GEL Engineering of NC INC
an affiliate of The GEL Group INC
problem solved

PRELIMINARY SITE ASSESSMENT REPORT

Parcel #12
Vanco Construction Company Property
5105 U.S Highway 301
State Project I-4413
WBS Element # 35901.2.1
Robeson County

North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

January 7, 2011

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PRELIMINARY SITE ASSESSMENT REPORT

Parcel #12, 5105 North Fayetteville Road (U.S. Highway 301)
Vanco Construction Company Property
Bridge 36 Over I-95 (Exit 22) on U. S. Highway 301
State Project I-4413
WBS Element # 35901.2.1
Robeson County

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Signature Page

This document, entitled "Preliminary Site Assessment Report," has been prepared for Parcel #12, located at 5105 North Fayetteville Road in Robeson County, North Carolina (State Project I-4413, WBS Element # 35901.2.1). It has been prepared by GEL Engineering of NC, Inc. in accordance with the Notice to Proceed provided by the North Carolina Department of Transportation-GeoEnvironmental Section, Geotechnical Engineering Unit for the exclusive use of the North Carolina Department of Transportation. It has been prepared in accordance with accepted quality control practices and has been reviewed by the undersigned.

GEL ENGINEERING OF NC, INC.
an Affiliate of The GEL Group, Inc.

Andrew D. Eyer, L.G.
Senior Project Manager

01-07-11
Date

PRELIMINARY SITE ASSESSMENT REPORT

Parcel #12, 5105 North Fayetteville Road (U.S. Highway 301)
Vanco Construction Company Property
Bridge 36 Over I-95 (Exit 22) on U. S. Highway 301
State Project I-4413
WBS Element # 35901.2.1
Robeson County

Executive Summary

The subject site is Parcel #12, located at 5105 North Fayetteville Road in Robeson County, North Carolina. The primary purpose of this investigation was to determine the presence or absence of underground storage tanks (USTs) and constituents of concern in soil and groundwater within the North Carolina Department of Transportation (NCDOT) existing southwesterly Right-of-Way (ROW) of U.S. Highway 301. This document presents the details of a preliminary site assessment performed within the NCDOT existing southwesterly ROW adjacent to and within Parcel #12.

GEL Engineering of NC, Inc. (GEL) performed a preliminary site assessment that included a geophysical survey, and the collection and analysis of soil samples and one groundwater sample. The results of the geophysical investigation at the site did not identify any "Known USTs," "Probable USTs," or "Possible USTs" in the subsurface of the investigation area.

Soil samples were collected for analysis from four borings constructed within and adjacent to the NCDOT existing ROW of U.S. Highway 301. The soil samples were analyzed for Diesel Range Organics (DRO) and Gasoline Range Organics (GRO). The analytical results indicate that DRO was detected in one sample, SB-5105-2, at a concentration exceeding the NCDENR action level of 10 milligrams per kilogram (mg/kg), but GRO was not detected in any of the four samples. The detection of the elevated level of DRO in SB-5105-2 is believed to be the result of "soil smearing" by the underlying impacted groundwater.

Based on the detection of an elevated DRO concentration in soil sample SB-5105-2, it is estimated that there is a volume of 236 cubic yards of impacted soil in the vicinity of boring SB-5105-2.

PRELIMINARY SITE ASSESSMENT REPORT

Parcel #12, 5105 North Fayetteville Road (U.S. Highway 301)
Vanco Construction Company Property
Bridge 36 Over I-95 (Exit 22) on U. S. Highway 301
State Project I-4413
WBS Element # 35901.2.1
Robeson County

Executive Summary (continued)

One groundwater sample was collected from boring MW-5105-4 and analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Three VOCs and three SVOCs were detected in the groundwater sample, and concentrations reported for all detected constituents except ethylbenzene exceed their respective North Carolina Department of Environment and Natural Resources (NCDENR) 2L groundwater standards.

Based on the soil and groundwater data generated from this investigation and the petroleum impact previously reported for Parcel #12, there is evidence that petroleum impacted soil and groundwater underlie the existing NCDOT ROW at the subject site, and will most likely be encountered during excavation associated with planned drainage and roadway modifications. No additional environmental investigation of potential impact to the site soil is recommended at this time; however, it is recommended that soil excavated within and adjacent to the existing ROW be evaluated if offsite disposal is a consideration.

Although VOCs and SVOCs exceeding regulatory standards were detected in the groundwater sample collected during the preliminary site assessment, no additional assessment of groundwater is recommended at this time since onsite groundwater impact from petroleum has been indicated by the results of groundwater assessments aperformed in the 1980s and 1990s at Parcel #12, which were reported to NCDENR. The detection of elevated concentrations of VOCs and SVOCs in the groundwater sample collected during the preliminary site assessment indicates petroleum-impacted groundwater underlies the site. The impacted groundwater most likely migrated downgradient from Parcel #9 across U.S. Highway 301 from the site, which is currently undergoing corrective action for previous releases of petroleum. Therefore, no additional assessment of groundwater is recommended at this time.

Parcel #12, 5105 North Fayetteville Road (U.S. Highway 301)
Vanco Construction Co. Property
Bridge 36 Over I-95 (Exit 22) on U. S. Highway 301
State Project I-4413
WBS Element # 35901.2.1
Robeson County

1.0 Introduction

This document presents the details of a preliminary site assessment performed within the existing North Carolina Department of Transportation (NCDOT) (ROW) of U.S. Highway 301 at 5105 North Fayetteville Road (Parcel #12) in Robeson County, North Carolina. Currently, Parcel #12 houses an active convenience store with gasoline dispensers. The site location is shown on Figure 1, an excerpt from the United States Geological Survey (USGS) 7.5-minute quadrangle map of Northwest Lumberton, North Carolina. The preliminary site assessment, which included a geophysical survey, was conducted by GEL Engineering of NC, Inc. (GEL) in accordance with the Notice to Proceed issued by NCDOT on November 15, 2010.

The primary purpose of this investigation was to determine the presence or absence of USTs and on-site constituents of concern in soil and groundwater within the NCDOT existing southwesterly ROW of U.S. Highway 301 at the subject site as a result of current and/or former operations.

2.0 Background

NCDOT is planning road improvements to U.S. Highway 301 near Interstate 95 Exit 22 in Lumberton, North Carolina. NCDOT wanted to assess the existing ROW adjacent to Parcel #12 to evaluate the presence or absence of USTs, and soil and groundwater contamination related to the current and/or former on-site operations, and the impact (if any) of these operations on the proposed road improvements, especially the proposed routing for a planned storm water drainage system within the existing ROW. Figures 2 and 3 show the general site layout for Parcel #12 and its location on U.S. Highway 301, respectively**.**

Onsite groundwater impact from petroleum has been indicated by the results of groundwater assessments performed in the 1980s and 1990s. However, files from the North Carolina Department of Environment and Natural Resources (NCDENR) UST Program do not indicate that the site is currently undergoing corrective action.

3.0 Local Geology and Surroundings

Parcel #12 is located within a commercially developed area of Robeson County, near Exit 22 for Interstate 95. The site is approximately 4 miles north of the center of Lumberton, North Carolina. This area is located in the Coastal Plain physiographic province of North Carolina. The land surface of the area is characterized by nearly level, loamy soils. Coastal Plain geology in the vicinity of the site is typically undifferentiated post-Miocene interbedded sand and clay stream terrace deposits (USGS, 1955). The Cretaceous Black Creek Formation, a regional aquifer, underlies the area.

The United States Department of Agriculture's *Soil Survey of Gates County, North Carolina* (1978) maps the area as Udorthents, loamy (Ud), which is characterized by soil that is typically composed of moderately well-drained loamy mine spoil or earthy fill. The soils encountered at the site during the preliminary site assessment consisted predominantly of red/tan sandy loam to depths of approximately 4 feet below land surface (bls) and grey sandy clay from 4 to 8 feet bls, as shown in Appendix I.

December 1986 groundwater elevation data collected at the site by Richard Catlin and Associates, Inc. indicated that the water table was encountered at a depth of approximately 5 to 6.5 feet bls at the site. Depth to groundwater measured within the existing ROW at the site during the preliminary site assessment was 6.7 feet bls. Based on the USGS topographic map presented as Figure 1, the site is located approximately 130 feet above mean sea level. The results of previous groundwater assessments performed at 5102 North Fayetteville Road, across the street from Parcel #12, indicate that groundwater flows in a westerly/southwesterly direction towards the Saddletree Swamp.

4.0 Subsurface Investigation

To determine the presence or absence of USTs and impact to subsurface soil within the NCDOT southwesterly ROW at Parcel #12, GEL performed a limited site assessment that consisted of the following tasks:

- A geophysical investigation to identify the presence or absence of USTs and associated appurtenances within and adjacent to the existing southwesterly ROW of U.S. Highway 301 at Parcel #12.

- Soil vapor screening of soil samples collected from subsurface soil borings at Parcel #12 within the existing southwesterly ROW of U.S. Highway 301 to determine the potential presence or absence of soil impact from petroleum constituents of concern.

- Collection and laboratory analysis of soil samples from the existing southwesterly ROW of U.S. Highway 301 at Parcel #12.

- Collection and laboratory analysis of one groundwater sample from the existing southwesterly ROW of U.S. Highway 301 at Parcel #12.

The details of these tasks are discussed in the following sections.

4.1 Geophysical Evaluation at Parcel #12

The geophysical investigation included the deployment of ground penetrating radar (GPR) technology and time domain electromagnetic technology (TDEM) to the site. These technologies were used in concert with one another in order to identify subsurface metallic anomalies and, more specifically, to identify the potential presence of USTs on site. A brief description of each technology is presented in the following paragraphs followed by a discussion of the results of the geophysical investigation.

4.1.1 Ground Penetrating Radar Methodology

A RAMAC digital radar control system configured with a 250 Megahertz (MHz) antenna array was used in this investigation. GPR is an electromagnetic geophysical method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna that houses the transmitter and receiver, a digital control unit that both generates and digitally records the GPR data, and a color video monitor to view data as they are collected in the field.

The transmitter radiates repetitive short-duration electromagnetic waves (at radar frequencies) into the earth from an antenna moving across the ground surface. These radar waves are reflected back to the receiver from the interface of materials with different dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant between the materials, the conductivity of the material through which the wave is traveling, and the frequency of the signal. Subsurface features that commonly cause such reflections are: 1) natural geologic conditions, such as changes in sediment composition, bedding, and cementation horizons and voids; or 2) unnatural changes to the subsurface, such as disturbed soils, soil backfill, buried debris, tanks,

pipelines, and utilities. The digital control unit processes the signal from the receiver and produces a continuous cross-section of the subsurface interface reflection events.

GPR data profiles are collected along transects, which are measured paths along which the GPR antenna is moved. During a survey, marks are placed in the data by the operator at designated points along the GPR transects or with a survey wheel odometer. These marks allow for a correlation between the GPR data and the position of the GPR antenna on the ground.

Depth of investigation of the GPR signal is highly site-specific and is limited by signal attenuation (absorption) in the subsurface materials. Signal attenuation is dependent on the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities, such as clays, brackish groundwater, or groundwater with a high dissolved solid content from natural or man-made sources. Signal attenuation is lowest in relatively low conductivity materials, such as dry sand or rock. Depth of investigation is also dependent on the antenna's transmitting frequency. Depth of investigation generally increases as transmitting frequency decreases; however, the ability to resolve smaller subsurface features is diminished as frequency is decreased.

The GPR antenna used at this site is internally shielded from aboveground interference sources. Accordingly, the GPR response is not affected by overhead power lines, metallic buildings, or nearby objects.

4.1.2 Time Domain Electromagnetic Methodology

The TDEM methods measure the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time or frequency-varying magnetic field and measuring (with a receiver) the amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary magnetic field is passed through them.

The Geonics EM-61 system used in this investigation operates within these principles. However, the EM-61 TDEM system can discriminate between moderately conductive earth materials and very conductive metallic targets. The EM-61 consists of a portable coincident loop time domain transmitter and receiver with a 0.5-meter by 1.0-meter coil system. The EM-61 generates 150 pulses per second and measures the response from the ground after transmission or between pulses. The secondary EM

responses from metallic targets are of longer duration than those created by conductive earth materials. By recording the later time EM arrivals, only the response from metallic targets is measured, rather than the field generated by the earth material.

4.1.3 Field Procedures

The GPR and TDEM field investigation was performed at Parcel #12 on November 22, 2010, as shown in Figure 4.

A GPR system time range setting of 90 nanoseconds (ns) was used during the entire investigation. This range was determined after a series of test lines were conducted to evaluate the GPR response in the local geologic section. A preliminary interpretation of the GPR data was conducted in the field and potential subsurface anomalies were marked on the ground. Following the completion of the fieldwork, the data were post-processed and analyzed in more detail. GPR data processing typically included band pass filtering, background removal, horizontal smoothing, and gain adjustments.

TDEM was also used to scan the project site. Electromagnetic anomalies indicative of buried metallic objects were marked in the field. TDEM was also used to scan the project site. Electromagnetic anomalies indicative of buried metallic objects were marked in the field.

It should be noted that "One Call" underground utility locations had been performed within the southwesterly ROW of U.S. Highway 301 at Parcel #12 prior to the initiation of the preliminary site assessment field activities at the site. No underground utilities were marked by "One Call" within the ROW at Parcel #12.

As shown on Figure 4, no EM or GPR anomalies indicated the potential presence of USTs; therefore, no USTs are suspected to be present in the subsurface within the investigation area.

4.2 Subsurface Soil Investigation at Parcel #12

To determine the presence or absence of impact to subsurface soil by constituents of concern, GEL collected soil samples from four subsurface soil borings, SB-5105-1 through SB-5102-4, at Parcel #12 on November 30, 2010, for analysis of total petroleum hydrocarbon indicator parameters. All soil borings except SB-5105-1 were constructed within the existing NCDOT southwesterly ROW of U.S. Highway 301, as shown on Figure 2 and in the photographs in Appendix II. Soil boring SB-5105-1 was constructed slightly southwest of the ROW due to existing obstructions. The locations of all four of

the soil borings were biased towards the proposed routing for the planned storm water drainage system within the existing NCDOT ROW adjacent to Parcel #12, as shown in Figure 2. The longitude and latitude coordinates for the boring locations are listed in the table below.

All borings were advanced to a total depth of 8 feet bls, and soil samples were collected at depths of 3-4 feet bls and 7-8 feet bls in each boring. All soil samples were inspected for indications of impact by constituents of concern, including petroleum hydrocarbons, such as odors, discoloration, or visible sheen. This sampling was accomplished using direct push technology (DPT) provided by Regional Probing Services of Wake Forest, North Carolina (Regional Probing). Soil boring lithologic logs are attached as Appendix I of this document. Groundwater was encountered at 6 feet bls in boring SB-5102-5. Although the soil was moist at the termination depth of SB-5105-4, there was no indication that the water table had been encountered. However, when the boring was converted to a temporary monitoring well, as discussed in Section 4.3 below, the depth to groundwater was measured at 6.7 feet bls.

The soil samples were screened for the presence of organic vapors using a portable photoionization detector (PID). The PID measures the concentration of organic compounds in the vapor space above a soil sample resulting from volatilization of organic compounds contained in the soil. To screen the soils, each sample was placed in a clean, resealable polyethylene bag. The bag was sealed, and the sample was allowed to equilibrate for approximately 5 minutes, after which time a small opening was made in the bag. The probe of the PID was then inserted into the bag, and the airspace above the soil was screened for organic vapors.

To assess the subsurface soil quality, the soil sample from each soil boring was submitted for laboratory analysis. The depth intervals and PID measurements of the collected soil samples submitted to the laboratory for analysis are listed below. As shown in the table, no organic vapors were measured in any of the soil samples except the sample collected from SB-5105-4.

Summary of Location Data and PID Measurements for Soil Samples Collected for Analysis at Parcel #12

Soil Boring	Depth Interval of Soil Sample Collected for Analysis (feet bls)	PID Reading (ppm)	Latitude/Longitude (NAD83)
SB-5105-1	7-8	0.0	34º40'19.08"N / 79º00'28.02"W
SB-5105-2	7-8	0.0	34º40'19.50"N / 79º00'27.96"W
SB-5105-3	7-8	0.0	34º40'19.68"N / 79º00'28.08"W
SB-5105-4	7-8	9.7	34º40'20.04"N / 79º00'28.26"W

Notes:
1) Coordinates are based on North American Datum of 1983 (NAD83)
2) bls = below land surface
3) PID = photoionization detector
4) ppm = parts per million

Following completion of the soil sampling activities (and groundwater sampling activities discussed in Section 4.3 below), all borings were abandoned by filling the boreholes with soil cuttings and hydrated bentonite. Soil samples were submitted to SGS Laboratories, Inc. in Wilmington, North Carolina (North Carolina Certification No. 481) for analysis of diesel range organics (DRO) by EPA Method 8015 with EPA Method 3545 sample preparation, and gasoline range organics (GRO) by EPA Method 8015 with EPA Method 5035A/5030B sample preparation. The analytical results are summarized in the following table and are included on the Certificates of Analysis provided in Appendix III.

Summary of Analytical Results for Soil Samples

Soil Sample	Depth Interval of Soil Sample Collected for Analysis (feet bls)	DRO	GRO
SB-5105-1	7-8	BQL	BQL
SB-5105-2	7-8	**74.5**	BQL
SB-5105-3	7-8	BQL	BQL
SB-5105-4	7-8	BQL	BQL
NCDENR Action Level		**10***	**10**

Notes:
1) BQL = Below Quantitation Limit
2) Concentrations shown are in milligram per kilogram (mg/kg).
3) **Bold** = detected concentration above the NCDENR action level
4) * = Recommended action level for DRO. Currently the enforced NCDENR action level is 40 mg/kg.

Potential soil impact is indicated by the DRO concentration detected in the soil sample collected from boring SB-5105-2, which exceeds the North Carolina Department of Environment and Natural Resources (NCDENR) action level for DRO. The potentially impacted soil is not believed to have been caused by underground or surface releases of petroleum at Parcel #12. It is most likely associated with "soil smearing" resulting from the rise and fall of underlying impacted groundwater. Analysis of the soil for NCDENR's risk-based petroleum hydrocarbon parameters would be needed to confirm the presence or absence of soil impact.

It is estimated that there is an approximate total volume of 236 cubic yards of impacted soil (DRO >10 milligrams per kilogram (mg/kg) in the vicinity of soil boring SB-5105-2 at Parcel #12, based on the following assumed area (as shown on Figure 2) and depth of impacted soil:

- 950 sq. feet x 6.7 feet (measured water table depth) = 6,365 cubic feet = 236 cubic yards

4.3 Groundwater Investigation at Parcel #12

To determine the presence or absence of impact to groundwater by constituents of concern, groundwater sample MW-5105-4 was collected after soil boring location SB-5105-4 was converted to a temporary groundwater monitoring well, as shown in Figure 2. Groundwater sample MW-5105-4 was collected at this location because the PID measurement of the soil sample collected from SB-5105-4 was the highest of all soil samples collected at the site during the preliminary site assessment, as indicated in the table above.

Regional Probing collected the groundwater sample using DPT. To collect the groundwater sample, the DPT probe was advanced to a depth of approximately 14 feet bls. The DPT probe was then retracted while an internal PVC slotted screen was released from the bottom of the probe. The groundwater sample was collected from within the slotted screen using new Teflon® tubing and a peristaltic pump. The collected groundwater sample was submitted to SGS Laboratories, Inc. for analysis of volatile organic compounds (VOCs) by EPA Method 8260B and semi-volatile organic compounds (SVOCs) by EPA method 8270D.

The analytical results are included on the Certificate of Analysis provided in Appendix III. The results for MW-5105-4 indicate that three VOCs and three SVOCs

were detected, most of which had detected concentrations exceeding the respective NCDENR 2L standards, as shown in the table below.

Summary of VOCs and SVOCs Detected in Groundwater

Constituent	MW-5105-4	NCDENR 15A NCAC 2L .0115 GWQS
VOCs		
Benzene	**4750**	1
Ethylbenzene	238	600
Napththalene	**322**	6
SVOCs		
2-Methylnaphthalene	**76.2**	30
Naphthalene	**294**	6
Phenol	**32.8**	30

Notes:
1) All concentrations shown are in micrograms per liter (µg/L)
2) Detected concentrations exceeding the NCDENR 2L standards (January 2010) are shown in **bold.**

5.0 Conclusions and Recommendations

GEL performed a preliminary site assessment within the NCDOT existing southwesterly ROW of U.S. Highway 301 adjacent to and within Parcel #12 that included a geophysical survey, and the collection and analysis of soil samples and one groundwater sample. The results of the geophysical investigation at the site did not identify any "Known USTs," "Probable USTs," or "Possible USTs" in the subsurface of the investigation area.

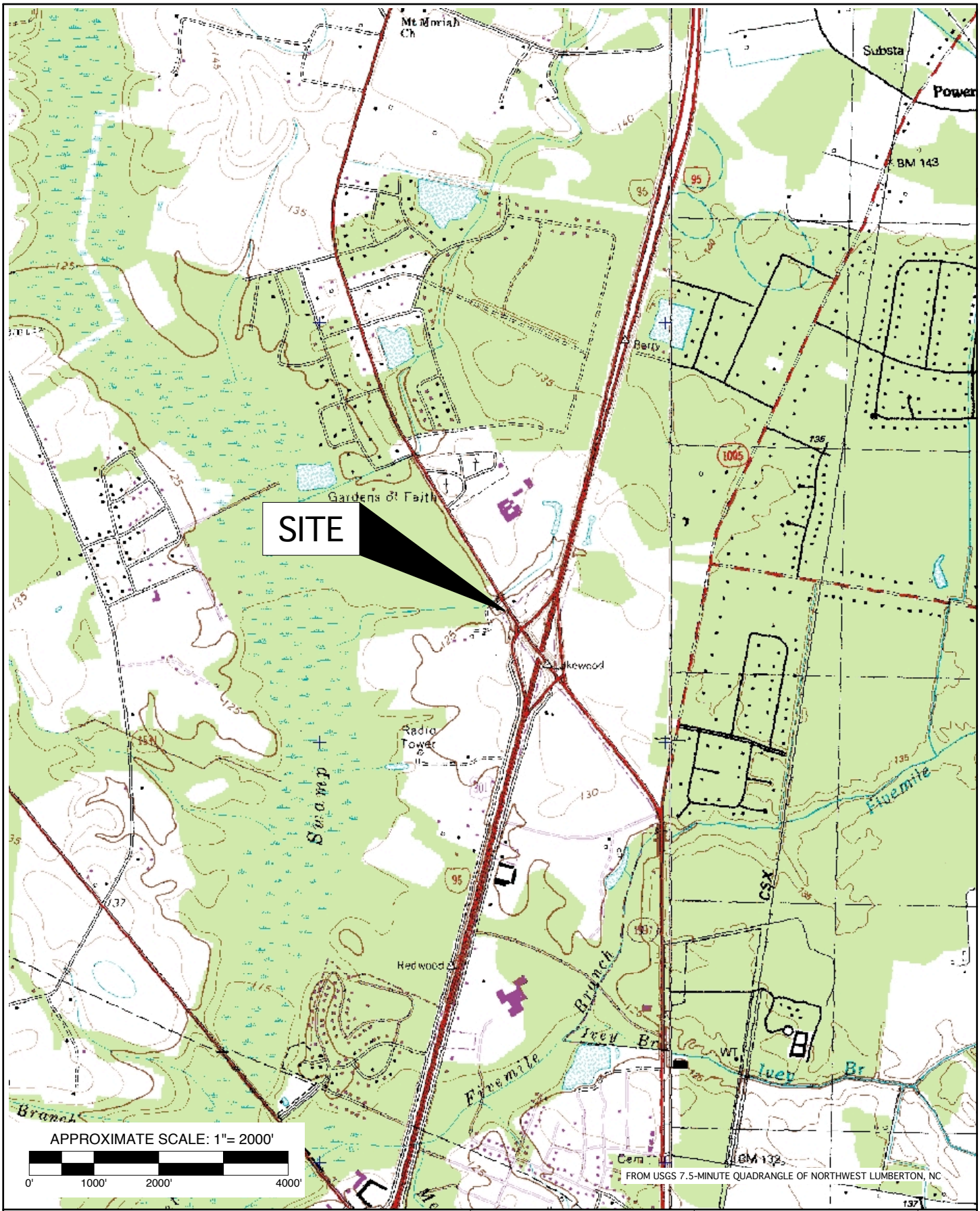
Soil samples were collected for analysis from four borings constructed within and adjacent to the NCDOT existing ROW of U.S. Highway 301. The soil samples were analyzed for DRO and GRO. The analytical results indicate that DRO was detected in one sample, SB-5105-2, at a concentration exceeding the NCDENR action level of 10 mg/kg, but GRO was not detected in any of the four samples. The detection of the elevated level of DRO in SB-5105-2 is believed to be the result of "soil smearing" by the underlying impacted groundwater.

Based on the detection of an elevated DRO concentration in soil sample SB-5105-2, it is estimated that there is a volume of 236 cubic yards of impacted soil in the vicinity of boring SB-5105-2.

One groundwater sample was collected from boring MW-5105-4 and analyzed for VOCs and SVOCs. Three VOCs and three SVOCs were detected in the groundwater sample, and concentrations reported for all detected constituents except ethylbenzene exceed their respective NCDENR 2L groundwater standards.

Based on the soil and groundwater data generated from this investigation and the petroleum impact previously reported for Parcel #12, there is evidence that petroleum impacted soil and groundwater underlie the existing NCDOT ROW at the subject site, and will most likely be encountered during excavation associated with planned drainage and roadway modifications. No additional environmental investigation of potential impact to the site soil is recommended at this time; however, it is recommended that soil excavated within and adjacent to the existing ROW be evaluated if offsite disposal is a consideration.

Although VOCs and SVOCs exceeding regulatory standards were detected in the groundwater sample collected during the preliminary site assessment, no additional assessment of groundwater is recommended at this time since onsite groundwater impact from petroleum has been indicated by the results of groundwater assessments performed in the 1980s and 1990s at Parcel #12, which were reported to NCDENR. The detection of elevated concentrations of VOCs and SVOCs in the groundwater sample collected during the preliminary site assessment indicates petroleum-impacted groundwater underlies the site. The impacted groundwater most likely migrated downgradient from Parcel #9 across U.S. Highway 301 from the site, which is currently undergoing corrective action for previous releases of petroleum. Therefore, no additional assessment of groundwater is recommended at this time.



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GEL

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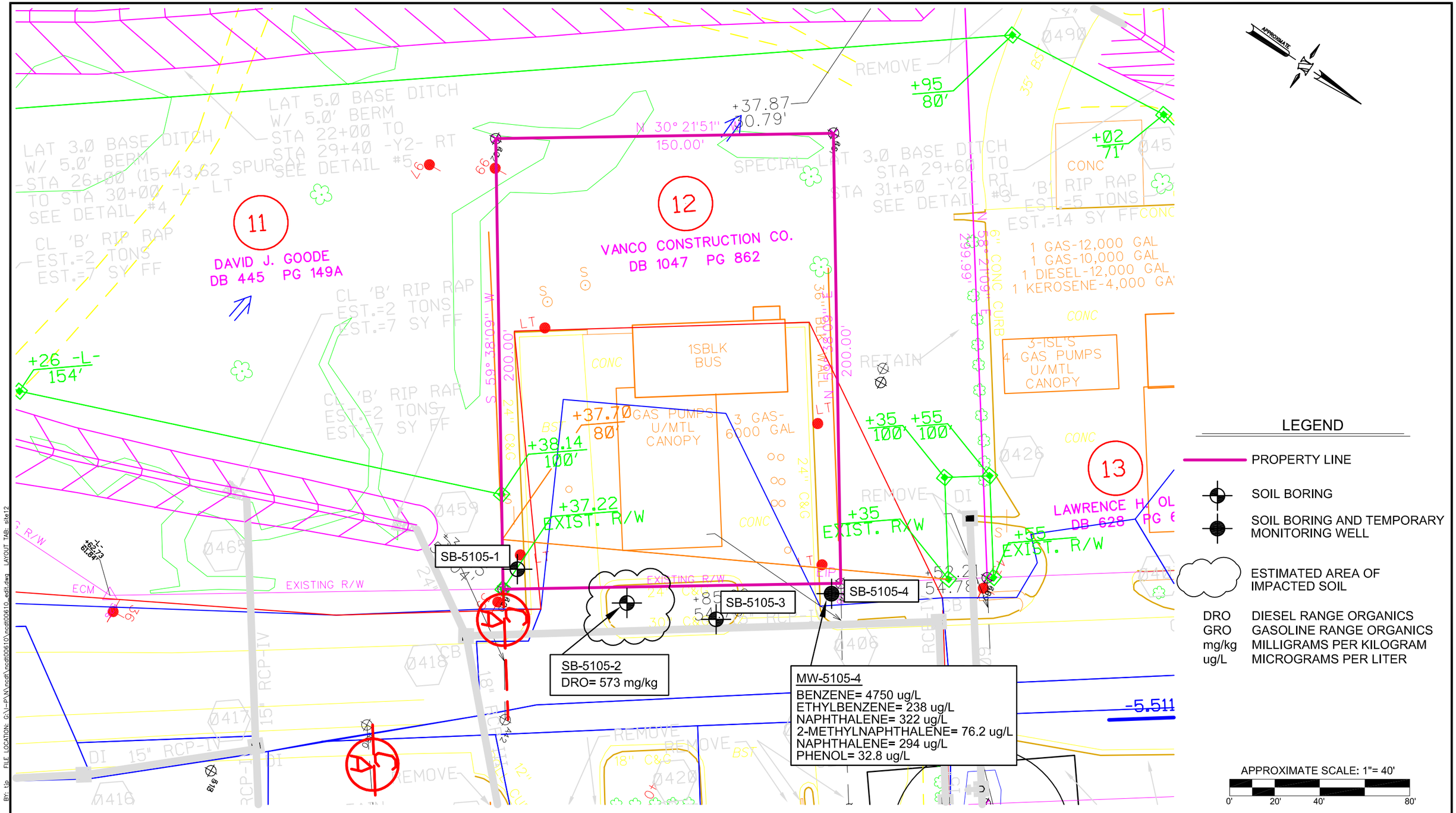
PROJECT: ncdt00610		
PRELIMINARY SITE ASSESSMENT REPORT PARCEL #12 5105 NORTH FAYETTEVILLE ROAD LUMBERTON, NORTH CAROLINA STATE PROJECT I-4413, WBS #35901.2.1	TOPOGRAPHIC MAP SHOWING LOCATION OF SITE	FIGURE 1
DATE: December 28, 2010	DRAWN BY: ADE APPRV. BY:	



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PROJECT: ncdt00610

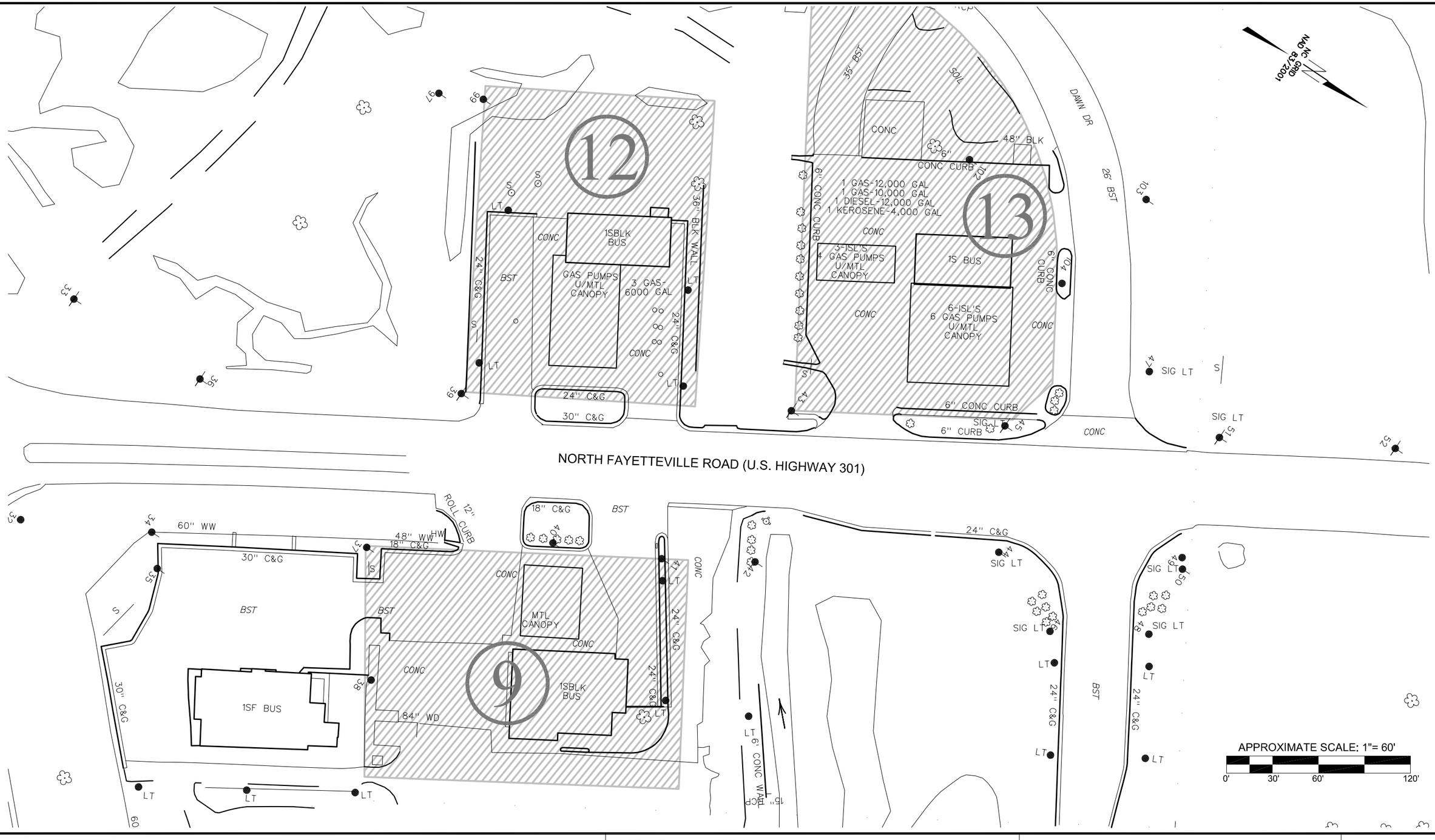
PRELIMINARY SITE ASSESSMENT REPORT
PARCEL #12, 5105 N. FAYETTEVILLE RD.
VANCO CONSTRUCTION COMPANY PROPERTY
ROBESON COUNTY, NORTH CAROLINA
STATE PROJECT I-4413, WBS ELEMENT NO. 235901.2.1

DATE: January 4, 2011

SITE MAP SHOWING LOCATIONS OF SOIL BORINGS AND TEMPORARY GROUNDWATER MONITORING WELL

DRAWN BY: EJA/TJP APPRV. BY: ADE

FIGURE
2



PLOTTED Jan 07, 2011 - 10:24am By: tjp FILE LOCATION: G:\I-PJ\ncdt\ncdt00610\ncdt00610_KeyMap.dwg LAYOUT TAB: KEY MAP

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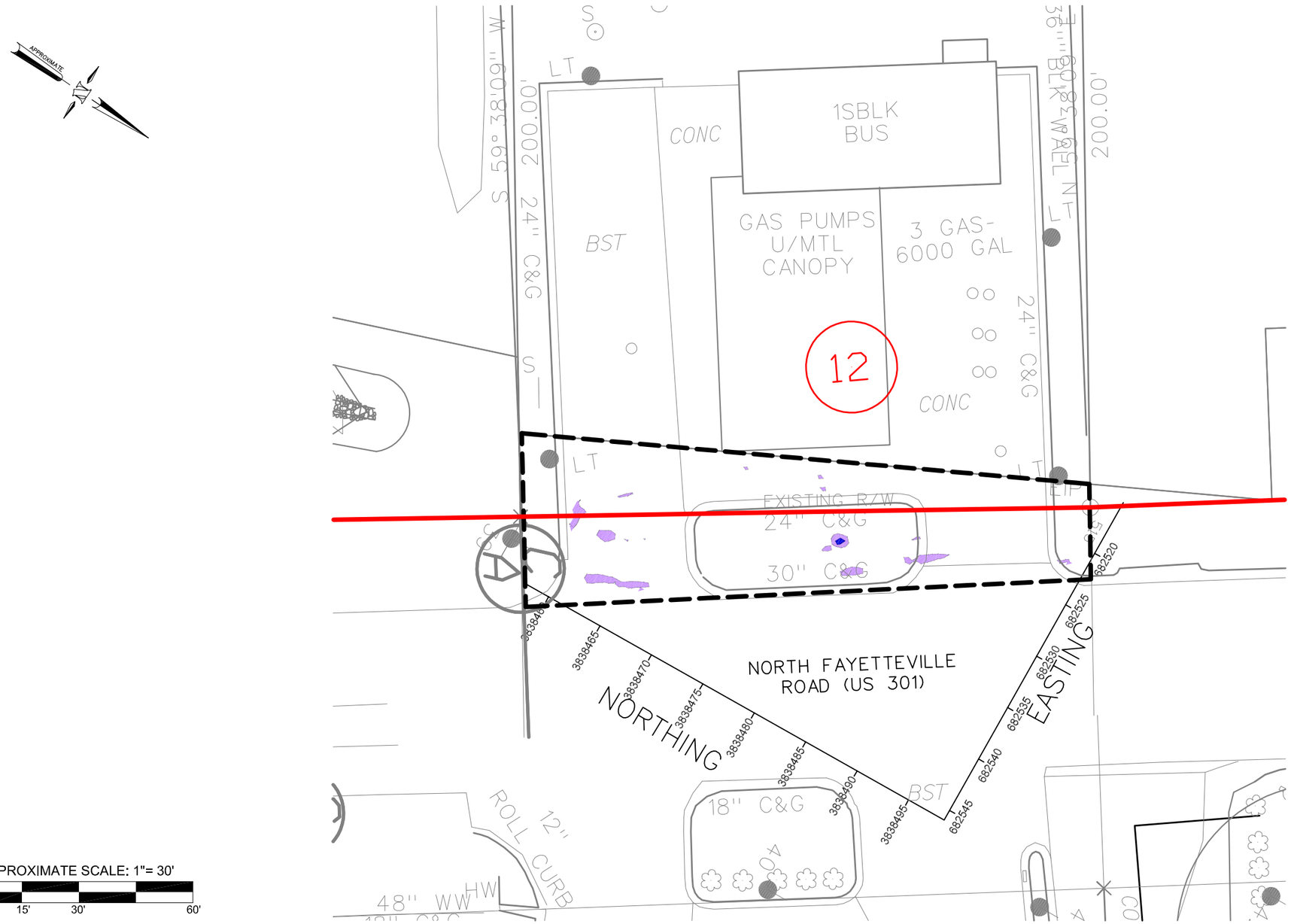
PROJECT: ncdt00610		
PRELIMINARY SITE ASSESSMENT REPORT PARCELS #9, #12, AND #13 NORTH FAYETTEVILLE ROAD ROBESON COUNTY, NORTH CAROLINA STATE PROJECT I-4413, WBS ELEMENT NO. 235901.2.1	KEY MAP SHOWING LOCATIONS OF PARCEL #9, PARCEL #12, AND PARCEL #13	FIGURE 3
DATE: January 4, 2011	DRAWN BY: TJP / APPRV. BY: ADE	



APPROXIMATE SCALE: 1"= 30'

0' 15' 30' 60'

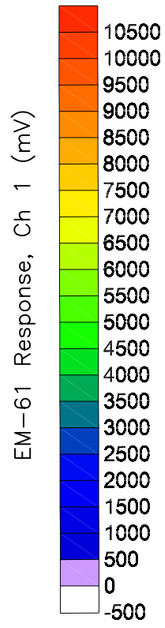
NOTES

1. UNDERGROUND FEATURES WERE LOCATED USING VISUAL EVIDENCE, GROUND PENETRATING RADAR (GPR), AND TIME DOMAIN ELECTROMAGNETIC (TDEM) METHODS. OTHER BURIED UTILITIES AND STRUCTURES MAY EXIST BUT WERE NOT DETECTED DUE TO LIMITATIONS OF THE GEOPHYSICAL METHODS, SITE ACCESS, AND/OR HIGH TARGET CONGESTION. THEREFORE, DUE CAUTION SHOULD BE USED WHEN PERFORMING SUBSURFACE EXCAVATION ACTIVITIES WHERE POTENTIAL CONFLICTS EXIST. GEL ENGINEERING OF NC, INC. IS NOT RESPONSIBLE FOR DAMAGES THAT MAY OCCUR. IDENTIFYING THE LOCATION OF SOME UTILITIES MAY ONLY BE POSSIBLE WITH VACUUM OR OTHER EXCAVATION METHODS.
2. FIELD SURVEY CONDUCTED ON 11.22.10
3. DATA FROM GEONICS, LTD. EM-61 MKII AND MALA GEOSCIENCE GROUND PENETRATING RADAR.
4. COORDINATES IN US STATE PLANE NAD 1983 DATUM.
5. FIGURE BASE FROM NCDOT DESIGN DRAWINGS FOR I-4413
6. NO UNKNOWN UNDERGROUND STORAGE TANKS FOUND UNLESS NOTED IN DRAWING

LEGEND

EXISTING RIGHT-OF-WAY

SURVEY AREA



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PROJECT: ncdt00610		
PRELIMINARY SITE ASSESSMENT REPORT PARCEL #12, 1505 N. FAYETTEVILLE ROAD ROBESON COUNTY, NORTH CAROLINA STATE PROJECT I-4413, WBS ELEMENT NO. 35901.2.1	SITE MAP SHOWING RESULTS OF GEOPHYSICS INVESTIGATION	FIGURE 4
DATE: December 3, 2010	DRAWN BY: WSD/TJP — APPRV. BY: ADE	

PLOTTED: Dec 14, 2010 - 10:27am BY: tjp FILE LOCATION: G:\I-PJ\N\ncdt\ncdt00610\ncdt00610_working_2004.dwg LAYOUT TAB: site12

APPENDIX I

SOIL BORING LITHOLOGIC LOGS

SOIL BORING LOG

Boring/Well No.: **SB-5105-1**
Date Started: 11/30/10
Date Completed: 11/30/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0.0' - 4.0'	--	0.0	Red/tan loamy, silty fine to coarse-grained sand; damp; no odor	SM
2	4.0' - 8.0'	--	0.0	Same, becoming more grey and clayey with depth; moist; no odor	SM/ML
3					
4				Total depth = 8 feet below land surface	
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

1) 4-foot continuous cores using DPT.

2) PID readings shown are for discrete samples collected at 3.0' to 4.0' and 7.0' to 8.0'.

SOIL BORING LOG

Boring/Well No.: **SB-5105-2**
Date Started: 11/30/10
Date Completed: 11/30/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0.0' - 4.0'	--	0.0	Red/tan loamy, silty fine-grained sand; damp; no odor	SM
2	4.0' - 8.0'	--	0.0	Grey/brown sandy, clayey silt; moist; no odor	ML
3					
4				Total depth = 8 feet below land surface	
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

1) 4-foot continuous cores using DPT.

2) PID readings shown are for discrete samples collected at 3.0' to 4.0' and 7.0' to 8.0'.

BORING LOG

Boring/Well No.: **SB-5105-3**
Date Started: 11/30/10
Date Completed: 11/30/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0.0' - 4.0'	--	0.0	Grey/red/tan loamy, silty fine-grained sand; damp; no odor	SM
2	4.0' - 8.0'	--	0.0	Tan loamy, fine-grained sand grading to grey sandy, clayey silt with depth; moist; no odor	SM/ML
3					
4				Total depth = 8 feet below land surface	
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

1) 4-foot continuous cores using DPT.

2) PID readings shown are for discrete samples collected at 3.0' to 4.0' and 7.0' to 8.0'.

SOIL BORING LOG

Boring/Well No.: **SB-5105-4**
Date Started: 11/30/10
Date Completed: 11/30/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0.0' - 4.0'	--	0.0	Grey/red/tan loamy, silty fine to coarse-grained sand; damp; no odor	SM
2	4.0' - 8.0'	--	0.0	Grey sandy silt; moist; moderate petroleum odor	ML
3					
4				Total depth = 8 feet below land surface	
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

1) 4-foot continuous cores using DPT.

2) PID readings shown are for discrete samples collected at 3.0' to 4.0' and 7.0' to 8.0'.

APPENDIX II

PHOTOGRAPHS SHOWING SOIL BORING LOCATIONS


TOBACCO OUTLET
SB-5105-1


Sun
Pay at pump
275
285
299
AIR
SB-5105-4
SB-5105-3
SB-5105-2

APPENDIX III

CERTIFICATES OF ANALYSIS AND CHAIN OF CUSTODY RECORD FOR SOIL SAMPLES AND GROUNDWATER SAMPLE

Andrew Eyer
GEL Engineering of NC, Inc.
PO Box 14262
RTP, NC 27709

Report Number: G341-630

Client Project: Robeson Co. Lumberton PSAs

Dear Andrew Eyer,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Lori Lockamy at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Project Manager Date
Lori Lockamy

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:

1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.

2) Uncertainty for all reported data is less than or equal to 30 percent.

Print Date: 12/16/2010

Client Sample ID: **SB-5105-1**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-1D
Lab Project ID: G341-630

Collection Date: 30-Nov-10 11:30
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 91.4
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.51	MG/KG	1	10-Dec-10 19:41

Surrogates

OTP	66.8	40-140	%	1	10-Dec-10 19:41

Batch Information

Analytical Batch: EP121010
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.6
Prep Extract Vol: 10

Print Date: 12/16/2010

Client Sample ID: **SB-5105-2**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-2D
Lab Project ID: G341-630

Collection Date: 30-Nov-10 11:50
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 89.3
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	**74.5**	6.69	MG/KG	1	10-Dec-10 20:09

Surrogates

OTP	74.7	40-140	%	1	10-Dec-10 20:09

Batch Information

Analytical Batch: EP121010
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.5
Prep Extract Vol: 10

Print Date: 12/16/2010

Client Sample ID: **SB-5105-3**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-3D
Lab Project ID: G341-630

Collection Date: 30-Nov-10 12:15
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 92.3
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.72	MG/KG	1	10-Dec-10 20:37

Surrogates

OTP	66.2	40-140	%	1	10-Dec-10 20:37

Batch Information

Analytical Batch: EP121010
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.26
Prep Extract Vol: 10

Print Date: 12/16/2010

Client Sample ID: **SB-5105-4**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-4D
Lab Project ID: G341-630

Collection Date: 30-Nov-10 12:30
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 91.3
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.69	MG/KG	1	10-Dec-10 21:05

Surrogates

OTP	69.2	40-140	%	1	10-Dec-10 21:05

Batch Information

Analytical Batch: EP121010
Analytical Method: 8015DRO
Instrument: GC6
Analyst: DTF

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.75
Prep Extract Vol: 10

Print Date: 12/16/2010

Client Sample ID: **SB-5105-1**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-1A
Lab Project ID: G341-630

Collection Date: 30-Nov-10 11:30
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 91.4
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.22	MG/KG	1	10-Dec-10 19:03

Surrogates

BFB	94.2	70-130	%	1	10-Dec-10 19:03

Batch Information

Analytical Batch: VP121010
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.78
Prep Extract Vol: 5

Print Date: 12/16/2010

Client Sample ID: **SB-5105-2**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-2A
Lab Project ID: G341-630

Collection Date: 30-Nov-10 11:50
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 89.3
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.46	MG/KG	1	10-Dec-10 19:30

Surrogates

BFB	95.9	70-130	%	1	10-Dec-10 19:30

Batch Information

Analytical Batch: VP121010
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.54
Prep Extract Vol: 5

Print Date: 12/16/2010

Client Sample ID: **SB-5105-3**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-3A
Lab Project ID: G341-630

Collection Date: 30-Nov-10 12:15
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 92.3
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.33	MG/KG	1	10-Dec-10 19:57

Surrogates

BFB	91.8	70-130	%	1	10-Dec-10 19:57

Batch Information

Analytical Batch: VP121010
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.51
Prep Extract Vol: 5

Print Date: 12/16/2010

Client Sample ID: **SB-5105-4**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-4A
Lab Project ID: G341-630

Collection Date: 30-Nov-10 12:30
Received Date: 01-Dec-10
Matrix: SOIL
Solids: 91.3
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.47	MG/KG	1	14-Dec-10 12:05

Surrogates

BFB	82.1	70-130	%	1	14-Dec-10 12:05

Batch Information

Analytical Batch: VP121410
Analytical Method: 8015GRO
Instrument: GC4
Analyst: LMC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.35
Prep Extract Vol: 5

Print Date: 12/16/2010

Client Sample ID: **MW5105-4**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-5A
Lab Project ID: G341-630

Collection Date: 30-Nov-10 13:00
Received Date: 01-Dec-10
Matrix: WATER

Results by 8260

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Acetone	BQL	5000	UG/L	200	06-Dec-10 16:41
Benzene	**4750**	200	UG/L	200	06-Dec-10 16:41
Bromobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
Bromochloromethane	BQL	200	UG/L	200	06-Dec-10 16:41
Bromodichloromethane	BQL	200	UG/L	200	06-Dec-10 16:41
Bromoform	BQL	200	UG/L	200	06-Dec-10 16:41
Bromomethane	BQL	200	UG/L	200	06-Dec-10 16:41
2-Butanone	BQL	5000	UG/L	200	06-Dec-10 16:41
n-Butylbenzene	BQL	200	UG/L	200	06-Dec-10 16:41
sec-Butylbenzene	BQL	200	UG/L	200	06-Dec-10 16:41
tert-Butylbenzene	BQL	200	UG/L	200	06-Dec-10 16:41
Carbon disulfide	BQL	200	UG/L	200	06-Dec-10 16:41
Carbon tetrachloride	BQL	200	UG/L	200	06-Dec-10 16:41
Chlorobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
Chloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
Chloroform	BQL	200	UG/L	200	06-Dec-10 16:41
Chloromethane	BQL	200	UG/L	200	06-Dec-10 16:41
2-Chlorotoluene	BQL	200	UG/L	200	06-Dec-10 16:41
4-Chlorotoluene	BQL	200	UG/L	200	06-Dec-10 16:41
Dibromochloromethane	BQL	200	UG/L	200	06-Dec-10 16:41
1,2-Dibromo-3-chloropropane	BQL	1000	UG/L	200	06-Dec-10 16:41
Dibromomethane	BQL	200	UG/L	200	06-Dec-10 16:41
1,2-Dibromoethane (EDB)	BQL	200	UG/L	200	06-Dec-10 16:41
1,2-Dichlorobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
1,3-Dichlorobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
1,4-Dichlorobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
trans-1,4-Dichloro-2-butene	BQL	1000	UG/L	200	06-Dec-10 16:41
1,1-Dichloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
1,1-Dichloroethene	BQL	200	UG/L	200	06-Dec-10 16:41
1,2-Dichloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
cis-1,2-Dichloroethene	BQL	200	UG/L	200	06-Dec-10 16:41
trans-1,2-dichloroethene	BQL	200	UG/L	200	06-Dec-10 16:41
1,2-Dichloropropane	BQL	200	UG/L	200	06-Dec-10 16:41
1,3-Dichloropropane	BQL	200	UG/L	200	06-Dec-10 16:41
2,2-Dichloropropane	BQL	200	UG/L	200	06-Dec-10 16:41
1,1-Dichloropropene	BQL	200	UG/L	200	06-Dec-10 16:41
cis-1,3-Dichloropropene	BQL	200	UG/L	200	06-Dec-10 16:41
trans-1,3-Dichloropropene	BQL	200	UG/L	200	06-Dec-10 16:41
Dichlorodifluoromethane	BQL	1000	UG/L	200	06-Dec-10 16:41
Diisopropyl ether (DIPE)	BQL	200	UG/L	200	06-Dec-10 16:41
Ethylbenzene	**238**	200	UG/L	200	06-Dec-10 16:41
Hexachlorobutadiene	BQL	200	UG/L	200	06-Dec-10 16:41
2-Hexanone	BQL	1000	UG/L	200	06-Dec-10 16:41
Iodomethane	BQL	200	UG/L	200	06-Dec-10 16:41
Isopropylbenzene	BQL	200	UG/L	200	06-Dec-10 16:41
4-Isopropyltoluene	BQL	200	UG/L	200	06-Dec-10 16:41

Print Date: 12/16/2010

Client Sample ID: **MW5105-4**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-5A
Lab Project ID: G341-630

Collection Date: 30-Nov-10 13:00
Received Date: 01-Dec-10
Matrix: WATER

Results by 8260

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Methylene chloride	BQL	1000	UG/L	200	06-Dec-10 16:41
4-Methyl-2-pentanone	BQL	1000	UG/L	200	06-Dec-10 16:41
Methyl-tert-butyl ether (MTBE)	BQL	200	UG/L	200	06-Dec-10 16:41
Naphthalene	**322**	200	UG/L	200	06-Dec-10 16:41
n-Propyl benzene	BQL	200	UG/L	200	06-Dec-10 16:41
Styrene	BQL	200	UG/L	200	06-Dec-10 16:41
1,1,1,2-Tetrachloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
1,1,2,2-Tetrachloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
Tetrachloroethene	BQL	200	UG/L	200	06-Dec-10 16:41
Toluene	BQL	200	UG/L	200	06-Dec-10 16:41
1,2,3-Trichlorobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
1,2,4-Trichlorobenzene	BQL	200	UG/L	200	06-Dec-10 16:41
Trichloroethene	BQL	200	UG/L	200	06-Dec-10 16:41
1,1,1-Trichloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
1,1,2-Trichloroethane	BQL	200	UG/L	200	06-Dec-10 16:41
Trichlorofluoromethane	BQL	200	UG/L	200	06-Dec-10 16:41
1,2,3-Trichloropropane	BQL	200	UG/L	200	06-Dec-10 16:41
1,2,4-Trimethylbenzene	BQL	200	UG/L	200	06-Dec-10 16:41
1,3,5-Trimethylbenzene	BQL	200	UG/L	200	06-Dec-10 16:41
Vinyl chloride	BQL	200	UG/L	200	06-Dec-10 16:41
m-,p-Xylene	BQL	400	UG/L	200	06-Dec-10 16:41
o-Xylene	BQL	200	UG/L	200	06-Dec-10 16:41
Surrogates					
1,2-Dichloroethane-d4	98	64-140	%	200	06-Dec-10 16:41
Toluene-d8	100	82-117	%	200	06-Dec-10 16:41
4-Bromofluorobenzene	98	85-115	%	200	06-Dec-10 16:41

Batch Information

Analytical Batch: 3120610
Analytical Method: 8260
Instrument: MSD3
Analyst: BWS

Prep Batch:
Prep Method:
Prep Date/Time:
Initial Prep Wt./Vol.: 5
Prep Extract Vol: 5

Print Date: 12/16/2010

Client Sample ID: **MW5105-4**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-5F
Lab Project ID: G341-630

Collection Date: 30-Nov-10 13:00
Received Date: 01-Dec-10
Matrix: WATER

Results by 8270

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Acenaphthene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Acenaphthylene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Anthracene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Benzo[a]anthracene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Benzo[a]pyrene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Benzo[b]fluoranthene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Benzo[g,h,i]perylene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Benzo[k]fluoranthene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Benzoic Acid	BQL	127	UG/L	5	06-Dec-10 12:57
Bis(2-chloroethoxy)methane	BQL	25.4	UG/L	5	06-Dec-10 12:57
Bis(2-chloroethyl)ether	BQL	25.4	UG/L	5	06-Dec-10 12:57
Bis(2-chloroisopropyl)ether	BQL	25.4	UG/L	5	06-Dec-10 12:57
Bis(2-ethylhexyl)phthalate	BQL	25.4	UG/L	5	06-Dec-10 12:57
4-bromophenyl phenyl ether	BQL	25.4	UG/L	5	06-Dec-10 12:57
Butylbenzylphthalate	BQL	25.4	UG/L	5	06-Dec-10 12:57
2-Chloronaphthalene	BQL	25.4	UG/L	5	06-Dec-10 12:57
2-Chlorophenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
4-Chloro-3-methylphenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
4-Chloroaniline	BQL	127	UG/L	5	06-Dec-10 12:57
4-Chlorophenyl phenyl ether	BQL	25.4	UG/L	5	06-Dec-10 12:57
Chrysene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Dibenzo[a,h]anthracene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Dibenzofuran	BQL	25.4	UG/L	5	06-Dec-10 12:57
Di-n-Butylphthalate	BQL	25.4	UG/L	5	06-Dec-10 12:57
1,2-Dichlorobenzene	BQL	25.4	UG/L	5	06-Dec-10 12:57
1,3-Dichlorobenzene	BQL	25.4	UG/L	5	06-Dec-10 12:57
1,4-Dichlorobenzene	BQL	25.4	UG/L	5	06-Dec-10 12:57
3,3'-Dichlorobenzidine	BQL	50.8	UG/L	5	06-Dec-10 12:57
2,4-Dichlorophenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
Diethylphthalate	BQL	25.4	UG/L	5	06-Dec-10 12:57
Dimethylphthalate	BQL	25.4	UG/L	5	06-Dec-10 12:57
2,4-Dimethylphenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
Di-n-octylphthalate	BQL	25.4	UG/L	5	06-Dec-10 12:57
4,6-Dinitro-2-methylphenol	BQL	127	UG/L	5	06-Dec-10 12:57
2,4-Dinitrophenol	BQL	127	UG/L	5	06-Dec-10 12:57
2,4-Dinitrotoluene	BQL	25.4	UG/L	5	06-Dec-10 12:57
2,6-Dinitrotoluene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Diphenylamine *	BQL	25.4	UG/L	5	06-Dec-10 12:57
Fluoranthene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Fluorene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Hexachlorobenzene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Hexachlorobutadiene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Hexachlorocyclopentadiene	BQL	50.8	UG/L	5	06-Dec-10 12:57
Hexachloroethane	BQL	25.4	UG/L	5	06-Dec-10 12:57
Indeno(1,2,3-c,d)pyrene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Isophorone	BQL	25.4	UG/L	5	06-Dec-10 12:57

Print Date: 12/16/2010

Client Sample ID: **MW5105-4**
Client Project ID: Robeson Co. Lumberton PSAs
Lab Sample ID: G341-630-5F
Lab Project ID: G341-630

Collection Date: 30-Nov-10 13:00
Received Date: 01-Dec-10
Matrix: WATER

Results by 8270

Parameter	Result	RL/CL	Units	DF	Date Analyzed
2-Methylnaphthalene	**76.2**	25.4	UG/L	5	06-Dec-10 12:57
2-Methylphenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
3- & 4-Methylphenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
Naphthalene	**294**	25.4	UG/L	5	06-Dec-10 12:57
2-Nitroaniline	BQL	25.4	UG/L	5	06-Dec-10 12:57
3-Nitroaniline	BQL	127	UG/L	5	06-Dec-10 12:57
4-Nitroaniline	BQL	127	UG/L	5	06-Dec-10 12:57
Nitrobenzene	BQL	25.4	UG/L	5	06-Dec-10 12:57
2-Nitrophenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
4-Nitrophenol	BQL	127	UG/L	5	06-Dec-10 12:57
N-Nitrosodi-n-propylamine	BQL	25.4	UG/L	5	06-Dec-10 12:57
Pentachlorophenol	BQL	127	UG/L	5	06-Dec-10 12:57
Phenanthrene	BQL	25.4	UG/L	5	06-Dec-10 12:57
Phenol	**32.8**	25.4	UG/L	5	06-Dec-10 12:57
Pyrene	BQL	25.4	UG/L	5	06-Dec-10 12:57
1,2,4-Trichlorobenzene	BQL	25.4	UG/L	5	06-Dec-10 12:57
2,4,5-Trichlorophenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
2,4,6-Trichlorophenol	BQL	25.4	UG/L	5	06-Dec-10 12:57
Surrogates					
2-Fluorobiphenyl	76	-	%	5	06-Dec-10 12:57
2-Fluorophenol	71	-	%	5	06-Dec-10 12:57
Nitrobenzene-d5	82	-	%	5	06-Dec-10 12:57
Phenol-d6	88	-	%	5	06-Dec-10 12:57
2,4,6-Tribromophenol	88	-	%	5	06-Dec-10 12:57
4-Terphenyl-d14	79	-	%	5	06-Dec-10 12:57

Batch Information

Analytical Batch: 6120610
Analytical Method: 8270
Instrument: MSD6
Analyst: CMP

Prep Batch: 17856
Prep Method: 3520
Prep Date/Time: 02-Dec-10 11:45
Initial Prep Wt./Vol.: 984
Prep Extract Vol: 5.0

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
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- New York
- North Carolina
- Ohio

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099725

(1)
CLIENT: GEL ENG. OF NC
CONTACT: ANDREW EYER PHONE NO:(919) 323-8828
PROJECT: ROBESON Co. LUMBERTON PSAs SITE/PWSID#: I-4413
REPORTS TO: GEL ENG. OF NC P.O. BOX 14262 RTP, NC 27709 ade@gel.com FAX NO.:(919) 237-9188
INVOICE TO: NCDOT WBS # 35901.2.1 QUOTE #: P.O. NUMBER:

SGS Reference: G341-630

PAGE _____ OF _____

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used		MeOH	HCl							REMARKS
							Analysis Required (3)	DRO	GRO	VOCs	SVOCs						
	SB-5105-1	11/30/10	11:30	SO		G		1	2								
	SB-5105-2		11:50	SO		G		1	2								
	SB-5105-3		12:15	SO		G		1	2								
	SB-5105-4		12:30	SO		G		1	2								
	MW 5105-~~5~~ 4	↓	13:00	GW		G				3	2						

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Rob Dlmen	12/1/10	12:10	
Relinquished By: (2)	Date	Time	Received By:
	12/1/10	15:00	
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: 4.6, 4.8
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ (Date Needed) ☐ STD