Preliminary Site Assessment

1001 Dickinson Avenue
Parcel #185, Buck, Dennis
Previous Flemings Gasoline Station
and
1011 Dickinson Avenue Extension
Parcel#186, City of Greenville
Greenville, Pitt County, North Carolina

State Project No. U-3315

WBS Element: 35781.1.2

February 20, 2013

Terracon Project No. 70127335

Prepared for:

North Carolina Department of Transportation (NCDOT)
Geotechnical Engineering Unit

Prepared by:

Terracon Consultants, Inc.
Raleigh, North Carolina

February 20, 2013

North Carolina Department of Transportation
Attention: Mr. Gordon Box, LG
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, NC 27699

Re: Preliminary Site Assessment (PSA)
Parcel 185, Buck, Dennis
Previous Flemings Gasoline Station
1001 Dickinson Avenue
and
Parcel 186, City of Greenville
Grassed Median-Former Filling Station
1011 Dickinson Avenue Extension
Greenville, Pitt County, North Carolina
Terracon Project No. 70127335
WBS Element: 35781.1.2

Dear Mr. Box:

Terracon Consultants, Inc. (Terracon) is pleased to submit a Preliminary Site Assessment (PSA) report for the above referenced site. This assessment was performed in accordance with our Proposal for Preliminary Site Assessment (Terracon Proposal No. P70127314) dated August 7, 2012. This report includes the findings of the investigation, and provides our conclusions and recommendations.

Terracon appreciates the opportunity to provide these services to the NCDOT. If you have any questions concerning this report or need additional information, please contact us at 919-873-2211.

Sincerely,
Terracon Consultants, Inc.

Prepared by:

Benjamin W. Swift
Environmental Professional

Reviewed by:

for: Christopher L. Corbitt, PG
Authorized Project Reviewer

Lori Hoffman, PE
Environmental Department Manager

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PRELIMINARY SITE ASSESSMENT

PARCEL 185, BUCK, DENNIS
1001 DICKINSON AVENUE
PARCEL 186, CITY OF GREENVILLE
1011 DICKINSON AVENUE EXTENSION
GREENVILLE, PITT COUNTY, NORTH CAROLINA

1.0 INTRODUCTION

1.1 Site Description

Site Name	Parcel 185, Buck, Dennis (Previous Flemings Gasoline Station) Parcel 186, City of Greenville (Grassed Median-former filling station)
Site Location/Address	1001 Dickinson Avenue, Greenville, North Carolina 1011 Dickinson Avenue Ext, Greenville, North Carolina
General Site Description	Parcel 185 is occupied by two vacant structures previously occupied by Flemings Gasoline Station. On-site structures include service bays for vehicle maintenance operations. Parcel 186 is currently maintained as a grass-covered median in the northern portion of the site. The southern portion of the parcel is traversed by West 10th Street. The southernmost portion of the parcel is apparently a paved parking area for Flemings Gasoline Station (Parcel 185).

1.2 Site History

According to information provided by the NCDOT and collected by Terracon, there are no known release (LUST) incidents associated with the two parcels.

Parcel 185 previously operated as Flemings Gasoline Station. According to the NCDENR UST database, three on-site USTs were removed in 1989 and one UST was closed in place with inert materials. Four "active" USTs are reportedly located on the site. The NCDOT intends to acquire only the northern portion of the site which does not include the on-site buildings or the USTs.

Parcel 186 reportedly operated as a filling station from at least 1923 to at least 1929, according to historical fire insurance maps. Currently, the northern portion of the site consists of a grass-covered median. The southern portion of the site is traversed by West 10th Street. The southernmost portion of the site is apparently a paved parking area for Flemings Gasoline Station (Parcel 185). No known USTs are listed for the site. The NCDOT intends to only acquire a portion the parcel.

A review of the City of Greenville Online Mapping website indicates the shared parcel boundary for Parcels 185 and 186 do not correlate to the information provided by the NCDOT. The

shared parcel boundary depicted on the City of Greenville Online Mapping website is farther south and parallels the Flemings Gasoline Station building.

1.3 Scope of Work

Terracon has prepared the following Preliminary Site Assessment (PSA) scope of work in accordance with the NCDOT's Request for Technical and Cost Proposal dated June 19, 2012 and Terracon's Proposal for Preliminary Site Assessment (Proposal No. P70127314) dated August 7, 2012. The scope of work included a geophysical investigation for each parcel, the collection of seven soil samples and two groundwater samples for laboratory analysis and preparation of a report documenting our environmental investigation activities.

1.4 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These PSA services were performed in accordance with the scope of work authorized by you and were not conducted in accordance with ASTM E1903-97.

1.5 Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, undetectable or not present during these services; thus, we cannot represent that the site is free of hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this PSA. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.6 Reliance

This report has been prepared for the exclusive use of North Carolina Department of Transportation (NCDOT). Authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the expressed written authorization of the client and Terracon.

2.0 FIELD ACTIVITIES

The following PSA activities are presented in the order that they were conducted in the field on August 22, 24, and 29, and September 2, and 7, 2012. Exhibit 1 presents the general boundaries and topography of the site on portions of the USGS topographic quadrangle map of Greenville SW, North Carolina dated 1998. Exhibits 2 and 3 are site layout plans that depict the approximate locations of the site features and soil boring locations.

2.1 Geophysical Survey

On August 22, 23, and 29, 2012, Pyramid Environmental conducted a geophysical investigation at the site in an effort to determine if unknown, metallic underground storage tanks (USTs) were present beneath the proposed right-of-way (ROW) area. The geophysical investigation included an electromagnetic (EM) induction survey using a Geonics EM-61 MK1 metal detection instrument and a ground penetrating radar (GPR) survey using a GSSI SIR-2000 unit.

The geophysical investigation did not reveal any probable metallic USTs in the area of investigation identified for Parcel 185. Four known USTs were identified along the eastern parcel boundary but these USTs are not located within the proposed ROW.

Two possible (low confidence) metallic USTs or conduit junctions were detected in the southern portion of Parcel 186 (driveway/parking area of Flemings Gasoline Station). A portion of one of the possible USTs appears to lie beneath the southern edge of West 10th Street. A copy of the geophysical reports is included in Appendix B.

2.2 Soil Sampling

Based on the findings of the geophysical investigation, Terracon provided oversight of the advancement of four soil borings in the northern portion of Parcel 185 and three soil borings at Parcel 186 on September 7, 2012. Two of the borings were advanced in the southern portion of Parcel 186 near the locations of the suspected USTs while the third boring was advanced in the grassed median in the northern portion of the parcel. The borings were completed by Bridger Drilling Enterprises, Inc., a North Carolina licensed driller using a Geoprobe® rig.

Soil samples were collected in 5-foot, disposable, acetate sleeves to document soil lithology, color, moisture content, and sensory evidence of impairment. The soil samples were placed in resealable plastic bags for a sufficient amount of time to allow volatilization of organic compounds from the soils. The soil samples were then screened using a field-portable photo-ionization detector (PID) by inserting the probe tip into the headspace of each bag. The PID readings and soil sample depths for the four borings on Parcel 185 are included on Table 1. PID readings and soil sample depths for Parcel 186 and Parcel 185 are also included on individual boring logs in Appendix A.

Soil borings on both parcels were advanced to depths ranging from approximately 15 to 20 feet below ground surface (bgs). Soils obtained from the acetate sleeves were separated into two and half foot intervals.

The soil samples were collected and placed in laboratory prepared glassware and packed in ice within a cooler. The sample cooler and completed chain-of-custody forms were relinquished to SGS North American Inc. in Wilmington, North Carolina.

2.3 Groundwater Sampling

Following soil sampling activities, soil boring B-1 on Parcel 185 was advanced to approximately 20 feet bgs and converted to temporary groundwater sampling well (TW-1). Boring B-1 was located in the apparent down-gradient portion of Parcel 185.

Soil boring B-2 on Parcel 186 was also advanced to approximately 20 feet bgs and converted to temporary groundwater sampling well (TW-1). Boring B-2 was located in the apparent down-gradient portion of Parcel 186. The temporary well locations are depicted Exhibit 2 (Parcel 185) and Exhibit 3 (Parcel 186). The temporary monitoring wells were constructed using the following materials:

- 1-inch diameter, 0.010-inch machine slotted PVC well screen with a threaded bottom cap; and,
- 1-inch diameter, threaded, flush-joint PVC riser pipe to surface.

The depth to groundwater was measured in the temporary wells at approximately 15.8 feet bgs (Parcel 185) and 15.9 feet bgs (Parcel 186). Prior to sampling, the monitoring wells were purged with a peristaltic pump until turbidity decreased. A water sample was collected from each temporary well and placed into laboratory supplied, pre-preserved sample containers. The ice-packed sample container and chain of custody documentation were picked up by a courier for delivery to the laboratory.

2.4 Subsurface Conditions

The soil samples from ground surface to a depth of approximately 20 feet included sands, clayey sands, clay, and sandy clay. Petroleum odors and elevated PID readings were noted in the samples collected from soil borings B-1, B-2, and B-3 on Parcel 185 and in the samples collected from soil borings B-2 and B-3 on Parcel 186. Soil samples from the interval exhibiting the highest PID readings or most obvious evidence of contamination in each boring were submitted for laboratory analysis.

3.0 LABORATORY ANALYSES

Soil samples were submitted for laboratory analysis of Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO) by EPA Method 3546 and TPH Gasoline Range Organics (GRO) by EPA Method 5035. Soil samples were also collected for analysis of North Carolina Department of Environment and Natural Resources (NCDENR) risk-based parameters including volatile organic compounds (VOCs) by EPA Method 8260 and semi-volatile organic compounds (SVOCs) by EPA Method 8270, MADEP VPH, and MADEP EPH pending analytical results of the DRO/GRO samples. The groundwater samples were submitted for laboratory analysis of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270. Samples were submitted to SGS North American Inc. in Wilmington, North Carolina for analysis. Please refer to Appendix C for the laboratory analytical reports.

4.0 DATA EVALUATION

4.1 Soil Sample Analytical Results and Interpretation

Parcel 185

Gasoline Range Organics (GRO) were detected above the laboratory method detection limits in sample S-1 at a concentration of 1,020 milligrams per kilogram (mg/kg) and sample S-3 at 76.7 mg/kg. TPH GRO compounds were detected at concentrations above the NCDENR UST Action Level (10 mg/kg) in both samples.

Diesel Range Organics (DRO) were also detected in sample S-1 (1,210 mg/kg) and sample S-3 (721 mg/kg) at concentrations above the NCDENR UST Action Level (10 mg/kg).

Based on the DRO/GRO analytical results for sample S-1, risk-based analyses reported 1,2,4-trimethylbenzene (133 mg/kg), 1,3,5-trimethylbenzene (39 mg/kg), 4-isopropyltoluene (7.92 mg/kg), naphthalene (35.5 mg/kg), ethylbenzene (14.7 mg/kg), isopropylbenzene (3.54 mg/kg), toluene (10.2 mg/kg), total xylenes (111 mg/kg), n-propylbenzene (13.4 mg/kg), and 2-methylnapthalene (31.5 mg/kg) above their respective laboratory method reporting limits and at concentrations above their respective NCDENR Soil-to-Groundwater Maximum Soil Contamination Concentrations (MSCCs).

Risk-based analyses for sample S-3 reported 1,2,4-trimethylbenzene (0.195 mg/kg), 1,3,5-trimethylbenzene (0.269 mg/kg), 4-isopropyltoluene (0.0955 mg/kg), naphthalene (0.206 mg/kg), and 2-methylnapthalene (2.09 mg/kg) above their respective laboratory method reporting limits. The detected concentrations in sample S-3 do not exceed their respective NCDENR Soil-to-Groundwater MSCCs.

Laboratory analytical results reported C5-C8 Aliphatics (15.8 mg/kg), C9-C22 Aromatics (179.3 mg/kg), and C9-C18 Aliphatics (186.2 mg/kg) for soil sample S-1. Laboratory analytical results also reported C9-C22 Aromatics (114.4 mg/kg) and C9-C18 Aliphatics (137.7 mg/kg) for soil sample S-3. Based on the NCDENR UST Section MADEP Groundwater Sample Worksheet, C9-C22 Aromatics exceed the NCDENR Soil-to-Groundwater MSCC (31 mg/kg) in sample S-1 and sample S-3.

Parcel 186
Concentrations of TPH-GRO or TPH-DRO were not detected above laboratory method detection limits in the three samples (S-1, S-2 and S-3) collected from Parcel 186. Based on the DRO and GRO results, no risk-based samples were analyzed for Parcel 186.

A summary of the soil sampling analytical results are included in Tables 1, 2 and 3 as an attachment to this report.

4.2 Groundwater Analytical Results and Interpretation

Parcel 185
Laboratory analytical results for groundwater sample TW-1 from Parcel 185 reported ethylbenzene at 3,320 micrograms per liter (ug/L), naphthalene (2,180 ug/L), toluene (42,100 ug/L), total xylenes (16,900 ug/L), and 2-methylnapthalene (116 ug/L) at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards.

Parcel 186
Laboratory analytical results for groundwater sample TW-1 from Parcel 186 reported benzene (15.6 ug/L) and tetrachloroethene (6.8 ug/L) at concentrations that exceed their respective NCAC 2L Groundwater Quality Standard.

Concentrations of 1,2,4-trimethylbenzene (3.77 ug/L), 1,3,5-trimethylbenzene (1.83 ug/L), ethylbenzene (10.4 ug/L), toluene (8.77 ug/L), total xylenes (37.6 ug/L), and n-propylbenzene (1.06 ug/L) were reported above their laboratory method detection limits but below their respective NCAC 2L Groundwater Quality Standards.

A summary table of the groundwater sampling analytical results is included as an attachment to this report.

5.0 CONCLUSIONS

The findings of this investigation are discussed below.

- The geophysical investigation did not reveal probable metallic USTs or other buried anomalies in the area of investigation identified for Parcel 185. Four known USTs were identified along the eastern parcel boundary but these USTs are not located within the proposed ROW.

  Two possible (low confidence) metallic USTs or conduit junctions were detected in the southern portion of Parcel 186 (driveway/parking area of Flemings Gasoline Station). A portion of one of the possible USTs appears to lie beneath the southern edge of West 10th Street.

- Seven soil borings were advanced to depths ranging from approximately 15 to 20 feet bgs.

- **Parcel 185**

  Gasoline Range Organics were detected above the NCDENR UST Action Level (10 mg/kg) in sample S-1 at a concentration of 1,020 mg/kg and sample S-3 at 76.7 mg/kg.

  Diesel Range Organics were also detected in sample S-1 (1,210 mg/kg) and sample S-3 (721 mg/kg) at concentrations above the NCDENR UST Action Level (10 mg/kg).

  Based on the DRO/GRO analytical results for sample S-1, risk-based analyses reported 1,2,4-trimethylbenzene (133 mg/kg), 1,3,5-trimethylbenzene (39 mg/kg), 4-isopropyltoluene (7.92 mg/kg), naphthalene (35.5 mg/kg), ethylbenzene (14.7 mg/kg), isopropylbenzene (3.54 mg/kg), toluene (10.2 mg/kg), total xylenes (111 mg/kg), n-propylbenzene (13.4 mg/kg), and 2-methylnapthalene (31.5 mg/kg) above their respective NCDENR Soil-to-Groundwater MSCCs.

  Risk-based analyses for sample S-3 reported 1,2,4-trimethylbenzene (0.195 mg/kg), 1,3,5-trimethylbenzene (0.269 mg/kg), 4-isopropyltoluene (0.0955 mg/kg), naphthalene (0.206 mg/kg), and 2-methylnapthalene (2.09 mg/kg) above their respective laboratory method reporting limits. The detected concentrations in sample S-3 do not exceed their respective NCDENR Soil-to-Groundwater MSCCs.

  Laboratory analytical results reported C5-C8 Aliphatics (15.8 mg/kg), C9-C22 Aromatics (179.3 mg/kg), and C9-C18 Aliphatics (186.2 mg/kg) for soil sample S-1. Laboratory analytical results also reported C9-C22 Aromatics (114.4 mg/kg) and C9-C18 Aliphatics (137.7 mg/kg) for soil sample S-3. Based on the NCDENR UST Section MADEP

Groundwater Sample Worksheet, C9-C22 Aromatics exceed the NCDENR Soil-to-Groundwater MSCC (31 mg/kg) in sample S-1 and sample S-3.

The depth to groundwater was measured in temporary monitoring well TW-1 at approximately 15.8 feet bgs.

Laboratory analytical results for groundwater sample TW-1 from Parcel 185 reported ethylbenzene at 3,320 micrograms per liter (ug/L), naphthalene (2,180 ug/L), toluene (42,100 ug/L), total xylenes (16,900 ug/L), and 2-methylnapthalene (116 ug/L) at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards.

The extent of soil contamination appears to be localized at Parcel 185. Based on plans provided by NCDOT, utility or drainage excavations are not planned for Parcel 185. Terracon recommends considering a contingency of 11 cubic yards for driveway construction. This is based on assumption of a 6-inch cut for an area of 300 square feet in the planned driveway (near S-1).

- **Parcel 186**

  Concentrations of TPH-GRO or TPH-DRO were not detected above laboratory method detection limits in the three samples (S-1, S-2 and S-3) collected from Parcel 186. Based on the DRO and GRO results, no risk-based samples were analyzed for Parcel 186.

  The depth to groundwater was measured in temporary monitoring well TW-1 at approximately 15.9 feet bgs.

  Laboratory analytical results for groundwater sample TW-1 from Parcel 186 reported benzene (15.6 ug/L) and tetrachloroethene (6.8 ug/L) at concentrations that exceed their respective NCAC 2L Groundwater Quality Standard.

  Concentrations of 1,2,4-trimethylbenzene (3.77 ug/L), 1,3,5-trimethylbenzene (1.83 ug/L), ethylbenzene (10.4 ug/L), toluene (8.77 ug/L), total xylenes (37.6 ug/L), and n-propylbenzene (1.06 ug/L) were reported above their laboratory method detection limits but below their respective NCAC 2L Groundwater Quality Standards.

- Based on the laboratory analytical results, contamination was identified in the soils within the project area at Parcel 185 and impacted groundwater was detected in the project areas at Parcel 185 and Parcel 186. Groundwater was measured at a depth of approximately 15.9 feet bgs.

- Based on plans provided by NCDOT, utility or drainage excavations are not planned for Parcel 186. The area of contamination on Parcel 186 that will be impacted by driveway

construction is approximately 385 square feet Assuming cuts of one foot for curb and driveway construction, the quantity of soil excavation for Parcel 196 is 14 cubic yards.

TABLES

Table 1
Soil Sampling Analytical Results Summary (DRO/GRO)
Parcel #185, Buck, Dennis Property
Greenville, Pitt County, North Carolina

Sample ID	Depth	PID reading	Method 5035/GRO	Method 3546/DRO
	ft bgs	ppm	mg/kg	mg/kg
S-1	0-2.5	1429	**1020**	**1210**
S-2	10.0-12.5	36.6	ND	ND
S-3	2.5-5.0	497.1	**76.7**	**721**
S-4	10.0-12.5	0.8	ND	ND
NCDENR Action Level			10	10

Notes:
ft bgs = feet below ground surface
ppm = parts per million
mg/kg = milligrams per kilogram
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
ND = Below laboratory detection limits
Highlighted values indicate above NCDENR Action Level

Table 2
Soil Sampling Analytical Results Summary VOCs/SVOCs)
Parcel #185, Buck, Dennis Property
Greenville, Pitt County, North Carolina

					Sample ID	S-1	S-3
					Depth	0-2.5 FT	2.5-5.0 FT
Method	**Parameter**	**Units**	**Soil to Groundwater Maximum Concentration**	**Industrial/Commercial Soil Cleanup Levels**		**Value**	**Value**
8260B	1,2,4-Trimethylbenzene	mg/kg	8.5	20440		133	0.195
	1,3,5-Trimethylbenzene	mg/kg	8.3	20440		39	0.269
	4-Isopropyltoluene	mg/kg	0.12	4000		7.92	0.0955
	Naphthalene	mg/kg	0.16	8176		35.5	0.206
	Ethylbenzene	mg/kg	4.9	40000		14.7	ND
	Isopropylbenzene (Cumene)	mg/kg	1.7	40880		3.54	ND
	Toluene	mg/kg	4.3	32000		10.2	ND
	Xylene (total)	mg/kg	4.6	81760		111	ND
	n-Propylbenzene	mg/kg	1.7	16350		13.4	ND
8270C	2-Methylnapthalene	mg/kg	3.6	1635		31.5	2.09
	Naphthalene	mg/kg	0.16	8176		24.8	ND

Notes:

Samples collected on September 7, 2012

NE = Not established

units = mg/kg - sample analyte compound concentrations measured in milligrams per kilogram

Bold concentrations were reported above the Maximum Soil Contaminant Concentration Levels (MSCCs)

Table 3
Soil Sampling Analytical Results Summary (VPH/EPH)
Parcel #185, Buck, Dennis Property
Greenville, Pitt County, North Carolina

Sample Designation / Sample Location Depth Date Sampled						S-1 0-2.5 FT 9/7/2012		S-3 2.5-5.0 FT 9/7/2012	
Hydrocarbon Fraction Ranges	**Analytical Hydrocarbon Fractions**		**Residential MSCC (mg/kg)**	**Industrial / Commercial MSCC (mg/kg)**	**Soil to Groundwater MSCC (mg/kg)**	**Lab Results Conc.**	**Final VPH and/or EPH Conc.**	**Lab Results Conc.**	**Final VPH and/or EPH Conc.**
C5-C8 Aliphatics	C5-C8 Aliphatics	VPH	939	24528	68	15.8	15.8	< 4.25	<4.25
C9-C18 Aliphatics	C9-C12 Aliphatics	VPH	1500	40000	540	71.2	186.2	82.5	137.7
	C9-C18 Aliphatics	EPH				115		55.2	
C19-C36 Aliphatics	C19-C36 Aliphatics	EPH	31000	810000	Considered Immobile	< 6.06	<6.06	< 7.3	<7.3
C9-C22 Aromatics	C9-C10 Aromatics	VPH	469	12264	31	68.3	179.3	94.6	114.4
	C11-C22 Aromatics	EPH				111		19.8	

Notes:
ft = feet
mg/kg=milligrans per kilograms
Where no detectable concentration was measured, the method detection limit was used for the final calculation

Table 4
Groundwater Sampling Analytical Results Summary
Parcel #185, Buck, Dennis Property
Greenville, Pitt County, North Carolina

			Sample ID	TW-1
			Depth	15.8 FT
Method	**Parameter**	**Units**	**NCAC 2L Groundwater Quality Standard**	**Value**
8260B	Ethylbenzene	ug/l	600	**3320**
	Naphthalene	ug/l	6	**2180**
	Toluene	ug/l	600	**42100**
	Xylenes (total)	ug/l	500	**16900**
	m,p-Xylene	ug/l	NE	**11400**
	o-Xylene	ug/l	NE	**5560**
8270C	2-Methylnaphthalene	ug/l	30	**116**
	Naphthalene	ug/l	6	**559**

Notes:

Sample GW collected on September 7, 2012

NE = Not established

units = ug/L - sample analyte compound concentrations measured in micrograms per liter

Bold concentrations were reported above the laboratory method detection limits but below the NCAC 2L Groundwater Quality Standard

=Greater than or equal to the NCAC 2L Groundwater Quality Standard

* = Estimated Concentration (J Qualifier)

Table 5
Groundwater Sampling Analytical Results Summary
Parcel #186, City of Greenville
Greenville, Pitt County, North Carolina

			Sample ID	TW-1
			Depth	15.9 FT
Method	**Parameter**	**Units**	**NCAC 2L Groundwater Quality Standard**	**Value**
8260B	1,2,4-Trimethylbenzene	ug/l	400	**3.77**
	1,3,5-Trimethylbenzene	ug/l	400	**1.83**
	Benzene	ug/l	1	**15.6**
	Ethylbenzene	ug/l	600	**10.4**
	Tetrachloroethene	ug/l	0.7	**6.8**
	Toluene	ug/l	600	**8.77**
	Xylenes (total)	ug/l	500	**37.6**
	m,p-Xylene	ug/l	NE	**28.6**
	n-Propylbenzene	ug/l	NE	**1.06**
	o-Xylene	ug/l	NE	**9.03**
8270C	SVOCs	No Analytes Detected Above the Laboratory Detection Limits		

Notes:

Sample GW collected on September 7, 2012

NE = Not established

units = ug/L - sample analyte compound concentrations measured in micrograms per liter

Bold concentrations were reported above the laboratory method detection limits but below the NCAC 2L Groundwa

FIGURES

Exhibit 1 – Site Vicinity Map (Topographic Map)
Exhibit 2 – Site Diagram with Soil Boring Locations and Analytical Data (Parcel 185)
Exhibit 3 – Site Diagram with Soil Boring Locations and Analytical Data (Parcel 186)

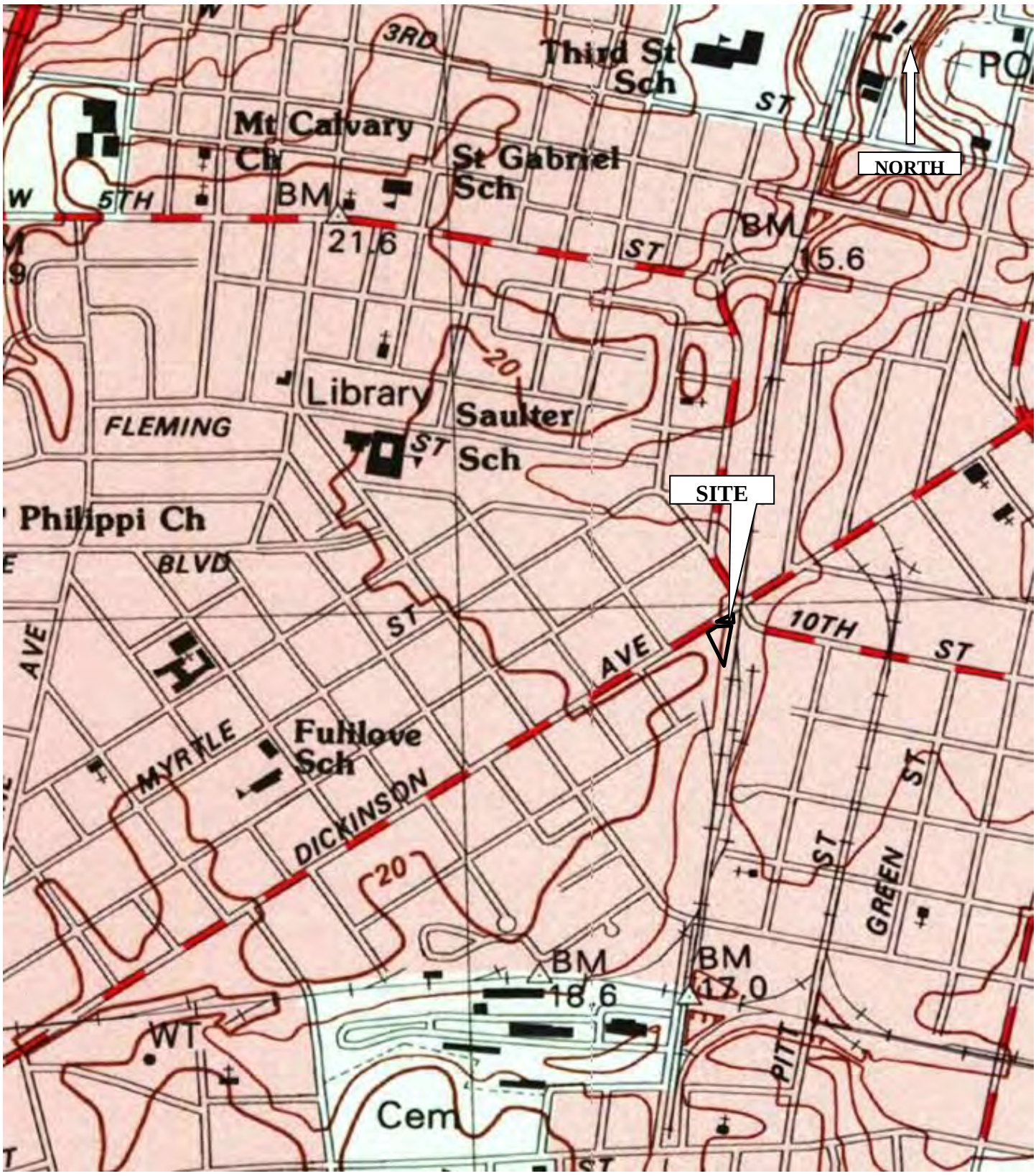


Diagram is for general location only

Site Vicinity Map
Parcel # 185 & 186
1001 Dickinson Avenue
Greenville, Pitt County, North Carolina

Reference: Greenville SW, NC USGS Quadrangle

Dated Year: 1998

Terracon

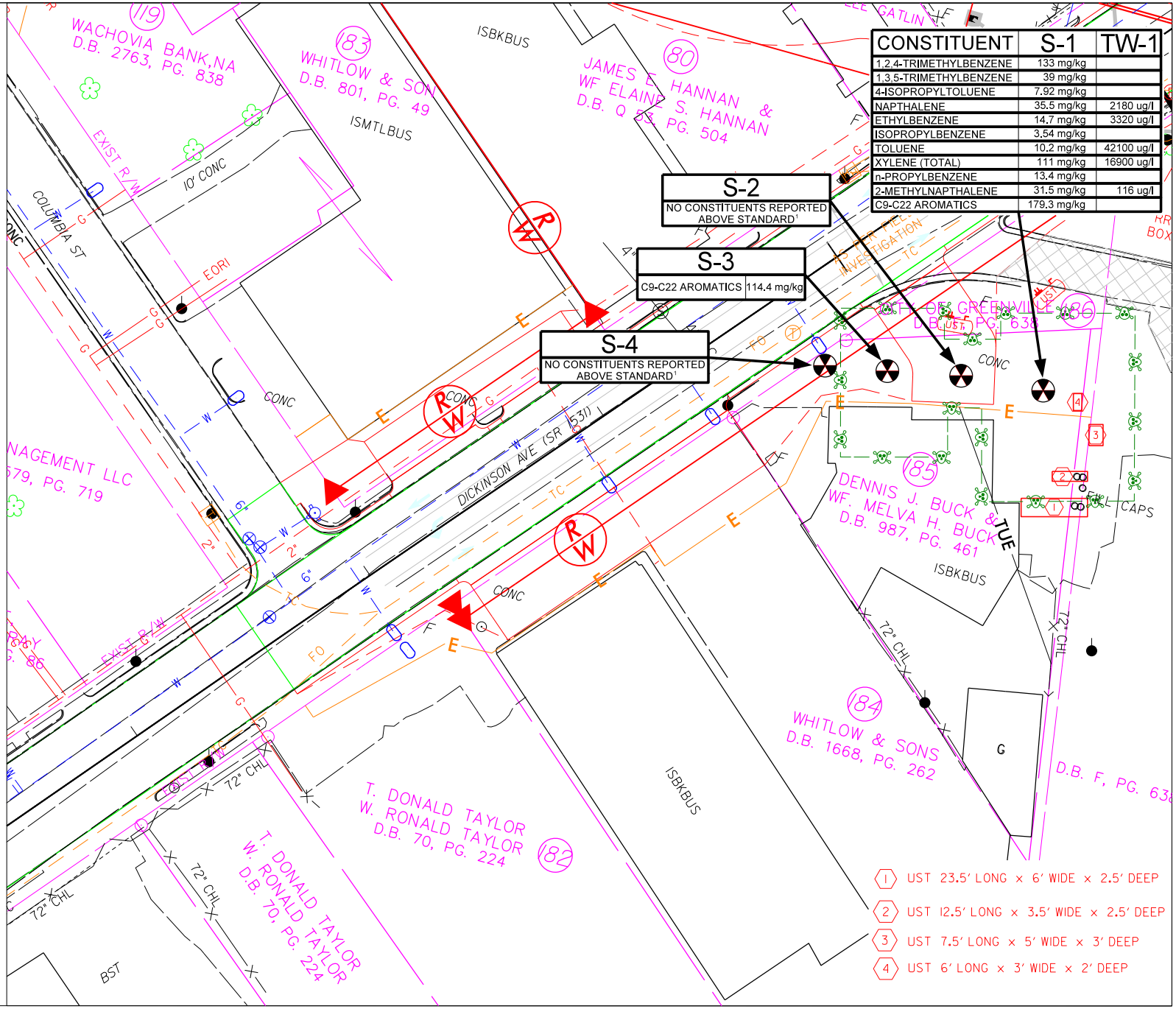
PROJECT NO.:	70127335
DATE: 10/2/12	CONTOUR INT: 2 meters
DRAWN: MDP	CHECK: LCH
SCALE: NTS	

LEGEND

- PROPERTY LINE
- EXISTING RIGHT OF WAY LINE
- PROPOSED RIGHT OF WAY LINE WITH IRON PIN AND CAP MARKER
- PROPOSED CONTROL OF ACCESS
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED EDGE OF TRAVEL
- PROPOSED CUT / FILL LINE
- PUE – PROPOSED PERMANENT UTILITY EASEMENT
- PROPOSED CATCH BASIN
- PROPOSED DRAINAGE PIPING
- ESTIMATED SOIL CONTAMINATION
- SOIL AND/OR GROUNDWATER SAMPLE LOCATION
- UST – POSSIBLE UST LOCATION
- APPROXIMATE LIMITS OF KNOWN UST

NOTES:

1. NCAC 2L GROUNDWATER QUALITY STANDARD MAXIMUM SOIL CONTAMINATE CONCENTRATION LEVELS (MSCCs)



CONSTITUENT	S-1	TW-1
1,2,4-TRIMETHYLBENZENE	133 mg/kg	
1,3,5-TRIMETHYLBENZENE	39 mg/kg	
4-ISOPROPYLTOLUENE	7.92 mg/kg	
NAPTHALENE	35.5 mg/kg	2180 ug/l
ETHYLBENZENE	14.7 mg/kg	3320 ug/l
ISOPROPYLBENZENE	3.54 mg/kg	
TOLUENE	10.2 mg/kg	42100 ug/l
XYLENE (TOTAL)	111 mg/kg	16900 ug/l
n-PROPYLBENZENE	13.4 mg/kg	
2-METHYLNAPTHALENE	31.5 mg/kg	116 ug/l
C9-C22 AROMATICS	179.3 mg/kg	

NC GRID NAD 83/95

0 25 50
FEET

SCALE:	1:50
DATE:	FEBRUARY 2013
DRAWN BY:	MJA
APPROVED BY:	LCH / BWS
PROJ. REFERENCE NUMBER:	35781.1.2
TIP NUMBER:	U-3315
COUNTY:	PITT
TERRACON PROJECT:	70127335

Terracon
5240 GREEN'S DAIRY ROAD RALEIGH, NC 27616
PH. (919) 873-2211 FAX. (919) 873-9555

SITE DIAGRAM WITH SOIL BORING LOCATIONS AND ANALYTICAL DATA

DENNIS J. BUCK & WF. MELVA H. BUCK PROPERTY - PARCEL 185
-Y10- STATION 15+00
1001 DICKINSON AVENUE
GREENVILLE, PITT COUNTY, NORTH CAROLINA

EXHIBIT 2

LEGEND

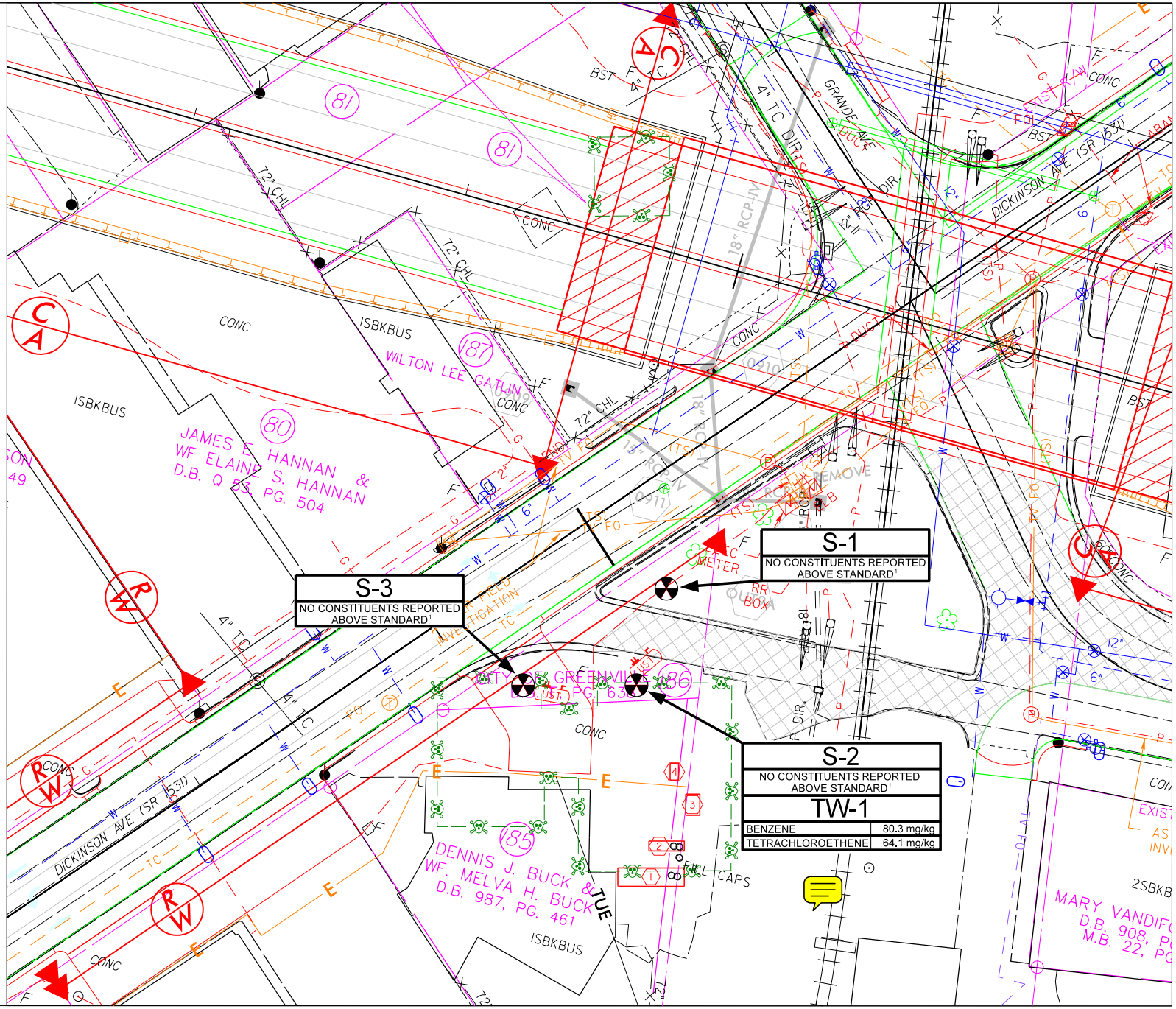
- PROPERTY LINE
- EXISTING RIGHT OF WAY LINE
- PROPOSED RIGHT OF WAY LINE WITH IRON PIN AND CAP MARKER
- PROPOSED CONTROL OF ACCESS
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED EDGE OF TRAVEL
- PROPOSED CUT / FILL LINE
- PUE – PROPOSED PERMANENT UTILITY EASEMENT
- PROPOSED CATCH BASIN
- PROPOSED DRAINAGE PIPING
- ESTIMATED SOIL CONTAMINATION
- SOIL AND/OR GROUNDWATER SAMPLE LOCATION
- UST – POSSIBLE UST LOCATION
- APPROXIMATE LIMITS OF KNOWN UST

NOTES:

1. NCDENR UST SECTION ACTION LEVEL NCAC 2L GROUNDWATER QUALITY STANDARD

N
NC GRID
NAD 83/95

0 25 50
FEET



SCALE:	1:50
DATE:	FEBRUARY 2013
DRAWN BY:	MJA
APPROVED BY:	LCH / SJK
PROJ. REFERENCE NUMBER:	35781.1.2
TIP NUMBER:	U-3315
COUNTY:	PITT
TERRACON PROJECT:	70127335

Terracon
5240 GREEN'S DAIRY ROAD RALEIGH, NC 27616
PH. (919) 873-2211 FAX. (919) 873-9555

SITE DIAGRAM WITH SOIL BORING LOCATIONS AND ANALYTICAL DATA

CITY OF GREENVILLE PROPERTY - PARCEL 186
-Y10- STATION 15+00
1011 DICKINSON AVENUE
GREENVILLE, PITT COUNTY, NORTH CAROLINA

EXHIBIT
2

APPENDICES

Appendix A – Boring Logs
Appendix B – Geophysical Survey Report
Appendix C – Laboratory Analytical Reports and Chain of Custody

APPENDIX A

Boring Logs

Parcel 185

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-1
PROJECT NO.: 70127335	DATE(S) DRILLED: September 7, 2012
PROJECT LOCATION: Parcel #185, 1001 Dickinson Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0 - 2.5*		NA	1429.0	Petroleum odor	0.0	Concrete
					0.5	Orange clay with grey staining
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	1353.0		2.5	
					3.0	Orange tan sand
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	1350.0		5.0	
					5.5	
					6.0	
					6.5	
					7.0	Orange sand
7.5 - 10.0		NA	1572.0		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	1077.0		10.0	Moist at 10 feet bgs
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15.0		NA	1268.0		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
15.5 - 17.5		NA	403.9		15.0	
					15.5	Well installed at 15.8 feet bgs
					16.0	
					16.5	
					17.0	Tan, grey sand
17.5 - 20.0		NA	NA		17.5	
					18.0	Water table at 18 feet bgs
					18.5	
					19.0	Orange, brown clay
					19.5	
					20.0	Boring Terminated at 20 feet bgs
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-2
PROJECT NO.: 70127335	DATE(S) DRILLED: September 7, 2012
PROJECT LOCATION: Parcel #185, 1001 Dickinson Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	5.5	No petroleum odor	0.0	Concrete
					0.5	Grey, orange clayey sand
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	9.1	Petroleum odor	2.5	
					3.0	
					3.5	
					4.0	Tan, grey clayey sand
					4.5	
5.0 - 7.5		NA	13.7		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	22.9		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5*		NA	36.6		10.0	
					10.5	
					11.0	
					11.5	
					12.0	White, grey sand
12.5 - 15		NA	52.6		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring Terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-3
PROJECT NO.: 70127335	DATE(S) DRILLED: September 7, 2012
PROJECT LOCATION: Parcel #185, 1001 Dickinson Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	463.1	Petroleum odor	0.0	Concrete
					0.5	Tan, grey sandy clay
					1.0	
					1.5	
					2.0	
2.5 - 5.0*		NA	497.1		2.5	
					3.0	Orange, tan sand
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	61.5		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	127.8		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	97.0		10.0	
					10.5	
					11.0	
					11.5	
					12.0	White, tan sand
12.5 - 15		NA	572.3		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring Terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-4
PROJECT NO.: 70127335	DATE(S) DRILLED: September 7, 2012
PROJECT LOCATION: Parcel #185, 1001 Dickinson Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	0.4	No petroleum odor	0.0	Concrete
					0.5	Tan, grey sandy clay
					1.0	
					1.5	
					2.0	
2.5 - 5.0*		NA	0.4		2.5	
					3.0	
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	0.6		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	0.7		7.5	
					8.0	Orange, tan sand
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	0.8		10.0	
					10.5	
					11.0	
					11.5	
					12.0	Tan sand
12.5 - 15		NA	0.8		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring Terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

Parcel 186

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-1
PROJECT NO.: 70127335	DATE(S) DRILLED: September 2, 2012
PROJECT LOCATION: Parcel #186, 1011 Dickinson Avenue Extension Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0 - 2.5		NA	0.0		0.0	Concrete
					0.5	
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	0.0		2.5	
					3.0	
					3.5	
					4.0	
					4.5	
5.0 - 7.5*		NA	0.0		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	0.0		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	0.0		10.0	
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15.0		NA	0.0		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring Terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
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SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-2
PROJECT NO.: 70127335	DATE(S) DRILLED: September 2, 2012
PROJECT LOCATION: Parcel #186, 1011 Dickinson Avenue Extension Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0 - 2.5		NA	0.1	No petroleum odor	0.0	Concrete
					0.5	Orange, tan sandy clay
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	0.5		2.5	
					3.0	
					3.5	
					4.0	Orange, grey, tan sandy clay
					4.5	
5.0 - 7.5		NA	1.7		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	4.8	Slight odor	7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5*		NA	8.0		10.0	
					10.5	
				Petroleum odor	11.0	Grey stained clay/moist
					11.5	
					12.0	
12.5 - 15.0		NA	13.5		12.5	
					13.0	White, tan, grey sand
					13.5	
					14.0	
					14.5	
15.5 - 17.5		NA	11.5		15.0	
					15.5	Water table at 15.9 feet bgs
					16.0	Orange, clayey sand/wet
					16.5	
					17.0	
17.5 - 20.0		NA	915.0		17.5	
					18.0	Grey, brown clay/wet
					18.5	
					19.0	
					19.5	Well set at 20.0 feet bgs
					20.0	Boring Terminated at 20.0 feet bgs
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
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SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-3
PROJECT NO.: 70127335	DATE(S) DRILLED: September 2, 2012
PROJECT LOCATION: Parcel #186, 1011 Dickinson Avenue Extension Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift & Steve Kerlin	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0 - 2.5		NA	1.8	No Petroleum odor	0.0	Concrete
					0.5	Orange, grey sandy clay
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	2.0		2.5	
					3.0	
					3.5	
					4.0	
					4.5	
5.0 - 7.5*		NA	2.4		5.0	
					5.5	
					6.0	Orange, tan sand
					6.5	
					7.0	
7.5 - 10.0		NA	1.8		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	1.6		10.0	
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15.0		NA	2.1	Slight odor	12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring Terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
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SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

APPENDIX B

Geophysical Survey Report

Parcel 185

Pyramid Project # 2012212

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

DENNIS BUCK PROPERTY (PARCEL 185)
1001 Dickinson Avenue
Greenville, North Carolina

September 25, 2012

Report prepared for: **Lori C. Hoffman, PE**
Stephen J. Kerlin
Terracon
5240 Green's Dairy Road
Raleigh, North Carolina 27616

Prepared by: _____
Mark J. Denil, P.G.

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. Box 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

Terracon
GEOPHYSICAL INVESTIGATION REPORT
DENNIS BUCK PROPERTY (PARCEL 185)
1001 Dickinson Avenue
Greenville, North Carolina

TABLE OF CONTENTS PAGE

FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Terracon across the proposed Right-of-Way (ROW) area at the Dennis Buck property (Parcel 185) located at 1001 Dickinson Avenue in Greenville, North Carolina. Conducted on August 24 and 29, 2012, the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment for state project number U-3315 (WBS Element 35781.1.2) to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the proposed ROW area of the site.

The Dennis Buck property consists of an inactive service station formerly known as Flemings Gas Station. The property has a vacant garage and the former pump island areas appear to lie between the building and West 10th Street. UST valve covers indicate the presence of four USTs that are located immediately east of the garage. The proposed ROW area encompasses the property that lies between the garage and West 10th Street and consists primarily of asphalt and gravel surfaces. However, because one of the known USTs is located along the southern edge of the proposed ROW area, the geophysical survey area was extended across the approximate foot prints of the four known USTs. The geophysical survey area has a maximum length and width of 160 feet and 100 feet, respectively.

Terracon representatives Mr. Stephen Kerlin and Ms. Lori Hoffman, PE provided information and maps identifying the geophysical survey area to Mark Denil, PG prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and the property 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 (proposed ROW) area using measuring tapes 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 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 easterly-westerly trending, 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.

The GPR investigation was conducted across the areas containing steel reinforced concrete and selected EM61 differential anomalies 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.

Verbal, preliminary geophysical results obtained from the site were provided to Mr. Kerlin or Ms Hoffman during the week of September 3, 2012.

3.0 DISCUSSION OF RESULTS

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.

The linear, EM61 bottom coil anomalies intersecting grid coordinates X=45 Y=45, X=62 Y=55, X=85 Y=54, X=95 Y=55, and X=130 Y=78 are probably in response to buried utility lines or conduits. Similarly, the linear, bottom coil anomalies intersecting grid coordinates X=170 Y=12, X=170 Y=25 and X=170 Y=32 and any other linear bottom coil anomalies shown in Figure 2 may be in response to buried conduits. GPR data suggest the long, EM61 anomaly that is centered near grid coordinates X=100 Y=44 is in responses to the steel reinforced walkway that runs along the northerly side of the garage, the building itself and to a possible buried conduit that runs parallel to the building wall.

The four known, USTs are centered near grid coordinates X=140 Y=10, X=146 Y=21, X=156 Y=34, and X=151 Y=44. The approximate lengths, widths and depths of the four USTs are provided in Figures 2 and 3. The UST centered near grid coordinates X=151 Y=44 appears to lie along the edge of the proposed ROW area or slightly within the proposed ROW area. Based on the GPR data, the foot prints of the four known USTs were marked in the field using orange spray paint.

GPR data acquired across the EM61 differential anomaly centered near grid coordinates X=112 Y=77 detected a possible (low confidence) metallic UST or a conduit junction. Based on the GPR data, the possible UST or conduit junction is approximately 8.5 feet long, 2.5 feet wide and buried 1.2 feet below pavement. GPR images obtained along a portion of survey lines X=112 and Y=77, which cross the possible UST or conduit junction and a photograph showing the location of the possible UST are presented in **Figure 4.** The foot print of the possible UST was marked in the field using orange marking paint.

GPR data acquired across the EM61 differential anomaly centered near grid coordinates X=148 Y=85 detected a second, possible (low confidence), metallic UST or a conduit junction. Based on the GPR data, this second, possible UST or conduit junction is approximately 6.0 feet long, 3.5 feet wide and buried 2.0 feet below pavement. A portion of the possible UST appears to lie beneath the edge of West 10th Street. A GPR image obtained along a survey line beginning at X=140 Y=80 and ending at X=140 Y=80, which crosses the possible UST or conduit junction and a photograph showing the

location of the possible UST are presented in **Figure 5.** The foot print of the possible UST was marked in the field using orange marking paint.

The remaining EM61 anomalies shown in Figures 2 and 3 and not mentioned in this report are probably in response to known surface objects, conduits, or to small, insignificant metal debris/objects.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW area of the Dennis Buck property (Parcel 185) located at 1001 Dickinson Avenue in Greenville, 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 portion of the site.

- The linear, EM61 bottom coil anomalies intersecting grid coordinates X=45 Y=45, X=62 Y=55, X=85 Y=54, X=95 Y=55, and X=130 Y=78 are probably in response to buried utility lines or conduits.

- The four known, USTs are centered near grid coordinates X=140 Y=10, X=146 Y=21, X=156 Y=34, and X=151 Y=44. The UST centered near grid coordinates X=151 Y=44 appears to lie along the edge of the proposed ROW area or slightly within the proposed ROW area.

- GPR data acquired across the EM61 differential anomaly centered near grid coordinates X=112 Y=77 detected a possible (low confidence) metallic UST or a conduit junction. Based on the GPR data, the possible UST or conduit junction is approximately 8.5 feet long, 2.5 feet wide and buried 1.2 feet below pavement.

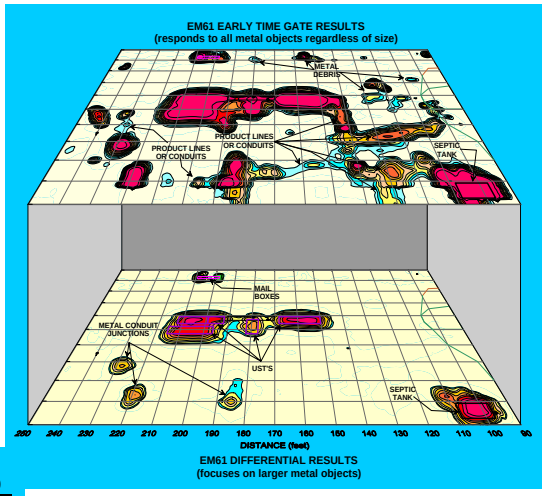
- GPR data acquired across the EM61 differential anomaly centered near grid coordinates X=148 Y=85 detected a second, possible (low confidence), metallic UST or a conduit

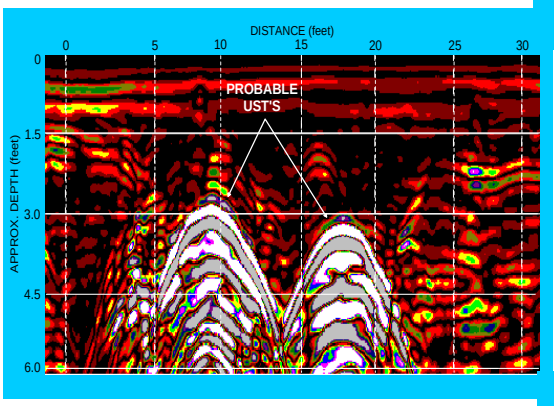
junction. Based on the GPR data, this second, possible UST or conduit junction is approximately 6.0 feet long, 3.5 feet wide and buried 2.0 feet below pavement. A portion of the possible UST appears to lie beneath the edge of West 10th Street.

- The remaining EM61 anomalies shown in Figures 2 and 3 are probably in response to known surface objects, buried lines, conduits, or to small, insignificant metal debris/objects.

5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for Terracon 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. The EM61 and GPR results obtained for this project have detected two, possible metallic USTs or conduit junctions. However, additional unknown metallic USTs may lie beneath the site that were not detected by the geophysical investigation.

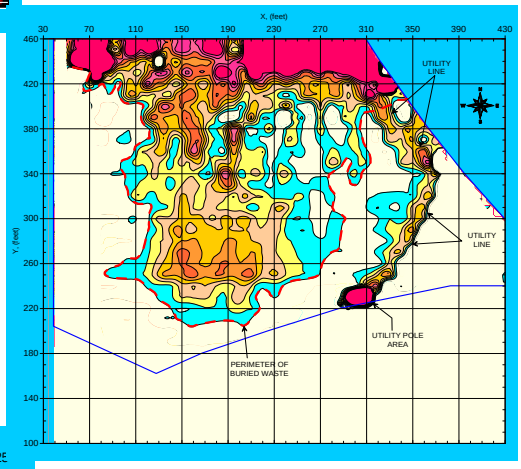


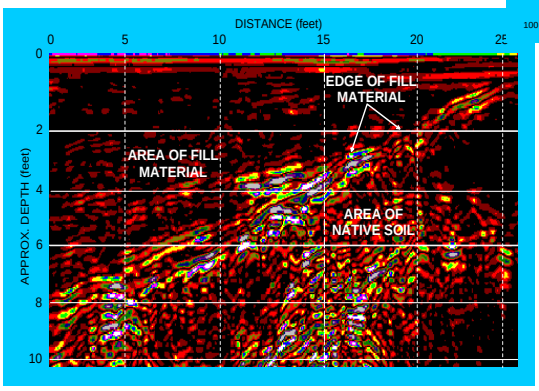


FIGURES

(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 area at the Dennis Buck property (Parcel 185) on August 24, 2012.

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation across the areas containing steel reinforced concrete and selected EM61 differential anomalies at the Parcel 185 site on August 29, 2012.

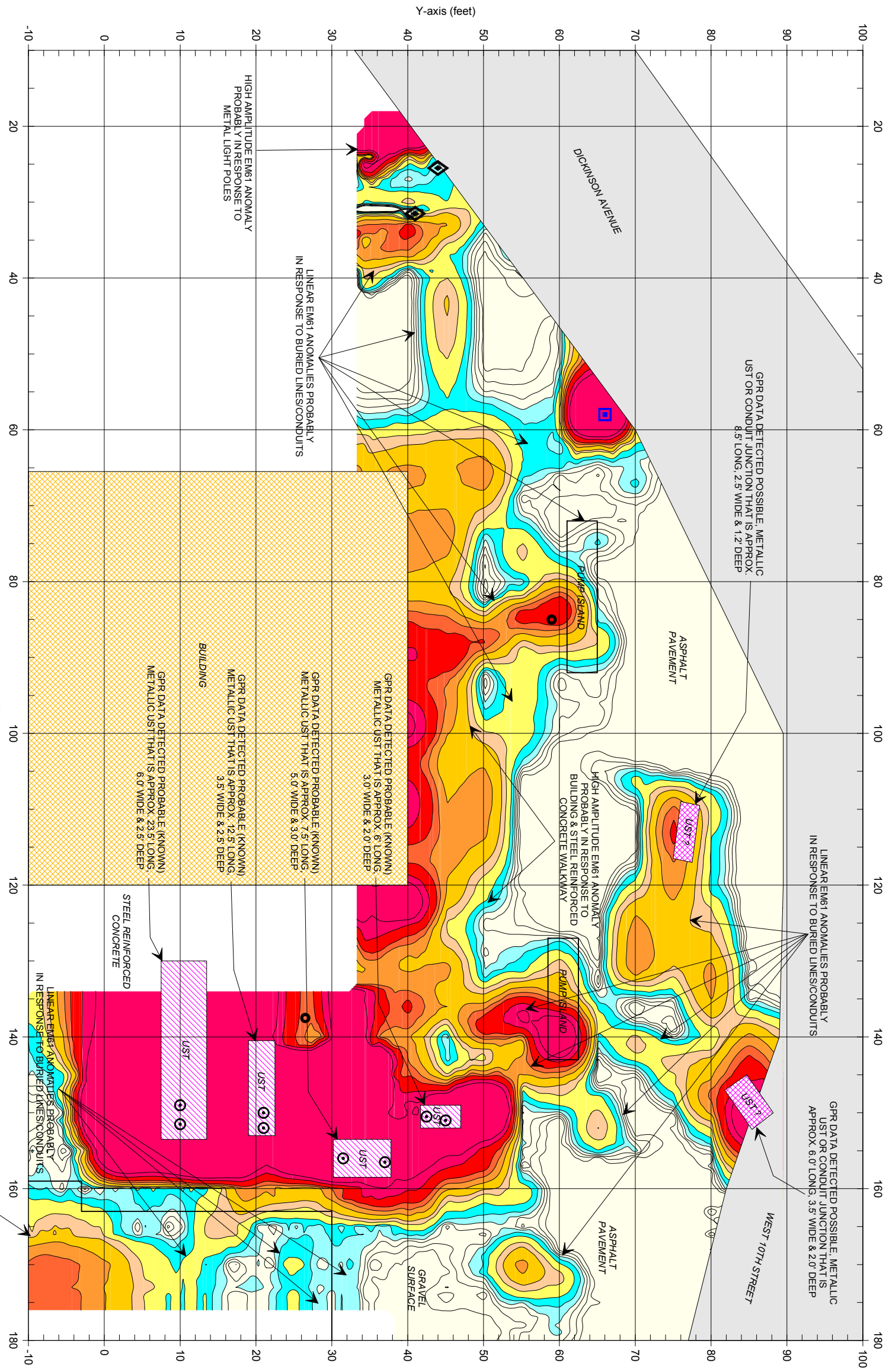
The photograph shows the Dennis Buck property (Parcel 185) located at the intersection of Dickinson Avenue and West 10th Street in Greenville, North Carolina. The photograph is viewed in a westerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/25/12	DRWN	MJD
SITE	DENNIS BUCK PROPERTY (PARCEL 185)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2012-212	FIGURE	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1



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 EM61 survey was conducted on August 24, 2012 using a Geonics EM61 instrument. Ground penetrating radar (GPR) scans were also conducted across areas containing steel reinforced concrete and selected EM61 anomalies on August 29, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

Excluding the four probable (known) USTs centered near grid coordinates X=147 Y=30, the geophysical investigation detected two possible, metallic USTs or conduit junctions centered near grid coordinates X=112 Y=77 and X=148 Y=85.

PYRAMID
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CLIENT	TERRACON CONSULTANTS, INC.		DATE	09/25/12	DRWN MJD
SITE	DENNIS BUCK PROPERTY (PARCEL 185)		LAY		CK'D
CITY	GREENVILLE	STATE NORTH CAROLINA			GWG
TITLE	GEOPHYSICAL RESULTS		J.NO.	2012-212	FIGURE

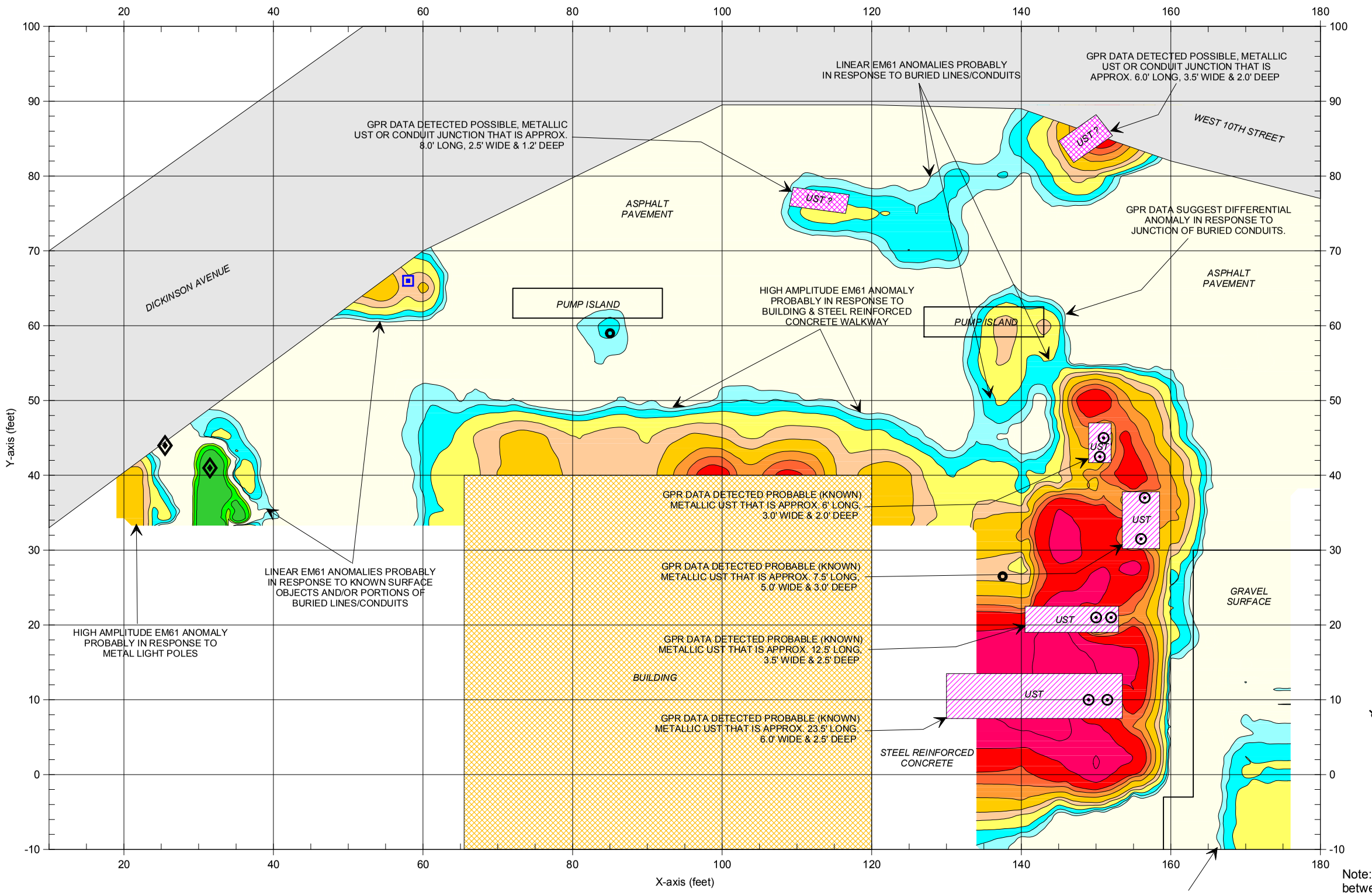
GRAPHIC SCALE IN FEET

EM61 METAL DETECTION
(BOTTOM COIL RESULTS)

FIGURE 2

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 3



APPROXIMATE NORTH

LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- WATER METER
- UTILITY POLE
- UTILITY LINE BOX
- METAL VALVE COVER
- UST VALVE COVER
- UST? — POSSIBLE UST OR CONDUIT JUNCTION, AS SUGGESTED BY GEOPHYSICAL DATA
- UST — APPROX. FOOT PRINT OF PROBABLE (KNOWN) UST, AS SUGGESTED BY GEOPHYSICAL DATA

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -250 -100 -90 -30 -10 -5 -3 -1 0 1 3 5 10 30 90 100 250 400 5000

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 miscellaneous, buried, metal debris. The EM61 survey was conducted on August 24, 2012 using a Geonics EM61 instrument. Ground penetrating radar (GPR) scans were conducted across areas containing steel reinforced concrete and selected EM61 anomalies on August 29, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

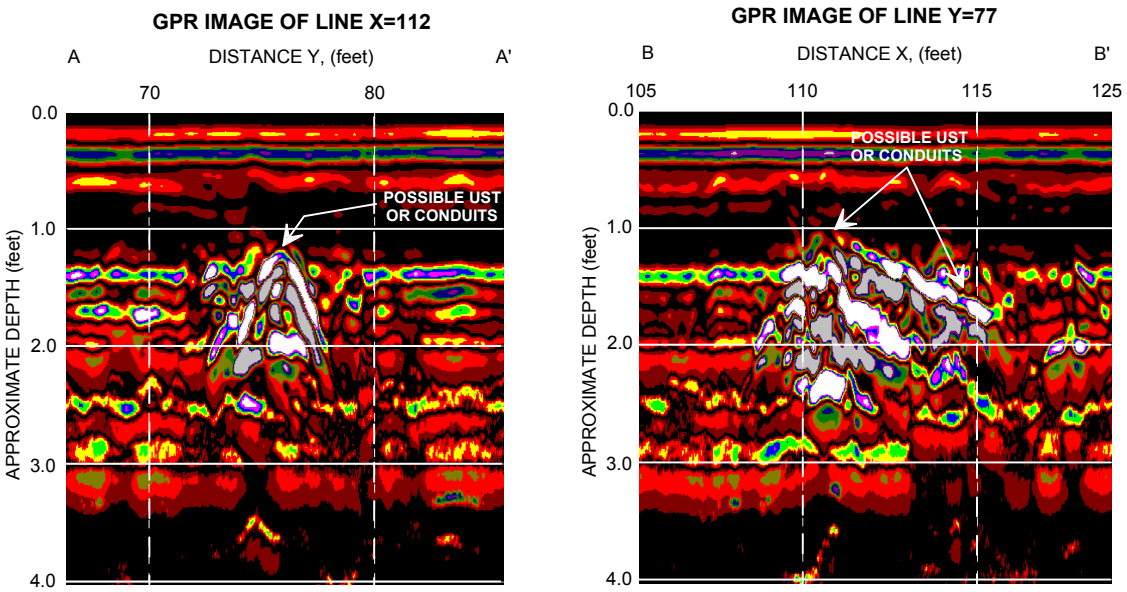
Excluding the four probable (known) USTs centered near grid coordinates X=147 Y=30, the geophysical investigation detected two possible, metallic USTs or conduit junctions centered near grid coordinates X=112 Y=77 and X=148 Y=85.

GRAPHIC SCALE IN FEET

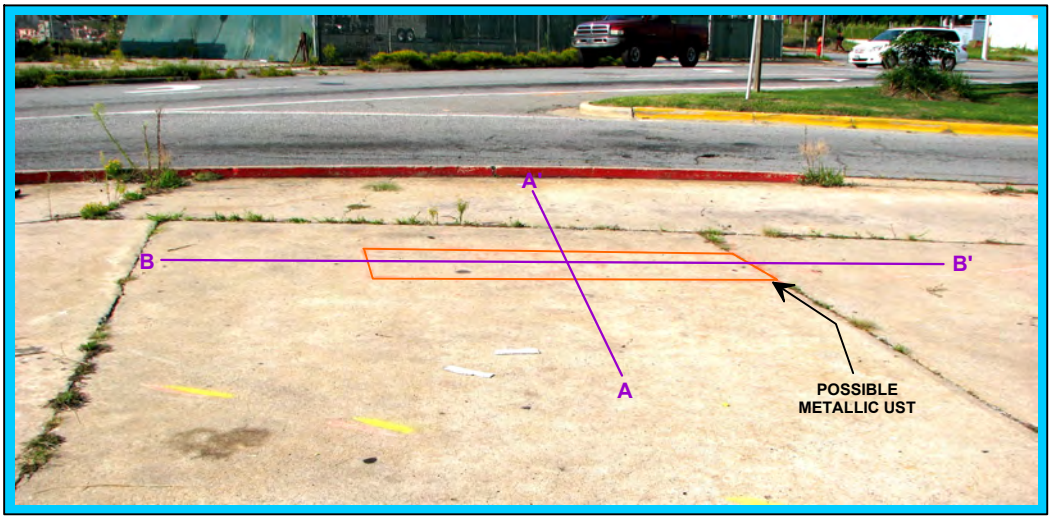
DRWN	MJD		FIGURE
CHKD			
DATE	09/25/12	DWG	2012-212
LAY			
J.-NO.			

CLIENT: TERRACON CONSULTANTS, INC.
SITE: DENNIS BUCK PROPERTY (PARCEL 185)
CITY: GREENVILLE
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.



The GPR images obtained along a portion of survey lines X=112 and Y=77 recorded higher amplitude anomalies that may possibly be in response to a metallic UST or a conduit junction buried approximately 1.2 feet below present grade. The possible (low confidence) UST or junction is centered near grid coordinates X=112 Y=77. The solid purple lines labeled AA' and BB' in the photograph below represent the approximate locations of the GPR images.



The orange rectangle in the photograph represents the approximate perimeter of a possible UST or a conduit junction. Centered near grid coordinates X=112 Y=77, the possible UST is approximately 8.5 feet long, 2.5 feet wide and buried 1.2 feet below pavement. The solid purple lines in the photograph represent the approximate locations of the GPR images shown above. The photograph is viewed in a northerly direction.

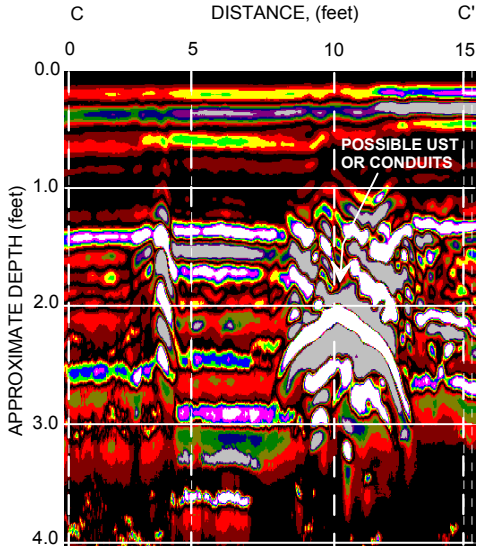
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/25/12	DRWN	MJD
SITE	DENNIS BUCK PROPERTY (PARCEL 185)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JOB	2012-212	FIGURE	

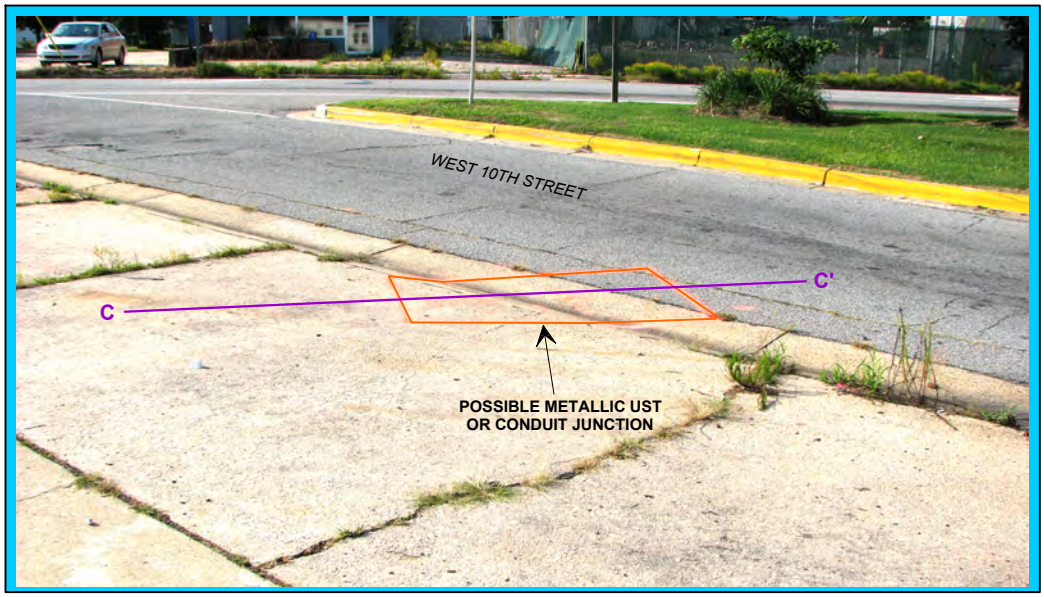
GPR IMAGES ACROSS
POSSIBLE UST OR JUNCTION

FIGURE 4

GPR IMAGE FROM GRID COORDINATES
X=140 Y=80 TO X=152 Y=88



The GPR image obtained across the EM61 differential anomaly centered near grid coordinates X=148 Y=85 recorded a higher amplitude, hyperbolic anomaly that may possibly be in response to a metallic UST or a conduit junction buried approximately 2.0 feet below present grade. The solid purple line labeled CC' in the photograph below represents the approximate location of the GPR image.



The orange rectangle in the photograph represents the approximate perimeter of a possible UST or a conduit junction. Centered near grid coordinates X=148 Y=85, the possible UST or junction is approximately 6.0 feet long, 3.5 feet wide and buried 2.0 feet below pavement. The solid purple line in the photograph represents the approximate location of the GPR image shown above. The photograph is viewed in a northerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.		DATE 09/25/12	DRWN MJD	GPR IMAGE ACROSS SECOND POSSIBLE UST OR JUNCTION
SITE	DENNIS BUCK PROPERTY (PARCEL 185)		LAY	CHKD	
CITY	GREENVILLE	STATE NORTH CAROLINA	DWG		
TITLE	GEOPHYSICAL RESULTS		JOB 2012-212	FIGURE	FIGURE 5

Parcel 186

Pyramid Project # 2012212

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

CITY OF GREENVILLE PROPERTY (PARCEL 186)
1011 Dickinson Avenue
Greenville, North Carolina

September 26, 2012

Report prepared for: **Lori C. Hoffman, PE**
Stephen J. Kerlin
Terracon
5240 Green's Dairy Road
Raleigh, North Carolina 27616

Prepared by: _____
Mark J. Denil, P.G.

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. Box 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

Terracon
GEOPHYSICAL INVESTIGATION REPORT
CITY OF GREENVILLE PROPERTY (PARCEL 186)
1011 Dickinson Avenue
Greenville, North Carolina

TABLE OF CONTENTS PAGE

FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Terracon across the City of Greenville property (Parcel 186) located at 1011 Dickinson Avenue in Greenville, North Carolina. Conducted on August 22 and 29, 2012, the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment for state project number U-3315 (WBS Element 35781.1.2) to determine if unknown, metallic, underground storage tanks (USTs) were present beneath Parcel 186.

The City of Greenville property is a triangular-shaped, grass-covered lot at the intersection of Dickinson Avenue and West 10th Street. A set of railroad tracks border the southeastern perimeter of the property. The lot contains a utility line-related building for the adjacent railroad and several other utility line-related boxes, a storm sewer drain, utility poles, support poles and other miscellaneous equipment scattered across the lot. The geophysical survey area has a maximum length and width of 90 feet and 78 feet, respectively.

Terracon representatives Mr. Stephen Kerlin and Ms. Lori Hoffman, PE provided information and maps identifying the geophysical survey area to Mark Denil, PG prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and the property 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 site area 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 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 northeast-southwest trending, 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.

The GPR investigation was conducted across selected EM61 differential anomalies 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.

Verbal, preliminary geophysical results obtained from the site were provided to Mr. Kerlin or Ms Hoffman during the week of September 3, 2012.

3.0 DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results are presented in **Figure 2.** 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.

The linear, EM61 bottom coil anomalies intersecting grid coordinates X=30 Y=13, X=90 Y=60 and X=95 Y=33 are probably in response to buried utility lines or conduits. GPR data suggest the EM61

bottom coil anomaly centered near grid coordinates X=52 Y=14 is in response to buried miscellaneous metal debris or small objects. GPR data suggest the EM61 differential anomalies centered near grid coordinates X=90 Y=74, X=97 Y=15 and X=97 Y=34 are probably in response to known, surface objects, such as metal support poles, drain grate, utility line valve covers, and/or portions of the buried utility lines. The differential anomaly centered near grid coordinates X=78 Y=55 is probably in response to utility line-related equipment.

The remaining EM61 anomalies shown in Figure 2 and not mentioned in this report are probably in response to known surface objects, conduits or to small, insignificant, metal debris/objects. The geophysical investigation suggests that the surveyed portion of the City of Greenville property (Parcel 186) does not contain metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the City of Greenville property (Parcel 186) located at 1011 Dickinson Avenue in Greenville, 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 portion of the site.

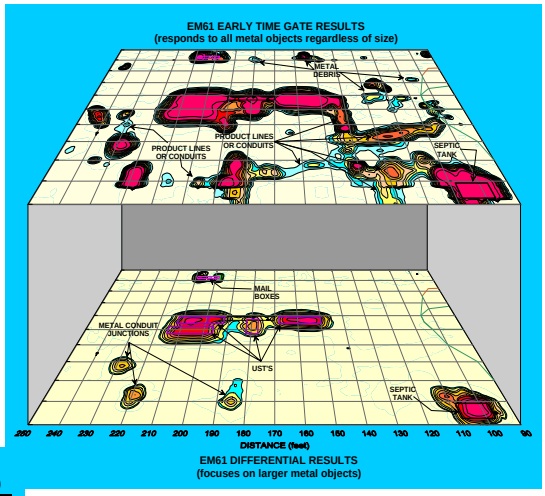
- The linear, EM61 bottom coil anomalies intersecting grid coordinates X=30 Y=13, X=90 Y=60 and X=95 Y=33 are probably in response to buried utility lines or conduits.

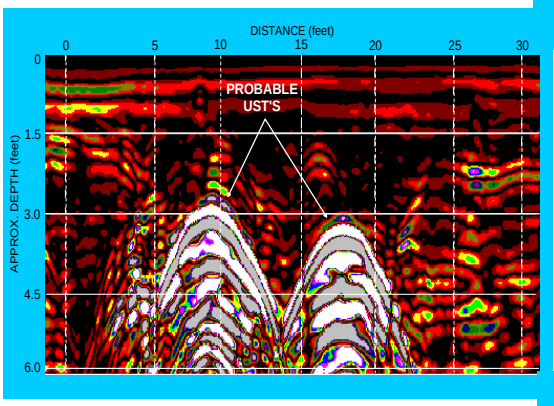
- GPR data suggest the EM61 differential anomalies centered near grid coordinates X=90 Y=74, X=97 Y=15 and X=97 Y=34 are probably in response to known, surface objects, such as metal support poles, drain grate, utility line valve covers, and/or portions of the buried utility lines.

- The geophysical investigation suggests that the surveyed portion of Parcel 186 does not contain metallic USTs.

5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for Terracon Consultants, Inc. 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. The EM61 and GPR results obtained for this project have not conclusively determined that the area of interest does not contain buried, metallic USTs, but that none were detected.

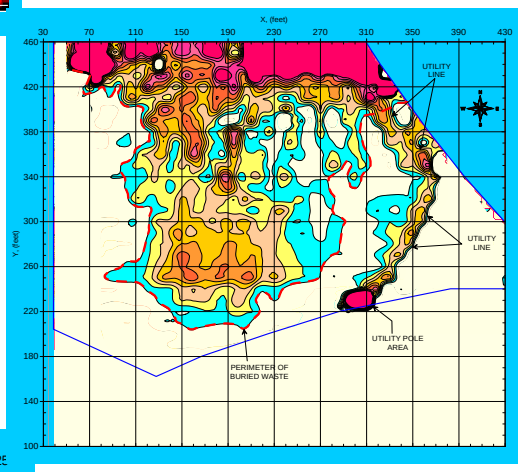


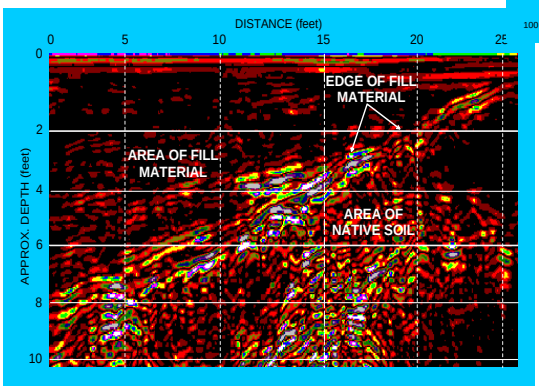


FIGURES

(on the following pages)

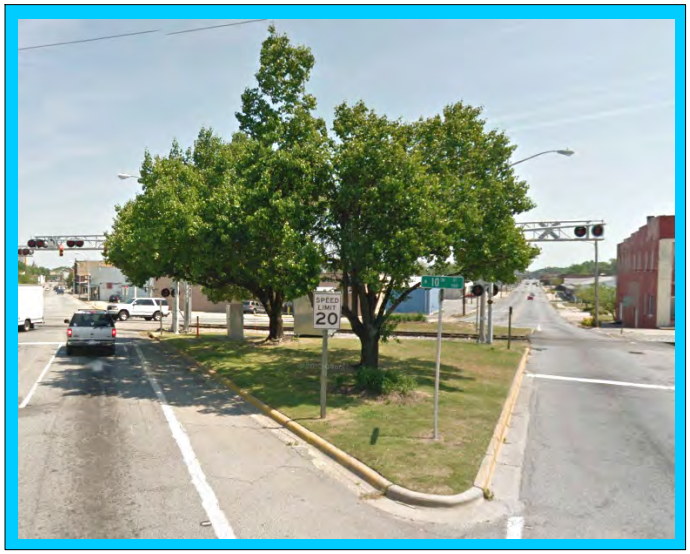
Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.





The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the City of Greenville property (Parcel 186) on August 22, 2012.

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation across selected EM61 differential anomalies at the Parcel 186 site on August 29, 2012.



The photograph shows the City of Greenville property (Parcel 186) located at the intersection of Dickinson Avenue and West 10th Street in Greenville, North Carolina. The photograph is viewed in an easterly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

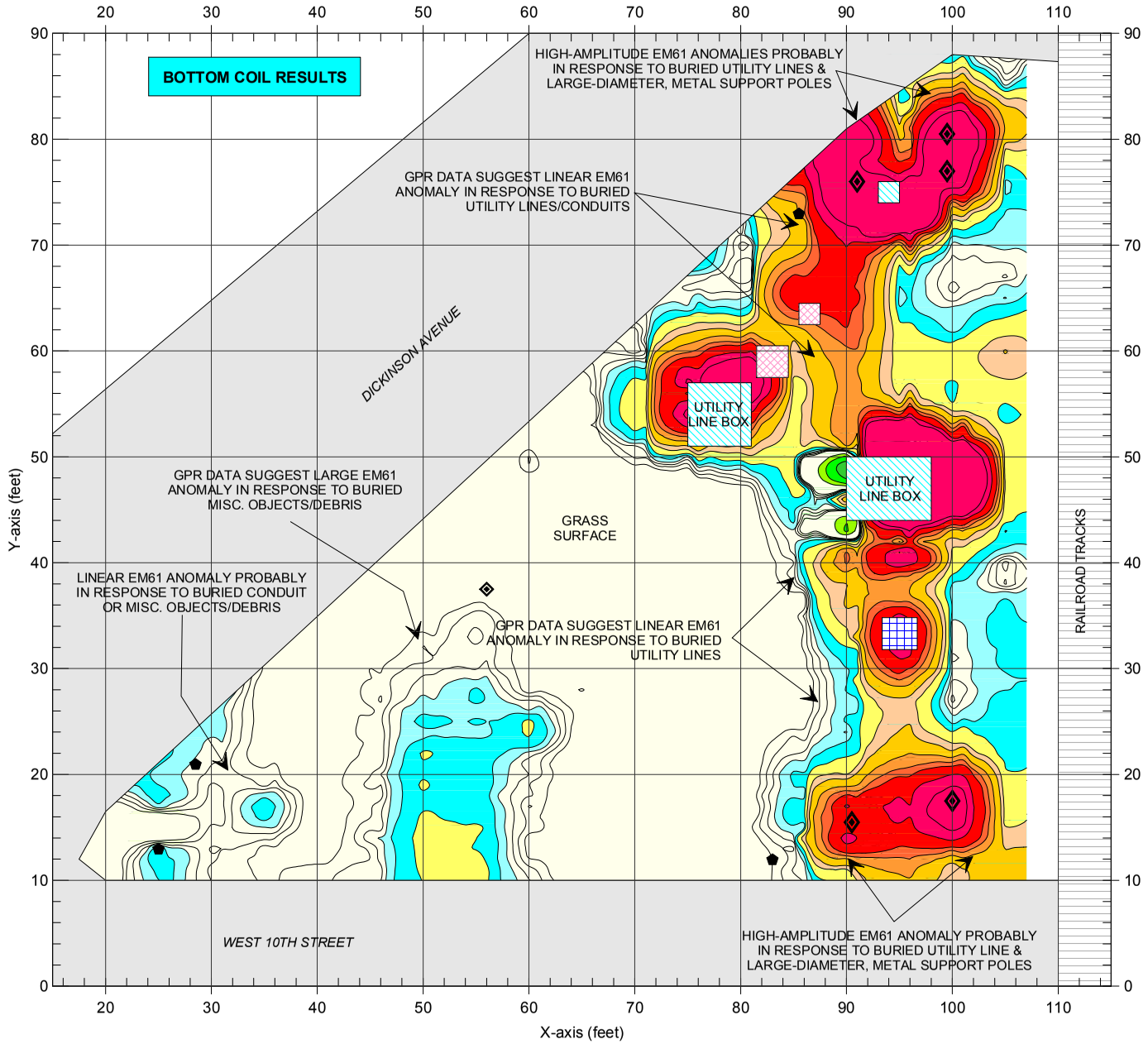
CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/26/12	DRWN	MJD
SITE	CITY OF GREENVILLE PROPERTY (PARCEL 186)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2012-212	FIGURE	

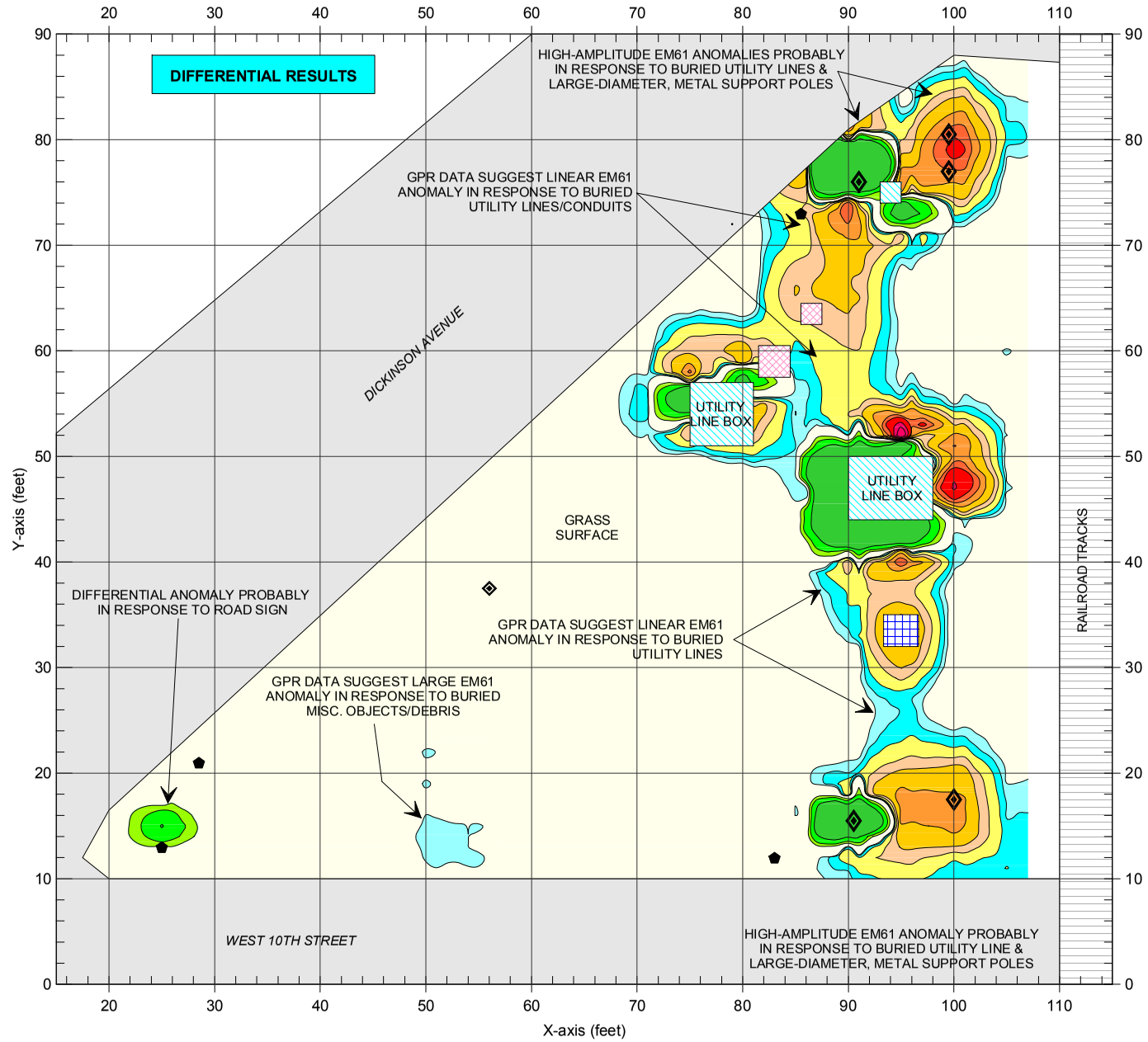
GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1

EM61 METAL DETECTION RESULTS

FIGURE 2





LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- RAILROAD TRACKS
- UTILITY LINE BOX
- METAL COVER PLATE
- STORM SEWER GRATE
- UTILITY POLE
- BURIED GAS LINE MARKER
- PROPOSED RIGHT-OF-WAY MARKER
- ROAD SIGN

N E S W

APPROXIMATE NORTH

EM61 METAL DETECTION RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -50 -30 -20 -10 -5 5 10 20 30 50 75 100 150 200 300 400 500 750 1000

The contour plot shows the bottom coil (most sensitive) and differential results of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on August 22, 2012 using a Geonics EM61 instrument.

Ground penetrating radar (GPR) data were acquired across selected EM61 anomalies on August 29, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

GRAPHIC SCALE IN FEET

DATE	09/26/12	J.-NO.	2012-212
DRWN	MJD	FIGURE	
CHKD			

CLIENT: TERRACON CONSULTANTS, INC.

SITE: CITY OF GREENVILLE PROPERTY (PARCEL 186)

CITY: GREENVILLE

STATE: NORTH CAROLINA

TITLE: GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

APPENDIX C

Laboratory Analytical Reports and Chain of Custody

Parcel 185

Laboratory Report of Analysis

To: Steve Kerlin
Terracon
5240 Greens Dairy Rd
Raleigh, NC 27616

Report Number: **31202869**

Client Project: **70127335 U-3315 Parcel#185**

Dear Steve Kerlin,

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. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. 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 Michael D. Page 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.

Michael D. Page Date
Project Manager
michael.page@sgs.com

Print Date: 09/17/2012 N.C. Certification # 481

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
S-1	31202869001	09/07/2012 13:37	09/10/2012 14:45	Soil-Solid as dry weight
S-2	31202869002	09/07/2012 14:35	09/10/2012 14:45	Soil-Solid as dry weight
S-3	31202869003	09/07/2012 15:03	09/10/2012 14:45	Soil-Solid as dry weight
S-4	31202869004	09/07/2012 15:35	09/10/2012 14:45	Soil-Solid as dry weight
TW-1	31202869005	09/07/2012 14:13	09/10/2012 14:45	Water

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869001-G
Lab Project ID: 31202869

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 82.00

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	**1020**		140	mg/kg	40	09/17/2012 12:06
Surrogates						
4-Bromofluorobenzene	98.5		70.0-130	%	40	09/17/2012 12:06

Batch Information

Analytical Batch: **VGC2142**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX4007**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 10:50**
Prep Initial Wt./Vol.: **6.97 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

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Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869001-I
Lab Project ID: 31202869

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 82.00

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**1210**		35.6	mg/kg	5	09/13/2012 18:40
Surrogates						
o-Terphenyl	84.4		40.0-140	%	5	09/13/2012 18:40

Batch Information

Analytical Batch: **XGC2530**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **34.28 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

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Results of **S-2**

Client Sample ID: **S-2**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869002-G
Lab Project ID: 31202869

Collection Date: 09/07/2012 14:35
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 90.80

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		4.00	mg/kg	1	09/12/2012 18:45
Surrogates						
4-Bromofluorobenzene	102		70.0-130	%	1	09/12/2012 18:45

Batch Information

Analytical Batch: **VGC2136**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3986**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 10:57**
Prep Initial Wt./Vol.: **5.5 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

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Results of **S-2**

Client Sample ID: **S-2**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869002-I
Lab Project ID: 31202869

Collection Date: 09/07/2012 14:35
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 90.80

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND		7.04	mg/kg	1	09/13/2012 0:06
Surrogates						
o-Terphenyl	91.0		40.0-140	%	1	09/13/2012 0:06

Batch Information

Analytical Batch: **XGC2517**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **31.29 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

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Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869003-G
Lab Project ID: 31202869

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 89.60

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	**76.7**		12.8	mg/kg	4	09/12/2012 19:35
Surrogates						
4-Bromofluorobenzene	109		70.0-130	%	4	09/12/2012 19:35

Batch Information

Analytical Batch: **VGC2136**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3986**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 11:00**
Prep Initial Wt./Vol.: **6.98 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

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Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869003-I
Lab Project ID: 31202869

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 89.60

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**721**		34.8	mg/kg	5	09/13/2012 19:08
Surrogates						
o-Terphenyl	90.0		40.0-140	%	5	09/13/2012 19:08

Batch Information

Analytical Batch: **XGC2530**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **32.1 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

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Results of **S-4**

Client Sample ID: **S-4**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869004-G
Lab Project ID: 31202869

Collection Date: 09/07/2012 15:35
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 90.70

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.67	mg/kg	1	09/12/2012 16:14
Surrogates						
4-Bromofluorobenzene	102		70.0-130	%	1	09/12/2012 16:14

Batch Information

Analytical Batch: **VGC2136**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3986**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 11:04**
Prep Initial Wt./Vol.: **6 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

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Results of **S-4**

Client Sample ID: **S-4**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869004-I
Lab Project ID: 31202869

Collection Date: 09/07/2012 15:35
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 90.70

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND		7.07	mg/kg	1	09/13/2012 1:02
Surrogates						
o-Terphenyl	104		40.0-140	%	1	09/13/2012 1:02

Batch Information

Analytical Batch: **XGC2517**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **31.18 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

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Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869005-A
Lab Project ID: 31202869

Collection Date: 09/07/2012 14:13
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,1,1-Trichloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,1,2,2-Tetrachloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,1,2-Trichloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,1-Dichloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,1-Dichloroethene	ND		2000	ug/L	2000	09/11/2012 18:56
1,1-Dichloropropene	ND		2000	ug/L	2000	09/11/2012 18:56
1,2,3-Trichlorobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
1,2,3-Trichloropropane	ND		2000	ug/L	2000	09/11/2012 18:56
1,2,4-Trichlorobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
1,2,4-Trimethylbenzene	ND		2000	ug/L	2000	09/11/2012 18:56
1,2-Dibromo-3-chloropropane	ND		10000	ug/L	2000	09/11/2012 18:56
1,2-Dibromoethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,2-Dichlorobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
1,2-Dichloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
1,2-Dichloropropane	ND		2000	ug/L	2000	09/11/2012 18:56
1,3,5-Trimethylbenzene	ND		2000	ug/L	2000	09/11/2012 18:56
1,3-Dichlorobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
1,3-Dichloropropane	ND		2000	ug/L	2000	09/11/2012 18:56
1,4-Dichlorobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
2,2-Dichloropropane	ND		2000	ug/L	2000	09/11/2012 18:56
2-Butanone	ND		50000	ug/L	2000	09/11/2012 18:56
2-Chlorotoluene	ND		2000	ug/L	2000	09/11/2012 18:56
2-Hexanone	ND		10000	ug/L	2000	09/11/2012 18:56
4-Chlorotoluene	ND		2000	ug/L	2000	09/11/2012 18:56
4-Isopropyltoluene	ND		2000	ug/L	2000	09/11/2012 18:56
4-Methyl-2-pentanone	ND		10000	ug/L	2000	09/11/2012 18:56
Acetone	ND		50000	ug/L	2000	09/11/2012 18:56
Benzene	ND		2000	ug/L	2000	09/11/2012 18:56
Bromobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
Bromochloromethane	ND		2000	ug/L	2000	09/11/2012 18:56
Bromodichloromethane	ND		2000	ug/L	2000	09/11/2012 18:56
Bromoform	ND		2000	ug/L	2000	09/11/2012 18:56
Bromomethane	ND		2000	ug/L	2000	09/11/2012 18:56
n-Butylbenzene	ND		2000	ug/L	2000	09/11/2012 18:56
Carbon disulfide	ND		2000	ug/L	2000	09/11/2012 18:56
Carbon tetrachloride	ND		2000	ug/L	2000	09/11/2012 18:56
Chlorobenzene	ND		2000	ug/L	2000	09/11/2012 18:56
Chloroethane	ND		2000	ug/L	2000	09/11/2012 18:56
Chloroform	ND		2000	ug/L	2000	09/11/2012 18:56
Chloromethane	ND		2000	ug/L	2000	09/11/2012 18:56
Dibromochloromethane	ND		2000	ug/L	2000	09/11/2012 18:56
Dibromomethane	ND		2000	ug/L	2000	09/11/2012 18:56

Print Date: 09/17/2012

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Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869005-A
Lab Project ID: 31202869

Collection Date: 09/07/2012 14:13
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND		10000	ug/L	2000	09/11/2012 18:56
cis-1,3-Dichloropropene	ND		2000	ug/L	2000	09/11/2012 18:56
trans-1,3-Dichloropropene	ND		2000	ug/L	2000	09/11/2012 18:56
Diisopropyl Ether	ND		2000	ug/L	2000	09/11/2012 18:56
Ethyl Benzene	**3320**		2000	ug/L	2000	09/11/2012 18:56
Hexachlorobutadiene	ND		2000	ug/L	2000	09/11/2012 18:56
Isopropylbenzene (Cumene)	ND		2000	ug/L	2000	09/11/2012 18:56
Methyl iodide	ND		2000	ug/L	2000	09/11/2012 18:56
Methylene chloride	ND		10000	ug/L	2000	09/11/2012 18:56
Naphthalene	**2180**		2000	ug/L	2000	09/11/2012 18:56
Styrene	ND		2000	ug/L	2000	09/11/2012 18:56
Tetrachloroethene	ND		2000	ug/L	2000	09/11/2012 18:56
Toluene	**42100**		2000	ug/L	2000	09/11/2012 18:56
Trichloroethene	ND		2000	ug/L	2000	09/11/2012 18:56
Trichlorofluoromethane	ND		2000	ug/L	2000	09/11/2012 18:56
Vinyl chloride	ND		2000	ug/L	2000	09/11/2012 18:56
Xylene (total)	**16900**		4000	ug/L	2000	09/11/2012 18:56
cis-1,2-Dichloroethene	ND		2000	ug/L	2000	09/11/2012 18:56
m,p-Xylene	**11400**		4000	ug/L	2000	09/11/2012 18:56
n-Propylbenzene	ND		2000	ug/L	2000	09/11/2012 18:56
o-Xylene	**5560**		2000	ug/L	2000	09/11/2012 18:56
sec-Butylbenzene	ND		2000	ug/L	2000	09/11/2012 18:56
tert-Butyl methyl ether (MTBE)	ND		2000	ug/L	2000	09/11/2012 18:56
tert-Butylbenzene	ND		2000	ug/L	2000	09/11/2012 18:56
trans-1,2-Dichloroethene	ND		2000	ug/L	2000	09/11/2012 18:56
trans-1,4-Dichloro-2-butene	ND		10000	ug/L	2000	09/11/2012 18:56
Surrogates						
1,2-Dichloroethane-d4	103		64.0-140	%	2000	09/11/2012 18:56
4-Bromofluorobenzene	102		85.0-115	%	2000	09/11/2012 18:56
Toluene d8	101		82.0-117	%	2000	09/11/2012 18:56

Batch Information

Analytical Batch: **VMS2543**
Analytical Method: **SW-846 8260B**
Instrument: **MSD4**
Analyst: **BWS**

Prep Batch: **VXX3979**
Prep Method: **SW-846 5030B**
Prep Date/Time: **09/11/2012 08:17**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 09/17/2012

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Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869005-D
Lab Project ID: 31202869

Collection Date: 09/07/2012 14:13
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND		50.8	ug/L	10	09/14/2012 18:03
1,2-Dichlorobenzene	ND		50.8	ug/L	10	09/14/2012 18:03
1,3-Dichlorobenzene	ND		50.8	ug/L	10	09/14/2012 18:03
1,4-Dichlorobenzene	ND		50.8	ug/L	10	09/14/2012 18:03
2,4,5-Trichlorophenol	ND		50.8	ug/L	10	09/14/2012 18:03
2,4,6-Trichlorophenol	ND		50.8	ug/L	10	09/14/2012 18:03
2,4-Dichlorophenol	ND		50.8	ug/L	10	09/14/2012 18:03
2,4-Dinitrophenol	ND		254	ug/L	10	09/14/2012 18:03
2,4-Dinitrotoluene	ND		50.8	ug/L	10	09/14/2012 18:03
2,6-Dinitrotoluene	ND		50.8	ug/L	10	09/14/2012 18:03
2-Chloronaphthalene	ND		50.8	ug/L	10	09/14/2012 18:03
2-Chlorophenol	ND		50.8	ug/L	10	09/14/2012 18:03
2-Methylnaphthalene	**116**		50.8	ug/L	10	09/14/2012 18:03
2-Methylphenol	ND		50.8	ug/L	10	09/14/2012 18:03
2-Nitroaniline	ND		50.8	ug/L	10	09/14/2012 18:03
2-Nitrophenol	ND		50.8	ug/L	10	09/14/2012 18:03
3 and/or 4-Methylphenol	ND		50.8	ug/L	10	09/14/2012 18:03
3,3'-Dichlorobenzidine	ND		102	ug/L	10	09/14/2012 18:03
3-Nitroaniline	ND		254	ug/L	10	09/14/2012 18:03
4,6-Dinitro-2-methylphenol	ND		254	ug/L	10	09/14/2012 18:03
4-Chloro-3-methylphenol	ND		50.8	ug/L	10	09/14/2012 18:03
4-Chloroaniline	ND		254	ug/L	10	09/14/2012 18:03
4-Chlorophenyl phenyl ether	ND		50.8	ug/L	10	09/14/2012 18:03
Acenaphthene	ND		50.8	ug/L	10	09/14/2012 18:03
Acenaphthylene	ND		50.8	ug/L	10	09/14/2012 18:03
Anthracene	ND		50.8	ug/L	10	09/14/2012 18:03
Benzo(a)anthracene	ND		50.8	ug/L	10	09/14/2012 18:03
Benzo(a)pyrene	ND		50.8	ug/L	10	09/14/2012 18:03
Benzo(b)fluoranthene	ND		50.8	ug/L	10	09/14/2012 18:03
Benzo(g,h,i)perylene	ND		50.8	ug/L	10	09/14/2012 18:03
Benzo(k)fluoranthene	ND		50.8	ug/L	10	09/14/2012 18:03
Benzoic acid	ND		50.8	ug/L	10	09/14/2012 18:03
Bis(2-Chloroethoxy)methane	ND		50.8	ug/L	10	09/14/2012 18:03
Bis(2-Chloroethyl)ether	ND		50.8	ug/L	10	09/14/2012 18:03
Bis(2-Chloroisopropyl)ether	ND		50.8	ug/L	10	09/14/2012 18:03
Bis(2-Ethylhexyl)phthalate	ND		50.8	ug/L	10	09/14/2012 18:03
4-Bromophenyl phenyl ether	ND		50.8	ug/L	10	09/14/2012 18:03
Butyl benzyl phthalate	ND		50.8	ug/L	10	09/14/2012 18:03
Chrysene	ND		50.8	ug/L	10	09/14/2012 18:03
Di-n-butyl phthalate	ND		50.8	ug/L	10	09/14/2012 18:03
Di-n-octyl phthalate	ND		50.8	ug/L	10	09/14/2012 18:03
Dibenz(a,h)anthracene	ND		50.8	ug/L	10	09/14/2012 18:03
Dibenzofuran	ND		50.8	ug/L	10	09/14/2012 18:03

Print Date: 09/17/2012

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Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#185**
Lab Sample ID: 31202869005-D
Lab Project ID: 31202869

Collection Date: 09/07/2012 14:13
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diethyl phthalate	ND		50.8	ug/L	10	09/14/2012 18:03
Dimethyl phthalate	ND		50.8	ug/L	10	09/14/2012 18:03
2,4-Dimethylphenol	ND		50.8	ug/L	10	09/14/2012 18:03
Diphenylamine	ND		50.8	ug/L	10	09/14/2012 18:03
Fluoranthene	ND		50.8	ug/L	10	09/14/2012 18:03
Fluorene	ND		50.8	ug/L	10	09/14/2012 18:03
Hexachlorobenzene	ND		50.8	ug/L	10	09/14/2012 18:03
Hexachlorobutadiene	ND		50.8	ug/L	10	09/14/2012 18:03
Hexachlorocyclopentadiene	ND		102	ug/L	10	09/14/2012 18:03
Hexachloroethane	ND		50.8	ug/L	10	09/14/2012 18:03
Indeno(1,2,3-cd)pyrene	ND		50.8	ug/L	10	09/14/2012 18:03
Isophorone	ND		50.8	ug/L	10	09/14/2012 18:03
Naphthalene	**559**		50.8	ug/L	10	09/14/2012 18:03
4-Nitroaniline	ND		254	ug/L	10	09/14/2012 18:03
Nitrobenzene	ND		50.8	ug/L	10	09/14/2012 18:03
4-Nitrophenol	ND		254	ug/L	10	09/14/2012 18:03
Pentachlorophenol	ND		254	ug/L	10	09/14/2012 18:03
Phenanthrene	ND		50.8	ug/L	10	09/14/2012 18:03
Phenol	ND		50.8	ug/L	10	09/14/2012 18:03
Pyrene	ND		50.8	ug/L	10	09/14/2012 18:03
n-Nitrosodi-n-propylamine	ND		50.8	ug/L	10	09/14/2012 18:03
Surrogates						
2,4,6-Tribromophenol	NA	D	29.3-152	%	10	09/14/2012 18:03
2-Fluorobiphenyl	NA	D	50.0-107	%	10	09/14/2012 18:03
2-Fluorophenol	NA	D	33.1-118	%	10	09/14/2012 18:03
Nitrobenzene-d5	NA	D	46.0-118	%	10	09/14/2012 18:03
Phenol-d6	NA	D	49.0-120	%	10	09/14/2012 18:03
Terphenyl-d14	NA	D	22.1-142	%	10	09/14/2012 18:03

Batch Information

Analytical Batch: **XMS1665**
Analytical Method: **SW-846 8270D**
Instrument: **MSD10**
Analyst: **CMP**

Prep Batch: **XXX3040**
Prep Method: **SW-846 3520C**
Prep Date/Time: **09/13/2012 08:20**
Prep Initial Wt./Vol.: **984 mL**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

N.C. Certification # 481

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

31202869

Page: 1 of 1

1654746

Section A Required Client Information:

Company:	TERRACON
Address:	3740 CREEDS PARKWAY RD RALEIGH NC
Email To:	lhoffman@terracon.com
Phone: 919-873-2211	Fax:
Requested Due Date/TAT:	STANDARD

Section B Required Project Information:

Report To:	LORI HOFFMAN
Copy To:	
Purchase Order No.:	
Project Name:	0-3315 # 185
Project Number:	70127335

Section C Invoice Information:

Attention:	NCDOT
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	DRO	GRO	VOCs (8260)	SVOCs (8270)	"HOLD" (8260)	"HOLD" (8270)	"HOLD" EPH	"HOLD" VPH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-1	SL	G			9-7-12	1337		11	3					3	5			X	X			X	X	X	X	
2	S-2	"	"			"	1435		"						"				"	"			X	X	X	X	
3	S-3	"	"			"	1503		"						"				"	"			X	X	X	X	
4	S-4	"	"			"	1535		"						"				"	"			X	X	X	X	
5	TW-1	WT				"	1413		5	2			3								X	X					
6																											
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	BEN SWIFT / TERRACON	9-10-12	0916	[signature] / SGS	9-10-12	916	
	[signature]	9-10-12	1200				
	[signature]	9-10-12	1445	[signature]	9/10/12	1445	0.2°C Y NONE

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: BEN SWIFT

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9-7-12

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-Terracon** Work Order No.: **31202869**

1. ___ Shipped
   X Hand Delivered

2. X COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   X No Custody Tape

4. X Samples Intact
   ___ Samples Broken / Leaking

5. X Chilled on Receipt Actual Temp.(s) in °C: 0.2
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. X Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)

8. X Received Within Holding Time
   ___ Not Received Within Holding Time

9. X No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. X No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Notes:

Comments:

Inspected and Logged in by: JJ

Date: Mon-9/10/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6

Laboratory Report of Analysis

To: Steve Kerlin
Terracon
5240 Greens Dairy Rd
Raleigh, NC 27616

Report Number: **31202953**

Client Project: **70127335 U-3315 #185**

Dear Steve Kerlin,

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. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. 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 Michael D. Page 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.

Michael D. Page Date
Project Manager
michael.page@sgs.com

Print Date: 09/25/2012 N.C. Certification # 481

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
S-1	31202953001	09/07/2012 13:37	09/10/2012 14:45	Soil-Solid as dry weight
S-3	31202953002	09/07/2012 15:03	09/10/2012 14:45	Soil-Solid as dry weight

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953001-D
Lab Project ID: 31202953

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,1,1-Trichloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,1,2,2-Tetrachloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,1,2-Trichloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,1-Dichloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,1-Dichloroethene	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,1-Dichloropropene	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2,3-Trichlorobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2,3-Trichloropropane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2,4-Trichlorobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2,4-Trimethylbenzene	**133000**		2200	ug/Kg	2500	09/18/2012 12:25
1,2-Dibromo-3-chloropropane	ND		11000	ug/Kg	2500	09/18/2012 12:25
1,2-Dibromoethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2-Dichlorobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2-Dichloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,2-Dichloropropane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,3,5-Trimethylbenzene	**39000**		2200	ug/Kg	2500	09/18/2012 12:25
1,3-Dichlorobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,3-Dichloropropane	ND		2200	ug/Kg	2500	09/18/2012 12:25
1,4-Dichlorobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
2,2-Dichloropropane	ND		2200	ug/Kg	2500	09/18/2012 12:25
2-Butanone	ND		55000	ug/Kg	2500	09/18/2012 12:25
2-Chlorotoluene	ND		2200	ug/Kg	2500	09/18/2012 12:25
2-Hexanone	ND		11000	ug/Kg	2500	09/18/2012 12:25
4-Chlorotoluene	ND		2200	ug/Kg	2500	09/18/2012 12:25
4-Isopropyltoluene	**7920**		2200	ug/Kg	2500	09/18/2012 12:25
4-Methyl-2-pentanone	ND		11000	ug/Kg	2500	09/18/2012 12:25
Acetone	ND		55000	ug/Kg	2500	09/18/2012 12:25
Benzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Bromobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Bromochloromethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
Bromodichloromethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
Bromoform	ND		2200	ug/Kg	2500	09/18/2012 12:25
Bromomethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
n-Butylbenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Carbon disulfide	ND		2200	ug/Kg	2500	09/18/2012 12:25
Carbon tetrachloride	ND		2200	ug/Kg	2500	09/18/2012 12:25
Chlorobenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Chloroethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
Chloroform	ND		2200	ug/Kg	2500	09/18/2012 12:25
Chloromethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
Dibromochloromethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
Dibromomethane	ND		2200	ug/Kg	2500	09/18/2012 12:25

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953001-D
Lab Project ID: 31202953

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND		11000	ug/Kg	2500	09/18/2012 12:25
cis-1,3-Dichloropropene	ND		2200	ug/Kg	2500	09/18/2012 12:25
trans-1,3-Dichloropropene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Diisopropyl Ether	ND		2200	ug/Kg	2500	09/18/2012 12:25
Ethyl Benzene	**14700**		2200	ug/Kg	2500	09/18/2012 12:25
Hexachlorobutadiene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Isopropylbenzene (Cumene)	**3540**		2200	ug/Kg	2500	09/18/2012 12:25
Methyl iodide	ND		2200	ug/Kg	2500	09/18/2012 12:25
Methylene chloride	ND		11000	ug/Kg	2500	09/18/2012 12:25
Naphthalene	**35500**		2200	ug/Kg	2500	09/18/2012 12:25
Styrene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Tetrachloroethene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Toluene	**10200**		2200	ug/Kg	2500	09/18/2012 12:25
Trichloroethene	ND		2200	ug/Kg	2500	09/18/2012 12:25
Trichlorofluoromethane	ND		2200	ug/Kg	2500	09/18/2012 12:25
Vinyl chloride	ND		2200	ug/Kg	2500	09/18/2012 12:25
Xylene (total)	**111000**		4400	ug/Kg	2500	09/18/2012 12:25
cis-1,2-Dichloroethene	ND		2200	ug/Kg	2500	09/18/2012 12:25
m,p-Xylene	**78700**		4400	ug/Kg	2500	09/18/2012 12:25
n-Propylbenzene	**13400**		2200	ug/Kg	2500	09/18/2012 12:25
o-Xylene	**32200**		2200	ug/Kg	2500	09/18/2012 12:25
sec-Butylbenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
tert-Butyl methyl ether (MTBE)	ND		2200	ug/Kg	2500	09/18/2012 12:25
tert-Butylbenzene	ND		2200	ug/Kg	2500	09/18/2012 12:25
trans-1,2-Dichloroethene	ND		2200	ug/Kg	2500	09/18/2012 12:25
trans-1,4-Dichloro-2-butene	ND		11000	ug/Kg	2500	09/18/2012 12:25
Surrogates						
1,2-Dichloroethane-d4	102		55.0-173	%	2500	09/18/2012 12:25
4-Bromofluorobenzene	102		23.0-141	%	2500	09/18/2012 12:25
Toluene d8	103		57.0-134	%	2500	09/18/2012 12:25

Batch Information

Analytical Batch: **VMS2558**
Analytical Method: **SW-846 8260B**
Instrument: **MSD4**
Analyst: **BWS**

Prep Batch: **VXX4017**
Prep Method: **SW-846 5035 SM**
Prep Date/Time: **09/18/2012 10:50**
Prep Initial Wt./Vol.: **6.83 g**
Prep Extract Vol: **5 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953001-E
Lab Project ID: 31202953

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **MADEP VPH**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
C5-C8 Aliphatics	**15.8**		4.38	mg/kg	1	09/19/2012 18:08
C9-C10 Aromatics	**68.3**		4.38	mg/kg	1	09/19/2012 18:08
C9-C12 Aliphatics	**71.2**		4.38	mg/kg	1	09/19/2012 18:08
Surrogates						
FID - 4-Bromofluorobenzene	99.0		70.0-130	%	1	09/19/2012 18:08
PID - 4-Bromofluorobenzene	92.0		70.0-130	%	1	09/19/2012 18:08

Batch Information

Analytical Batch: **VGC2145**
Analytical Method: **MADEP VPH**
Instrument: **GC4**
Analyst: **MDY**

Prep Batch: **VXX4022**
Prep Method: **SW-846 5035 VPH prep**
Prep Date/Time: **09/18/2012 10:50**
Prep Initial Wt./Vol.: **6.86 g**
Prep Extract Vol: **5 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953001-F
Lab Project ID: 31202953

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND		3600	ug/Kg	10	09/24/2012 20:38
1,2-Dichlorobenzene	ND		3600	ug/Kg	10	09/24/2012 20:38
1,3-Dichlorobenzene	ND		3600	ug/Kg	10	09/24/2012 20:38
1,4-Dichlorobenzene	ND		3600	ug/Kg	10	09/24/2012 20:38
2,4,5-Trichlorophenol	ND		3600	ug/Kg	10	09/24/2012 20:38
2,4,6-Trichlorophenol	ND		3600	ug/Kg	10	09/24/2012 20:38
2,4-Dichlorophenol	ND		3600	ug/Kg	10	09/24/2012 20:38
2,4-Dinitrophenol	ND		18000	ug/Kg	10	09/24/2012 20:38
2,4-Dinitrotoluene	ND		3600	ug/Kg	10	09/24/2012 20:38
2,6-Dinitrotoluene	ND		3600	ug/Kg	10	09/24/2012 20:38
2-Chloronaphthalene	ND		3600	ug/Kg	10	09/24/2012 20:38
2-Chlorophenol	ND		3600	ug/Kg	10	09/24/2012 20:38
2-Methylnaphthalene	**31500**		3600	ug/Kg	10	09/24/2012 20:38
2-Methylphenol	ND		3600	ug/Kg	10	09/24/2012 20:38
2-Nitroaniline	ND		3600	ug/Kg	10	09/24/2012 20:38
2-Nitrophenol	ND		3600	ug/Kg	10	09/24/2012 20:38
3 and/or 4-Methylphenol	ND		3600	ug/Kg	10	09/24/2012 20:38
3,3'-Dichlorobenzidine	ND		7200	ug/Kg	10	09/24/2012 20:38
3-Nitroaniline	ND		18000	ug/Kg	10	09/24/2012 20:38
4,6-Dinitro-2-methylphenol	ND		18000	ug/Kg	10	09/24/2012 20:38
4-Chloro-3-methylphenol	ND		3600	ug/Kg	10	09/24/2012 20:38
4-Chloroaniline	ND		3600	ug/Kg	10	09/24/2012 20:38
4-Chlorophenyl phenyl ether	ND		3600	ug/Kg	10	09/24/2012 20:38
Acenaphthene	ND		3600	ug/Kg	10	09/24/2012 20:38
Acenaphthylene	ND		3600	ug/Kg	10	09/24/2012 20:38
Anthracene	ND		3600	ug/Kg	10	09/24/2012 20:38
Benzo(a)anthracene	ND		3600	ug/Kg	10	09/24/2012 20:38
Benzo(a)pyrene	ND		3600	ug/Kg	10	09/24/2012 20:38
Benzo(b)fluoranthene	ND		3600	ug/Kg	10	09/24/2012 20:38
Benzo(g,h,i)perylene	ND		3600	ug/Kg	10	09/24/2012 20:38
Benzo(k)fluoranthene	ND		3600	ug/Kg	10	09/24/2012 20:38
Benzoic acid	ND		18000	ug/Kg	10	09/24/2012 20:38
Bis(2-Chloroethoxy)methane	ND		3600	ug/Kg	10	09/24/2012 20:38
Bis(2-Chloroethyl)ether	ND		3600	ug/Kg	10	09/24/2012 20:38
Bis(2-Chloroisopropyl)ether	ND		3600	ug/Kg	10	09/24/2012 20:38
Bis(2-Ethylhexyl)phthalate	ND		3600	ug/Kg	10	09/24/2012 20:38
4-Bromophenyl phenyl ether	ND		3600	ug/Kg	10	09/24/2012 20:38
Butyl benzyl phthalate	ND		3600	ug/Kg	10	09/24/2012 20:38
Chrysene	ND		3600	ug/Kg	10	09/24/2012 20:38
Di-n-butyl phthalate	ND		3600	ug/Kg	10	09/24/2012 20:38
Di-n-octyl phthalate	ND		3600	ug/Kg	10	09/24/2012 20:38
Dibenz(a,h)anthracene	ND		3600	ug/Kg	10	09/24/2012 20:38
Dibenzofuran	ND		3600	ug/Kg	10	09/24/2012 20:38

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953001-F
Lab Project ID: 31202953

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diethyl phthalate	ND		3600	ug/Kg	10	09/24/2012 20:38
Dimethyl phthalate	ND		3600	ug/Kg	10	09/24/2012 20:38
2,4-Dimethylphenol	ND		3600	ug/Kg	10	09/24/2012 20:38
Diphenylamine	ND		3600	ug/Kg	10	09/24/2012 20:38
Fluoranthene	ND		3600	ug/Kg	10	09/24/2012 20:38
Fluorene	ND		3600	ug/Kg	10	09/24/2012 20:38
Hexachlorobenzene	ND		18000	ug/Kg	10	09/24/2012 20:38
Hexachlorobutadiene	ND		3600	ug/Kg	10	09/24/2012 20:38
Hexachlorocyclopentadiene	ND		7200	ug/Kg	10	09/24/2012 20:38
Hexachloroethane	ND		3600	ug/Kg	10	09/24/2012 20:38
Indeno(1,2,3-cd)pyrene	ND		3600	ug/Kg	10	09/24/2012 20:38
Isophorone	ND		3600	ug/Kg	10	09/24/2012 20:38
Naphthalene	**24800**		3600	ug/Kg	10	09/24/2012 20:38
4-Nitroaniline	ND		18000	ug/Kg	10	09/24/2012 20:38
Nitrobenzene	ND		3600	ug/Kg	10	09/24/2012 20:38
4-Nitrophenol	ND		18000	ug/Kg	10	09/24/2012 20:38
Pentachlorophenol	ND		18000	ug/Kg	10	09/24/2012 20:38
Phenanthrene	ND		3600	ug/Kg	10	09/24/2012 20:38
Phenol	ND		3600	ug/Kg	10	09/24/2012 20:38
Pyrene	ND		3600	ug/Kg	10	09/24/2012 20:38
n-Nitrosodi-n-propylamine	ND		3600	ug/Kg	10	09/24/2012 20:38
Surrogates						
2,4,6-Tribromophenol	NA	D	41.0-129	%	10	09/24/2012 20:38
2-Fluorobiphenyl	NA	D	48.0-123	%	10	09/24/2012 20:38
2-Fluorophenol	NA	D	42.0-123	%	10	09/24/2012 20:38
Nitrobenzene-d5	NA	D	46.0-117	%	10	09/24/2012 20:38
Phenol-d6	NA	D	48.0-125	%	10	09/24/2012 20:38
Terphenyl-d14	NA	D	44.0-140	%	10	09/24/2012 20:38

Batch Information

Analytical Batch: **XMS1673**
Analytical Method: **SW-846 8270D**
Instrument: **MSD10**
Analyst: **CMP**

Prep Batch: **XXX3062**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/18/2012 16:28**
Prep Initial Wt./Vol.: **33.44 g**
Prep Extract Vol: **10 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953001-F
Lab Project ID: 31202953

Collection Date: 09/07/2012 13:37
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **MADEP EPH**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
C11-C22 Aromatics	**111**		11.8	mg/kg	1	09/21/2012 20:13
C19-C36 Aliphatics	ND		6.06	mg/kg	1	09/21/2012 19:45
C9-C18 Aliphatics	**115**		5.25	mg/kg	1	09/21/2012 19:45
Surrogates						
2-Bromonaphthalene	83.3		40.0-140	%	1	09/21/2012 20:13
2-Fluorobiphenyl	85.0		40.0-140	%	1	09/21/2012 20:13
n-Tricosane	125		40.0-140	%	1	09/21/2012 19:45
o-Terphenyl	99.0		40.0-140	%	1	09/21/2012 20:13

Batch Information

Analytical Batch: **XGC2553**
Analytical Method: **MADEP EPH**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3063**
Prep Method: **SW-846 3541/8015 EPH**
Prep Date/Time: **09/18/2012 16:32**
Prep Initial Wt./Vol.: **15.93 g**
Prep Extract Vol: **10 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953002-D
Lab Project ID: 31202953

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 88.90

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,1,1-Trichloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,1,2,2-Tetrachloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,1,2-Trichloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,1-Dichloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,1-Dichloroethene	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,1-Dichloropropene	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2,3-Trichlorobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2,3-Trichloropropane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2,4-Trichlorobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2,4-Trimethylbenzene	**195**		45.7	ug/Kg	50	09/18/2012 13:13
1,2-Dibromo-3-chloropropane	ND		229	ug/Kg	50	09/18/2012 13:13
1,2-Dibromoethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2-Dichlorobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2-Dichloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,2-Dichloropropane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,3,5-Trimethylbenzene	**269**		45.7	ug/Kg	50	09/18/2012 13:13
1,3-Dichlorobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,3-Dichloropropane	ND		45.7	ug/Kg	50	09/18/2012 13:13
1,4-Dichlorobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
2,2-Dichloropropane	ND		45.7	ug/Kg	50	09/18/2012 13:13
2-Butanone	ND		1140	ug/Kg	50	09/18/2012 13:13
2-Chlorotoluene	ND		45.7	ug/Kg	50	09/18/2012 13:13
2-Hexanone	ND		229	ug/Kg	50	09/18/2012 13:13
4-Chlorotoluene	ND		45.7	ug/Kg	50	09/18/2012 13:13
4-Isopropyltoluene	**95.5**		45.7	ug/Kg	50	09/18/2012 13:13
4-Methyl-2-pentanone	ND		229	ug/Kg	50	09/18/2012 13:13
Acetone	ND		1140	ug/Kg	50	09/18/2012 13:13
Benzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Bromobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Bromochloromethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
Bromodichloromethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
Bromoform	ND		45.7	ug/Kg	50	09/18/2012 13:13
Bromomethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
n-Butylbenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Carbon disulfide	ND		45.7	ug/Kg	50	09/18/2012 13:13
Carbon tetrachloride	ND		45.7	ug/Kg	50	09/18/2012 13:13
Chlorobenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Chloroethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
Chloroform	ND		45.7	ug/Kg	50	09/18/2012 13:13
Chloromethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
Dibromochloromethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
Dibromomethane	ND		45.7	ug/Kg	50	09/18/2012 13:13

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953002-D
Lab Project ID: 31202953

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 88.90

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND		229	ug/Kg	50	09/18/2012 13:13
cis-1,3-Dichloropropene	ND		45.7	ug/Kg	50	09/18/2012 13:13
trans-1,3-Dichloropropene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Diisopropyl Ether	ND		45.7	ug/Kg	50	09/18/2012 13:13
Ethyl Benzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Hexachlorobutadiene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Isopropylbenzene (Cumene)	ND		45.7	ug/Kg	50	09/18/2012 13:13
Methyl iodide	ND		45.7	ug/Kg	50	09/18/2012 13:13
Methylene chloride	ND		229	ug/Kg	50	09/18/2012 13:13
Naphthalene	**206**		45.7	ug/Kg	50	09/18/2012 13:13
Styrene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Tetrachloroethene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Toluene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Trichloroethene	ND		45.7	ug/Kg	50	09/18/2012 13:13
Trichlorofluoromethane	ND		45.7	ug/Kg	50	09/18/2012 13:13
Vinyl chloride	ND		45.7	ug/Kg	50	09/18/2012 13:13
Xylene (total)	ND		91.4	ug/Kg	50	09/18/2012 13:13
cis-1,2-Dichloroethene	ND		45.7	ug/Kg	50	09/18/2012 13:13
m,p-Xylene	ND		91.4	ug/Kg	50	09/18/2012 13:13
n-Propylbenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
o-Xylene	ND		45.7	ug/Kg	50	09/18/2012 13:13
sec-Butylbenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
tert-Butyl methyl ether (MTBE)	ND		45.7	ug/Kg	50	09/18/2012 13:13
tert-Butylbenzene	ND		45.7	ug/Kg	50	09/18/2012 13:13
trans-1,2-Dichloroethene	ND		45.7	ug/Kg	50	09/18/2012 13:13
trans-1,4-Dichloro-2-butene	ND		229	ug/Kg	50	09/18/2012 13:13
Surrogates						
1,2-Dichloroethane-d4	98.0		55.0-173	%	50	09/18/2012 13:13
4-Bromofluorobenzene	103		23.0-141	%	50	09/18/2012 13:13
Toluene d8	103		57.0-134	%	50	09/18/2012 13:13

Batch Information

Analytical Batch: **VMS2558**
Analytical Method: **SW-846 8260B**
Instrument: **MSD4**
Analyst: **BWS**

Prep Batch: **VXX4017**
Prep Method: **SW-846 5035 SM**
Prep Date/Time: **09/18/2012 08:00**
Prep Initial Wt./Vol.: **6.15 g**
Prep Extract Vol: **5 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953002-E
Lab Project ID: 31202953

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 88.90

Results by **MADEP VPH**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
C5-C8 Aliphatics	ND		4.25	mg/kg	1	09/19/2012 16:50
C9-C10 Aromatics	**94.6**		4.25	mg/kg	1	09/19/2012 16:50
C9-C12 Aliphatics	**82.5**		4.25	mg/kg	1	09/19/2012 16:50
Surrogates						
FID - 4-Bromofluorobenzene	102		70.0-130	%	1	09/19/2012 16:50
PID - 4-Bromofluorobenzene	98.0		70.0-130	%	1	09/19/2012 16:50

Batch Information

Analytical Batch: **VGC2145**
Analytical Method: **MADEP VPH**
Instrument: **GC4**
Analyst: **MDY**

Prep Batch: **VXX4022**
Prep Method: **SW-846 5035 VPH prep**
Prep Date/Time: **09/18/2012 10:55**
Prep Initial Wt./Vol.: **6.61 g**
Prep Extract Vol: **5 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953002-F
Lab Project ID: 31202953

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 88.90

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND		331	ug/Kg	1	09/21/2012 14:11
1,2-Dichlorobenzene	ND		331	ug/Kg	1	09/21/2012 14:11
1,3-Dichlorobenzene	ND		331	ug/Kg	1	09/21/2012 14:11
1,4-Dichlorobenzene	ND		331	ug/Kg	1	09/21/2012 14:11
2,4,5-Trichlorophenol	ND		331	ug/Kg	1	09/21/2012 14:11
2,4,6-Trichlorophenol	ND		331	ug/Kg	1	09/21/2012 14:11
2,4-Dichlorophenol	ND		331	ug/Kg	1	09/21/2012 14:11
2,4-Dinitrophenol	ND		1660	ug/Kg	1	09/21/2012 14:11
2,4-Dinitrotoluene	ND		331	ug/Kg	1	09/21/2012 14:11
2,6-Dinitrotoluene	ND		331	ug/Kg	1	09/21/2012 14:11
2-Chloronaphthalene	ND		331	ug/Kg	1	09/21/2012 14:11
2-Chlorophenol	ND		331	ug/Kg	1	09/21/2012 14:11
2-Methylnaphthalene	**2090**		331	ug/Kg	1	09/21/2012 14:11
2-Methylphenol	ND		331	ug/Kg	1	09/21/2012 14:11
2-Nitroaniline	ND		331	ug/Kg	1	09/21/2012 14:11
2-Nitrophenol	ND		331	ug/Kg	1	09/21/2012 14:11
3 and/or 4-Methylphenol	ND		331	ug/Kg	1	09/21/2012 14:11
3,3'-Dichlorobenzidine	ND		663	ug/Kg	1	09/21/2012 14:11
3-Nitroaniline	ND		1660	ug/Kg	1	09/21/2012 14:11
4,6-Dinitro-2-methylphenol	ND		1660	ug/Kg	1	09/21/2012 14:11
4-Chloro-3-methylphenol	ND		331	ug/Kg	1	09/21/2012 14:11
4-Chloroaniline	ND		331	ug/Kg	1	09/21/2012 14:11
4-Chlorophenyl phenyl ether	ND		331	ug/Kg	1	09/21/2012 14:11
Acenaphthene	ND		331	ug/Kg	1	09/21/2012 14:11
Acenaphthylene	ND		331	ug/Kg	1	09/21/2012 14:11
Anthracene	ND		331	ug/Kg	1	09/21/2012 14:11
Benzo(a)anthracene	ND		331	ug/Kg	1	09/21/2012 14:11
Benzo(a)pyrene	ND		331	ug/Kg	1	09/21/2012 14:11
Benzo(b)fluoranthene	ND		331	ug/Kg	1	09/21/2012 14:11
Benzo(g,h,i)perylene	ND		331	ug/Kg	1	09/21/2012 14:11
Benzo(k)fluoranthene	ND		331	ug/Kg	1	09/21/2012 14:11
Benzoic acid	ND		1660	ug/Kg	1	09/21/2012 14:11
Bis(2-Chloroethoxy)methane	ND		331	ug/Kg	1	09/21/2012 14:11
Bis(2-Chloroethyl)ether	ND		331	ug/Kg	1	09/21/2012 14:11
Bis(2-Chloroisopropyl)ether	ND		331	ug/Kg	1	09/21/2012 14:11
Bis(2-Ethylhexyl)phthalate	ND		331	ug/Kg	1	09/21/2012 14:11
4-Bromophenyl phenyl ether	ND		331	ug/Kg	1	09/21/2012 14:11
Butyl benzyl phthalate	ND		331	ug/Kg	1	09/21/2012 14:11
Chrysene	ND		331	ug/Kg	1	09/21/2012 14:11
Di-n-butyl phthalate	ND		331	ug/Kg	1	09/21/2012 14:11
Di-n-octyl phthalate	ND		331	ug/Kg	1	09/21/2012 14:11
Dibenz(a,h)anthracene	ND		331	ug/Kg	1	09/21/2012 14:11
Dibenzofuran	ND		331	ug/Kg	1	09/21/2012 14:11

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953002-F
Lab Project ID: 31202953

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 88.90

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diethyl phthalate	ND		331	ug/Kg	1	09/21/2012 14:11
Dimethyl phthalate	ND		331	ug/Kg	1	09/21/2012 14:11
2,4-Dimethylphenol	ND		331	ug/Kg	1	09/21/2012 14:11
Diphenylamine	ND		331	ug/Kg	1	09/21/2012 14:11
Fluoranthene	ND		331	ug/Kg	1	09/21/2012 14:11
Fluorene	ND		331	ug/Kg	1	09/21/2012 14:11
Hexachlorobenzene	ND		1660	ug/Kg	1	09/21/2012 14:11
Hexachlorobutadiene	ND		331	ug/Kg	1	09/21/2012 14:11
Hexachlorocyclopentadiene	ND		663	ug/Kg	1	09/21/2012 14:11
Hexachloroethane	ND		331	ug/Kg	1	09/21/2012 14:11
Indeno(1,2,3-cd)pyrene	ND		331	ug/Kg	1	09/21/2012 14:11
Isophorone	ND		331	ug/Kg	1	09/21/2012 14:11
Naphthalene	ND		331	ug/Kg	1	09/21/2012 14:11
4-Nitroaniline	ND		1660	ug/Kg	1	09/21/2012 14:11
Nitrobenzene	ND		331	ug/Kg	1	09/21/2012 14:11
4-Nitrophenol	ND		1660	ug/Kg	1	09/21/2012 14:11
Pentachlorophenol	ND		1660	ug/Kg	1	09/21/2012 14:11
Phenanthrene	ND		331	ug/Kg	1	09/21/2012 14:11
Phenol	ND		331	ug/Kg	1	09/21/2012 14:11
Pyrene	ND		331	ug/Kg	1	09/21/2012 14:11
n-Nitrosodi-n-propylamine	ND		331	ug/Kg	1	09/21/2012 14:11
Surrogates						
2,4,6-Tribromophenol	85.0		41.0-129	%	1	09/21/2012 14:11
2-Fluorobiphenyl	87.0		48.0-123	%	1	09/21/2012 14:11
2-Fluorophenol	79.0		42.0-123	%	1	09/21/2012 14:11
Nitrobenzene-d5	86.0		46.0-117	%	1	09/21/2012 14:11
Phenol-d6	91.0		48.0-125	%	1	09/21/2012 14:11
Terphenyl-d14	90.0		44.0-140	%	1	09/21/2012 14:11

Batch Information

Analytical Batch: **XMS1672**
Analytical Method: **SW-846 8270D**
Instrument: **MSD10**
Analyst: **CMP**

Prep Batch: **XXX3062**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/18/2012 16:28**
Prep Initial Wt./Vol.: **33.99 g**
Prep Extract Vol: **10 mL**

Print Date: 09/25/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 #185**
Lab Sample ID: 31202953002-F
Lab Project ID: 31202953

Collection Date: 09/07/2012 15:03
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 88.90

Results by **MADEP EPH**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
C11-C22 Aromatics	**19.8**		14.2	mg/kg	1	09/21/2012 21:10
C19-C36 Aliphatics	ND		7.30	mg/kg	1	09/21/2012 20:42
C9-C18 Aliphatics	**55.2**		6.32	mg/kg	1	09/21/2012 20:42
Surrogates						
2-Bromonaphthalene	86.2		40.0-140	%	1	09/21/2012 21:10
2-Fluorobiphenyl	92.0		40.0-140	%	1	09/21/2012 21:10
n-Tricosane	124		40.0-140	%	1	09/21/2012 20:42
o-Terphenyl	97.0		40.0-140	%	1	09/21/2012 21:10

Batch Information

Analytical Batch: **XGC2553**
Analytical Method: **MADEP EPH**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3063**
Prep Method: **SW-846 3541/8015 EPH**
Prep Date/Time: **09/18/2012 16:32**
Prep Initial Wt./Vol.: **12.38 g**
Prep Extract Vol: **10 mL**

Print Date: 09/25/2012

N.C. Certification # 481

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

~~3120286~~ 9/10/12
3120245 3

Page: 1 of 1

1654746

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: TERRACON	Report To: LORI HOFFMAN	Attention: NCDOT
Address: 5240 CREEDMOOR RD RALEIGH NC	Copy To:	Company Name:
Email To: lhoffman@terracon.com	Purchase Order No.:	Address:
Phone: 919-873-2211 Fax:	Project Name: U-3315 # 185	Pace Quote Reference:
Requested Due Date/TAT: STANDARD	Project Number: 70127335	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	D20	G20	VOCs (8260)	SVOCs (8270)	"HOLD" (8260) **	"HOLD" (8270) **	"HOLD" GRO **	"HOLD" VPH **	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-1	SL	G			9-7-12	1337		11	3					3	5			X	X			X	X	X	X		
2	S-2	"	"			"	1435		"						"	"			"	"			"	"	"	"		
3	S-3	"	"			"	1503		"						"	"			"	"			"	"	"	"		
4	S-4	"	"			"	1535		"						"	"			"	"			"	"	"	"		
5	TW-1	WT	"			"	1413		5	2			3								X	X						
6																												
7																												
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Ben Swift / TERRACON	9-10-12	0916	/ SGS	9-10-12	916	
		9-10-12	1200				
		9-10-12	1445		9/10/12	1445	0.2C Y NONE

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: BEN SWIFT
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 9-7-12

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-Terracon** Work Order No.: **31202869**

1. ___ Shipped
   X Hand Delivered

2. X COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   X No Custody Tape

4. X Samples Intact
   ___ Samples Broken / Leaking

5. X Chilled on Receipt Actual Temp.(s) in °C: 0.2
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. X Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)

8. X Received Within Holding Time
   ___ Not Received Within Holding Time

9. X No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. X No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Notes:

Comments:

Inspected and Logged in by: JJ

Date: Mon-9/10/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-Terracon** Work Order No.: 31202953 ~~31202869~~ MO 9/19/12

1. ___ Shipped
   _X_ Hand Delivered

2. _X_ COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   _X_ No Custody Tape

4. _X_ Samples Intact
   ___ Samples Broken / Leaking

5. _X_ Chilled on Receipt Actual Temp.(s) in °C: 0.2
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. _X_ Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)

8. _X_ Received Within Holding Time
   ___ Not Received Within Holding Time

9. _X_ No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. ___ No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Notes:

Comments: Relog of 31202869001, 003.

Inspected and Logged in by: JJ

Date: Tue-9/18/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6

Parcel 186

Laboratory Report of Analysis

To: Steve Kerlin
Terracon
5240 Greens Dairy Rd
Raleigh, NC 27616

Report Number: **31202865**

Client Project: **70127335 U-3315 Parcel#186**

Dear Steve Kerlin,

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. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. 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 Michael D. Page 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.

Michael D. Page Date
Project Manager
michael.page@sgs.com

Print Date: 09/17/2012 N.C. Certification # 481

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
S-1	31202865001	09/07/2012 11:15	09/10/2012 14:45	Soil-Solid as dry weight
S-2	31202865002	09/07/2012 11:54	09/10/2012 14:45	Soil-Solid as dry weight
S-3	31202865003	09/07/2012 12:58	09/10/2012 14:45	Soil-Solid as dry weight
TW-1	31202865004	09/07/2012 12:48	09/10/2012 14:45	Water

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865001-A
Lab Project ID: 31202865

Collection Date: 09/07/2012 11:15
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 91.30

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.05	mg/kg	1	09/12/2012 13:43
Surrogates						
4-Bromofluorobenzene	100		70.0-130	%	1	09/12/2012 13:43

Batch Information

Analytical Batch: **VGC2136**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3986**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 10:30**
Prep Initial Wt./Vol.: **7.18 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865001-C
Lab Project ID: 31202865

Collection Date: 09/07/2012 11:15
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 91.30

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND		7.03	mg/kg	1	09/12/2012 22:13
Surrogates						
o-Terphenyl	91.9		40.0-140	%	1	09/12/2012 22:13

Batch Information

Analytical Batch: **XGC2517**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **31.15 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **S-2**

Client Sample ID: **S-2**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865002-A
Lab Project ID: 31202865

Collection Date: 09/07/2012 11:54
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 82.00

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.57	mg/kg	1	09/12/2012 14:08
Surrogates						
4-Bromofluorobenzene	102		70.0-130	%	1	09/12/2012 14:08

Batch Information

Analytical Batch: **VGC2136**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3986**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 10:31**
Prep Initial Wt./Vol.: **6.84 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **S-2**

Client Sample ID: **S-2**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865002-C
Lab Project ID: 31202865

Collection Date: 09/07/2012 11:54
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 82.00

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND		7.67	mg/kg	1	09/12/2012 22:41
Surrogates						
o-Terphenyl	92.1		40.0-140	%	1	09/12/2012 22:41

Batch Information

Analytical Batch: **XGC2517**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **31.79 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865003-A
Lab Project ID: 31202865

Collection Date: 09/07/2012 12:58
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 90.30

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		4.13	mg/kg	1	09/12/2012 14:33
Surrogates						
4-Bromofluorobenzene	103		70.0-130	%	1	09/12/2012 14:33

Batch Information

Analytical Batch: **VGC2136**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3986**
Prep Method: **SW-846 5035**
Prep Date/Time: **09/11/2012 10:31**
Prep Initial Wt./Vol.: **5.36 g**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865003-C
Lab Project ID: 31202865

Collection Date: 09/07/2012 12:58
Received Date: 09/10/2012 14:45
Matrix: Soil-Solid as dry weight
Solids (%): 90.30

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND		6.64	mg/kg	1	09/12/2012 23:09
Surrogates						
o-Terphenyl	87.5		40.0-140	%	1	09/12/2012 23:09

Batch Information

Analytical Batch: **XGC2517**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3033**
Prep Method: **SW-846 3541**
Prep Date/Time: **09/11/2012 17:34**
Prep Initial Wt./Vol.: **33.34 g**
Prep Extract Vol: **10 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865004-A
Lab Project ID: 31202865

Collection Date: 09/07/2012 12:48
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,1,1-Trichloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,1,2,2-Tetrachloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,1,2-Trichloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,1-Dichloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,1-Dichloroethene	ND		1.00	ug/L	1	09/11/2012 16:30
1,1-Dichloropropene	ND		1.00	ug/L	1	09/11/2012 16:30
1,2,3-Trichlorobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
1,2,3-Trichloropropane	ND		1.00	ug/L	1	09/11/2012 16:30
1,2,4-Trichlorobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
1,2,4-Trimethylbenzene	**3.77**		1.00	ug/L	1	09/11/2012 16:30
1,2-Dibromo-3-chloropropane	ND		5.00	ug/L	1	09/11/2012 16:30
1,2-Dibromoethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,2-Dichlorobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
1,2-Dichloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
1,2-Dichloropropane	ND		1.00	ug/L	1	09/11/2012 16:30
1,3,5-Trimethylbenzene	**1.83**		1.00	ug/L	1	09/11/2012 16:30
1,3-Dichlorobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
1,3-Dichloropropane	ND		1.00	ug/L	1	09/11/2012 16:30
1,4-Dichlorobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
2,2-Dichloropropane	ND		1.00	ug/L	1	09/11/2012 16:30
2-Butanone	ND		25.0	ug/L	1	09/11/2012 16:30
2-Chlorotoluene	ND		1.00	ug/L	1	09/11/2012 16:30
2-Hexanone	ND		5.00	ug/L	1	09/11/2012 16:30
4-Chlorotoluene	ND		1.00	ug/L	1	09/11/2012 16:30
4-Isopropyltoluene	ND		1.00	ug/L	1	09/11/2012 16:30
4-Methyl-2-pentanone	ND		5.00	ug/L	1	09/11/2012 16:30
Acetone	ND		25.0	ug/L	1	09/11/2012 16:30
Benzene	**15.6**		1.00	ug/L	1	09/11/2012 16:30
Bromobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
Bromochloromethane	ND		1.00	ug/L	1	09/11/2012 16:30
Bromodichloromethane	ND		1.00	ug/L	1	09/11/2012 16:30
Bromoform	ND		1.00	ug/L	1	09/11/2012 16:30
Bromomethane	ND		1.00	ug/L	1	09/11/2012 16:30
n-Butylbenzene	ND		1.00	ug/L	1	09/11/2012 16:30
Carbon disulfide	ND		1.00	ug/L	1	09/11/2012 16:30
Carbon tetrachloride	ND		1.00	ug/L	1	09/11/2012 16:30
Chlorobenzene	ND		1.00	ug/L	1	09/11/2012 16:30
Chloroethane	ND		1.00	ug/L	1	09/11/2012 16:30
Chloroform	ND		1.00	ug/L	1	09/11/2012 16:30
Chloromethane	ND		1.00	ug/L	1	09/11/2012 16:30
Dibromochloromethane	ND		1.00	ug/L	1	09/11/2012 16:30
Dibromomethane	ND		1.00	ug/L	1	09/11/2012 16:30

Print Date: 09/17/2012

N.C. Certification # 481

Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865004-A
Lab Project ID: 31202865

Collection Date: 09/07/2012 12:48
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND		5.00	ug/L	1	09/11/2012 16:30
cis-1,3-Dichloropropene	ND		1.00	ug/L	1	09/11/2012 16:30
trans-1,3-Dichloropropene	ND		1.00	ug/L	1	09/11/2012 16:30
Diisopropyl Ether	ND		1.00	ug/L	1	09/11/2012 16:30
Ethyl Benzene	**10.4**		1.00	ug/L	1	09/11/2012 16:30
Hexachlorobutadiene	ND		1.00	ug/L	1	09/11/2012 16:30
Isopropylbenzene (Cumene)	ND		1.00	ug/L	1	09/11/2012 16:30
Methyl iodide	ND		1.00	ug/L	1	09/11/2012 16:30
Methylene chloride	ND		5.00	ug/L	1	09/11/2012 16:30
Naphthalene	ND		1.00	ug/L	1	09/11/2012 16:30
Styrene	ND		1.00	ug/L	1	09/11/2012 16:30
Tetrachloroethene	**6.80**		1.00	ug/L	1	09/11/2012 16:30
Toluene	**8.77**		1.00	ug/L	1	09/11/2012 16:30
Trichloroethene	ND		1.00	ug/L	1	09/11/2012 16:30
Trichlorofluoromethane	ND		1.00	ug/L	1	09/11/2012 16:30
Vinyl chloride	ND		1.00	ug/L	1	09/11/2012 16:30
Xylene (total)	**37.6**		2.00	ug/L	1	09/11/2012 16:30
cis-1,2-Dichloroethene	ND		1.00	ug/L	1	09/11/2012 16:30
m,p-Xylene	**28.6**		2.00	ug/L	1	09/11/2012 16:30
n-Propylbenzene	**1.06**		1.00	ug/L	1	09/11/2012 16:30
o-Xylene	**9.03**		1.00	ug/L	1	09/11/2012 16:30
sec-Butylbenzene	ND		1.00	ug/L	1	09/11/2012 16:30
tert-Butyl methyl ether (MTBE)	ND		1.00	ug/L	1	09/11/2012 16:30
tert-Butylbenzene	ND		1.00	ug/L	1	09/11/2012 16:30
trans-1,2-Dichloroethene	ND		1.00	ug/L	1	09/11/2012 16:30
trans-1,4-Dichloro-2-butene	ND		5.00	ug/L	1	09/11/2012 16:30
Surrogates						
1,2-Dichloroethane-d4	106		64.0-140	%	1	09/11/2012 16:30
4-Bromofluorobenzene	105		85.0-115	%	1	09/11/2012 16:30
Toluene d8	103		82.0-117	%	1	09/11/2012 16:30

Batch Information

Analytical Batch: **VMS2543**
Analytical Method: **SW-846 8260B**
Instrument: **MSD4**
Analyst: **BWS**

Prep Batch: **VXX3979**
Prep Method: **SW-846 5030B**
Prep Date/Time: **09/11/2012 08:17**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 09/17/2012

N.C. Certification # 481

Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865004-D
Lab Project ID: 31202865

Collection Date: 09/07/2012 12:48
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND		5.04	ug/L	1	09/13/2012 23:45
1,2-Dichlorobenzene	ND		5.04	ug/L	1	09/13/2012 23:45
1,3-Dichlorobenzene	ND		5.04	ug/L	1	09/13/2012 23:45
1,4-Dichlorobenzene	ND		5.04	ug/L	1	09/13/2012 23:45
2,4,5-Trichlorophenol	ND		5.04	ug/L	1	09/13/2012 23:45
2,4,6-Trichlorophenol	ND		5.04	ug/L	1	09/13/2012 23:45
2,4-Dichlorophenol	ND		5.04	ug/L	1	09/13/2012 23:45
2,4-Dinitrophenol	ND		25.2	ug/L	1	09/13/2012 23:45
2,4-Dinitrotoluene	ND		5.04	ug/L	1	09/13/2012 23:45
2,6-Dinitrotoluene	ND		5.04	ug/L	1	09/13/2012 23:45
2-Chloronaphthalene	ND		5.04	ug/L	1	09/13/2012 23:45
2-Chlorophenol	ND		5.04	ug/L	1	09/13/2012 23:45
2-Methylnaphthalene	ND		5.04	ug/L	1	09/13/2012 23:45
2-Methylphenol	ND		5.04	ug/L	1	09/13/2012 23:45
2-Nitroaniline	ND		5.04	ug/L	1	09/13/2012 23:45
2-Nitrophenol	ND		5.04	ug/L	1	09/13/2012 23:45
3 and/or 4-Methylphenol	ND		5.04	ug/L	1	09/13/2012 23:45
3,3'-Dichlorobenzidine	ND		10.1	ug/L	1	09/13/2012 23:45
3-Nitroaniline	ND		25.2	ug/L	1	09/13/2012 23:45
4,6-Dinitro-2-methylphenol	ND		25.2	ug/L	1	09/13/2012 23:45
4-Chloro-3-methylphenol	ND		5.04	ug/L	1	09/13/2012 23:45
4-Chloroaniline	ND		25.2	ug/L	1	09/13/2012 23:45
4-Chlorophenyl phenyl ether	ND		5.04	ug/L	1	09/13/2012 23:45
Acenaphthene	ND		5.04	ug/L	1	09/13/2012 23:45
Acenaphthylene	ND		5.04	ug/L	1	09/13/2012 23:45
Anthracene	ND		5.04	ug/L	1	09/13/2012 23:45
Benzo(a)anthracene	ND		5.04	ug/L	1	09/13/2012 23:45
Benzo(a)pyrene	ND		5.04	ug/L	1	09/13/2012 23:45
Benzo(b)fluoranthene	ND		5.04	ug/L	1	09/13/2012 23:45
Benzo(g,h,i)perylene	ND		5.04	ug/L	1	09/13/2012 23:45
Benzo(k)fluoranthene	ND		5.04	ug/L	1	09/13/2012 23:45
Benzoic acid	ND		5.04	ug/L	1	09/13/2012 23:45
Bis(2-Chloroethoxy)methane	ND		5.04	ug/L	1	09/13/2012 23:45
Bis(2-Chloroethyl)ether	ND		5.04	ug/L	1	09/13/2012 23:45
Bis(2-Chloroisopropyl)ether	ND		5.04	ug/L	1	09/13/2012 23:45
Bis(2-Ethylhexyl)phthalate	ND		5.04	ug/L	1	09/13/2012 23:45
4-Bromophenyl phenyl ether	ND		5.04	ug/L	1	09/13/2012 23:45
Butyl benzyl phthalate	ND		5.04	ug/L	1	09/13/2012 23:45
Chrysene	ND		5.04	ug/L	1	09/13/2012 23:45
Di-n-butyl phthalate	ND		5.04	ug/L	1	09/13/2012 23:45
Di-n-octyl phthalate	ND		5.04	ug/L	1	09/13/2012 23:45
Dibenz(a,h)anthracene	ND		5.04	ug/L	1	09/13/2012 23:45
Dibenzofuran	ND		5.04	ug/L	1	09/13/2012 23:45

Print Date: 09/17/2012

N.C. Certification # 481

Results of **TW-1**

Client Sample ID: **TW-1**
Client Project ID: **70127335 U-3315 Parcel#186**
Lab Sample ID: 31202865004-D
Lab Project ID: 31202865

Collection Date: 09/07/2012 12:48
Received Date: 09/10/2012 14:45
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diethyl phthalate	ND		5.04	ug/L	1	09/13/2012 23:45
Dimethyl phthalate	ND		5.04	ug/L	1	09/13/2012 23:45
2,4-Dimethylphenol	ND		5.04	ug/L	1	09/13/2012 23:45
Diphenylamine	ND		5.04	ug/L	1	09/13/2012 23:45
Fluoranthene	ND		5.04	ug/L	1	09/13/2012 23:45
Fluorene	ND		5.04	ug/L	1	09/13/2012 23:45
Hexachlorobenzene	ND		5.04	ug/L	1	09/13/2012 23:45
Hexachlorobutadiene	ND		5.04	ug/L	1	09/13/2012 23:45
Hexachlorocyclopentadiene	ND		10.1	ug/L	1	09/13/2012 23:45
Hexachloroethane	ND		5.04	ug/L	1	09/13/2012 23:45
Indeno(1,2,3-cd)pyrene	ND		5.04	ug/L	1	09/13/2012 23:45
Isophorone	ND		5.04	ug/L	1	09/13/2012 23:45
Naphthalene	ND		5.04	ug/L	1	09/13/2012 23:45
4-Nitroaniline	ND		25.2	ug/L	1	09/13/2012 23:45
Nitrobenzene	ND		5.04	ug/L	1	09/13/2012 23:45
4-Nitrophenol	ND		25.2	ug/L	1	09/13/2012 23:45
Pentachlorophenol	ND		25.2	ug/L	1	09/13/2012 23:45
Phenanthrene	ND		5.04	ug/L	1	09/13/2012 23:45
Phenol	ND		5.04	ug/L	1	09/13/2012 23:45
Pyrene	ND		5.04	ug/L	1	09/13/2012 23:45
n-Nitrosodi-n-propylamine	ND		5.04	ug/L	1	09/13/2012 23:45
Surrogates						
2,4,6-Tribromophenol	95.0		29.3-152	%	1	09/13/2012 23:45
2-Fluorobiphenyl	90.0		50.0-107	%	1	09/13/2012 23:45
2-Fluorophenol	74.0		33.1-118	%	1	09/13/2012 23:45
Nitrobenzene-d5	97.0		46.0-118	%	1	09/13/2012 23:45
Phenol-d6	89.0		49.0-120	%	1	09/13/2012 23:45
Terphenyl-d14	100		22.1-142	%	1	09/13/2012 23:45

Batch Information

Analytical Batch: **XMS1663**
Analytical Method: **SW-846 8270D**
Instrument: **MSD10**
Analyst: **CMP**

Prep Batch: **XXX3040**
Prep Method: **SW-846 3520C**
Prep Date/Time: **09/13/2012 08:20**
Prep Initial Wt./Vol.: **993 mL**
Prep Extract Vol: **5 mL**

Print Date: 09/17/2012

N.C. Certification # 481

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

31202865

Page: 1 of 1

1654745

Section A Required Client Information:

Company: TERRACON

Address: 54240 CREEKS DAIRY RD

Email To: lchoffman@terracon.com

Phone: 919-873-2211 Fax:

Requested Due Date/TAT: STANDARD

Section B Required Project Information:

Report To: LORI HOFFMAN

Copy To:

Purchase Order No.:

Project Name: U-3315 # 186

Project Number: 70127335

Section C Invoice Information:

Attention:

Company Name: NCDOT

Address:

Pace Quote Reference:

Pace Project Manager:

Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	[illegible] GRO	DRO	VOCs (8260)	SVOCs (8270)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-1	SL	G			9-7-12	1115		3	1						2			X	X					
2	S-2	SL	|			|	1154		1	1						1			X	X					
3	S-3	SL	|			|	1258		1	1						1			X	X					
4	TW-1	WT	|			|	1248		5	2		3									X	X			
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[illegible] TERRACON	9-10-12	0916	[illegible]	9-10-12	916	
	[illegible]	9-10-12	1200	[illegible]	9-10-12	1200	
	[illegible]	9-10-12	1445	[illegible]	9/10/12	1445	02

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	y	WONG	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: BEN SHIFF

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 9-7-12

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-Terracon** Work Order No.: **31202865**

1. ___ Shipped
   _X_ Hand Delivered

2. _X_ COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   _X_ No Custody Tape

4. _X_ Samples Intact
   ___ Samples Broken / Leaking

5. _X_ Chilled on Receipt Actual Temp.(s) in °C: 0.2
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. _X_ Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)

8. _X_ Received Within Holding Time
   ___ Not Received Within Holding Time

9. _X_ No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. _X_ No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Notes:

Comments:

Inspected and Logged in by: JJ

Date: Mon-9/10/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6