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June 25, 2010

Ms. Cheryl Youngblood, LG
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: Preliminary Site Assessment
Donald and Maxine Joyce Property (Parcel #148)
1400 Union Cross Road
Kernersville, Forsyth County, North Carolina
NCDOT Tip No. U-4909
WBS Element 40278.1.1
AECOM Project No. 60155373

Dear Ms. Youngblood:

AECOM Technical Services of North Carolina, Inc., (AECOM) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated May 3, 2010, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated May 5, 2010. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil samples for laboratory analysis, and reviewing applicable North Carolina Department of Environment and Natural Resources (NCDENR) records. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

Location and Description

The Donald and Maxine Joyce Property (Parcel #148) is located at 1400 Union Cross Road (SR 2643) in Kernersville, Forsyth County, North Carolina. The property is situated on the west side of Union Cross Road and in the southwest quadrant of the intersection of Union Cross Road and Sedge Garden Road (SR 2632) (Figure 1). Based on information supplied by the NCDOT and the site visit, AECOM understands that the site is an active gas station/convenience store (Quality Mart 33) where one 12,000-gallon and two 8,000-gallon gasoline underground storage tanks (USTs) are present. The structure consists of one block building with an asphalt parking lot on the sides and front. A kerosene above ground storage tank (AST) is located on the southeast side of the building. Canopied pump islands and the USTs are located in front of the convenience store between the building and Union Cross Road (Figure 2). The right-of-way/easement will affect parts of the property containing the kerosene AST, part of the pump island area, and the location of the former USTs (Figure 2). Because of the location of the tanks

and pump islands, the NCDOT requested a Preliminary Site Assessment. The scope of work as defined in the Request for Technical and Cost Proposal was to evaluate the site with respect to the presence of known and unknown USTs and assess where contamination may exist on the property. If present, an estimate of the quantity of impacted soil was to be provided.

AECOM reviewed the on-line NCDENR Incident Management database and Incident Numbers 11599 and 30284 have been assigned to the property. The NCDOT activities will affect the contamination area and, as such, the NCDOT requested that a file search be conducted. Available reports were reviewed and the following summaries have been provided.

Incident 11599 – State-Lead Assessment and Cleanup

Correspondence

Letter dated November 1, 1993 from Donald Joyce to Cindy Rintoul of UST Section - This letter contains a timeline for the activities at the property located at 1400 Union Cross Road. From the late 1880's to 1940, a store on the property sold general mercantile goods. In 1940, a UST was installed at the site and in 1952 additional tanks were installed. Petroleum products were sold from the site until 1978 when all the tanks were abandoned in place. In 1988, the tanks were removed and no petroleum products sold until 1993 when Quality Oil leased the property and installed the existing tanks. An environmental assessment of the property prior to Quality Mart's lease indicated no conditions that would prevent the lease.

Letter dated August 26, 1994 from UST Section to Donald Joyce – This letter informs Mr. Joyce that the cleanup of the property at 1400 Union Cross Road would be undertaken by the State Trust Fund as part of the State-lead sites.

Preliminary Site Assessment

This report was prepared by Turner Environmental Consultants, P.C., and submitted in April 1994. The document indicates that two 3,000-gallon were removed from the property in 1988. A preliminary site assessment was conducted following a North Carolina Department of Environment and Natural Resources (NCDENR) soil sampling event that resulted in detection of petroleum hydrocarbons at the site. Seven soil borings were advanced near the former USTs and pump island. Soil samples from two of the borings contained gasoline range organics at concentrations of 1,670 and 30.6 mg/kg. The soil boring with the highest concentration was converted to a temporay monitoring well. A groundwater sample from the temporary well indicated the presence of benzene at a concentration of 200 µg/l. The report concluded that hydrocarbon contamination was present in soil and groundwater at the site.

Phase I Limited Site Assessment

This report was prepared by Geological Resources, Inc., and submitted in November 2003 as part of the State-lead investigation. Based on the risk characterization and receptor information included in the LSA, four potable water wells were located within 1000 feet of the source and one non-potable well was located within 250 feet of the source area. One soil sample was collected from the single boring advanced for the LSA. Several compounds were detected in the soil sample, but only benzene was detected at a concentration above the soil-to-groundwater Maximum Soil Contaminant Concentration (MSCC). No compounds were detected above the residential MSCC. The groundwater sample collected from the well contained benzene, ethylbenzene, xylenes, MTBE, diisopropyl ether, and naphthalene above the groundwater quality standards. However, none of the compounds were present above the Gross Contaminant Levels (GCLs). The report recommended a Phase II LSA.

Following review of the LSA report, the NCDENR UST Section indicated that the agency was of the opinion that the MTBE detected in the LSA was from the existing USTs, not the former USTs. As a result, the State-lead investigation and cleanup was deferred until such time that Quality Oil Company could complete its own investigation. The incident was assigned number 30284.

Relevant sections of the correspondence, preliminary site assessment, and LSA Report are included in Attachment A. Figure 2 shows the approximate locations of the former USTs.

Incident 30284 – Quality Mart On-Going Investigation

Site Check and Initial Abatement Report (20-Day Report)

This report was prepared by Terraquest Environmental Consultants, P.C., and submitted in June 2004. The report indicates that two 3,000-gallon gasoline underground storage tanks (USTs) were removed from the site in 1988. Subsequently, one 12,000-gallon and two 8,000-gallon USTs were installed at the site. In November 2003, a Phase I Limited Site Assessment (LSA) was conducted and the results suggested that a release had occurred from the newer USTs at the site. As a result, a Site Check and Initial Abatement report was requested. A tank tightness test was performed and all the USTs passed. Soil and groundwater samples were collected and analyses indicated that soil contamination was present above the soil-to-groundwater Maximum Soil Contaminant Concentration (MSCC) in two soil samples. Petroleum compounds were detected above the groundwater quality standards established in 15A NCAC 2L in all three monitor well samples collected.

Phase I and Phase II Limited Site Assessment

This report was prepared by Terraquest Environmental Consultants, P.C., and submitted in May 2005. The LSA was conducted in response to a Notice of Regulatory Requirements dated

December 4, 2003. Based on the risk characterization and receptor information included in the LSA, two potable water wells were located within 1000 feet of the source and one non-potable well was located within 250 feet of the source area. Twenty-seven soil borings were advanced with soil samples from four of the borings indicating petroleum compounds above the soil-to-groundwater MSCC. Two of the affected borings were located in the proposed NCDOT right-of-way. Soil contamination in one boring was detected at a depth of 4 to 4.5 feet and in the second boring at a depth of 6 to 7 feet. Five additional groundwater monitor wells were installed and sampled. Samples from four of the eight wells indicated the presence of petroleum compounds above the groundwater quality standards. The LSA concluded that the site should be classified as high risk and that additional work should be conducted at the site.

Comprehensive Site Assessment

This report was prepared by Terraquest Environmental Consultants, P.C., and submitted in December 2008. The Comprehensive Site Assessment (CSA) summarized the information contained in the previous reports and was prepared to provide delineation of soil and groundwater contamination. Eight additional soil borings were advanced and samples from five of these borings contained petroleum compounds above the soil-to-groundwater MSCC. Four of these five borings were located near the former 3,000-gallon USTs, which are within the proposed NCDOT right-of-way. Two more monitor wells were installed as part of the CSA, which brought the total to 10 wells. One of the wells was located off-site on the Smith Property (NCDOT's Parcel 157). This well indicated benzene slightly higher than the groundwater quality standard. According to the CSA, the horizontal and vertical extent of groundwater contamination has been defined. Hydraulic conductivity was calculated from aquifer slug tests and groundwater flow velocity was estimated at 0.02 feet per day or 7.3 feet per year. The CSA recommended development of a Corrective Action Plan.

Pre-CAP Groundwater Monitoring Report

This report was prepared by Terraquest Environmental Consultants, P.C., and submitted in October 2009. The sampling was conducted on seven of the 10 monitor wells plus one off-site potable well. Groundwater elevation measurements suggest that groundwater flow was to the east-southeast. Groundwater samples from four of the 10 wells contained benzene above the groundwater quality standards. The report recommends that a Corrective Action Plan be developed and that periodic sampling of the monitor wells and potable well continue.

Relevant sections of the Site Check and Initial Abatement report, LSA, CSA, and Pre-CAP Groundwater Monitoring Report are included in Attachment A.

AECOM also examined the UST registration database to obtain UST ownership information. According to the database, the USTs on the property are operated under Facility Number 0-034372. The operator and owner of the tanks are listed as follows:

Owner
Quality Oil Company LLC
PO Box 2736/1540 Silas Creek Parkway
Winston-Salem, NC 27102-2736
(336) 722-3441

Operator
Quality Mart 33
1400 Union Cross Road
Kernersville, NC 27284
(336) 993-7771

Geophysical Survey

Prior to AECOM's mobilization to the site, Pyramid Environmental conducted a geophysical survey as part of this project to evaluate if USTs were present on the proposed right-of-way/easement. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. A survey grid was laid out at the property with the Y-axis oriented approximately parallel to Union Cross Road and the X-axis oriented approximately perpendicular to Union Cross Road. The grid was located to cover the accessible portions of the proposed right-of-way. The survey lines were spaced 5 feet apart. Magnetic data was collected continuously along each survey line with a data logger. After collection, the data was reviewed in the field with graphical computer software. Following the electromagnetic survey, a ground penetrating radar (GPR) survey was conducted where needed to further evaluate any significant metallic anomalies.

Access was available to all areas of the proposed right-of-way/easements and several anomalies were detected with the geophysical survey. With the exception of the pump islands, all of these anomalies were attributed to buried utility lines or conduits, or vehicles. The survey concluded that no metallic USTs, other than the known tanks, were present on the property. A detailed report of findings and interpretations is presented in Attachment B.

Site Assessment Activities

On May 26, 2010, AECOM mobilized to the site to conduct a Geoprobe® direct push investigation to evaluate soil conditions within the proposed right-of-way/easement. Continuous sampling using direct push technology (American Environmental Drilling of Aberdeen, North Carolina) resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in acetate sleeves inside the direct push sampler. Each of these sleeves was divided into 2-foot long sections for soil sample screening. Each 2-foot interval was placed in a resealable plastic bag and the bag was set aside for a sufficient amount of time to allow volatilization of organic compounds from the soil to the bag headspace. The probe of a flame ionization detector/photo ionization detector (FID/PID) was inserted into the bag and the reading was recorded. After terminating the sample hole, the soil sample from the depth interval with the highest FID/PID reading was submitted for analysis to Prism Laboratories in Charlotte, North Carolina, using standard chain-of-custody procedures. The laboratory analyzed the soil

samples for total petroleum hydrocarbons (TPH) in the diesel range organics (DRO) and gasoline range organics (GRO).

Eight direct-push holes (JO-1 through JO-8) were advanced within the property to a depth of 10 to 15 feet as shown in Figure 2 and Attachment C. Boring JO-1 was located to evaluate the existing UST area on the property. Borings JO-2 through JO-5 were placed to assess conditions at the former UST locations and existing pump islands; boring JO-6 was located to evaluate the kerosene AST area; boring JO-7 was placed to serve as a step-out location; and boring JO-8 was advanced to assess a proposed drop inlet location (Attachment D). The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface was covered with about 2 to 3 inches of asphalt/gravel or topsoil. Below the surface to a depth of about 8 feet was a medium to reddish brown silt/clay to silt/sand. Underlying this material to a depth of about 10 to 12 feet was a medium brown to medium gray soft clay. The bottom part of the borings generally encountered a mottled medium brown, reddish brown, and tan silt/clay. No bedrock was encountered in any of the borings. The "Geologic Map of North Carolina" dated 1985 indicates that the site is underlain by granite. The soils observed at the site are consistent with this parent rock. All the borings except JO-5 and JO-8 were terminated at a depth of 15 feet. These two borings were terminated at 10 feet after encountering apparent groundwater at that depth. No groundwater was observed in the borings terminated at 15 feet. Based on field screening, soil samples were submitted for laboratory analyses, which are summarized in Table 1. Following the completion of each boring, it was backfilled in accordance with 15A NCAC 2C.

Analytical Results

Based on the laboratory reports, summarized in Table 1 and presented in Attachment E, petroleum hydrocarbon compounds identified as DRO and/or GRO were detected in three of the eight soil samples collected from the site. The soil sample from boring JO-2 contained a DRO concentration of 270 mg/kg and a GRO concnetration of 3,500 mg/kg; the sample from boring JO-3 contained a GRO concentration of 31 mg/kg; and the sample from boring JO-4 contained a DRO concentration of 9.4 mg/kg. According to the North Carolina Underground Storage Tank Section's Underground Storage Tank Closure Policy dated August 24, 1998, the action level for TPH analyses is 10 milligrams per kilogram (mg/kg) for both gasoline and diesel fuel. However, that agency's "Guidelines for Assessment and Corrective Action," dated December 2008, does not allow for use of TPH analyses for confirmation of the extent of petroleum contamination or its cleanup. As a result, while TPH concentrations are no longer applicable in determining if soil contamination is present, this analysis is a legitimate screening tool. Based on the TPH action level for UST closures, the assumed action level for this report is 10 mg/kg. The concentrations detected in the soil samples from JO-2 and JO-3 were present at a concentration above the 10 mg/kg assumed action level.

Conclusions and Recommendations

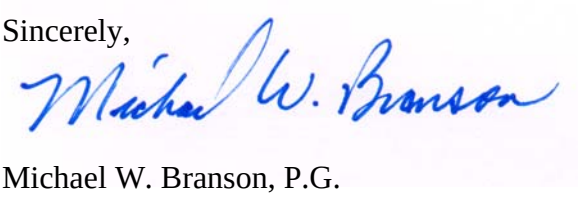
A Preliminary Site Assessment was conducted to evaluate the Donald and Maxine Joyce Property (Parcel #148) located at 1400 Union Cross Road in Kernersville, Forsyth County, North Carolina. Eight soil borings were advanced to evaluate the soil conditions throughout the proposed right-of-way/easements on the property. The laboratory reports of the soil samples from these borings suggest that DRO concentrations ranging from 9.4 to 270 mg/kg were present in three soil samples and GRO concentrations ranging from 31 to 3,500 mg/kg were present in two samples. All but one of these concentrations are above the assumed action level.

To evaluate the volume of soil requiring possible remediation, the soil samples with TPH concentrations above 10 mg/kg were considered. The analytical results of the soil samples suggest that the soil from borings JO-2 (270 mg/kg DRO and 3,500 mg/kg GRO) and JO-3 (31 mg/kg DRO) contained TPH concentrations above the assumed action level (Figure 3). A review of the field screening readings (Table 1) suggests that the thickness of the potentially contaminated soil is about 9 feet in the area of JO-2, and 2 feet at boring JO-3. After estimating the potential contamination geometry using field observations and experience with similar sites and geology, AECOM measured the affected section by using CADD software, which indicated an area of about 411 ft^2 at boring JO-2, and about 1737 ft^2 for the remainder of the contaminated area. Based on a 9-foot contamination thickness at JO-2, the volume of contaminated soil calculates to a volume of 137 cubic yards. Based on a 2-foot thickness, the remaining area calculates to a volume of 129 cubic yards. The total volume calculated for the property is 266 cubic yards. This volume is estimated from TPH analytical data, which are no longer valid for remediation of sites reported after January 2, 1998. After this date, MADEP EPH/VPH and EPA Method 8260/8270 analyses will likely be required to confirm cleanup. However, these analyses do not correlate exactly with TPH data and, as a result, the actual volume of contaminated soil may be higher or lower.

According to the NCDOT plan sheets, the potential contamination area is within a fill section for road improvements. Because the potential contamination at borings JO-2 and JO-3 is at a depth of about 5 feet, contact with potential contamination is unlikely. However, depending on the depth of the proposed drop inlets in the potential contamination area, some contact with contamination may be encounterd.

AECOM appreciates the opportunity to work with the NCDOT on this project. Because compounds were detected above the applicable action levels in the soil samples, AECOM recommends that a copy of this report be submitted to the Winston-Salem Regional Office UST Section. If you have any questions, please contact me at (919) 854-6238.

Sincerely,



Michael W. Branson, P.G.
Project Manager

Attachments

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TABLE 1

SOIL FIELD SCREENING AND ANALYTICAL RESULTS
DONALD AND MAXINE JOYCE PROPERTY (PARCEL #148)
KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. U-4909
WBS ELEMENT 40278.1.1
AECOM PROJECT NO. 60155373

LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
JO-1	0 - 2	3.05			
	2 - 4	5.02			
	4 - 6	10	JO-1	DRO (BQL) GRO (BQL)	10 10
	6 - 8	6.95			
	8 - 10	9.62			
	10 - 12	2.37			
	12 - 14	5.95			
	14 - 15	3.27			
JO-2	0 - 4	4.82			
	4 - 6	97			
	6 - 10	995	JO-2	**DRO (270)** **GRO (3500)**	10 10
	10 - 12	575			
	12 - 14	632			
	14 - 15	949			
JO-3	0 - 2	4.31			
	2 - 4	17			
	4 - 6	67	JO-3	DRO (BQL) **GRO (31)**	10 10
	6 - 8	31			
	8 - 10	27			
	10 - 12	13			
	12 - 14	6.66			
	14 - 15	10			
JO-4	0 - 2	1.11			
	2 - 4	2.33			
	4 - 6	5.95			
	6 - 8	4.35			
	8 - 10	6.34	JO-4	DRO (9.4) GRO (BQL)	10 10
	10 - 12	1.36			
	12 - 14	1.82			
	14 - 15	1.52			
JO-5	0 - 2	1.44			
	2 - 4	2.72			
	4 - 6	12			
	6 - 8	10			
	8 - 10	12	JO-5	DRO (BQL) GRO (BQL)	10 10
JO-6	0 - 2	1.19			
	2 - 4	1.24			
	4 - 6	1.20			
	6 - 8	1.53	JO-6	DRO (BQL) GRO (BQL)	10 10
	8 - 10	0.45			
	10 - 12	1.20			
	12 - 14	1.46			
	14 - 15	1.21			

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TABLE 1 (cont)

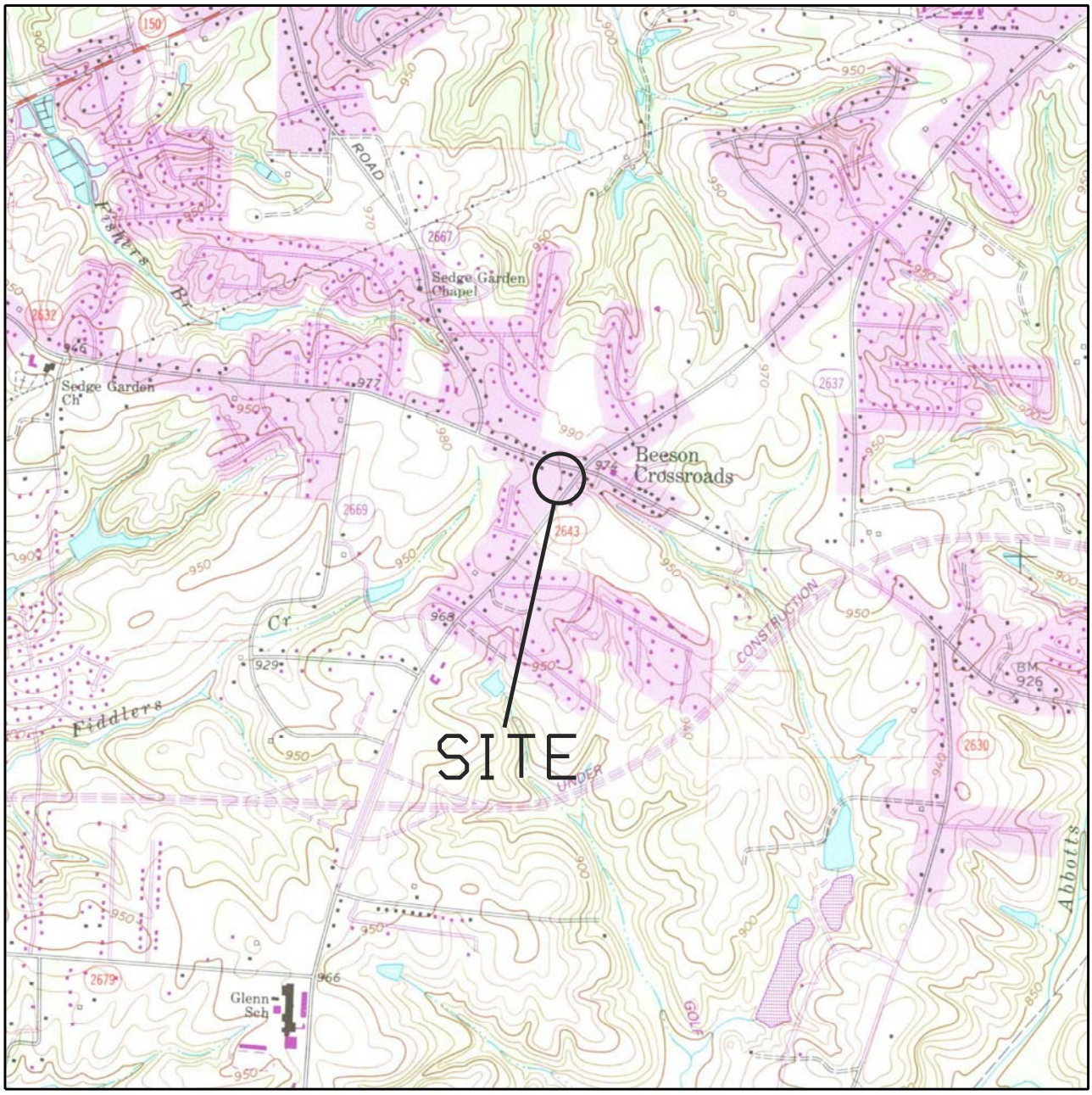
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
DONALD AND MAXINE JOYCE PROPERTY (PARCEL #148)
KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA
NCDOT PROJECT NO. U-4909
WBS ELEMENT 40278.1.1
AECOM PROJECT NO. 60155373

LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
JO-7	0 - 2	1.10			
	2 - 4	1.11			
	4 - 6	0.88			
	6 - 8	0.73			
	8 - 10	1.03			
	10 - 12	0.85			
	12 - 14	0.80			
	14 - 15	1.46	JO-7	DRO (BQL) GRO (BQL)	10 10
JO-8	0 - 2	1.17	JO-8	DRO (BQL) GRO (BQL)	10 10
	2 - 4	1.10			
	4 - 6	0.82			
	6 - 8	0.73			
	8 - 10	0.80			

Soil samples were collected on May 26, 2010.

DRO - Diesel range organics.
GRO - Gasoline range organics.
BQL - Below quantitation limit.
ppm - parts per million.
mg/kg - milligrams per kilogram.
BOLD values are present above the assumed action level.

FIGURES



SCALE 1:24,000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: KERNERSVILLE, NC (REV 1994)

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FIGURE 1
VICINITY MAP
DONALD AND MAXINE JOYCE PROPERTY (PARCEL #148)
KERNERSVILLE, FORSYTH COUNTY NORTH CAROLINA

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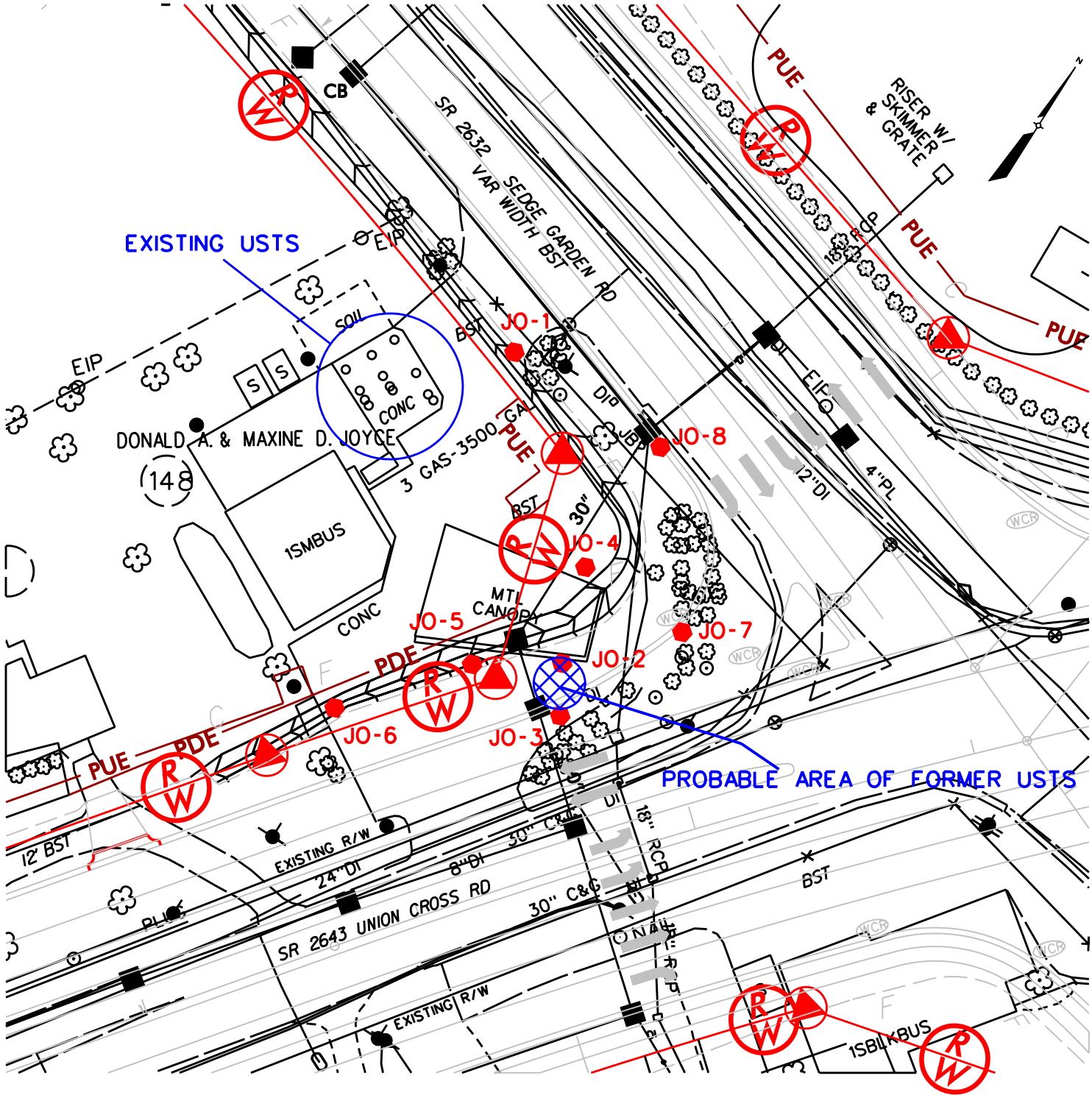

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FIGURE 2
SITE MAP
DONALD AND MAXINE JOYCE PROPERTY (PARCEL #148)
KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA

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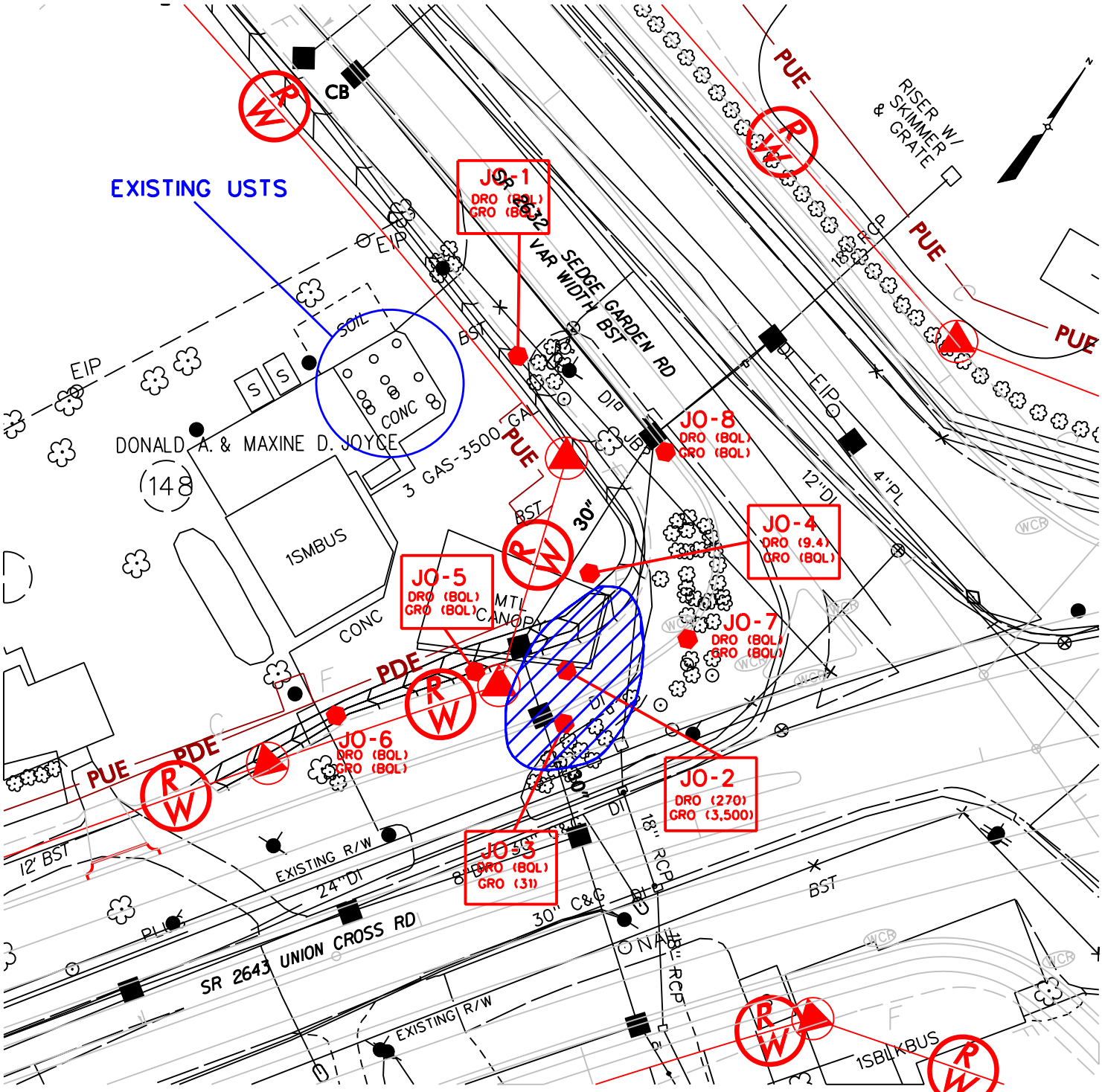

LEGEND

JO-1	SOIL SAMPLE LOCATION AND IDENTIFICATION
DRO (123)	TPH AS DIESEL FUEL IN MG/KG
GRO (123)	TPH AS GASOLINE IN MG/KG
BQL	BELOW QUANTITATION LIMIT
	APPROXIMATE AREA OF SOIL CONTAMINATION ABOVE 10 MG/KG

0 25 50
GRAPHIC SCALE (FEET)

AECOM

FIGURE 3

SOIL ANALYTICAL RESULTS MAP

DONALD AND MAXINE JOYCE PROPERTY (PARCEL #148)

KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA

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ATTACHMENT A

INCIDENT 11599

Donald Andrew Joyce
1022 Sedge Garden Road
Kernersville, NC 27284
(919) 993-3341

November 1, 1993

Ms. Sabra Murphy
Ms. Cindy Rintoul
North Carolina Department of Environment,
Health, and Natural Resources
8025 North Point Blvd., Suite 100
Winston-Salem, NC 27106

Dear Ms. Murphy and Ms. Rintoul:

I want to thank you both for your assistance concerning my property at Beeson's Crossroads. I understand that Sabra is unavailable this week. Cindy, per our conversation, and per your instructions, I am sending back to your attention, the attached LPUST Cleanup Funds Application, and in lieu of, am attaching the following history of the property in question. Should there be any further information needed, please feel free to call me at the number given above.

Sincerely,

Donald Andrew Joyce

Donald Andrew Joyce

DAJ:bmv
Attachment

Property of Donald Andrew Joyce
located at: 1400 Union Cross Road
Kernersville, NC 27284

In the late 1880's, a building (heretofore known as "store") was erected on the above property by a Mr. Joseph Beeson. The original store was located approximately 100 feet closer to the then intersection of Sedge Garden Road and Union Cross Road.

In 1910, Mr. Beeson sold this property and building to Mr. Raleigh T. Joyce.

Upon Mr. Joyce's death in 1947, his son, Robert Andrew, inherited this property. Mr. Robert Joyce died in 1984.

In 1985, upon settlement of Mr. Robert Joyce's estate, his son, Donald Andrew, became owner of the property, and is still owner.

As to the store on this property, and its uses -

From available records, inquiries, and recollections, from 1880's to approximately 1940, store was used only for general mercantile. It wasn't until approximately early 1940's that petroleum products were ever sold at the store's original location. Texaco products was the first underground tank to be installed.

In 1952, the store was moved back approximately 100 feet from its original location due to NC State Transportation Department's requirements for highway reconstruction. At that time, new tanks were installed by Gulf gas. Sometime between 1960 and 1971, Gulf was replaced with Pace gas.

Pace gas was sold until 1978 by the lessee at that time, (Mr. Charles Lemmons, 3778 Piedmont Memorial Drive, Winston-Salem, NC telephone unlisted/unavailable). At which time, ALL tanks were abandoned, and no other petroleum products were ever sold after 1978 to the best of recollection.

In accordance with EPA instructions and regulations, these tanks were removed by Donald Joyce on December 19, 1988.

Mr. Donald Joyce and Quality Oil of Winston-Salem made a lease agreement effective September 20, 1993. Quality Oil relayed to Mr. Joyce that 60 days prior to taking possession of the property, that they (Quality Oil) were coming onto the property, and make all necessary and required testing of possible contamination, hazardous waste, underground tanks, etc. which would be instrumental in allowing the installation of new tanks on the property.

It should also be pointed out, that with the effective date of the lease between Mr. Joyce and Quality Oil, Quality Oil relayed to Mr. Joyce that testing was satisfactory, and that there were no current conditions to prevent going forward with the lease agreement and project.

On September 27, Quality Oil came onto the property and commenced demolition of the store, properly removing all material in a proper manner as required by law.

(At this time, please note that in addition to the demolition of the store, a second building was demolished. This building was a concrete block building erected in 1955 for the use as a Volunteer Fire Station for the community of Beeson's Crossroads. This building never had any underground storage tanks relating to petroleum products and was always used for a fire station up until 1982, at which time, an expanded fire station was erected on another piece of property not associated with Mr. Joyce. From 1982 until demolition, this particular building was used for miscellaneous small businesses, again, not relating to any petroleum products.)

On October 12, 1993, Ms. Sabra A. Murphy of the NC Department of Environment, Health and Natural Resources came out and took soil samples from the property to send to the testing lab in Raleigh. NC.

April 6, 1994

Mr. Danny Stroud, Vice President
Quality Oil Company
P.O. Box 2736
Winston-Salem, NC 27102-2736

Re: Preliminary Site Assessment
Sedge Garden Property
Kernersville, NC
TEC Project No. 00594

Dear Mr. Stroud:

Attached is the Preliminary Site Assessment Report for the Sedge Garden Property. From our initial soil boring survey and temporary monitoring well installation, analytical data indicates that a petroleum release has occurred at the site. Gasoline impacted soil was encountered in two borings and dissolved petroleum compounds were detected in a groundwater sample collected from the temporary monitoring well. Due to the limited nature of our assessment, the full extent of petroleum contaminated soil and groundwater at the facility cannot be fully assessed. In addition, underground utilities prevented the investigation of a prior UST pit situated near the intersection of Sedge Garden Road and Union Cross Road.

If you have any questions, please feel free to contact us at 919-932-1590. As always, thank you for allowing us to be of service to you.

Sincerely,

TURNER ENVIRONMENTAL CONSULTANTS, P.C.

Michael J. Brown, P.G., REP
Project Manager

Attachment
pc: Mr. Donald A. Joyce

TURNER ENVIRONMENTAL CONSULTANTS, P.C.
110 WEST MAIN STREET • SUITE 2-M • CARRBORO, NC 27510 • PHONE 919-932-1590 • FAX 919-932-1594

PRELIMINARY SITE ASSESSMENT
SEDGE GARDEN PROPERTY
KERNERSVILLE, NC

1.0 INTRODUCTION

In late February, 1994, Turner Environmental Consultants, P.C. (TEC) was contracted by Quality Oil Company and Mr. Donald A. Joyce to perform a Preliminary Site Assessment at a former petroleum dispensing outlet in Kernersville, NC (Figure 1). Underground storage tanks (USTs) at the facility were abandoned in approximately 1978. The property owner, Mr. Donald A. Joyce, removed these USTs in December, 1988. Communications with Mr. Joyce indicated that two 3,000 gallon gasoline USTs were formerly located at the facility. Mr. Joyce also indicated that he believed there had been a small 550 - 1000 gallon kerosene tank at the facility but he was unsure if the tank was a UST or an above ground storage tank (AST).

On March 15, 1994, a TEC representative was sent to the site to gather soil and groundwater data necessary to make a preliminary assessment of the facility. This report summarizes the findings of that assessment.

2.0 SOIL BORING SURVEY

TEC installed seven (7) soil borings in the vicinity of the former USTs and dispenser island (Figure 2). Soil boring B1 was subsequently converted to a temporary groundwater monitoring well. The soil borings were used to collect samples at varying depths to be screened for organic vapors associated with a petroleum release. Samples having the highest volatile organic concentration (VOC) were submitted for laboratory analysis in order to define the extent of soil impact at the site.

3.0 SOIL SAMPLING PROTOCOL AND RESULTS

During the advancement of each boring, soil samples were procured at periodic depth intervals employing split spoon sampling techniques. Each sample was inspected and its lithological characteristics were recorded.

A portion of each split spoon sample was placed in a sealable quart size polyethylene "ziplock" bag for field screening. Soil samples were field screened for vapors with a GASTECH catalytic hydrocarbon vapor analyzer (OVM). The OVM is a qualitative tool employed to detect the potential presence of and estimate the concentration of organic or hydrocarbon vapors. A thin probe is inserted through a small break in the seal of the bagged soil sample. An air sample from the headspace of the bag is drawn through the probe into an internal chamber where the vapors are catalyzed. The intensity of the VOCs is measured on a needle scale in parts per million (ppm). Soil samples were analyzed per EPA Methods 5030 targeting gasoline and 3550 targeting heavier petroleum compounds such as diesel fuels. Analytical results are reported as total petroleum hydrocarbons (TPH) for both petroleum fractions. Analytical results for the soil borings are summarized in Table 1. The complete laboratory report is attached to the end of this report.

TABLE 1
SOIL ANALYTICAL RESULTS
(ppm)

BORING	DEPTH (Ft.)	OVM	TPH 3550 (Diesel)	TPH 5030 (Gasoline)
B1	8 - 10	7,920	BDL	1,670
B2	13 - 15	0	BDL	BDL
B3	13 - 15	0	BDL	BDL
B4	13 - 15	0	BDL	BDL
B5	8 - 10	0	BDL	BDL
B6	13 - 15	4,500	BDL	30.6
B7	13 - 15	0	BDL	BDL

ppm - parts per million
BDL - Below Detection Limit
Shading denotes samples above DEM permissible limits

The analytical results indicate that two soil samples contain TPH as gasoline at levels above those permitted by the North Carolina Division of Environmental Management (DEM). Soil samples collected from borings B1 (8 - 10) and B6 (13 - 15) contained TPH levels of 1,670 ppm and 30.6 ppm respectively. The estimated extent of soil impact is shown in Figure 2.

4.0 MONITORING WELL INSTALLATION

As noted earlier, soil boring B1 was converted to a temporary groundwater monitoring well designated TMW1 (Figure 2). The Type II well was constructed of 2" diameter PVC with the well screen bracketing the water table so that the highest levels of dissolved contaminants and free product, if present, may enter the well. After completion of the sampling activities, the monitoring well was removed from the boring and the boring was grouted in accordance with DEM protocol.

5.0 MONITORING WELL SAMPLING AND RESULTS

After installation, the temporary monitoring well was developed to remove any fine sediment that may be clogging the screen. This process effectively purged the well so that a more representative sample of groundwater quality could be obtained. Upon collection, the water sample was cooled to approximately 4°C pending transportation to an environmental laboratory. The groundwater sample was analyzed targeting volatile and some semi-volatile hydrocarbon compounds by EPA Method 502.2 + MTBE + IPE. Analytical results from the groundwater sampling are summarized in Table 2. The complete laboratory report is attached as reference to the end of this report.

TABLE 2
GROUNDWATER ANALYTICAL DATA
TEMPORARY MONITORING WELL (TMW1)
ppb

ANALYTE	RESULT	NCAC 2L LIMIT
Benzene	200	1
Toluene	110	1000
Xylenes	198	530

ppb - parts per billion
All other 502.2 compounds were below detection limit
Shading denotes analyte above NCAC 2L limit

Laboratory analysis revealed dissolved petroleum constituents in TMW1. Benzene, toluene, and xylenes were detected. Benzene was the only compound detected with a concentration higher than the maximum permissible levels set forth in NCAC 2L Groundwater Quality Standards. No other petroleum compounds were detected in TMW1 by EPA Method 502.2 + MTBE + IPE.

6.0 CONCLUSIONS / RECOMMENDATIONS

Based upon the laboratory data, a petroleum release has occurred at the facility. Groundwater quality data indicates that petroleum impacted soils extend to the water table which lies approximately 18' - 20' below grade. The horizontal extent of soil contamination appears to be fairly limited, however, additional soil borings are needed to adequately quantify the volume of impacted soil.

Based upon the site topography, groundwater flow is believed to be toward the east - southeast across Union Cross Road and toward a small drainage. Given the close proximity of the tank pit to the Department of Transportation (DOT) right-of-way and the apparent downgradient property, petroleum impacted soil and possibly impacted groundwater may have migrated off-site.

TEC recommends submitting this information to the Winston-Salem Regional Office of the DEM so that they may review the results to coordinate any field or clean-up efforts they may be planning.

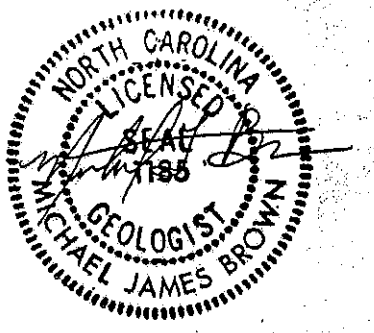
7.0 LIMITATIONS

This report is limited to the investigation of only petroleum hydrocarbons as gasoline and high boiling point fuels in the area of the most recent UST pit, and does not imply that other unforeseen adverse impacts to the environment are not present at the facility. Furthermore, the subsurface conditions, particularly groundwater flow, elevations, and water quality may vary through time. The opinions and conclusions arrived at in this report are in accordance with industry-accepted geologic and hydrogeologic practices at this time and location. No warranty is implied or intended.

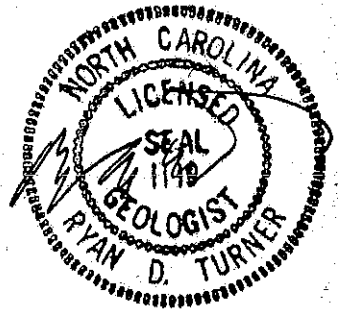
8.0 REPORT CERTIFICATION

This report was prepared by TURNER ENVIRONMENTAL CONSULTANTS, P.C. under the responsible charge of geologists licensed by the North Carolina Board for Licensing of Geologist. Appropriate seals and signatures are affixed below.

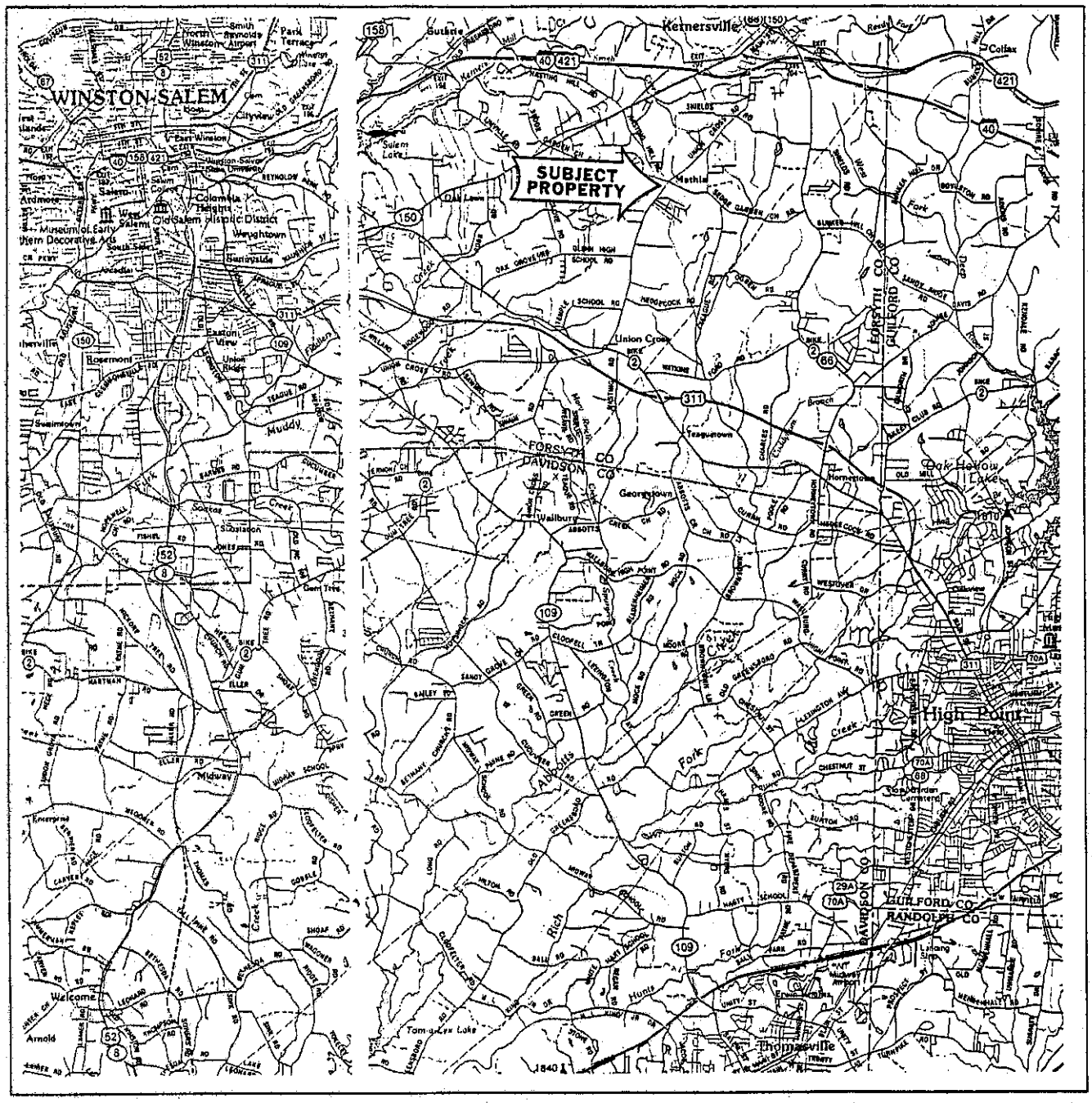
TURNER ENVIRONMENTAL CONSULTANTS, P.C.



Michael J. Brown, P.G., REP
Project Manager



Ryan D. Turner, P.G.
President and Senior Hydrogeologist



N

TAKEN FROM NORTH CAROLINA ATLAS & GAZETTEER

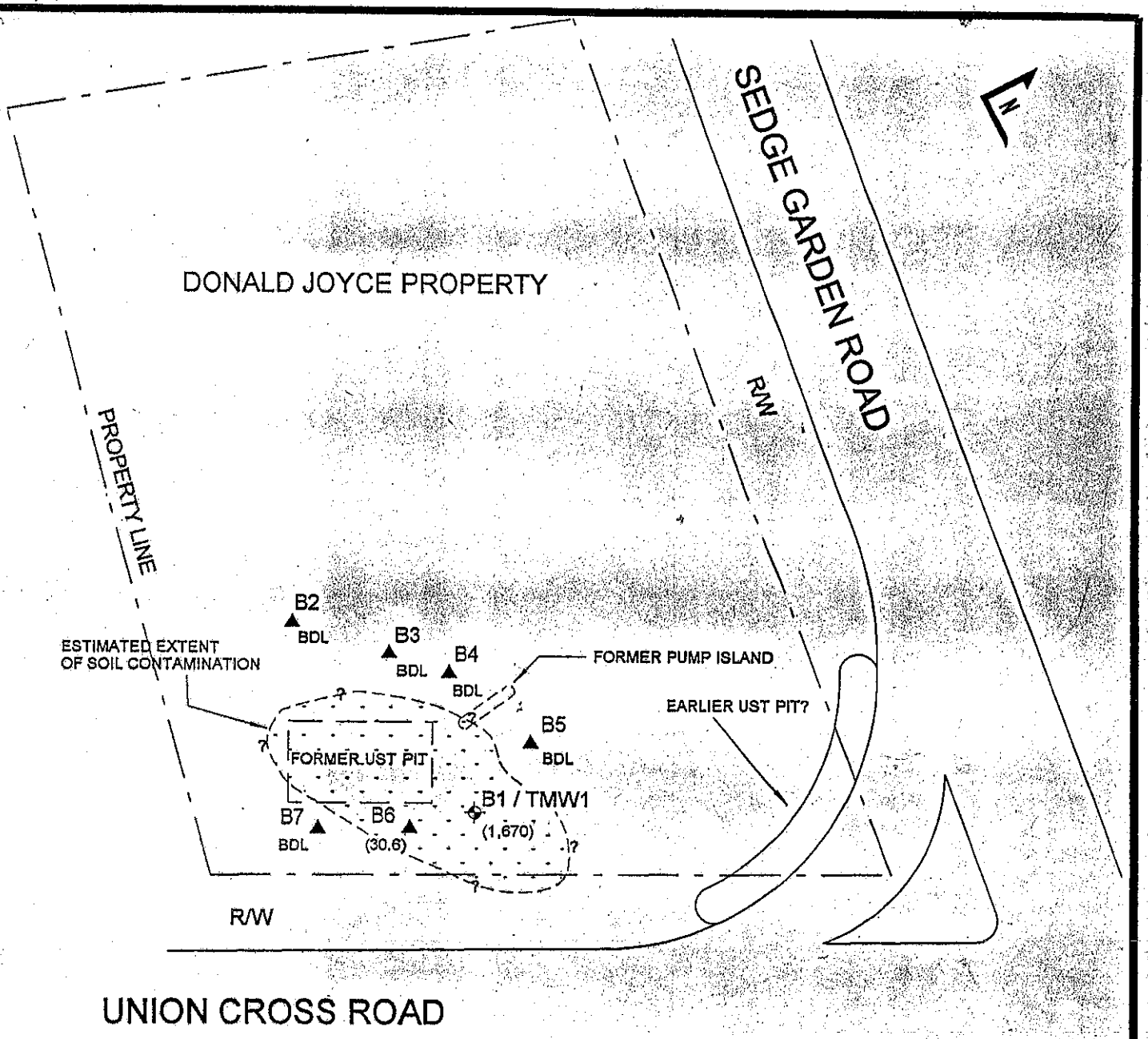
TURNER ENVIRONMENTAL CONSULTANTS, P.C.

CARRBORO, NC

SITE LOCATION MAP
DONALD JOYCE PROPERTY

QUALITY OIL/DONALD JOYCE — KERNERSVILLE, NC

PROJECT NO.	00594	DRAWN BY:	MJB	DATE:	4/5/94
SCALE:	1" = 2.4 MILES	CHECKED BY:	RDT	FIGURE NO.	1



LEGEND

B2 SOIL BORING

75 TPH 5030 RESULT IN ppm
BDL - BELOW DETECTION LIMIT

SOIL BORING LOCATION CONVERTED TO A TEMPORARY GROUNDWATER MONITORING WELL

TURNER ENVIRONMENTAL CONSULTANTS, P.C.

CARRBORO, NC

SOIL BORING MAP

DONALD JOYCE PROPERTY

QUALITY OIL/DONALD JOYCE — KERNERSVILLE, NC

PROJECT NO.	00594	DRAWN BY:	MJB	DATE:	4/5/94
SCALE:	1" = 40'	CHECKED BY:	RDT	FIGURE NO.	2

PHASE I LIMITED SITE ASSESSMENT REPORT
FORMER DONALD JOYCE PROPERTY
BEESON, NORTH CAROLINA
FORSYTH COUNTY
INCIDENT NO. 11599

Prepared For:

North Carolina Department of Environment and Natural Resources
Division of Waste Management
Underground Storage Tank Section
1637 Mail Service Center
Raleigh, North Carolina 27699-1637

Prepared By:

Geological Resources, Inc.
2301 Crown Point Executive Drive, Suite F
Charlotte, North Carolina 28227

November 25, 2003

W. Scott Ball
Senior Project Manager

NORTH CAROLINA LICENSED SEAL 1395 GEOLOGIST

John F. Hess, Jr., P.G.
License No. 1395

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APPENDICES

1.0 INTRODUCTION

The purpose of this report is to present the results of Phase I LSA activities conducted on October 23 and 24, 2003 at the Former Donald Joyce property, located at 1400 Union Cross Road in the community of Beeson in Forsyth County. The activities were conducted in accordance with Geological Resources, Inc. Proposal No. 03-144-EC which was submitted to the NCDENR on September 9, 2003 and approved as Task Authorization No. 11599-1 on September 24, 2003. Two 3,000-gallon gasoline USTs at the site were reportedly abandoned in 1978 and removed by the property owner in December 1988. Evidence of a release was confirmed during preliminary site assessment activities conducted in March 1994. Concentrations of gasoline-range TPH that exceeded the regulatory action level were reported in soil samples collected in the area of the former UST basin. In addition, a concentration of benzene that exceeded the MAC specified in T15A NCAC 2L.0202 was reported in a ground water sample collected from a temporary monitoring well installed during the assessment activities. Please note that the site currently contains an active petroleum retail/convenience store operated by Quality Oil Company, LLC.

2.0 FACILITY INFORMATION

- **Site Name:** Former Donald Joyce Property **(Figure 1)**
- **Location:** 1400 Union Cross Road
  Kernersville, North Carolina 27284
- **Incident No.** 11599
- **UST Owner/Operator:** Deceased
- **Property Owner:** Donald Andrew and Maxine D. Joyce
  1022 Sedge Garden Road
  Kernersville, North Carolina 27284-7513
- **Consultant/Contractor:** Geological Resources, Inc.
  2301 Crown Point Executive Drive, Suite F
  Charlotte, North Carolina 28227
  (704) 845-4010

- **Release Information**
  - **Date Discovered:** March 1994
  - **Estimated Quantity of Release:** Unknown
  - **Cause of Release:** Unknown
  - **Source of Release:** Leaking UST System
  - **UST Size/Contents:** Two 3,000-gallon gasoline USTs
  - **Latitude/Longitude:** 036° 05' 09.3" North/080° 06' 06.3" West

3.0 SITE HISTORY

3.1 UST System Information:

UST No.	Product	Capacity (gallons)	Installation Date	Removal Date	Release Discovered
1	Gasoline	3,000	Unknown	December1988	March 1994
2	Gasoline	3,000	Unknown	December1988	March 1994

- **Current Owner:** Deceased
- **Previous Owner(s):** N/A

3.2 Initial Abatement Activities

- **Quantity of Regulated Substance Removed from USTs:** Unknown.
- **Source Control Actions:** The USTs were reportedly removed in December 1988.
- **Contaminant Migration Control Measures:** The release was to the subsurface. Therefore, no contaminant migration control measures were necessary.
- **Measures Taken to Mitigate Fire/Safety Hazards:** There do not appear to be any immediate fire or safety hazards present as a result of the release.
- **Contaminated Soil Storage/Treatment and/or Disposal:** The status of the soils excavated during removal of the USTs, if any, is unknown.

4.0 RECEPTOR SURVEY

- **Water Supply Wells:** A total of 10 water supply wells, designated WSW-1 through WSW-10, were identified within a 1,500-foot radius of the source area during a receptor survey conducted on October 24, 2003. Two water supply wells (WSW-1 and WSW-2) were identified within a 250-foot radius of the source area. The water supply well located on-site (WSW-1) has been abandoned. Water supply WSW-2, located approximately 220 feet southwest of the source area on an adjacent property, is not being used but has not been properly abandoned. A water supply well located at the BP station to the east of the site is also not in use. Municipal water is available to the other properties in the area, and the remaining water supply wells are apparently used as non-potable water sources. However, most of the property owners were unavailable at the time the receptor survey was conducted. Water supply well owner information is presented in **Table 1**. The locations of the water supply wells identified during Phase I LSA activities are shown in **Figure 2**. Water Supply Well Survey Forms were distributed to all property owners/occupants with a 500-foot radius of the source area. To date, none of the forms have been returned.

- **Public Water Supply:** Municipal water is available to all structures within a 1,500-foot radius of the source area.
- **Surface Water:** A small stream is located approximately 800 feet to the east of the source area.
- **Wellhead Protection Areas:** The NCDENR Public Water Supply Division website was visited on November 17, 2003. Based upon a review of maps and information on the website, no wellhead protection areas were identified within a 1,500-foot radius of the site.
- **Subsurface Structures:** Underground utilities are located along Union Cross, Sedge Garden and Old Salem Roads. However, the utilities do not intersect known areas of soil contamination and are located above the seasonal high water table.
- **Land Use:** The site currently contains a petroleum retail/convenience store and is zoned Limited Business (LB). An active UST system is located on the northwestern portion of the site. Union Cross Road borders the site to the east/southeast. Sedge Garden Road borders the site to the north. Wooded, undeveloped properties are located across Sedge Garden Road to the north. A mix of commercial and residential properties are located to the south and east. Residential properties border the site to the west. Population density in the area is moderate and properties in the area are generally used for residential and commercial purposes or are undeveloped. Properties in the area are currently zoned Single Family Residential (RS-9 and RS-20), Limited Business (LB) and Neighborhood Shopping Center Business (NSB-S). Property boundaries and zoning information within a 1,500-foot radius of the source area are shown on **Figure 2.** A Site Map has been included as **Figure 3.** A copy of the General Warranty Deed for the property has been included as **Appendix A.** An LSA Risk Classification and Land Use Form is included as **Appendix B.**
- **Property Owners and Occupants:** The names and addresses of the owners of properties adjacent to the site are presented in **Table 2.**

5.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the 1985 Geologic Map of North Carolina, the site is located in the Carolina Slate Belt of the Piedmont Physiographic Province. The bedrock underlying the site consists of well foliated, megacrystic metamorphosed granitic rock. The crystalline rocks of the Carolina Slate Belt are typically covered by a mantle of residual soil and saprolite ranging in depth from approximately six to 60 feet. In most places, this mantle provides an intergranular medium through which recharge and discharge of water from the fractured bedrock commonly occurs, resulting in a composite two-media system that characterizes ground water flow. The top of the system is the water table surface, which is typically located in saprolite.

The fractured bedrock generally grades downward into unfractured rock below a depth of approximately 300 feet. Thus, the base of the ground water system is indistinct.

Based on data obtained during the installation of the Type II monitoring well (MW-1) on October 23, 2003, the site is underlain by undifferentiated sandy clays and silts to an approximate depth of 25 feet. The depth to ground water in MW-1 measured on October 23, 2003 was 9.86 feet below the top of casing. However, please note that according to the geologists' log, ground water was not encountered until a depth of approximately 15 feet.

6.0 ASSESSMENT ACTIVITIES

6.1 Soil

One soil sample, designated MW-1 (15'), was collected on October 23, 2003 at a depth of 15 feet during the installation of MW-1. Laboratory analyses were performed on the soil sample for VOCs using SW846 Method 8260. A concentration of benzene that exceeded the soil-to-water maximum MCC was reported in the sample. However, the concentration did not exceed the residential SCL. The soil boring location is shown on **Figure 3**. An abridged summary of laboratory analysis is presented in **Table 3**. A complete report of laboratory analysis of the soil sample has been included as **Appendix C**.

6.2 Ground Water

One Type II monitoring well (MW-1) was installed in the area of the former UST basin on October 23, 2003 to a total depth of 25 feet with a 15-foot screened interval set to bracket the water table surface. The well was developed and sampled on October 24, 2003. Laboratory analyses were performed for purgeable and aromatic volatiles using EPA Methods 601/602 and for EDB using EPA Method 504.1. Concentrations of benzene, ethylbenzene, xylenes, MTBE, IPE and naphthalene that exceeded the MACs were reported in the ground water sample collected from MW-1. Although the concentrations of benzene, ethylbenzene, xylenes, MTBE and naphthalene exceeded the MACs by a factor of 10, none of the concentrations exceeded the GCLs.

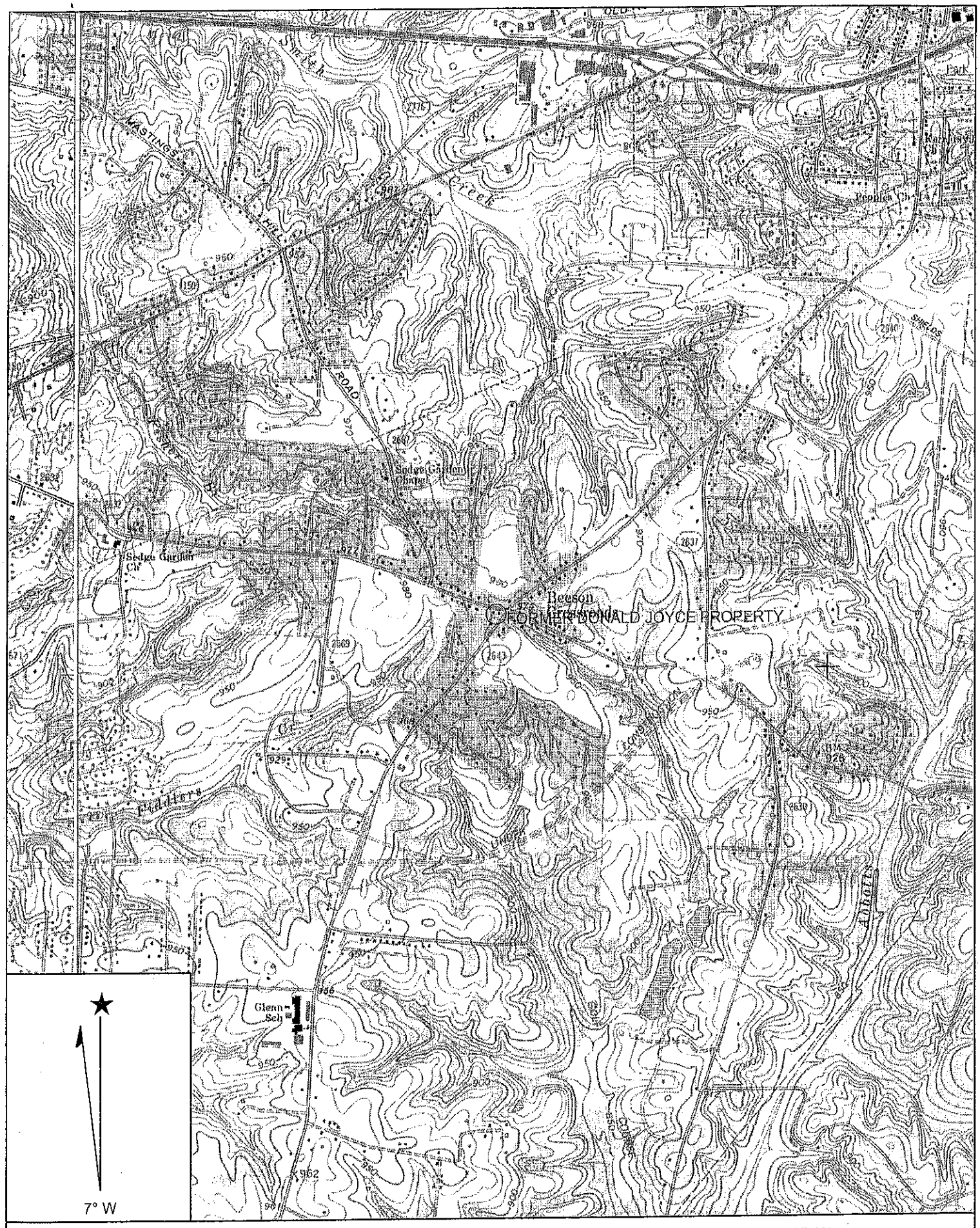
The location of the monitoring well is shown on **Figure 3**. An abridged summary of laboratory analyses is presented in **Table 4**. The well construction record for MW-1 has been included as **Appendix D**. A complete report of laboratory analyses of the ground water sample has been included as **Appendix E**.

7.0 SUMMARY AND CONCLUSIONS

- A petroleum retail/convenience store is located on the site. The properties surrounding the site are generally used for residential or light commercial purposes or are undeveloped. Based on this information, the site should be assigned to a residential land use classification.
- A total of 10 water supply wells were identified within 1,500 feet of the source area. One

of the two water supply wells located within a 250-foot radius of the source area has been abandoned and the other is not currently in use. Since municipal water is available to all properties in the area, it is believed that the remaining water supply wells are used as non-potable water sources.

- A concentration of benzene that exceeded the soil-to-water MCC was reported in soil sample MW-1 (15'). The concentration did not exceed the residential SCL.
- Concentrations of benzene, ethylbenzene, xylenes, MTBE, IPE and naphthalene that exceeded the MACs were reported in the ground water sample collected from MW-1. Although the concentrations of benzene, ethylbenzene, xylenes, MTBE and naphthalene exceeded the MACs by a factor of 10, none of the concentrations exceeded the GCLs.
- Since a water supply well that is currently not in use but has not been properly abandoned is located within a 250-foot radius of the source area, and due to some uncertainty regarding the use of other water supply wells in the area, the release should be assigned to a high risk classification. The owners of the water supply wells located within a 1,000-foot radius of the source area should be contacted to confirm that the municipal water supply is being used as the source of potable water on the properties. If none of these wells is being used as potable water source, and the well located on the adjacent property to the south of the site is properly abandoned, it may be possible to reassign the release to a low risk classification. However, please note that according to T15A NCAC 2L.0115(c), Phase II LSA activities should be required at the site.

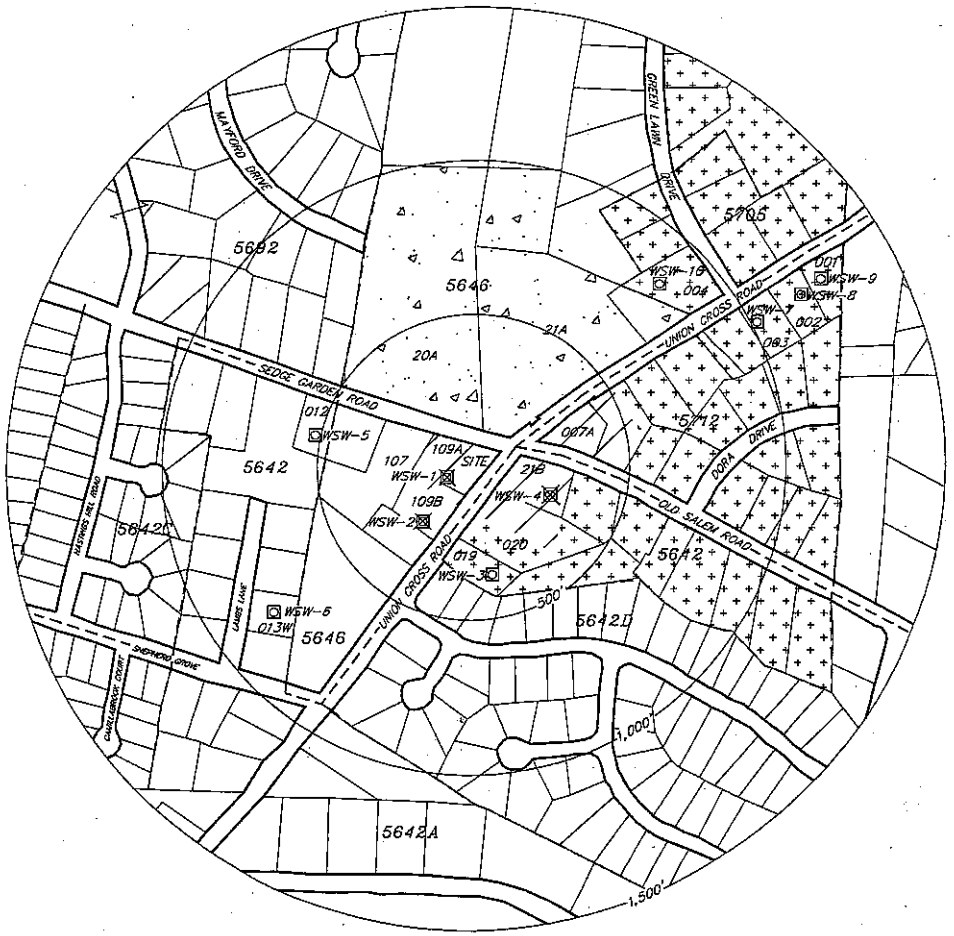


Name: KERNERSVILLE
Date: 11/11/103
Scale: 1 inch equals 2000 feet

Location: 036° 05' 09.3" N 080° 06' 06.3" W
Caption: SITE LOCATION MAP
Former Donald Joyce Property
Forsyth County

LEGEND

- RS-9 RESIDENTIAL SINGLE FAMILY
- RS-20 RESIDENTIAL SINGLE FAMILY
- NSB-S NEIGHBORHOOD SHOPPING CENTER BUSINESS
- LB LIMITED BUSINESS
- PROPERTY LINE
- BLOCK BOUNDARY
- 020A PARCEL NUMBER
- 5642 BLOCK NUMBER
- WATER SUPPLY WELL
- INACTIVE/ABANDONED WATER SUPPLY WELL



N

MAGNETIC

Geological Resources, Inc.

Environmental and Mining Geologists
- ■ Charlotte, North Carolina
- □ Greensboro, North Carolina
- □ Asheville, North Carolina

400 0 200 400 800 1600

(IN FEET)

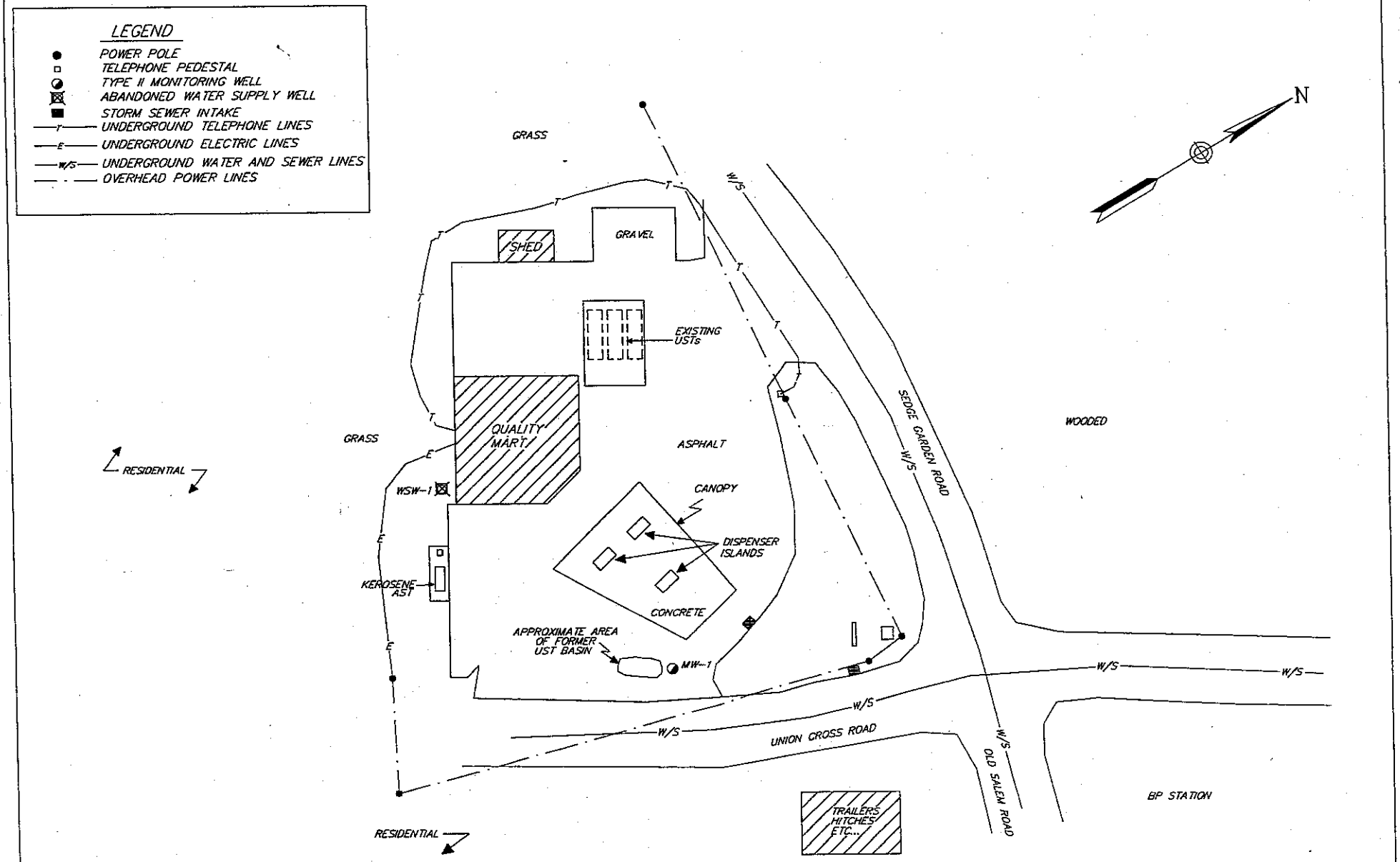
1 inch = 400 ft.

LAND USE MAP

Donald Joyce Property — 1022 Sedge Garden Road

Kernersville, Forsyth County, NC — Incident #11599

Date:	11/17/03	Drawn by:	WDE	Figure:	2



Geological Resources, Inc.

Environmental and Mining Geologists
- Charlotte, North Carolina
- Greensboro, North Carolina
- Asheville, North Carolina

25 0 25 50 100
(IN FEET)
1 inch = 50 ft.

SITE MAP

FORMER DONALD JOYCE PROPERTY — 1400 Union Cross Road
Kernersville, Forsyth County, NC — SITE ID#: 11599

Date:	11/11/03	Drawn by:	WDE	Figure:	3

TABLE 1
SUMMARY OF WATER SUPPLY WELL INFORMATION[1]
FORMER DONALD JOYCE PROPERTY

Well No.	Block/Lot No.	Property Owner	Address	Distance/Direction from Source Area (feet)	Well Depth (feet)	Active/ Inactive
WSW-1	5646/109A (Site)	Donald Andrew & Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	~ 65 west	Unknown	Abandoned
WSW-2	5646/109B	Donald Andrew & Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	~ 220 southwest	Unknown	Inactive
WSW-3	5642/019	Rodney & Misty Godwin	1409 Union Cross Road Kernersville, NC 27284	~ 340 south	Unknown	Active
WSW-4	5642/021B	Gary Dewitt & Juadane Smith	1510 Pecan Lane Kernersville, NC 27284	~ 260 east	Unknown	Inactive
WSW-5	5642/012	Leo O. Whicker	841 Silver Dapple Lane Kernersville, NC 27284-9545	~530 west	Unknown	Active
WSW-6	5642/013W	David Joseph Smith	1415 Lambs Lane Kernersville, NC 27284	~ 790 southwest	Unknown	Active
WSW-7	5712/003	Joseph Brian & Tammy Williamson Fletcher	1381 Union Cross Road Road Kernersville, NC 27284	~ 1,020 northeast	Unknown	Active
WSW-8	5712/002	Elizabeth W. Allen	1379 Union Cross Road Kernersville, NC 27284-7531	~1,190 northeast	Unknown	Active
WSW-9	5712/001	Royce E. & Carolyn R. Voss	910 Weavil Road Kernersville, NC 27284	~ 1,260 northeast	Unknown	Active
WSW-10	5705/004	Robert G. Hemrick	1384 Union Cross Road Kernersville, NC 27284-7532	~ 850 northeast	Unknown	Active

Note:
1. Properties are keyed to **Figure 2**; property owner information is current as of October 23, 2003.

TABLE 2
SUMMARY OF ADJACENT PROPERTY OWNER INFORMATION[1]
FORMER DONALD JOYCE PROPERTY

Block/Lot No.	Name	Address
5646/109A (Site)	Donald Andrew & Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513
5646/107	Donald Andrew & Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513
5646/109B	Donald Andrew & Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513
5642/020	Gary Dewitt & Juadane Smith	1510 Pecan Lane Kernersville, NC 27284
5642/021B	Gary Dewitt & Juadane Smith	1510 Pecan Lane Kernersville, NC 27284
5712/007A	Kyle H. & Frances Harris	127 Blue Bell Road Greensboro, NC 27406-5301
5646/021A	Thomas G. Smith, Sr.	1435 Kerner Road Kernersville, NC 27284
5646/020A	Bonnie Beeson Craver & Nancy Beeson Whicker	4433 Old Belews Creek Road Winston-Salem, NC 27101

Note:
1. Properties are keyed to **Figure 2**; property owner information is current as of October 22, 2003.

TABLE 3
ABRIDGED SUMMARY OF LABORATORY ANALYSIS[1]
SOIL SAMPLE
OCTOBER 23, 2003
FORMER DONALD JOYCE PROPERTY

Constituent	MW-1 (10')	Soil-to-Water MCC[2]	Residential SCL[3]
Benzene	**0.048**[4]	0.0056	22
Toluene	<0.0043[5]	7	3,200
Ethylbenzene	0.024	0.24	1,560
Xylenes	0.060	5	32,000
MTBE	0.27	0.92	156
IPE	0.019	0.37	156
Naphthalene	0.023	0.58	63
n-Butylbenzene	0.0055	4	156
n-Propylbenzene	0.012	2	156
1,2,4-Trimethylbenzene	0.056	8	782
1,3,5-Trimethylbenzene	0.021	7	782

Notes:
1. Analysis for volatile organics by SW846 Method 8260; results reported in mg/kg; only the most common hydrocarbon constituents or those present at detectable concentrations have been summarized.
2. Maximum contaminant concentrations.
3. Soil cleanup levels.
4. Concentrations in bold face type exceeded the soil-to-ground water MCC.
5. Less than the report limit specified in the analytical report.

TABLE 4
ABRIDGED SUMMARY OF LABORATORY ANALYSES[1]
GROUND WATER SAMPLE
FORMER DONALD JOYCE PROPERTY
OCTOBER 24, 2003

Constituent	MW-1	MAC[2]	GCL[3]
Benzene	**2,900**[4]	1	5,000
Toluene	<100	1,000	257,500
Ethylbenzene	**2,300**	29	29,000
Xylenes	**7,300**	530	87,500
MTBE	**3,200**	200	200,000
IPE	**350**	70	70,000
EDB	<0.020	4.0×10^{-4}	50
Naphthalene	**600**	6	15,500

Notes:
1. Analysis for purgeable and aromatic volatiles by EPA Methods 601/602; analysis for EDB by Method 504.1; results reported in μg/l; only the most common hydrocarbon constituents or those present at detectable concentrations have been summarized.
2. Maximum allowable concentration specified in T15A NCAC 2L.0202 or interim standards.
3. Gross contamination level.
4. Concentrations in bold face type exceeded the MACs or the interim standards.

APPENDIX A
General Warranty Deed

APPENDIX B
Limited Site Assessment Risk Classification and Land Use Form

Limited Site Assessment Risk Classification and Land Use Form

Part I - Groundwater/Surface Water/Vapor Impacts

High Risk

1. Has the discharge or release contaminated any water supply well including any used for non-drinking purpose? YES/**NO**
   If yes, explain. _____

2. Is a water supply well used for drinking water located within 1,000 feet of the source area the discharge or release? YES/**NO**
   If yes, explain. _____

3. Is a water supply well used for any purpose (e.g., irrigation, washing cars, industrial cooling water filling swimming pools) located within 250 feet of the source area of the release or discharge? YES/**NO**
   _____

4. Does groundwater within 500 feet of the source area of the discharge or release have the potential for future use in that there is no other source of water supply other than the groundwater? YES/**NO**
   Explain.
   Municipal water is available connected to all properties within 1,500 feet of the area.

5. Do vapors from the discharge or release pose a threat of explosion because of accumulation of the vapors in a confined space or pose any other serious threat to public health, safety or the environment? YES/**NO**
   If yes, explain. _____

6. Are there any other factors that would cause the discharge or release to pose an imminent danger to public health, safety or the environment? YES/**NO**
   If yes, explain. _____

Intermediate Risk

7. Is a surface water body located within 500 feet of the source area of the discharge or release? YES/**NO**

   If yes, does the maximum groundwater contaminant concentration exceed the surface water quality standards and criteria found in 15A NCAC 2B .0200 by a factor of 10? YES/NO

8. Is the source area of the discharge or release located within a designated wellhead protection area as defined in 42 USC 300h-7(e)? YES/**NO**
   If yes, explain. _____

9. Is the discharge or release located in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the department in 1985? YES/**NO**

   If yes, is the source area of the discharge or release located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer that is being used or may be used as a source of drinking water? YES/NO
   If yes, explain. _____

10. Do the levels of groundwater contamination for any contaminant exceed the gross contamination levels established (see Table 7) by the Department? YES/**NO**

Part II - Land Use

Property Containing Source Area of Discharge or Release

The questions below pertain to the property containing the source area of the release.

1. Does the property contain one or more primary or secondary residences (permanent or temporary)?

YES/**NO**

Explain. The property contains an active convenience store/petroleum retail facility.

2. Does the property contain a school, daycare center, hospital, playground, park, recreation area, church, nursing home or other place of public assembly? YES/**NO**

Explain. The property contains an active convenience store/petroleum retail facility.

3. Does the property contain a commercial (e.g.; retail, warehouse, office/business space ect.) or industrial (e.g., manufacturing, utilities, industrial research and development, chemical/petroleum bulk storage etc.) enterprise, an inactive commercial or industrial enterprise, or is the land undeveloped? **YES**/NO

Explain. The property contains an active convenience store/petroleum retail facility.

4. Do children visit the property? **YES**/NO

Explain. Children visit the convenience store locate on-site.

5. Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel or both)? YES/**NO**

Explain. Access to the property is unrestricted and consistent with its use as a convenience store.

6. Do pavement, buildings, or other structures cap the contaminant soil? **YES**/NO

Explain. The former location of the UST system is covered with asphalt.

If yes, what mechanisms are in place or can be put in place to ensure that the contaminated soil will remain capped in the foreseeable future? There no are plans to change the current use of the property. Therefore, it is expected that the soils will remain capped for the foreseeable future.

7. What is the zoning status of the property? The property is currently zoned Limited Business (LB)

8. Is the use of the property likely to change in the next 20 years? YES/**NO**

Explain. Property density in the area may increase in the future, but property use will likely remain commercial.

Property Surrounding Source Area of Discharge or Release

The questions below pertain to the area within 1,500 feet of the source area of discharge or release (excludes property containing source area of the release):

9. What is the distance from the source area of the release to the nearest primary or secondary residence (permanent or temporary)? The nearest primary residence is located approximately 200 feet south of the source area.

10. What is the distance from the source area of the release to the nearest school, daycare center, hospital, playground, park, recreation area, church, nursing home or other place of public assembly? There were no places of public assembly observed within a 1,500-foot radius of the source area.

11. What is the zoning status of the properties in the surrounding area? Properties in the area are zoned Residential single family (RS-9 and RS-20) and neighborhood shopping center business (NSB-5)

12. Briefly characterize the use and activities of the land in the surrounding area. Undeveloped properties are located to the north of the site. Commercial properties that include a trailer hitch retail business and a petroleum retail facility are located to the northeast and east. A mix of residential and commercial properties are located to the south. Additional residential and undeveloped properties are located to the west of the site.

APPENDIX C
Laboratory Report - Soil Sample

APPENDIX D
Well Construction Record

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
1636 Mail Service Center - Raleigh, N.C. 27699-1636-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

WELL CONTRACTOR: Hollis Keech
WELL CONTRACTOR CERTIFICATION #: 3160
STATE WELL CONSTRUCTION PERMIT#:

1. WELL USE (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use:

2. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Kernersville, NC County: Forsyth
1400 Union Cross Road
(Road Name and Numbers, Community, or Subdivision and Lot No.)

3. OWNER: NCDENR DWM UST SECTION
Address: 1637 Mail Service Center
(Street or Route No.)
Raleigh NC 27699-1637
City or Town State Zip Code

4. DATE DRILLED 10-23-03
5. TOTAL DEPTH 25'
6. CUTTINGS COLLECTED YES ☐ NO ☒
7. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
8. STATIC WATER LEVEL Below Top of Casing: ____ FT.
(Use "+" If Above Top of Casing)
9. TOP OF CASING IS 9.86 FT. Above Land Surface*
*Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C .0118
10. YIELD (gpm): ____ METHOD OF TEST ____
11. WATER ZONES (depth): ____
12. CHLORINATION: Type ____ Amount ____

DRILLING LOG From	To	DEPTH Formation Description
0	14'	Red/brown to brown, friable, fine sandy clay; dry, petroleum odor.
14'	25'	Lt. brown to gray/brown, loose micaceous silt; wet, petroleum odor.

If additional space is needed use back of form

13. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From 0	To 10	Ft.	2"	Sch. 40	PVC
From ____	To ____	Ft.			
From ____	To ____	Ft.			

14. GROUT:

	Depth		Material	Method
From 0	To 6	Ft.	Grout	Pour
From ____	To ____	Ft.		

15. SCREEN:

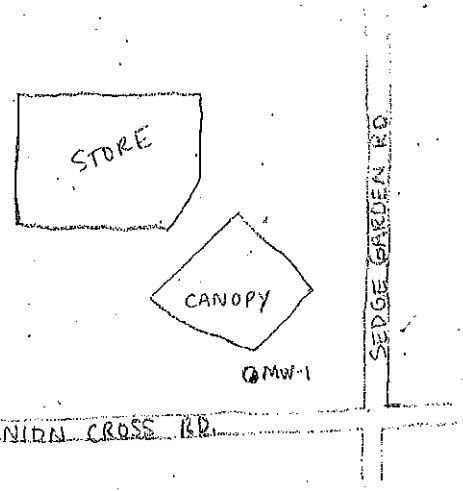
	Depth		Diameter	Slot Size	Material
From 10	To 25	Ft.	2 In.	.010 In.	PVC
From ____	To ____	Ft.	In.	In.	
From ____	To ____	Ft.	In.	In.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From 8	To 25	Ft.	#2	Sand
From ____	To ____	Ft.		

17. REMARKS: Bentonite 6' - 8'

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



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 OF PERSON CONSTRUCTING THE WELL — DATE 10/23/03

Submit original to Division of Water Quality, Groundwater Section within 30 days

FOR OFFICE USE ONLY
Quad No: ____
Serial No. ____

GW-1 REV. 12/99

INCIDENT 30284

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

SITE CHECK AND INITIAL ABATEMENT REPORT
(20-Day Report)

QUALITY MART #33
1400 UNION CROSS ROAD
KERNERSVILLE, NORTH CAROLINA

Latitude: 36° 05' 9.08" N Longitude: 80° 06' 5.86" W

Release Information

Date Discovered: October 24, 2003
Estimated Release Quantity: Unknown
Release Cause/Source: Underground Storage Tank System
UST Capacity: one 12,000-gallon and two 8,000-gallon gasoline USTs
NCDWM-UST Facility ID Number: 0-034372
NCDWM-UST Incident #: 30284

UST System Owner/Responsible Party:
Quality Oil Company, LLC.
P.O. Box 2736
Winston-Salem, NC 27102

Property Owner:
Donald A. & Maxine D. Joyce
1022 Sedge Garden Road
Kernersville, NC 27284

TerraQuest Project No. 02500

June 21, 2004

401 W. Weaver Street · Carrboro, North Carolina 27510
Telephone (919) 932-1590 · Facsimile (919) 932-1594
www.terraquestpc.com

CERTIFICATION FOR THE SUBMITTAL OF AN ENVIRONMENTAL / GEOLOGICAL ASSESSMENT

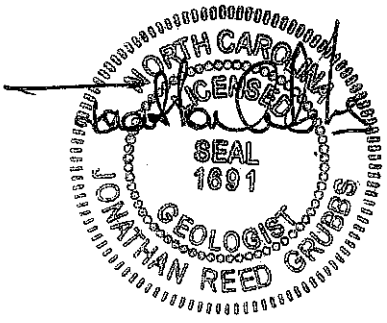
Attached is the Site Check and Initial Abatement Report (20-Day Report) for:

Site Name: Quality Mart #33
Address: 1400 Union Cross Road
City: Kernersville State: NC Zip Code: 27284

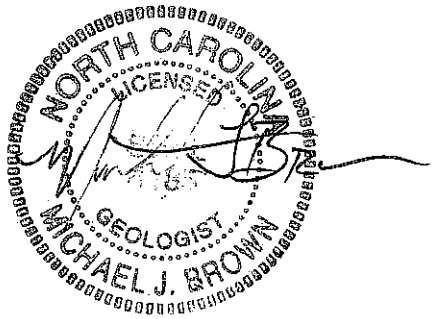
Responsible Party: Quality Oil Company, LLC.
Address: Post Office Box 2736
City: Winston-Salem State: NC Zip Code: 27102
Phone: (336) 722-3441

I, Jonathan R. Grubbs, a Licensed Geologist in the State of North Carolina for TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C. do hereby certify that I am familiar with and have reviewed all material including figures within this report and that to the best of my knowledge the data, site assessments, figures, and other associated materials are correct and accurate. All work was performed under my direct supervision. My seal and signature are affixed below. Additional seals and/or signatures are also affixed below.

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.



Jonathan R. Grubbs, P.G.
Vice President



Michael J. Brown, P.G.
President

TABLE OF CONTENTS

1.0 INTRODUCTION

Quality Oil Company, LLC of Winston-Salem, NC has contracted TerraQuest Environmental Consultants, P.C. (TerraQuest) to perform environmental assessment activities on its behalf. The subject property is located at 1400 Union Cross Road in Kernersville, NC. These assessment activities were to investigate a potential release from an underground storage tank (UST) system composed of one 12,000-gallon and two 8,000-gallon commercial gasoline USTs. Initial assessment activities include the installation and sampling of three groundwater monitoring wells and the collection of soil samples next to the various components of the UST system, product lines, dispensers, and USTs. These assessment activities were completed at the request of the North Carolina Division of Waste Management - UST Section Winston-Salem Regional Office (NCDWM-UST WsRO) in a Notice of Regulatory Requirements (NORR) dated December 4, 2003. A copy of the NORR is included in Appendix A. The scope of this report documents the site check assessment. The site location is shown in Figure 1. A site layout map depicting the property boundaries is included in Figure 2.

2.0 SITE HISTORY

The NCDWM-UST Petroleum UST Database lists the UST's installation dates as July 27, 1994. Prior to Quality's installation of the current UST system, the property previously had two 3,000-gallon gasoline USTs located adjacent to Union Cross Road. The USTs are believed to have been installed in 1952. According to the current property owner, Donald Joyce, the USTs were abandoned in 1978 and removed by Mr. Joyce in 1988. Prior to the installation of the current UST system, Quality had a baseline environmental assessment completed of the property in March 1994 to investigate the possibility of the 3,000-gallon USTs impacting the soil and groundwater quality at the site. Results of the soil and groundwater samples collected in the former UST basin and dispenser island during the assessment revealed the presence petroleum contaminants in both media. The release

incident was subsequently transferred over to the NCDWM – UST State Lead Cleanup List on August 26, 1994. In September 2003, the NCDWM-UST contracted Geological Resources, Inc. of Charlotte, NC to complete a Phase I Limited Site Assessment (LSA) of the release incident associated with the 3,000-gallon gasoline USTs. A Phase I LSA was completed by Geological Resources in October and November of 2003 and was received by the NCDWM-UST on December 2, 2003. Results of the report revealed the presence of methyl tert-butyl ether (MTBE) in the monitoring well installed during the Phase I LSA (MW1). Groundwater analytical results of the groundwater sample collected from a temporary monitoring well during the 1994 baseline assessment did not have detected concentrations of MTBE greater than the sample detection limit. Based upon the absence of MTBE in the 1994 sample and its presence in the 2003 Phase I LSA groundwater sample, the NCDWM-UST surmised that the MTBE must have originated from the current USTs system installed in 1994.

A NORR was issued by the NCDWM-UST on December 4, 2003 requesting a tank and line tightness test and a site check assessment. On December 22, 2003, TerraQuest sent a copy of the tank and product line tightness tests performed by the UST system's Veeder-Root apparatus to the NCDWM-UST WsRO. The NCDWM-UST responded to the December 22, 2003 letter with a February 10, 2004 NORR letter requesting a site check. TerraQuest personnel spoke with Karen Hall about the February 10, 2004 letter explaining that the tank and line tests performed did not indicate a release therefore a site check did not need to be performed. Ms. Hall indicated that a site check would be required and the tank testing result would not be accepted unless the tests were performed by an independent tank tightness testing company. Precision Tank Service, Inc. (Precision) was contracted by Quality to conduct the tightness test. The tank tightness test performed on February 26, 2004 by Precision indicated that each of the USTs passed the tests. A Notice of Violation letter was issued by the NCDWM-UST dated March 12, 2004. Copies of referenced correspondences are included in Appendix A.

The product type, capacity, date installed, date closed, and release detection information for the two UST systems and a 550-gallon kerosene aboveground storage tank (AST) are listed in Table 1. The UST system layout is depicted in Figure 2.

3.0 INITIAL ABATEMENT ACTIVITIES

No abatement activities other than the performance of line and tank tightness tests have been performed since the tightness tests indicate the system components are functioning properly.

4.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the Geologic Map of North Carolina, the site lies along the western edge of the Charlotte Belt of the Inner Piedmont Physiographic Province. The Charlotte Belt is primarily composed of granitic bedrock (Brown, et al., 1985).

The following lithologies were encountered at the site during the installation of the monitoring well network:

0' – ~9.0' below ground level (BGL):

SILT (ML)

Soft, yellowish orange/light brown, mostly silt, few clay, mica present, dry.

and

LEAN CLAY (CL)

Soft to medium stiff, yellowish orange, mostly clay, little to few fine-grained sand, dry.

~9.0' – 20' BGL

SANDY SILT (ML)

Soft to medium stiff, yellowish-orange/tan/white/grey, mostly silt, some fine-grained sand, little clay, moisture present.

The drilling locations of the soil borings and monitoring wells used to describe the lithology are depicted in Figure 2. Soil boring logs, well construction records, and well installation details for the monitoring well network are contained in Appendix B.

Depth-to-groundwater measurements were collected from monitoring wells MW1 – MW3 to identify the depth of groundwater and to determine the direction of groundwater flow. Groundwater elevation measurements were reduced to a common datum by surveying the relative elevation of the top of the casing for each monitoring well. The water table elevation data collected on April 7, 2003 were then plotted onto a potentiometric surface map (Figure 3). Figure 3 reveals that the hydraulic head decreases in a northern direction. Table 2 summarizes well construction information, depth-to-water measurements, and groundwater elevation data for the monitoring wells at the site.

5.0 FIELD AND LABORATORY ANALYSES

On April 6, 2004, TerraQuest personnel supervised the installation of monitoring wells MW2 and MW3 in accordance with Title 15A 2C monitoring well construction regulations. These two additional monitoring wells were installed to determine the groundwater quality in the vicinity of the current UST basin and product lines and to determine the direction of groundwater flow at the site. The groundwater flow direction needed to be determined to ascertain whether the MTBE in monitoring well MW1 could possibly originate from the current UST system or from an offsite source such as the Union Cross Mart BP gasoline station (NCDWM-UST Facility ID # 0-025043) located to the northeast across the Sedge Garden Road and Union Cross Road intersection.

As previously mentioned, monitoring well MW1 was installed in the vicinity of the former 3,000-gallon UST basin. Monitoring well MW2 was installed immediately adjacent to the current UST basin. Monitoring well MW3 was installed along the product lines. The locations of the monitoring wells are depicted in Figure 2.

Monitoring wells MW1-MW3 are all Type II monitoring wells constructed of Schedule 40, 2" diameter PVC and were installed to depths of 25 feet BGL (MW1) and 20 feet BGL (MW2 and MW3) using a hollow-stemmed-auger drilling method. The screened intervals for monitoring wells MW2 and MW3 were installed bracketing the water table using 15 feet of 0.010-inch slotted screen. With an average depth-to-water of 9.75 feet BGL (based upon the groundwater elevations collected during the April 7, 2004 sampling of monitoring wells MW1 – MW3), the screen placements of monitoring well MW2 and MW3 bracket the water table and allow for any light, non-aqueous-phase liquid (LNAPL) to enter the monitoring wells, should any be present. The screened interval for monitoring well MW1 misses bracketing the water table by 0.25 feet. The specific technical methods and standard procedures utilized by TerraQuest personnel during monitoring well installation can be found in Appendix C.

5.1 Soil Sampling Methodology and Results

During the installation of monitoring wells MW2-MW3, soils samples were collected using a Geoprobe 6610DT direct push rig. Soil samples were collected continuously in five-foot intervals using a Macro-Core® sampling tube. The Macro-Core® tube contains an inserted PVC liner which retains the soil sample as the tube is driven into the ground. The Macro-Core® tube was decontaminated between each sample interval in a soil boring using an Alconox and tap-water mixture. A new PVC liner was used to collect soil from each sample interval in a soil boring. Samples at various intervals were collected in zip-lock bags for field screening and logging. Field screening was accomplished using a Thermo Gastech Innova Series® catalytic organic vapor monitor (OVM). The OVM is a qualitative instrument used to detect the potential presence of petroleum hydrocarbons. OVM results are listed in the soil borings log in Appendix B. A detailed explanation of the OVM operation is included in Appendix C.

To assess vadose-zone soil quality immediately adjacent to the current UST basin, borings B1, B2, and B3 were installed. Soil samples were collected from 7.5 to 8.5 feet BGL and 14.5 to 15 feet BGL for boring B1, from 7.5 to 8.5 feet BGL for boring B2, and from 7.5 to 8.5 feet BGL and 12.5 to 13.5 feet BGL for boring B3. Each of the soil samples were collected following the proper soil sampling protocol in accordance with the NCDWM - UST guidelines as described in the Appendix C. The 7.5 to 8.5-foot sample interval was chosen so the samples would be collected above the approximate 10-foot depth of the water table and therefore be indicative of vadose-zone soil contamination. Grab samples were collected from within the water table to confirm the presence of groundwater contamination. Boring B4 was installed to assess the soil quality in the vicinity of the product lines. Two soil samples (4 to 5 feet BGL and 16.5 to 17.5 feet BGL) were collected following the same rational as for soil borings B1 and B3. Soil boring B5, B6, and B7 were collected adjacent to each of the current dispensers within the vadose zone at various depths.

The collected soil samples were placed in the appropriate sample containers, labeled with the sample location, sample identification, date of collection, time of collection, and the analytical method, immediately placed on ice, sent to a North Carolina-certified laboratory, and analyzed before the expiration of the analytical method's prescribed holding time. Chain-of-custody documentation was maintained for each sample. The soil samples were submitted for analysis by the EPA Method 8260+MTBE+Isopropyl ether (IPE) and the Massachusetts Department of Environmental Protection (MADEP) Method for volatile petroleum hydrocarbons (MADEP VPH). Technical Methods and Standards Procedures utilized by TerraQuest during the assessment for soil boring installations and equipment decontamination procedures are included in Appendix C.

Analytical results from the soil samples revealed petroleum contaminant concentrations in each sample. Samples B1(14.5-15) and B3(12.5-13.5) were the only samples with concentrations above the Soil-to-Groundwater Maximum Soil Contaminant Concentrations (S-t-G MSCCs). However, these two soil samples were collected within the water table and

therefore indicative of groundwater contamination not vadose zone contamination. The analytical results of the soil samples are summarized in Table 3. Figure 2 depicts the soil boring locations. The analytical reports are contained in Appendix D.

5.2 Groundwater Sampling Methodology and Results

Groundwater samples were collected from monitoring wells MW1 - MW3 on April 7, 2004. TerraQuest personnel used a clean electric centrifugal pump to develop monitoring wells MW2 and MW3. Between each well, the pump and tubing was decontaminated completely using an Alconox and tap water cleaning solution. The development process involves pumping groundwater from a well to remove any suspended sediment that accumulates in the groundwater of a newly installed monitoring well. Following development, TerraQuest personnel used a new disposable bailer to purge an additional three well volumes of water and collect a groundwater sample. Three well volumes were also purged from monitoring well MW1 using a new disposable bailer and, a groundwater sample was collected from monitoring well MW1. The collected samples were labeled with the sample location, sample identification, date of collection, time of collection, and the analytical method. The samples were immediately placed on ice, sent to a North Carolina-certified laboratory, and analyzed before the expiration of the analytical method's prescribed holding time. Chain-of-custody documentation was maintained for each sample collected. The groundwater samples from monitoring well MW1 – MW3 were submitted for analysis per MADEP method VPH and EPA Methods 6210D + MTBE + IPE, 504.1 EDB, and lead with a 3030c sample preparation method. The specific technical methods and standard procedures utilized by TerraQuest personnel during monitoring well sampling can be found in Appendix C.

The analytical results of the April 7, 2004 sampling of monitoring wells MW1 - MW3 revealed concentrations of petroleum contaminants in each well. The common constituents were benzene, total xylenes, MTBE, IPE, 1,2,4-trimetylbenzene, and the C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics carbon fractions. Some of the

detected concentrations in each monitoring well exceeded the Title 15A NCAC 2L Groundwater Quality Standards .0202 (g) (2L Standards). The analytical results of the groundwater samples are summarized in Table 4. Figure 4 depicts the locations of the monitoring wells and the analytical results of each well. The analytical reports are contained in Appendix D.

6.0 FREE PRODUCT CHECK

No free product was observed in any of the monitoring wells during the April 7, 2004 groundwater sampling event.

7.0 POTENTIAL SOURCES OF PETROLEUM HYDROCARBONS

Potential sources of petroleum hydrocarbons in the site vicinity consist of the current gasoline UST system, a 550-gallon kerosene AST, and the residualized contamination from the former 3,000-gallon gasoline USTs. Given the age of the kerosene AST, it being self-contained, and the absence of any indications of it leaking, TerraQuest does not believe the kerosene AST to be contributing to the groundwater contamination at the site.

Potential off site sources include the three 8,000-gallon gasoline USTs at the Union Cross Mart BP Station located approximately 280 feet northeast of the site. It is unknown if this UST system has contributed to the contamination on the subject property.

8.0 NATURE AND ESTIMATED QUANTITY OF RELEASE

The nature of the release is gasoline from the former 3,000-gallon gasoline UST system and possibly the current Quality UST system. However, tank and product line tightness testing have not indicated that a release has occurred from the current Quality UST system.

9.0 SITE AND VICINITY DESCRIPTION

The site is located at 1400 Union Cross Road in Kernersville, NC. The site building is for commercial use. The site is zoned limited business. Surrounding properties are zoned single family residential, limited business, and neighborhood shopping center business. The site location is shown in Figure 1.

The site derives its drinking water from a municipal water supply system. According to the Geological Resources, Inc. Phase I LSA report, some properties within 1,000 feet of the site derive their drinking water from water supply wells, but a majority derive their from a municipal water system.

10.0 CONCLUSIONS

TerraQuest has completed a site check for the Quality Mart #33 in Kernersville, NC by assembling data regarding the site vicinity and nature of the release in order to comply with Title 15A NCAC 2L .0115(c)(1) and 2N .0704 regulations. Based upon the data gathered from this limited investigation, the following conclusions can be made:

- Tank and product line tightness testing have not indicated that a release has occurred from the current Quality UST system.
- Analytical results of soil samples collected adjacent to the gasoline UST basin, product lines, and dispensers reveal concentrations of petroleum contamination above the sample detection limit, but **not** above the S-t-G MSCCs.
- Petroleum concentrations detected above the sample detection limit and 2L Standards were detected in the groundwater samples collected from monitoring wells MW1-MW3.

11.0 LIMITATIONS

This report is limited to the investigation of petroleum hydrocarbons, such as gasoline. No representations are made concerning any other impacts to the environment except those described in this report. The opinions and conclusions arrived at in this report are in accordance with North Carolina Division of Waste Management regulations and guidelines and industry-accepted geologic and hydrogeologic practices at this time and location. No warranty is implied or intended.

REFERENCES

Brown, et al., 1985, Geologic Map of North Carolina, North Carolina Department of Natural Resources and Community Development, 1:500,000 scale.

Rockingham County Online Geographical Information System, http://co.forsyth.nc.us

North Carolina Administrative Code, Title 15A, Chapter 2, Subchapter 2L, Section .0202, November 20, 1998, "Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina ".

North Carolina Administrative Code, Title 15A, Chapter 2, Subchapter 2N, Section .0700, January 1, 1991, "Criteria and Standards Applicable to Underground Storage Tanks".

North Carolina Department of Environment and Natural Resources, Division of Waste Management, Guidelines for Assessment and Corrective Action, April 2001.

North Carolina Department of Environment and Natural Resources, Division of Waste Management UST Section, *Guidelines for Sampling*, September 2003

USGS 7.5-Minute Quadrangle Topographic Map, Kernersville, North Carolina, 1969, Revised 1994.

Table 1 SITE HISTORY (UST & AST SYSTEM INFORMATION)

Date: 5/12/04 Incident Name: Quality Mart #33 Incident No. 30284 Facility ID No.: 0-034372

UST	Product	Capacity (gallons)	Date Installed	Date Closed	Release Discovered?
1A	Gasoline	3,000	1952	Closed - 1978	Yes
1B	Gasoline	3,000	1952	Closed - 1978	Yes
1	Gasoline	8,000	7/27/1994	In Use	Yes
2	Gasoline	8,000	7/27/1994	In Use	Yes
3	Gasoline	12,000	7/27/1994	In Use	Yes
AST	Product	Capacity (gallons)	Date Installed	Date Closed	Release Discovered?
1	Kerosene	550	7/27/1994	In Use	No

Notes:

1. Information obtained from the Donald Joyce and NC Petroleum UST Database.
2. Refer to Figure 2 for the estimated former locations of 1A and 1B and the current locations of USTs 1, 2, and 3 and AST 1.

Table: 2

WELL CONSTRUCTION INFORMATION

Date: 5/12/04

Incident Name: Quality Mart #33 Incident No. 30284

Facility ID No.: 0-034372

Well ID	Date Installed	Date Water Level Measured	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Bottom of Well (ft. BGS)	Top of Casing Elevation (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness (ft.)	Groundwater Elevation (ft.)	Comments
MW1	10/23/2003	4/7/2004	25	10 - 25	25	98.55	9.50	-	89.05	Type II
MW2	4/6/2004	4/7/2004	20	5 - 20	20	99.28	10.03	-	89.25	Type II
MW3	4/6/2004	4/7/2004	20	5 - 20	20	98.70	9.72	-	88.98	Type II

Notes:

1. All units in feet.
2. - Indicates no detection of free product found in the well.

Table: 3
Date: 5/12/04

SUMMARY OF SOIL SAMPLING RESULTS
Incident Name: Quality Mart #33 Incident No. 30284

Facility ID: 0-034372

Analytical Method			8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	8260 + MTBE + IPE	MADEP VPH	MADEP VPH	MADEP VPH
	Contaminant of Concern																				
Sample ID	Date Collected	Sample Depth	Benzene	Toluene	Ethylbenzene	Total Xylenes	sec-Butylbenzene	Isopropylbenzene	p-Isopropyltoluene	IPE	MTBE	Acetone	2-Butmanone	Naphthalene	n-Propylbenzene	1,2,4 Trimethylbenzene	1,3,5 Trimethylbenzene	C-5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics
B1	4/6/2004	7.5-8.5	<0.068	<0.34	<0.068	<0.2	<0.068	<0.068	<0.068	<0.068	**0.77**	<1.7	<0.68	<0.34	<0.068	<0.068	<0.068	<6.8	<6.8	<6.8
B1	4/6/2004	14.5-15	<0.079	<0.39	<0.079	<0.24	<0.079	<0.079	<0.079	<0.079	**2.9**	<2.0	<0.79	<0.39	<0.079	<0.079	<0.079	<9.8	<9.8	<9.8
B2	4/6/2004	7.5-8.5	<0.0014	<0.0072	<0.0014	<0.0043	<0.0014	<0.0014	<0.0014	<0.0014	**0.02**	<0.036	<0.014	<0.0072	<0.0014	<0.0014	<0.0014	<7.2	<7.2	<7.2
B3	4/6/2004	7.5-8.5	**0.0068**	<0.0065	<0.0013	**0.008**	<0.0013	<0.0013	<0.0013	**0.008**	**0.68**	<0.033	<0.013	**0.0098**	<0.0013	**0.0015**	<0.0013	<6.5	<6.5	<6.5
B3	4/6/2004	12.5-13.5	**0.046**	**0.064**	**0.013**	**0.074**	<0.0013	**0.0017**	<0.0013	**0.027**	**1.4**	**0.042**	<0.013	**0.054**	**0.0029**	**0.014**	**0.0064**	<6.6	<6.6	<6.6
B4	4/6/2004	4-5	<0.0011	<0.0056	<0.0011	<0.0034	<0.0011	<0.0011	<0.0011	**0.0013**	**0.016**	**0.065**	<0.011	<0.0056	<0.0011	**0.0014**	<0.0011	<5.6	<5.6	<5.6
B4	4/6/2004	16.5-17.5	**0.0028**	<0.0066	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	**0.027**	**0.34**	<0.033	<0.033	<0.0066	<0.0013	**0.0018**	<0.0013	<8.2	<8.2	<8.2
B5	4/6/2004	3.5-4.5	<0.0012	<0.006	<0.0012	<0.0036	<0.0012	<0.0012	<0.0012	**0.0027**	**0.022**	**0.12**	**0.015**	<0.006	<0.0012	<0.0012	<0.0012	<6.0	<6.0	<6.0
B6	4/6/2004	6.5-8	<0.0013	<0.0063	**0.0021**	**0.0063**	**0.018**	**0.0015**	**0.0091**	<0.0013	**0.017**	<0.032	<0.013	<0.0063	<0.0013	**0.0068**	**0.0042**	**8.5**	**22.0**	**15.0**
B7	4/6/2004	5-6.5	**0.0037**	<0.0067	<0.0013	<0.004	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	**0.046**	<0.013	<0.0067	<0.0013	<0.0013	<0.0013	<6.7	<6.7	<6.7
Soil to groundwater MSCC			0.0056	7	0.24	5	3	2	34	0.37	0.92	3	0.7	0.58	2	8	7	72	3,255	34
Residential MSCC			22	3,200	1,560	32,000	156	1,564	469	156	156	1,564	9,385	63	156	782	782	939	9,386	469
Industrial /Commercial MSCC			200	82,000	40,000	200,000	4,088	40,880	12,264	4,088	4,088	40,880	245,280	1,635	4,088	20,440	20,440	24,528	245,280	12,264

Notes:

1. All results in mg/kg = parts per million (ppm)
2. Bold denotes a compound detection. Shading denotes a Soil-to-Groundwater MSCC (Maximum Soil Contaminant Concentration) violation.
3. - not sampled for; < - denotes less than sample detection limit.
4. Sample depths are in feet below ground level.

Table 4
Date: 5/12/04

SUMMARY OF GROUNDWATER SAMPLING RESULTS
Incident Name: Quality Mart #33 Incident No. 30284

Facility ID No.: 0-034372

Analytical Method		6210D	6210D	6210D	6210D	6210D	6210D	504.1	6210D	6210D	6210D	6210D	6210D	MADEP VPH	MADEP VPH	MADEP VPH	3030C
Contaminant of Concern																	
Well ID	Date Collected	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	EDB	Isopropylbenzene	Naphthalene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
MW1	4/7/2004	**5,700**	<250	**3,100**	**9,100**	**1,800**	**410**	<0.010	**110**	**580**	**290**	**2,000**	**490**	**17,000**	**28,000**	**10,000**	<5
MW2	4/7/2004	**210**	<100	<20	**129**	**2,000**	**88**	<0.010	<20	<100	<20	**25**	<20	**6,000**	**740**	**550**	<5
MW3	4/7/2004	**44**	<100	<20	**61**	**2,000**	**130**	<0.010	<20	<100	<20	**110**	<1	**3,300**	**490**	**330**	<5
	2L Standard	1	1,000	29	530	200	70	50	70	21	70	350	350	420	4,200	210	15

Notes:
1. All results in ug/l = parts per billion (ppb).
2. Bold denotes a detection.
3. Shading denotes a 2L Standard violation.
4. < - denotes less than sample detection limit.
5. - indicates analyte not tested.

N

MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP OF KERNERSVILLE, NC

GRAPHIC SCALE

0' 2,000' 4,000'

TERRAquest

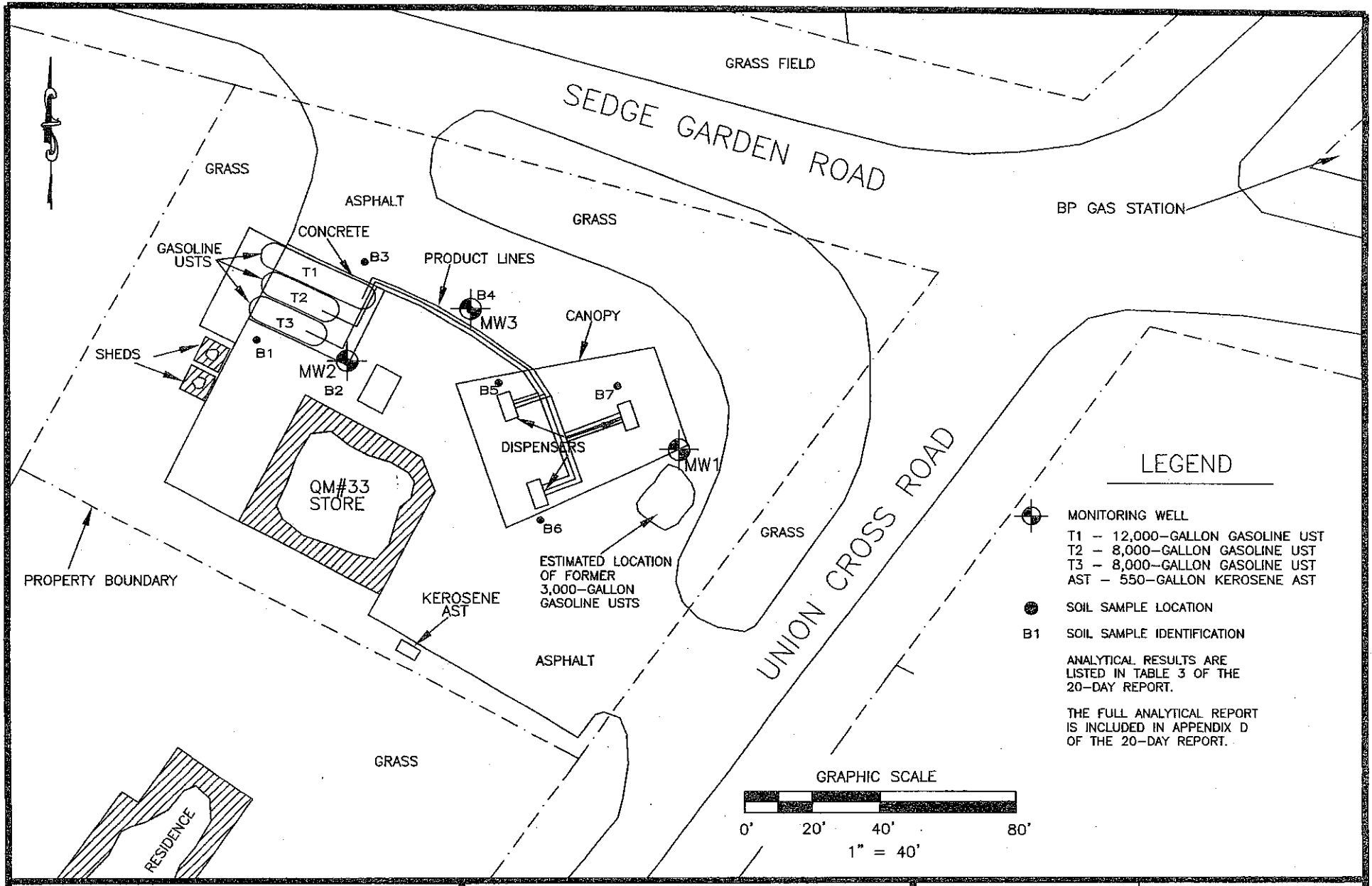
ENVIRONMENTAL CONSULTANTS, P.C.

SITE LOCATION MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC. WINSTON-SALEM, NC

PROJECT NO.	02500	DRAWN BY:	JRG	DATE:	5/29/04
SCALE:	1" = 2,000'	CHECKED BY:	MJB	FIGURE NO.	1



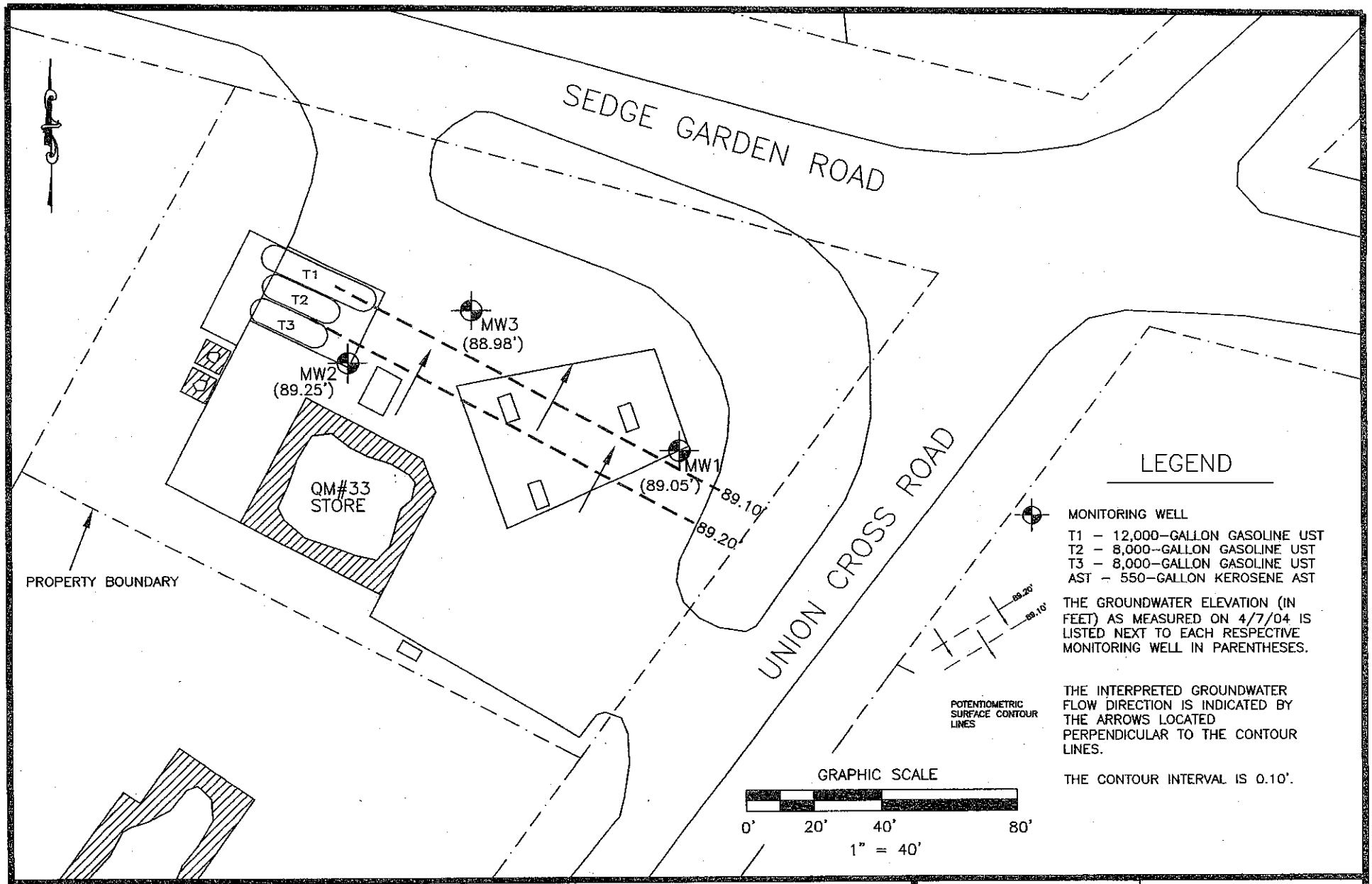
SITE LAYOUT & SOIL SAMPLE LOCATION MAP

QUALITY MART #33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/29/04
CHECKED BY:	MJB	SCALE:	1" = 40'
DRAWN BY:	JRG	FIGURE NO.	2



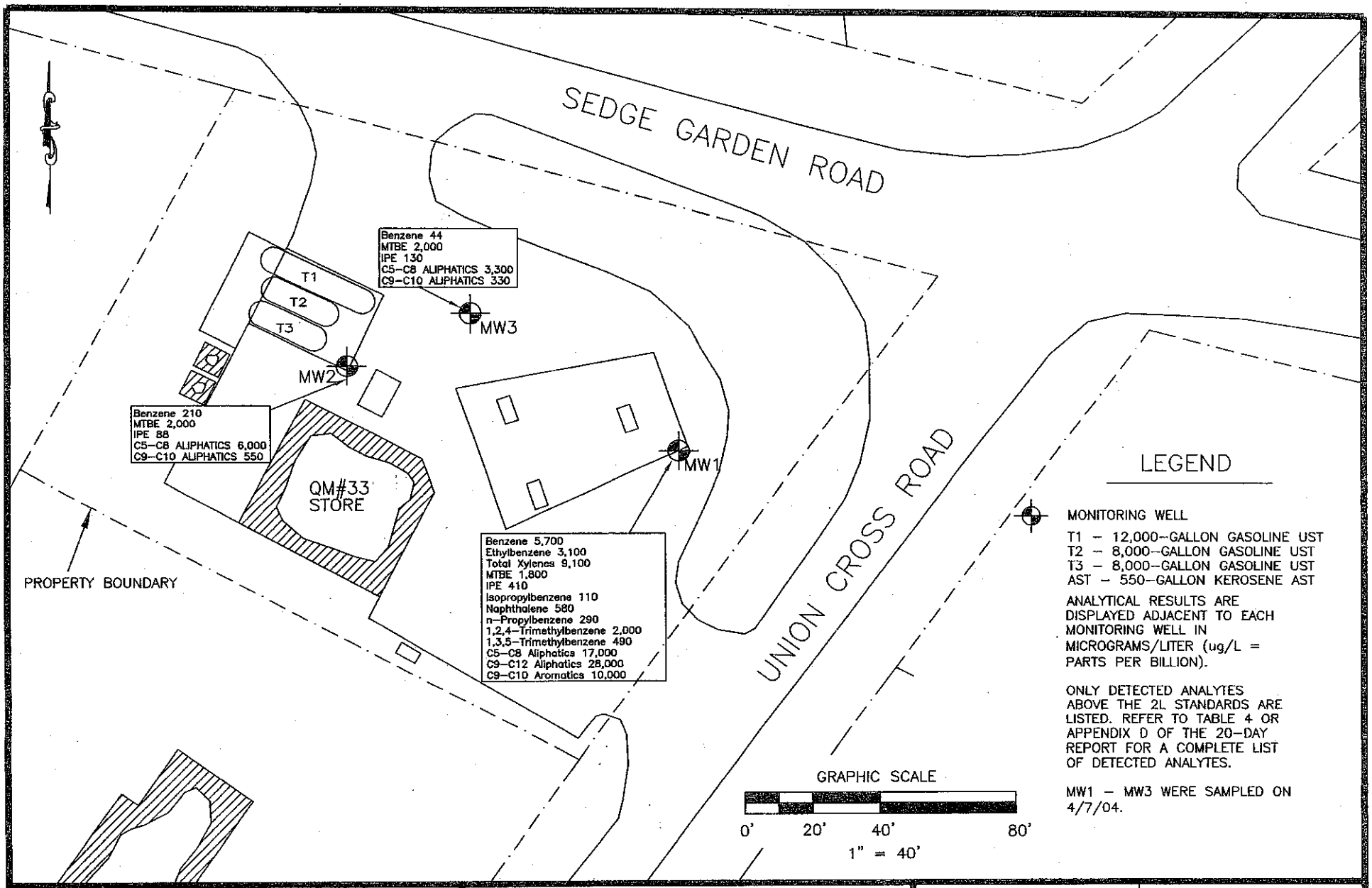
POTENTIOMETRIC SURFACE MAP (4/7/04)

QUALITY MART #33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON–SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/29/04
CHECKED BY:	MJB	SCALE:	1" = 40'
DRAWN BY:	JRG	FIGURE NO.	3



GROUNDWATER ANALYTICAL RESULTS

QUALITY MART #33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON–SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/29/04
CHECKED BY:	MJB	SCALE:	1" = 40'
DRAWN BY:	JRG	FIGURE NO.	4

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor William G. Ross Jr., Secretary

December 4, 2003

CERTIFIED MAIL 7002 2410 0002 7003 5102
RETURN RECEIPT REQUESTED

Quality Oil Co., LLC
Attn: Danny Stroud
P.O. Box 2736
Winston-Salem, NC 27102

Re: Notice of Regulatory Requirements 15A NCAC 2N .0603
Quality Mart #33
1400 Union Cross Road, Kernersville, NC
Forsyth County
Facility ID # 0-034372

Dear Mr. Stroud:

Analytical data received by this office on December 2, 2003 from water supply well samples collected in October 24, 2003, indicate that a release or discharge from a regulated petroleum underground storage tank (UST) system may have occurred at the above-referenced location. Records indicate that you are the owner of this UST system. This letter is a standard notice explaining the actions you must take as a result of a potential release or discharge in accordance with North Carolina statutes and rules. The UST Section of the Division of Waste Management administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

Because a water supply well is contaminated, you must immediately investigate and confirm the suspected release pursuant to 15A NCAC 2N .0603. To achieve compliance with this rule, please conduct a tank tightness test for each UST in accordance with federal regulation 40 CFR 280.43(c) (as incorporated by 15A NCAC 2N .0504) and a line tightness test for each piping system associated with a UST in accordance with 40 CFR 280.44(b) (as incorporated by 15A NCAC 2N .0505). Conduct a site check in accordance with 40 CFR 280.52(b) (as incorporated by 15A NCAC 2N .0603) using the sampling protocol and methodology of the most recent version of the UST Section Closure Guidelines. For a copy of the closure guidelines, please call the UST Central Office at (919) 733-8486. The results of the tank tightness test(s) and line tightness test(s) must be received by this office **within 7 days** of receipt of this notice. The results of the site check must be received by this

office **within 30 days** of receipt of this notice.

Your prompt attention to the items described herein is required. Failure to comply with the state's rules in the manner and time specified, may result in the assessment of civil penalties and/or the use of other enforcement mechanisms available to the State. Each day that a violation continues may be considered a separate violation.

It is your responsibility to comply with state and federal regulations for underground storage tanks. Copies of state regulations15A NCAC 2N are available at this office. If you believe that these findings are in error, or if you have any questions pertaining to this Notice, please contact me at the letterhead telephone number.

Sincerely,

Karen J. Hall

Karen J. Hall
Hydro Tech II

cc: Forsyth County Health Department
WSRO

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

December 22, 2003

Ms. Karen Hall
NCDWM - UST Section
Winston-Salem Regional Office
585 Waughtown Street
Winston-Salem, North Carolina 27107-2241

Re: Response to Notice of Regulatory Requirements Letters Dated December 4, 2003
Quality Mart # 33
1400 Union Cross Road
Winston-Salem, North Carolina (Forsyth Co.)
NCDWM-UST Incident No.: 30284
TerraQuest Project No. 02500

Dear Ms. Hall:

On behalf of Quality Oil Company, LLC (Quality), TerraQuest Environmental Consultants, P.C. has prepared this letter in response to a pair of Notice of Regulatory Requirements (NORR) letters sent to Quality dated December 4, 2003. Each of these letters mention that analytical data received by your office on December 2, 2003 indicates a release or discharge may have occurred from the current underground storage tank (UST) system currently located on the property.

In response to the NORR letters and to prove that the current UST system is operating correctly, Quality performed tank tightness tests on the 12,000-gallon gasoline, 8,000-gallon gasoline, and 8,000-gallon gasoline USTs and line tightness tests on the product lines to the each of the three dispensers. Each of the tanks and lines tested passed their respective tests. Copies of the tests are attached. During the nine-year history of the UST system, Quality has not had any inventory discrepancies or system component problems that would indicate a release of petroleum products from the system. An inspection of the UST system also indicates that it was installed in compliance with and currently meets the Environmental Protection Agency's 1998 overfill, corrosion, and leak detection requirements.

Furthermore, a review of the North Carolina Division of Waste Management – UST Section (NCDWM-UST) release incident database reveals a preexisting release incident for the 1400 Union Cross Road property, the former Donald Joyce property (NCDWM-UST incident number 11599). This release incident is associated with a gasoline UST system

401 W. Weaver Street · Carrboro, North Carolina 27510
Telephone (919) 932-1590 · Facsimile (919) 932-1594
www.terraquestpc.com

consisting of two 3,000-gallon USTs formerly located along the eastern property boundary with Union Cross Road. In February 1994, soil and groundwater samples were collected in the vicinity of the former UST system prior to the installation of current gasoline UST system. The results of the soil and groundwater samples revealed soil and groundwater contamination above the NCDWM – UST allowable concentrations.

The passing tightness-test results and the previous release incident leads Quality and TerraQuest to believe that the soil and groundwater contamination at the site originated from the former gasoline system and not from the current UST system. Quality has submitted the tank and line tightness tests as requested, but based upon the belief that the current UST system has not contributed to the in situ soil and groundwater contamination at the site is not going to complete the site check.

If you have any questions, please call me at (919) 932-1590. Thanks for your cooperation.

Sincerely,

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.

Jonathan R. Grubbs, P.G.
Vice President

Enclosure

pc: Danny Stroud, Quality Oil Company, LLC
file

USTs

QUALITY MART 33
1400 UNION CROSS RD
K-VILLE NC
21017281105001

DEC 17, 2003 2:06 PM

CSLD TEST RESULTS

DEC 17, 2003 2:06 PM

T 1:REGULAR
PROBE SERIAL NUM 013353

(1) 0.2 GAL/HR TEST
PER: DEC 17, 2003 PASS

T 2:PREMIUM
PROBE SERIAL NUM 013356

(2) 0.2 GAL/HR TEST
PER: DEC [illegible] 2003 PASS

T 3:PLUS
PROBE SERIAL NUM 072962

(3) 0.2 GAL/HR TEST
PER: DEC 17, 2003 PASS

* * * * * END * * * * *

Product Lines

Q 3:PLUS

3.0 GAL/HR RESULTS:

LAST TEST:
DEC 17,2003 1:39PM PASS

NUMBER OF TESTS PASSED
PREV 24 HOURS : 43
SINCE MIDNIGHT : 17

0.20 GAL/HR RESULTS:

DEC 15,2003 12:08PM PASS
DEC 11,2003 10:12AM PASS
DEC 8,2003 12:33AM PASS
DEC 5,2003 9:27AM PASS
DEC 1,2003 9:13AM PASS
NOV 27,2003 10:23AM PASS
NOV 23,2003 10:59AM PASS
NOV 19,2003 11:39PM PASS
NOV 17,2003 9:40AM PASS
NOV 13,2003 11:00AM PASS

0.10 GAL/HR RESULTS:

FEB 8,2002 1:46PM PASS
OCT 11,2000 2:07PM PASS
OCT 9,2000 8:01PM PASS
APR 4,2000 11:43AM PASS
OCT 3,1999 8:19AM PASS

* * * * * END * * * * *

Q 2:PREMIUM

3.0 GAL/HR RESULTS:

LAST TEST:
DEC 17,2003 1:26PM PASS

NUMBER OF TESTS PASSED
PREV 24 HOURS : 31
SINCE MIDNIGHT : 11

0.20 GAL/HR RESULTS:

DEC 17,2003 7:08AM PASS
DEC 13,2003 9:51AM PASS
DEC 9,2003 12:15PM PASS
DEC 5,2003 11:49PM PASS
DEC 3,2003 7:45AM PASS
NOV 29,2003 9:08AM PASS
NOV 25,2003 9:56AM PASS
NOV 21,2003 10:21AM PASS
NOV 17,2003 10:38PM PASS
NOV 15,2003 8:19AM PASS

0.10 GAL/HR RESULTS:

AUG 17,2003 9:09PM PASS
FEB 14,2003 2:41PM PASS
AUG 10,2002 9:26PM PASS
FEB 8,2002 10:34AM PASS
SEP 30,2001 5:25PM PASS
MAR 31,2001 2:38PM PASS
SEP 29,2000 10:25AM PASS
MAR 29,2000 9:10AM PASS
SEP 27,1999 3:13PM PASS

QUALITY MART 33
1400 UNION CROSS RD
K-VILLE NC
2101728110S001

DEC 17, 2003 2:06 PM

PRESSURE LINE LEAK
TEST RESULTS

Q 1:REGULAR

3.0 GAL/HR RESULTS:

LAST TEST:
DEC 17,2003 2:04PM PASS

NUMBER OF TESTS PASSED
PREV 24 HOURS : 133
SINCE MIDNIGHT : 57

0.20 GAL/HR RESULTS:

DEC 17,2003 7:08AM PASS
DEC 11,2003 11:54PM PASS
DEC 7,2003 7:34AM PASS
DEC 2,2003 12:04AM PASS
NOV 26,2003 12:03AM PASS
NOV 22,2003 12:11AM PASS
NOV 16,2003 12:03AM PASS
NOV 9,2003 11:47PM PASS
NOV 3,2003 11:56PM PASS
OCT 28,2003 10:58PM PASS

0.10 GAL/HR RESULTS:

NOV 11,2003 6:31AM PASS
MAY 10,2003 12:31AM PASS
NOV 5,2002 12:57AM PASS
FEB 18,2002 5:57AM PASS
JAN 30,2002 11:27PM PASS
JUL 29,2001 7:27AM PASS
NOV 10,2000 11:49PM PASS
MAY 7,2000 12:05AM PASS
OCT 28,1999 12:06AM PASS

Product Lines

QUALITY MART 33
1400 UNION CROSS RD
K-VILLE NC
21017281105001

DEC 17, 2003 2:06 PM

PRESSURE LINE LEAK TEST HISTORY

Q 3:PLUS

LAST 3.0 GAL/HR PASS:
DEC 17, 2003 1:39 PM

FIRST 0.20 GAL/HR PASS EACH MONTH:

DEC	1,	2003	9:13 AM
NOV	3,	2003	9:51 AM
OCT	4,	2003	2:09 PM
SEP	4,	2003	11:11 AM
AUG	3,	2003	9:39 AM
JUL	2,	2003	12:01 PM
JUN	2,	2003	11:33 PM
MAY	1,	2003	2:42 PM
APR	1,	2003	8:48 AM
MAR	4,	2003	9:52 AM
FEB	2,	2003	9:56 PM
JAN	1,	2003	9:52 AM

FIRST 0.10 GAL/HR PASS EACH MONTH:

FEB	8,	2002	1:46 PM
OCT	9,	2000	8:01 PM
APR	4,	2000	11:43 AM
OCT	3,	1999	8:19 AM

* * * * * END * * * * *

QUALITY MART 33
1400 UNION CROSS RD
K-VILLE NC
21017281105001

DEC 17, 2003 2:06 PM

PRESSURE LINE LEAK TEST HISTORY

Q 2:PREMIUM

LAST 3.0 GAL/HR PASS:
DEC 17, 2003 1:26 PM

FIRST 0.20 GAL/HR PASS EACH MONTH:

DEC	3,	2003	7:45 AM
NOV	3,	2003	8:00 AM
OCT	2,	2003	11:01 AM
SEP	2,	2003	10:51 PM
AUG	1,	2003	11:31 AM
JUL	2,	2003	10:42 AM
JUN	4,	2003	10:15 AM
MAY	1,	2003	11:38 PM
APR	1,	2003	10:43 PM
MAR	4,	2003	8:03 AM
FEB	4,	2003	9:39 AM
JAN	1,	2003	10:38 PM

FIRST 0.10 GAL/HR PASS EACH MONTH:

AUG	17,	2003	9:09 PM
FEB	14,	2003	2:41 PM
AUG	10,	2002	9:26 PM
FEB	8,	2002	10:34 AM
SEP	30,	2001	5:25 PM

* * * * * END * * * * *

QUALITY MART 33
1400 UNION CROSS RD
K-VILLE NC
21017281105001

DEC 17, 2003 2:06 PM

PRESSURE LINE LEAK TEST HISTORY

Q 1:REGULAR

LAST 3.0 GAL/HR PASS:
DEC 17, 2003 2:04 PM

FIRST 0.20 GAL/HR PASS EACH MONTH:

DEC	2,	2003	12:04 AM
NOV	3,	2003	11:56 PM
OCT	2,	2003	11:04 PM
SEP	5,	2003	12:17 AM
AUG	2,	2003	12:44 AM
JUL	3,	2003	12:25 AM
JUN	2,	2003	11:48 PM
MAY	6,	2003	12:32 AM
APR	1,	2003	11:52 PM
MAR	2,	2003	11:54 PM
FEB	2,	2003	11:53 PM
JAN	1,	2003	7:24 AM

FIRST 0.10 GAL/HR PASS EACH MONTH:

NOV	11,	2003	6:31 AM
MAY	10,	2003	12:31 AM
NOV	5,	2002	12:57 AM
FEB	18,	2002	5:57 AM
JAN	30,	2002	11:27 PM

* * * * * END * * * * *

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor William G. Ross Jr., Secretary

February 10, 2004

- won't accept Veeder-Root
- tank tightness tests
- independent testing required.
-

CERTIFIED MAIL 7002 2410 0002 7003 5249
RETURN RECEIPT REQUESTED

Quality Oil
Attn: Danny Stroud
P.O. Box 2736
Winston-Salem, NC 27102

Re: Notice of Regulatory Requirements 15A NCAC 2N .0603

Quality Mart #33
1400 Union Cross Road, Winston-Salem, NC
Forsyth County
Incident #: 30284

Dear Mr. Stroud:

Documentation received by this office on Janaury 6, 2004 from a an assessment of the above property indicates that a release or discharge from a regulated petroleum underground storage tank (UST) system may have occurred from your UST system. MTBE was discovered in the ground water. Records indicate that you are the owner and operator of this UST system. This letter explains the actions you must take as a result of a potential release or discharge in accordance with North Carolina statutes and rules. The UST Section of the Division of Waste Management administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

You must immediately investigate and confirm the suspected release pursuant to 15A NCAC 2N .0603. To achieve compliance with this rule, conduct a site check in accordance with 40 CFR 280.52(b) (as incorporated by 15A NCAC 2N .0603) using the sampling protocol and methodology of the most recent version of the UST Section Closure Guidelines. For a copy of the closure guidelines, please call the UST Central Office at (919) 733-8486. The results of the site check must be received by this office **within 30 days** of receipt of this notice.

Your prompt attention to the items described herein is required. Failure to comply with the state's rules in the manner and time specified, may result in the assessment of civil penalties and/or the use of other enforcement mechanisms available to the State. Each day that a violation continues may

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

be considered a separate violation.

It is your responsibility to comply with state and federal regulations for underground storage tanks. Copies of state regulations15A NCAC 2N are available at this office. If you believe that these findings are in error, or if you have any questions pertaining to this Notice, please contact me at the letterhead telephone number.

Sincerely,

Karen J. Hall

Karen J. Hall
Hydrogeologic Technician

cc: Forsyth County Health Department
WSRO

Winston-Salem Regional Office, 585 Waughtown Street, Winston-Salem, North Carolina 27107-2241
Phone: 336-771-4600 \ FAX: 336-771-4632 \ Internet: www.enr.state.nc.us

NCDENR
North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor William G. Ross Jr., Secretary

February 10, 2004

CERTIFIED MAIL 7002 2410 0002 7003 5249
RETURN RECEIPT REQUESTED

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Forsyth County
Incident #: 30284

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You must immediately investigate and confirm the suspected release pursuant to 15A NCAC 2N .0603. To achieve compliance with this rule, conduct a site check in accordance with 40 CFR 280.52(b) (as incorporated by 15A NCAC 2N .0603) using the sampling protocol and methodology of the most recent version of the UST Section Closure Guidelines. For a copy of the closure guidelines, please call the UST Central Office at (919) 733-8486. The results of the site check must be received by this office **within 30 days** of receipt of this notice.

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NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor William G. Ross Jr., Secretary

be considered a separate violation.

It is your responsibility to comply with state and federal regulations for underground storage tanks. Copies of state regulations15A NCAC 2N are available at this office. If you believe that these findings are in error, or if you have any questions pertaining to this Notice, please contact me at the letterhead telephone number.

Sincerely,

Karen J. Hall

Karen J. Hall
Hydrogeologic Technician

cc: Forsyth County Health Department
WSRO

Winston-Salem Regional Office, 585 Waughtown Street, Winston-Salem, North Carolina 27107-2241
Phone: 336-771-4600 \ FAX: 336-771-4632 \ Internet: www.enr.state.nc.us

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

March 9, 2004

Ms. Karen Hall
NCDWM - UST Section
Winston-Salem Regional Office
585 Waughtown Street
Winston-Salem, North Carolina 27107-2241

Re: Tank Tightness Testing
Quality Mart # 33
1400 Union Cross Road
Winston-Salem, North Carolina (Forsyth Co.)
NCDWM-UST Incident No.: 30284
TerraQuest Project No. 02500

Dear Ms. Hall:

In response to the December 4, 2003 Notice of Regulatory Requirements letter, Quality had Precision Tank Service, Inc. (Precision) perform tank tightness tests on the 12,000-gallon gasoline, 8,000-gallon gasoline, and 8,000-gallon gasoline USTs and line tightness tests on the product lines to the each of the three dispensers. Each of the tanks and lines tested passed their respective tests. A copy of the test results is attached.

As mentioned in previous correspondence, Quality has not had any inventory discrepancies or system component problems that would indicate a release of petroleum products from the system during its nine-year history. An inspection of the UST system also indicates that it was installed in compliance with and currently meets the Environmental Protection Agency's 1998 overfill, corrosion, and leak detection requirements.

The passing tightness-test results and the previous release incident lead Quality and TerraQuest to believe that the soil and groundwater contamination at the site originated from the former gasoline system and not from the current UST system. Quality has submitted the Precision tank and line tightness tests as requested, but does not believe it should complete a site check based upon the belief that the current UST system has not contributed to the in situ soil and groundwater contamination at the site.

If you have any questions, please call me at (919) 932-1590. Thanks for your cooperation.

Sincerely,

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.

Jonathan R. Grubbs, P.G.
Vice President

Enclosure

pc: Danny Stroud, Quality Oil Company, LLC
file

401 W. Weaver Street · Carrboro, North Carolina 27510
Telephone (919) 932-1590 · Facsimile (919) 932-1594
www.terraquestpc.com

PTS

PRECISION TANK SERVICE, INC.

03/02/2004

Quality Oil Company, LLC
P. O. Box 2736
Winston Salem, NC 27102

Location: QUALITY MART 33
Address: 1400 UNION CROSS ROAD
City, State: KERNERSVILLE NC
Test Number: 040226A-33
Test Date: 02/26/2004
Technician: Jamie Osborne
Certification: 23-6314
PO Number:

Dear Danny Stroud,

Precision testing was performed at the above mentioned location using the Estabrook EZY 3 Locator+ (a non-volumetric test) for tanks, the ACCURITE equipment for lines, and/or the FTA for leak detectors. All tests were performed according to the equipment manufacturers specifications, and meet all state and federal requirements.

			TANKS
PRODUCT	UNLEAD	PLUS	PREMIUM
CAPACITY	12000	8000	8000
TEST LEVEL	35	36	52
WATER	0	0	0
RESULT	PASS	PASS	PASS

			LINES
PRODUCT	UNLEAD	PLUS	PREMIUM
ISOLATION	B-VALVE	B-VALVE	B-VALVE
PRESSURE	45	45	45
LEAK RATE	-0.008	-0.005	-0.008
RESULT	PASS	PASS	PASS

If you have any questions, please feel free to call 800-533-8039.

Thank You,
Precision Tank Service, Inc.

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

March 12, 2004

CERTIFIED MAIL 7002 2410 0002 7003 5607
RETURN RECEIPT REQUESTED

Quality Oil
Attn: Danny Stroud
P. O. Box 2736
Winston-Salem, NC 27102

RECEIVED
MAR 19 2004

Re: Notice of Violation of 15A NCAC 2N .0603
Site Check

Quality Mart #33
1400 Union Cross Road, Kernersville, NC 27284
Forsyth County
Incident # 30284
High Risk Classification

Dear Mr. Stroud:

Information received by this office on October 24, 2003 confirms a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced location. Records indicate that you are the owner of this UST system. This letter is a standard notice explaining the violation(s) and associated corrective action(s) you must take as a result of the release or discharge in accordance with North Carolina statutes and rules. The Division of Waste Management, UST Section administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

Review of your files indicates that MTBE was not detected in the 1994 assessment work. This is indicative of a new release. I will attach a copy of the lab work that is in the preliminary site assessment report that we received on April 29, 1994.

VIOLATION 1:
Failure to submit a Site Check in accordance with 2N .0603.

REQUIRED CORRECTIVE ACTION:
Please submit a Site Check, including the soil sampling, as described in 15A NCAC 2N.0603 to the UST Section within 30 days.

Please take the corrective action(s) for the above violation(s) as necessary to bring the site into compliance. Corrective actions must be taken and reported to the Winston-Salem Regional Office, within 30 days, unless otherwise noted in the above corrective actions, from the date of this notice to avoid recommendation of civil penalties for continuing violations.

Penalties may be assessed for the violation(s) described within this Notice of Violation. Your prompt attention to the items described herein is required. Failure to comply with the State's rules, in the manner and time specified, may result in the assessment of additional civil penalties and/or the use of other enforcement mechanisms available to the State. Each day that a violation continues may be considered a separate violation.

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the letterhead address and/or phone number. If you have any questions regarding trust fund eligibility or reimbursement, please contact the UST Section at (919) 733-8486.

Sincerely,

Karen J. Hall

Karen J. Hall
Hydrogeologic Technician

Enclosures: Lab work from the preliminary site assessment of April 29, 1994.

cc: Forsyth County Health Department
WSRO files

Donald Andrew Joyce
1022 Sedge Garden Road
Kernersville, NC 27284
(910) 993-3341

April 25, 1994

Ms. Cindy Rintoul
North Carolina Department of Environment,
Health, and Natural Resources
8025 North Point Blvd., Suite 100
Winston-Salem, NC 27106

Dear Ms. Rintoul:

I wanted to thank you for all of the past assistance you gave me with my property at Beeson's Crossroads. It appears that I can now proceed with my project.

Enclosed is the preliminary site assessment report from Turner Environmental Consultants. I thought you might want a copy to put with my file.

Again, thanks for all of your help.

Sincerely,

Donald Andrew Joyce

Donald Andrew Joyce

DAJ:bmv
Attachment

D R O L O G I C , I N C .

March 28, 1994

REPORTING:

Turner Env Consultants
110 West Main Street
Suite 2M
Carrboro, NC 27510

Attention: Ryan Turner

INVOICING:

Turner Env Consultants
110 West Main Street
Suite 2M
Carrboro, NC 27510

PROJECT NUMBER: FL94-3097

DATE COMPLETED: March 28, 1994
DATE RECEIVED: March 18, 1994

PROJECT DESCRIPTION:

#00594--1 water sample to be analyzed for 502.2 + MTBE + IPE and 7 soil samples to be analyzed for 3550/5030, sampled on 03/15/94.

Enclosed is the laboratory report for the project described above. If you have any questions or if we can be of further assistance, please feel free to contact Billie Wakefield. We appreciate your business and look forward to serving you again soon.

Respectfully,

Benjamin Carl Esterle
Laboratory Director

1491 Twilight Trail ☐ Frankfort, KY 40601 ☐ 502/223-0251 ☐ FAX 502/875-8016 ☐ Toll Free 1-800/728-2251

HYDROLOGIC, INC.

COMPANY NAME: Turner Env Consultants
COMPANY PROJECT NUMBER: #00594

HYDROLOGIC PROJECT NUMBER: FL94-3097
HYDROLOGIC SAMPLE NUMBER: 3097
HYDROLOGIC LAB I.D.#: ~~399~~
SAMPLE IDENTIFICATION: TMW1
DATE SAMPLED: 3/15/94
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 3/25/94

METHOD EPA 502.2/MTBE/IPE

ANALYSIS	CAS NO.	SDL (*ug/l)	RESULT (ug/l)
Benzene	71-43-2	10	200
Bromobenzene	108-86-1	10	BDL
Bromochloromethane	74-97-5	10	BDL
Bromodichloromethane	75-27-4	10	BDL
Bromoform	75-25-2	10	BDL
Bromomethane	74-83-9	10	BDL
n-Butylbenzene	104-51-8	10	BDL
sec-Butylbenzene	135-98-8	10	BDL
tert-Butylbenzene	98-06-6	10	BDL
Carbon tetrachloride	56-23-5	10	BDL
Chlorobenzene	108-90-7	10	BDL
Chloroethane	75-00-3	10	BDL
Chloroform	67-66-3	10	BDL
Chloromethane	74-87-3	10	BDL
2-Chlorotoluene	95-45-8	10	BDL
4-Chlorotoluene	106-43-4	10	BDL
Dibromochloromethane	124-48-1	10	BDL
1,2-Dibromo-3-chloropropane	96-12-8	10	BDL
1,2-Dibromomethane (EDB)	106-93-4	10	BDL
Dibromomethane	74-95-3	10	BDL
1,2-Dichlorobenzene	95-50-1	10	BDL
1,3-Dichlorobenzene	541-73-1	10	BDL
1,4-Dichlorobenzene	106-46-7	10	BDL
Dichlorodifluoromethane	75-71-8	10	BDL
1,1-Dichloroethane	75-34-3	10	BDL

COMPANY NAME: Turner Env Consultants
COMPANY PROJECT NUMBER: #00594

HYDROLOGIC PROJECT NUMBER: FL94-3097
HYDROLOGIC SAMPLE NUMBER: ~~3097~~
SAMPLE IDENTIFICATION: TMW1
DATE SAMPLED: 3/15/94

METHOD EPA 502.2/MTBE/IPE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichloroethane	107-06-2	10	BDL
1,1-Dichloroethene	75-35-4	10	BDL
cis-1,2-Dichloroethene	156-59-4	10	BDL
trans-1,2-Dichloroethene	156-60-5	10	BDL
1,2-Dichloropropane	78-87-5	10	BDL
1,3-Dichloropropane	142-28-9	10	BDL
2,2-Dichloropropane	590-20-7	10	BDL
1,1-Dichloropropene	563-58-6	10	BDL
cis-1,3-Dichloropropene	10061-01-5	10	BDL
trans-1,3-Dichloropropene	10061-02-6	10	BDL
Ethylbenzene	100-41-4	10	BDL
Hexachlorobutadiene	87-68-3	10	BDL
Isopropylbenzene	98-82-8	10	BDL
p-Isopropyltoluene	99-87-6	10	BDL
Methylene Chloride	75-09-2	10	BDL
Naphthalene	91-20-3	10	BDL
n-Propylbenzene	103-65-1	10	BDL
Styrene	100-42-5	10	BDL
1,1,1,2-Tetrachloroethane	630-20-6	10	BDL
1,1,2,2-Tetrachloroethane	79-34-5	10	BDL
Tetrachloroethene	127-18-4	10	BDL
Toluene	**108-88-3**	**10**	**110**
1,2,3-Trichlorobenzene	87-61-6	10	BDL
1,2,4-Trichlorobenzene	120-82-1	10	BDL

2 continued

COMPANY NAME: Turner Env Consultants
COMPANY PROJECT NUMBER: #00594

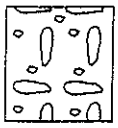
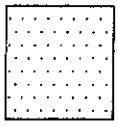
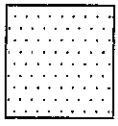
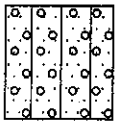
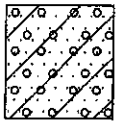
HYDROLOGIC PROJECT NUMBER: FL94-3097
HYDROLOGIC SAMPLE NUMBER: 3097
SAMPLE IDENTIFICATION: TMW1
DATE SAMPLED: 3/15/94

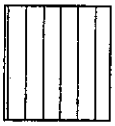
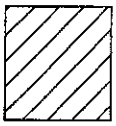
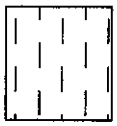
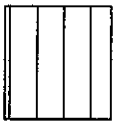
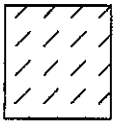
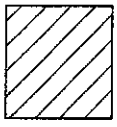
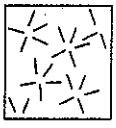
METHOD EPA 502.2/MTBE/IPE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichloroethane	107-06-2	10	BDL
1,1-Dichloroethene	75-35-4	10	BDL
cis-1,2-Dichloroethene	156-59-4	10	BDL
trans-1,2-Dichloroethene	156-60-5	10	BDL
1,2-Dichloropropane	78-87-5	10	BDL
1,3-Dichloropropane	142-28-9	10	BDL
2,2-Dichloropropane	590-20-7	10	BDL
1,1-Dichloropropene	563-58-6	10	BDL
cis-1,3-Dichloropropene	10061-01-5	10	BDL
trans-1,3-Dichloropropene	10061-02-6	10	BDL
Ethylbenzene	100-41-4	10	BDL
Hexachlorobutadiene	87-68-3	10	BDL
Isopropylbenzene	98-82-8	10	BDL
p-Isopropyltoluene	99-87-6	10	BDL
Methylene Chloride	75-09-2	10	BDL
Naphthalene	91-20-3	10	BDL
n-Propylbenzene	103-65-1	10	BDL
Styrene	100-42-5	10	BDL
1,1,1,2-Tetrachloroethane	630-20-6	10	BDL
1,1,2,2-Tetrachloroethane	79-34-5	10	BDL
Tetrachloroethene	127-18-4	10	BDL
Toluene	**108-88-3**	**10**	**110**
1,2,3-Trichlorobenzene	87-61-6	10	BDL
1,2,4-Trichlorobenzene	120-82-1	10	BDL

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

LEGEND FOR SOIL BORING LOGS AND WELL COMPLETION DIAGRAMS

GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTION
	GW	Well-graded gravels, gravel-sand mixtures.
	GP	Poorly-graded gravels, gravel-sand mixtures.
	GM	Silty gravels, gravel-silt-sand mixtures.
	GC	Clayey gravels, gravel-sand-clay mixtures.
	SW	Well-graded sands, gravelly sands.
	SP	Poorly-graded sands, gravelly-sands.
	SM	Silty sands, sand-silt mixtures.
	SC	Clayey sands, sand-clay mixtures.

GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTION
	ML	Inorganic silts and very fine sands, silty or clayey fine sands.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty or lean clays.
	OL	Organic silts and clays.
	MH	Micaceous or silty soils.
	CH	Inorganic clays of high plasticity.
	OH	Organic clays, organic silts with medium to high plasticity.
		Saprolite with the soil characteristics of a sand, gravel, silt, or clay.
		Bedrock

WELL COMPLETION SYMBOLS

- PORTLAND CEMENT
- BENTONITE
- WELL SAND

Classification symbol and name are based upon the visual-manual procedures described in ASTM Test Method D 2488.

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MED. DENSE
31-50	DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

COMPONENT	%
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

BORING LOG

Contractor: TerraQuest	Date Started: 4/6/04	Boring Number: B1
Equipment: Geoprobe	Date Finished: 4/6/04	
Driller: Nick Perry	Logged by: Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					Silt (ML) soft, yellowish orange/light brown, mostly silt, few clay, mica, dry
	NA	-			
			5		
	NA	-			
	NA	0			
	NA	-			Sand Lens (SC) loose, white/tan, mostly fine to coarse grained sand, few silt, dry.
			10		Silt (ML) soft, yellowish orange/light brown, mostly silt, little clay (molds but smears not rolls), manganese oxide lenses throughout, moisture at 9' BGL.
	NA	-			Boring Terminated 15' BGL
	NA	180	15		
			20		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

BORING LOG/MONITORING WELL INSTALLATION DETAIL

TERRAquest Environmental Consultants, P.L.L.C.

Contractor: TerraQuest | Date Started: 4/6/04 | Boring Number: **B2/MW2**

Drill Method: Direct Push/Hollow Stem Auger | Date Finished: 4/6/04

Driller: Nick Perry | Logged by: Jonathan Grubbs

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
						Concrete
	NA		-			Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.
				5		
	NA		-			
	NA		20			
	NA		-			
				10		
	NA		-			
	NA		20			
				15		
				20		Sandy Silt (ML) medium stiff, tan/white/grey, mostly silt, little fine to medium-grained sand, trace clay, wet
						Boring Terminated @ 20' BGL.

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets;
Manhole: flush 8" diameter steel;
NA - Not Applicable; BGL - Below Ground Level;

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 | **Page** 1

BORING LOG

Contractor: TerraQuest	Date Started: 4/6/04	Boring Number: B3
Equipment: Geoprobe	Date Finished: 4/6/04	
Driller: Nick Perry	Logged by: Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
					Silt (ML) soft, yellowish orange/light brown, mostly silt, few clay, mica, trace fine-grained sand, dry, manganese oxide lenses.
	NA	-			
			5		
	NA	-			
	NA	20			Sandy Silt (ML) soft/medium stiff, tan/light brown/yellowish orange, mostly silt, some to little fine to coarse-grained sand, mica, moisture at 10 feet BGL.
	NA	-			9.5' to 10' BGL - Sand Lens (SC) loose, white/tan, mostly fine to coarse-grained sand, few silt
			10		
	NA	-			Boring Terminated @ 20' BGL.
	NA	20			
			15		
			20		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

BORING LOG/MONITORING WELL INSTALLATION DETAIL

TERRAquest
Environmental Consultants, PA

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:**
Drill Method: Direct Push/Hollow Stem Auger	**Date Finished:** 4/6/04	**B4/MW3**
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
						Asphalt
	NA		-			Clayey Sand (SC) loose, olive grey, mostly medium-grained sand, little clay, dry.
	NA		-			
	NA		20	5		Lean Clay (CL) stiff to very stiff, yellowish orange, mostly clay, little to trace mica and fine-grained sand, dry
	NA		-			
	NA		-	10		Silt to Sandy Silt (ML) soft, yellowish orange/light brown/olive grey, mostly silt, little fine-grained sand, mica, manganese oxide lenses, increase in fine to medium-grained sand at 15' BGL, moisture at 10' BGL. Boring Terminated @ 20' BGL.
	NA		-	15		
	NA		20			
	NA		-	20		

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets;
Manhole: flush 8" diameter steel;
NA - Not Applicable; BGL - Below Ground Level;

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

BORING LOG

Contractor: TerraQuest	Date Started: 4/6/04	Boring Number: B5
Equipment: Geoprobe	Date Finished: 4/6/04	
Driller: Nick Perry	Logged by: Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
	NA	-			Lean Clay (CL) stiff to very stiff, yellowish orange, mostly clay, little to trace mica and fine-grained sand, dry
	NA	20			
	NA	-	5		
	NA	-			
					Silt to Sandy Silt (ML) soft, yellowish orange/light brown/olive grey, mostly silt, little medium to coarse-grained sand, mica, manganese oxide lenses, moisture at 10' BGL.
			10		
	NA	-			Boring Terminated @ 15' BGL.
			15		
			20		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

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BORING LOG

Contractor: TerraQuest	Date Started: 4/6/04	Boring Number: B6
Equipment: Geoprobe	Date Finished: 4/6/04	
Driller: Nick Perry	Logged by: Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
	NA	-			Sandy Lean Clay (CL) medium stiff olive grey/tan 0.5'-6.5' BGL, soft olive grey 6.5'-8.0' BGL, medium stiff 8'-15' BGL, light brown 8.0'-12' BGL, yellowish orange 12'-15' BGL, mostly clay, little mica and fine-grained sand, moisture beginning at 7' BGL.
	NA	-	5		
	NA	280			
	NA	-	10		
	NA	-	15		Sandy Silt (ML) soft, yellowish orange/tan/grey, mostly silt, little fine-grained sand, mica, few clay, moist Boring Terminated @ 18' BGL.
			20		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

BORING LOG

Contractor: TerraQuest	Date Started: 4/6/04	Boring Number: B7
Equipment: Geoprobe	Date Finished: 4/6/04	
Driller: Nick Perry	Logged by: Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
	NA	-			Lean Clay (CL) soft to medium stiff, yellowish orange/light brown, mostly clay, few mica and fine-grained sand, dry. 8' to 15' BGL 9'-13' BGL black grey, 8'-9' BGL mild weathered petroleum odor, 13'-15' BGL yellowish orange; increase in fine-grained sand content to little, moist at 8' tp 10' BGL.
	NA	-			
	NA	280	5		
	NA	-			
	NA	-	10		
	NA	-	15		Sandy Silt (ML) soft, yellowish orange/tan/grey, mostly silt, little fine-grained sand, mica, few clay, moist Boring Terminated @ 18' BGL.
			20		

Scale as shown: Hatch pattern denotes soil sample depth; Solid denotes lab sample depth; Lithology hatch pattern legend is attached; NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

RECEIVED
N.C. Dept. of ENR
MAY 2 4 2005
Winston-Salem
Regional Office

LIMITED SITE ASSESSMENT REPORT
(PHASE I & II)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NORTH CAROLINA

Latitude: 36° 05' 9.08" N Longitude: 80° 06' 5.86" W

Release Information

Date Discovered: October 24, 2003
Estimated Release Quantity: Unknown
Release Cause/Source: Underground Storage Tank System
UST Capacity: one 12,000-gallon and two 8,000-gallon gasoline USTs
NCDWM-UST Facility ID No. 0-034372
NCDWM-UST Incident No. 30284

UST System Owner/Responsible Party:
Quality Oil Company, LLC
P.O. Box 2736
Winston-Salem, NC 27102

Property Owner:
Donald A. & Maxine D. Joyce
1022 Sedge Garden Road
Kernersville, NC 27284

TerraQuest Project No. 02500

May 23, 2005

209 E. Main Street • Carrboro, North Carolina 27510
Telephone (919) 932-1590 • Facsimile (919) 932-1594
www.terraquestpc.com

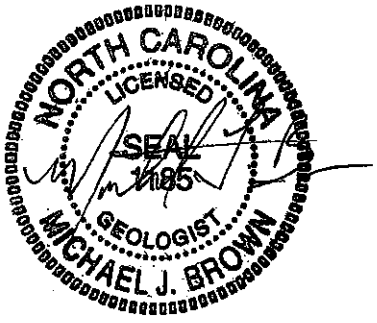
CERTIFICATION FOR THE SUBMITTAL OF AN ENVIRONMENTAL / GEOLOGICAL ASSESSMENT

Attached is the Limited Site Assessment Report (Phase I & II) for:

Site Name:	Quality Mart No. 33		
Address:	1400 Union Cross Road		
City:	Kernersville	State: NC	Zip Code: 27284
Responsible Party:	Quality Oil Company, LLC		
Address:	Post Office Box 2736		
City:	Winston-Salem	State: NC	Zip Code: 27102
Phone:	(336) 722-3441		

I, Michael J. Brown, a Licensed Geologist in the State of North Carolina for TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C. do hereby certify that I am familiar with and have reviewed all material including figures within this report and that to the best of my knowledge the data, site assessments, figures, and other associated materials are correct and accurate. All work was performed under my direct supervision. My seal and signature are affixed below. Additional seals and/or signatures are also affixed below.

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.



Ryan D. Kerins
Project Manager

Michael J. Brown, P.G.
President

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APPENDICES

1.0 INTRODUCTION

On behalf of the responsible party, Quality Oil Company, LLC, TerraQuest Environmental Consultants, P.C. (TerraQuest) has performed limited site assessment activities at the Quality Mart No. 33 (QM No. 33) facility located in Forsyth County, Kernersville, North Carolina. The North Carolina Division of Waste Management–Underground Storage Tank Section's Winston-Salem Regional Office (NCDWM-UST) requested that a limited site assessment (LSA) be performed in a Notice of Regulatory Requirements (NORR) dated December 4, 2003. This report has been prepared to comply with the NORR and those requirements set forth under Title 15A of the North Carolina Administrative Code (NCAC) Subchapter 2L Section .0115(c)(4) which include those the requirements established in 15A NCAC 2N.

The site location is shown in Figure 1. The surrounding vicinity is shown in Figure 2. A site layout map is included as Figure 3.

2.0 SITE HISTORY

The NCDWM-UST Petroleum UST Database lists the UST's installation dates as July 27, 1994. Prior to Quality's installation of the current UST system, the property previously had two 3,000-gallon gasoline USTs located adjacent to Union Cross Road. The USTs are believed to have been installed in 1952. According to the current property owner, Donald Joyce, the USTs were abandoned in 1978 and removed by Mr. Joyce in 1988. Prior to the installation of the current UST system, Quality had a baseline environmental assessment completed of the property in March 1994 to investigate the possibility of the 3,000-gallon USTs impacting the soil and groundwater quality at the site. Results of the soil and groundwater samples collected in the former UST basin and dispenser island during the assessment revealed the presence of petroleum contaminants in both media. The release incident was subsequently transferred over to the NCDWM-UST State Lead Cleanup List on August 26, 1994. In September 2003, the NCDWM-UST contracted Geological

Resources, Inc. of Charlotte, NC to complete a Phase I LSA of the release incident associated with the 3,000-gallon gasoline USTs. A Phase I LSA was completed by Geological Resources in October and November of 2003 and was received by the NCDWM-UST on December 2, 2003. Results of the report revealed the presence of methyl tertiary-butyl ether (MtBE) in the monitoring well installed during the Phase I LSA (MW1). Groundwater analytical results of the groundwater sample collected from a temporary monitoring well during the 1994 baseline assessment did not have detected concentrations of MtBE greater than the sample detection limit. Based upon the absence of MtBE in the 1994 sample and its presence in the 2003 Phase I LSA groundwater sample, the NCDWM-UST surmised that the MtBE must have originated from the current USTs system installed in 1994.

An NORR was issued by the NCDWM-UST on December 4, 2003 requesting a tank and line tightness test and a site check assessment. On December 22, 2003, TerraQuest sent a copy of the tank and product line tightness tests performed by the UST system's Veeder-Root apparatus to the NCDWM-UST. The NCDWM-UST responded to the December 22, 2003 letter with a February 10, 2004 NORR letter requesting a site check. TerraQuest personnel spoke with Karen Hall about the February 10, 2004 letter explaining that the tank and line tests performed did not indicate a release therefore a site check did not need to be performed. Ms. Hall indicated that a site check would be required and the tank testing result would not be accepted unless the tests were performed by an independent tank tightness testing company. Precision Tank Service, Inc. (Precision) was contracted by Quality to conduct the tightness test. The tank tightness test performed on February 26, 2004 by Precision indicated that each of the USTs passed the tests.

As stated by Quality in the correspondence included as Appendix A: "during a routine inspection in the summer of 2003, we (Quality) discovered a leak where the electronic leak detector screws into the pump head. We repaired the leak and tested the system. The system checked tight."

The product type, capacity, date installed, date closed, and release detection information for the two UST systems and a 550-gallon kerosene aboveground storage tank (AST) are listed in Table 1. The UST system layout is depicted in Figure 2.

3.0 RISK CHARACTERIZATION AND RECEPTOR INFORMATION

In order to determine the risk classification of the site, TerraQuest personnel performed a reconnaissance of properties within a 1,500-foot radius of the source area. The reconnaissance effort consisted of obtaining tax department and local zoning information on properties and conducting door-to-door visits of certain properties within 1,500 feet of the source area, in addition to collecting other pertinent information from the appropriate local and state officials.

With regards to the door-to-door inspection process, TerraQuest personnel inspected all properties within 1,500 feet of the site and attempted to contact all of the property owners within 500 feet in person. Property owners were questioned, if available, as to the source of their water and if any water supply wells were located on their property. Field sheets with the results of these discussions are included in Appendix B. If owners/occupants were not home, a survey form was left at their residence or forwarded to the property owners through the mail. In all cases, TerraQuest also conducted a visual survey of the property. A less detailed reconnaissance effort was conducted for properties located 500 to 1,500 feet away from the site. Surrounding property owners/occupants are detailed on Table 2.

Through the reconnaissance efforts, a total of twenty-four (24) potable wells were identified within 1,500-feet of the release area at QM No. 33. Note that according to the appropriate property owners, five (5) of the twenty-four (24) wells have been abandoned. Of the remaining nineteen (19) wells, two are active sole-source potable wells and are within 1,000-feet of the release area. There is also one inactive water supply well within 250 feet of the release area that has not been properly abandoned. The municipal water supply

system is available to all properties in the vicinity of the site. Information concerning wells in the vicinity of the site is provided in Table 3.

As part of the reconnaissance effort, TerraQuest also searched for any surface water bodies within a 500-foot radius of the site. No surface water bodies were identified within 500 feet of the site. The site vicinity is depicted on Figures 1 and 2.

Land usage in the surrounding vicinity is chiefly residential with some commercial properties. Properties in the vicinity of the site are zoned R-9 and R-10, residential, LB, limited business, and NSBS, neighborhood shopping center business special. Zoning boundaries are shown on Figure 2. The names and addresses of owners of properties immediately surrounding the site are listed in Table 2.

Underground utilities identified at the site consist of electric, secondary electric (for signs, lights, etc.), water, and sewer. It is unknown at this time if utilities are acting as migratory pathways for contamination.

This site should be ranked a High Risk with a Residential land-use classification according to the NCDWM-UST's April 2001 publication, *Guidelines for Assessment and Corrective Action* (Guidelines, 2001). This ranking stems from the presence of active sole-source water supply wells within 1,000 feet of the release area, the presence of an inactive yet un-abandoned water supply well within 250 feet of the release area, and the presence of residential properties in close proximity to the site. To help in the risk classification of this site, a completed Limited Site Assessment Risk Classification and Land Use Form has been included as Appendix C.

4.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the Geologic Map of North Carolina, the site lies in the northeast portion of the Charlotte Belt of the Inner Piedmont Physiographic Province. The Charlotte Belt is primarily composed of granitic bedrock (Brown, et al., 1985).

The following lithologies were encountered at the site during the advancement of soil borings and during the installation of the monitoring well network:

0' – ~9.0' below ground level (BGL):

SILT (ML)

Soft, yellowish orange/light brown, mostly silt, few clay, mica present, dry.

and

LEAN CLAY (CL)

Soft to medium stiff, yellowish orange, mostly clay, little to few fine-grained sand, dry.

~9.0' – 45' BGL

SANDY SILT (ML)

Soft to medium stiff (increasing consolidation with depth), yellowish-orange/tan/white/grey, mostly silt, some fine-grained sand, little clay, moisture present.

Site topography is depicted in Figure 1. The locations of monitoring wells MW1 through MW8 are depicted in Figure 3 and the locations of soil borings B1 through B27 are depicted in Figure 4. Soil boring logs and the applicable well construction records for monitoring wells MW4 through MW8 and soil borings B1 through B27 are contained in Appendix D. Technical methods and standard procedures utilized by TerraQuest during the assessment for monitoring well installation and soil boring advancement are included in Appendix E.

Depth- to-groundwater measurements were collected from the monitoring wells to identify the depth of phreatic groundwater and to estimate the direction of groundwater flow on April 14, 2005. Groundwater elevation measurements were reduced to a common datum by surveying the relative elevation of the top of the casing for each monitoring well. The water table elevation data was then used to create a potentiometric surface map which illustrates the interpreted direction and gradient of groundwater flow (Figure 5). The map indicates that groundwater is flowing to the east. Table 4 displays monitoring well construction information and also the groundwater elevation data as measured on April 14, 2005. The potentiometric surface as measured on April 7, 2004 has been included as Figure 6 for reference.

5.0 FIELD AND LABORATORY ANALYSIS

As documented in the previously submitted Site Check and Initial Abatement Report on file with the NCDWM-UST, seven (7) soil samples and three (3) groundwater samples were collected as part of site check activities. The analytical results from these soil and groundwater samples documented a release from the current T1 (12,000-gallon gasoline) and T2 and T3 (8,000-gallon gasoline) UST system. In an NORR dated March 8, 2005, the NCDWM-UST stated that they had reviewed the Site Check Report and that soil samples must be taken along the UST system, the point of the release along the UST system must be determined and the release must be stopped to complete the report.

On April 6 and 7, 2005, TerraQuest personnel advanced borings and collected soil samples at the B8 through B27 locations depicted on Figure 4. These soil samples were collected to satisfy the NCDWM-UST's request for additional site check activities. As part of LSA activities, TerraQuest personnel supervised the installation of an upgradient (MW6), two downgradient (MW4 and MW7), and one vertical (MW8) groundwater contaminant investigation wells. Monitoring well locations were based upon April 7, 2004 potentiometric surface data. An additional Type II groundwater monitoring well, MW5, was installed in the interpreted upgradient direction (based on the April 7, 2004 potentiometric surface) in

relation to the former 3,000-gallon gasoline USTs. Monitoring well MW5 was installed as part of additional site check activities.

The following sections detail the additional site check and LSA activities. Note that technical methods and standard procedures utilized by TerraQuest personnel for these activities are detailed in Appendix E.

5.1 Soil Sampling

As part of soil investigation activities (in addition to those detailed in the previously submitted Site Check and Initial Abatement Report) TerraQuest personnel collected soil samples from soil borings B8 through B27 on April 5 and 6, 2005. These soil borings were advanced by TerraQuest personnel using either a Geoprobe Model 6610DT drilling apparatus or a hand auger. The borings were advanced around the current UST system, the former UST system, along the product lines, and around the dispenser islands. Soil borings advanced to investigate a product line release were advanced in close proximity to the lines to the depth of native soil below the lines. The soil borings advanced around the current UST system and in the former UST basin were advanced to the water table. For all soil borings TerraQuest personnel logged the soil lithology and screened various intervals of the boring for petroleum-type vapors using olfactory senses and an organic vapor meter (OVM). TerraQuest chose the soil sample interval based upon depth or which interval was most likely to contain contamination based upon field screening for laboratory analysis. If no contamination was suspected at any interval of a soil boring, TerraQuest personnel chose the shallowest interval below the product lines or dispensers, or the shallowest interval beneath the USTs (current and former) for laboratory analysis. The chosen soil samples were placed into the appropriate laboratory-prepared containers and packed on ice pending transport to a North Carolina-certified laboratory. The soil samples were submitted for analysis per EPA Method 8260+MtBE+IPE and per the Massachusetts Department of Environmental Protection's (MADEP) method for Volatile Petroleum Hydrocarbons (VPH).

The analytical results of soil samples B8 through B27 revealed the presence of soil contamination in excess of the Soil-to-Groundwater Maximum Soil Contaminant Concentrations (STG MSCCs) in B10, B17, B24, and B25. (Since this site should be ranked a High Risk, the STG MSCCs are applicable.) Note that the depth of collection of soil samples B1 and B3 are indicative of groundwater contamination and not true soil contamination; therefore, these samples were omitted when considering the amount of STG MSCC violation. Soil sample B10 had reported STG MSCC violations for benzene, ethylbenzene, xylenes, isopropylbenzene, naphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and the C5 through C8 aliphatic and C9 through C10 aromatic carbon fraction classes. Soil sample B17 had reported STG MSCC violations for benzene, ethylbenzene, and naphthalene. Soil samples B24 and B25 had lone STG MSCC violations of the C9 through C10 aromatic carbon fraction classes. Petroleum-type compounds were detected in the B11 through B16, B21, B22, B23, B26, and B27 soil samples, however, the concentrations were below the respective STG MSCCs for each respective compound. No petroleum-type compounds were reported at concentrations in excess of the laboratory's sample-specific method detection limit for the B18, B19, and B20 soil samples. The analytical results of soil samples B8 through B27 are summarized on Table 5 along with the analytical results of soil samples B1 through B8 (previously reported in the Site Check and Initial Abatement Report). The estimated extent of STG MSCC violation is displayed on Figure 4. The full analytical report is contained in Appendix F.

Note that the analytical results of a soil sample collected during the installation of monitoring well MW2, the source area well for this LSA, were previously documented in the Site Check and Initial Abatement Report. The analytical results of soil sample B2 revealed the presence of 0.02 mg/kg of MtBE. No other petroleum-type compounds were reported at concentrations in excess of the laboratory's method detection limit.

5.2 Groundwater Sampling

To investigate groundwater quality as part of additional site check activities, TerraQuest personnel supervised the installation of groundwater monitoring well MW5 on April 6, 2005. Additionally, TerraQuest personnel supervised the installation of three Type II groundwater monitoring wells, MW4, MW6, and MW7 (April 6, 2005) and one Type III groundwater monitoring well, MW8, (April 7 through 8, 2005) as part of LSA activities. The Type II groundwater monitoring wells were installed using a Geoprobe Model 6610DT drilling apparatus operated by a North Carolina-licensed driller. The Type III groundwater monitoring well, MW8, was installed using a Mobile Canterra 3500 drill rig operated by a North Carolina-licensed driller of Ransier Environmental Drilling, Inc. out of Pinehurst, North Carolina. Following final construction of the monitoring wells, TerraQuest personnel used a decontaminated portable groundwater pump to develop the wells. The pump was run until relatively clear water free of sediment that might clog the screen was observed.

On April 14, 2005, TerraQuest personnel purged a minimum of three well volumes of water from each of the monitoring wells using new disposable bailers. These same bailers were used to retrieve a representative groundwater sample from each well and place it into the appropriate laboratory-prepared containers. The containers were then packed on ice pending transit to a North Carolina-certified laboratory for analysis per EPA Methods 6210D+MtBE+IPE, 504.1 for ethylene di-bromide (EDB), 6010B for lead by a 3030C digestion method, and per MADEP VPH. Note that monitoring wells MW1, MW2, and MW3 had previously been analyzed for lead and EDB, therefore, these analyses were omitted.

Since this site should receive a High Risk ranking, the applicable groundwater standards are those defined under Title 15A NCAC Subchapter 2L Section 0.020(g) (2L Standards). 2L Standard violations were reported for the MW1, MW2, MW3, and MW5 samples collected on April 14, 2005. Acetone, at a concentration of 26.0 µg/L, was the sole compound reported for the MW4 sample. No petroleum-type compounds were reported at

concentrations in excess of the laboratory's sample-specific method detection limit for the samples collected from monitoring wells MW6, MW7, and MW8.

The analytical results of the groundwater sample collected from monitoring wells MW1 through MW8 on April 14, 2005 revealed the presence of petroleum-type compounds in excess of the applicable 2L Standards. The groundwater analytical results from the site are summarized in Table 6. The estimated extent of 2L Standard violation based on the April 14, 2005 analytical results is depicted on Figure 7. The full analytical report is included in Appendix F.

6.0 FREE PRODUCT INVESTIGATION

To date, TerraQuest personnel have not detected free product in any of the monitoring wells or soil borings at the QM No. 33 facility.

7.0 CONCLUSIONS AND RECOMMENDATIONS

TerraQuest performed various activities associated with the completion of a Phase I and II LSA. Primary assessment efforts focused on determining potential receptors in the area as well as trying to assess the amount of groundwater contamination on-site; both critical steps in determining the risk ranking of the site.

Due to the presence of active sole-source potable wells within 1,000 feet of the release area and the presence of residential properties in vicinity of the site, the site should receive a High Risk ranking with a Residential land-use classification. Both the risk ranking and land-use classification were determined based on NCDWM-UST Guidelines.

The results of LSA activities performed by TerraQuest revealed the presence of soil contamination in excess of the STG MSCCs. Groundwater contamination was also reported at concentrations in excess of the 2L Standards.

The next course of action for this site should be the completion of a Comprehensive Site Assessment (CSA). The CSA will focus on determining the full extent of soil and groundwater contamination.

Prior to initiating activities necessary for the completion of a CSA, the NCDWM-UST must pre-approve costs associated with such activities. Under the current ranking system, High Risk sites must rank 750 points or higher for the NCDWM-UST to grant pre-approval of activities past the LSA phase. Using the UST/200 (revised 9/04) release ranking form, TerraQuest has calculated a preliminary ranking of 190D for the QM No. 33 facility. The final and determinant ranking will be performed by the NCDWM-UST upon review of this report.

8.0 LIMITATIONS

This report is limited to the investigation of petroleum hydrocarbons, such as gasoline, and does not imply that other unforeseen adverse impacts to the environment are not present at the Quality Mart No. 33 facility located in Forsyth County, Kernersville, North Carolina. In addition, subsurface heterogeneities not identified during the current study may influence the migration of groundwater or contaminants in unpredicted ways. The limited amount of sampling and testing conducted during this study cannot practically reveal all subsurface heterogeneities. Furthermore, subsurface conditions, particularly groundwater flow, elevations, and water quality may vary through time. The opinions and conclusions arrived at in this report are in accordance with North Carolina Department of Environment and Natural Resources regulations and guidelines and industry-accepted geologic and hydrogeologic practices at this time and location. No warranty is implied or intended.

REFERENCES

Brown, et al., 1985, Geologic Map of North Carolina, North Carolina Department of Natural Resources and Community Development, 1:500,000 scale.

Guidelines for Assessment and Corrective Action, State of North Carolina Department of Environment and Natural Resources Division of Waste Management UST Section; April 2001.

Table 1 SITE HISTORY (UST & AST SYSTEM INFORMATION)

Date: 5/23/05 Incident Name: Quality Mart No. 33 Incident No. 30284 Facility ID No.: 0-034372

UST	Product	Capacity (gallons)	Date Installed	Date Closed	Release Discovered?
1A	Gasoline	3,000	1952	Closed - 1978	Yes
1B	Gasoline	3,000	1952	Closed - 1978	Yes
1	Gasoline	8,000	7/27/1994	In Use	Yes
2	Gasoline	8,000	7/27/1994	In Use	Yes
3	Gasoline	12,000	7/27/1994	In Use	Yes
AST	Product	Capacity (gallons)	Date Installed	Date Closed	Release Discovered?
1	Kerosene	550	7/27/1994	In Use	No

Notes:

1. Information obtained from Donald Joyce and the NC Petroleum UST Database.
2. Refer to Figure 3 for the estimated former locations of 1A and 1B and the current locations of USTs 1, 2, and 3 and AST 1.

Table 2
Date: 5/23/05

SURROUNDING PROPERTY OWNERS/OCCUPANTS
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No. 0-034372

Tax Parcel Number	Property Owner	Property Owner Address	Property Address
SITE → 6875-41-4997	Donald A. and Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	1400 Union Cross Road Kernersville, NC 27284-7513
6875-41-4814	Donald A. and Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	1404 Union Cross Road Kernersville, NC 27284-7513
6875-41-2985	Donald A. and Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	Sedge Garden Road Kernersville, NC 27284-7513
no PIN number assigned (Blocklot No. 5646 020A)	BI-LO LLC	208 Bi Lo Blvd. Greenville, SC 29607	1021 Sedge Garden Road Kernersville, NC 27284
no PIN number assigned (vacant land) (Blocklot No. 5646 021A)	BI-LO LLC	208 Bi Lo Blvd. Greenville, SC 29607	1031 Sedge Garden Road Kernersville, NC 27284
6875-42-8088	Kyle H. and Frances Harris	127 Blue Bell Road Greensboro, NC 27406-5301	1399 Union Cross Road Kernersville, NC 27284
6875-41-7962	Gary D. and Juadane Smith	1510 Pecan Lane Kernersville, NC 27284	1401 Union Cross Road Kernersville, NC 27284
6875-41-7707	Gary D. and Juadane Smith	1510 Pecan Lane Kernersville, NC 27284	1405 Union Cross Road Kernersville, NC 27284

Notes:
1. Information gathered from Forsyth County Geo-Data Explorer.
2. Tax parcel numbers correspond with those displayed on Figure 2.

Table 3
Date: 5/23/05

WATER SUPPLY WELL INFORMATION
Incident Name: Quality Mart No. 33 Incident No. 30284
Facility ID No. 0-034372

Well ID No.	Well Owner/Address	Well Address	Phone No.	Well Use	Well Depth (feet BGS)	Type of Well	Casing Depth (feet BGS)	Screen Interval (feet BGS)	Distance from Source Area / Release (feet)
1	Donald A. and Maxine D. Joyce 1022 Sedge Garden Road Kernersville, NC 27284-7513	1400 Union Cross Road Kernersville, NC 27284	unknown	abandoned supply well	unknown	unknown	unknown	unknown	<100
2	Donald A. and Maxine D. Joyce 1022 Sedge Garden Road Kernersville, NC 27284-7513	1404 Union Cross Road Kernersville, NC 27284	unknown	inactive (disconnected - not abandoned)	unknown	unknown	unknown	unknown	200
3	Rodney and Misty Godwin 1409 Union Cross Road Kernersville, NC 27284	1409 Union Cross Road Kernersville, NC 27284	unknown	ACTIVE supply well	unknown	unknown	unknown	unknown	365
4	Gary D. and Juedane Smith 1510 Pecan Lane Kernersville, NC 27284	1401 Union Cross Road Kernersville, NC 27284	unknown	inactive	unknown	unknown	unknown	unknown	320
5	Donald A. and Maxine D. Joyce 1022 Sedge Garden Road Kernersville, NC 27284-7513	1022 Sedge Garden Road Kernersville, NC 27284-7513	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	300
6	Leo O. Whicker 841 Silver Dapple Lane Kernersville, NC 27284-9545	1018 Sedge Garden Road Kernersville, NC 27284	unknown	inactive supply well	unknown	unknown	unknown	unknown	420
7	BI-LO LLC 208 BI LO Blvd. Greenville, SC 29607	1021 Sedge Garden Road Kernersville, NC 27284	unknown	abandoned supply well	unknown	unknown	unknown	unknown	375
8	Annie M. Wall 1108 Old Salem Road Kernersville, NC 27284	1108 Old Salem Road Kernersville, NC 27284	unknown	ACTIVE supply well	unknown	unknown	unknown	unknown	490
9	Ronald F. and Inez L Day 520 West Mountain Street Kernersvill, NC 27284-0	1017 Sedge Garden Road Kernersville, NC 27284	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	450
10	Myrtle Ballard 1013 Sedge Garden Road Kernersville, NC 27284-7514	1013 Sedge Garden Road Kernersville, NC 27284-7514	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	545
11	Floyd H. Goode 1011 Sedge Garden Road Kernersville, NC 27284-7514	1011 Sedge Garden Road Kernersville, NC 27284-7514	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	730
12	Russell F. Brendle 1007 Sedge Garden Road Kernersville, NC 27284-7514	1007 Sedge Garden Road Kernersville, NC 27284-7514	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	825
13	David J. Smith 1415 Lambs Lane Kernersville, NC 27284-0	1415 Lambs Lane Kernersville, NC 27284-0	unknown	abandoned supply well	unknown	unknown	unknown	unknown	730
14	Floyd E. and Martha Mabe 1119 Old Salem Road Kernersville, NC 27284-0	1119 Old Salem Road Kernersville, NC 27284-0	unknown	abandoned supply well	unknown	unknown	unknown	unknown	900
15	James E. Messick, III 1117 Old Salem Road Kernersville, NC 27284-9465	1117 Old Salem Road Kernersville, NC 27284-9465	unknown	abandoned supply well	unknown	unknown	unknown	unknown	800
16	Prefecto and Josefino Ruiz 1389 Union Cross Road Kernersville, NC 27284-0	1389 Union Cross Road Kernersville, NC 27284-0	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	730
17	Nannie L. Beeson, V 1385 Union Cross Road Kernersville, NC 27284-7531	1385 Union Cross Road Kernersville, NC 27284-7531	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	860
18	Robert G. Hemrick 1384 Union Cross Road Kernersville, NC 27284-7532	1384 Union Cross Road Kernersville, NC 27284-7532	unknown	inactive supply well	unknown	unknown	unknown	unknown	850
19	Charles Matlock, V 205 Greenlawn Drive Kernersville, NC 27284-9498	205 Greenlawn Drive Kernersville, NC 27284-9498	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,020
20	V. L. Ross 1380 Union Cross Road Kernersville, NC 27284-7532	1380 Union Cross Road Kernersville, NC 27284-7532	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,130
21	Phoebe L. Vogler 1378 Union Cross Road Kernersville, NC 27284-7532	1378 Union Cross Road Kernersville, NC 27284-7532	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,280
22	Joseph B. and Tammy W. Fletcher 1381 Union Cross Road Kernersville, NC 27284-0	1381 Union Cross Road Kernersville, NC 27284-0	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,045
23	Elizabeth W. Allen 1379 Union Cross Road Kernersville, NC 27284-7531	1379 Union Cross Road Kernersville, NC 27284-7531	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,220
24	Royce E. and Carolyn R. Voss 910 Weavil Road Kernersville, NC 27284-0	1377 UNION CROSS RD Kernersville, NC 27284-7531	unknown	inactive supply well	unknown	unknown	unknown	unknown	1,315

Notes:
1. "BGS" = below ground surface.
2. Information obtained from TerraQuest field interviews.
3. Well ID numbers are displayed on Figure 2.
4. Water supply wells (inactive, yet unabandoned within 250 feet of the release area and active sole-source within 1,000 feet of the release area) are shaded.

hooked to city water - yes

No

Son Gary
996-5722
707-6330

Table 4

WELL CONSTRUCTION INFORMATION

Date: 5/23/05

Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No.: 0-034372

Well ID	Date Installed	Date Water Level Measured	Well Casing Depth (feet BGS)	Screened Interval (x to y feet BGS)	Bottom of Well (feet BGS)	Top of Casing Elevation (feet)	Depth to Water from Top of Casing (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Comments
MW1	10/23/2003	4/14/2005	25	10 - 25	25	98.55	9.95	NP	88.60	2"-diameter Type II monitoring well
MW2	4/6/2004	4/14/2005	20	5 - 20	20	99.28	9.80	NP	89.48	2"-diameter Type II monitoring well
MW3	4/6/2004	4/14/2005	20	5 - 20	20	98.70	9.68	NP	89.02	2"-diameter Type II monitoring well
MW4	4/6/2005	4/14/2005	5	5 - 18	18	99.05	9.50	NP	89.55	2"-diameter Type II monitoring well
MW5	4/6/2005	4/14/2005	5	5 - 18	18	98.65	9.89	NP	88.76	2"-diameter Type II monitoring well
MW6	4/6/2005	4/14/2005	5	5 - 18	18	99.78	10.30	NP	89.48	2"-diameter Type II monitoring well
MW7	4/6/2005	4/14/2005	5	5 - 18	18	98.81	10.02	NP	88.79	2"-diameter Type II monitoring well
MW8	4/7-8/05	4/14/2005	OC: 30 IC: 40	40 - 45	45	99.00	9.64	NP	89.36	2"-diameter Type III monitoring well

Notes:

1. All units in feet.
2. "BGS" = below ground surface, "NP" = no free product detected in the well, "OC" = outer casing, "IC" = inner casing.

Table 5

SUMMARY OF SOIL SAMPLING RESULTS

Date: 5/23/05

Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID:

Analytical Method			8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	MADEP-VPH	MADEP-VPH
	Contaminant of Concern																				
Sample ID	Date Collected	Sample Depth (feet below ground level)	Benzene	Toluene	Ethylbenzene	Total Xylenes	n-Butylbenzene	sec-Butylbenzene	Isopropylbenzene	p-Isopropyltoluene	IPE	MtBE	Acetone	2-Butnanone	Naphthalene	n-Propylbenzene	1,2,4 Trimethylbenzene	1,3,5 Trimethylbenzene	C-5-C8 Aliphatics	C9-C12 Aliphatics
B1	4/6/04	7.5-8.5	<0.068	<0.34	<0.068	<0.2	<0.068	<0.068	<0.068	<0.068	<0.068	**0.77**	<1.7	<0.68	<0.34	<0.068	<0.068	<0.068	<6.8	<6.8
B1	4/6/04	14.5-15	<0.079	<0.39	<0.079	<0.24	<0.079	<0.079	<0.079	<0.079	<0.079	**2.9**	<2.0	<0.79	<0.39	<0.079	<0.079	<0.079	<9.8	<9.8
B2	4/6/04	7.5-8.5	<0.0014	<0.0072	<0.0014	<0.0043	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	**0.02**	<0.036	<0.014	<0.0072	<0.0014	<0.0014	<0.0014	<7.2	<7.2
B3	4/6/04	7.5-8.5	**0.0068**	<0.0065	<0.0013	**0.008**	<0.0013	<0.0013	<0.0013	<0.0013	**0.008**	**0.68**	<0.033	<0.013	**0.0098**	<0.0013	**0.0015**	<0.0013	<6.5	<6.5
B3	4/6/04	12.5-13.5	**0.046**	**0.064**	**0.013**	**0.074**	<0.0013	<0.0013	**0.0017**	<0.0013	**0.027**	**1.4**	**0.042**	<0.013	**0.054**	**0.0029**	**0.014**	**0.0064**	<6.6	<6.6
B4	4/6/04	4-5	<0.0011	<0.0056	<0.0011	<0.0034	<0.0011	<0.0011	<0.0011	<0.0011	**0.0013**	**0.016**	**0.065**	<0.011	<0.0056	<0.0011	**0.0014**	<0.0011	<5.6	<5.6
B4	4/6/04	16.5-17.5	**0.0028**	<0.0066	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	**0.027**	**0.34**	<0.033	<0.0066	<0.0013	**0.0018**	<0.0013	<0.0013	<8.2	<8.2
B5	4/6/04	3.5-4.5	<0.0012	<0.006	<0.0012	<0.0036	<0.0012	<0.0012	<0.0012	<0.0012	**0.0027**	**0.022**	**0.12**	**0.015**	<0.006	<0.0012	<0.0012	<0.0012	<6.0	<6.0
B6	4/6/04	6.5-8	<0.0013	<0.0063	**0.0021**	**0.0063**	<0.0013	**0.018**	**0.0015**	**0.0091**	<0.0013	**0.017**	<0.032	<0.013	<0.0063	<0.0013	**0.0068**	**0.0042**	**8.5**	**22.0**
B7	4/6/04	5-6.5	**0.0037**	<0.0067	<0.0013	<0.004	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	**0.046**	<0.013	<0.0067	<0.0013	<0.0013	<0.0013	<6.7	<6.7
B8	4/6/05	3.25-3.5	<0.0013	<0.0064	<0.0013	<0.0038	<0.0013	<0.0013	<0.0013	<0.0013	**0.0018**	**0.020**	**0.26**	<0.013	<0.0064	<0.0013	<0.0013	<0.0013	<6.4	<6.4
B9	4/6/05	4-4.5	<0.0011	<0.0057	<0.0011	<0.0034	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	**0.0012**	**0.081**	<0.011	<0.0057	<0.0011	<0.0011	<0.0011	<5.7	**11.0**
B10	4/6/05	4-4.5	**0.64**	**2.6**	**33.0**	**88.0**	**3.6**	**1.7**	**4.8**	**1.1**	<.0.25	<0.25	<6.3	<2.5	**22.0**	**26.0**	**120**	**44.0**	**100**	**960**
B11	4/6/05	2.5-3.5	<0.0013	<0.0066	<0.0013	<0.0039	<0.0013	<0.0013	<0.0013	**0.021**	<0.0013	0.0052	**0.21**	**0.014**	<0.0066	<0.0013	<0.0013	<0.0013	<6.6	<6.6
B12	4/6/05	4.5-5	<0.0014	<0.0068	<0.0014	<0.0041	<0.0014	<0.0014	<0.0014	<0.0014	**0.0024**	**0.26**	<0.34	<0.014	<0.0068	<0.0014	<0.0014	<0.0014	<6.8	<6.8
B13	4/7/05	7-8	<0.0014	<0.0073	<0.0014	<0.0044	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	**0.090**	<0.036	<0.014	<0.0073	<0.0014	<0.0014	<0.0014	<7.3	<7.3
B14	4/7/05	7-8	<0.0013	<0.0067	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	**0.042**	<0.034	<0.013	<0.0067	<0.0013	<0.0013	<0.0013	<6.7	<6.7
B15	4/7/05	7-8	<0.0014	<0.0070	<0.0014	<0.0042	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	**0.070**	<0.035	<0.014	<0.0070	<0.0014	<0.0014	<0.0014	<7.0	<7.0
B16	4/7/05	7-8	<0.0014	<0.0070	<0.0014	<0.0042	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	**0.0046**	**0.064**	<0.014	<0.0070	<0.0014	<0.0014	<0.0014	<7.0	<7.0
B17	4/7/05	6-7	**0.14**	<0.25	**0.46**	**1.7**	**0.16**	**0.056**	**0.070**	<0.049	<0.049	0.090	<1.2	<0.49	**1.5**	**0.23**	**2.5**	**0.68**	**12.0**	**30.0**
B18	4/7/05	7-8	<0.0013	<0.0066	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.033	<0.013	<0.0066	<0.0013	<0.0013	<0.0013	<6.6	<6.6
B19	4/7/05	7-8	<0.0014	<0.0070	<0.0014	<0.0042	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.035	<0.014	<0.0070	<0.0014	<0.0014	<0.0014	<7.0	<7.0
B20	4/7/05	7-8	<0.0014	<0.0071	<0.0014	<0.0043	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.036	<0.014	<0.0071	<0.0014	<0.0014	<0.0014	<7.1	<7.1
B21	4/7/05	4-6.5	<0.0014	<0.0068	<0.0014	<0.0041	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	**0.067**	**0.066**	<0.014	<0.0068	<0.0014	<0.0014	<0.0014	<6.8	<6.8
B22	4/7/05	3.5-4	**0.0013**	<0.0058	<0.0012	<0.0034	**0.0013**	**0.0029**	<0.0012	**0.0021**	**0.0015**	**0.025**	**0.059**	<0.012	<0.0058	<0.0012	**0.0051**	**0.0030**	<5.8	**11.0**
B23	4/7/05	4.5-5	**0.0039**	<0.0061	<0.0012	<0.0037	<0.0012	<0.0012	<0.0012	**0.015**	**0.0019**	**0.012**	**0.031**	<0.012	<0.0061	<0.0012	**0.0060**	<0.0012	<6.1	<6.1
B24	4/7/05	4-5	<0.094	<0.47	<0.094	<0.28	<0.094	**0.20**	<0.094	**0.14**	<0.094	<0.094	<2.4	<0.94	<0.47	<0.094	<0.094	<0.094	<30.	**330**
B25	4/7/05	4.5-5	<0.058	<0.29	<0.058	<0.17	<0.058	<0.058	<0.058	<0.058	<0.058	<0.058	<1.4	<0.58	<0.29	<0.058	<0.058	<0.058	<5.7	**81.0**
B26	4/7/05	4.5-5	**0.0024**	<0.0064	<0.0013	<0.0038	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	**0.0018**	<0.032	<0.013	<0.0064	<0.0013	<0.0013	<0.0013	<6.4	**7.5**
B27	4/7/05	4.5-5	**0.0054**	<0.0059	0.0032	<0.0035	<0.0012	<0.0012	<0.0012	<0.0012	**0.014**	**0.14**	**0.034**	<0.012	<0.0059	<0.0012	**0.0034**	**0.0013**	<5.9	<5.9
Soil to groundwater MSCC			0.0056	7	0.24	5	4	3	2	34	0.37	0.92	3	0.7	0.58	2	8	7	72	3,255*
Residential MSCC			22	3,200	1,560	32,000	156	156	1,564	469	156	156	1,564	9,385	63	156	782	782	939	9,386*
Industrial /Commercial MSCC			200	82,000	40,000	200,000	4,088	4,088	40,880	12,264	4,088	4,088	40,880	245,280	1,635	4,088	20,440	20,440	24,528	24,5280*

Notes:

1. All results in mg/kg.
2. **BOLD** denotes a compound detection.
3. Shading denotes a Soil-to-Groundwater Maximum Soil Contaminant Concentration (MSCC) violation.
4. "-" Not sampled for.
5. "<" = Less than sample detection limit.
6. "*" = The MSCCs listed for the C9-C12 aliphatic and C9-C22 aromatic carbon fraction classes are actually the MSCCs for the C9-C18 aliphatic and C9-C22 aromatic carbon fraction classes, respectively.

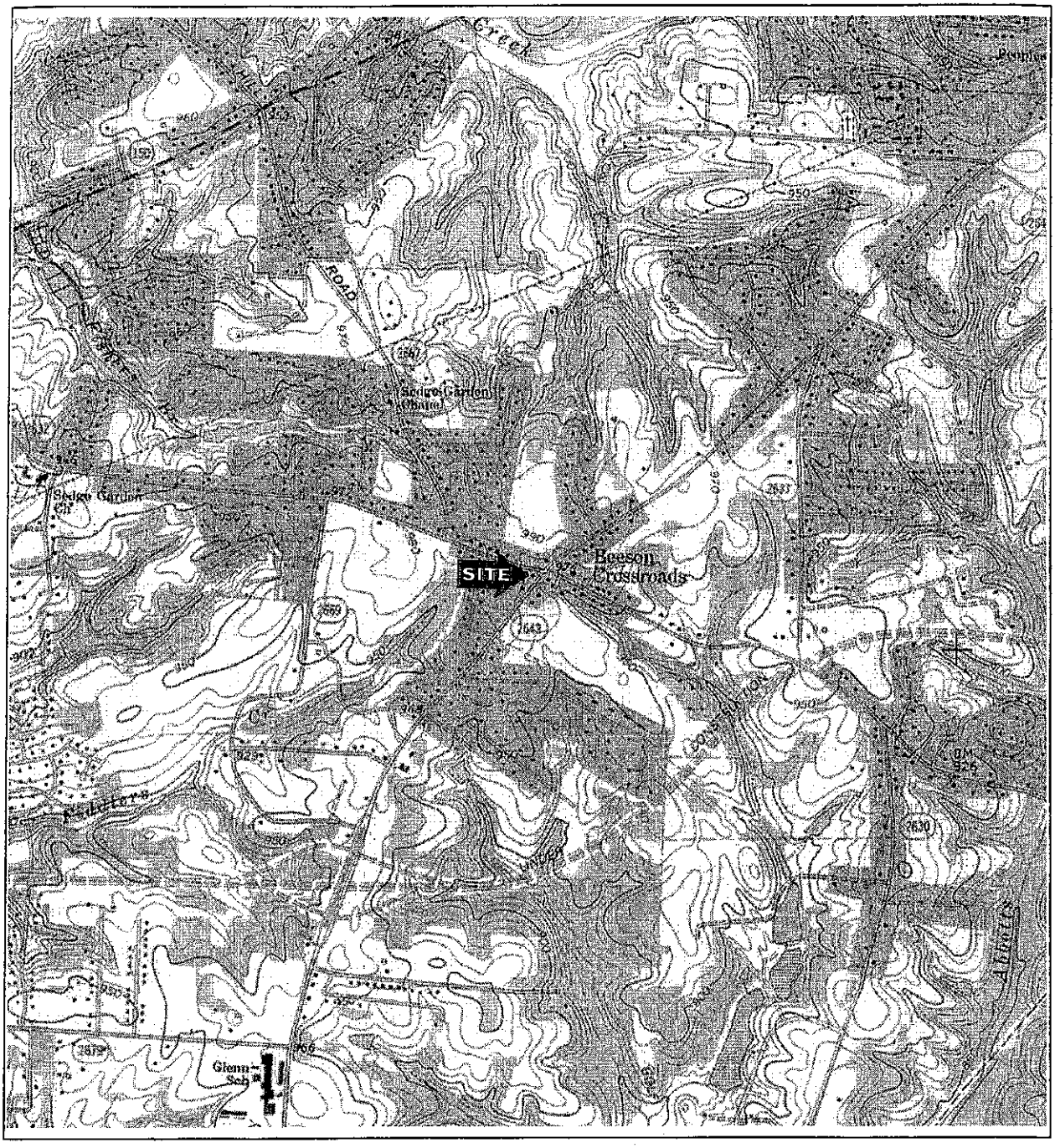
Table 6
Date: 5/23/05

SUMMARY OF GROUNDWATER SAMPLING RESULTS
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No: 0-034372

Analytical Method		6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	6210D+MBE+IPE	504.1	MADEP VPH	MADEP VPH	MADEP VPH	6010B (3050C digestion)
Contaminant of Concern																			
Sample ID	Date Collected	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	IPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	EDB	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
MW1	4/7/04	5,700	<250	3,100	9,100	1,800	410	290	110	580	2,000	490	<1,200	<0.010	17,000	28,000*	10,000	<5.0
MW2	4/7/04	210	<100	<20.	**129**	2,000	88.0	<20.	<20.	<100	**25.0**	<20	<500	<0.010	6,000	**740**	550	<5.0
MW3	4/7/04	44.0	<100	<20.	**61.0**	2,000	130	<20.	<20.	<100	**110**	<20.	<500	<0.010	3,300	**490**	330	<5.0
MW1	4/14/05	3,900	<1,200	2,200	6,200	1,200	350	<250	<250	<1,200	1,500	380	7,800	-	20,000	35,000	14,000*	-
MW2	4/14/05	<500	<2,500	<500	<1,500	6,200	<500	<500	<500	<2,500	<500	<500	26,000	-	11,000	<2,000	<2,000	-
MW3	4/14/05	<100	<500	<100	<300	3,800	160	<100	<100	<500	**120**	<100	4,700	-	5,900	1,200	820	-
MW4	4/14/05	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	**26.0**	<0.010	<100	<100	<100	<5.0
MW5	4/14/05	1.5	<5.0	<1.0	**5.4**	<1.0	<1.0	**1.6**	<1.0	<5.0	**10.0**	**3.8**	<25.	<0.010	<100	**120**	<100	<5.0
MW6	4/14/05	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<25.	<0.010	<100	<100	<100	<5.0
MW7	4/14/05	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<25.	<0.010	<100	<100	<100	<5.0
MW8	4/14/05	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<25.	<0.010	<100	<100	<100	<5.0
2L Standard		1	1,000	29	530	200	70	70	70	21	350	350	700	0.0004	420	4200*	210*	15
Gross Contamination Levels		5,000	257,500	29,000	87,500	200,000	70,000	30,000	25,000	15,500	28,500	25,000	700,000	50	NE	NE	NE	15,000

Notes:
1. All results in µg/l.
2. **Bold** denotes a detection.
3. Shading denotes a 2L Standard violation.
4. "<" = Less than sample detection limit.
5. "-" = Not sampled for. Monitoring wells MW1, MW2, and MW3 were not tested for lead or EDB during the 4/14/05 sampling event since these analysis had already been run on groundwater samples from these wells.
6. "NE" = Not established. Gross Contamination Levels have not been established for these compounds.
7. "*" = The 2L Standards listed for the C9 through C12 aliphatic and C9 through C22 aromatic carbon fraction classes are actually the 2L Standards for the C9 through C18 aliphatic and C9 through C22 aromatic carbon fraction classes, respectively.



N

MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP OF KERNERSVILLE, NC

GRAPHIC SCALE

0' 2,000' 4,000'

TERRAquest

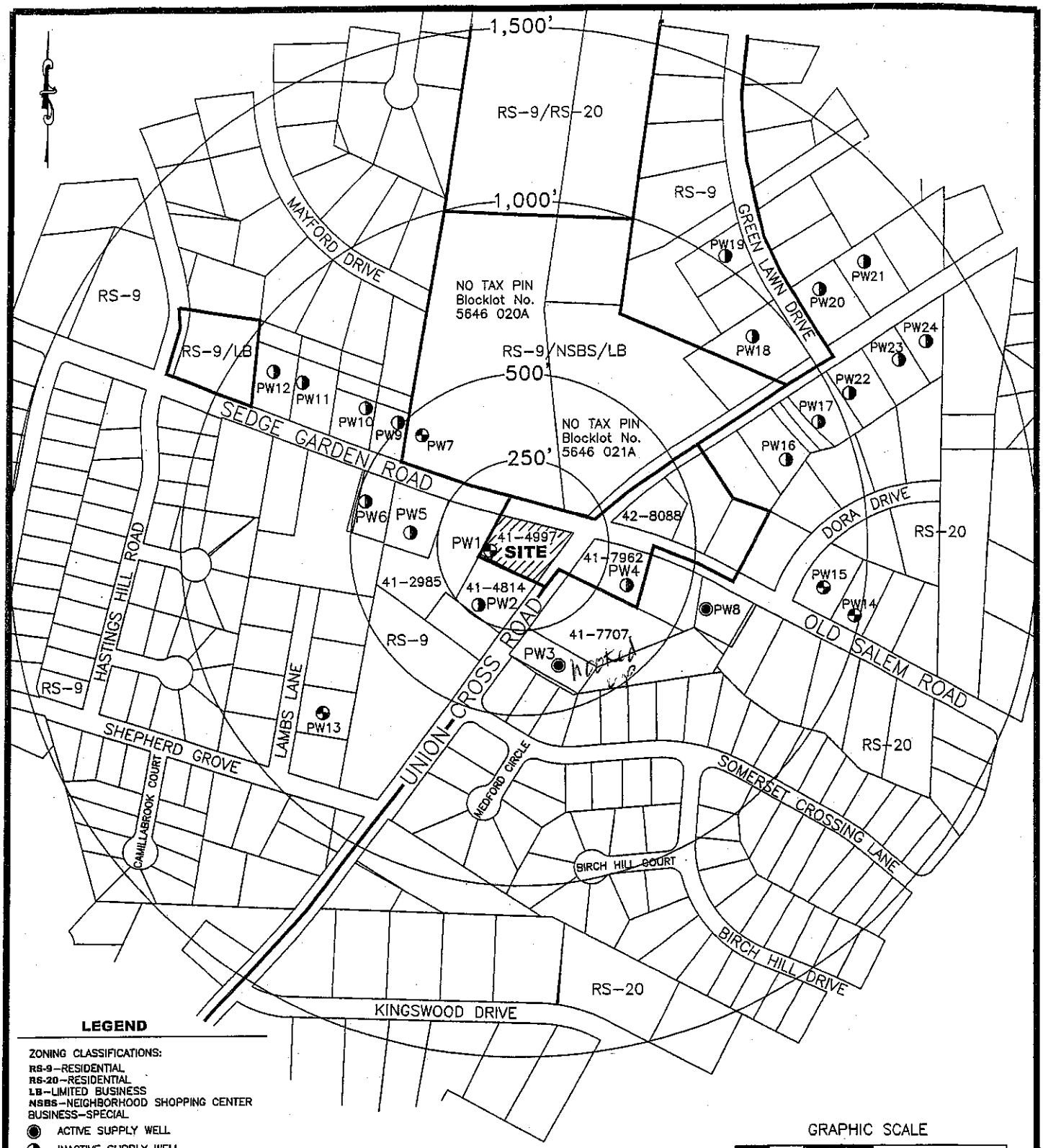
ENVIRONMENTAL CONSULTANTS, P.C.

SITE LOCATION MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC. WINSTON-SALEM, NC

PROJECT NO.	02500	DRAWN BY:	JRG	DATE:	5/29/04
SCALE:	1" = 2,000'	CHECKED BY:	MJB	FIGURE NO.	1



LEGEND

ZONING CLASSIFICATIONS:
RS-9–RESIDENTIAL
RS-20–RESIDENTIAL
LB–LIMITED BUSINESS
NSBS–NEIGHBORHOOD SHOPPING CENTER BUSINESS–SPECIAL

- ACTIVE SUPPLY WELL
- INACTIVE SUPPLY WELL
- ABANDONED SUPPLY WELL
- ZONING BOUNDARIES

42-8088 NUMBER COORESPONDS WITH PROPERTY OWNER INFORMATION LISTED IN TABLE 2 OF LSA REPORT.

GRAPHIC SCALE

0' 200' 400' 800'

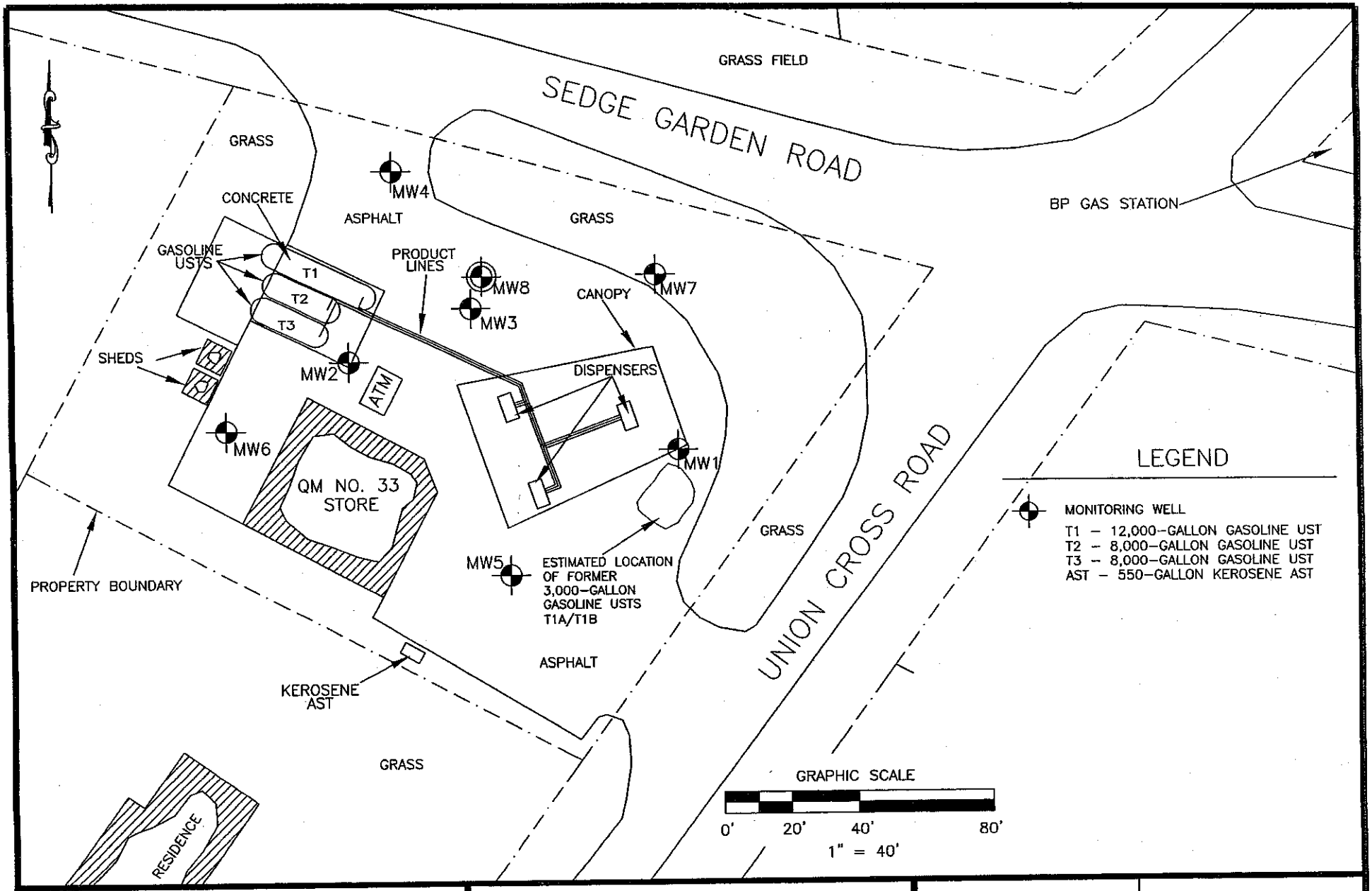
1" = 400'

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

SITE VICINITY MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
WINSTON-SALEM, NC

QUALITY OIL COMPANY, INC.					WINSTON-SALEM, NC
PROJECT NO.	02500	DRAWN BY:	JAK	DATE:	5/17/05
SCALE:	1"=400'	CHECKED BY:	JRG	FIGURE NO.	2



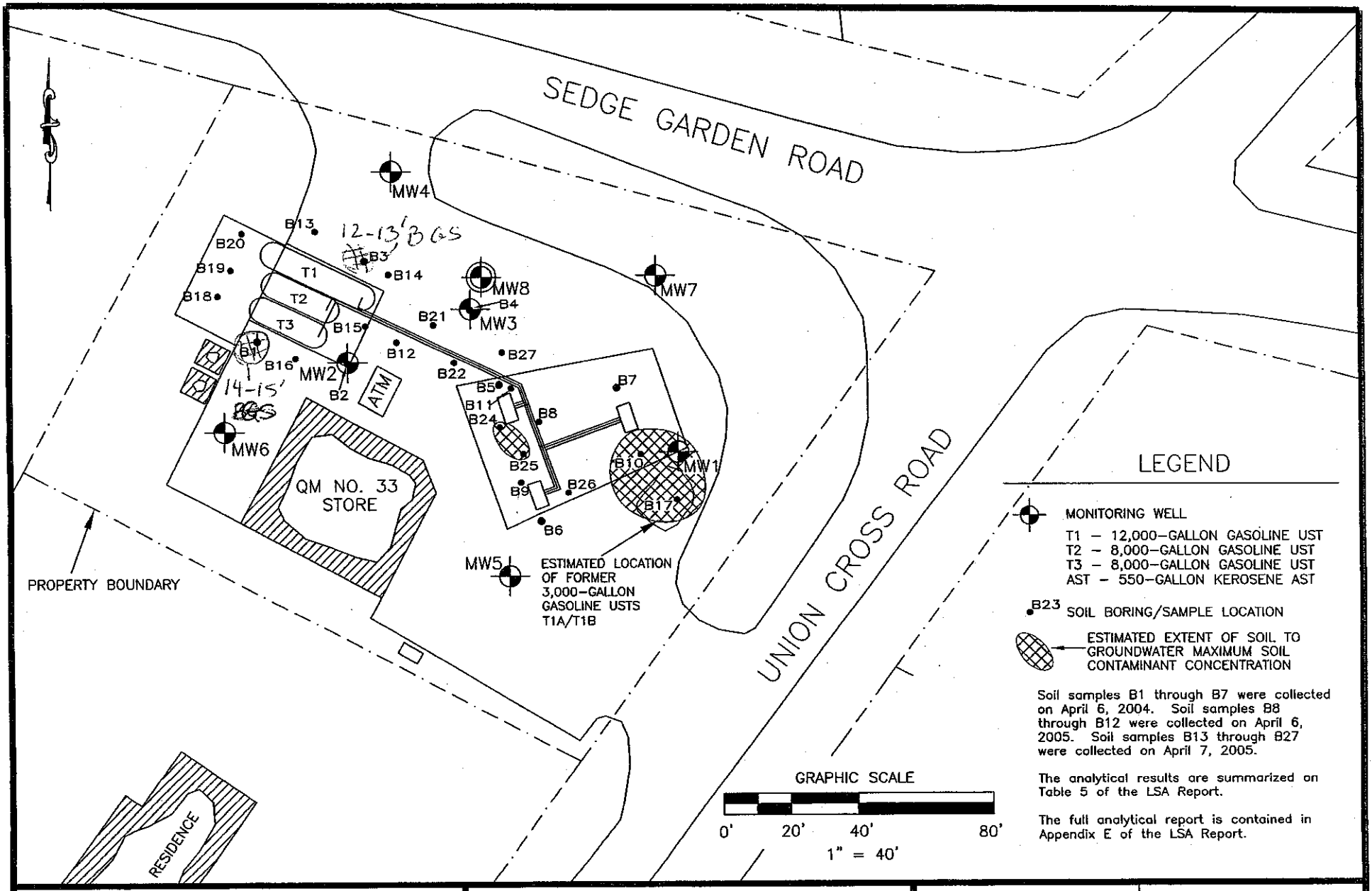
SITE LAYOUT MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/23/05
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	3



LEGEND

- MONITORING WELL
  - T1 – 12,000-GALLON GASOLINE UST
  - T2 – 8,000-GALLON GASOLINE UST
  - T3 – 8,000-GALLON GASOLINE UST
  - AST – 550-GALLON KEROSENE AST
- B23 SOIL BORING/SAMPLE LOCATION
- ESTIMATED EXTENT OF SOIL TO GROUNDWATER MAXIMUM SOIL CONTAMINANT CONCENTRATION

Soil samples B1 through B7 were collected on April 6, 2004. Soil samples B8 through B12 were collected on April 6, 2005. Soil samples B13 through B27 were collected on April 7, 2005.

The analytical results are summarized on Table 5 of the LSA Report.

The full analytical report is contained in Appendix E of the LSA Report.

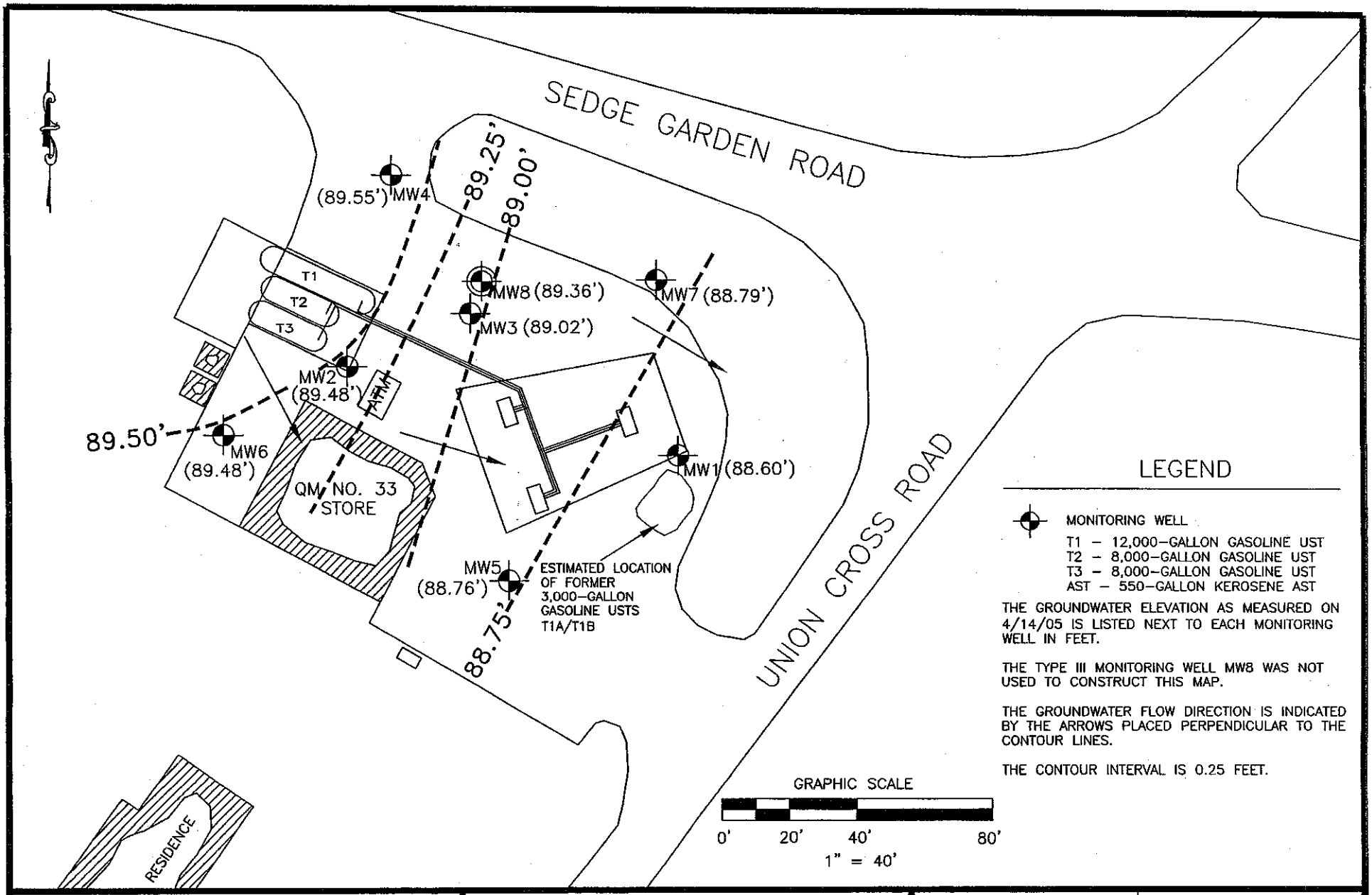
SOIL ANALYTICAL RESULTS

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC — WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/23/05
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	4



LEGEND

MONITORING WELL

T1 – 12,000-GALLON GASOLINE UST
T2 – 8,000-GALLON GASOLINE UST
T3 – 8,000-GALLON GASOLINE UST
AST – 550-GALLON KEROSENE AST

THE GROUNDWATER ELEVATION AS MEASURED ON 4/14/05 IS LISTED NEXT TO EACH MONITORING WELL IN FEET.

THE TYPE III MONITORING WELL MW8 WAS NOT USED TO CONSTRUCT THIS MAP.

THE GROUNDWATER FLOW DIRECTION IS INDICATED BY THE ARROWS PLACED PERPENDICULAR TO THE CONTOUR LINES.

THE CONTOUR INTERVAL IS 0.25 FEET.

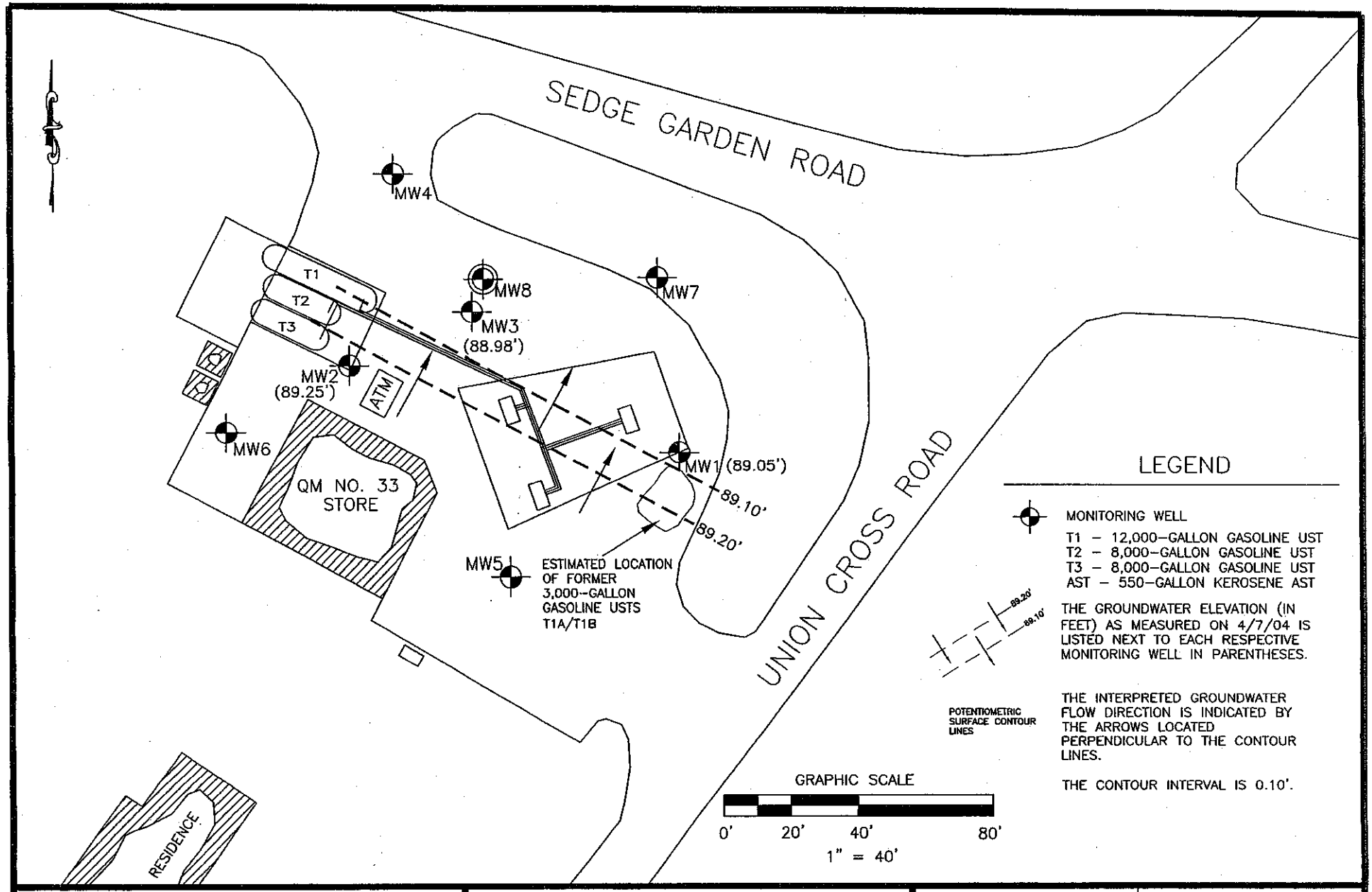
POTENTIOMETRIC SURFACE MAP (4/14/05)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/23/05
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	5



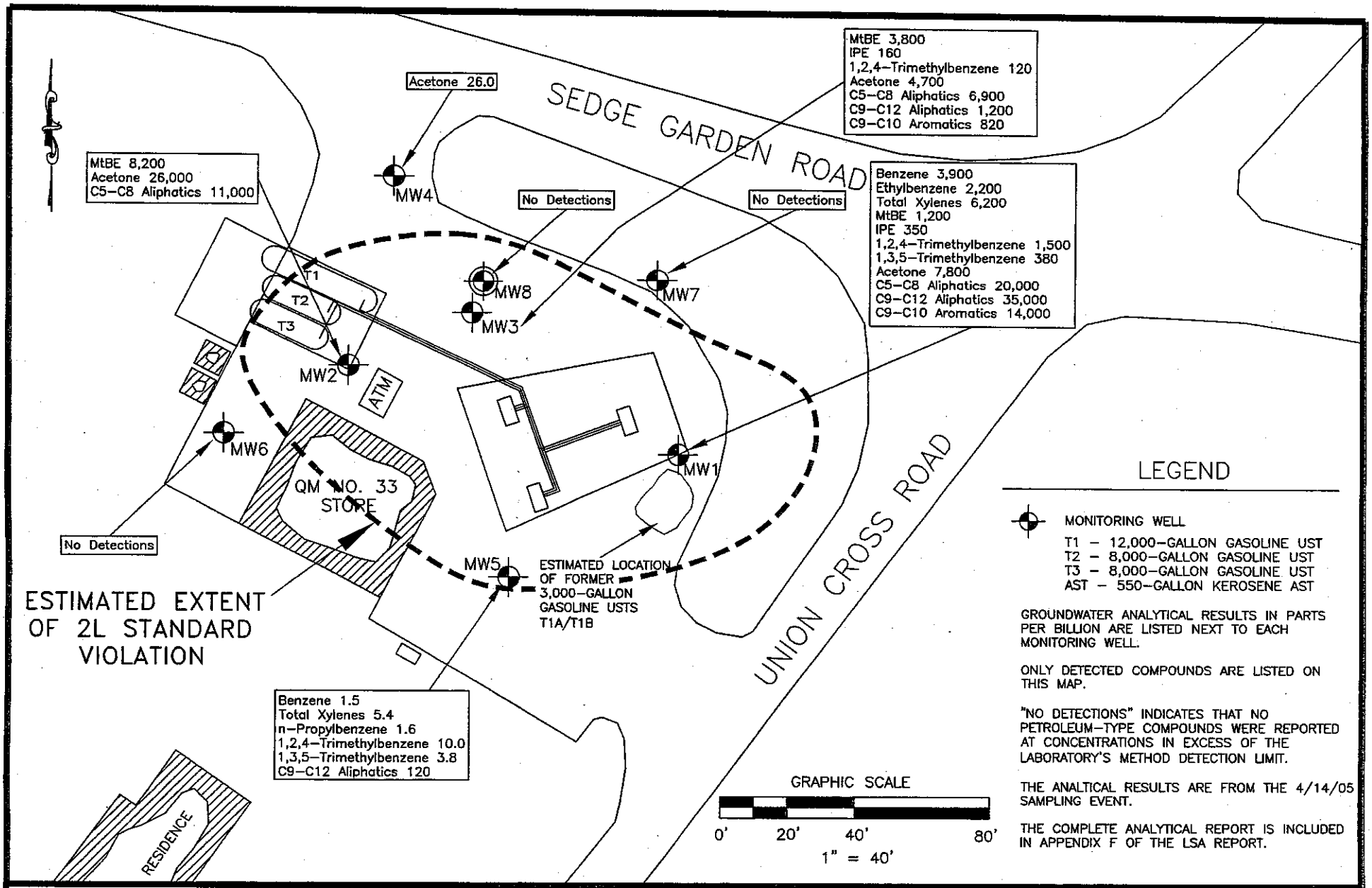
POTENTIOMETRIC SURFACE MAP (4/7/04)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/23/05
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	6



GROUNDWATER ANALTYICAL RESULTS (4/14/05)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON–SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	5/23/05
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	7

Limited Site Assessment Risk Classification and Land Use Form

Part I - Groundwater/Surface Water/Vapor Impacts

High Risk

1. Has the discharge or release contaminated any water supply well including any used for non-drinking purposes? YES (NO)
   If yes, explain.

2. Is a water supply well used for drinking water located within 1,000 feet of the source area of the discharge or release? (YES) NO

   There are two (2) sole-source wells within 1,000 feet of the source area.

3. Is a water supply well used for any purpose (e.g., irrigation, washing cars, industrial cooling water, filling swimming pools) located within 250 feet of the source area of the release or discharge? (YES) NO

   In addition to the two (2) potable wells listed under question 2 above, there is an inactive, but un-abandoned potable well within two-hundred and fifty (250) of the release area.

4. Does groundwater within 500 feet of the source area of the discharge or release have the potential for future use in that there is no other source of water supply other than the groundwater? YES (NO)
   Explain

   Municipal water is available to all properties within five hundred (500) feet of the release area.

5. Do vapors from the discharge or release pose a threat of explosion because of accumulation of the vapors in a confined space or pose any serious threat to public health, public safety, or the environment? YES (NO)
   Explain.

   The contaminant concentrations and confined spaces observed at the site do not indicate the threat of explosion.

6. Are there any other factors that would cause the discharge or release to pose an imminent danger to public health, public safety, or the environment? YES (NO)
   If yes, explain.

Intermediate Risk

7. Is a surface water body located within 500 feet of the source area of the discharge or release? YES/NO

   If yes, does the maximum groundwater contaminant concentration exceed the surface water quality standards and criteria found in 15A NCAC 2B .0200 by a factor of 10? YES/NO

8. Is the source area of the discharge or release located within a designated wellhead protection area as defined in 42 USC 300h-7(e)? YES/NO
   If yes, explain

9. Is the discharge or release located in the Coastal Plain physiographic region as designated on a map entitled A Geology of North Carolina published by the Department in 1985? YES/NO

   If yes, is the source area of the discharge or release located in an area in which there is a recharge to an unconfined or semi-confined deeper aquifer that is being used or may be used as a source of drinking water? YES/NO
   If yes, explain.

10. Do levels of groundwater contamination exceed the gross contamination levels established (see Table 7) by the Department? YES/NO

    The most recent, April 14, 2005, groundwater sampling data does not indicate violations of gross contamination levels (GCL) at the site. However, the April 7, 2004 analytical results of a groundwater sample collected from monitoring well MW1 revealed a GCL violation in the presence of 5,700 parts per billion of benzene.

Part II - Land Use

Property Containing Source Area of Discharge or Release

The questions below pertain to the property containing the source area of the release.

1. Does the property contain one or more primary or secondary residences (permanent or temporary)? YES/NO
   Explain.
   The site is currently an active gasoline station/convenience store.

2. Does the property contain a school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other place of public assembly? YES (NO)
   Explain.
   The site is currently vacant.
   The site is currently an active gasoline station/convenience store.

3. Does the property contain a commercial (e.g., retail, warehouse, office/business space, etc.) Or industrial (e.g., manufacturing, utilities, industrial research and development, chemical/petroleum bulk storage, etc.) Enterprise, an inactive commercial or industrial enterprise, or is the land undeveloped? (YES) NO
   Explain.
   The site is currently an active gasoline station/convenience store.

4. Do children visit the property? (YES) NO
   Explain.
   Children visit the onsite convenience store.

5. Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel, or both)? YES (NO)
   Explain.
   There are no fences or security personnel at the vacant site.

6. Do pavement, buildings, or other structures cap the contaminated soil? (YES) NO
   Explain.

   Contaminated soil is capped by asphalt and concrete.

   If yes, what mechanisms are in place or can be put in place to ensure that the contaminated soil will remain capped in the foreseeable future?

   Upkeep of the asphalt and concrete parking lot should keep the capped in the foreseeable future.

7. What is the zoning status of the property?

   The property is zoned limited business (LB).

8. Is the use of the property likely to change in the next 20 years?
   Explain.

   The property is currently an active gasoline station/convenience store. It is possible that this will change in the next 20 years.

Property Surrounding Source Area of Discharge or Release

The questions below pertain to the area within 1,500 feet of the source area of the discharge or release (excludes property containing source area of the release):

1. What is the distance from the source area of the release to the nearest primary or secondary residence (permanent or temporary)?

   The distance from the source area of the release to the nearest primary residence is less than 100 feet.

2. What is the distance from the source area of the release to the nearest school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other place of public assembly?

   The Sedge Garden Chapel is located approximately 3,500 feet to the north-west of the site. The Sedge Garden Church is located approximately 6,000 feet to the west.

3. What is the zoning status of properties in the surrounding area?

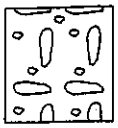
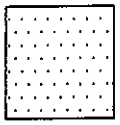
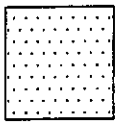
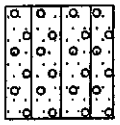
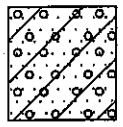
   Properties in the vicinity of the site are zoned R-9 and R-10, residential, LB, limited business, and NSBS, neighborhood shopping center business special.

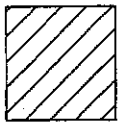
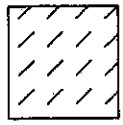
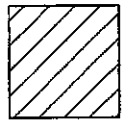
4. Briefly characterize the use and activities of the land in the surrounding area.

   Land usage in the surrounding vicinity is chiefly residential with some commercial properties.

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

LEGEND FOR SOIL BORING LOGS AND WELL COMPLETION DIAGRAMS

GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTION
	GW	Well–graded gravels, gravel–sand mixtures.
	GP	Poorly–graded gravels, gravel–sand mixtures.
	GM	Silty gravels, gravel–silt–sand mixtures.
	GC	Clayey gravels, gravel–sand–clay mixtures.
	SW	Well–graded sands, gravelly sands.
	SP	Poorly–graded sands, gravelly–sands.
	SM	Silty sands, sand–silt mixtures.
	SC	Clayey sands, sand–clay mixtures.

GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTION
	ML	Inorganic silts and very fine sands, silty or clayey fine sands.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty or lean clays.
	OL	Organic silts and clays.
	MH	Micaceous or silty soils.
	CH	Inorganic clays of high plasticity.
	OH	Organic clays, organic silts with medium to high plasticity.
		Saprolite with the soil characteristics of a sand, gravel, silt, or clay.
		Bedrock

WELL COMPLETION SYMBOLS

 PORTLAND CEMENT

 BENTONITE

 WELL SAND

Classification symbol and name are based upon the visual–manual procedures described in ASTM Test Method D 2488.

BLOWS/FT.	DENSITY
0–4	VERY LOOSE
5–10	LOOSE
11–30	MED. DENSE
31–50	DENSE

BLOWS/FT.	CONSISTENCY
0–2	VERY SOFT
3–4	SOFT
5–8	MEDIUM STIFF
9–15	STIFF
16–30	VERY STIFF
31+	HARD

COMPONENT	%
MOSTLY	50–100%
SOME	30–45%
LITTLE	15–25%
FEW	5–10%
TRACE	<5%

MW4

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
P.O. Box 29578 - Raleigh, N.C. 27626-0578-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

MW4

DRILLING CONTRACTOR: Terraquest Environmental Cons.
DRILLER REGISTRATION #: 3329
STATE WELL CONSTRUCTION PERMIT#:

1. *WELL USE* (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
   Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use:
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Kernersville County: Forsyth
   1400 Union Cross Rd.
   (Road, Community, or Subdivision and Lot No.)
3. OWNER Quality Oil Company, LLC
   ADDRESS P.O. Box 2736
   (Street or Route No.)
   Winston Salem NC 27102
   City or Town State Zip Code
4. DATE DRILLED 4/6/05
5. TOTAL DEPTH 18.0
6. CUTTINGS COLLECTED YES ☒ NO ☐
7. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
8. STATIC WATER LEVEL Below Top of Casing: _____ FT.
   (Use "+" if Above Top of Casing)
9. TOP OF CASING IS 0 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
10. YIELD (gpm): _____ METHOD OF TEST _____
11. WATER ZONES (depth): _____
12. CHLORINATION: Type _____ Amount _____
13. CASING:

	Depth			Diameter	Wall Thickness or Weight/Ft.	Material
From	0	To 5	Ft.	2-inch.	Sch. 40	PVC
From		To	Ft.			
From		To	Ft.			

14. GROUT:

	Depth			Material	Method
From	3	To 4	Ft.	Bentonite	
From	0.5	To 3	Ft.	Neat Cement	Pour

15. SCREEN:

	Depth			Diameter		Slot Size		Material
From	5	To 18	Ft.	2-inch	in.	.010	in.	PVC
From		To	Ft.		in.		in.	
From		To	Ft.		in.		in.	

16. SAND/GRAVEL PACK:

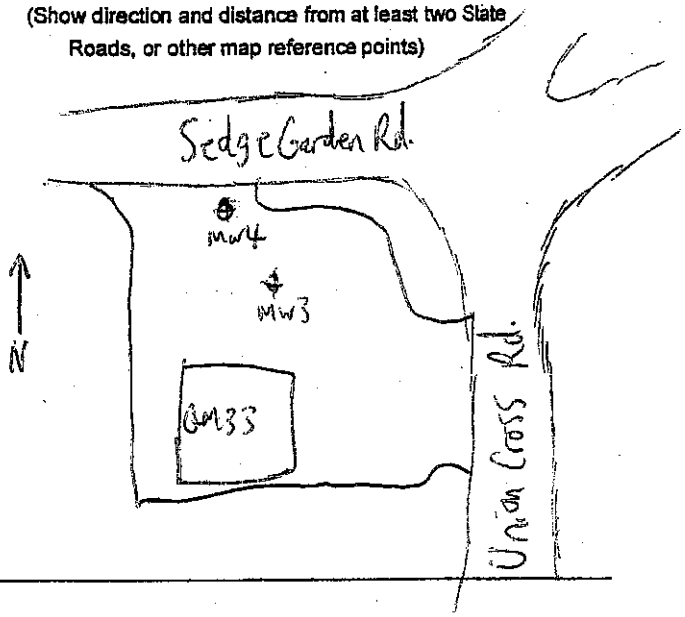
	Depth			Size	Material
From	4	To 18	Ft.	coarse	sand
From		To	Ft.		

17. REMARKS: _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
	0' - 0.5'	Asphalt.
	0.5' - 18'	CLAY (CL) soft reddish brown clay

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)



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.

4/27/05
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Water Quality and copy to well owner.

FOR OFFICE USE ONLY
Quad No: _____
Serial No: _____

GW-1 REV. 1/98

MW5

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
P.O. Box 29578 - Raleigh, N.C. 27626-0578-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

MW5

DRILLING CONTRACTOR: Terraquest Environmental Cons.
DRILLER REGISTRATION #: 3329
STATE WELL CONSTRUCTION PERMIT#: ____

1. *WELL USE* (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
   Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use: ____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Kernersville County: Forsyth
   1400 Union Cross Rd.
   (Road, Community, or Subdivision and Lot No.)
3. OWNER Quality Oil Company, LLC
   ADDRESS P.O. Box 2736
   (Street or Route No.)
   Winston Salem NC 27102
   City or Town State Zip Code
4. DATE DRILLED 4/6/05
5. TOTAL DEPTH 18.0
6. CUTTINGS COLLECTED YES ☒ NO ☐
7. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
8. STATIC WATER LEVEL Below Top of Casing: ____ FT.
   (Use "+" if Above Top of Casing)
9. TOP OF CASING IS 0 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
10. YIELD (gpm): ____ METHOD OF TEST ____
11. WATER ZONES (depth): ____
12. CHLORINATION: Type ____ Amount ____
13. CASING:

	Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	5		2-inch.	Sch. 40	PVC

14. GROUT:

	Depth From	To	Ft.	Material	Method
	3	4		Bentonite	
	0.5	3		Neat Cement	Pour

15. SCREEN:

	Depth From	To	Ft.	Diameter	in.	Slot Size	in.	Material
	5	18		2-inch	in.	.010	in.	PVC
					in.		in.	
					in.		in.	

16. SAND/GRAVEL PACK:

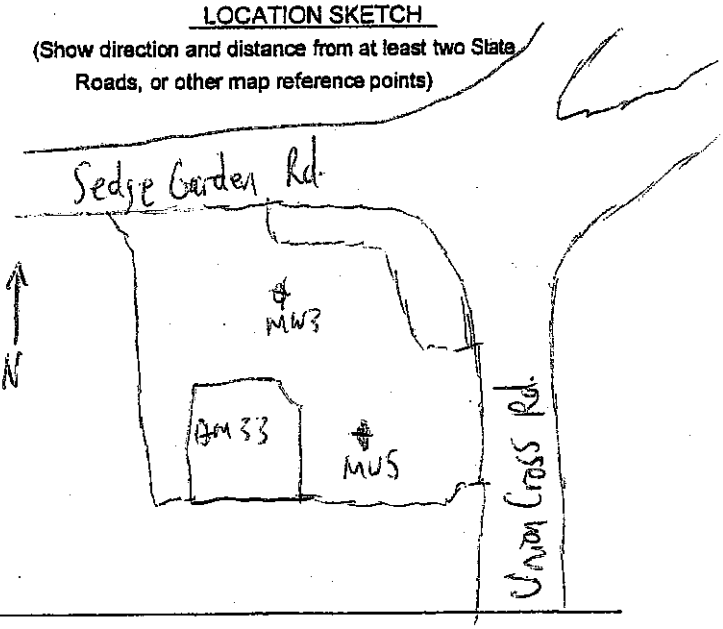
	Depth From	To	Ft.	Size	Material
	4	18		coarse	sand

17. REMARKS: ____

DEPTH From	To	DRILLING LOG Formation Description
0' - 0.5'		Asphalt
0.5' - 18'		CLAY (CL) soft reddish brown clay

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)



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 OF CONTRACTOR OR AGENT — DATE 4/27/05

Submit original to Division of Water Quality and copy to well owner.

GW-1 REV. 1/98

FOR OFFICE USE ONLY
Quad No: ____
Serial No: ____

MW6

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
P.O. Box 29578 - Raleigh, N.C. 27626-0578-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

MW6

DRILLING CONTRACTOR: Terraquest Environmental Cons.
DRILLER REGISTRATION #: 3329
STATE WELL CONSTRUCTION PERMIT#: ____

1. WELL USE (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
   Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use: ____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Kernersville County: Forsyth
   1400 Union Cross Rd.
   (Road, Community, or Subdivision and Lot No.)
3. OWNER Quality Oil Company, LLC
   ADDRESS P.O. Box 2736
   (Street or Route No.)
   Winston Salem NC 27102
   City or Town State Zip Code
4. DATE DRILLED 4/6/05
5. TOTAL DEPTH 18.0
6. CUTTINGS COLLECTED YES ☒ NO ☐
7. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
8. STATIC WATER LEVEL Below Top of Casing: ____ FT.
   (Use "+" if Above Top of Casing)
9. TOP OF CASING IS 0 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

10. YIELD (gpm): ____ METHOD OF TEST ____
11. WATER ZONES (depth): ____
12. CHLORINATION: Type ____ Amount ____
13. CASING:

	Depth From	Depth To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	5	Ft.	2-inch.	Sch. 40	PVC
			Ft.			
			Ft.			

14. GROUT:

	Depth From	Depth To	Ft.	Material	Method
	3	4	Ft.	Bentonite	
	0.5	3	Ft.	Neat Cement	Pour

15. SCREEN:

	Depth From	Depth To	Ft.	Diameter	Slot Size	Material
	5	18	Ft.	2-inch in.	.010 in.	PVC
			Ft.	in.	in.	
			Ft.	in.	in.	

16. SAND/GRAVEL PACK:

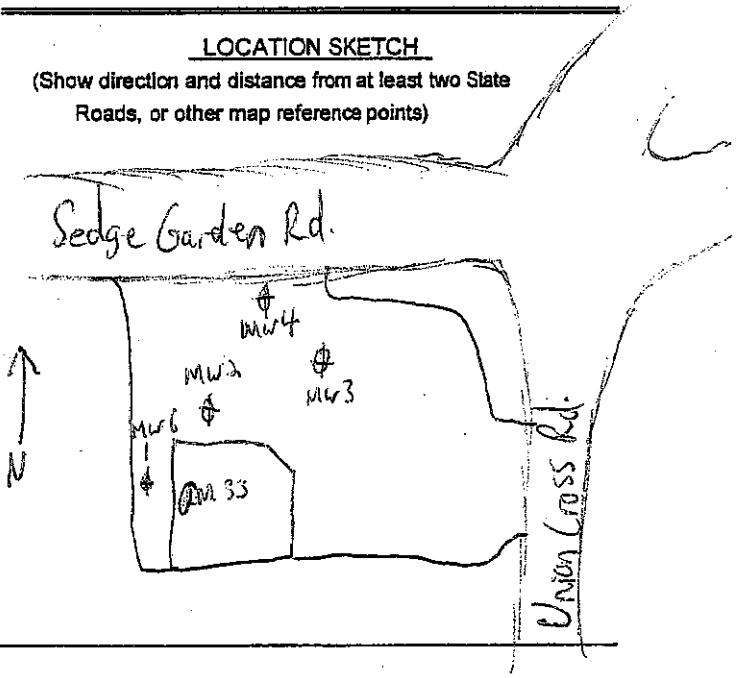
	Depth From	Depth To	Ft.	Size	Material
	4	18	Ft.	coarse	sand
			Ft.		

17. REMARKS: ____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	0.5'	Asphalt
0.5'	18'	CLAY (CL) soft reddish brown clay

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)



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.

4/27/05
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Water Quality and copy to well owner.

FOR OFFICE USE ONLY
Quad No: ____
Serial No: ____

GW-1 REV. 1/98

MW7

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
P.O. Box 29578 - Raleigh, N.C. 27626-0578-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

MW7

DRILLING CONTRACTOR: Terraquest Environmental Cons.
DRILLER REGISTRATION #: 3329
STATE WELL CONSTRUCTION PERMIT#: ____

1. WELL USE (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
   Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use: ____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Kernersville County: Forsyth
   1400 Union Cross Rd.
   (Road, Community, or Subdivision and Lot No.)
3. OWNER Quality Oil Company, LLC
   ADDRESS P.O. Box 2736
   (Street or Route No.)
   Winston Salem NC 27102
   City or Town State Zip Code
4. DATE DRILLED 4/6/05
5. TOTAL DEPTH 18.0
6. CUTTINGS COLLECTED YES ☒ NO ☐
7. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
8. STATIC WATER LEVEL Below Top of Casing: ____ FT.
   (Use "+" if Above Top of Casing)
9. TOP OF CASING IS 0 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
10. YIELD (gpm): ____ METHOD OF TEST ____
11. WATER ZONES (depth): ____
12. CHLORINATION: Type ____ Amount ____
13. CASING:

	Depth From	Depth To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	5		2-inch.	Sch. 40	PVC

14. GROUT:

	Depth From	Depth To	Ft.	Material	Method
	3	4		Bentonite	
	0.5	3		Neat Cement	Pour

15. SCREEN:

	Depth From	Depth To	Ft.	Diameter	in.	Slot Size	in.	Material
	5	18		2-inch	in.	.010	in.	PVC
					in.		in.	
					in.		in.	

16. SAND/GRAVEL PACK:

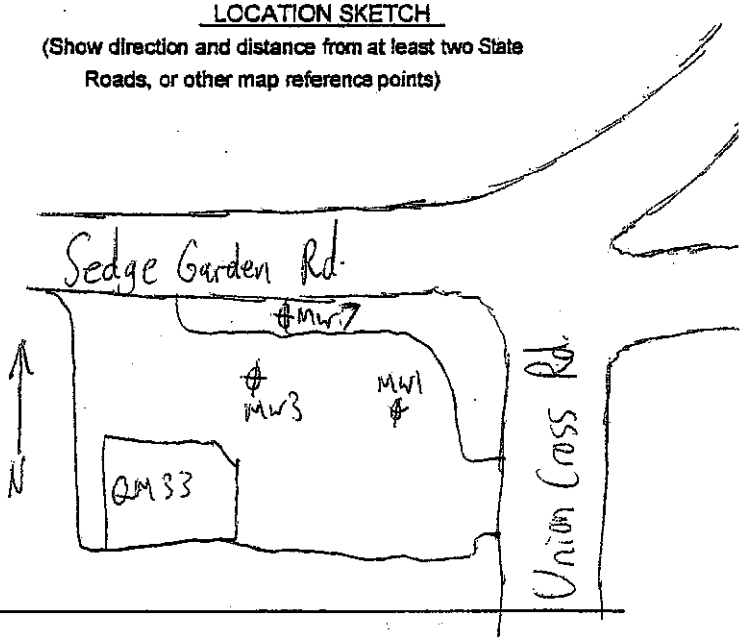
	Depth From	Depth To	Ft.	Size	Material
	4	18		coarse	sand

17. REMARKS: ____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0' - 0.5'		Asphalt
0.5' - 18'		CLAY (CL) soft reddish brown clay

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)



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 OF CONTRACTOR OR AGENT — DATE 4/27/05

Submit original to Division of Water Quality and copy to well owner.

FOR OFFICE USE ONLY
Quad No: ____
Serial No: ____

GW-1 REV. 1/98

MW8

WELL CONSTRUCTION RECORD

North Carolina – Department of Environment and Natural Resources– Division of Water Quality-Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME: Michael Ransier CERTIFICATION # 2501

WELL CONTRACTOR COMPANY NAME: Ransier Environmental Drilling, Inc. PHONE# 910-235-0685

STATE WELL CONSTRUCTION PERMIT# N/A ASSOCIATED WQ PERMIT # N/A

1. WELL USE: Residential Municipal/Public Industrial Agricultural
Recovery Heat Pump/Water Inj. **Monitoring X** Other:

2. WELL LOCATION: Kernersville
Nearest Town: County: Forsyth
1400 Union Cross Road
(Street Name, Numbers, Community, Subdivision, Lot No, Zip Code)

Topographic/Land Setting
Ridge **Flat** Valley Slope
Latitude/longitude of well location
degrees/minutes/seconds
Latitude/longitude source: GPS__Topo map__

3. OWNER: Kernersville Quality Mart
Address: 1400 Union Cross Road
Kernersville NC
City or Town State Zip Code
Phone number:

4. DATE DRILLED: 4/7+8/05
5. TOTAL DEPTH: 45
6. DOES WELL REPLACE EXISTING WELL? YES NO X
7. WATER LEVEL Below Top of Casing. 21 Ft.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.2 Ft. Above Land Surface*
*TOP of casing terminated at or below land surface requires a variance in accordance with 15A NCAC 2C .0118.
9. YIELD (gpm): Test Method:
10 WATER ZONES (depth)
11. DISINFECTION: Type Amount

DEPTH From	To	DRILLING LOG Formation Description
0	5	orange silt
5	10	reddish silt
10	18	red/brown saprolite
18	24	red saprolite
24	30	orange sap.
30	33	orange/brown sap.
33	36	brown sap.
36	40	brown/orange sap
40	45	orange saprolite

12. CASING:

	Depth			Diameter	Wall Thickness or Weight/Ft.	Material
From	-0.2	To	40	2"	Sch 40	PVC
From	0	To	30	5"	Sch 40	PVC
From		To				

13. GROUT:

			Material	Method
From	0.5	To	38 Portland	Trommie
From	0	To	30 Portland	Trommie

14. SCREEN:

			Diameter	Slot Size	Material
From	40	To	45 2"	0.01	PVC
From		To			

15. SAND/GRAVEL PACK:

			Size	Material
From	38	To	45 Medium	Quartz
From		To		

16. REMARKS:

LOCATION SKETCH
Show direction and distance in miles from at least two State or County Roads. Include the road numbers and common road names.

DW-1

Union Cross Road

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

Michael Ransier 4/15/05
SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733 3221, within 30 days.

GW-1 REV. 7/2001

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:** B1
Equipment: Geoprobe	**Date Finished:** 4/6/04	
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					Silt (ML) soft, yellowish orange/light brown, mostly silt, few clay, mica, dry
	NA	-			
			5		
	NA	-			
	NA	0			
	NA	-			Sand Lens (SC) loose, white/tan, mostly fine to coarse grained sand, few silt, dry.
			10		Silt (ML) soft, yellowish orange/light brown, mostly silt, little clay (molds but smears not rolls), manganese oxide lenses throughout, moisture at 9' BGL. Boring Terminated 15' BGL
	NA	-			
	NA	180	15		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
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1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:**
Equipment: Geoprobe	**Date Finished:** 4/6/04	**B2/MW2**
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.
	NA	-			
			5		
	NA	-			
	NA	20			
	NA	-			
			10		
	NA	-			
	NA	20			
			15		
			20		Sandy Silt (ML) medium stiff, tan/white/grey, mostly silt, little fine to medium-grained

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:** B3
Equipment: Geoprobe	**Date Finished:** 4/6/04	
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
	NA	-			Silt (ML) soft, yellowish orange/light brown, mostly silt, few clay, mica, trace fine-grained sand, dry, manganese oxide lenses.
			5		
	NA	-			
	NA	20			Sandy Silt (ML) soft/medium stiff, tan/light brown/yellowish orange, mostly silt, some to little fine to coarse-grained sand, mica, moisture at 10 feet BGL.
	NA	-			9.5' to 10' BGL - Sand Lens (SC) loose, white/tan, mostly fine to coarse-grained sand, few silt
			10		
	NA	-			Boring Terminated @ 20' BGL.
	NA	20			
			15		
			20		

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:** B4/MW3
Equipment: Geoprobe	**Date Finished:** 4/6/04	
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
	NA	-			Clayey Sand (SC) loose, olive grey, mostly medium-grained sand, little clay, dry.
	NA	-			
	NA	20	5		Lean Clay (CL) stiff to very stiff, yellowish orange, mostly clay, little to trace mica and fine-grained sand, dry
	NA	-			
	NA	-	10		Silt to Sandy Silt (ML) soft, yellowish orange/light brown/olive grey, mostly silt, little fine-grained sand, mica, manganese oxide lenses, increase in fine to medium-grained sand at 15' BGL, moisture at 10' BGL. Boring Terminated @ 20' BGL.
	NA	-			
	NA	-	15		
	NA	20			
	NA	-			
			20		

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:** B5
Equipment: Geoprobe	**Date Finished:** 4/6/04	
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
	NA	-			Lean Clay (CL) stiff to very stiff, yellowish orange, mostly clay, little to trace mica and fine-grained sand, dry
	NA	20			
	NA	-	5		
	NA	-			Silt to Sandy Silt (ML) soft, yellowish orange/light brown/olive grey, mostly silt, little medium to coarse-grained sand, mica, manganese oxide lenses, moisture at 10' BGL. Boring Terminated @ 15' BGL.
			10		
	NA	-			
			15		

Scale as shown: Hatch pattern denotes soil sample depth;
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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:** B6
Equipment: Geoprobe	**Date Finished:** 4/6/04	
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
	NA	-			Sandy Lean Clay (CL) medium stiff olive grey/tan 0.5'-6.5' BGL, soft olive grey 6.5'-8.0' BGL, medium stiff 8'-15' BGL, light brown 8.0'-12' BGL, yellowish orange 12'-15' BGL, mostly clay, little mica and fine-grained sand, moisture beginning at 7' BGL.
	NA	-	5		
	NA	280			
	NA	-	10		
	NA	-	15		Sandy Silt (ML) soft, yellowish orange/tan/grey, mostly silt, little fine-grained sand, mica, few clay, moist Boring Terminated @ 18' BGL.

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/04	**Boring Number:** B7
Equipment: Geoprobe	**Date Finished:** 4/6/04	
Driller: Nick Perry	**Logged by:** Jonathan Grubbs	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
	NA	-			Lean Clay (CL) soft to medium stiff, yellowish orange/light brown, mostly clay, few mica and fine-grained sand, dry. 8' to 15' BGL 9'-13' BGL black grey, 8'-9' BGL mild weathered petroleum odor, 13'-15' BGL yellowish orange; increase in fine-grained sand content to little, moist at 8' tp 10' BGL.
	NA	-			
			5		
	NA	280			
	NA	-			
			10		
	NA	-			
			15		
	NA	-			Sandy Silt (ML) soft, yellowish orange/tan/grey, mostly silt, little fine-grained sand, mica, few clay, moist Boring Terminated @ 18' BGL.

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B8
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					CLAY (CL) Mostly soft, reddish brown clay with little moisture, no odor. Boring terminated @ 4' BGL.
	NA	220			
	NA	560			
	NA	<1,100			
	NA	<1,600			
	NA	1,100			

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B9
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
	NA	60			CLAY (CL) Mostly soft, dark brown to red clay with little to some medium grained sand, trace moisture, no odor. Boring terminated @ 4.5' BGL.
	NA	140			
	NA	180			
	NA	200			
	NA	220			
	NA	260			

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B10
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					CLAY (CL) Mostly soft, dark red clay with trace medium grained sand.
	NA	340			
	NA	240			
	NA	>1,900			
	NA	>4,000			
	NA	2,240	5		CLAY (CL) Mostly soft dark brown to black clay with some coarse grained sand and little silt. Petroleum odor noted. Boring terminated @ 10' BGL.
	NA	700			
	NA	2,260			
	NA	1,860			
	NA	4,400			
	NA	>10,000			
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B11
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					Gravel
	NA	220			CLAYEY SILT (ML) Brown to dark brown in color, medium stiffness with some clay and few medium grained sands and mica, dry, mild odor. Boring terminated @ 3.5' BGL.
	NA	660			

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B12
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
					SILT (ML) Mostly soft, dark red silt with some clay. Trace moisture and no odor Boring terminated @ 5' BGL.
	NA	20			
	NA	120			
	NA	120			

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B13
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					CLAYEY SILT (ML) Mostly soft, dark red silt with some clay. Trace moisture and no odor
			5		CLAYEY SILT (ML) Mostly soft brown, red, tan silt with some clay and few to little medium grained sand. Boring terminated @ 10' BGL.
	NA	0			
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:**
Equipment: Geoprobe	**Date Finished:** 4/6/05	**B14**
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					CLAYEY SILT (ML) Mostly soft, brown reddish tan silt with some clay.
					Boring terminated @ 10' BGL.
	NA	0	5		
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B15
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					CLAYEY SILT (ML) Mostly soft, brown reddish tan silt with some clay and few coarse grained sand.
					Boring terminated @ 10' BGL.
	NA	0	5		
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B16
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					CLAYEY SILT (ML) Mostly soft, dark reddish brown to tan and black silt with some clay and few coarse grained sand. Boring terminated @ 10' BGL.
	NA	0	5		
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B17
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					SILT (ML) Mostly a grayish brown soft silt with little clay. Boring terminated @ 10' BGL.
			5		
	NA	480			
	NA	600			
	NA	500			
	NA	900			
	NA	940			
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
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NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B18
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					GRAVEL
					SILT W/ CLAY (ML) Mostly a soft orange to reddish brown silt with some clay.
					Boring terminated @ 10' BGL.
			5		
	NA	0			
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B19
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					GRAVEL
					SILTY CLAY (CL) Mostly a soft orange to reddish brown clay with some silt and trace fine to medium grained sand with saprolitic characteristics. Boring terminated @ 10' BGL.
			5		
	NA	0			
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B20
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					GRAVEL
					CLAYEY SILT (ML) Mostly a soft orange to reddish brown silt with some clay. Little moisture noted Boring terminated @ 10' BGL.
	NA	0	5		
			10		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B21
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					GRAVEL and SAND
	NA	40	5		CLAYEY SILT (ML) Soft, brownish gray in color silt with some clay and few medium coarse grained sand, mild odor. Boring terminated @ 10' BGL.
	NA	20	10		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B22
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					ASPHALT
					SILT (ML) Mostly a soft reddish orange to brown silt with little clay. Little moisture. Boring terminated @ 4' BGL.
	NA	0			

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B23
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					CONCRETE
					SILTY CLAY (CL) Mostly a soft reddish orange to brown clay with little silt. Little moisture. Boring terminated @ 5' BGL.
	NA	20	5		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
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BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B24
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					CONCRETE
					GRAVEL
					SILTY CLAY (CL) Mostly soft dark brown to red clay with some silt. Little moisture and faint odor. Boring terminated @ 5' BGL.
	NA	300	5		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B25
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					CONCRETE
					SILTY CLAY (CL) Mostly soft reddish brown clay with little silt. Faint odor. Boring terminated @ 5' BGL.
	NA	300	5		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
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BORING LOG

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:** B26
Equipment: Geoprobe	**Date Finished:** 4/6/05	
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					CONCRETE
					CLAY (CL) Mostly soft, light brown to red clay with little silt. Boring terminated @ 5' BGL.
	NA	40	5		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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Kernersville, NC

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Quality Oil Company, LLC
Post Office Box 2736
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TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	Date Started: 4/6/05	Boring Number: B27
Equipment: Geoprobe	Date Finished: 4/6/05	
Driller: Nick Perry	Logged by: Ryan Kerins	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					CONCRETE
					GRAVEL
	NA	200	5		CLAYEY SANDY SILT (ML) Mostly a soft, brown silt with some to little clay and fine grained to coarse grained sand. Boring terminated @ 5' BGL.

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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TERRAquest
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COMPREHENSIVE SITE ASSESSMENT REPORT

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NORTH CAROLINA

Latitude: 36° 05' 9.08" N Longitude: 80° 06' 5.86" W

Release Information

Date Discovered: October 24, 2003
Estimated Release Quantity: Unknown
Release Cause/Source: Underground Storage Tank System
UST Capacity: one 12,000-gallon and two 8,000-gallon gasoline USTs
NCDWM-UST Facility ID No. 0-034372
NCDWM-UST Incident No. 30284

UST System Owner/Responsible Party:
Quality Oil Company, LLC
P.O. Box 2736
Winston-Salem, NC 27102

Property Owner:
Donald A. & Maxine D. Joyce
1022 Sedge Garden Road
Kernersville, NC 27284

Terraquest Project No. 02500

December 9, 2008

100 E. Ruffin Street • Mebane, North Carolina 27302
Telephone (919) 563-9091 • Facsimile (919) 563-9095
www.terraquestpc.com

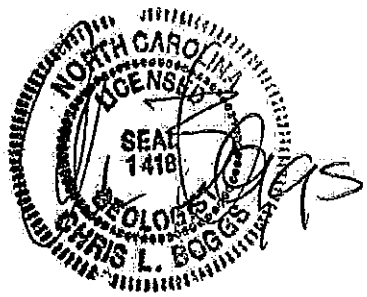
CERTIFICATION FOR THE SUBMITTAL
OF AN ENVIRONMENTAL/GEOLOGICAL ASSESSMENT

Attached is the Comprehensive Site Assessment Report for:

Site Name:	Quality Mart No. 33		
Address:	1400 Union Cross Road		
City:	Kernersville	State: NC	Zip Code: 27284
Responsible Party:	Quality Oil Company, LLC		
Address:	Post Office Box 2736		
City:	Winston-Salem	State: NC	Zip Code: 27102
Phone:	(336) 722-3441		

I, Chris L. Boggs, a Licensed Geologist in the State of North Carolina for TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C. do hereby certify that I am familiar with and have reviewed all material including figures within this report and that to the best of my knowledge the data, site assessments, figures, and other associated materials are correct and accurate. All work was performed under my direct supervision. My seal and signature is affixed below. Additional seals and/or signatures are also affixed below.

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.



Chris L. Boggs, P.G.
Geologist

Ryan D. Kerins
Project Manager

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EXECUTIVE SUMMARY

Terraquest Environmental Consultants, P.C. has completed activities associated with a Comprehensive Site Assessment at the Quality Mart No. 33 facility located in Kernersville, Forsyth County, North Carolina. The CSA is related to a release of petroleum from the onsite UST system. The release was discovered during assessment activities conducted in November of 2003. Following review of the LSA Report the NCDWM-UST directed the completion of this CSA. The scope of the assessment detailed in this report is to fully delineate the extent of soil and groundwater contamination, and define specific aquifer characteristics that influence the movement of contaminants.

The analytical results of soil samples collected as part of Site Check activities revealed the presence of Soil to Groundwater MSCC violations in the vicinity of the existing dispensers at the site. Additional soil samples collected durig LSA and CSA activities have delineated the extent of soil contamination.

To delineate groundwater quality as part of assessment activities, Terraquest personnel supervised the installation of 9 Type II groundwater monitoring wells and one Type III monitoring well. The analytical results of groundwater samples collected from the entire monitoring well network reveal an oval shaped plume. The dissolved-phase contamination plume (groundwater with contamination in excess of those standards defined under Title 15A NCAC Subchapter 2L Section 0.202(g) (2L Standards)) is approximately 230 feet long and measures 95 feet at the widest point. Vertically, the dissolved contaminants with concentrations in excess of the 2L Standards extend to a depth of approximately 25 feet BGL.

To provide preliminary estimates of hydraulic conductivity and groundwater flow velocity for the phreatic aquifer, Terraquest personnel performed slug tests on two monitoring wells. The preliminary hydraulic conductivity estimates range from 0.493 feet per day in monitoring well MW3 to 0.271 feet per day in monitoring well MW9. Using an average hydraulic conductivity value of 0.382 feet per day, an average groundwater seepage velocity value was determined to be 0.02 feet per day or 7.3 feet per year. It is unknown how well the calculated seepage velocity compares with the current location of the contaminant plume since the time since release is unknown.

Under current regulations, the High Risk ranking of the site requires the completion of a Corrective Action Plan. The CAP will propose a method of remediation for impacted soil and groundwater. Terraquest recommends that an aggressive treatment method be evaluated that will provide hydrodynamic control over the plume and prevent migration of contaminants.

1.0 INTRODUCTION

On behalf of the responsible party, Quality Oil Company, LLC., Terraquest Environmental Consultants, P.C. has performed a Comprehensive Site Assessment at the Quality Mart No. 33 facility located in Kernersville, NC. The CSA is related to a release of petroleum from the onsite UST system. The release was discovered during assessment activities conducted in November of 2003. To date, both 20 Day and Limited Site Assessment Reports have been provided to the NCDWM-UST regarding the release incident. Following review of the LSA Report, the NCDWM-UST directed the completion of this CSA in an NORR dated March 4, 2008. Activities performed for the CSA were approved under Task Authorizations 30284-002, -002A, and -003.

The site location and surrounding cultural features are depicted in Figure 1. The site vicinity is depicted in Figure 2. The site layout and monitoring well network are depicted in Figure 3. Appendix A provides the definitions of environmental acronyms used in this report along with a summary of the technical methods and standard procedures generally used by Terraquest personnel. The product type, capacity, date installed, date closed, and release detection information for the two UST systems and a 550-gallon kerosene aboveground storage tank (AST) are listed in Table 1. The UST system layout is depicted in Figure 3.

2.0 SITE HISTORY AND SOURCE CHARACTERIZATION

The NCDWM-UST Petroleum UST Database lists the UST's installation dates as July 27, 1994. Prior to Quality's installation of the current UST system, the property previously had two 3,000-gallon gasoline USTs located adjacent to Union Cross Road. The USTs are believed to have been installed in 1952. According to the current property owner, Donald Joyce, the USTs were abandoned in 1978 and removed by Mr. Joyce in 1988.

Prior to the installation of the current UST system, Quality had a baseline environmental assessment completed of the property in March 1994 to investigate the possibility of the 3,000-gallon USTs impacting the soil and groundwater quality at the site. Results of the soil and groundwater samples collected in the former UST basin and dispenser island during the assessment revealed the presence of petroleum contaminants in both media. The release incident was subsequently transferred over to the NCDWM-UST State Lead Cleanup List on August 26, 1994. In September 2003, the NCDWM-UST contracted Geological Resources, Inc. of Charlotte, NC to complete a Phase I LSA of the release incident associated with the 3,000-gallon gasoline USTs. A Phase I LSA was completed by Geological Resources in October and November of 2003 and was received by the NCDWM-UST on December 2, 2003. Results of the report revealed the presence of MtBE in the monitoring well installed during the Phase I LSA (MW1). Analytical results of the groundwater sample collected from a temporary monitoring well during the 1994 baseline assessment did not have detected concentrations of MtBE greater than the sample detection limit. Based upon the absence of MtBE in the 1994 sample and its presence in the 2003 Phase I LSA groundwater sample, the NCDWM-UST surmised that the MtBE must have originated from the current USTs system installed in 1994.

An NORR was issued by the NCDWM-UST on December 4, 2003 requesting a tank and line tightness test and a site check assessment. On December 22, 2003, Terraquest sent a copy of the tank and product line tightness tests performed by the UST system's Veeder-Root apparatus to the NCDWM-UST. The NCDWM-UST responded to the December 22, 2003 letter with a February 10, 2004 NORR letter requesting a site check. Terraquest personnel spoke with Karen Hall about the February 10, 2004 letter explaining that the tank and line tests performed did not indicate a release therefore a site check did not need to be performed. Ms. Hall indicated that a site check would be required and the tank testing result would not be accepted unless the tests were performed by an independent tank tightness testing company. Precision Tank Service, Inc. (Precision) was contracted by Quality to conduct the tightness test. The tank tightness test performed on February 26, 2004 by Precision indicated that each of the USTs passed the tests.

As stated by Quality in correspondence "during a routine inspection in the summer of 2003, we (Quality) discovered a leak where the electronic leak detector screws into the pump head. We repaired the leak and tested the system. The system checked tight."

Assessment activities were halted by the passage of Session Law 2004-124. On October 23, 2007, following the lowering of the Trust Fund directed work point value, the NCDENR issued a NORR requiring a groundwater monitoring event be conducted at the site. This event is documented in the Groundwater Monitoring Report dated February 25, 2008.

On March 4, 2008 the NCDENR issued a NORR requiring a Comprehensive Site assessment be completed for the site.

3.0 RECEPTOR INFORMATION

As a part of LSA Activities at the site Terraquest personnel performed a reconnaissance of properties within a 1,500-foot radius of the source area. The reconnaissance effort consisted of obtaining tax department and local zoning information on properties and conducting door-to-door visits of certain properties within 1,500 feet of the source area, in addition to collecting other pertinent information from the appropriate local and state officials. The reconnaissance was updated in February 2008.

Terraquest personnel inspected all properties within 1,500 feet of the site and attempted to contact all of the property owners within 500 feet in person. Property owners were questioned, if available, as to the source of their water and if any water supply wells were located on their property. If owners/occupants were not home, a survey form was left at their residence or forwarded to the property owners through the mail. In all cases, Terraquest also conducted a visual survey of the property. A less detailed reconnaissance effort was conducted for properties located 500 to 1,500 feet away from the site. Surrounding property owners/occupants are detailed on Table 2.

Through the reconnaissance efforts, a total of twenty-five (25) potable wells were identified within 1,500-feet of the release area at QM No. 33. Note that according to the appropriate property owners, five (5) of the twenty-four (24) wells have been abandoned. Of the remaining twenty (20) wells, one is an active sole-source potable wells and is within 1,000-feet of the release area. There is also one inactive water supply well within 250 feet of the release area that has not been properly abandoned. The municipal water supply system is available to all properties in the vicinity of the site. Information concerning wells in the vicinity of the site is provided in Table 3.

As part of the reconnaissance effort, Terraquest also searched for any surface water bodies within a 500-foot radius of the site. No surface water bodies were identified within 500 feet of the site. The site vicinity is depicted on Figures 1 and 2.

Land usage in the surrounding vicinity is chiefly residential with some commercial properties. Properties in the vicinity of the site are zoned R-9 and R-10, residential, LB, limited business, and NSBS, neighborhood shopping center business special. Zoning boundaries are shown on Figure 2. The names and addresses of owners of properties immediately surrounding the site are listed in Table 2.

Underground utilities identified at the site consist of electric, secondary electric (for signs, lights, etc.), water, and sewer. It is unknown at this time if utilities are acting as migratory pathways for contamination.

This site should be ranked a High Risk with a Residential land-use classification according to the NCDWM-UST's April 2001 publication, *Guidelines for Assessment and Corrective Action* (Guidelines, 2001). This ranking stems from the presence of an active sole-source water supply well within 1,000 feet of the release area, the presence of an inactive yet un-abandoned water supply well within 250 feet of the release area, and the presence of residential properties in close proximity to the site.

4.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

According to the Geologic Map of North Carolina, the site lies in the northeast portion of the Charlotte Belt of the Inner Piedmont Physiographic Province. The Charlotte Belt is primarily composed of granitic bedrock (Brown, et al., 1985).

5.0 SITE GEOLOGY AND HYDROGEOLOGY

The following lithologies were encountered at the site during the advancement of soil borings and during the installation of the monitoring well network:

0' – ~20' below ground level (BGL):

SILT (ML)

Soft, yellowish orange/light brown, mostly silt, some clay,

~20.0' – 45' BGL

SAPROLITE

Site topography is depicted in Figure 1. The locations of monitoring wells MW1 through MW10 are depicted in Figure 3 and the locations of soil borings B1 through B35 are depicted in Figure 4. Soil boring logs and the applicable well construction records for monitoring wells MW4 through MW10 and soil borings B1 through B35 are contained in Appendix B.

Depth-to-groundwater measurements were collected from the monitoring wells to identify the depth of phreatic groundwater and to estimate the direction of groundwater flow on May 29, 2008. Groundwater elevation measurements were reduced to a common datum by surveying the relative elevation of the top of the casing for each monitoring well. The water table elevation data was then used to create a potentiometric surface map which illustrates the interpreted direction and gradient of groundwater flow (Figure 5). The map indicates that groundwater is flowing to the

west. Table 4 displays monitoring well construction information and also the groundwater elevation data as measured on May 29, 2008.

6.0 SOIL ASSESSMENT

6.1 Soil Borings and Samples

As part of soil investigation activities (in addition to those detailed in the previously submitted Site Check and Initial Abatement Report) Terraquest personnel collected soil samples from soil borings B8 through B27 on April 5 and 6, 2005 and from soil borings B28 through B35 on May 28, 2008. These soil borings were advanced by Terraquest personnel using either a Geoprobe Model 6610DT drilling apparatus or a hand auger. The borings were advanced around the current UST system, the former UST system, along the product lines, and around the dispenser islands. Soil borings advanced to investigate a product line release were advanced in close proximity to the lines to the depth of native soil below the lines. The soil borings advanced around the current UST system and in the former UST basin were advanced to the water table. For all soil borings Terraquest personnel logged the soil lithology and screened various intervals of the boring for petroleum-type vapors using olfactory senses and an OVM. Terraquest chose the soil sample interval based upon depth or which interval was most likely to contain contamination based upon field screening for laboratory analysis. If no contamination was suspected at any interval of a soil boring, Terraquest personnel chose the shallowest interval below the product lines or dispensers, or the shallowest interval beneath the USTs (current and former) for laboratory analysis. The chosen soil samples were placed into the appropriate laboratory-prepared containers and packed on ice pending transport to a North Carolina-certified laboratory. The soil samples were submitted for analysis per EPA Method 8260+MtBE+IPE and per the MADEP method for VPH.

The analytical results of soil samples B1 through B35 revealed the presence of soil contamination in excess of the STG MSCCs in B10, B17, B24, B25, B28, B29, B30, B31, and B33. (Since this site should be ranked a High Risk, the STG MSCCs are applicable.) Note that the depth of collection of

soil samples B1 and B3 are indicative of groundwater contamination and not true soil contamination; therefore, these samples were omitted when considering the amount of STG MSCC violation. Petroleum-type compounds were detected in the B11 through B16, B21, B22, B23, B26, B27, B32, B34, and B35 soil samples, however, the concentrations were below the respective STG MSCCs for each respective compound. No petroleum-type compounds were reported at concentrations in excess of the laboratory's sample-specific method detection limit for the B18, B19, and B20 soil samples. The analytical results of soil samples B1 through B35 are summarized on Table 5. The estimated extent of STG MSCC violation is displayed on Figure 4. As indicated in this figure, the area of impacted soil is approximately 660 square feet. The full analytical report is contained in Appendix C.

6.2 Extent of Capillary Zone Impact

Due to the presence of dissolved-phase groundwater contamination, a zone of soil contamination likely exists at the soil/water interface. This contamination is the result of petroleum compounds in or on the groundwater being retained on the surface of soil in the capillary zone. This zone is usually found in areas with higher concentrations of groundwater contamination that are located chiefly downgradient of the contaminant source area. It may not be a continuous zone due to variations in soil lithologies and petroleum concentrations in the groundwater. In addition, fluctuations in the water table elevation may affect the thickness of this zone. The thickness of the capillary zone at the site is thought to be moderate (0.5 to 1.0 feet), due to the reported silty lithology present at the vadose/saturated zone border.

7.0 GROUNDWATER QUALITY

7.1 Monitoring Well Network

Terraquest personnel supervised the installation of monitoring wells MW2 and MW3 as part of site check activities, wells MW4 – MW8 (Type III) as part of LSA activities, and wells MW9 and MW10 as

part of the CSA. All of the Type II wells were installed using a Geoprobe Model 6610 DT drilling unit. The Type III well, MW8, was installed using a truck mounted drilling rig. The Type II wells were constructed with final depths ranging from 18 feet to 25 feet and a screen interval that brackets the water table. The telescoping Type III well was installed for vertical delineation and was constructed of an inner casing terminating at 30 feet BGL, an inner casing that extends to 40 feet BGL, and screen from 40 – 45 feet BGL. Following construction, each well was developed with either a decontaminated pump or by hand bailing until the removed water was relatively free of sediment. This process helps to remove fine sediment that may clog the screen and allows for the collection of groundwater samples more representative of the aquifer in each well's location.

Monitoring well construction information is provided in Table 4. The well locations are shown on Figure 3. Well construction records are provided in Appendix B.

7.2 Extent of Free-Phase Petroleum Product

A measurable thickness of free product has not been observed in any of the monitoring wells at the site.

7.3 Groundwater Sampling

Terraquest personnel sampled the following monitoring wells on the following dates:

4/7/2004	MW – MW3
4/14/2005	MW1 – MW8
2/11/2008	MW1 – MW8
5/28/2008	MW9
10/24/08	MW10

Prior to sampling each well, a new disposable bailer was first used to purge a minimum of three well volumes of water from the well. Those bailers were then used to retrieve groundwater samples and place them into the appropriate laboratory-prepared containers. The containers were labeled and packed on ice pending transit to an NC-certified laboratory. Each sample was analyzed for VOCs using Method 6210D+MtBE+IPE or Method 6200B+MtBE+IPE. For the first sampling of each well, MADEP VPH, 504.1 targeting EDB, and 6010B targeting lead analyses were also conducted.

7.4 Horizontal Extent of Groundwater Contamination

The groundwater analytical results of the 2008 groundwater sampling events reveal a groundwater contaminant plume that stretches downgradient in an oval shape. As shown on Figure 6, the plume is approximately 230 feet long and measures 95 feet at the widest point. The areal extent is approximately 17,000 square feet.

Results of the 2008 sampling events reveal the presence of 2L Standard violations for monitoring wells MW1, 2, 3, 5, 9, and 10. No petroleum-type compounds were reported at concentrations in excess of the laboratory's method detection limit for samples MW4, MW6, MW7 and MW8.

The groundwater analytical results are summarized on Table 6 and on Figure 6. An isoconcentration map, Figure 7, was generated for benzene, the only compound with sufficient data points to support such a map. The full analytical reports for samples collected subsequent to the submission of the LSA are provided in Appendix C.

7.5 Vertical Extent of Groundwater Contamination

The vertical extent of groundwater contamination was estimated based upon the concentrations noted in the Type II and Type III (MW8) groundwater monitoring wells. As shown on Figure 8, the estimated vertical extent of groundwater contamination is approximately 30 feet BGL.

8.0 HYDROGEOLOGIC INVESTIGATION

8.1 Saturated Lithologies – Aquifer Locations

Information gathered during the installation of the monitoring wells was used to construct geologic cross sections of the phreatic aquifer (Figure 8). The trace of the potentiometric surface was projected onto the cross sections in order to illustrate the site hydrogeology. Analysis of the cross sections reveals that the shallowest lithology is a clayey silt that extends to a depth of approximately 20 feet BGL. The second lithology is a saprolite that apparently extends to the underlying bedrock. The phreatic aquifer at the site begins approximately 13 feet BGL and extends to the underlying bedrock. Bedrock was not encountered during assessment activities.

8.2 Groundwater Flow Data

Terraquest personnel measured the depth to water in monitoring wells MW1 through MW9 to identify the location of the phreatic aquifer and to determine the direction of its flow on May 29, 2008. Groundwater elevation measurements were reduced to a common datum by surveying the relative elevation of the top of the casing for each monitoring well. The water table elevation data was then used to create a potentiometric surface map that illustrates the direction and gradient of groundwater flow (Figure 5). Based upon an overall gradient trend the groundwater flow direction is toward the east-northeast. Previous determinations of groundwater flow direction have also indicated a general flow direction to the west. Table 4 summarizes the relative elevation and depth-to-groundwater measurements for the monitoring wells at the site as measured on May 29, 2008.

The groundwater elevation measurements reveal that the hydraulic head within the shallow phreatic aquifer ranged from a relative value of approximately 84.83 feet at monitoring well MW1 to 85.75 feet at monitoring well MW9 as measured on May 29, 2008. As measured parallel to

groundwater flow, these results indicate that flow in the phreatic aquifer is in a westerly direction under an average hydraulic gradient of approximately 0.01.

Water level data from the Type III monitoring well (MW8) and the interpreted groundwater elevation in the phreatic aquifer in the vicinity of the Type III well (interpreted based on contour lines shown on Figure 5) were used to determine if a vertical head gradient existed in the phreatic aquifer. The vertical gradient was calculated using the following equation and groundwater elevation data collected on May 29, 2008:

where:

$$V_g = \frac{h_{phreatic} - h_{MW8}}{D}$$

V_g = Vertical head gradient

$H_{phreatic}$ = Water elevation in the shallow aquifer near MW3 = 84.98'

H_{MW5} = Water elevation in deep well MW8 = 85.00'

D = The difference in elevation between the shallow water table and the middle of the well screen in MW5 = (84.98' – 56.5') = 28.48'

therefore:

$$V_g = \frac{84.98'-85.00'}{28.48'} = -0.0007$$

The head gradient suggests a minor discharging hydrologic flow gradient meaning groundwater tends to flow in an upward direction.

8.3 Aquifer Tests

To provide preliminary estimates of hydraulic conductivity (K) and groundwater flow velocity (v) for the phreatic aquifer, Terraquest personnel performed slug tests on monitoring wells MW3 and MW9 on May 29, 2008. A complete explanation of the slug test procedures, data obtained, and

data reduction is included in Appendix D. Hydraulic conductivity estimates were determined using Aquifer Test 4.2, a computer model developed by Waterloo Hydrogeologic. The data was reduced using the Bouwer and Rice Method (Bouwer and Rice 1976, Bouwer 1989). The preliminary hydraulic conductivity estimates of 0.493 feet per day at monitoring well MW3 and 0.271 feet per day at monitoring well MW9. These values for hydraulic conductivity fall within the range expected of silts (Heath, 1983). The lithologies logged in the saturated zones of the slug tested monitoring wells support this.

Using an average hydraulic conductivity value of 0.382 feet per day, an average groundwater seepage velocity value was determined to be 0.02 feet per day or 7.3 feet per year. An effective porosity of 0.19 and a hydraulic gradient of 0.01 (based on 5/29/08 data) were used for calculating the groundwater flow velocity (Sanders, 1998 and Heath, 1983). It is unknown how well the calculated seepage velocity compares with the current location of the contaminant plume since the time since release is unknown. It should be noted that the calculated seepage velocity does not provide an exact flow velocity for dissolved-phase contamination which may be affected by retardation, absorption, and biodegradation as it travels with groundwater. An explanation of the equation and what variables were used in determining its value are contained in Appendix D.

8.4 Qualitative Fate and Transport

The dissolved constituents present in groundwater at the Quality Mart 33 facility will migrate in the direction of groundwater flow by advective transport and dispersion. Biodegradation, volatilization, and dilution will reduce the concentrations of petroleum constituents in groundwater over time. Advancement of the dissolved plume will continue until either equilibrium conditions are reached, a discharge point is intercepted, or biodegradation processes overtake transport processes.

Equilibrium between the advancing dissolved petroleum plume and retardation factors such as biodegradation, volatilization, and dilution may be reached. If groundwater flow propagates the

contaminants at the same rate that retardation forces degrade it, then the plume will cease to advance. If equilibrium is maintained over time, the plume may degrade to below regulatory levels. Biodegradation may act on the dissolved plume more quickly than groundwater forces advance the plume. In such a scenario, the limits of the plume would be reduced over time.

9.0 CONCLUSIONS / RECOMMENDATIONS

Based upon findings of the Comprehensive Site Assessment activities conducted at the Quality Mart No. 33 facility, the following conclusions and recommendation can be drawn:

- This is a High Risk release due to the presence of a sole source water supply well located approximately 490 feet southeast of the release area.

- Gasoline-type fuels have been released from the UST system at the site into the subsurface resulting in soil and groundwater impact.

- Two areas of soil with petroleum constituent concentration in excess of STG MSCCs are located in the vicinity of the current dispensers at the site.

- Groundwater has been impacted with dissolved-phase petroleum compounds. The plume originates from the dispensers and extends to the up, lateral, and downgradient directions.

  The dissolved-phase contamination plume is approximately 230 feet long and measures 95 feet at the widest point. The aerial extent is approximately 17,000 square feet. Vertically, the dissolved contaminants with concentrations in excess of the 2L Standards extend to a depth of approximately 25 feet BGL.

- Direction of groundwater flow on May 29, 2008 was to the east-northeast across the property. Previous determinations have indicated a westerly groundwater flow direction. The detection of contaminants in monitoring wells in the interpreted downgradient direction of the source indicates that the contaminant plume is migrating.

- Under the current regulations, the High Risk ranking of the site requires the completion of a CAP. The CAP will propose a method of remediation for impacted groundwater.

- Public notification of this CSA Report will not be made as directed by the NCDWM-UST's incident manager who did not approve costs for such notification and stated that it was not required.

10.0 LIMITATIONS

This report is limited to the investigation of petroleum-type compounds, and does not imply that other unforeseen adverse impacts to the environment are not present at the facility. In addition, subsurface heterogeneities not identified during the current study may influence the migration of groundwater or contaminants in unpredicted ways. The limited amount of sampling and testing conducted during this study can not practically reveal all subsurface heterogeneities. Furthermore, the subsurface conditions, particularly groundwater flow, elevations, and water quality may vary through time. The opinions and conclusions arrived at in this report are in accordance with industry-accepted geologic and hydrogeologic practices at this time and location. No warranty is implied or intended.

REFERENCES

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Heath C. Ralph. 1983. *Basic Groundwater Hydrology, US Geological Survey Water-Supply Paper 2220*, US Government Printing Office: 13.

Sanders, Laura L. 1998. *A Manual of Field Hydrogeology*. Upper Saddle River, New Jersey: Prentice Hall Inc.: 196.

Table 1 SITE HISTORY (UST & AST SYSTEM INFORMATION)
Date: 11/10/08 Incident Name: Quality Mart No. 33 Incident No. 30284 Facility ID No.: 0-034372

UST	Product	Capacity (gallons)	Date Installed	Date Closed	Release Discovered?
1A	Gasoline	3,000	1952	Closed - 1978	Yes
1B	Gasoline	3,000	1952	Closed - 1978	Yes
1	Gasoline	8,000	7/27/1994	In Use	Yes
2	Gasoline	8,000	7/27/1994	In Use	Yes
3	Gasoline	12,000	7/27/1994	In Use	Yes
AST	Product	Capacity (gallons)	Date Installed	Date Closed	Release Discovered?
1	Kerosene	550	7/27/1994	In Use	No

Notes:
1. Information obtained from Donald Joyce and the NC Petroleum UST Database.
2. Refer to Figure 3 for the estimated former locations of 1A and 1B and the current locations of USTs 1, 2, and 3 and AST 1.

Table 2
Date: 5/23/05

SURROUNDING PROPERTY OWNERS/OCCUPANTS
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No. 0-034372

Tax Parcel Number	Property Owner	Property Owner Address	Property Address
SITE → 6875-41-4997	Donald A. and Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	1400 Union Cross Road Kernersville, NC 27284-7513
6875-41-4814	Donald A. and Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	1404 Union Cross Road Kernersville, NC 27284-7513
6875-41-2985	Donald A. and Maxine D. Joyce	1022 Sedge Garden Road Kernersville, NC 27284-7513	Sedge Garden Road Kernersville, NC 27284-7513
6875-42-4247	Greenwood & Charles, Inc.	1451 Trade Mart Blvd. Ste A Winston-Salem, NC 27107	1031 Sedge Garden Road Kernersville, NC 27284
6875-42-8088	Kyle H. and Frances Harris	127 Blue Bell Road Greensboro, NC 27406-5301	1399 Union Cross Road Kernersville, NC 27284
6875-41-7962	Gary D. and Juadane Smith	1510 Pecan Lane Kernersville, NC 27284	1401 Union Cross Road Kernersville, NC 27284
6875-41-7707	Gary D. and Juadane Smith	1510 Pecan Lane Kernersville, NC 27284	1405 Union Cross Road Kernersville, NC 27284

Notes:
1. Information gathered from Forsyth County Geo-Data Explorer.
2. Tax parcel numbers correspond with those displayed on Figure 2.

Table 4

MONITORING WELL CONSTRUCTION INFORMATION

Date: 11/13/08

Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No.: 0-034372

Well ID	Date Installed	Date Water Level Measured	Well Casing Depth (feet BGS)	Screened Interval (x to y feet BGS)	Bottom of Well (feet BGS)	Top of Casing Elevation (feet)	Depth to Water from Top of Casing (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Comments
MW1	10/23/2003	5/29/2008	25	10 - 25	25	98.55	13.72	NP	84.83	2"-diameter Type II monitoring well
MW2	4/6/2004	5/29/2008	20	5 - 20	20	99.28	14.41	NP	84.87	2"-diameter Type II monitoring well
MW3	4/6/2004	5/29/2008	20	5 - 20	20	98.70	13.72	NP	84.98	2"-diameter Type II monitoring well
MW4	4/6/2005	5/29/2008	5	5 - 18	18	99.05	14.12	NP	84.93	2"-diameter Type II monitoring well
MW5	4/6/2005	5/29/2008	5	5 - 18	18	98.65	13.79	NP	84.86	2"-diameter Type II monitoring well
MW6	4/6/2005	5/29/2008	5	5 - 18	18	99.78	14.93	NP	84.85	2"-diameter Type II monitoring well
MW7	4/6/2005	5/29/2008	5	5 - 18	18	98.81	13.68	NP	85.13	2"-diameter Type II monitoring well
MW8	4/7-8/05	5/29/2008	OC: 30 IC: 40	40 - 45	45	99.00	14.00	NP	85.00	2"-diameter Type III monitoring well
MW9	5/28/2008	5/29/2008	5	5 - 25	25	98.87	13.12	NP	85.75	2"-diameter Type II monitoring well
MW10	10/22/2008	10/22/2008	5	5 - 25	25	96.45	15.66	NP	80.79	2"-diameter Type II monitoring well

Notes:

1. All units in feet.
2. "BGS" = below ground surface, "NP" = no free product detected in the well, "OC" = outer casing, "IC" = inner casing.

Table 3
Date: 11/10/08

WATER SUPPLY WELL INFORMATION
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No. 0-034372

Well ID No.	Well Owner/Address	Well Address	Phone No.	Well Use	Well Depth (feet BGS)	Type of Well	Casing Depth (feet BGS)	Screen Interval (feet BGS)	Distance from Source Area of Release (feet)
1	Donald A. and Maxine D. Joyce 1022 Sedge Garden Road Kernersville, NC 27284-7513	1400 Union Cross Road Kernersville, NC 27284	unknown	abandoned supply well	unknown	unknown	unknown	unknown	<100
2	Donald A. and Maxine D. Joyce 1022 Sedge Garden Road Kernersville, NC 27284-7513	1404 Union Cross Road Kernersville, NC 27284	unknown	inactive (disconnected, not abandoned)	unknown	unknown	unknown	unknown	200
3	Rodney and Misty Godwin 1409 Union Cross Road Kernersville, NC 27284	1409 Union Cross Road Kernersville, NC 27284	336 993-0898	inactive (disconnected)	unknown	unknown	unknown	unknown	365
4	Gary D. and Juadane Smith 1510 Pecan Lane Kernersville, NC 27284	1401 Union Cross Road Kernersville, NC 27284	unknown	inactive	unknown	unknown	unknown	unknown	320
5	Donald A. and Maxine D. Joyce 1022 Sedge Garden Road Kernersville, NC 27284-7513	1022 Sedge Garden Road Kernersville, NC 27284-7513	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	300
6	Leo O. Whicker 841 Silver Dapple Lane Kernersville, NC 27284-9545	1018 Sedge Garden Road Kernersville, NC 27284	unknown	inactive supply well	unknown	unknown	unknown	unknown	420
7	BI-LO LLC 208 BI LO Blvd. Greenville, SC 29607	1021 Sedge Garden Road Kernersville, NC 27284	unknown	abandoned supply well	unknown	unknown	unknown	unknown	375
8	Anna M. Wall 1108 Old Salem Road Kernersville, NC 27284	1108 Old Salem Road Kernersville, NC 27284	unknown	ACTIVE supply well	unknown	unknown	unknown	unknown	490
9	Ronald F. and Inez L Day 520 West Mountain Street Kernersvill, NC 27284-0	1017 Sedge Garden Road Kernersville, NC 27284	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	450
10	Myrtle Ballard 1013 Sedge Garden Road Kernersville, NC 27284-7514	1013 Sedge Garden Road Kernersville, NC 27284-7514	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	545
11	Floyd H. Goode 1011 Sedge Garden Road Kernersville, NC 27284-7514	1011 Sedge Garden Road Kernersville, NC 27284-7514	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	730
12	Russell F. Brendle 1007 Sedge Garden Road Kernersville, NC 27284-7514	1007 Sedge Garden Road Kernersville, NC 27284-7514	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	625
13	David J. Smith 1415 Lambs Lane Kernersville, NC 27284-0	1415 Lambs Lane Kernersville, NC 27284-0	unknown	abandoned supply well	unknown	unknown	unknown	unknown	730
14	Floyd E. and Martha Mabe 1119 Old Salem Road Kernersville, NC 27284-0	1119 Old Salem Road Kernersville, NC 27284-0	unknown	abandoned supply well	unknown	unknown	unknown	unknown	900
15	James E. Messick, III 1117 Old Salem Road Kernersville, NC 27284-9465	1117 Old Salem Road Kernersville, NC 27284-9465	unknown	abandoned supply well	unknown	unknown	unknown	unknown	800
16	Prefecto and Josefino Ruiz 1389 Union Cross Road Kernersville, NC 27284-0	1389 Union Cross Road Kernersville, NC 27284-0	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	730
17	Nannie L. Beeson, V 1385 Union Cross Road Kernersville, NC 27284-7531	1385 Union Cross Road Kernersville, NC 27284-7531	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	860
18	Robert G. Hemrick 1384 Union Cross Road Kernersville, NC 27284-7532	1384 Union Cross Road Kernersville, NC 27284-7532	unknown	inactive supply well	unknown	unknown	unknown	unknown	850
19	Charles Matlock, V 205 Greenlawn Drive Kernersville, NC 27284-9498	205 Greenlawn Drive Kernersville, NC 27284-9498	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,020
20	V. L. Ross 1380 Union Cross Road Kernersville, NC 27284-7532	1380 Union Cross Road Kernersville, NC 27284-7532	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,130
21	Phoebe L. Vogler 1378 Union Cross Road Kernersville, NC 27284-7532	1378 Union Cross Road Kernersville, NC 27284-7532	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,280
22	Joseph B. and Tammy W. Fletcher 1381 Union Cross Road Kernersville, NC 27284-0	1381 Union Cross Road Kernersville, NC 27284-0	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,045
23	Elizabeth W. Allen 1379 Union Cross Road Kernersville, NC 27284-7531	1379 Union Cross Road Kernersville, NC 27284-7531	unknown	inactive (disconnected)	unknown	unknown	unknown	unknown	1,220
24	Royce E. and Carolyn R. Voss 910 Weavil Road Kernersville, NC 27284-0	1377 UNION CROSS RD Kernersville, NC 27284-7531	unknown	inactive supply well	unknown	unknown	unknown	unknown	1,315
25	James W. Lemons 916 Mayford Road Kernersville, NC 27284	916 Mayford Road Kernersville, NC 27284	unknown	inactive supply well	unknown	unknown	unknown	unknown	1,145

Notes:
1. "BGS" = below ground surface.
2. Information obtained from TerraQuest field interviews.
3. Well ID numbers are displayed on Figure 2.
4. Water supply wells (inactive, yet unabandoned within 250 feet of the release area and active sole-source within 1,000 feet of the release area) are shaded.

Table 5
Date: 11/10/08

SUMMARY OF SOIL SAMPLING RESULTS
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID: 0-034372

		Analytical Method	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	8260+MtBE+IPE	MADEP VPH	MADEP VPH	MADEP VPH
	Contaminant of Concern																					
Sample ID	Date Collected	Sample Depth (feet below ground level)	Benzene	Toluene	Ethylbenzene	Total Xylenes	n-Butylbenzene	sec-Butylbenzene	Isopropylbenzene	p-Isopropyltoluene	IPE	MtBE	Acetone	2-Butanone	Naphthalene	n-Propylbenzene	1,2,4 Trimethylbenzene	1,3,5 Trimethylbenzene	C-5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics
B1	4/6/04	7.5-8.5	<0.068	<0.34	<0.068	<0.2	<0.068	<0.068	<0.068	<0.068	<0.068	0.77	<1.7	<0.68	<0.34	<0.068	<0.068	<0.068	<6.8	<6.8	<6.8
B1	4/6/04	14.5-15	<0.079	<0.39	<0.079	<0.24	<0.079	<0.079	<0.079	<0.079	<0.079	2.9	<2.0	<0.79	<0.39	<0.079	<0.079	<0.079	<9.8	<9.8	<9.8
B2	4/6/04	7.5-8.5	<0.0014	<0.0072	<0.0014	<0.0043	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.02	<0.036	<0.014	<0.0072	<0.0014	<0.0014	<0.0014	<7.2	<7.2	<7.2
B3	4/6/04	7.5-8.5	0.0068	<0.0065	<0.0013	0.008	<0.0013	<0.0013	<0.0013	<0.0013	0.008	0.68	<0.033	<0.013	0.0098	<0.0013	0.0015	<0.0013	<6.5	<6.5	<6.5
B3	4/6/04	12.5-13.5	0.046	0.064	0.013	0.074	<0.0013	<0.0013	0.0017	<0.0013	0.027	1.4	0.042	<0.013	0.054	0.0029	0.014	0.0064	<6.6	<6.6	<6.6
B4	4/6/04	4-5	<0.0011	<0.0056	<0.0011	<0.0034	<0.0011	<0.0011	<0.0011	<0.0011	0.0013	0.016	0.065	<0.011	<0.0056	<0.0011	0.0014	<0.0011	<5.6	<5.6	<5.6
B4	4/6/04	16.5-17.5	0.0028	<0.0066	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	0.027	0.34	<0.033	<0.033	<0.0066	<0.0013	0.0018	<0.0013	<8.2	<8.2	<8.2
B5	4/6/04	3.5-4.5	<0.0012	<0.006	<0.0012	<0.0036	<0.0012	<0.0012	<0.0012	<0.0012	0.0027	0.022	0.12	0.015	<0.006	<0.0012	<0.0012	<0.0012	<6.0	<6.0	<6.0
B6	4/6/04	6.5-8	<0.0013	<0.0063	0.0021	0.0063	<0.0013	0.018	0.0015	0.0091	<0.0013	0.017	<0.032	<0.013	<0.0063	<0.0013	0.0068	0.0042	8.5	22.0	15.0
B7	4/6/04	5-6.5	0.0037	<0.0067	<0.0013	<0.004	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.046	<0.013	<0.0067	<0.0013	<0.0013	<0.0013	<6.7	<6.7	<6.7
B8	4/6/05	3.25-3.5	<0.0013	<0.0064	<0.0013	<0.0036	<0.0013	<0.0013	<0.0013	<0.0013	0.0018	0.020	0.26	<0.013	<0.0064	<0.0013	<0.0013	<0.0013	<6.4	<6.4	<6.4
B9	4/6/05	4-4.5	<0.0011	<0.0057	<0.0011	<0.0034	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	0.0012	0.081	<0.011	<0.0057	<0.0011	<0.0011	<0.0011	<5.7	11.0	7.5
B10	4/6/05	4-4.5	0.64	2.6	33.0	98.0	3.6	1.7	4.8	1.1	<0.25	<0.25	<6.3	<2.5	22.0	26.0	120	44.0	1,100	960	700
B11	4/6/05	2.5-3.5	<0.0013	<0.0066	<0.0013	<0.0039	<0.0013	<0.0013	<0.0013	0.021	<0.0013	0.0052	0.21	0.014	<0.0066	<0.0013	<0.0013	<0.0013	<6.6	<6.6	<6.6
B12	4/6/05	4.5-5	<0.0014	<0.0068	<0.0014	<0.0041	<0.0014	<0.0014	<0.0014	<0.0014	0.0024	0.26	<0.34	<0.014	<0.0068	<0.0014	<0.0014	<0.0014	<6.8	<6.8	<6.8
B13	4/7/05	7-8	<0.0014	<0.0073	<0.0014	<0.0044	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.090	<0.036	<0.014	<0.0073	<0.0014	<0.0014	<0.0014	<7.3	<7.3	<7.3
B14	4/7/05	7-8	<0.0013	<0.0067	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.042	<0.034	<0.013	<0.0067	<0.0013	<0.0013	<0.0013	<6.7	<6.7	<6.7
B15	4/7/05	7-8	<0.0014	<0.0070	<0.0014	<0.0042	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.070	<0.035	<0.014	<0.0070	<0.0014	<0.0014	<0.0014	<7.0	<7.0	<7.0
B16	4/7/05	7-8	<0.0014	<0.0070	<0.0014	<0.0042	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0046	0.064	<0.014	<0.0070	<0.0014	<0.0014	<0.0014	<7.0	<7.0	<7.0
B17	4/7/05	5-7	0.14	<0.25	0.46	1.7	0.16	0.056	0.070	<0.049	<0.049	0.090	<1.2	<0.49	1.5	0.23	2.5	0.63	12.0	30.0	24.0
B18	4/7/05	7-8	<0.0013	<0.0066	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.033	<0.013	<0.0066	<0.0013	<0.0013	<0.0013	<6.6	<6.6	<6.6
B19	4/7/05	7-8	<0.0014	<0.0070	<0.0014	<0.0042	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.035	<0.014	<0.0070	<0.0014	<0.0014	<0.0014	<7.0	<7.0	<7.0
B20	4/7/05	7-8	<0.0014	<0.0071	<0.0014	<0.0043	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.036	<0.014	<0.0071	<0.0014	<0.0014	<0.0014	<7.1	<7.1	<7.1
B21	4/7/05	4-6.5	<0.0014	<0.0068	<0.0014	<0.0041	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.067	0.066	<0.014	<0.0068	<0.0014	<0.0014	<0.0014	<6.8	<6.8	<6.8
B22	4/7/05	3.5-4	0.0013	<0.0058	<0.0012	<0.0034	0.0013	0.0029	<0.0012	0.0021	0.0015	0.025	0.059	<0.012	<0.0058	<0.0012	0.0051	0.0030	<5.8	11.0	6.6
B23	4/7/05	4.5-5	0.0039	<0.0061	<0.0012	<0.0037	<0.0012	<0.0012	<0.0012	0.015	0.0019	0.012	0.031	<0.012	<0.0061	<0.0012	0.0060	<0.0012	<6.1	<6.1	<6.1
B24	4/7/05	4-5	<0.094	<0.47	<0.094	<0.28	<0.094	0.20	<0.094	0.14	<0.094	<0.094	<2.4	<0.94	<0.47	<0.094	<0.094	<0.094	<30.	330	230
B25	4/7/05	4.5-5	<0.058	<0.29	<0.058	<0.17	<0.058	<0.058	<0.058	<0.058	<0.058	<0.058	<1.4	<0.58	<0.29	<0.058	<0.058	<0.058	<5.7	81.0	55.0
B26	4/7/05	4.5-5	0.0024	<0.0064	<0.0013	<0.0038	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0018	<0.032	<0.013	<0.0064	<0.0013	<0.0013	<0.0013	<6.4	7.5	<6.4
B27	4/7/05	4.5-5	0.0054	<0.0059	0.0032	<0.0035	<0.0012	<0.0012	<0.0012	<0.0012	0.014	0.14	0.034	<0.012	<0.0059	<0.0012	0.0034	0.0013	<5.9	<5.9	<5.9
B28	5/28/08	7'-8'	0.41	<1.2	6.7	25	3.7	1.1	1.4	<0.25	,0.25	<0.25	<12	<2.5	8.3	5.4	32	11	80	540	240
B29	5/28/08	8'-9'	0.33	<0.55	3.3	<0.33	1.4	0.51	0.66	0.20	<0.11	<0.11	<5.5	<1.1	4.2	2.5	12	0.37	22	200	85
B30	5/28/08	9'-10'	6.5	<5.6	51	190	12	4.2	7.9	<1.1	<1.1	<1.1	<56	<11	35	27	150	48	280	910	600
B31	5/28/08	9'-10'	0.66	<0.62	0.99	2.8	0.57	0.71	0.28	<0.12	<0.12	<0.12	<6.2	<1.2	2.3	0.64	4.5	1.4	73	150	110
B32	5/28/08	7'-8'	0.0012	<0.0060	0.0092	0.032	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	0.0020	0.13	<0.012	<0.0060	0.0014	0.0072	0.0026	<4.4	<4.4	<4.4
B33	5/28/08	8'-9'	<0.042	<0.21	0.12	0.26	0.74	0.60	0.26	<0.042	<0.042	<0.042	<2.1	<0.42	6	0.45	3.8	1.5	<46	480	300
B34	5/28/08	7'-8'	<0.0013	<0.0067	0.0020	0.0074	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.15	0.018	<0.0067	<0.0013	0.0052	<0.0013	<5.4	22	15
B35	5/28/08	9'-10'	<0.0013	<0.0066	<0.0013	<0.0040	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.14	<0.013	<0.0066	<0.0013	0.0014	<0.0013	<5.2	5.9	<5.2
Soil to groundwater MSCC			0.0056	7.3	4.6	5	4.3	3.3	1.7	34	0.37	0.92	2.8	17.0	0.58	1.7	7.5	7.3	72	3,300	34*
Residential MSCC			18	3,200	1,560	3,129	626	626	1,564	469	156	213	1,564	9,385	313	4,693	782	782	939	9,386*	469*
Industrial /Commercial MSCC			164	82,000	40,000	81,670	16,350	16,350	40,880	12,264	4,088	1,908	40,880	245,280	8,175	122,600	20,440	20,440	24,528	245,280*	12,264*

Notes:
1. All results in mg/kg.
2. **BOLD** denotes a compound detection.
3. Shading denotes a Soil-to-Groundwater Maximum Soil Contaminant Concentration (MSCC) violation.
4. "-" Not sampled for.
5. "<" = Less than sample detection limit.
6. "*" = The MSCCs listed for the C9-C12 aliphatic and C9-C22 aromatic carbon fraction classes are actually the MSCCs for the C9-C18 aliphatic and C9-C22 aromatic carbon fraction classes, respectively.

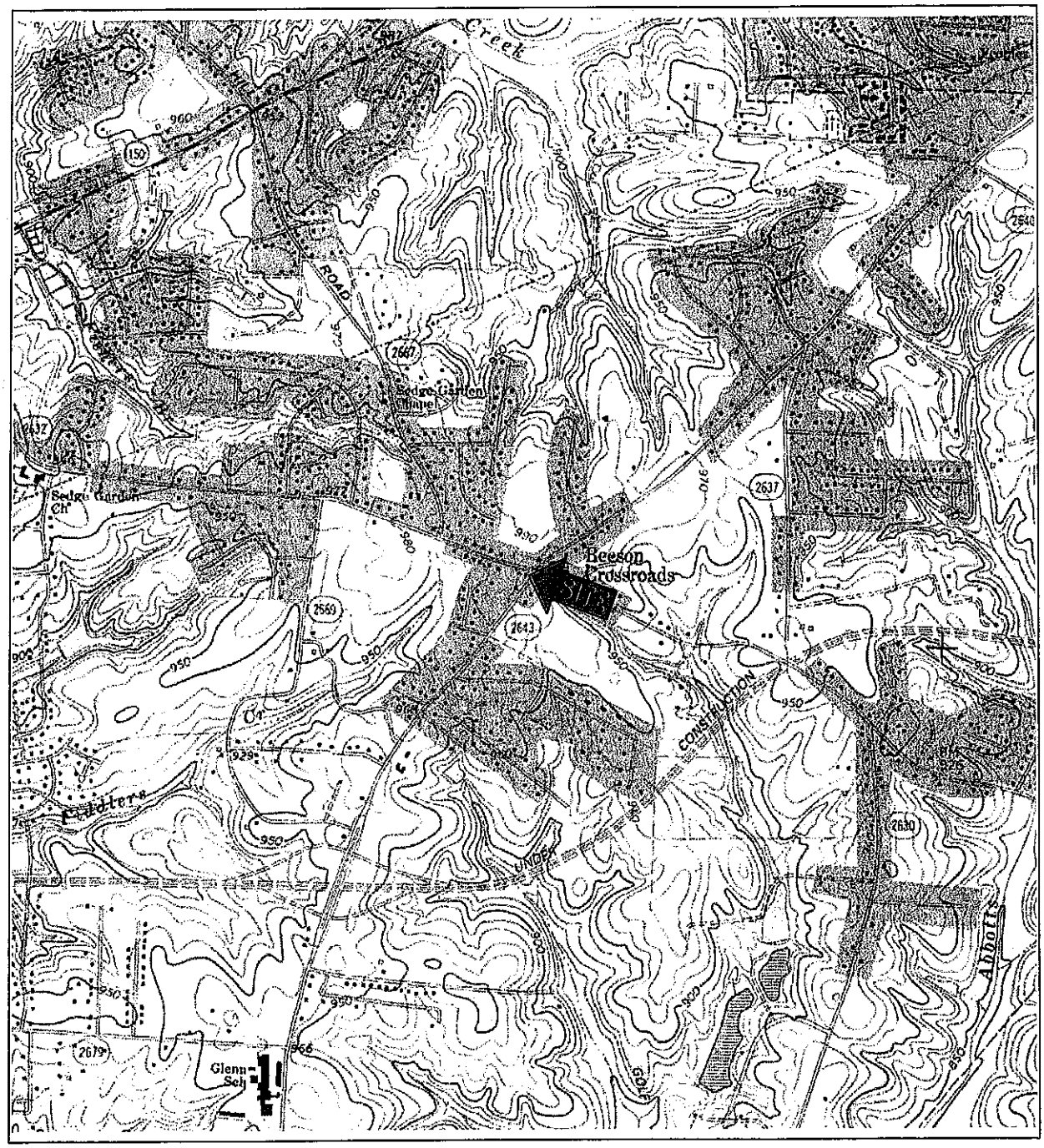
Table 6
Date: 11/10/08

SUMMARY OF GROUNDWATER SAMPLING RESULTS
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No: 0-034372

Analytical Method		6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	6210D+MtBE+IPE	504.1	MADEP-VPH	MADEP-VPH	MADEP-VPH
Contaminant of Concern		Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	IPE	n-Propylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	Chloroform	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	EDB	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics
Sample ID	Date Collected																		
MW1	4/7/2004	**5,700**	<250	**3,100**	**9,100**	**1,800**	**410**	**290**	**110**	-	**580**	-	**2,000**	**490**	<1,200	<0.010	**17,000**	**28,000**	**10,000**
MW1	4/14/2005	**3,900**	<1,200	**2,200**	**6,200**	**1,200**	**350**	<250	<250	-	<1,200	-	**1,500**	**380**	**7,800**	-	**20,000**	**35,000**	**14,000**
MW1	2/11/2008	**2,100**	<250	**1,200**	**280**	**2,300**	**540**	**150**	**66**	<50	**330**	<250	**380**	<50	-	-	-	-	-
MW2	4/7/2004	**210**	<100	<20	**129**	**2,000**	**88**	<20	<20	-	<100	-	**25**	<20	<500	<0.010	**6,000**	**740**	**550**
MW2	4/14/2005	<500	<2,500	<500	<1,500	**8,200**	<500	<500	<500	-	<2,500	-	<500	<500	**26,000**	-	**11,000**	<2,000	<2,000
MW2	2/1/2008	**46**	<5	<1	**3.9**	**200**	**2.5**	-	<1	**9.6**	<5	<5	**1.4**	<1	-	-	-	-	-
MW3	4/7/2004	**44**	<100	<20	**61**	**2,000**	**130**	<20	<20	-	<100	-	**110**	<20	<500	<0.010	**3,300**	**490**	**330**
MW3	4/14/2005	<100	<500	<100	<300	**3,800**	<100	<100	<100	-	<500	-	**120**	<100	**4,700**	-	**6,900**	**1,200**	**820**
MW3	2/11/2008	**75**	<25	<5	**82**	**1,100**	**81**	<5	<5	<5	<25	<25	**42**	<5	-	-	-	-	-
MW4	4/14/2005	<1	<5	<1	<3	<1	<1	<1	<1	-	<5	-	<1	<1	**26**	<0.010	<100	<100	<100
MW4	2/11/2008	<1	<5	<1	<3	<1	<1	<1	<1	<1	<5	<5	<1	<1	-	-	-	-	-
MW5	4/14/2005	**1.5**	<5	<1	**5.4**	<1	<1	**1.6**	<1	-	<5	-	**10**	**3.8**	<25	<0.010	<100	**120**	<100
MW5	2/11/2008	**1.3**	<5	<1	**3.6**	<1	<1	<1	<1	<1	<5	<5	<1	<1	-	-	-	-	-
MW6	4/14/2005	<1	<5	<1	<3	<1	<1	<1	<1	-	<5	-	<1	<1	<25	<0.010	<100	<100	<100
MW6	2/11/2008	<1	<5	<1	<3	<1	<1	<1	<1	<1	<5	**38**	<1	<1	-	-	-	-	-
MW7	4/14/2005	<1	<5	<1	<3	<1	<1	<1	<1	-	<5	-	<1	<1	<25	<0.010	<100	<100	<100
MW7	2/11/2008	<1	<5	<1	<3	<1	<1	<1	<1	<1	<5	<5	<1	<1	-	-	-	-	-
MW8	4/14/2005	<1	<5	<1	<3	<1	<1	<1	<1	-	<5	-	<1	<1	<25	<0.010	<100	<100	<100
MW8	2/11/2008	<1	<5	<1	<3	<1	<1	<1	<1	<1	<5	<5	<1	<1	-	-	-	-	-
MW9	5/28/2008	**380**	<25	<5	**1,010**	**47**	**19**	**14**	**76**	<5	**340**	<25	**580**	**8.5**	-	-	-	-	-
MW10	10/22/2008	**1.9**	<5	<1	<3	<1	<1	<1	2.6	<1	**10**	<5	<1	<1	<25	<0.010	<100	<100	<100
	2L Standard	1	1,000	29	530	200	70	70	70	210	21	70	350	350	700	0.0004	420	4200*	210*
	Gross Contamination Levels	5,000	257,500	29,000	87,500	200,000	70,000	30,000	25,000	-	15,500	70,000	28,500	25,000	700,000	50	NE	NE	NE

Notes:
1. All results in µg/l.
2. **Bold** denotes a detection.
3. Shading denotes a 2L Standard violation.
4. "<" = Less than sample detection limit.
5. "-" = Not sampled for. Monitoring wells MW1, MW2, and MW3 were not tested for lead or EDB during the 4/14/05 sampling event since these analysis had already been run on groundwater samples from these wells.
6. "NE" = Not established. Gross Contamination Levels have not been established for these compounds.
7. "*" = The 2L Standards listed for the C9 through C12 aliphatic and C9 through C22 aromatic carbon fraction classes are actually the 2L Standards for the C9 through C18 aliphatic and C9 through C22 aromatic carbon fraction classes, respectively.



N

MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP OF KERNERSVILLE, NC

GRAPHIC SCALE

0' 2,000' 4,000'

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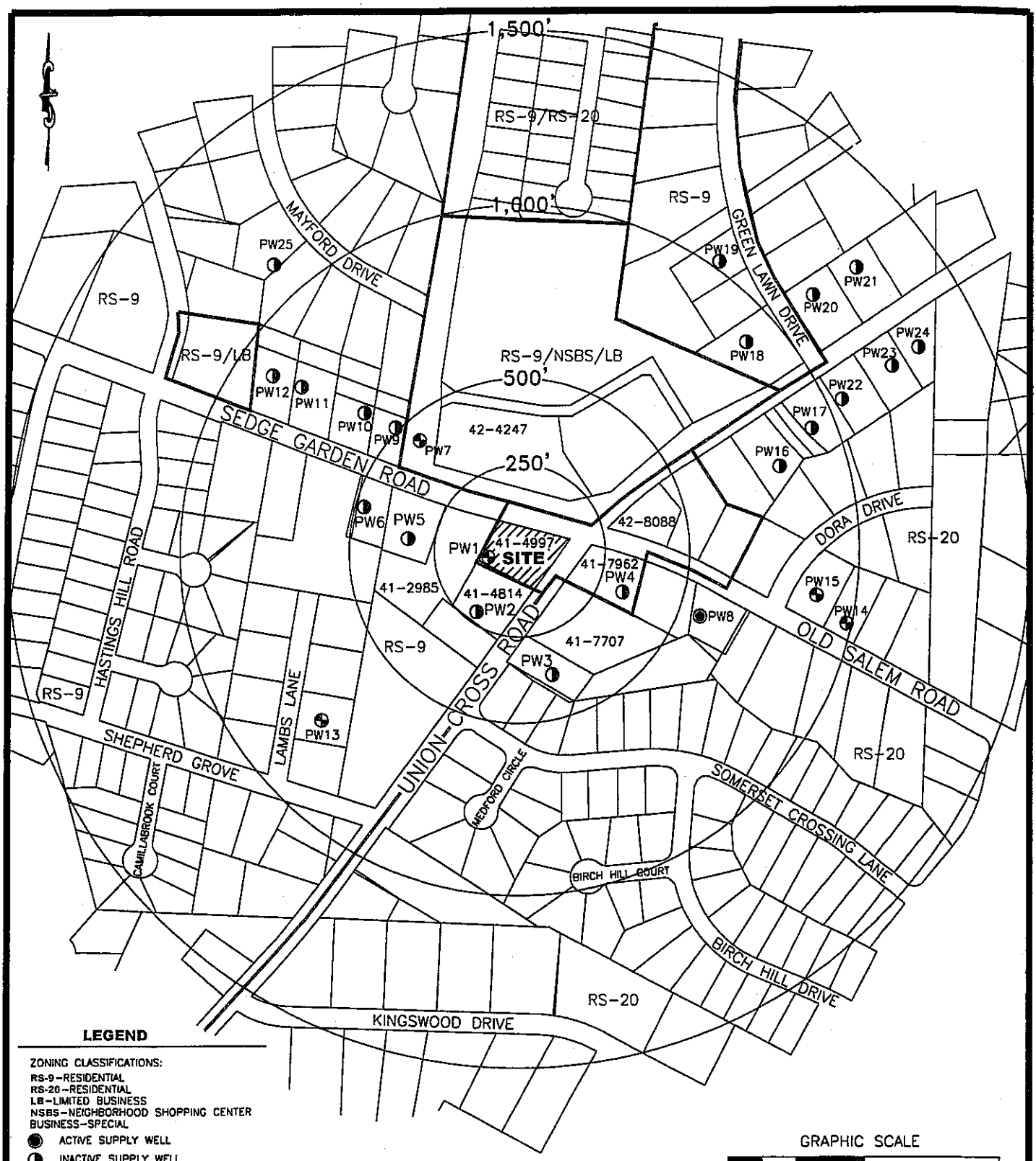
SITE LOCATION MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC. WINSTON-SALEM, NC

PROJECT NO.	02500	DRAWN BY:	RDK	DATE:	2/25/08
SCALE:	1" = 2,000'	CHECKED BY:	MJB	FIGURE NO.	1



LEGEND

ZONING CLASSIFICATIONS:
RS-9-RESIDENTIAL
RS-20-RESIDENTIAL
LB-LIMITED BUSINESS
NSBS-NEIGHBORHOOD SHOPPING CENTER
BUSINESS-SPECIAL

- ACTIVE SUPPLY WELL
- INACTIVE SUPPLY WELL
- ABANDONED SUPPLY WELL
- ZONING BOUNDARIES

42-8088 NUMBER COORESPONDS WITH PROPERTY OWNER INFORMATION LISTED IN TABLE 2 OF LSA REPORT.

GRAPHIC SCALE

0' 200' 400' 800'

1" = 400'

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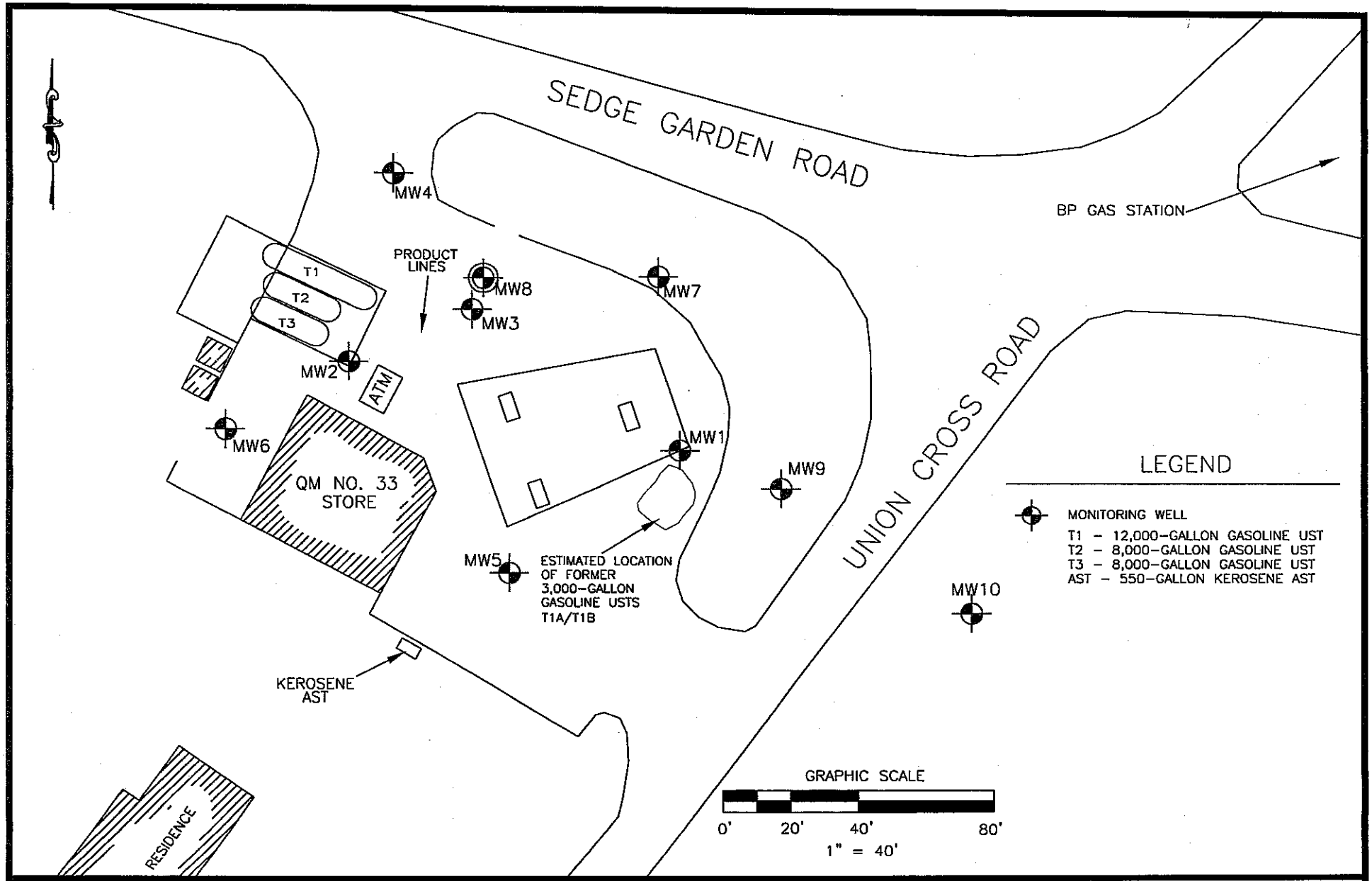
SITE VICINITY MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
WINSTON-SALEM, NC

QUALITY OIL COMPANY, INC. WINSTON-SALEM, NC

PROJECT NO.	02500	DRAWN BY:	CB	DATE:	12/5/08
SCALE:	1"=400'	CHECKED BY:	JRG	FIGURE NO.	2



SITE LAYOUT MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

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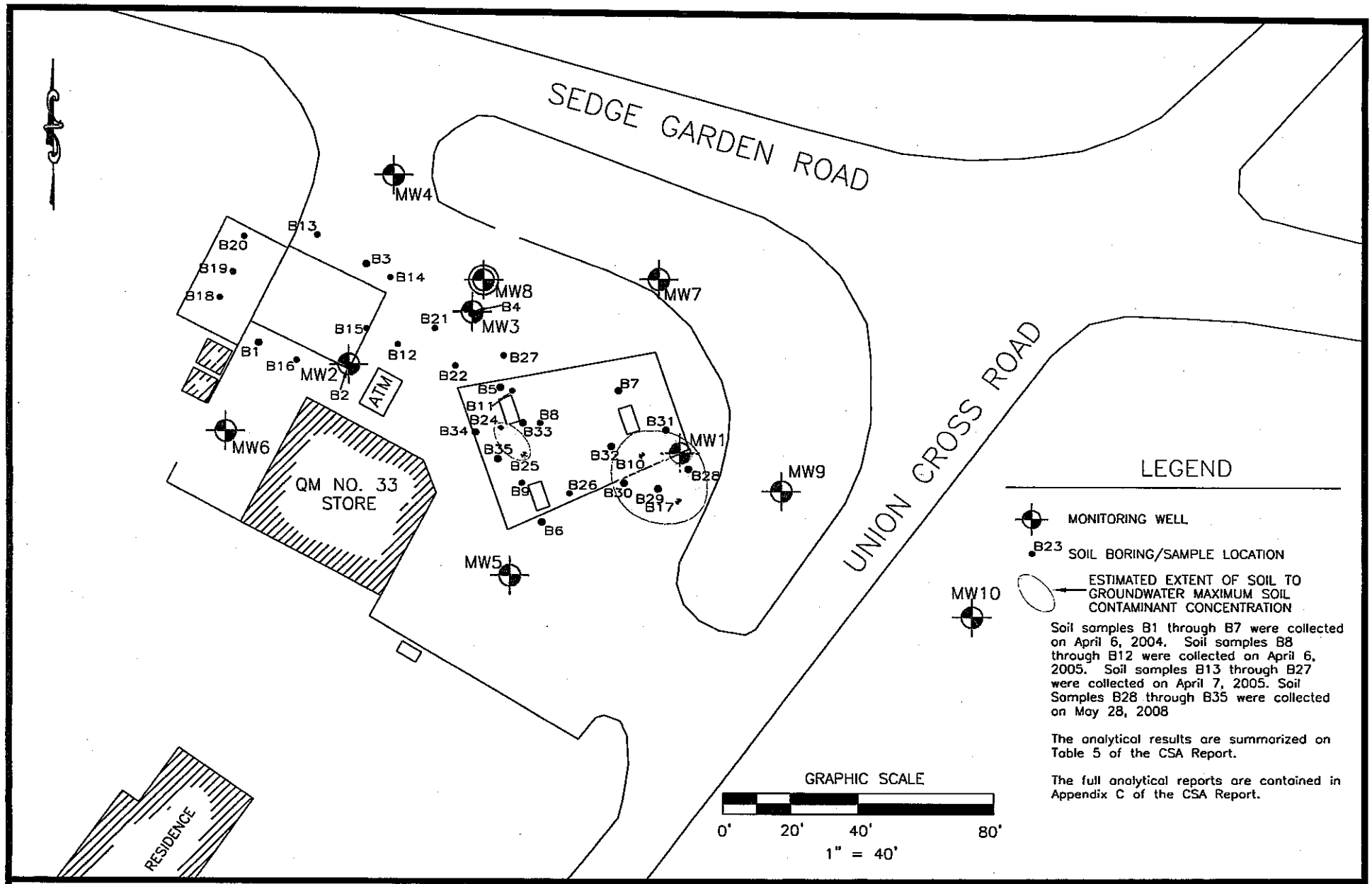
PROJECT NO.	02500	DATE:	11/12/08
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	3



SOIL ANALYTICAL RESULTS

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

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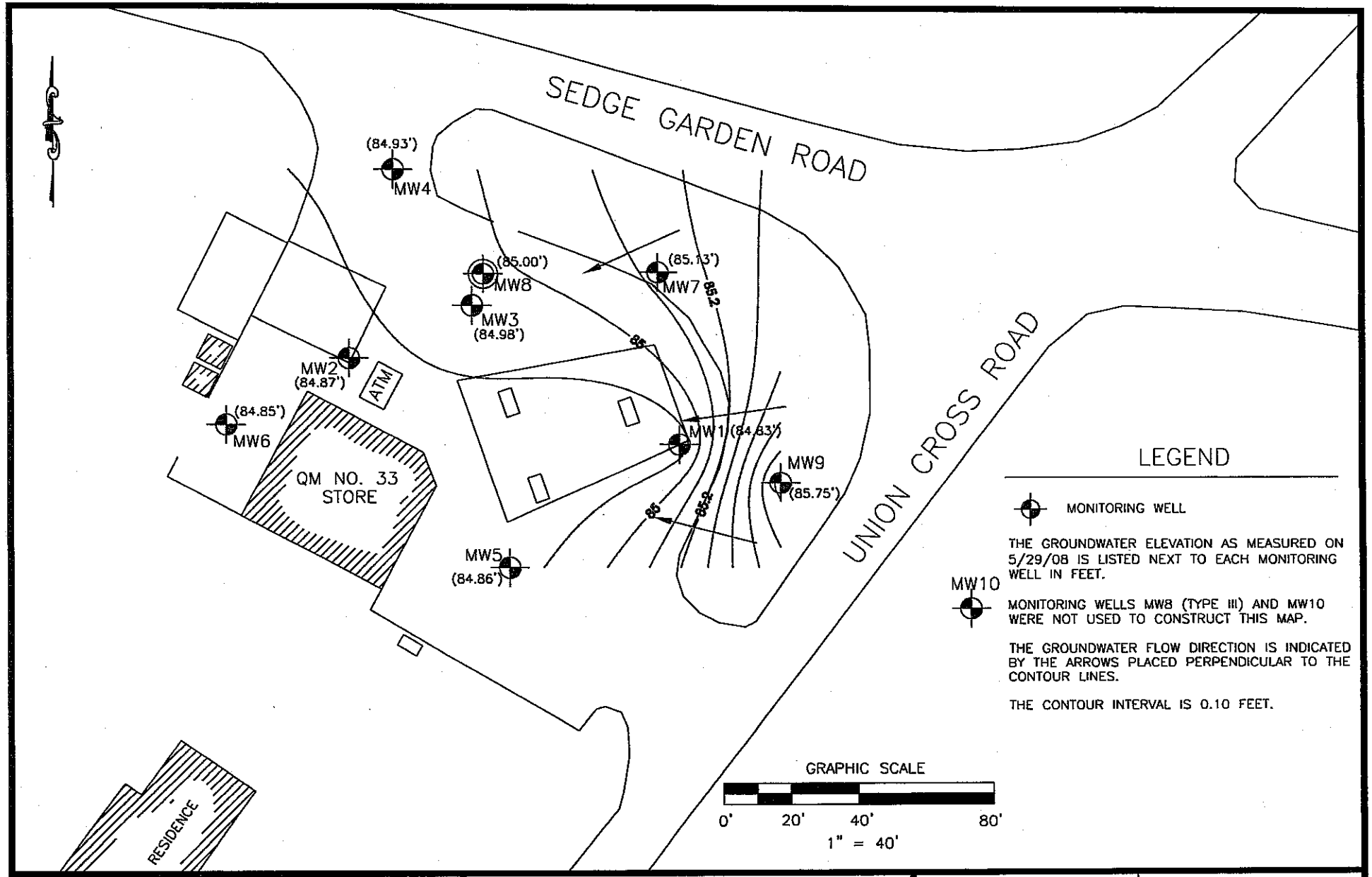
PROJECT NO.	02500	DATE:	11/12/08
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	4



POTENTIOMETRIC SURFACE MAP (5/29/08)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

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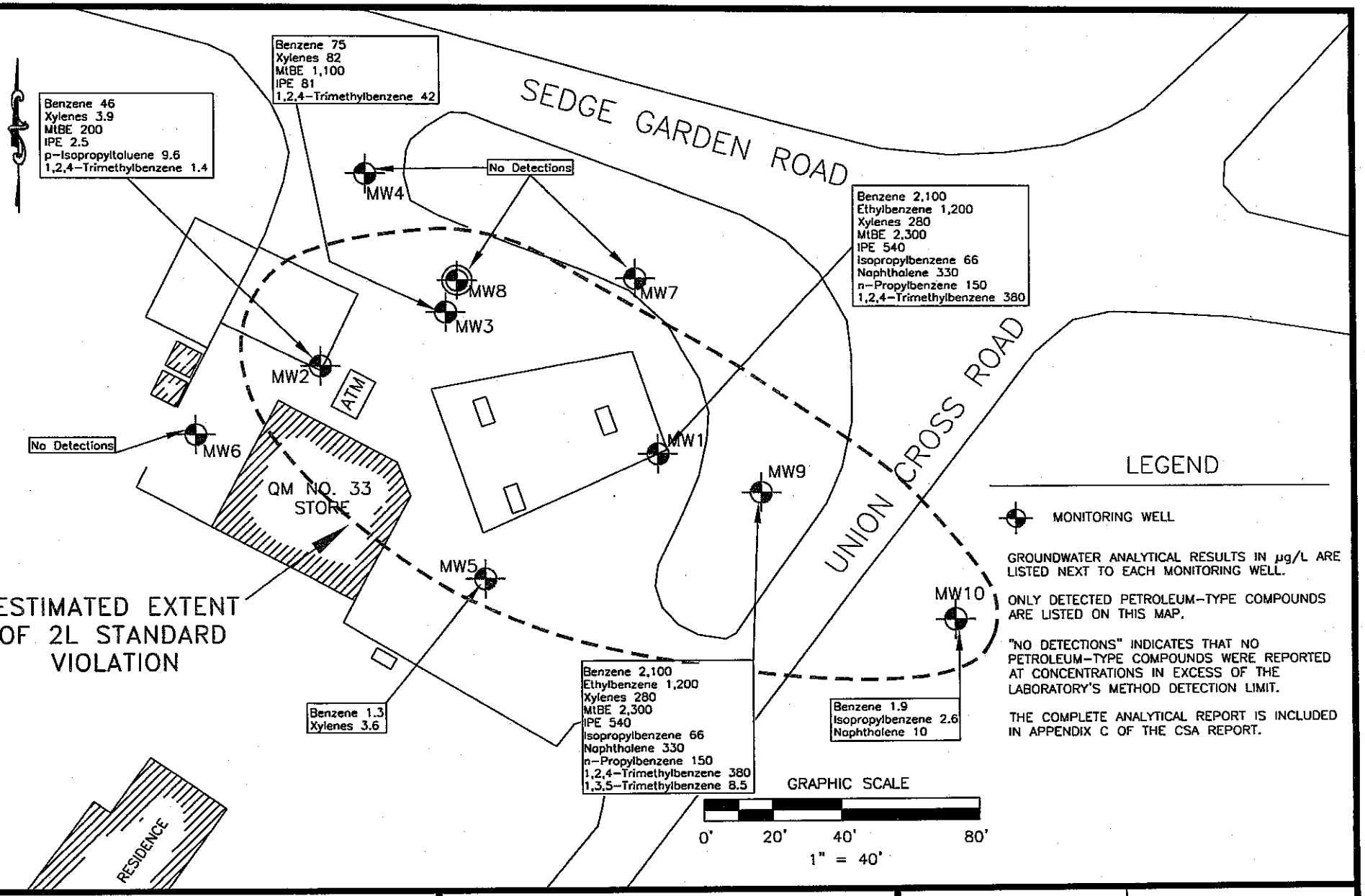
PROJECT NO.	02500	DATE:	11/12/08
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	5



GROUNDWATER ANALTYICAL RESULTS

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

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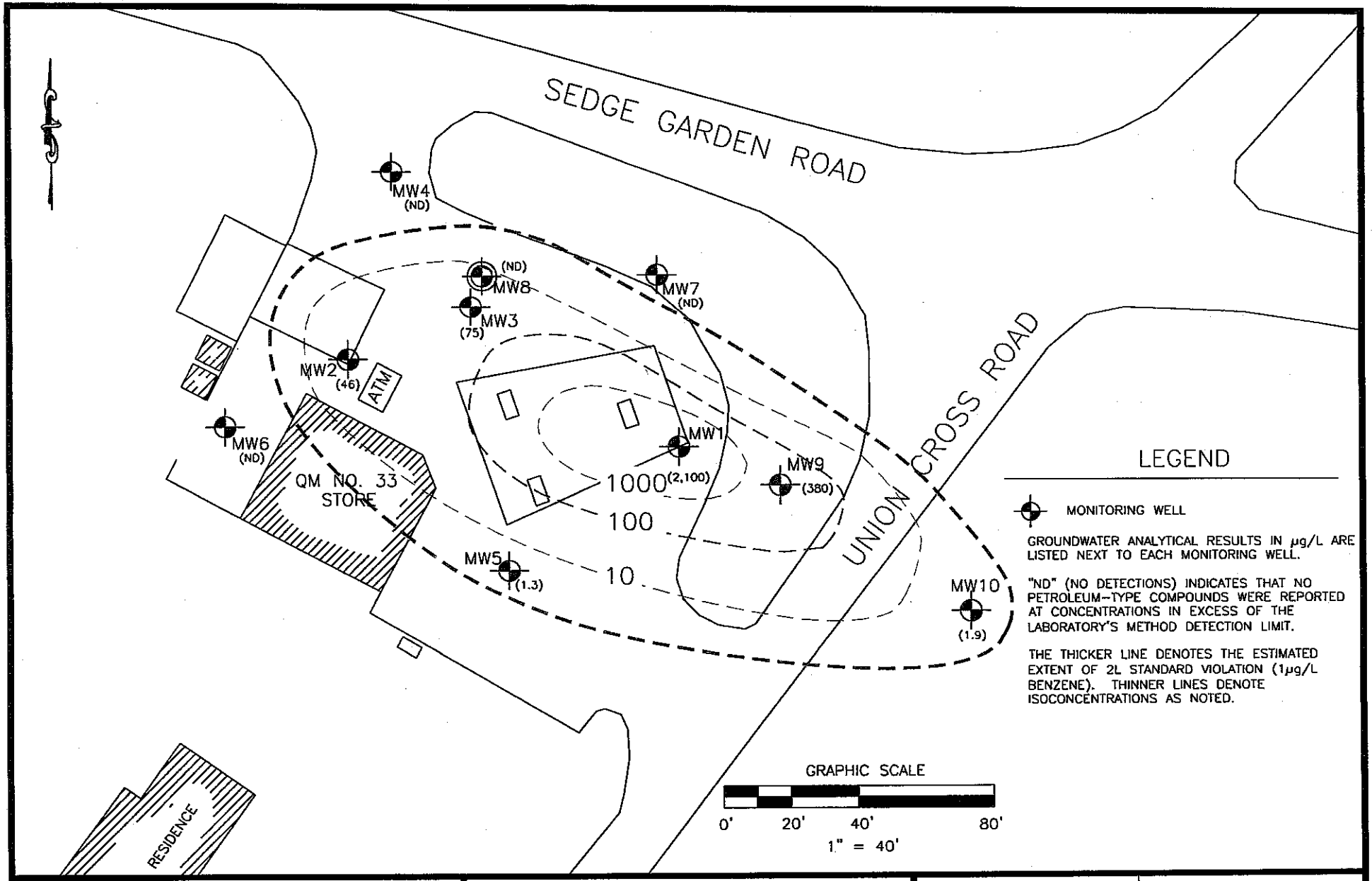
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	11/12/08
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	6



BENZENE ISOCONCENTRAITON MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

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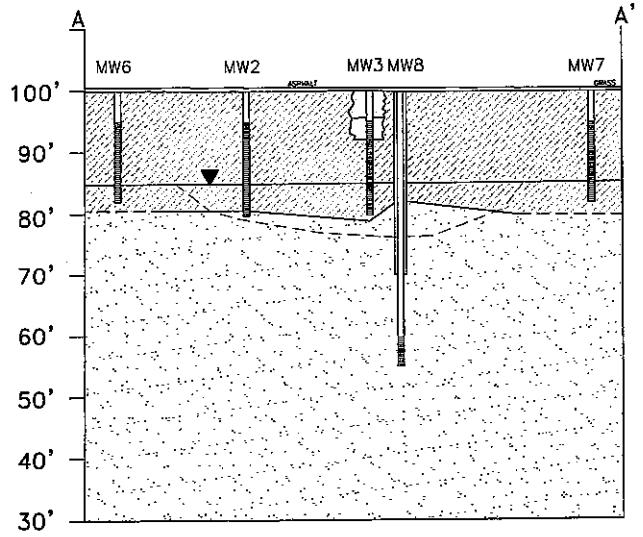
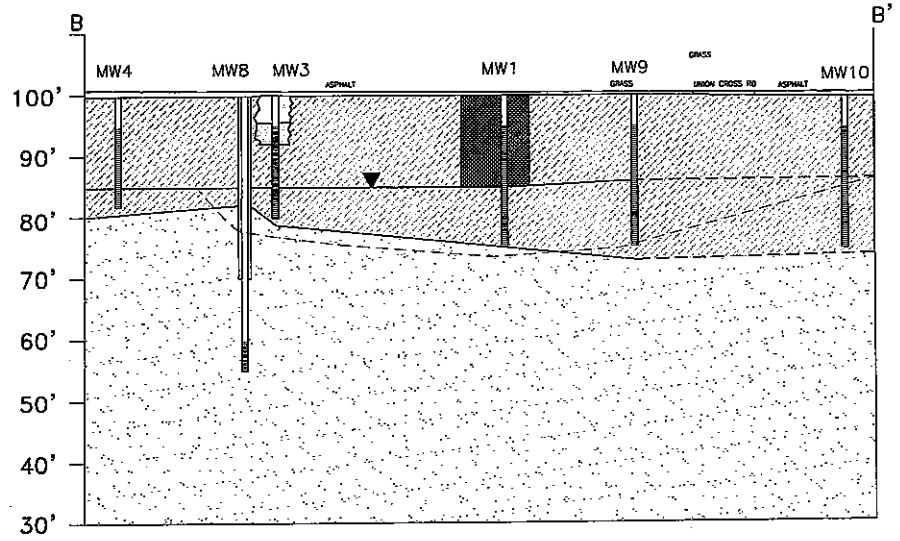
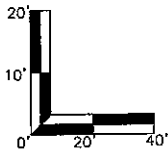
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	11/12/08
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	7







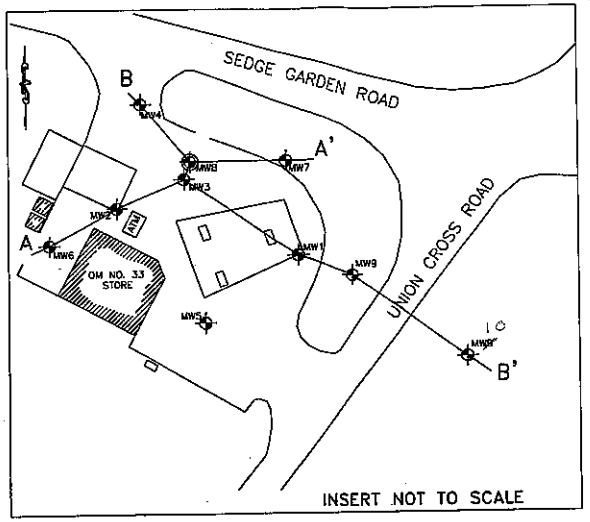
HORIZONTAL SCALE – 1" = 40'
VERTICAL SCALE – 1" = 20'

ELEVATIONS REFERENCED TO AN ARBITRARY DATUM PLANE OF 100 FEET.

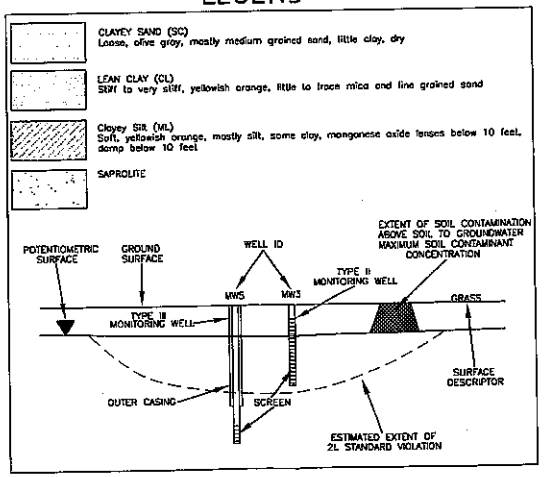
DETAILED LITHOLOGIES FOR EACH MONITORING WELL ARE INCLUDED IN APPENDIX B.

A DETAILED DISCUSSION OF SITE GEOLOGY IS INCLUDED AS SECTION 5.2 OF THE TEXT.

THIS CROSS SECTION IS A FENCE DIAGRAM. THE DISTANCES BETWEEN WELLS DO NOT CORRELATE WITH A STRAIGHT LINE BETWEEN THE FIRST WELL AND THE LAST WELL OF THE CROSS SECTION.



LEGEND



GEOLOGIC CROSS-SECTIONS

QUALITY MART NO. 33
1400 UNION CROSS ROAD, KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC.

PROJECT NO: 02196	CHECKED BY: RDK
SCALE: AS NOTED	DRAWN BY: CB
FIGURE NO. 8	
DATE: 10/30/08	

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BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:**
Equipment: Geoprobe 6610DT	**Date Finished:** 5/28/08	**B28**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
			1		Clayey Silt (ML) Mostly soft tan/reddish orange silt with little clay.
	NA	NA	2		
			3		
	NA	66.4	4		
	NA	65.8			Clay (CL) Mostly medium stiff tan/yellowish brown clay with trace silt.
	NA	78.4	5		Boring terminated at 10' BGL
	NA	128.8	6		
	NA	1248	7		
	NA	809	8		
	NA	918	9		
			10		
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

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BORING LOG

Contractor: TerraQuest	Date Started: 5/28/08	Boring Number: B29
Equipment: Geoprobe 6610DT	Date Finished: 5/28/08	
Driller: Nick Perry	Logged by: Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
	NA	NA	1		Silt (ML) Mostly soft tan/grey silt with trace clay
			2		
			3		
	NA	40.8			
			4		
	NA	107.4			Clay (CL) Mostly soft tan/yellowish brown clay with little silt
			5		
	NA	70.5			Clay (CL) Mostly medium stiff to stiff tan/ brownish orange clay with little to few silt silt
			6		
	NA	25.6			
			7		
	NA	80.4			
			8		
	NA	446.5			
			9		
	NA	34.4			Clay (CL) Mostly stiff tan/brownish orange clay with trace silt
			10		Boring terminated at 10' BGL
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

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Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
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BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:**
Equipment: Geoprobe 6610DT	**Date Finished:** 5/28/08	**B30**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
			1		Silt (ML) Mostly soft tan silt with little clay.
	NA	NA	2		Clay (CL) Mostly soft tan/yellowish brown clay with some to litle silt.
			3		
	NA	83	4		
	NA	68	5		Clay (CL) Mostly soft to medium stiff tan/brownish orange clay with little to few silt.
	NA	129	6		
	NA	113.3	7		
	NA	105	8		
	NA	1434	9		Clay (CL) Mostly medium stiff brown/orange clay with few to trace silt.
	NA	1570	10		Boring terminater at 10' BGL
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
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Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:**
Equipment: Geoprobe 6610DT	**Date Finished:** 5/28/08	**B31**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Asphalt
	NA	NA	1		Clayey Silt (ML) Mostly soft brown/orange silt with some to little clay.
			2		
			3		
	NA	188	4		
	NA	223	5		Silt (ML) Mostly soft to medium stiff brown/orange silt with little to few clay.
	NA	37	6		
	NA	34	7		Clay (CL) Mostly soft to medium stiff brown/orange clay with some to little silt.
	NA	58	8		
	NA	578	9		Clay (CL) Mostly soft to medium stiff brown/orange clay with trace silt
	NA	938	10		
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:** B32
Equipment: Geoprobe 6610DT	**Date Finished:** 5/28/08	
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
			1		Concrete
	NA	NA	2		Pea Gravel
			3		
			4		
			5		
	NA	21	6		Clay (CL) Mostly medium stiff to stiff tan/brownish orange clay with some to little silt
	NA	79	7		
	NA	101	8		Clay (CL) Mostly medium stiff to stiff tan/brownish orange clay with little to few silt. Boring terminated 10' BGL
	NA	37	9		
	NA	51	10		
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
Environmental Consultants, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:**
Equipment: Geoprobe 6610DT	**Date Finished:** 5/285/08	**B33**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
			1		Pea Gravel
			2		
	NA	NA	3		
			4		
			5		Clay (CL) Mostly soft to medium stiff brown/orange clay with little to few silt.
	NA	2.3	6		
	NA	4	7		
	NA	141	8		
	NA	220	9		Clay (CL) Mostly medium stiff to stiff brown/orange clay with trace silt. Boring terminated at 10' BGL
	NA	49	10		
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:**
Equipment: Geoprobe 6610DT	**Date Finished:** 5/28/08	**B34**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
			1		Concrete
			2		Clay (CL) Mostly soft orange/brown clay with little to few silt.
	NA	NA	3		
			4		
			5		
	NA	2.5	6		
	NA	3.7	7		Clay (CL) Mostly medium stiff to stiffbrownish orange clay with few to trace silt
	NA	4	8		
	NA	2	9		
	NA	2	10		Silt (ML) Mostly soft orangish yellow silt with litle to trace clay Boring terminated at 10' BGL
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

Client:
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Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:** B35
Equipment: Geoprobe 6610DT	**Date Finished:** 5/28/08	
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	OVM (ppm)	Depth Feet	Lithology	Description
					Concrete
			1		Clay (CL) Mostly soft orangish brown clay with little to few silt.
			2		
	NA	NA	3		
			4		
			5		
	NA	3.1	6		
	NA	1.3	7		Clay (CL) Mostly medium stiff orangish brown clay with little silt.
	NA	1.6	8		Clay (CL) Mostly stiff orangish brown clay with trace silt. Boring terminated at 10' BGL
	NA	1.6	9		
	NA	1.6	10		
			11		
			12		
			13		
			14		

Scale as shown: Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;
NA - Not Applicable; BGL - Below Groundlevel

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC

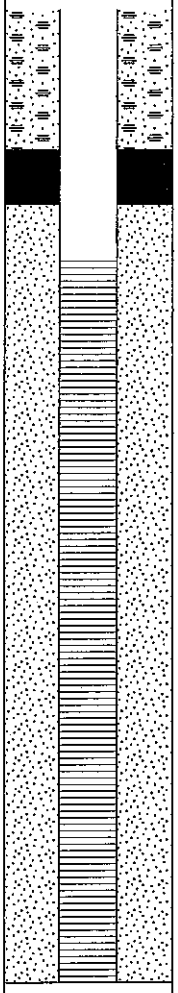
Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:**
Drill Method: Solid Stem Auger	**Date Finished:** 4/6/05	**MW4**
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
				1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		Asphalt Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Finished with 8"-diameter metal bolt down manhole.
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

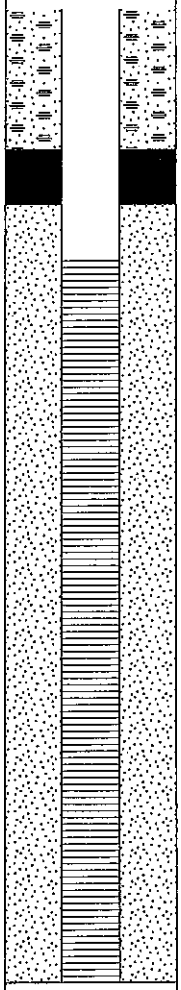
Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 | **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:**
Drill Method: Solid Stem Auger	**Date Finished:** 4/6/05	**MW5**
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
				1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		Asphalt Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Finished with 8"-diameter metal bolt down manhole.
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

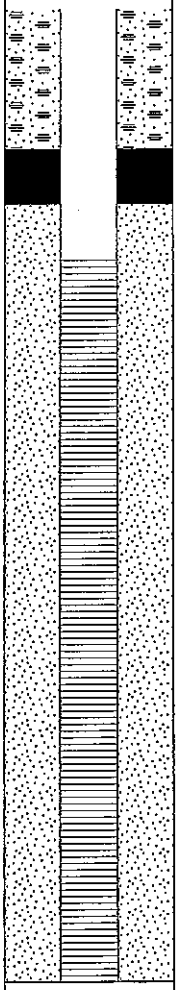
Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest	**Date Started:** 4/6/05	**Boring Number:**
Drill Method: Solid Stem Auger	**Date Finished:** 4/6/05	**MW6**
Driller: Nick Perry	**Logged by:** Ryan Kerins	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
				1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		Asphalt Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Finished with 8"-diameter metal bolt down manhole.
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

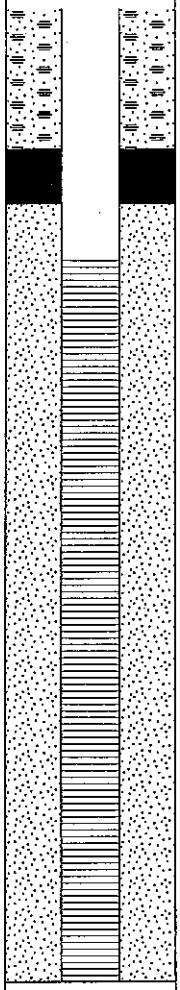
Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest
Drill Method: Solid Stem Auger
Driller: Nick Perry
Date Started: 4/6/05
Date Finished: 4/6/05
Logged by: Ryan Kerins

Boring Number: MW7

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
				1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Finished with 8"-diameter metal bolt down manhole.
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

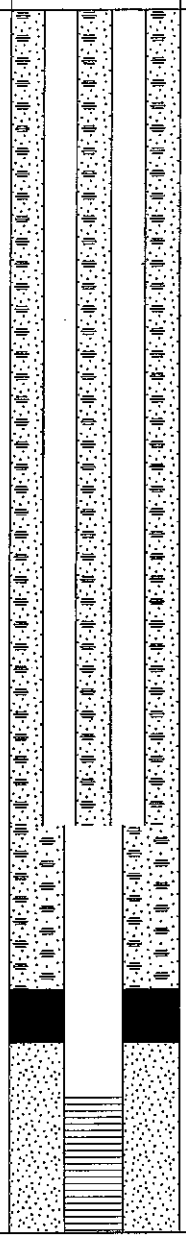
Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest	**Date Started:** 4/7/05	**Boring Number:**
Drill Method: Air Hammer	**Date Finished:** 4/8/05	**MW8**
Driller: Matt Kohut	**Logged by:** Jayson Kilcoyne	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
				1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44		Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.
						Saprolite

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

Outer casing: 6" dia. sch 40 PVC
Inner casing: 2" dia. sch. 40 PVC; .01" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Manhole: flush 8" diameter steel
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

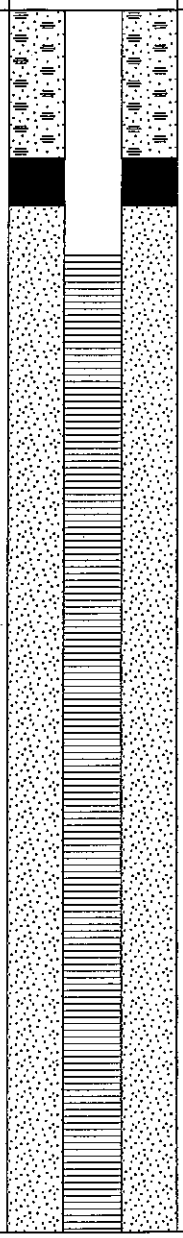
Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest	**Date Started:** 5/28/08	**Boring Number:**
Drill Method: Solid Stem Auger	**Date Finished:** 5/28/08	**MW9**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
	NA		NA	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		Clayey Silt (ML) soft, yellowish orange, mostly silt, some clay, manganese oxide lenses beginning at 10' BGL, moisture at 10' BGL.
	NA		NA			
	NA		NA			
	NA		NA			

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Finished with 8"-diameter metal bolt down manhole.
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

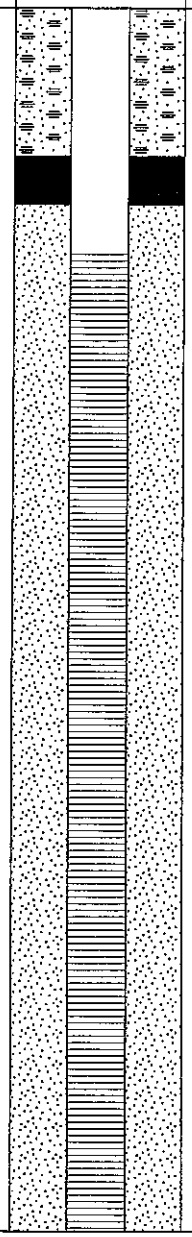
Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

BORING LOG/MONITORING WELL INSTALLATION DETAIL

Contractor: TerraQuest	**Date Started:** 10/22/08	**Boring Number:**
Drill Method: Solid Stem Auger	**Date Finished:** 10/22/08	**MW10**
Driller: Nick Perry	**Logged by:** Andy Wrenn	

Sample	Blow Counts	Completion	OVM (ppm)	Depth Feet	Lithology	Description
	NA		NA	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		Asphalt Silty Lean Clay (CL) Mostly soft to medium stiff brown/grey turning to orange clay with some to little micaceous silt. Boring terminated @ 25ft BGL.
	NA		NA			
	NA		NA			
	NA		NA			

Scale as shown; Hatch pattern denotes soil sample depth;
Solid denotes lab sample depth; Lithology hatch pattern legend is attached;

Well Construction

2" diameter Sch. 40 PVC; .010" slotted screen
Sand: no. 2 sand; Grout: poured portland; Bentonite: poured pellets
Finished with 8"-diameter metal bolt down manhole.
NA - Not Applicable; BGL - Below Ground Level

Site:
Quality Mart #33
1400 Union Cross Road
Kernersville, NC 27284

Client:
Quality Oil Company, LLC
Post Office Box 2736
Winston-Salem, NC 27102

Project No.: 02500 **Page** 1

NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3329

1. WELL CONTRACTOR:

Nick Perry
Well Contractor (Individual) Name

TerraQuest Environmental Cons.
Well Contractor Company Name

STREET ADDRESS 100 E. Ruffin St.

Mebane | NC | 27302
City or Town | State | Zip Code

(919)- 563 - 9091
Area code- Phone number

2. WELL INFORMATION:

SITE WELL ID #(if applicable) MW9

STATE WELL PERMIT#(if applicable) NA

DWQ or OTHER PERMIT #(if applicable) NA

WELL USE (Check Applicable Box) Monitoring ☐ Municipal/Public ☐
Industrial/Commercial ☐ Agricultural ☐ Recovery ☐ Injection ☐
Irrigation ☐ Other ☐ (list use)

DATE DRILLED 5/28/08

TIME COMPLETED 1100 AM ☐ PM ☐

3. WELL LOCATION:

CITY: Kernersville COUNTY Forsyth

1400 Union Cross Rd.
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:
☐ Slope ☐ Valley ☐ Flat ☐ Ridge ☐ Other
(check appropriate box)

LATITUDE 36 05' 9.08"N
LONGITUDE 80 06' 5.86"W

May be in degrees, minutes, seconds or in a decimal format

Latitude/longitude source: ☐ GPS ☐ Topographic map
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

4. FACILITY- is the name of the business where the well is located.

FACILITY ID #(if applicable) 0-034372

NAME OF FACILITY Quality Mart #33

STREET ADDRESS 1400 Union Cross Rd.

Kernersville | NC | 27284
City or Town | State | Zip Code

CONTACT PERSON Danny Stroud

MAILING ADDRESS P.O. Box 2736

Winston-Salem | NC | 27102
City or Town | State | Zip Code

(336)- 867-5309
Area code - Phone number

5. WELL DETAILS:

a. **TOTAL DEPTH:** 25'

b. **DOES WELL REPLACE EXISTING WELL?** YES ☐ NO ☐

c. **WATER LEVEL** Below Top of Casing: _____ FT.
(Use "+" if Above Top of Casing)

d. **TOP OF CASING IS** 0.0' FT. Above Land Surface*
*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. **YIELD (gpm):** NA **METHOD OF TEST** NA

f. **DISINFECTION: Type** NA **Amount** NA

g. **WATER ZONES** (depth):

From NA To NA		From NA To NA	
From NA To NA		From NA To NA	
From NA To NA		From NA To NA	

6. CASING:

	Depth		Diameter	Thickness/ Weight	Material
From 0	To 5	Ft.	2 inch	Sch. 40	PVC
From	To	Ft.			
From	To	Ft.			

7. GROUT:

	Depth		Material	Method
From 3	To 4	Ft.	Bentonite	Pour
From 0	To 3	Ft.	Portland Cement	Pour
From	To	Ft.		

8. SCREEN:

	Depth		Diameter	Slot Size	Material
From 5	To 25	Ft.	2 in.	.010 in.	PVC
From	To	Ft.	in.	in.	
From	To	Ft.	in.	in.	

9. SAND/GRAVEL PACK:

	Depth		Size	Material
From 4	To 25	Ft.	coarse	sand
From	To	Ft.		
From	To	Ft.		

10. DRILLING LOG

From	To	Formation Description
0	1	TOPSOIL
1	25	CLAYEY SILT

11. 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.

SIGNATURE OF CERTIFIED WELL CONTRACTOR — DATE 5/30/08

PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit the original to the Division of Water Quality within 30 days. Attn: Information Mgt., 1617 Mail Service Center – Raleigh, NC 27699-1617 Phone No. (919) 733-7015 ext 568.

Form GW-1b
Rev. 7/05

NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3329

1. WELL CONTRACTOR:

Nick Perry
Well Contractor (Individual) Name

TerraQuest Environmental Cons.
Well Contractor Company Name

STREET ADDRESS 100 E. Ruffin St.

Mebane NC 27302
City or Town State Zip Code

(919)- 563 - 9091
Area code- Phone number

2. WELL INFORMATION:

SITE WELL ID #(if applicable) MW10

STATE WELL PERMIT#(if applicable) NA

DWQ or OTHER PERMIT #(if applicable) NA

WELL USE (Check Applicable Box) Monitoring ☑ Municipal/Public ☐

Industrial/Commercial ☐ Agricultural ☐ Recovery ☐ Injection ☐

Irrigation ☐ Other ☐ (list use) _____

DATE DRILLED 10/22/08

TIME COMPLETED 1130 AM ☑ PM ☐

3. WELL LOCATION:

CITY: Kernersville COUNTY Forsyth

1400 Union Cross Rd.
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:

☐ Slope ☐ Valley ☐ Flat ☐ Ridge ☐ Other _____
(check appropriate box)

LATITUDE 36 05' 9.08"N

LONGITUDE 80 06' 5.86"W

May be in degrees, minutes, seconds or in a decimal format

Latitude/longitude source: ☐ GPS ☑ Topographic map

(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

4. FACILITY- Is the name of the business where the well is located.

FACILITY ID #(if applicable) 0-034372

NAME OF FACILITY Quality Mart #33

STREET ADDRESS 1400 Union Cross Rd.

Kernersville NC 27284
City or Town State Zip Code

CONTACT PERSON Danny Stroud

MAILING ADDRESS P.O. Box 2736

Winston-Salem NC 27102
City or Town State Zip Code

(336)- 867-5309
Area code - Phone number

5. WELL DETAILS:

a. **TOTAL DEPTH:** 25'

b. **DOES WELL REPLACE EXISTING WELL?** YES ☐ NO ☑

c. **WATER LEVEL** Below Top of Casing: _____ FT.
(Use "+" if Above Top of Casing)

d. **TOP OF CASING IS** 0.0' FT. Above Land Surface*
*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. **YIELD (gpm):** NA **METHOD OF TEST** NA

f. **DISINFECTION: Type** NA **Amount** NA

g. **WATER ZONES** (depth):

From NA To NA From NA To NA
From NA To NA From NA To NA
From NA To NA From NA To NA

6. CASING:

	Depth		Diameter	Thickness/ Weight	Material
From 0	To 5	Ft.	2 inch	Sch. 40	PVC
From	To	Ft.			
From	To	Ft.			

7. GROUT:

	Depth		Material	Method
From 3	To 4	Ft.	Bentonite	Pour
From 0	To 3	Ft.	Portland Cement	Pour
From	To	Ft.		

8. SCREEN:

	Depth		Diameter		Slot Size		Material
From 5	To 25	Ft.	2	in.	.010	in.	PVC
From	To	Ft.		in.		in.	
From	To	Ft.		in.		in.	

9. SAND/GRAVEL PACK:

	Depth		Size	Material
From 4	To 25	Ft.	coarse	sand
From	To	Ft.		
From	To	Ft.		

10. DRILLING LOG

From	To	Formation Description
0	0.5	Asphalt
0.5	1	Gravel
1	25	Silty Lean Clay

11. 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.

SIGNATURE OF CERTIFIED WELL CONTRACTOR — DATE 10/24/08

Nick Perry
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit the original to the Division of Water Quality within 30 days. Attn: Information Mgt., 1617 Mail Service Center – Raleigh, NC 27699-1617 Phone No. (919) 733-7015 ext 568.

Form GW-1b
Rev. 7/05

SLUG TEST REPORT

Quality Mart No. 33
Kernersville, Forsyth County North Carolina

Slug tests are used to estimate the average hydraulic conductivity (K) in the saturated zone. Typical slug testing methods are "slug-in" tests (falling head tests) and "slug-out" tests (rising head, recovery, or bail tests). Slug-out tests are performed on wells that are screened across the water table, while either test method may be used on wells where the screen and gravel pack are located below the water table.

Since slug tests typically underestimate the hydraulic conductivity of the aquifer, additional data is collected to support the calculated hydraulic conductivities. This data includes detailed descriptions of soil from borings and monitoring well installations.

Based upon site factors such as well construction, site geology, location of contaminant sources, and location of potential receptors, a geologist selects one or more wells at the site for testing. The following write-up describes the pre-test procedures, data collection, and data analysis for the slug tests performed on May 29, 2008 at the Quality Mart No. 33 facility located in Kernersville, Forsyth County, NC.

DATA COLLECTION

Prior to conducting slug tests at the Quality Mart No. 33 facility, and following construction of the wells, pumps and/or hand bailers were used to develop each of the tested wells. This process involved purging water from the well until the majority of sediment, accumulated in the well due to the drilling process, was removed and the purge water appeared significantly clearer. This process allows water to move into the well during the test at a rate more representative of the hydraulic properties of the aquifer.

Time and drawdown were measured and recorded on a Solinst 3001 Mini LT Levelogger, F30 data logger/pressure transducer. Prior to developing the well or inserting the pressure transducer a static depth-to-water measurement was collected using a water level meter. Following the collection of the static depth to water, the transducer and slug were inserted in the subject well. Manual water level measurements were then collected until static water level conditions were once again observed.

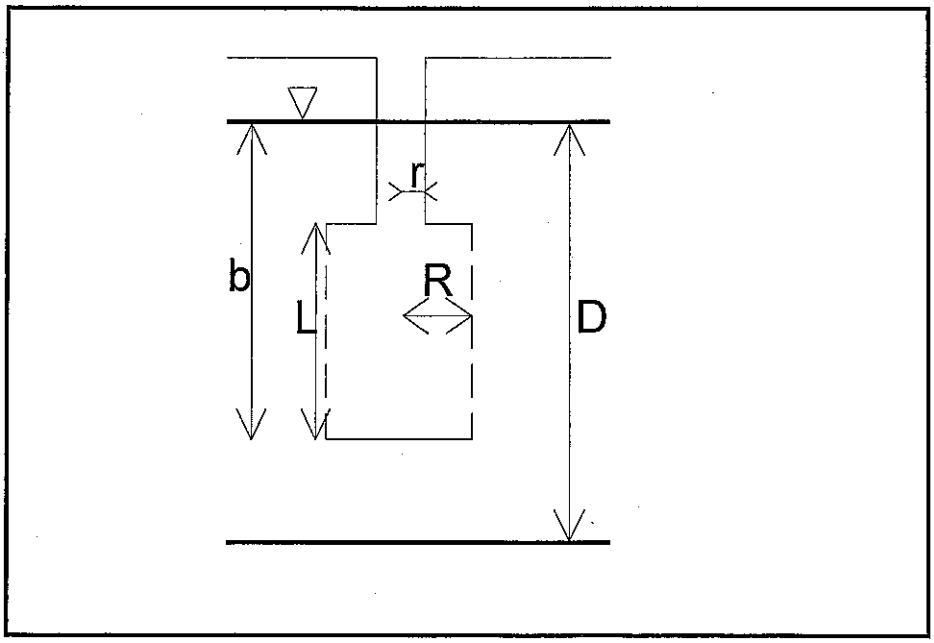
At the Quality Mart No. 33 facility, rising head slug tests were performed on monitoring wells MW3 and MW9. Several tests were performed on monitoring well MW6, however, equipment malfunctions prevented the collection of worthwhile data for those tests. All of the tests were performed on May 29, 2008. A decontaminated PVC bailer was used to remove a volume of water for each of the slug tests. The bailer was inserted and the water level was allowed to recover back to static. The bailer was then removed, thus creating a momentary drawdown in the static water level. The rate of recovery was then recorded by the transducer.

DATA ANALYSIS

Hydraulic Conductivity via Bouwer and Rice (1976) and Bouwer (1989)Methods:

The raw data was reduced using the methods of Bouwer and Rice (1976) and Bouwer (1989). Data reduction and estimation of hydraulic conductivity was accomplished with the aid of the aquifer test analysis software AquiferTest 4.2 (Waterloo Hydrogeologic). Graphs of the data and model output were produced and are attached for reference. Test parameters entered into the AquiferTest program are described in the summary table and figure below.

Aquifer Test Input Data			
Symbol	Parameter	MW3	MW9
r	Well radius (feet)	0.083	0.083
B	Gravel pack radius (feet)	0.25	0.25
L	Screen length (feet) [saturated point]	6.28	11.88
b	Height of water column in well (feet)	6.28	11.88
D	Saturated thickness of aquifer (feet)	45	45
1. Refer to the following well / aquifer schematic.			



Using the previously listed input data, the reduction by the Bouwer and Rice Method yields the following hydraulic conductivities:

MW3 = 0.493 feet/day
MW9 = 0.271 feet/day

For an average hydraulic conductivity across the site = 0.382 feet/day.

Transmissivity:

The calculated hydraulic conductivity is in the range of a silt (Heath, 1982). This hydraulic conductivity was utilized to calculate transmissivity of the phreatic aquifer at the Quality Mart No. 33 facility per the following relationship:

$$T = Kd$$

where: T = transmissivity (feet^2/day)
K = hydraulic conductivity (feet/day)
d = aquifer thickness (feet)

The values for the above parameters are detailed for the test wells in the following table.

Slug Test Derived Aquifer Parameter		
Parameter	MW3	MW9
Transmissivity (T)(feet^2/day)	22	12
Hydraulic conductivity (K)(feet/day)	0.493	0.271
Saturated thickness (d)(feet)	45	45
Note: Parameter values derived using methods of Bouwer and Rice (1976) and Bouwer (1989).		

Seepage Velocity:

Average linear flow velocity or seepage velocity (v) is related to the hydraulic conductivity through the following equation:

$$v = (K/n)(dh/dl)$$

where: v = average linear velocity or seepage velocity
K = average hydraulic conductivity
n = effective porosity
dh/dl = average hydraulic gradient

To solve this equation, Terraquest used the average hydraulic conductivity of the phreatic aquifer at the site as determined via Bouwer and Rice (1976) and Bouwer (1989) for K. Published values of effective porosity for a silt range from 3 - 19 percent, respectively (Sanders, 1998). An effective porosity of 19 percent was chosen as this should accommodate the recorded saturated zone lithologies of the slug tested wells. The average hydraulic gradient across the site was calculated from groundwater elevation data collected on the day of slug testing (May 29, 2008).

Using this information, the equation for seepage velocity is solved as follows:

v = (0.382 feet/day / 0.19)(0.01)
v = 0.02 feet/day or
v = 7.3 feet/year

DISCUSSION OF RESULTS

The hydraulic conductivities calculated by AquiferTest are in the range of a silt possibly with some sand (Heath, 1982). The lithologies logged in the saturated zones (boring logs attached) of the slug tested monitoring wells support this. It is unknown how well the calculated seepage velocity compares with the current location of the contaminant plume since the time since release is unknown. It should be noted that the calculated seepage velocity does not provide an exact flow velocity for dissolved-phase contamination which may be affected by retardation, absorption, and biodegradation as it travels with groundwater.

The output reports for the slug tested wells along with boring logs and construction records are attached.

REFERENCES

Bouwer, H., and R.C. Rice 1976. A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating well. *Water Resources Research* 12, no. 3: 423 – 428.

Bouwer, H. 1989. The Bouwer and Rice slug test – an update. *Ground Water*. 27, no. 3: 304 – 309.

Heath C. Ralph. 1983. *Basic Groundwater Hydrology, US Geological Survey Water-Supply Paper 2220*, US Government Printing Office: 13.

Sanders, Laura L. 1998. *A Manual of Field Hydrogeology*. Upper Saddle River, New Jersey: Prentice Hall Inc.: 196.

Terraquest Environmental Consultants, P.C.
100 E. Ruffin St
Mebane, NC 27302

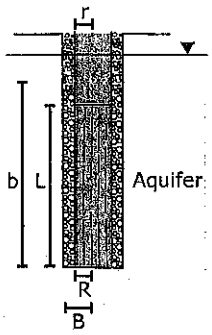
Wells

Project: Quality Mart No. 33

Number: 02500

Client: Quality Oil Company, LLC

Location: Kernersville, NC



	Name	X [ft]	Y [ft]	Penetration	R [ft]	L [ft]	r [ft]	B [ft]	b [ft]
1	MW9	0	0	Partially	0.0833	11.88	0.0833	0.25	11.88
2	MW3	0	0	Partially	0.0833	6.28	0.0833	0.25	6.28

Saturated length only

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Slug Test - Water Level Data

Project: Quality Mart No. 33

Number: 02500

Client: Quality Oil Company, LLC

Location: Kernersville, NC	Slug Test: MW3	Test Well: MW3
Test Conducted by: RDK	Test Date: 5/29/2008	
Water level at t=0 [ft]: 5.89	Static Water Level [ft]: 7.43	Water level change at t=0 [ft]: 1.54

:

	Time [s]	Water Level [ft]	WL Change [ft]
1	0	5.89	-1.54
2	5	6.32	-1.11
3	10	6.60	-0.83
4	15	6.75	-0.68
5	20	6.81	-0.62
6	25	6.85	-0.58
7	30	6.88	-0.55
8	35	6.89	-0.54
9	40	6.92	-0.51
10	45	6.93	-0.50
11	50	6.94	-0.49
12	55	6.94	-0.49
13	60	6.95	-0.48
14	65	6.96	-0.47
15	70	6.97	-0.46
16	75	6.98	-0.45
17	80	6.99	-0.44
18	85	6.99	-0.44
19	90	7.00	-0.43
20	95	6.99	-0.44
21	100	7.00	-0.43
22	105	7.00	-0.43
23	110	7.00	-0.43
24	115	7.02	-0.41
25	120	7.02	-0.41
26	125	7.03	-0.40
27	130	7.02	-0.41
28	135	7.03	-0.40
29	140	7.03	-0.40
30	145	7.02	-0.41
31	150	7.02	-0.41
32	155	7.04	-0.39
33	160	7.03	-0.40
34	165	7.05	-0.38
35	170	7.03	-0.40
36	175	7.04	-0.39
37	180	7.04	-0.39
38	185	7.04	-0.39
39	190	7.05	-0.38
40	195	7.05	-0.38
41	200	7.05	-0.38
42	205	7.06	-0.37
43	210	7.05	-0.38
44	215	7.06	-0.37
45	220	7.06	-0.37
46	225	7.07	-0.36
47	230	7.06	-0.37
48	235	7.06	-0.37
49	240	7.07	-0.36
50	245	7.05	-0.38
51	250	7.06	-0.37

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100 E. Ruffin St
Mebane, NC 27302

Slug Test - Water Level Data

Project: Quality Mart No. 33

Number: 02500

Client: Quality Oil Company, LLC

	Time [s]	Water Level [ft]	WL Change [ft]
52	255	7.08	-0.35
53	260	7.08	-0.35
54	265	7.07	-0.36
55	270	7.07	-0.36
56	275	7.07	-0.36
57	280	7.07	-0.36
58	285	7.08	-0.35
59	290	7.08	-0.35
60	295	7.08	-0.35
61	300	7.08	-0.35
62	305	7.08	-0.35
63	310	7.08	-0.35
64	315	7.08	-0.35
65	320	7.07	-0.36
66	325	7.08	-0.35
67	330	7.08	-0.35
68	335	7.08	-0.35
69	340	7.08	-0.35
70	345	7.09	-0.34
71	350	7.08	-0.35
72	355	7.09	-0.34
73	360	7.09	-0.34
74	365	7.09	-0.34
75	370	7.10	-0.33
76	375	7.09	-0.34
77	380	7.09	-0.34
78	385	7.09	-0.34
79	390	7.11	-0.32
80	395	7.11	-0.32
81	400	7.10	-0.33
82	405	7.10	-0.33
83	410	7.10	-0.33
84	415	7.11	-0.32
85	420	7.11	-0.32
86	425	7.11	-0.32
87	430	7.11	-0.32
88	435	7.11	-0.32
89	440	7.11	-0.32
90	445	7.11	-0.32
91	450	7.12	-0.31
92	455	7.12	-0.31
93	460	7.12	-0.31
94	465	7.13	-0.30
95	470	7.12	-0.31
96	475	7.14	-0.29
97	480	7.12	-0.31
98	485	7.13	-0.30
99	490	7.13	-0.30
100	495	7.13	-0.30
101	500	7.12	-0.31
102	505	7.12	-0.31
103	510	7.12	-0.31
104	515	7.13	-0.30
105	520	7.13	-0.30
106	525	7.13	-0.30
107	530	7.13	-0.30

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Mebane, NC 27302

Slug Test - Water Level Data

Project: Quality Mart No. 33

Number: 02500

Client: Quality Oil Company, LLC

	Time [s]	Water Level [ft]	WL Change [ft]
108	535	7.12	-0.31
109	540	7.14	-0.29
110	545	7.14	-0.29
111	550	7.14	-0.29
112	555	7.15	-0.28
113	560	7.15	-0.28
114	565	7.15	-0.28
115	570	7.15	-0.28
116	575	7.14	-0.29
117	580	7.15	-0.28
118	585	7.15	-0.28
119	590	7.15	-0.28
120	595	7.15	-0.28
121	600	7.15	-0.28
122	605	7.15	-0.28
123	610	7.13	-0.30
124	615	7.14	-0.29
125	620	7.14	-0.29
126	625	7.15	-0.28
127	630	7.15	-0.28
128	635	7.16	-0.27
129	640	7.15	-0.28
130	645	7.15	-0.28
131	650	7.16	-0.27
132	655	7.17	-0.26
133	660	7.15	-0.28
134	665	7.15	-0.28
135	670	7.15	-0.28
136	675	7.16	-0.27
137	680	5.70	-1.73
138	685	2.74	-4.69
139	690	2.72	-4.71
140	695	2.74	-4.69
141	700	2.73	-4.70
142	705	2.73	-4.70
143	710	2.73	-4.70
144	715	2.73	-4.70
145	720	2.73	-4.70
146	725	2.73	-4.70
147	730	2.72	-4.71
148	735	2.73	-4.70
149	740	2.75	-4.68
150	745	2.73	-4.70
151	750	2.74	-4.69
152	755	2.74	-4.69
153	760	2.74	-4.69
154	765	2.76	-4.67
155	770	2.75	-4.68
156	775	2.74	-4.69
157	780	2.74	-4.69
158	785	2.74	-4.69
159	790	2.74	-4.69
160	795	2.74	-4.69
161	800	2.74	-4.69
162	805	2.74	-4.69
163	810	2.73	-4.70

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100 E. Ruffin St
Mebane, NC 27302

Slug Test - Water Level Data

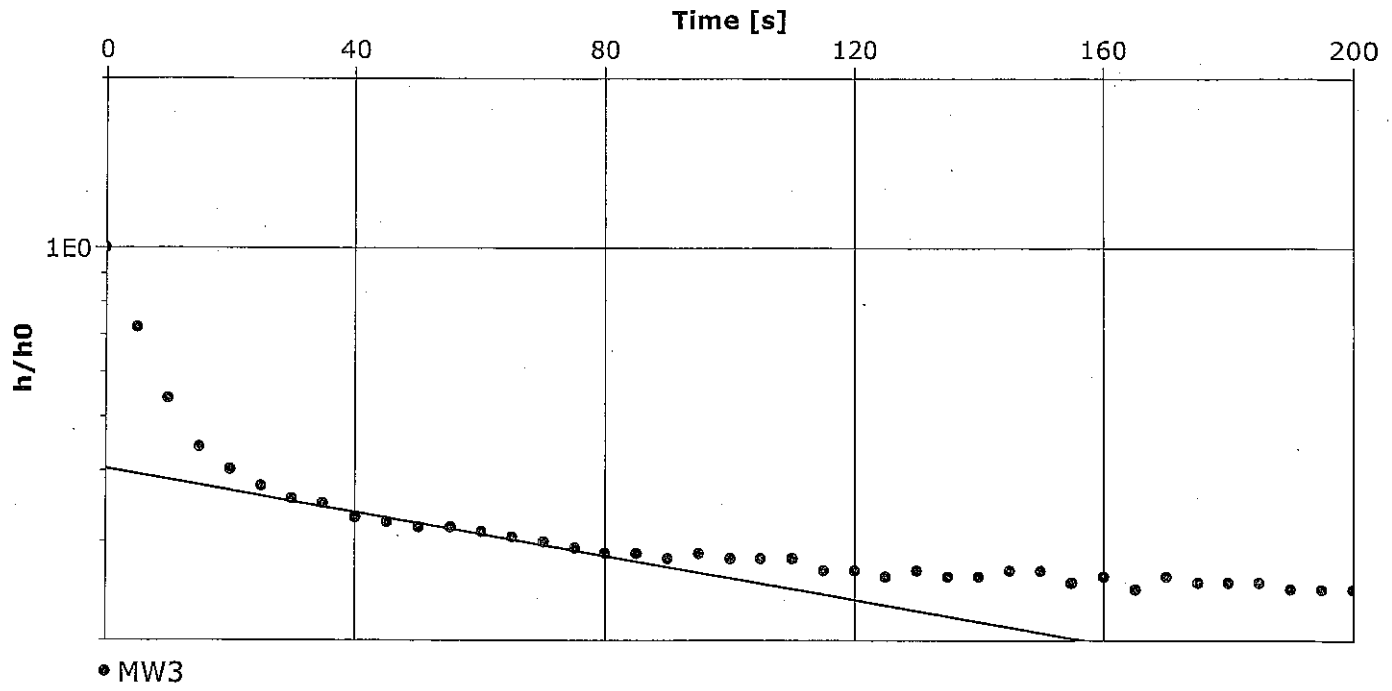
Project: Quality Mart No. 33

Number: 02500

Client: Quality Oil Company, LLC

	Time [s]	Water Level [ft]	WL Change [ft]
164	815	2.74	-4.69
165	820	2.73	-4.70
166	825	2.73	-4.70
167	830	2.74	-4.69
168	835	2.74	-4.69
169	840	2.73	-4.70
170	845	2.73	-4.70
171	850	2.73	-4.70
172	855	2.72	-4.71
173	860	2.75	-4.68
174	865	2.75	-4.68
175	870	2.75	-4.68
176	875	2.73	-4.70
177	880	2.73	-4.70
178	885	2.74	-4.69

Terraquest Environmental Consultants, P.C. 100 E. Ruffin St Mebane, NC 27302	**Slug Test Analysis Report**	
	Project: Quality Mart No. 33	
	Number: 02500	
	Client: Quality Oil Company, LLC	
Location: Kernersville, NC	Slug Test: MW3	Test Well: MW3
Test Conducted by: RDK		Test Date: 5/29/2008
Analysis Performed by: RDK	MW3	Analysis Date: 7/28/2008
Aquifer Thickness: 45.00 ft		
:	:	



Calculation after Bouwer & Rice		
Observation Well	Hydraulic Conductivity [ft/d]	
MW3	4.93 10^{-1}	

Terraquest Environmental Consultants, P.C.
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Mebane, NC 27302

Slug Test - Water Level Data

Project: Quality Mart No. 33

Number: 02500

Client: Quality Oil Company, LLC

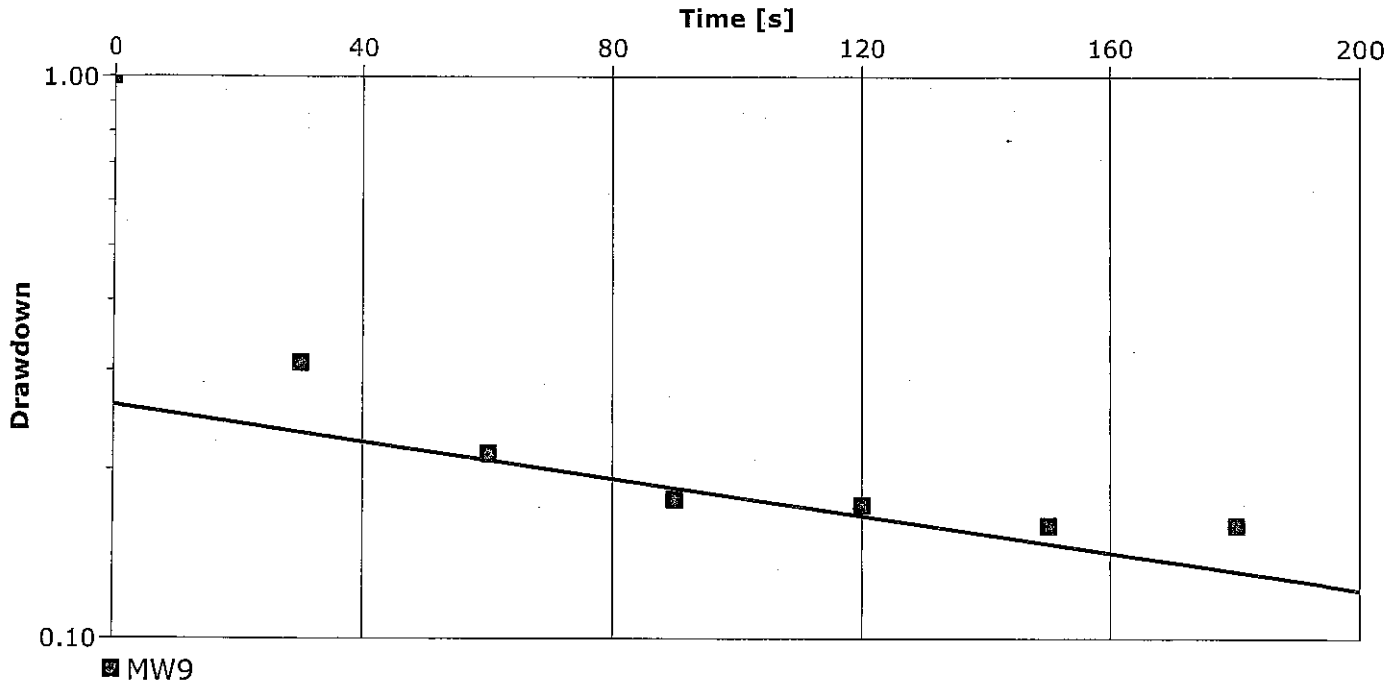
Location: Kernersville, NC	Slug Test: MW9	Test Well: MW9
Test Conducted by: RDK	Test Date: 5/29/2008	
Water level at t=0 [ft]: 9.23	Static Water Level [ft]: 11.43	Water level change at t=0 [ft]: 2.20

:

	Time [s]	Water Level [ft]	WL Change [ft]
1	0	9.23	-2.20
2	30	10.75	-0.68
3	60	10.96	-0.47
4	90	11.04	-0.39
5	120	11.05	-0.38
6	150	11.08	-0.35
7	180	11.08	-0.35
8	210	11.11	-0.32
9	240	11.13	-0.30
10	270	11.14	-0.29
11	300	11.16	-0.27
12	330	11.18	-0.25
13	360	11.19	-0.24
14	390	11.21	-0.22
15	420	11.23	-0.20
16	450	11.23	-0.20
17	480	11.24	-0.19
18	510	11.25	-0.18
19	540	11.27	-0.16
20	570	11.27	-0.16
21	600	11.28	-0.15
22	630	2.74	-8.69
23	660	2.73	-8.70
24	690	2.72	-8.71
25	720	2.72	-8.71
26	750	2.73	-8.70
27	780	2.72	-8.71
28	810	2.73	-8.70
29	840	2.72	-8.71
30	870	2.73	-8.70
31	900	2.67	-8.76
32	930	2.72	-8.71
33	960	2.74	-8.69
34	990	2.73	-8.70
35	1020	2.73	-8.70
36	1050	2.73	-8.70
37	1080	2.75	-8.68

Terraquest Environmental Consultants, P.C. 100 E. Ruffin St Mebane, NC 27302	**Slug Test Analysis Report**
	Project: Quality Mart No. 33
	Number: 02500
	Client: Quality Oil Company, LLC

Location: Kernersville, NC	Slug Test: MW9	Test Well: MW9
Test Conducted by: RDK		Test Date: 5/29/2008
Analysis Performed by: RDK	MW9	Analysis Date: 7/28/2008
Aquifer Thickness: 45.00 ft		
:	:	



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [ft/d]	
MW9	$2.71 \quad 10^{-1}$	

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PRE-CAP GROUNDWATER MONITORING REPORT

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NORTH CAROLINA

Latitude: 36.0858° N Longitude: 80.1016° W

Release Information

Date Discovered: October 24, 2003
Estimated Release Quantity: Unknown
Release Cause/Source: Underground Storage Tank System
UST Capacity: one 12,000-gallon and two 8,000-gallon gasoline USTs
NCDWM-UST Facility ID No. 0-034372
NCDWM-UST Incident No. 30284
Risk Ranking: High 197

UST System Owner/Responsible Party:
Quality Oil Company, LLC
P.O. Box 2736
Winston-Salem, NC 27102

Property Owner:
Donald A. & Maxine D. Joyce
1022 Sedge Garden Road
Kernersville, NC 27284

Terraquest Project No. 02500

October 30, 2009

100 E. Ruffin Street • Mebane, North Carolina 27302
Telephone (919) 563-9091 • Facsimile (919) 563-9095
www.terraquestpc.com

CERTIFICATION FOR THE SUBMITTAL
OF AN ENVIRONMENTAL / GEOLOGICAL ASSESSMENT

Attached is the Pre-CAP Groundwater Monitoring Report for:

Site Name:	Quality Mart No. 33		
Address:	1400 Union Cross Road		
City:	Kernersville	State: NC	Zip Code: 27284
Responsible Party:	Quality Oil Company, LLC		
Address:	Post Office Box 2736		
City:	Winston-Salem	State: NC	Zip Code: 27102
Phone:	(336) 722-3441		

I, Michael J. Brown, a Licensed Geologist in the State of North Carolina for TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C. do hereby certify that I am familiar with and have reviewed all material including figures within this report and that to the best of my knowledge the data, site assessments, figures, and other associated materials are correct and accurate. All work was performed under my direct supervision. My seal and signature are affixed below. Additional seals and/or signatures are also affixed below.

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.

Nick Perry
Environmental Technician

Ryan D. Kerins
Project Manager

NORTH CAROLINA LICENSED SEAL 1185 GEOLOGIST MICHAEL J. BROWN

Michael J. Brown, P.G.
President

TABLE OF CONTENTS

1.0 INTRODUCTION

On behalf of the responsible party, Quality Oil Company, LLC, Terraquest Environmental Consultants, P.C. has conducted a groundwater sampling event for the Quality Mart No. 33 facility located in Forsyth County, Kernersville, North Carolina. These activities were requested by the NCDWM-UST and were pre-approved under Task Authorization 30284-005.

The site location is shown in Figure 1. The surrounding vicinity is shown in Figure 2. A site layout map is included as Figure 3. Environmental acronyms utilized by Terraquest personnel along with technical methods and standard procedures used in this report are detailed in Appendix A.

2.0 SITE HISTORY

Prior to installation of the current UST system, the property had two 3,000-gallon gasoline USTs (T1A/T1B) located adjacent to Union Cross Road in the approximate location shown on Figure 3. A baseline environmental study was completed in March 1994 to investigate the possibility of the 3,000-gallon USTs impacting the soil and groundwater quality at the site. This was done prior to the installation of the current UST system. Results of that study revealed the presence of petroleum contaminants in both soil and groundwater. The release incident was subsequently transferred to the NCDWM-UST State Lead Cleanup List on August 26, 1994.

Results of an LSA performed by the State Lead revealed the presence of MTBE in a monitoring well where none had been detected during the baseline study. The NCDWM-UST surmised that the MTBE must have originated from the current USTs system and issued Quality an NORR requesting a tank/line tightness test and a site check assessment. Precision Tank Service, Inc. was contracted by Quality to conduct the tightness test. The tank tightness test performed on February 26, 2004 by Precision indicated that each of the USTs passed the tests. As stated by Quality in a correspondence on file with the NCDWM-UST, "during a routine inspection in the summer of 2003, we (Quality) discovered a leak where the electronic leak detector screws into the pump head. We repaired the leak and tested the system. The system checked tight."

Terraquest has previously submitted a Site Check and Initial Abatement Report, an LSA Report, and a CSA report for this site. The NCDWM-UST approved the CSA report in a correspondence dated December 16, 2008. That correspondence also requested the implementation of all groundwater monitoring wells MW1, MW4, MW5, MW6, MW7, MW9, and MW10 and potable well PW8. This report is submitted to comply with that request.

3.0 GROUNDWATER FLOW DIRECTION

Prior to purging and sampling the monitoring well network on September 15, 2009, Terraquest personnel first measured the depth to water in each well. The depth-to-water data was used in conjunction with previously established casing elevations to generate the potentiometric surface map presented as Figure 4. As shown on Figure 4, groundwater flow is directed to the east-southeast as it has been historically. Groundwater elevation data and well construction information is summarized on Table 1. Appendix B contains historical groundwater elevation data.

4.0 GROUNDWATER SAMPLING

On September 15, 2009, Terraquest personnel sampled groundwater monitoring wells MW1, MW4 – MW7, MW9, MW10, and potable well, PW8. Prior to sampling each well, a new disposable bailer was first used to purge approximately three well volumes of water from each well. These same bailers were used to retrieve a representative groundwater sample from each well and place it into the appropriate laboratory-prepared containers. The samples were labeled and packed on ice pending transit to an NC-certified laboratory where they were analyzed by 6200B.

The analytical results of the September 15, 2009 sampling event revealed the presence of 2L Standard violations in monitoring wells MW1, MW5, MW9, and MW10. Monitoring wells MW4 and MW6 had reported detections of petroleum-type compounds, however, the concentrations were below the 2L standards of those compounds. No petroleum-type compounds were reported

at concentrations in excess of either the laboratory's method or reportable detection limits for monitoring well MW7 nor for potable well PW8. The analytical results are summarized on Table 2 and Figure 5. As shown on Figure 5, the estimated extent of 2L Standard violation begins in the current UST basin and extends downgradient past monitoring well MW10 with an aerial extent of approximately 16,000 square feet. An isoconcentration map for benzene is presented as Figure 6. Insufficient data points exist for additional horizontal or vertical isoconcentration maps. A historical summary of analytical data for each well is provided in Appendix B. The full analytical report is provided in Appendix C. Note that insufficient data points exist for the generation of contaminant concentration versus time or concentration versus groundwater elevation graphs.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical results of the September 15, 2009 groundwater sampling event confirmed the continued presence of 2L Standard violations. Those violations were again present in the monitoring well MW10 that is located on the leading edge of the plume in line toward potable well PW8. In accordance with the NCDWM-UST guidelines, Terraquest recommends that a CAP be developed to analyze the most cost-effective method of protecting human health and the environment. In accordance with the previous NCDWM-UST NORR, Terraquest will continue annual sampling events of the select monitoring wells and quarterly sampling of potable well PW8. A request for pre-approval of costs necessary for the next quarterly sampling of potable well PW8 is submitted with this report.

6.0 LIMITATIONS

This report is limited to the investigation of petroleum hydrocarbons, such as gasoline, and does not imply that other unforeseen adverse impacts to the environment are not present at the Quality Mart No. 33 facility located in Forsyth County, Kernersville, North Carolina. In addition, subsurface heterogeneities not identified during the current study may influence the migration of groundwater or contaminants in unpredicted ways. The limited amount of sampling and testing

conducted during this study cannot practically reveal all subsurface heterogeneities. Furthermore, subsurface conditions, particularly groundwater flow, elevations, and water quality may vary through time. The opinions and conclusions arrived at in this report are in accordance with North Carolina Department of Environment and Natural Resources regulations and guidelines and industry-accepted geologic and hydrogeologic practices at this time and location. No warranty is implied or intended.

Table 1 MONITORING WELL CONSTRUCTION INFORMATION

Date: 10/14/09 Incident Name: Quality Mart No. 33 Incident No. 30284 Facility ID No.: 0-034372

Well ID	Date Installed	Date Water Level Measured	Well Casing Depth (feet BGS)	Screened Interval (x to y feet BGS)	Bottom of Well (feet BGS)	Top of Casing Elevation (feet)	Depth to Water from Top of Casing (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Comments
MW1	10/23/2003	9/15/2009	25	10 - 25	25	98.55	12.76	NP	85.79	2"-diameter Type II monitoring well
MW2	4/6/2004	9/15/2009	20	5 - 20	20	99.28	14.13	NP	85.15	2"-diameter Type II monitoring well
MW3	4/6/2004	9/15/2009	20	5 - 20	20	98.70	12.83	NP	85.87	2"-diameter Type II monitoring well
MW4	4/6/2005	9/15/2009	5	5 - 18	18	99.05	13.71	NP	85.34	2"-diameter Type II monitoring well
MW5	4/6/2005	9/15/2009	5	5 - 18	18	98.65	13.14	NP	85.51	2"-diameter Type II monitoring well
MW6	4/6/2005	9/15/2009	5	5 - 18	18	99.78	14.73	NP	85.05	2"-diameter Type II monitoring well
MW7	4/6/2005	9/15/2009	5	5 - 18	18	98.81	12.47	NP	86.34	2"-diameter Type II monitoring well
MW8	4/7-8/05	9/15/2009	OC: 30 IC: 40	40 - 45	45	99.00	12.55	NP	86.45	2"-diameter Type III monitoring well
MW9	5/28/2008	9/15/2009	5	5 - 25	25	98.87	13.22	NP	85.65	2"-diameter Type II monitoring well
MW10	10/22/2008	9/15/2009	5	5 - 25	25	96.45	13.67	NP	82.78	2"-diameter Type II monitoring well

Notes:

1. All units in feet.
2. "BGS" = below ground surface, "NP" = no free product detected in the well, "OC" = outer casing, "IC" = inner casing.

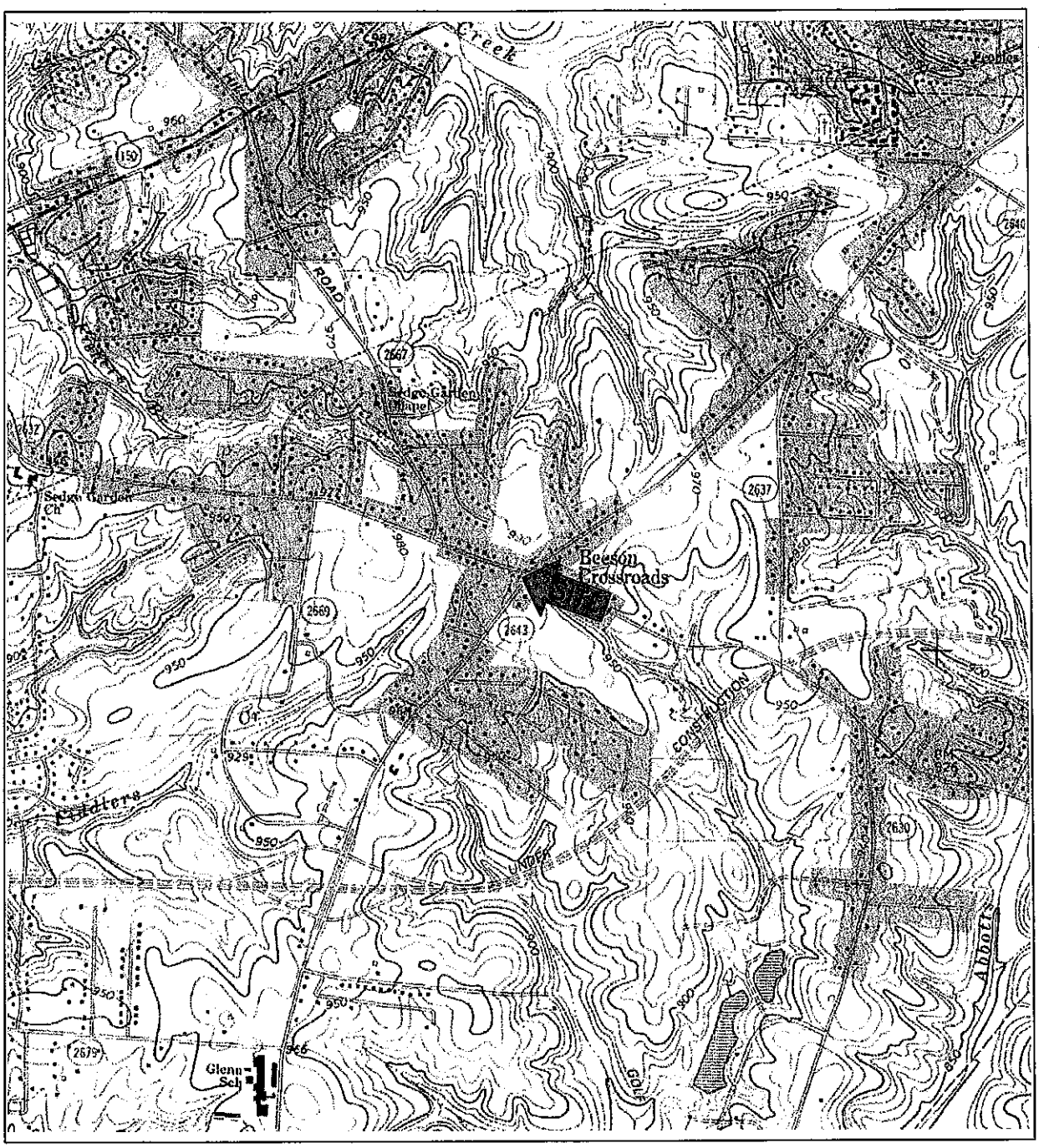
Table 2
Date: 10/14/09

SUMMARY OF GROUNDWATER SAMPLING RESULTS
Incident Name: Quality Mart No. 33 Incident No. 30284

Facility ID No.:0-034372

Analytical Method		6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B
Contaminant of Concern		Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	DIPE	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Bromodichloromethane	Chloroform	p-Chlorotoluene	1,2-Dichloroethane	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Methylene Chloride	Tetrachloroethylene	1,2,3-Trichlorobenzene	1,1,2-Trichloroethane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Sample ID	Date Collected																						
MW1	9/15/09	1,890	46.4	1,880	3,885	779	134	15.3	11.1	<10	<6	<5	41.5	<7	74.3	<6	426	215	129	<9	11.6	<11	1,440	358
MW4	9/15/09	0.16	<0.060	<0.050	<0.14	<0.060	<0.050	<0.10	<0.10	<0.10	<0.060	<0.050	<0.050	<0.070	0.13	<0.060	<0.34	<0.050	<0.52	<0.090	<0.080	0.25	<0.10	<0.10
MW5	9/15/09	1.3	<0.060	<0.050	<0.14	2.9	0.99	<0.10	0.28	<0.10	<0.060	<0.050	<0.050	<0.070	<0.050	<0.060	<0.34	<0.050	<0.52	<0.090	<0.080	<0.11	<0.10	<0.10
MW6	9/15/09	<0.060	<0.060	<0.050	<0.14	0.51	<0.050	<0.10	<0.10	<0.10	0.23	<0.10	28.6	<0.070	<0.050	<0.060	<0.34	<0.050	<0.52	<0.090	<0.080	<0.11	<0.10	<0.10
MW7	9/15/09	<0.060	<0.060	<0.050	<0.14	<0.060	<0.050	<0.10	<0.10	<0.10	<0.060	<0.050	<0.050	<0.070	<0.050	<0.060	<0.34	<0.050	<0.52	<0.090	<0.080	<0.11	45.8	0.16
MW9	9/15/09	19.1	0.33	0.21	73.8	0.76	0.35	1.4	2.3	0.13	<0.060	1.2	<0.050	0.17	14	0.46	59.5	0.89	<0.52	<0.090	<0.080	<0.11	0.30	<0.10
MW10	9/15/09	3.3	<0.060	<0.050	0.50	0.60	0.22	0.10	0.35	<0.10	<0.060	<0.050	<0.050	0.31	2.2	<0.060	9.5	<0.050	<0.52	<0.090	<0.080	<0.11	<0.10	<0.10
PW8	9/15/09	<0.060	<0.060	<0.050	<0.14	<0.060	<0.050	<0.10	<0.10	<0.10	<0.060	0.12	<0.050	<0.070	<0.050	<0.060	<0.34	<0.050	<0.52	0.19	<0.080	<0.11	<0.10	<0.10
	2L Standard	1	1,000	550	530	200	70	70	70	70	NE	70	NE	70	70	210	21	70	4.6	0.7	NE	NE	350	70

Notes:
1. All results in µg/l.
2. Bold denotes a detection.
3. Shading denotes a 2L Standard violation.
4. "<" = Less than sample detection limit.
5. NE = Not Established.



N

MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP OF KERNERSVILLE, NC

GRAPHIC SCALE

0' 2,000' 4,000'

TERRAquest

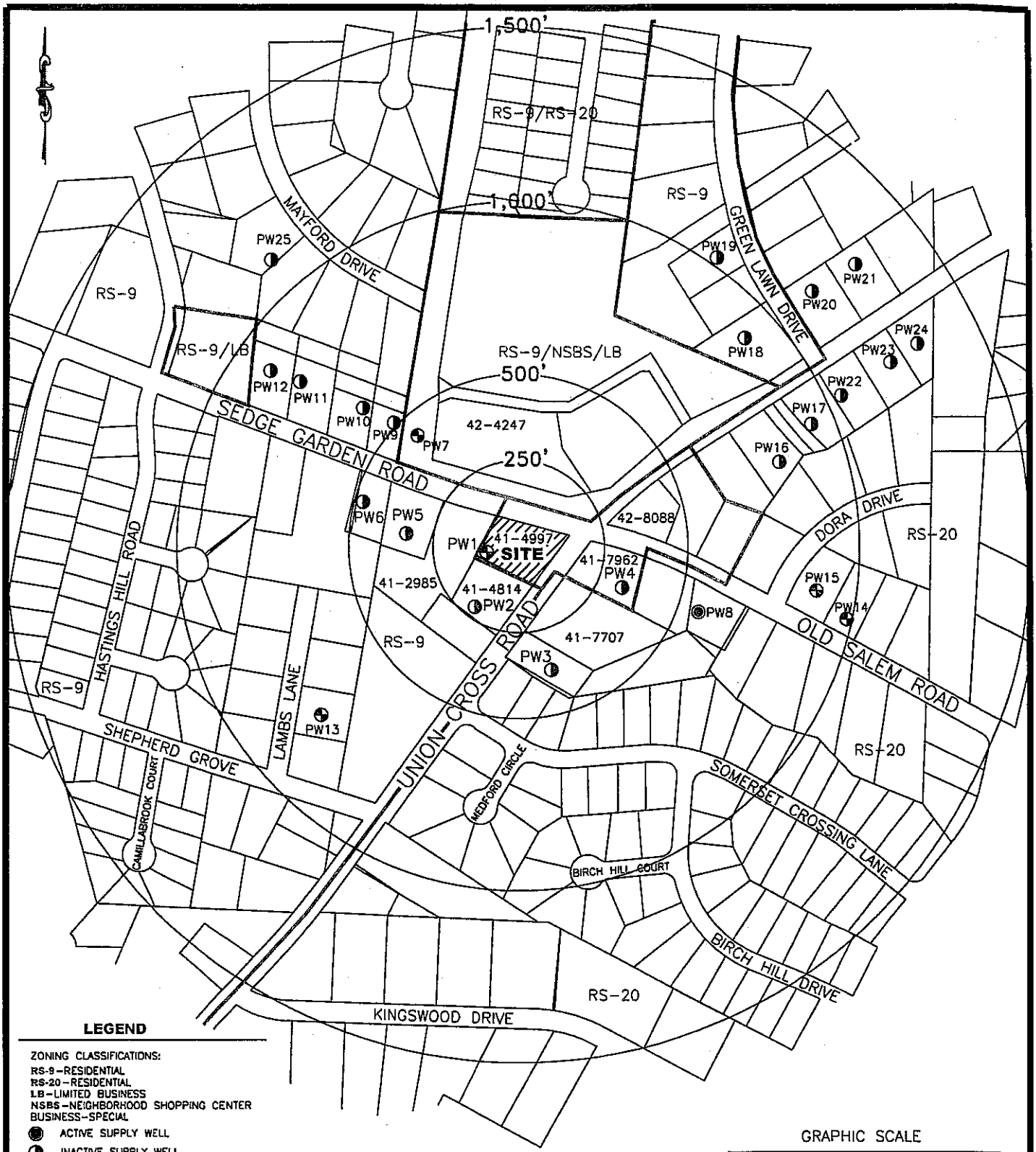
ENVIRONMENTAL CONSULTANTS, P.C.

SITE LOCATION MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC. WINSTON-SALEM, NC

PROJECT NO.	02500	DRAWN BY:	RDK	DATE:	10/14/09
SCALE:	1" = 2,000'	CHECKED BY:	MJB	FIGURE NO.	1



LEGEND

ZONING CLASSIFICATIONS:
RS-9 – RESIDENTIAL
RS-20 – RESIDENTIAL
LB – LIMITED BUSINESS
NSBS – NEIGHBORHOOD SHOPPING CENTER
BUSINESS – SPECIAL

- ACTIVE SUPPLY WELL
- INACTIVE SUPPLY WELL
- ABANDONED SUPPLY WELL
- ZONING BOUNDARIES

42-8088 NUMBER COORESPONDS WITH PROPERTY OWNER INFORMATION LISTED IN TABLE 2 OF LSA REPORT.

GRAPHIC SCALE

0' 200' 400' 800'

1" = 400'

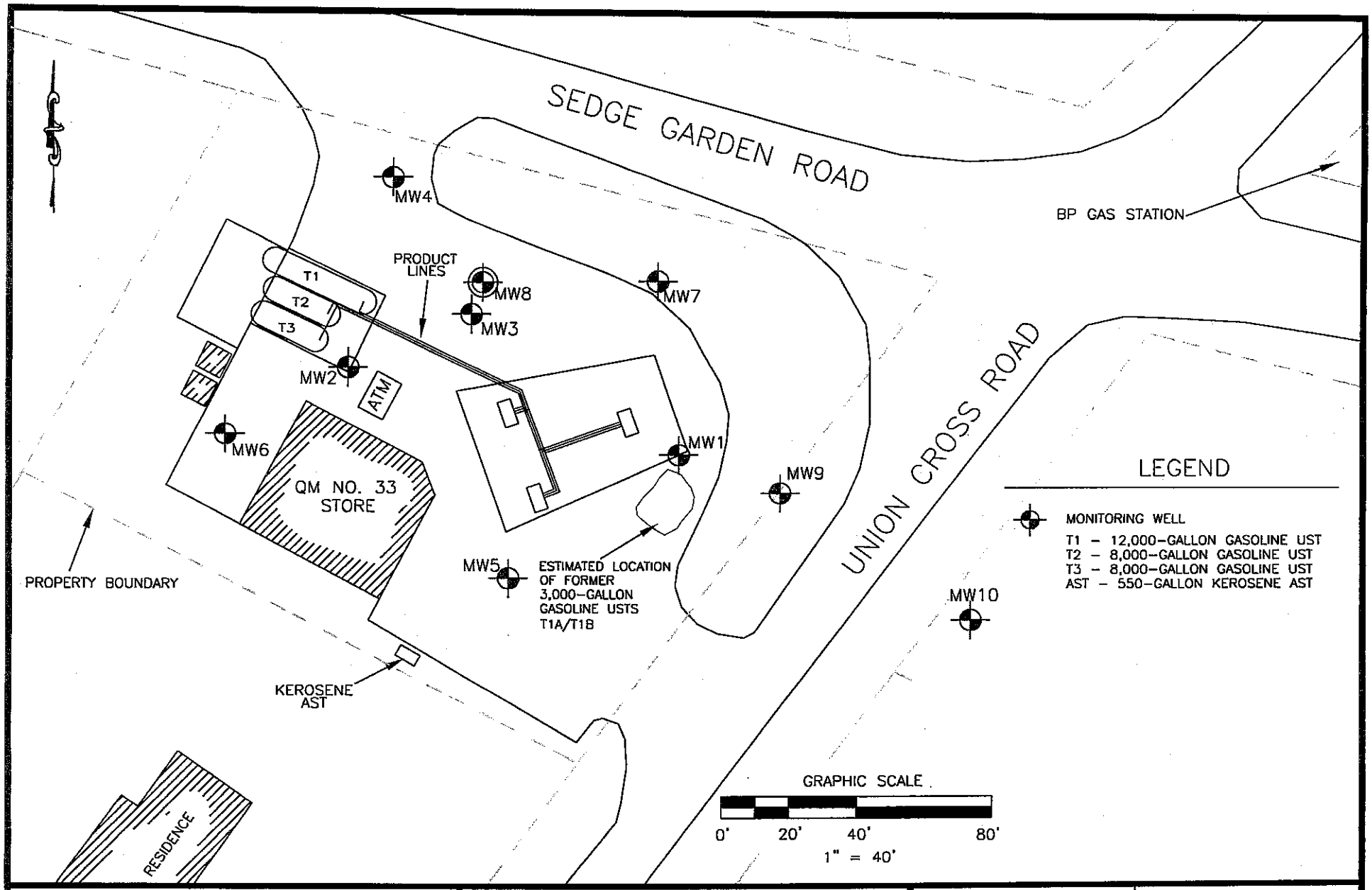
TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

SITE VICINITY MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
WINSTON-SALEM, NC

QUALITY OIL COMPANY, INC. WINSTON-SALEM, NC

PROJECT NO.	02500	DRAWN BY:	CB	DATE:	10/14/09
SCALE:	1"=400'	CHECKED BY:	JRG	FIGURE NO.	2



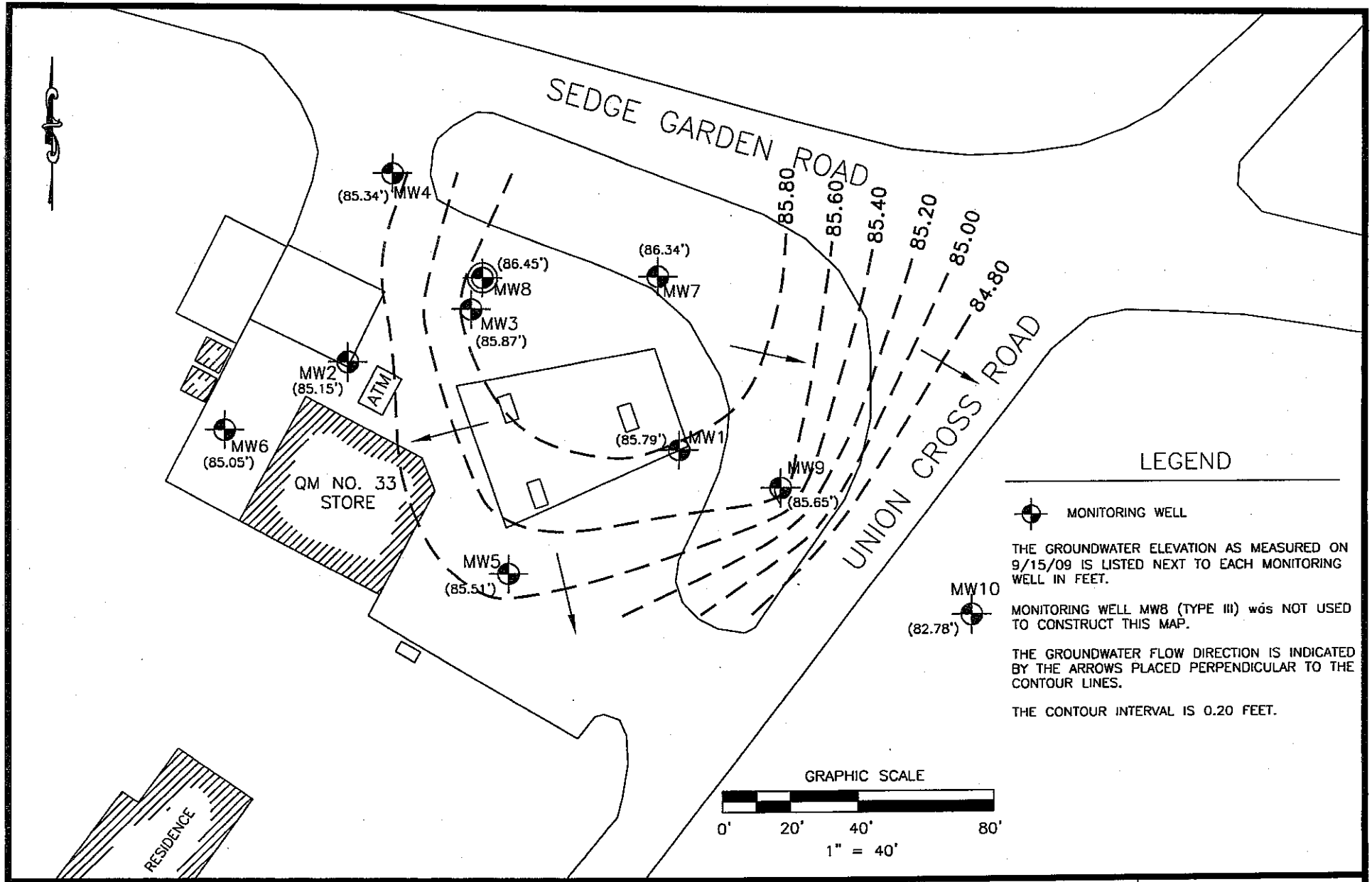
SITE LAYOUT MAP

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	10/13/09
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	3



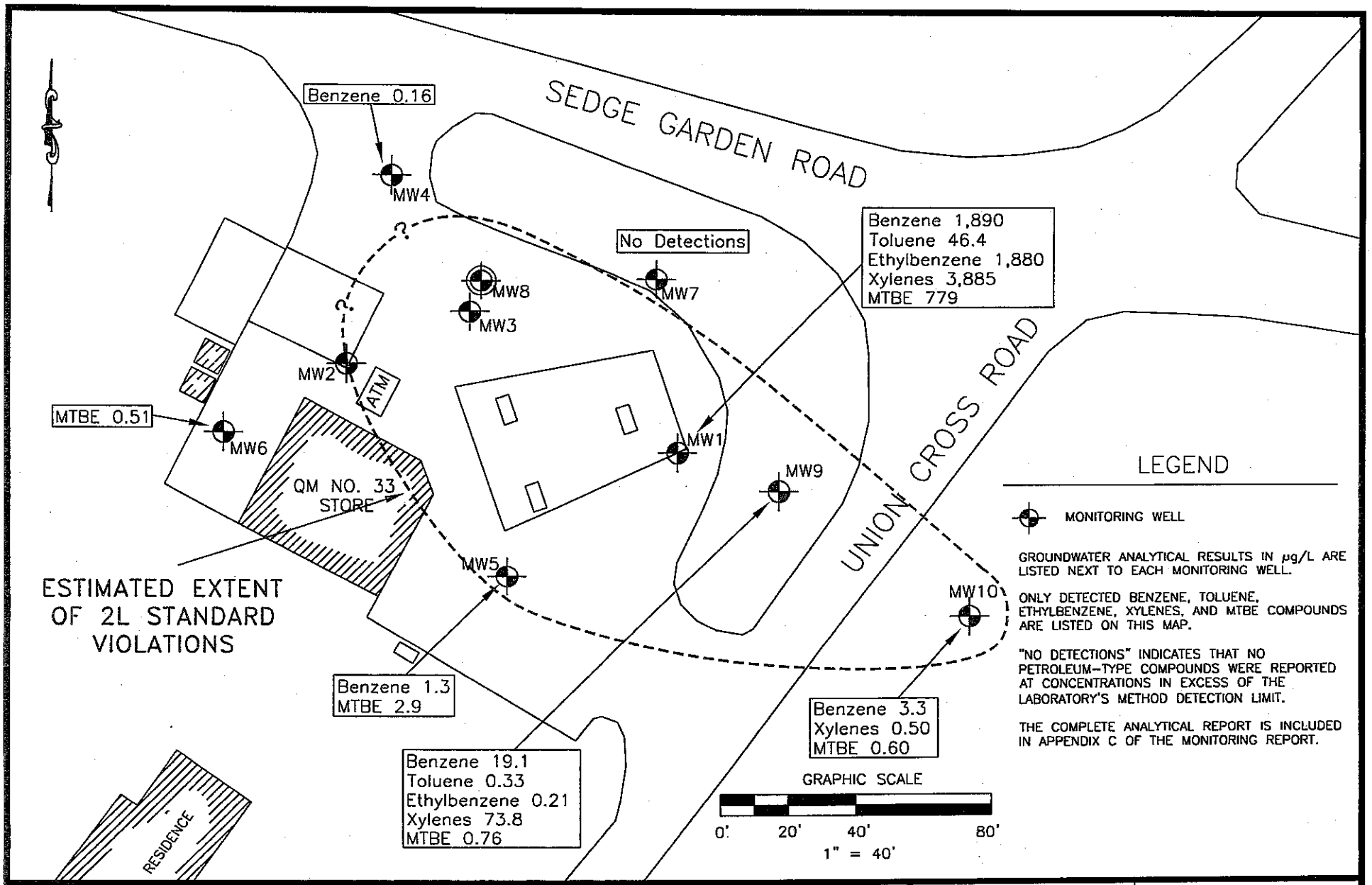
POTENTIOMETRIC SURFACE MAP (9/15/09)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	10/28/09
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	4



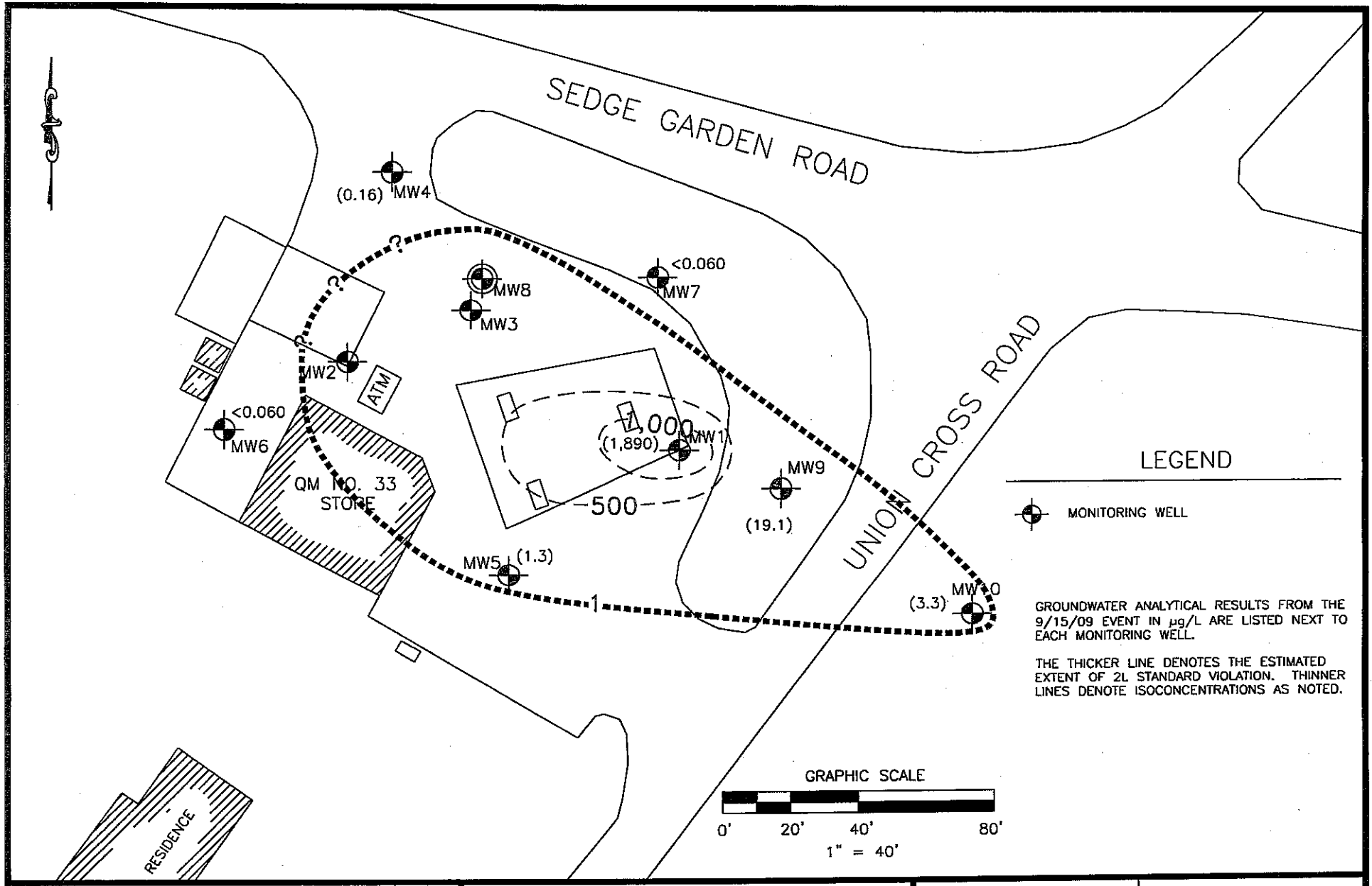
GROUNDWATER ANALTYICAL RESULTS (9/15/09)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	10/28/09
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	5



BENZENE ISOCONCENTRAITON MAP (9/15/09)

QUALITY MART NO. 33
1400 UNION CROSS ROAD
KERNERSVILLE, NC

QUALITY OIL COMPANY, LLC WINSTON-SALEM, NC

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

PROJECT NO.	02500	DATE:	10/28/09
CHECKED BY:	MJB/JRG	SCALE:	1" = 40'
DRAWN BY:	JRG/RDK	FIGURE NO.	6

HISTORICAL GROUNDWATER ELEVATION DATA Incident Name: Quality Mart No. 33 Incident No. 30284						
	4/7/2004		4/14/2005		2/11/2008	
Well ID	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation
MW1	9.50	89.05	9.95	88.60	15.67	82.88
MW2	10.03	89.25	9.80	89.48	16.15	83.13
MW3	9.72	88.98	9.68	89.02	15.64	83.06
MW4	-	-	9.50	89.55	15.84	83.21
MW5	-	-	9.89	88.76	15.65	83.00
MW6	-	-	10.30	89.48	16.69	83.09
MW7	-	-	10.02	88.79	16.84	81.97
MW8	-	-	9.64	89.36	16.19	82.81
	9/15/2009					
MW1	12.76	85.79				
MW2	14.13	85.15				
MW3	12.83	85.87				
MW4	13.71	85.34				
MW5	13.14	85.51				
MW6	14.73	85.05				
MW7	12.47	86.34				
MW8	12.55	86.45				
MW9	13.22	85.65				
MW10	13.67	82.78				

Notes:
1. All measurements listed in feet.
2. - measurements not available on this date.

GROUNDWATER ANALYTICAL HISTORY - MW1
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	DIPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	EDB	n-Butylbenzene	sec-Butylbenzene	4-Chlorotoluene	Methylene Chloride	1,2,3-Trichlorobenzene	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
4/7/04	6210D, 504.1, VPH, 6010B	**5,700**	<250	**3,100**	**9,100**	**1,800**	**410**	**290**	**110**	**580**	**2,000**	**490**	<1,200	<0.010	-	-	-	-	-	**17,000**	**28,000**	**10,000**	<5.0
4/14/05	6210D, VPH	**3,900**	<1,200	**2,200**	**6,200**	**1,200**	**350**	<250	<250	<1,200	**1,500**	**380**	**7,800**	-	-	-	-	-	-	**20,000**	**35,000**	**14,000**	-
2/11/08	6210D	**2,100**	<250	**1,200**	**280**	**2,300**	**540**	**150**	**66**	**330**	**380**	<50.	<2,500	<50.	-	-	-	-	-	-	-	-	-
9/15/09	6200B	**1,890**	**46.4**	**1,880**	**3,880**	**779**	**134**	**215**	**74.3**	**426**	**1,440**	**358**	<170	-	**15.3**	**11.1**	**41.5**	**129**	**11.6**	-	-	-	-
	2L Standards	1	1,000	29	530	200	70	70	70	21	350	350	700	0.0004	70	70	NE	4.6	NE	420	4,200	210	15

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

GROUNDWATER ANALYTICAL HISTORY - MW4
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	EDB	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
4/14/05	6210D, VPH	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	**26.0**	<0.010	<100	<100	<100	<5.0
2/11/08	6210D	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<50.	<1.0	-	-	-	-
9/15/09	6200B	**0.16**	<0.5	<0.5	<0.14	<0.06	<0.05	<0.05	<0.05	**6.5**	<0.1	<0.1	<1.7	-	-	-	-	-
	2L Standards	1	1,000	29	530	200	70	70	70	21	350	350	700	0.0004	420	4,200	210	15

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

GROUNDWATER ANALYTICAL HISTORY - MW5
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	DIPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	sec-Butylbenzene	Acetone	1,1,2-Trichloroethane	EDB	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
4/14/05	6210D, VPH	**1.5**	<5.0	<1.0	**5.4**	<1.0	<1.0	**1.6**	<1.0	<5.0	**10.0**	**3.8**	-	<25.	-	<0.010	<100	**120**	<100	<5.0
2/11/08	6210D	**1.3**	<5.0	<1.0	**3.6**	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	-	<50.	-	<1.0	-	-	-	-
9/15/09	6200B	**1.3**	<0.06	<0.05	<0.14	**2.9**	**0.99**	<0.05	**0.13**	<0.34	<0.1	<0.1	**0.28**	<1.7	**0.25**	-	-	-	-	-
	2L Standards	1	1,000	29	530	200	70	70	70	21	350	350	70	700	NE	0.0004	420	4,200	210	15

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

GROUNDWATER ANALYTICAL HISTORY - MW6
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Bromodichloromethane	Chloroform	EDB	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
4/14/05	6210D, VPH	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<25.	-	-	<0.010	<100	<100	<100	<5.0
2/11/08	6210D	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<50.	-	-	<1.0	-	-	-	-
9/15/09	6200B	<0.060	<0.060	<0.050	<0.14	**0.51**	<0.050	<0.050	<0.050	<0.34	<0.1	<0.1	<1.7	**0.23**	**26.6**	-	-	-	-	-
	2L Standards	1	1,000	29	530	200	70	70	70	21	350	350	700	NE	70	0.0004	420	4,200	210	15

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

GROUNDWATER ANALYTICAL HISTORY - MW7
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	EDB	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Lead
4/14/05	6210D, VPH	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<25.	<0.010	<100	<100	<100	<5.0
2/11/08	6210D	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<50.	<1.0	-	-	-	-
9/15/09	6200B	<0.06	<0.06	<0.05	<0.14	<0.06	<0.05	<0.05	<0.05	<0.34	<0.1	<0.1	<1.7	-	-	-	-	-
	2L Standards	1	1,000	29	530	200	70	70	70	21	350	350	700	0.0004	420	4,200	210	15

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

GROUNDWATER ANALYTICAL HISTORY - MW9
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloroform	1,2-Dichloroethane	p-Isopropyltoluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
5/28/08	6210D	**380**	<25	<5	**1,010**	**47**	**19**	**14**	**76**	**340**	-	-	-	-	-	-	**580**	**8.5**
9/15/09	6200B	**19.1**	**0.33**	**0.21**	**73.8**	**0.76**	**0.35**	**0.89**	**14**	**59.5**	**1.4**	**2.3**	**0.13**	**1.2**	**0.17**	**0.46**	**45.8**	**0.16**
	2L Standards	1	1,000	29	530	200	70	70	70	21	70	70	70	70	70	210	350	350

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

GROUNDWATER ANALYTICAL HISTORY - MW10
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	DIPE	Isopropylbenzene	Napthalene	n-Butylbenzene	sec-Butylbenzene	1,2-Dichloroethane	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	EDB	Lead
10/22/08	6210D	**1.9**	<5	<1	<3	<1	<1	**2.6**	**10**	-	-	-	<100	<100	<100	<1	<1	<0.010	<4.5
9/15/09	6200B	**3.3**	<0.06	<0.05	**0.5**	**0.6**	**0.22**	**2.2**	**9.5**	**0.1**	**0.35**	**0.31**	-	-	-	**0.3**	<0.1	-	-
	2L Standard	1	1,000	550	530	200	70	70	21	70	70	70	420	4200*	210*	350	350	0.0004	15

Notes:
1. All results in µg/l.
2. Bold denotes a detection.
3. Shading denotes a 2L Standard violation.
4. "<" = Less than sample detection limit.

GROUNDWATER ANALYTICAL HISTORY - PW8
Incident Name: Quality Mart No. 33 Incident No. 30284

Date	Analysis	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	n-Propylbenzene	Isopropylbenzene	Naphthalene	Chloroform	Tetrachloroethylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
5/28/08	6210D	<1	<5	<1	<3	<1	<1	<1	<1	<5	-	-	<1	<1
2/6/09	6200B	<1	<5	<1	<3	<1	<1	<1	<1	**5.6**	-	-	<1	<1
9/15/09	6200B	<0.06	<0.06	<0.05	<0.14	<0.06	<0.05	<0.05	<0.05	<0.34	**0.12**	**0.19**	<0.1	<0.1
	2L Standards	1	1,000	29	530	200	70	70	70	21	70	0.7	350	350

Notes:
1. All results in µg/L.
2. Bold denotes a detected concentration; Shading denotes a concentration in excess of the 2L Standards.
3. Only detected analytes listed. The analytical reports contain a complete list of analytes and results.
4. - = Not sampled for.

ATTACHMENT B

Pyramid Project # 2010109

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

DONALD & MAXINE JOYCE PROPERTY
PARCEL 148
Forsyth County, North Carolina

June 7, 2010

Report prepared for: **Michael W. Branson, PG**
AECOM Environment
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607

Prepared by: _____
Mika Trifunovic

Reviewed by: _____
Douglas Canavello, PG

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
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GREENSBORO, NC 27416-0265
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AECOM Environment
GEOPHYSICAL INVESTIGATION REPORT
DONALD & MAXINE JOYCE PROPERTY
PARCEL 148
Forsyth County, North Carolina

TABLE OF CONTENTS PAGE

FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted geophysical investigations for AECOM Environment across the proposed Right-of-Way (ROW) area of the Donald and Maxine Joyce property (Parcel 148) located along the southwest corner of the Union Cross Road and Sedge Garden Road intersection in Forsyth County, North Carolina. The property contains the Quality Mart gas station and consists primarily of asphalt and grass surfaces. The survey area was conducted across the proposed Right-of-Way (ROW) area of the site which included a portion of the pump island area.

The geophysical investigation was conducted on May 13 and 19, 2010 to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the proposed ROW section of the property. AECOM Environment representative Mr. Michael Branson, PG identified the geophysical survey area to Pyramid Environmental personnel prior to the investigation. The geophysical survey area has a maximum length and width of 220 feet and 170 feet respectively. Photographs of the geophysical equipment used in this investigation and the Donald and Maxine Joyce property (Parcel 148) are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 10-foot survey grid was established across the geophysical survey area (property) using measuring tapes, pin flags and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM survey was performed on May 13, 2010 using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along northerly-southerly, or easterly-westerly,

parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

GPR surveys were conducted on May 19, 2010 across selected EM61 differential anomalies and areas containing steel reinforced concrete using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Data were digitally collected in a continuous mode along X-axis and/or Y-axis survey lines, spaced 2.5 to 5.0 feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. A 70 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately 5 feet, based on an estimated two-way travel time of 8 nanoseconds per foot. All of the GPR data were downloaded to a field computer and reviewed in the field and office using Radprint software.

Contour plots of the EM61 bottom coil and differential results are presented in **Figures 2 and 3**, respectively**.** The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drum and UST-size objects and ignore the smaller insignificant metal objects.

Preliminary geophysical results obtained from Parcel 148 were emailed to Mr. Branson during the week of May 17, 2010.

3.0 DISCUSSION OF RESULTS

The linear EM61 bottom coil anomalies intersecting grid lines X=105 Y=155, X=210 Y=152 and X=218 Y=50 are probably in response buried utility lines that run along the edge of Union Cross Road and Sedge Garden Road. The low amplitude linear bottom coil anomalies intersecting grid coordinates X=110 Y=125 and X=170 Y=130 are possibly in response to buried lines or conduits.

The linear bottom coil anomaly intersecting grid coordinates X=190 Y=15 is possibly in response to a buried line/conduit or due to the adjacent metal surface objects.

The high-amplitude bottom coil anomalies (contours shaded in red) such as the ones intersecting grid coordinates X=187 Y=160, X=193 Y=106, X=205 Y=125, and X=218 Y=100 are probably in response to known surface objects such as signs, monitoring wells, drain grates, or parked vehicles.

GPR data suggest the differential anomalies centered near grid coordinates X=150 Y=70 and X=160 Y=100 are in response to the pump islands and steel reinforced concrete. The remaining negative EM61 differential anomalies are probably in response to known surface objects or utility-related equipment/line.

Excluding the known and active USTs centered near grid coordinates X=60 Y=70 and located outside of the proposed ROW area, the geophysical investigation suggests the surveyed portion of Parcel 148 does not contain unknown, buried metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the Donald and Maxine Joyce property (Parcel 148) located in Forsyth County, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the surveyed portions of the site.

- The linear EM61 bottom coil anomalies intersecting grid lines X=105 Y=155, X=210 Y=152 and X=218 Y=50 are probably in response buried utility lines that run along the edge of Union Cross Road and Sedge Garden.

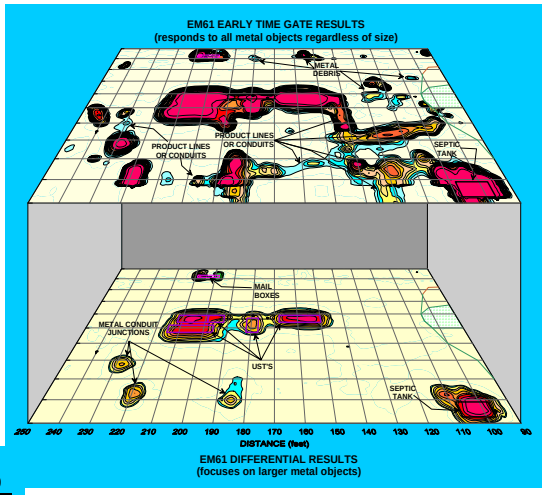
- The low amplitude linear bottom coil anomalies intersecting grid coordinates X=110 Y=125 and X=170 Y=130 are possibly in response to buried lines or conduits.

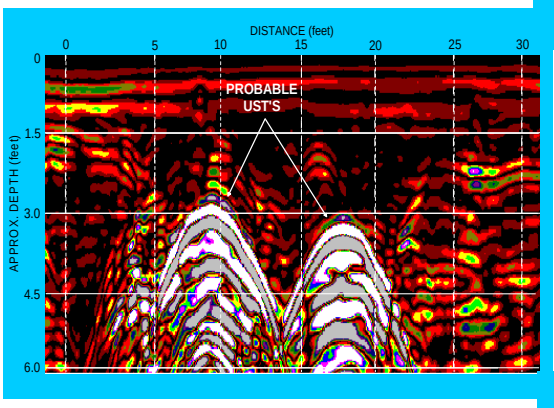
- GPR data suggest the remaining EM61 anomalies are probably in response to known surface objects or utility-related equipment/lines.

- Excluding the known and active USTs centered near grid coordinates X=60 Y=70 and located outside of the proposed ROW area, the geophysical investigation suggest the surveyed portion of Parcel 148 does not contain unknown, buried metallic USTs.

5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for AECOM Environment in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. Excluding the active (known) USTs, the EM61 and GPR results obtained for this project have not conclusively determined that the surveyed portion of the site does not contain unknown, buried metallic USTs, but that none were detected.

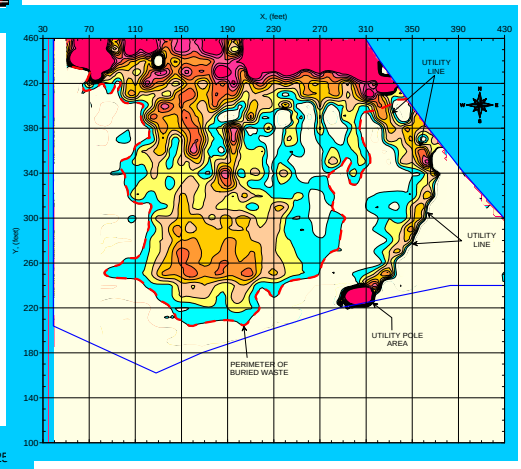


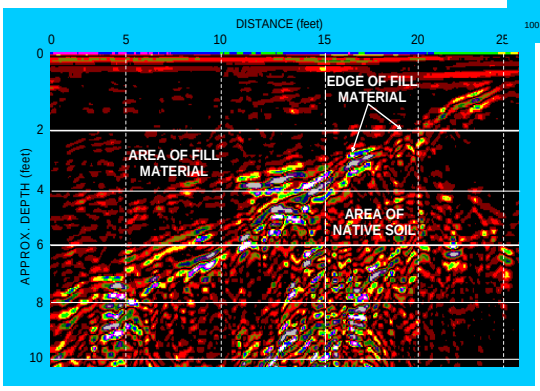


FIGURES

(on the following pages)

Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.





The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the proposed Right-of-Way portion of Parcel 148 on May 13, 2010.

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation at Parcel 148 on May 19, 2010.

The photograph shows the Quality Mart station at the Donald and Maxine Joyce property (Parcel 148) located at the intersection of Union Cross Road and Sedge Garden Road in Forsyth County, North Carolina. The photograph is viewed in a southerly direction.

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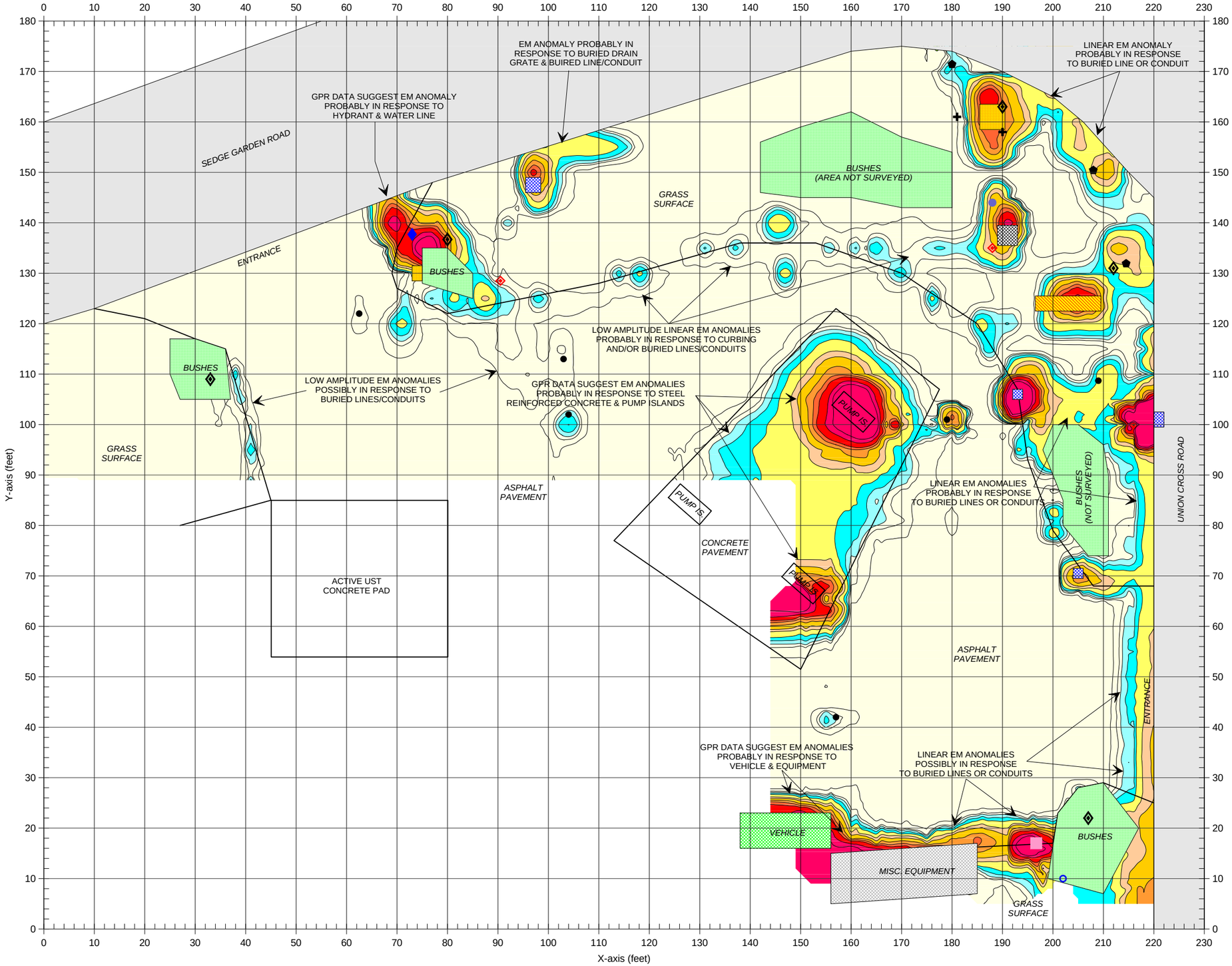
CLIENT	AECOM ENVIRONMENT	DATE	05/28/10	DRWN	MJD
SITE	DONALD & MAXINE JOYCE PROPERTY (PARCEL 148)	LAY		CHKD	
CITY	FORSYTH COUNTY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2010-109	FIGURE	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1



APPROXIMATE NORTH

LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- BUSINESS SIGN
- ELECTRICAL BOX OR AIR PUMP
- ELECTRICAL OUTLET
- FIRE HYDRANT
- FLAG POLE
- GUY WIRE
- MISC. EQUIPMENT
- MONITORING WELL
- ROAD SIGN
- STORM SEWER VENT PIPE
- STORM SEWER GRATE
- TELEPHONE
- UTILITY POLE
- WATER FAUCET
- VEHICLE

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -50 -30 -20 -10 -7.5 -5 -3 -2 -1 1 2 3 5 7.5 10 15 20 30 40 50 75 100 200 400 5000

The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on May 13, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on May 19, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests that the surveyed portions of Parcel 148 do not contain unknown, metallic USTs.

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 2

GRAPHIC SCALE IN FEET

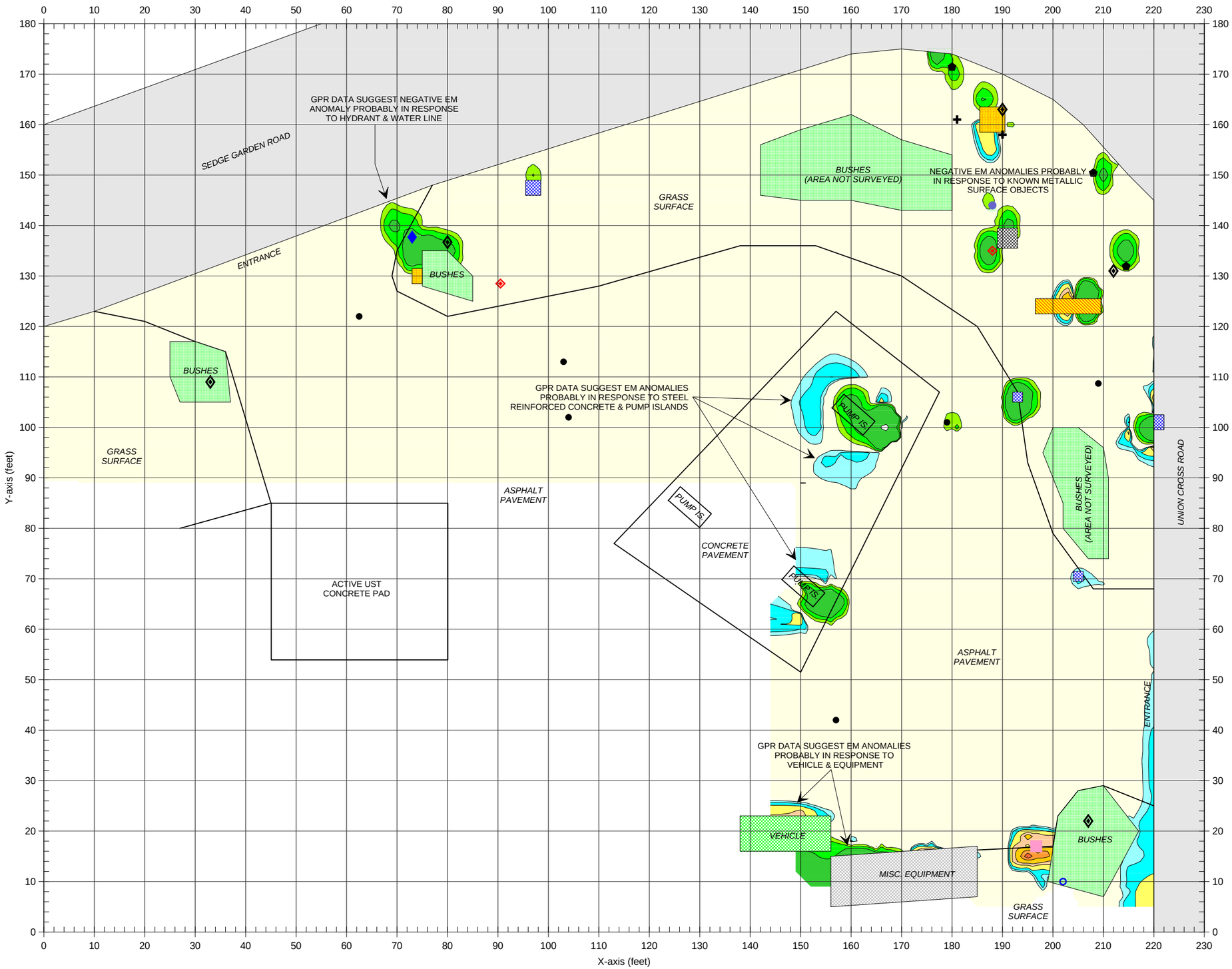
DATE	LAY	DWG	J.-NO.
05/28/10			2010-109
DRWN	CHKD		FIGURE
MJD			

CLIENT	SITE	CITY	STATE	TITLE
AECOM ENVIRONMENT	DONALD & MAXINE JOYCE PROPERTY (PARCEL 148)	FORSYTH COUNTY	NORTH CAROLINA	GEOPHYSICAL RESULTS

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 3



APPROXIMATE NORTH

LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- BUSINESS SIGN
- ELECTRICAL BOX OR AIR PUMP
- ELECTRICAL OUTLET
- FIRE HYDRANT
- FLAG POLE
- GUY WIRE
- MISC. EQUIPMENT
- MONITORING WELL
- ROAD SIGN
- STORM SEWER VENT PIPE
- STORM SEWER GRATE
- TELEPHONE
- UTILITY POLE
- WATER FAUCET
- VEHICLE

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -250 -100 -90 -45 -80 -75 -100 -150 -250 -300 -400 -500 -750 -1000

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller misc. buried, metal debris. The EM metal detection data were collected on May 13, 2010 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on May 19, 2010 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggests that the surveyed portions of Parcel 148 do not contain unknown metallic USTs.

GRAPHIC SCALE IN FEET

DRWN	CHKD		FIGURE
MJD			
DATE	LAY	DWG	J-NO.
05/28/10			2010-109

CLIENT	SITE	CITY	STATE	TITLE
AECOM ENVIRONMENT	DONALD & MAXINE JOYCE PROPERTY (PARCEL 148)	FORSYTH COUNTY	NORTH CAROLINA	GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

ATTACHMENT C

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-1
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			3.05		3" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN, STIFF, SILT/SAND, DRY, NO ODOR.
			5.02		AS ABOVE, DRY, NO ODOR.
5.0			10		MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN SAND/CLAY, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			6.95		AS ABOVE, DRY, NO ODOR.
			9.62		AS ABOVE, DRY, NO ODOR.
10.0			2.37		AS ABOVE, DRY, NO ODOR.
			5.95		AS ABOVE, DRY, NO ODOR.
			3.27		AS ABOVE, DRY, NO ODOR.
15.0					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-2
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			4.82		3" ASPHALT/GRAVEL, POOR RECOVRY THROUGHOUT. MEDIUM BROWN TO MEDIUM GRAY CLAY, DRY, SLIGHT ODOR.
			97		AS ABOVE TO 5 FEET. BECOMES MEDIUM GRAY CLAY, DRY, MODERATE ODOR.
5.0					
			995		POOR RECOVERY. MEDIUM GRAY CLAY, DRY, STRONG ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0			575		AS ABOVE, DRY, STRONG ODOR.
			632		AS ABOVE, DRY, STRONG ODOR.
			949		AS ABOVE, DRY, STRONG ODOR.
15.0					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-3
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			4.31		3" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN, STIFF, SILT/CLAY, DRY, NO ODOR.
			17		AS ABOVE, DRY, NO ODOR.
			67		MEDIUM GRAY SAND/CLAY, DRY, MODERATE ODOR.
5.0					
			31		AS ABOVE, DRY, STRONG ODOR.
			27		AS ABOVE, DRY, STRONG ODOR.
10.0			13		AS ABOVE, DRY, NO ODOR.
			6.66		AS ABOVE TO 13 FEET. BECOMES MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN STIFF SILT/CLAY, DRY, NO ODOR.
			10		AS ABOVE, DRY, NO ODOR.
15.0					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-4
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.11		3" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN, STIFF, SILT/CLAY, DRY, NO ODOR.
			2.33		MEDIUM GRAY SANDY CLAY, DRY, NO ODOR.
5.0			5.95		AS ABOVE, DRY, NO ODOR.
			4.35		AS ABOVE, DRY, NO ODOR.
			6.34		MEDIUM BROWN SOFT PLASTIC CLAY, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0			1.36		MOTTLED MEDIUM BROWN AND TAN STIFF CLAY, DRY, NO ODOR.
			1.82		AS ABOVE, DRY, NO ODOR.
15.0			1.52		AS ABOVE, DRY, NO ODOR.
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-5
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.44		3" ASPHALT/GRAVEL, MEDIUM BROWN SILT/CLAY, DRY, NO ODOR.
			2.72		AS ABOVE, DRY, NO ODOR.
5.0			12		AS ABOVE, DRY, NO ODOR.
			10		AS ABOVE, DRY, NO ODOR.
			12		AS ABOVE, WET AT 9 FEET, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. GROUNDWATER ENCOUNTERED AT 9 FEET.
15.0					
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-6
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.19		3" ASPHALT/GRAVEL, MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN SILT/CLAY, DRY, NO ODOR.
			1.24		AS ABOVE BECOMING SOFT, DRY, NO ODOR.
			1.20		AS ABOVE, DRY, NO ODOR.
5.0					
			1.53		AS ABOVE BECOMING SANDY, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.45		AS ABOVE, DRY, NO ODOR.
10.0			1.20		AS ABOVE, DRY, NO ODOR.
			1.46		AS ABOVE, DRY, NO ODOR.
			1.21		AS ABOVE, DRY, NO ODOR.
15.0					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-7
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.10		2" TOPSOIL, MEDIUM BROWN SANDY CLAY, DRY, NO ODOR.
			1.11		AS ABOVE, DRY, NO ODOR.
			0.88		AS ABOVE, DRY, NO ODOR.
5.0					
			0.73		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			1.03		MEDIUM TO LIGHT BROWN SOFT SILT/CLAY, MOIST, NO ODOR.
10.0					
			0.85		AS ABOVE, MOIST, NO ODOR.
			0.80		AS ABOVE, MOIST, NO ODOR.
			1.46		AS ABOVE, MOIST, NO ODOR.
15.0					
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

AECOM

TEST BORING REPORT

PROJECT DONALD JOYCE PROPERTY (PARCEL 148)
CLIENT NCDOT (WBS 40278.1.1)
PROJECT NUMBER 60155373 (U-4909)
CONTRACTOR AED
EQUIPMENT GEOPROBE

BORING NUMBER JO-8
PAGE 1
ELEVATION
DATE 5/26/2010
DRILLER KELLY
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			1.17		2" TOPSOIL, MEDIUM BROWN SILT/SAND, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			1.10		AS ABOVE, DRY, NO ODOR.
			0.82		AS ABOVE, DRY, NO ODOR.
5.0					
			0.73		MEDIUM BROWN SILT/CLAY, DRY, NO ODOR.
			0.80		AS ABOVE, WET AT 10 FEET, NO ODOR.
10.0					BORING TERMINATED AT 10 FEET. GROUNDWATER ENCOUNTERED AT 10 FEET.
15.0					
20.0					

AECOM

ATTACHMENT D

PHOTO 1 - BORING IN PROPOSED R/W LOOKING SOUTHEAST

PHOTO 2 - BORINGS IN PROPOSED R/W LOOKING NORTH

PHOTO 3 - BORINGS WITHIN PROPOSED R/W LOOKING NORTHWEST

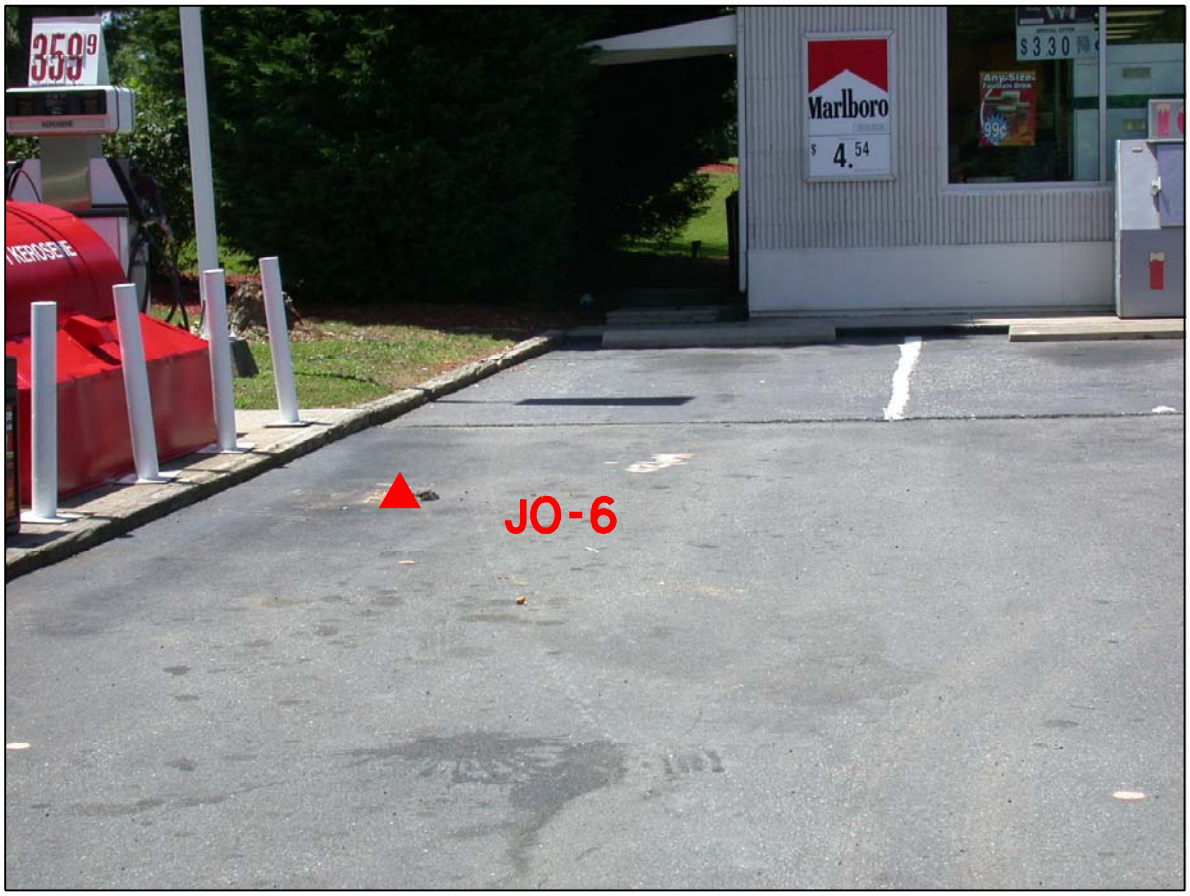


PHOTO 4 - BORING WITHIN PROPOSED R/W LOOKING WEST

PHOTO 5 - BORING WITHIN PROPOSED R/W LOOKING SOUTHWEST

PHOTO 6 - BORING WITHIN PROPOSED R/W LOOKING EAST

PHOTO 7 - BORING WITHIN PROPOSED R/W LOOKING WEST

ATTACHMENT E

PRISM LABORATORIES, INC.
Full-Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert No. 37735

Case Narrative

06/09/2010

AECOM (Earth Tech) NCDOT Proj.
Mike Branson
Suite 475, 701 Corporate Center Dr.
Raleigh, NC 27607

Project: NCDOT- Joyce Property
Project No.: WBS#40278.1.1
Lab Submittal Date: 05/28/2010
Prism Work Order: 0050749

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.

President/Project Manager

Reviewed By

Data Qualifiers Key Reference:

A	Surrogate diluted out.
Aa	Surrogate recovery outside control limits.
BRL	Below Reporting Limit
MDL	Method Detection Limit
RPD	Relative Percent Difference
*	Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
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Sample Receipt Summary

06/09/2010

Prism Work Order: 0050749

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
JO-1	0050749-01	Solid	05/26/10	05/28/10
JO-2	0050749-02	Solid	05/26/10	05/28/10
JO-3	0050749-03	Solid	05/26/10	05/28/10
JO-4	0050749-04	Solid	05/26/10	05/28/10
JO-5	0050749-05	Solid	05/26/10	05/28/10
JO-6	0050749-06	Solid	05/26/10	05/28/10
JO-7	0050749-07	Solid	05/26/10	05/28/10
JO-8	0050749-08	Solid	05/26/10	05/28/10

Samples received in good condition at 4.7 degrees C unless otherwise noted.

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AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
Suite 475, 701 Corporate Center Dr.
Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-1
Prism Sample ID: 0050749-01
Prism Work Order: 0050749
Time Collected: 05/26/10 12:15
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	9.6	1.5	1	*8015C	6/2/10 20:20	JMV	P0F0012
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*51 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	5.8	0.75	50	*8015C	6/3/10 2:54	HPE	P0F0039
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*78 %*		*55-129*	
General Chemistry Parameters									
% Solids	**73.0**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
Suite 475, 701 Corporate Center Dr.
Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-2
Prism Sample ID: 0050749-02
Prism Work Order: 0050749
Time Collected: 05/26/10 12:30
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	**270**	**mg/kg dry**	**50**	**8.1**	**5**	***8015C**	**6/4/10 1:44**	**JMV**	**P0F0012**
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*62 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	**3500**	**mg/kg dry**	**130**	**16**	**1000**	***8015C**	**6/3/10 5:30**	**HPE**	**P0F0039**
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*360 %*		*55-129*	*A*
General Chemistry Parameters									
% Solids	**69.8**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
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Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-3
Prism Sample ID: 0050749-03
Prism Work Order: 0050749
Time Collected: 05/26/10 12:45
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	7.8	1.3	1	*8015C	6/2/10 21:31	JMV	P0F0012
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*65 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	**31**	**mg/kg dry**	**4.3**	**0.56**	**50**	***8015C**	**6/3/10 3:26**	**HPE**	**P0F0039**
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*89 %*		*55-129*	
General Chemistry Parameters									
% Solids	**89.1**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
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Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-4
Prism Sample ID: 0050749-04
Prism Work Order: 0050749
Time Collected: 05/26/10 13:00
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	**9.4**	**mg/kg dry**	**9.1**	**1.5**	**1**	***8015C**	**6/2/10 22:06**	**JMV**	**P0F0012**
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*78 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.7	0.61	50	*8015C	6/3/10 17:15	HPE	P0F0072
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*98 %*		*55-129*	
General Chemistry Parameters									
% Solids	**77.2**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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Attn: Mike Branson
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Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-5
Prism Sample ID: 0050749-05
Prism Work Order: 0050749
Time Collected: 05/26/10 13:15
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	7.9	1.3	1	*8015C	6/2/10 22:42	JMV	P0F0012
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*84 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	3.9	0.50	50	*8015C	6/3/10 18:06	HPE	P0F0072
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*89 %*		*55-129*	
General Chemistry Parameters									
% Solids	**89.0**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-6
Prism Sample ID: 0050749-06
Prism Work Order: 0050749
Time Collected: 05/26/10 13:45
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	9.3	1.5	1	*8015C	6/2/10 23:18	JMV	P0F0012
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*85 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	5.4	0.71	50	*8015C	6/3/10 18:37	HPE	P0F0072
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*90 %*		*55-129*	
General Chemistry Parameters									
% Solids	**75.4**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
Suite 475, 701 Corporate Center Dr.
Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-7
Prism Sample ID: 0050749-07
Prism Work Order: 0050749
Time Collected: 05/26/10 14:00
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	10	1.6	1	*8015C	6/2/10 23:53	JMV	P0F0012
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*79 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	5.9	0.77	50	*8015C	6/3/10 19:08	HPE	P0F0072
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*98 %*		*55-129*	
General Chemistry Parameters									
% Solids	**68.2**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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Project: NCDOT- Joyce Property

Project No.: WBS#40278.1.1
Sample Matrix: Solid

Client Sample ID: JO-8
Prism Sample ID: 0050749-08
Prism Work Order: 0050749
Time Collected: 05/26/10 14:20
Time Submitted: 05/28/10 08:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.9	1.4	1	*8015C	6/3/10 0:29	JMV	P0F0012
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*89 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	5.4	0.70	50	*8015C	6/3/10 19:40	HPE	P0F0072
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*106 %*		*55-129*	
General Chemistry Parameters									
% Solids	**78.0**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**6/2/10 18:00**	**PJF**	**P0F0067**

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AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
Suite 475, 701 Corporate Center Dr.
Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No: WBS#40278.1.1

Prism Work Order: 0050749
Time Submitted: 5/28/10 8:15:00AM

Gasoline Range Organics by GC/FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0F0039 - 5035										
Blank (P0F0039-BLK1)				Prepared & Analyzed: 06/02/10						
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	*5.05*		*mg/kg wet*	*5.00*		*101*	*55-129*			
LCS (P0F0039-BS1)				Prepared & Analyzed: 06/02/10						
Gasoline Range Organics	49.4	5.0	mg/kg wet	50.0		99	67-116			
Surrogate: a,a,a-Trifluorotoluene	*5.40*		*mg/kg wet*	*5.00*		*108*	*55-129*			
LCS Dup (P0F0039-BSD1)				Prepared & Analyzed: 06/02/10						
Gasoline Range Organics	49.9	5.0	mg/kg wet	50.0		100	67-116	0.9	200	
Surrogate: a,a,a-Trifluorotoluene	*5.50*		*mg/kg wet*	*5.00*		*110*	*55-129*			
Batch P0F0072 - 5035										
Blank (P0F0072-BLK1)				Prepared & Analyzed: 06/03/10						
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	*5.05*		*mg/kg wet*	*5.00*		*101*	*55-129*			
LCS (P0F0072-BS1)				Prepared & Analyzed: 06/03/10						
Gasoline Range Organics	45.8	5.0	mg/kg wet	50.0		92	67-116			
Surrogate: a,a,a-Trifluorotoluene	*5.55*		*mg/kg wet*	*5.00*		*111*	*55-129*			
LCS Dup (P0F0072-BSD1)				Prepared & Analyzed: 06/03/10						
Gasoline Range Organics	46.2	5.0	mg/kg wet	50.0		92	67-116	1	200	
Surrogate: a,a,a-Trifluorotoluene	*5.50*		*mg/kg wet*	*5.00*		*110*	*55-129*			
Matrix Spike (P0F0072-MS1)	**Source: 0050749-04**			Prepared & Analyzed: 06/03/10						
Gasoline Range Organics	53.3	6.5	mg/kg dry	64.8	3.83	76	57-113			
Surrogate: a,a,a-Trifluorotoluene	*5.83*		*mg/kg dry*	*6.48*		*90*	*55-129*			

AECOM (Earth Tech) NCDOT Proj.
Attn: Mike Branson
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Raleigh, NC 27607

Project: NCDOT- Joyce Property

Project No: WBS#40278.1.1

Prism Work Order: 0050749
Time Submitted: 5/28/10 8:15:00AM

Gasoline Range Organics by GC/FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0F0072 - 5035										
Matrix Spike Dup (P0F0072-MSD1)	**Source: 0050749-04**			Prepared & Analyzed: 06/03/10						
Gasoline Range Organics	53.3	6.5	mg/kg dry	64.8	3.83	76	57-113	0	23	
Surrogate: a,a,a-Trifluorotoluene	*5.83*		*mg/kg dry*	*6.48*		*90*	*55-129*			

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Project: NCDOT- Joyce Property

Project No: WBS#40278.1.1

Prism Work Order: 0050749
Time Submitted: 5/28/10 8:15:00AM

Diesel Range Organics by GC/FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0F0012 - 3545A										
Blank (P0F0012-BLK1)				Prepared: 06/01/10 Analyzed: 06/02/10						
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: o-Terphenyl	*1.61*		*mg/kg wet*	*1.60*		*101*	*49-124*			
LCS (P0F0012-BS1)				Prepared: 06/01/10 Analyzed: 06/02/10						
Diesel Range Organics	73.8	7.0	mg/kg wet	80.0		92	55-109			
Surrogate: o-Terphenyl	*2.19*		*mg/kg wet*	*1.60*		*137*	*49-124*			*Aa*
LCS Dup (P0F0012-BSD1)				Prepared: 06/01/10 Analyzed: 06/02/10						
Diesel Range Organics	75.5	7.0	mg/kg wet	80.0		94	55-109	2	200	
Surrogate: o-Terphenyl	*2.19*		*mg/kg wet*	*1.60*		*137*	*49-124*			*Aa*

Sample Extraction Data

Prep Method: 3545A

Lab Number	Batch	Initial	Final	Date
0050749-01	P0F0012	25.01 g	1 mL	06/01/10
0050749-02	P0F0012	25.02 g	1 mL	06/01/10
0050749-03	P0F0012	25.16 g	1 mL	06/01/10
0050749-04	P0F0012	25.04 g	1 mL	06/01/10
0050749-05	P0F0012	24.98 g	1 mL	06/01/10
0050749-06	P0F0012	25 g	1 mL	06/01/10
0050749-07	P0F0012	25.12 g	1 mL	06/01/10
0050749-08	P0F0012	25.14 g	1 mL	06/01/10

Prep Method: 5035

Lab Number	Batch	Initial	Final	Date
0050749-01	P0F0039	5.91 g	5 mL	06/02/10
0050749-02	P0F0039	5.66 g	5 mL	06/02/10
0050749-03	P0F0039	6.5 g	5 mL	06/02/10
0050749-04	P0F0072	6.85 g	5 mL	06/03/10
0050749-05	P0F0072	7.28 g	5 mL	06/03/10
0050749-06	P0F0072	6.11 g	5 mL	06/03/10
0050749-07	P0F0072	6.18 g	5 mL	06/03/10
0050749-08	P0F0072	5.95 g	5 mL	06/03/10

NO PREP

Lab Number	Batch	Initial	Final	Date
0050749-01	P0F0067	30 g	30 mL	06/02/10
0050749-02	P0F0067	30 g	30 mL	06/02/10
0050749-03	P0F0067	30 g	30 mL	06/02/10
0050749-04	P0F0067	30 g	30 mL	06/02/10
0050749-05	P0F0067	30 g	30 mL	06/02/10
0050749-06	P0F0067	30 g	30 mL	06/02/10
0050749-07	P0F0067	30 g	30 mL	06/02/10
0050749-08	P0F0067	30 g	30 mL	06/02/10

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CHAIN OF CUSTODY RECORD

PRISM LABORATORIES, INC. | Full-Service Analytical & Environmental Solutions

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PAGE ___ OF ___ QUOTE # TO ENSURE PROPER BILLING: ___

Project Name: NCDOT – Joyce
Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)
*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements
Invoice To: NCDOT
Address: ___

Client Company Name: AECOM
Report To/Contact Name: Mike BRANSON
Reporting Address: 701 Corporate Center Dr Suite 475 Raleigh NC 27607
Phone: 7198546238 Fax (Yes) (No): 7198546259
Email (Yes) (No) Email Address Mike.Branson@AECOM.com
EDD Type: PDF X Excel ___ Other ___
Site Location Name: Joyce Property
Site Location Physical Address: Kerr Ecsu, Ne

Purchase Order No./Billing Reference WBS# 40278.1.1
Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days
"Working Days" ☐ 6-9 Days X Standard 10 days ☐ Rush Work Must Be Pre-Approved
Samples received after 15:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE? Temp 4.7	✓		
PROPER PRESERVATIVES indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			✓
VOLATILES rec'd W/OUT HEADSPACE?			✓
PROPER CONTAINERS used?	✓		

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC ___ USACE ___ FL ___ NC X
SC ___ OTHER ___ N/A ___
Water Chlorinated: YES ___ NO ___
Sample Iced Upon Collection: YES X NO ___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	NO.	SIZE	PRESERVATIVES	ANALYSES REQUESTED DRO	GRO					REMARKS	PRISM LAB ID NO.
JO-1	5/26/10	1215	SOIL	CG	4/2	4/VOA	MeOH	✓	✓					4oz, 2oz	01
JO-2	5/26/10	1230	SOIL	CG	4	4/VOA	MeOH	✓	✓						02
JO-3	5/26/10	1245	SOIL	CG	4	4/VOA	MeOH	✓	✓						03
JO-4	5/26/10	1300	SOIL	CG	4	4/VOA	MeOH	✓	✓						04
JO-5	5/26/10	1315	SOIL	CG	4	4/VOA	MeOH	✓	✓						05
JO-6	5/26/10	1345	SOIL	CG	4	4/VOA	MeOH	✓	✓						06
JO-7	5/26/10	1400	SOIL	CG	4	4/VOA	MeOH	✓	✓						07
JO-8	5/26/10	1420	SOIL	CG	4	4/VOA	MeOH	✓	✓						08

Sampler's Signature M Branson | Sampled By (Print Name) M BRANSON | Affiliation AECOM

PRESS DOWN FIRMLY - 3 COPIES

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

		Date	Military/Hours
Relinquished By: (Signature) M Branson	Received By: (Signature) Alexander Lee	052710	1100
Relinquished By: (Signature) Alexander	Received By: (Signature)	5/27/10	1330
Relinquished By: (Signature)	Received For Prism Laboratories By:	5/28/10	815

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered X Prism Field Service ☐ Other ___

COC Group No. 050749

Additional Comments: INVOICE NCDOT UNDER BLANKET PO

PRISM USE ONLY

Site Arrival Time:
Site Departure Time:
Field Tech Fee:
Mileage:

NPDES:	UST:	GROUNDWATER:	DRINKING WATER:	SOLID WASTE:	RCRA:	CERCLA	LANDFILL	OTHER:
☐ NC ☐ SC ☐ ___	X NC ☐ SC ☐	☐ NC ☐ SC ☐	☐ NC ☐ SC ☐	☐ NC ☐ SC ☐	☐ NC ☐ SC ☐	☐ NC ☐ SC ☐	☐ NC ☐ SC ☐	☐ NC ☐ SC ☐

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL