site Characteristics Score	Initial Cleanup Level O&G (ppm)	Select Site Category*	Final Cleanup Level
<p>&gt;150</p> <p><u>121-150</u></p> <p>91-120</p> <p>61-90</p> <p>31-60</p> <p>0-30</p>	<p>≤250</p> <p><u>400</u></p> <p>550</p> <p>700</p> <p>850</p> <p>1000</p>	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80px;">                     Select Site Category*                      →                 </div>	<p>Category A &amp; B (Multiply initial cleanup level by 1)      1 x _____ = _____ ppm</p> <p>Category C &amp; D (Multiply initial cleanup level by 2)      2 x _____ = _____ ppm</p> <p>Category E (Multiply initial cleanup level by 3)      3 x <u>400</u> = <u>1200</u> ppm</p>

\* See Site Category Descriptions, Table 3

TABLE 3

SSE SITE CATEGORY DESCRIPTIONS

**CATEGORY A** (*Site meets any one of the criteria*)

1. Water supply well(s) contaminated and not served by accessible public water supply.
2. Vapors present in confined areas at explosive or health concern levels.
3. Treated surface water supply in violation of the safe drinking water standards.

**CATEGORY B** (*Site meets any one of the criteria*)

1. Water supply well(s) contaminated, but served by accessible public water supply.
2. Water supply well(s) within 1500 feet of site, but not contaminated and not served by accessible public water supply.
3. Vapors present in confined areas but not at explosive or health concern levels.

**CATEGORY C** (*Site meets both of the criteria*)

1. No known water supply well(s) contaminated.
2. Water supply well(s) greater than 1500 feet from site but not served by accessible public water supply.

**CATEGORY D** (*Site meets both of the criteria*)

1. No known water supply well(s) contaminated.
2. Water supply well(s) within 1500 feet of site but served by accessible public water supply.

**CATEGORY E** (*Site meets both of the criteria*)

1. No known water supply well(s) contaminated or within 1500 feet of site.
2. Area served by accessible public water supply.