

Preliminary Site Assessment

115 Grande Avenue
Parcel #82, Corey, Herbert S.
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

Offices Nationwide
Employee-Owned

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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 82, Corey, Herbert S.
115 Grande Avenue
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 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:

Stephen Kerlin
Environmental Professional

Reviewed by:

for: Christopher L. Corbitt, PG
Authorized Project Reviewer

Lori Hoffman, PE
Environmental Department Manager



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Geotechnical



Environmental



Construction Materials



Facilities

PRELIMINARY SITE ASSESSMENT

**PARCEL 82, COREY, HERBERT S.
115 GRANDE AVENUE
GREENVILLE, PITT COUNTY, NORTH CAROLINA**

1.0 INTRODUCTION

1.1 Site Description

Site Name	Parcel 82, Corey, Herbert S. (Previous Dry Cleaning Facility)
Site Location/Address	West of the intersection of 115 Grande Avenue, Greenville, North Carolina
General Site Description	The site includes a structure that was previously occupied by a dry cleaning business.

1.2 Site History

According to information provided by the NCDOT and collected by Terracon, there are no known release incidents associated with the site and the facility is not enrolled within the North Carolina Department of Environment and Natural Resources (NCDENR) DSCA Program. Terracon reviewed Sanborn maps from Environmental Data Resources (EDR) to determine the site history. The site was shown on the 1946 and 1958 maps as a dry cleaning facility. In 1929, the site is shown as storage. In 1923, the site is shown with a small storage structure. In 1911 and 1916, no structures are depicted on the map. The NCDOT intends to acquire the entire parcel as part of their proposed road construction activities.

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, the collection of one soil sample and one groundwater sample 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 the North Carolina Department of Transportation (NCDOT). Any authorization for use or reliance by another 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, 23, 29, and September 6, 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. Exhibit 2 is a site layout plan that depicts 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 probable metallic USTs or other buried anomalies

in the area identified for this site. Most of Parcel 82 was covered by concrete rubble and debris which limited the investigation area of the geophysical activities. The footprint of the building was not surveyed. A copy of the geophysical report is included in Appendix B.

2.2 Soil Sampling

Based on the findings of the geophysical investigation, Terracon provided oversight of the advancement of one soil boring near a sidewalk along the eastern boundary of Parcel 82 on September 6, 2012. The boring was 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 *Thermo Electron Corporation TVA-1000* field-portable Photoionization/Flame Ionization Detector (PID/FID) by inserting the probe tip into the headspace of each bag. The PID readings and soil sample depths are included on Table 1 and on individual boring logs in Appendix A.

Soil borings B-1 was advanced to a depth of approximately 20 feet below ground surface (bgs). Since groundwater was noted at a depth of approximately 18 feet bgs in the boring, soils were only screened at depths above the saturated zone. Soils obtained from the acetate sleeves were separated into two and half foot intervals.

The soil samples were placed in laboratory prepared glassware and packed in ice in 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 was converted to a temporary groundwater sampling well (TW-1) by driving the direct push probe to approximately 20 feet bgs and installing a well. The boring/well location is included in the attached Exhibit 2. The temporary monitoring well was 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 well at approximately 18 feet bgs. The water that flowed into the temporary screen was purged with a peristaltic pump until turbidity decreased. A water sample was collected from the well and placed into laboratory

supplied, pre-preserved sample containers. The ice-packed sample containers 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 20 feet included clayey sands and sandy clay. No petroleum odors were noted in the samples; however, the sample collected from 15 to 17.5 feet exhibited an unidentified odor. The sample is believed to have been collected from the smear zone where groundwater typically fluctuates. PID readings from soils collected from boring B-1 ranged from 0.0 to 3.6 parts per million (ppm). Soil samples from the interval exhibiting the highest PID readings or most obvious evidence of contamination were submitted for laboratory analysis.

3.0 LABORATORY ANALYSES

Soil and groundwater samples were submitted for laboratory analysis of volatile organic compounds (VOCs) by EPA Method 8260 and semi-volatile organic compounds (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

Laboratory analytical results detected tetrachloroethene (PCE) at a concentration of 0.00542 milligrams/kilogram (mg/kg) in soil sample S-1 which is above the NCDENR Inactive Hazardous Sites Branch (IHSB) Protection of Groundwater Preliminary Soil Remediation Goal (PSRG) of 0.005 mg/kg but below the IHSB Residential PSRG of 17 mg/kg.

SVOC compounds were not reported in the soil sample above their respective laboratory method detection limits.

A summary of the soil sampling analytical results is included in Table 1 as an attachment to this report.

4.2 Groundwater Analytical Results and Interpretation

Laboratory analytical results for groundwater sample TW-1 reported tetrachloroethene (512 ug/L), naphthalene (28 ug/L) and trichloroethene (269 ug/L) at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards.

The laboratory results also reported 1,2,4-trimethylbenzene (89.4 ug/l), 1,3,5-trimethylbenzene (75.6 ug/l), total xylenes (105 ug/l), cis-1,2-dichloroethene (156 ug/l), and n-propylbenzene (28.2

ug/l) above the laboratory method detection limit in sample TW-1 but the detected concentrations were below their respective NCAC 2L Groundwater Quality Standards.

A summary of the groundwater sampling analytical results is included in Table 2 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 accessible portions of the site. Most of Parcel 82 was covered by concrete rubble and debris which limited the investigation area of the geophysical activities. The footprint of the former building was not surveyed.
- One soil boring was advanced at the site to a depth of approximately 20 feet bgs.
- Based on laboratory analytical results, tetrachloroethene (0.00542 mg/kg) was detected in soil sample S-1 at a concentration above the NCDENR IHSB Protection of Groundwater PSRG of 0.005 mg/kg but below the IHSB Residential PSRG of 17 mg/kg.

The area of soil contamination appears to be localized. The actual amount of impacted soil can only be determined after excavation or by advancing additional borings at the site to further delineate the extent of contamination. The area beneath the former on-site building has not been evaluated. Based on groundwater sampling results, additional soil impacts are likely present beneath the former on-site dry cleaning facility.

- Groundwater was measured in temporary groundwater monitoring well TW-1 at a depth of approximately 18 feet bgs.
- Laboratory analytical results for groundwater sample TW-1 reported tetrachloroethene (512 ug/L), naphthalene (28 ug/L) and trichloroethene (269 ug/L) at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards.

The laboratory results also reported 1,2,4-trimethylbenzene (89.4 ug/l), 1,3,5-trimethylbenzene (75.6 ug/l), total xylenes (105 ug/l), cis-1,2-dichloroethene (156 ug/l), and n-propylbenzene (28.2 ug/l) above the laboratory method detection limit in sample TW-1 but the detected concentrations were below their respective NCAC 2L Groundwater Quality Standards.

- Based on the laboratory analytical results, soil and groundwater contamination has been identified within the project area. It is believed that other areas of the parcel may also be

impacted; however, due to debris and rubble covering most of the site, our extent of investigation was limited. Terracon recommends additional testing be completed following acquisition of the parcel and clearing of the site to determine the extent of impacted soils at the site.

- Based on plans provided by NCDOT, the planned project in the area of Parcel 82 will be at grade. Terracon recommends a considering a contingency quantity of 15 cubic yards of contaminated soil or 22.5 tons for estimating purposes. This quantity assumes a 6" cut across the contaminated area, and assumes an area of 28 feet by 28 feet.

TABLES

- Table 1 - Soil Sampling Analytical Results Summary**
- Table 2 - Groundwater Sampling Analytical Results Summary**

Table 1
Soil Sampling Analytical Results Summary
Parcel #82, Corey, Herbert S. Property
Greenville, Pitt County, North Carolina

					Sample ID	S-1
					Sample Depth	0-2.5 FT
Method	Parameter	Units	NCDENR IHSB Residential Health Based PSRGs (mg/kg)	NCDENR IHSB Protection of Groundwater PSRGs (mg/kg)	Value	
8260B	Tetrachloroethene	mg/kg	17	0.005	0.00542	
8270C	SVOCs	mg/kg	No Analytes Detected Above the Laboratory Detection Limits			

Notes:

Sample collected on September 6, 2012

NE = Not established

mg/kg = milligrams per kilogram

Results in Bold & Highlighted in Yellow indicate a reported concentration above the IHSB Protection of Groundwater PSRGs (Updated May 2012)

IHSB = Inactive Hazardous Sites Branch

PSRGs = Preliminary Soil Remediation Goals

Table 2
Groundwater Sampling Analytical Results Summary
Parcel #82, Corey, Herbert S. Property
Greenville, Pitt County, North Carolina

				Sample ID Depth	TW-1 18 FT
Method	Parameter	Units	NCAC 2L Groundwater Quality Standard	Value	
8260B	1,2,4-Trimethylbenzene	ug/l	400	89.4	
	1,3,5-Trimethylbenzene	ug/l	400	75.6	
	Naphthalene	ug/l	6	28	
	Tetrachloroethene	ug/l	0.7	512	
	Trichloroethene	ug/l	3	269	
	Xylenes (total)	ug/l	500	105	
	cis-1,2-Dichloroethene	ug/l	70	156	
8270C	Napthalene	ug/l	6	22.4	

Notes:

Sample collected on September 6, 2012

NE = Not established

ug/L = micrograms per liter

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

FIGURES

Exhibit 1 – Site Vicinity Map (Topographic Map)

Exhibit 2 – Site Diagram with Soil Boring Locations and Analytical Data

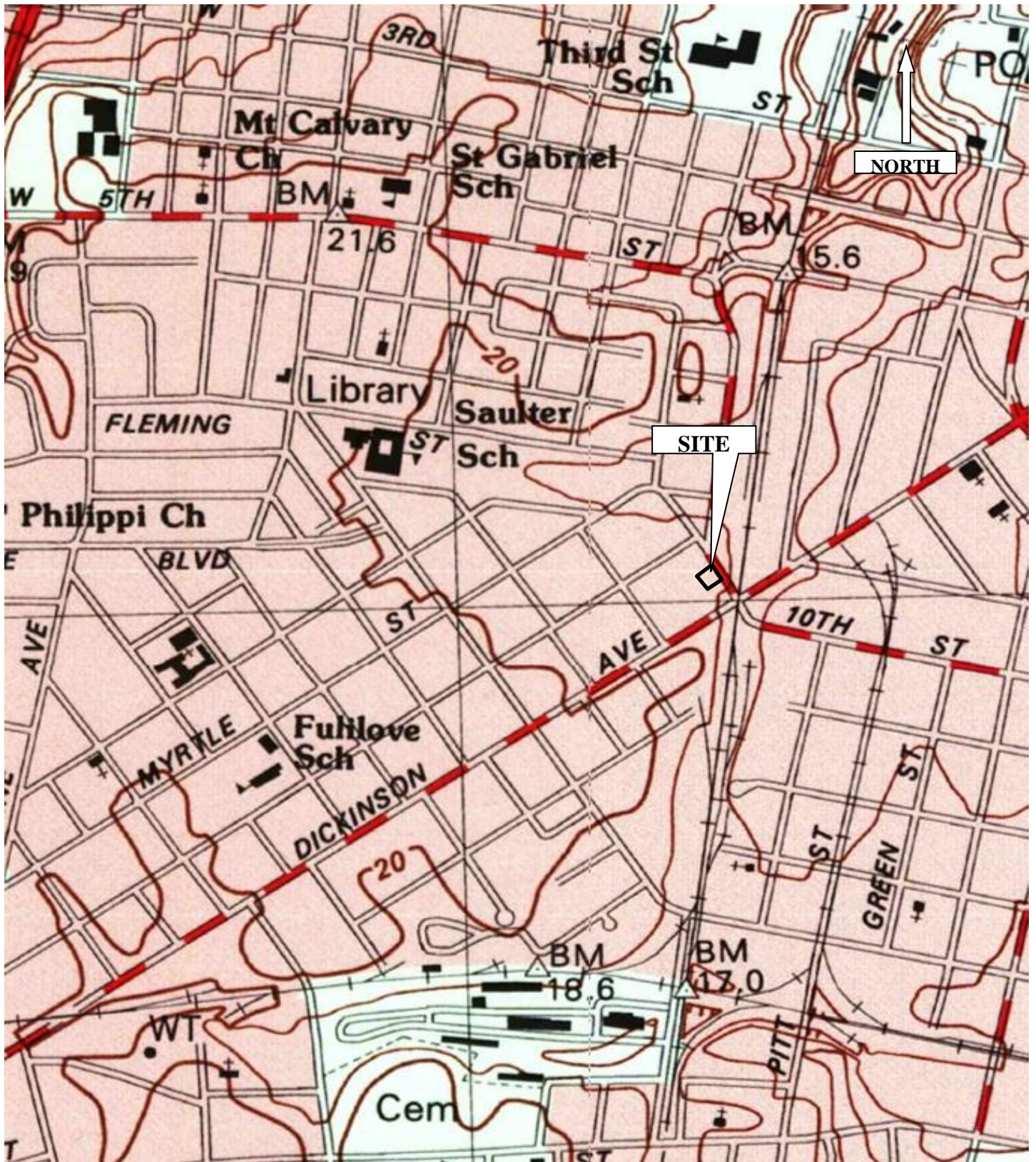


Diagram is for general location only

Site Vicinity Map
Parcel # 82
115 Grande Avenue
Greenville, Pitt County, North Carolina













Reference: Greenville SW, NC USGS Quadrangle

Dated Year: 1998

Terracon

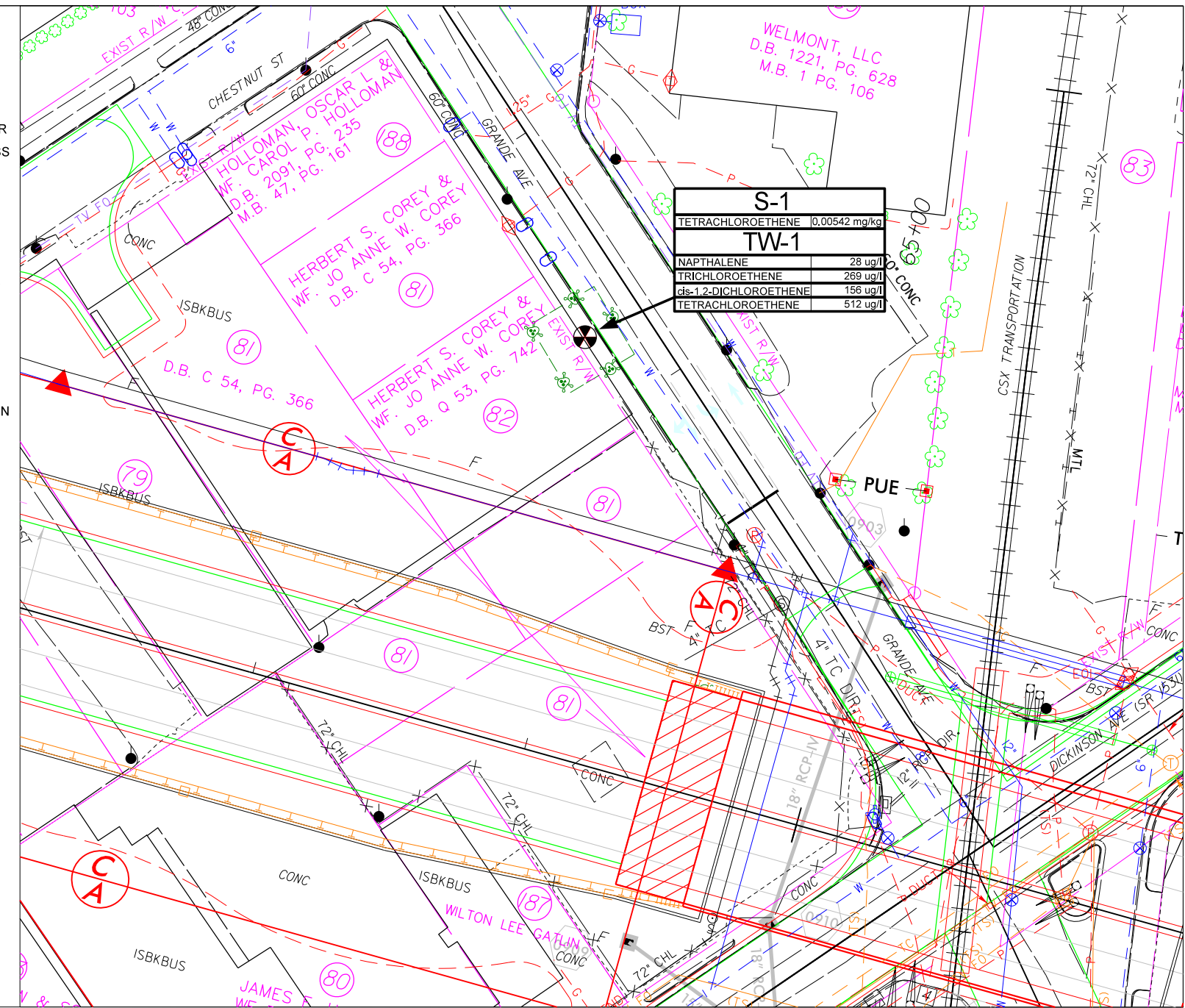
PROJECT NO.:	70127335
DATE: 10/2/12	CONTOUR INT: 2 meters
DRAWN: MDP	CHECK: LCH
SCALE: NTS	

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

NOTES:

1. IHSB INDUSTRIAL SOIL REMEDIATION GOALS
NCAC 2L GROUNDWATER QUALITY STANDARD



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



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**
HERBERT S. COREY & WF JO ANNE W. COREY PROPERTY - PARCEL 82
-L- STATION 63+60
115 GRANDE AVENUE
GREENVILLE, PITT COUNTY, NORTH CAROLINA

EXHIBIT
2

APPENDIX A

Boring Logs

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-1
PROJECT NO.: 70127335	DATE(S) DRILLED: September 6, 2012
PROJECT LOCATION: 115 Grande 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	0.0	No petroleum odors	0.0	Concrete
					0.5	Orange, grey clay/moist
					1.0	
					1.5	Orange, grey sandy clay
					2.0	
2.5 - 5.0		NA	0.0		2.5	
					3.0	
					3.5	
					4.0	Orange, tan fine to medium sand
					4.5	
5.0 - 7.5		NA	0.0		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	0.2		7.5	
					8.0	Orange, tan clay/moist at 8 feet
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	0.2		10.0	
				10.5		
				11.0		
				11.5		
12.5 - 15*		NA	0.5	12.0	Orange, tan fine to medium sand/moist at 14 feet	
				12.5		
				13.0		
				13.5		
				14.0		
				14.5		
15.5 - 17.5			1.7	15.0		
				15.5		
				16.0	Grey, black clay/moist	
				16.5		
				17.0		
17.5 - 20.0			3.6	17.5	Slight odor	
				18.0		
				18.5		
				19.0		
				19.5		
				20.0	Boring terminated at 20.0 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
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APPENDIX B

Geophysical Survey Report

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

CORY, HANNAN, GATLIN & HOLLMAN PROPERTIES

(PARCELS 79, 80, 81, 82, 187, & 188)

Dickinson Avenue

Greenville, North Carolina

September 27, 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.

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GREENSBORO, NC 27416-0265

(336) 335-3174

Terracon
GEOPHYSICAL INVESTIGATION REPORT
COREY, HANNAN, GATLIN & HOLLOMAN PROPERTIES
(PARCELS 79, 80, 81, 82, 187, & 188)
Dickinson Avenue
Greenville, North Carolina

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FIGURES

Figure 1	Geophysical Equipment & Site Photographs
Figure 2	Geophysical Survey Line Locations
Figure 3	EM61 Metal Detection - Bottom Coil Results
Figure 4	EM61 Metal Detection - Differential Results

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Terracon across portions of six different parcels of properties located adjacent to the intersection of Dickinson Avenue and Grande Avenue in Greenville, North Carolina. Conducted on August 22, 23 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 areas of the six properties. The following are the six properties:

Herbert S. Corey Properties (Parcels 79, 81 & 82)	1000 Dickinson Avenue
James E. Hannan Property (Parcel 80)	1008 Dickinson Avenue
Wilton Lee Gatlin Property (Parcel 187)	1006 Dickinson Avenue
Oscar Holloman Property (Parcel 188)	1003 Dickinson Avenue

The Herbert S. Corey properties consist of three separate but contiguous parcels with several miscellaneous buildings. The properties previous operated as storage lots and a filling station. The geophysical survey area encompassed the open asphalt pavement of the properties and a 10 to 20-foot buffer along the northerly, southerly and westerly sides of the buildings. The James E. Hannan property consists of a commercial building with steel reinforced concrete pavement (parking area) adjacent to the easterly side of the building. The geophysical survey area encompassed a 10 to 20-foot buffer around the northerly, southerly and easterly sides of the building.

The Wilton Lee Gatlin property contains a commercial building that was previously used as a dry cleaning facility. The building is surrounded by steel reinforced pavement (parking area). The geophysical survey area encompassed the entire parcel. The Oscar Holloman property is occupied by a partially failed building and at the time of the geophysical investigation, nearly half of the building footprint was a debris pile as a result of the structural failure. The geophysical survey area encompassed a 5 to 10-foot buffer along the northerly and easterly sides of the building.

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 a portion of the six parcels are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 20-foot by 20-foot survey grid was established across the geophysical surveys 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.

At Parcels 79 and 81, 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 northwesterly-southeasterly or northeasterly-southwesterly 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.

Due to the steel reinforced concrete pavement encountered within the areas of interest at Parcels 80, 82, 187, and 188, the geophysical investigation was limited to GPR surveys. GPR data were continuously collected along X-axis and Y-axis survey lines spaced 5 feet apart across the specified areas at each parcel using the same GPR equipment and settings that were discussed above. Locations of the EM61 metal detection survey lines and the GPR survey lines for the six parcels are shown as red dots and purple lines, respectively in **Figure 2**. Each red dot represents an EM61 data point.

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 obtained from Parcels 79, 81 and 82 are presented in **Figures 3 and 4**, 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=15 Y=20, X=30 Y=92, X=30 Y=115, X=210 Y=110, and X=300 Y=165 are probably in response to buried utility lines or conduits. The linear, bottom coil anomalies intersecting grid coordinates X=30 Y=80, X=30 Y=138 and X=100 Y=28 are probably in response to buildings and buried lines. The linear, bottom coil anomalies intersecting grid coordinates X=220 Y=66, X=240 Y=118 and X=345 Y=160 are probably in response to the metal fence line that runs along the perimeter of Parcel 81. The linear, bottom coil anomaly intersecting grid coordinates X=182 Y=120 is probably in response to the building.

GPR data suggest the EM61 differential anomalies centered near grid coordinates X=290 Y=190, X=310 Y=210, X=315 Y=160, and X=334 Y=185 are in response to buried, miscellaneous metal objects or to portions of buried conduits.

GPR data acquired across the steel reinforced concrete pavement at Parcels 80, 187 and 188 did not detect buried metallic USTs. Although GPR scans detected a number of buried lines/conduits beneath the sidewalks running along Chestnut Street, Grande Avenue and Dickinson Avenue, the GPR data suggest the surveyed areas of interest do not contain buried metallic USTs.

The geophysical investigation conducted across the accessible portions of Parcels 79, 80, 81, 82, 187, and 188 suggest the areas do not contain buried metallic USTs.

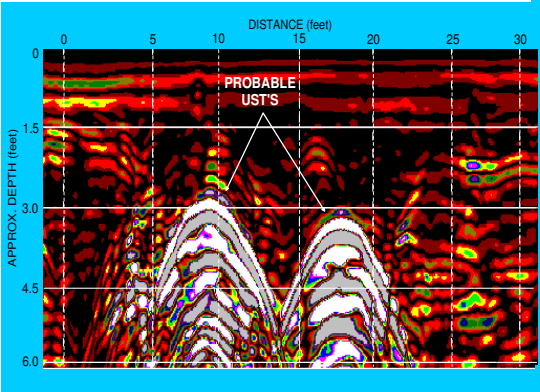
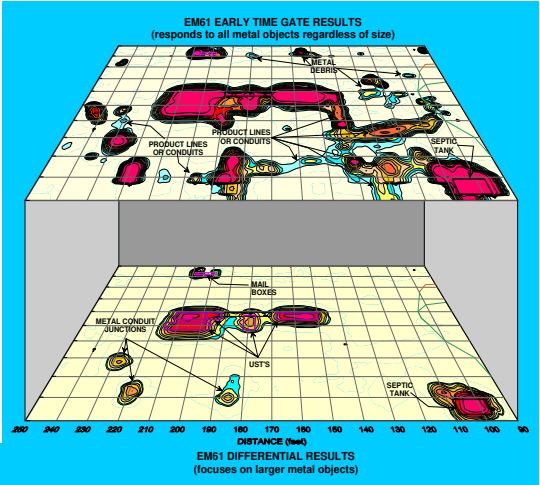
4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the accessible portions of Parcels 79, 80, 81, 82, 187, and 188 located adjacent to the intersection of Dickinson Avenue and Grande 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=15 Y=20, X=30 Y=92, X=30 Y=115, X=210 Y=110, and X=300 Y=165 are probably in response to buried utility lines or conduits.
- GPR data suggest the EM61 differential anomalies centered near grid coordinates X=290 Y=190, X=310 Y=210, X=315 Y=160, and X=334 Y=185 are in response to buried, miscellaneous metal objects or to portions of buried conduits.
- The geophysical investigation conducted across the accessible portions of Parcels 79, 80, 81, 82, 187, and 188 suggest the areas do not contain buried metallic USTs.

5.0 LIMITATIONS

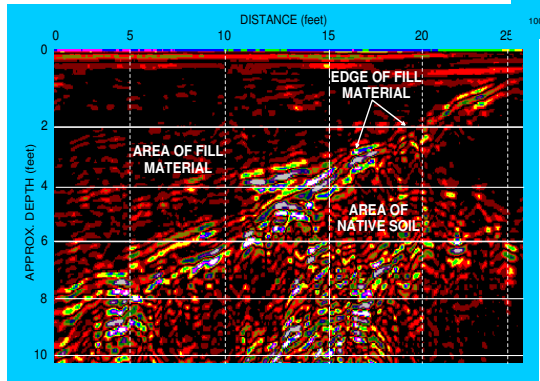
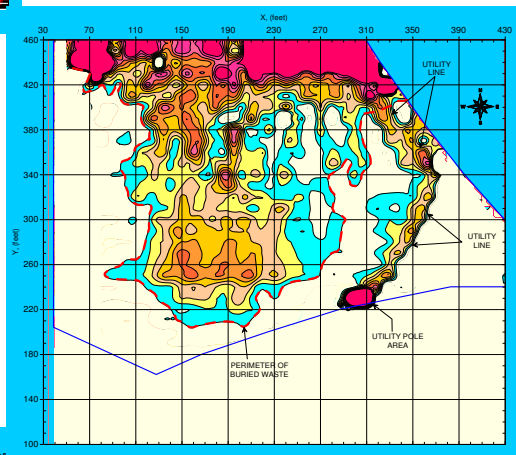
EM61 and GPR surveys have been performed and this report prepared for Terracon Consultants, Inc. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined that the areas of interest do 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 Herbert Corey properties (Parcels 79, 81 & 82) 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 the areas containing steel reinforced concrete and selected EM61 differential anomalies at Parcels, 79, 80, 81, 82, 187, & 188 on August 23 & 29, 2012.



The photograph shows the eastern portions of the Corey, Hannan, Gatlin and Holloman properties located adjacent to the intersection of Dickinson Avenue and Grande Avenue in Greenville, North Carolina. The photograph is viewed in a northwesterly direction.



CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/27/12	DRAWN	MJD
SITE	COREY, HANNAN, GATLIN, & HOLLOWAN PROPERTIES	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DATE	
TITLE	GEOPHYSICAL RESULTS	PLAC	2012-212	FIGURE	

GEOPHYSICAL EQUIPMENT
& SITE PHOTOGRAPHS

CLIENT	TERRACON CONSULTANTS, INC.
SITE	COREY, HANNAN, GATLIN, & HOLLOMAN PROPERTIES
CITY	GREENVILLE
STATE	NORTH CAROLINA
TITLE	GEOPHYSICAL RESULTS
DATE	09/27/12
WARD	MJD
CHNG	
AVT	
SMC	
DNFT	2012-212
BIBDLS	

FIGURE 2
GEOPHYSICAL SURVEY
LINE LOCATIONS



LEGEND

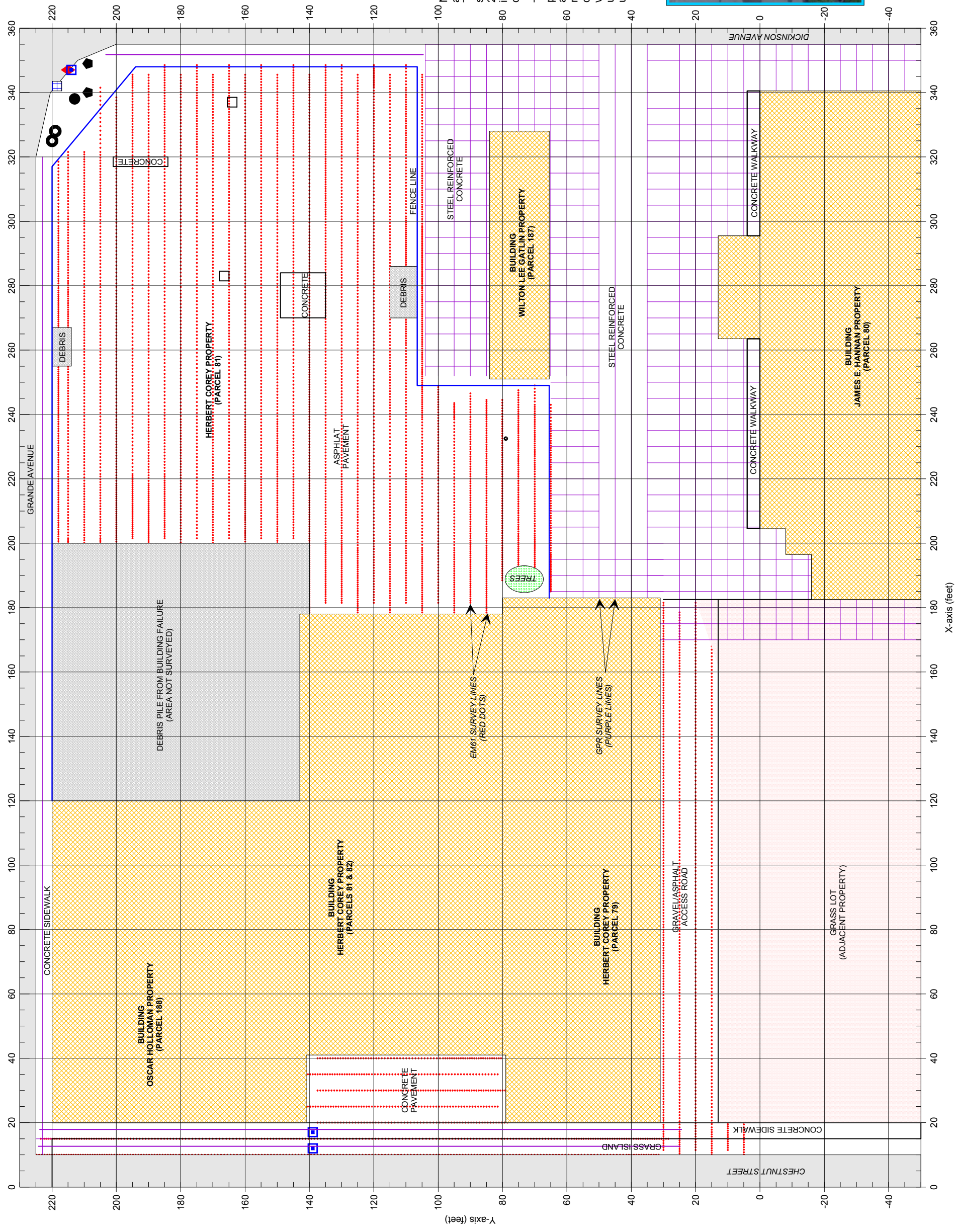
- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- DEBRIS PILE
- STORM SEWER GRATE
- METAL FENCE LINE
- WATER METER COVER
- UTILITY POLE
- SUPPORT POLE
- FIRE HYDRANT
- MONITORING WELL
- ROAD SIGN
- EM61 METAL DETECTION SURVEY LINE
- GPR SURVEY LINE

Note: The map shows the geophysical survey area at Parcels 79, 80, 81, 82, 187, and 188. The red dots represent the EM61 metal detection survey lines that were acquired on August 22, 2012 using a Geonics EM61 metal detection instrument. Each dot represents an EM61 data point.

The solid purple lines represent the ground penetrating radar (GPR) survey lines that were acquired across areas containing steel reinforced concrete and selected EM61 metal detection anomalies. The GPR investigation was conducted on August 23 and 29, 2012, using a Geophysical Survey Systems SIR-2000 unit with a 400 MHz antenna.

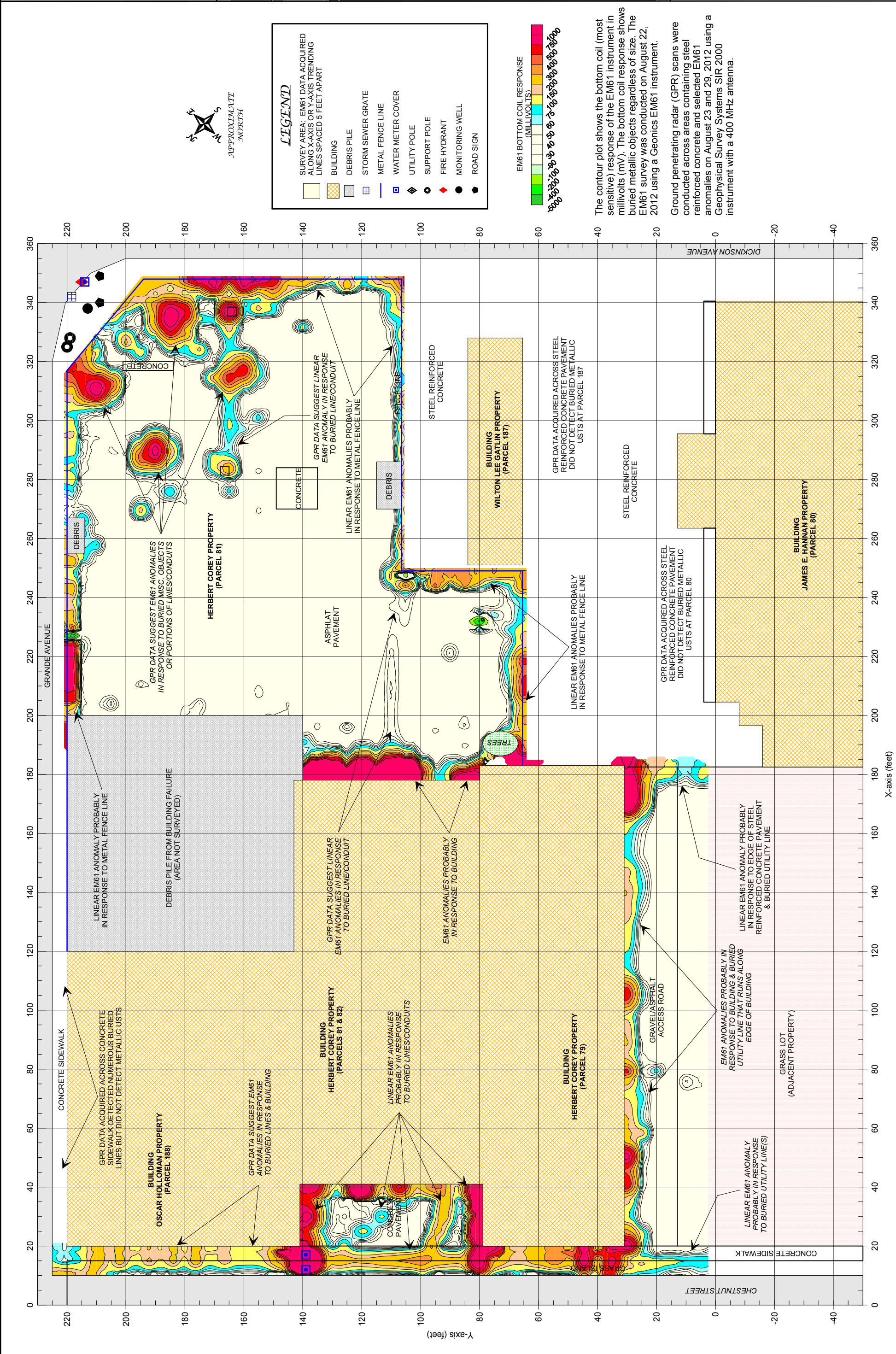


The red polygon in the aerial photograph represents the approximate outer perimeter of the geophysical survey at the subject parcels.



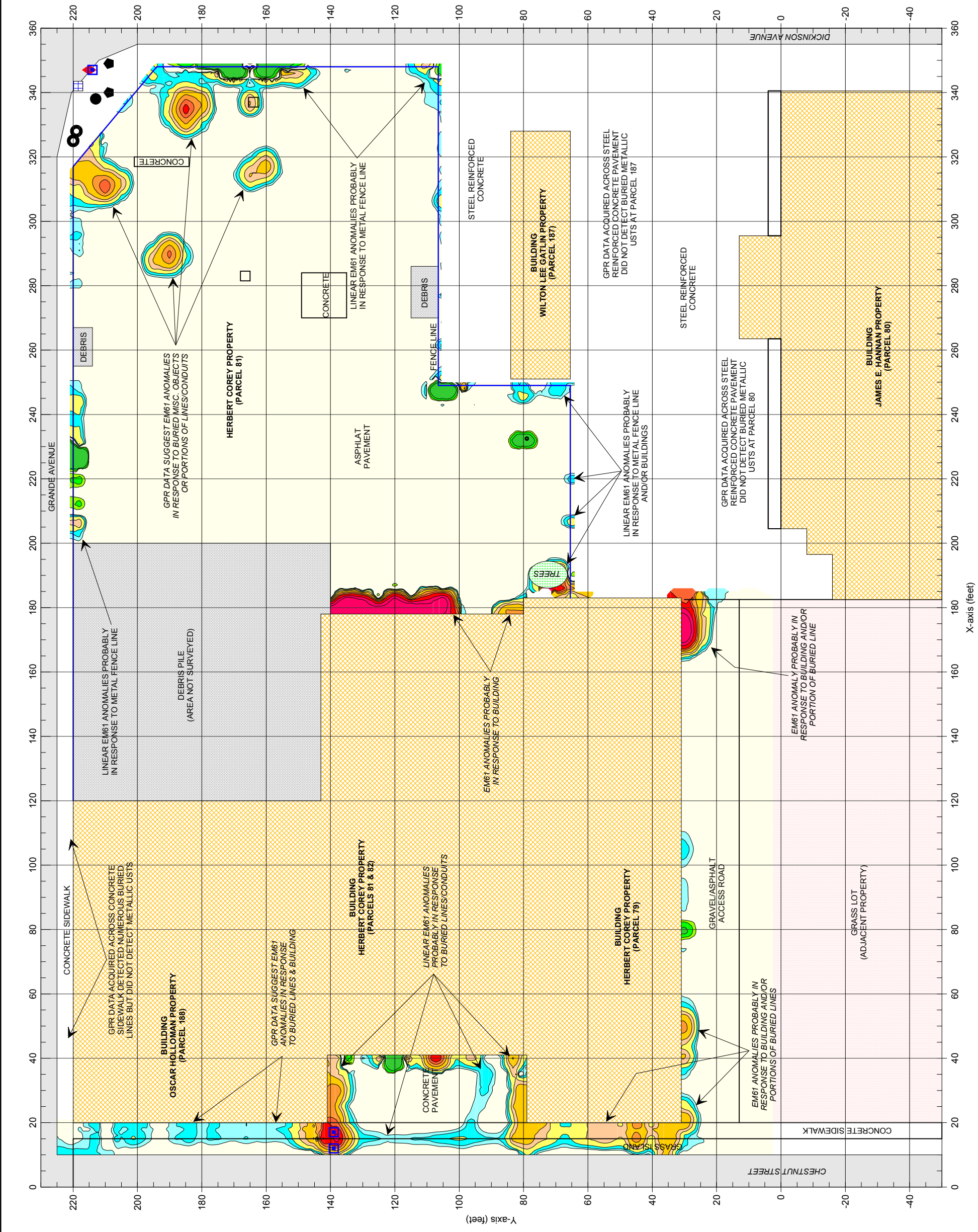
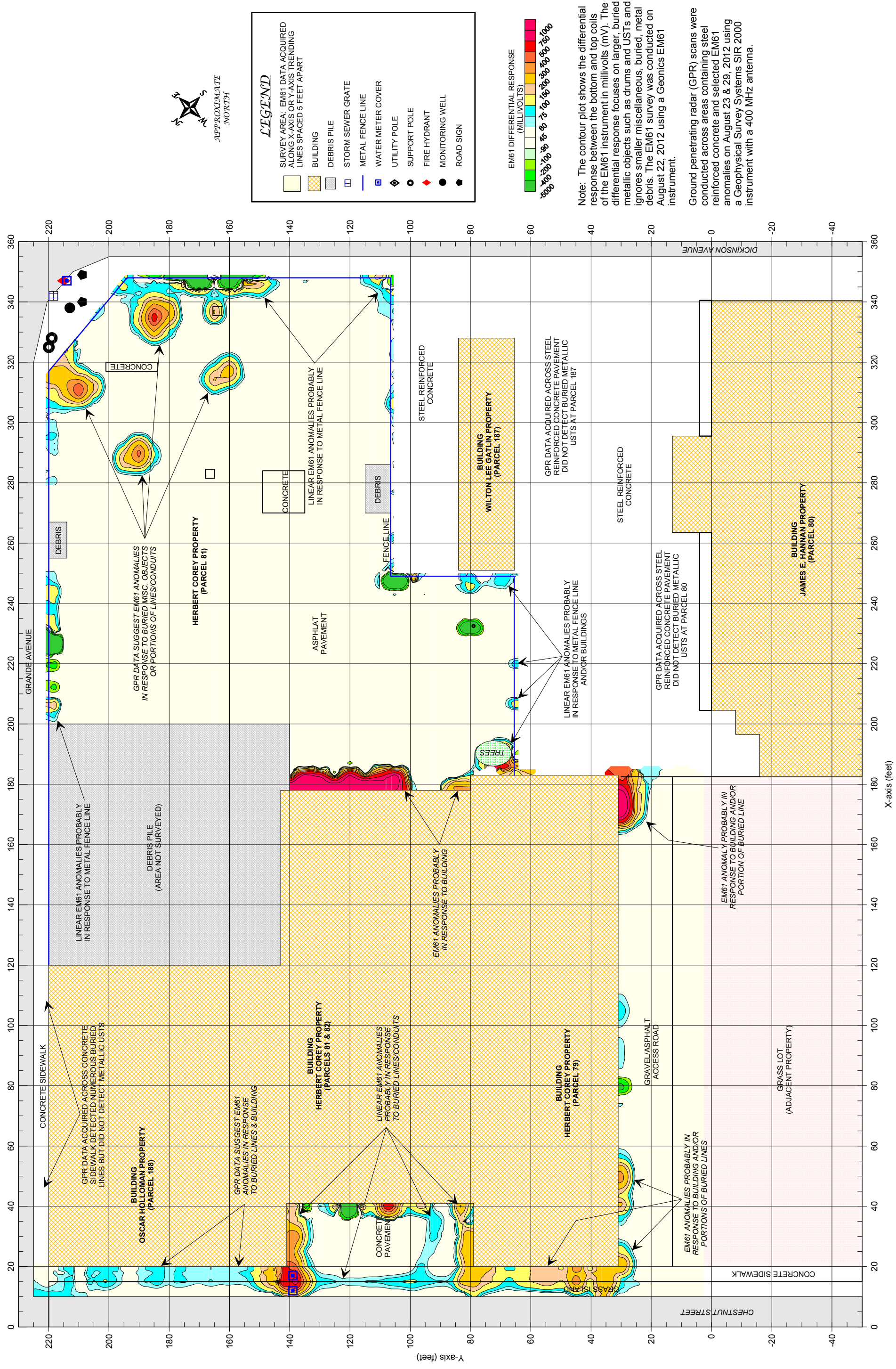
CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/27/12
SITE	COREY, HANNAN, GATLIN, & HOLLOMAN PROPERTIES	WARD	MJD
CITY	GREENVILLE	COUNTY	
STATE	NORTH CAROLINA	DNF	2012-212
TITLE	GEOPHYSICAL RESULTS		

EM61 METAL DETECTION (BOTTOM COIL RESULTS)



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 22, 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 23 and 29, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.



EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

APPENDIX C

Laboratory Analytical Reports and Chain of Custody

Laboratory Report of Analysis

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

Report Number: **31202867**

Client Project: **70127335 U-3315 Parcel#82**

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
Project Manager
michael.page@sgs.com

Date

ANALYTICAL PERSPECTIVES IS NOW PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

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

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
S-1	31202867001	09/06/2012 16:20	09/10/2012 14:45	Soil-Solid as dry weight
TW-1	31202867002	09/06/2012 17:10	09/10/2012 14:45	Water

Results of S-1

Client Sample ID: **S-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867001-A
 Lab Project ID: 31202867

Collection Date: 09/06/2012 16:20
 Received Date: 09/10/2012 14:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.40

Results by SW-846 8260B

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,1,1-Trichloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,1,2,2-Tetrachloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,1,2-Trichloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,1-Dichloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,1-Dichloroethene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,1-Dichloropropene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2,3-Trichlorobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2,3-Trichloropropane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2,4-Trichlorobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2,4-Trimethylbenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2-Dibromo-3-chloropropane	ND		29.5	ug/Kg	1	09/12/2012 12:36
1,2-Dibromoethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2-Dichlorobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2-Dichloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,2-Dichloropropane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,3,5-Trimethylbenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,3-Dichlorobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,3-Dichloropropane	ND		4.92	ug/Kg	1	09/12/2012 12:36
1,4-Dichlorobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
2,2-Dichloropropane	ND		4.92	ug/Kg	1	09/12/2012 12:36
2-Butanone	ND		24.6	ug/Kg	1	09/12/2012 12:36
2-Chlorotoluene	ND		4.92	ug/Kg	1	09/12/2012 12:36
2-Hexanone	ND		12.3	ug/Kg	1	09/12/2012 12:36
4-Chlorotoluene	ND		4.92	ug/Kg	1	09/12/2012 12:36
4-Isopropyltoluene	ND		4.92	ug/Kg	1	09/12/2012 12:36
4-Methyl-2-pentanone	ND		12.3	ug/Kg	1	09/12/2012 12:36
Acetone	ND		49.2	ug/Kg	1	09/12/2012 12:36
Benzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Bromobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Bromochloromethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
Bromodichloromethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
Bromoform	ND		4.92	ug/Kg	1	09/12/2012 12:36
Bromomethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
n-Butylbenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Carbon disulfide	ND		4.92	ug/Kg	1	09/12/2012 12:36
Carbon tetrachloride	ND		4.92	ug/Kg	1	09/12/2012 12:36
Chlorobenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Chloroethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
Chloroform	ND		4.92	ug/Kg	1	09/12/2012 12:36
Chloromethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
Dibromochloromethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
Dibromomethane	ND		4.92	ug/Kg	1	09/12/2012 12:36

Results of S-1

Client Sample ID: **S-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867001-A
 Lab Project ID: 31202867

Collection Date: 09/06/2012 16:20
 Received Date: 09/10/2012 14:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.40

Results by SW-846 8260B

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
cis-1,3-Dichloropropene	ND		4.92	ug/Kg	1	09/12/2012 12:36
trans-1,3-Dichloropropene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Diisopropyl Ether	ND		4.92	ug/Kg	1	09/12/2012 12:36
Ethyl Benzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Hexachlorobutadiene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Isopropylbenzene (Cumene)	ND		4.92	ug/Kg	1	09/12/2012 12:36
Methyl iodide	ND		4.92	ug/Kg	1	09/12/2012 12:36
Methylene chloride	ND		19.7	ug/Kg	1	09/12/2012 12:36
Naphthalene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Styrene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Tetrachloroethene	5.42		4.92	ug/Kg	1	09/12/2012 12:36
Toluene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Trichloroethene	ND		4.92	ug/Kg	1	09/12/2012 12:36
Trichlorofluoromethane	ND		4.92	ug/Kg	1	09/12/2012 12:36
Vinyl chloride	ND		4.92	ug/Kg	1	09/12/2012 12:36
Xylene (total)	ND		9.83	ug/Kg	1	09/12/2012 12:36
cis-1,2-Dichloroethene	ND		4.92	ug/Kg	1	09/12/2012 12:36
m,p-Xylene	ND		9.83	ug/Kg	1	09/12/2012 12:36
n-Propylbenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
o-Xylene	ND		4.92	ug/Kg	1	09/12/2012 12:36
sec-Butylbenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
tert-Butyl methyl ether (MTBE)	ND		4.92	ug/Kg	1	09/12/2012 12:36
tert-Butylbenzene	ND		4.92	ug/Kg	1	09/12/2012 12:36
trans-1,2-Dichloroethene	ND		4.92	ug/Kg	1	09/12/2012 12:36
trans-1,4-Dichloro-2-butene	ND		24.6	ug/Kg	1	09/12/2012 12:36

Surrogates

1,2-Dichloroethane-d4	120		55.0-173	%	1	09/12/2012 12:36
4-Bromofluorobenzene	98.0		23.0-141	%	1	09/12/2012 12:36
Toluene d8	103		57.0-134	%	1	09/12/2012 12:36

Batch Information

Analytical Batch: **VMS2545**
 Analytical Method: **SW-846 8260B**
 Instrument: **MSD9**
 Analyst: **DVO**

Prep Batch: **VXX3982**
 Prep Method: **SW-846 5035 SL**
 Prep Date/Time: **09/11/2012 10:33**
 Prep Initial Wt./Vol.: **6.17 g**
 Prep Extract Vol: **5 mL**

Results of S-1

Client Sample ID: **S-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867001-E
 Lab Project ID: 31202867

Collection Date: 09/06/2012 16:20
 Received Date: 09/10/2012 14:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.40

Results by SW-846 8270D

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
1,2,4-Trichlorobenzene	ND		357	ug/Kg	1	09/14/2012 0:53
1,2-Dichlorobenzene	ND		357	ug/Kg	1	09/14/2012 0:53
1,3-Dichlorobenzene	ND		357	ug/Kg	1	09/14/2012 0:53
1,4-Dichlorobenzene	ND		357	ug/Kg	1	09/14/2012 0:53
2,4,5-Trichlorophenol	ND		357	ug/Kg	1	09/14/2012 0:53
2,4,6-Trichlorophenol	ND		357	ug/Kg	1	09/14/2012 0:53
2,4-Dichlorophenol	ND		357	ug/Kg	1	09/14/2012 0:53
2,4-Dinitrophenol	ND		1790	ug/Kg	1	09/14/2012 0:53
2,4-Dinitrotoluene	ND		357	ug/Kg	1	09/14/2012 0:53
2,6-Dinitrotoluene	ND		357	ug/Kg	1	09/14/2012 0:53
2-Chloronaphthalene	ND		357	ug/Kg	1	09/14/2012 0:53
2-Chlorophenol	ND		357	ug/Kg	1	09/14/2012 0:53
2-Methylnaphthalene	ND		357	ug/Kg	1	09/14/2012 0:53
2-Methylphenol	ND		357	ug/Kg	1	09/14/2012 0:53
2-Nitroaniline	ND		357	ug/Kg	1	09/14/2012 0:53
2-Nitrophenol	ND		357	ug/Kg	1	09/14/2012 0:53
3 and/or 4-Methylphenol	ND		357	ug/Kg	1	09/14/2012 0:53
3,3'-Dichlorobenzidine	ND		715	ug/Kg	1	09/14/2012 0:53
3-Nitroaniline	ND		1790	ug/Kg	1	09/14/2012 0:53
4,6-Dinitro-2-methylphenol	ND		1790	ug/Kg	1	09/14/2012 0:53
4-Chloro-3-methylphenol	ND		357	ug/Kg	1	09/14/2012 0:53
4-Chloroaniline	ND		357	ug/Kg	1	09/14/2012 0:53
4-Chlorophenyl phenyl ether	ND		357	ug/Kg	1	09/14/2012 0:53
Acenaphthene	ND		357	ug/Kg	1	09/14/2012 0:53
Acenaphthylene	ND		357	ug/Kg	1	09/14/2012 0:53
Anthracene	ND		357	ug/Kg	1	09/14/2012 0:53
Benzo(a)anthracene	ND		357	ug/Kg	1	09/14/2012 0:53
Benzo(a)pyrene	ND		357	ug/Kg	1	09/14/2012 0:53
Benzo(b)fluoranthene	ND		357	ug/Kg	1	09/14/2012 0:53
Benzo(g,h,i)perylene	ND		357	ug/Kg	1	09/14/2012 0:53
Benzo(k)fluoranthene	ND		357	ug/Kg	1	09/14/2012 0:53
Benzoic acid	ND		1790	ug/Kg	1	09/14/2012 0:53
Bis(2-Chloroethoxy)methane	ND		357	ug/Kg	1	09/14/2012 0:53
Bis(2-Chloroethyl)ether	ND		357	ug/Kg	1	09/14/2012 0:53
Bis(2-Chloroisopropyl)ether	ND		357	ug/Kg	1	09/14/2012 0:53
Bis(2-Ethylhexyl)phthalate	ND		357	ug/Kg	1	09/14/2012 0:53
4-Bromophenyl phenyl ether	ND		357	ug/Kg	1	09/14/2012 0:53
Butyl benzyl phthalate	ND		357	ug/Kg	1	09/14/2012 0:53
Chrysene	ND		357	ug/Kg	1	09/14/2012 0:53
Di-n-butyl phthalate	ND		357	ug/Kg	1	09/14/2012 0:53
Di-n-octyl phthalate	ND		357	ug/Kg	1	09/14/2012 0:53
Dibenz(a,h)anthracene	ND		357	ug/Kg	1	09/14/2012 0:53
Dibenzofuran	ND		357	ug/Kg	1	09/14/2012 0:53

Results of S-1

Client Sample ID: **S-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867001-E
 Lab Project ID: 31202867

Collection Date: 09/06/2012 16:20
 Received Date: 09/10/2012 14:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.40

Results by SW-846 8270D

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diethyl phthalate	ND		357	ug/Kg	1	09/14/2012 0:53
Dimethyl phthalate	ND		357	ug/Kg	1	09/14/2012 0:53
2,4-Dimethylphenol	ND		357	ug/Kg	1	09/14/2012 0:53
Diphenylamine	ND		357	ug/Kg	1	09/14/2012 0:53
Fluoranthene	ND		357	ug/Kg	1	09/14/2012 0:53
Fluorene	ND		357	ug/Kg	1	09/14/2012 0:53
Hexachlorobenzene	ND		1790	ug/Kg	1	09/14/2012 0:53
Hexachlorobutadiene	ND		357	ug/Kg	1	09/14/2012 0:53
Hexachlorocyclopentadiene	ND		715	ug/Kg	1	09/14/2012 0:53
Hexachloroethane	ND		357	ug/Kg	1	09/14/2012 0:53
Indeno(1,2,3-cd)pyrene	ND		357	ug/Kg	1	09/14/2012 0:53
Isophorone	ND		357	ug/Kg	1	09/14/2012 0:53
Naphthalene	ND		357	ug/Kg	1	09/14/2012 0:53
4-Nitroaniline	ND		1790	ug/Kg	1	09/14/2012 0:53
Nitrobenzene	ND		357	ug/Kg	1	09/14/2012 0:53
4-Nitrophenol	ND		1790	ug/Kg	1	09/14/2012 0:53
Pentachlorophenol	ND		1790	ug/Kg	1	09/14/2012 0:53
Phenanthrene	ND		357	ug/Kg	1	09/14/2012 0:53
Phenol	ND		357	ug/Kg	1	09/14/2012 0:53
Pyrene	ND		357	ug/Kg	1	09/14/2012 0:53
n-Nitrosodi-n-propylamine	ND		357	ug/Kg	1	09/14/2012 0:53

Surrogates

2,4,6-Tribromophenol	79.0		41.0-129	%	1	09/14/2012 0:53
2-Fluorobiphenyl	88.0		48.0-123	%	1	09/14/2012 0:53
2-Fluorophenol	81.0		42.0-123	%	1	09/14/2012 0:53
Nitrobenzene-d5	92.0		46.0-117	%	1	09/14/2012 0:53
Phenol-d6	91.0		48.0-125	%	1	09/14/2012 0:53
Terphenyl-d14	91.0		44.0-140	%	1	09/14/2012 0:53

Batch Information

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

Prep Batch: **XXX3037**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **09/12/2012 15:32**
 Prep Initial Wt./Vol.: **34.01 g**
 Prep Extract Vol: **10 mL**

Results of TW-1

Client Sample ID: **TW-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867002-A
 Lab Project ID: 31202867

Collection Date: 09/06/2012 17:10
 Received Date: 09/10/2012 14:45
 Matrix: Water

Results by SW-846 8260B

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,1,1-Trichloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,1,2,2-Tetrachloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,1,2-Trichloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,1-Dichloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,1-Dichloroethene	ND		20.0	ug/L	20	09/11/2012 17:43
1,1-Dichloropropene	ND		20.0	ug/L	20	09/11/2012 17:43
1,2,3-Trichlorobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
1,2,3-Trichloropropane	ND		20.0	ug/L	20	09/11/2012 17:43
1,2,4-Trichlorobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
1,2,4-Trimethylbenzene	89.4		20.0	ug/L	20	09/11/2012 17:43
1,2-Dibromo-3-chloropropane	ND		100	ug/L	20	09/11/2012 17:43
1,2-Dibromoethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,2-Dichlorobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
1,2-Dichloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
1,2-Dichloropropane	ND		20.0	ug/L	20	09/11/2012 17:43
1,3,5-Trimethylbenzene	75.6		20.0	ug/L	20	09/11/2012 17:43
1,3-Dichlorobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
1,3-Dichloropropane	ND		20.0	ug/L	20	09/11/2012 17:43
1,4-Dichlorobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
2,2-Dichloropropane	ND		20.0	ug/L	20	09/11/2012 17:43
2-Butanone	ND		500	ug/L	20	09/11/2012 17:43
2-Chlorotoluene	ND		20.0	ug/L	20	09/11/2012 17:43
2-Hexanone	ND		100	ug/L	20	09/11/2012 17:43
4-Chlorotoluene	ND		20.0	ug/L	20	09/11/2012 17:43
4-Isopropyltoluene	ND		20.0	ug/L	20	09/11/2012 17:43
4-Methyl-2-pentanone	ND		100	ug/L	20	09/11/2012 17:43
Acetone	ND		500	ug/L	20	09/11/2012 17:43
Benzene	ND		20.0	ug/L	20	09/11/2012 17:43
Bromobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
Bromochloromethane	ND		20.0	ug/L	20	09/11/2012 17:43
Bromodichloromethane	ND		20.0	ug/L	20	09/11/2012 17:43
Bromoform	ND		20.0	ug/L	20	09/11/2012 17:43
Bromomethane	ND		20.0	ug/L	20	09/11/2012 17:43
n-Butylbenzene	ND		20.0	ug/L	20	09/11/2012 17:43
Carbon disulfide	ND		20.0	ug/L	20	09/11/2012 17:43
Carbon tetrachloride	ND		20.0	ug/L	20	09/11/2012 17:43
Chlorobenzene	ND		20.0	ug/L	20	09/11/2012 17:43
Chloroethane	ND		20.0	ug/L	20	09/11/2012 17:43
Chloroform	ND		20.0	ug/L	20	09/11/2012 17:43
Chloromethane	ND		20.0	ug/L	20	09/11/2012 17:43
Dibromochloromethane	ND		20.0	ug/L	20	09/11/2012 17:43
Dibromomethane	ND		20.0	ug/L	20	09/11/2012 17:43

Results of TW-1

Client Sample ID: **TW-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867002-A
 Lab Project ID: 31202867

Collection Date: 09/06/2012 17:10
 Received Date: 09/10/2012 14:45
 Matrix: Water

Results by SW-846 8260B

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Dichlorodifluoromethane	ND		100	ug/L	20	09/11/2012 17:43
cis-1,3-Dichloropropene	ND		20.0	ug/L	20	09/11/2012 17:43
trans-1,3-Dichloropropene	ND		20.0	ug/L	20	09/11/2012 17:43
Diisopropyl Ether	ND		20.0	ug/L	20	09/11/2012 17:43
Ethyl Benzene	ND		20.0	ug/L	20	09/11/2012 17:43
Hexachlorobutadiene	ND		20.0	ug/L	20	09/11/2012 17:43
Isopropylbenzene (Cumene)	ND		20.0	ug/L	20	09/11/2012 17:43
Methyl iodide	ND		20.0	ug/L	20	09/11/2012 17:43
Methylene chloride	ND		100	ug/L	20	09/11/2012 17:43
Naphthalene	28.0		20.0	ug/L	20	09/11/2012 17:43
Styrene	ND		20.0	ug/L	20	09/11/2012 17:43
Tetrachloroethene	512		20.0	ug/L	20	09/11/2012 17:43
Toluene	ND		20.0	ug/L	20	09/11/2012 17:43
Trichloroethene	269		20.0	ug/L	20	09/11/2012 17:43
Trichlorofluoromethane	ND		20.0	ug/L	20	09/11/2012 17:43
Vinyl chloride	ND		20.0	ug/L	20	09/11/2012 17:43
Xylene (total)	105		40.0	ug/L	20	09/11/2012 17:43
cis-1,2-Dichloroethene	156		20.0	ug/L	20	09/11/2012 17:43
m,p-Xylene	ND		40.0	ug/L	20	09/11/2012 17:43
n-Propylbenzene	28.2		20.0	ug/L	20	09/11/2012 17:43
o-Xylene	104		20.0	ug/L	20	09/11/2012 17:43
sec-Butylbenzene	ND		20.0	ug/L	20	09/11/2012 17:43
tert-Butyl methyl ether (MTBE)	ND		20.0	ug/L	20	09/11/2012 17:43
tert-Butylbenzene	ND		20.0	ug/L	20	09/11/2012 17:43
trans-1,2-Dichloroethene	ND		20.0	ug/L	20	09/11/2012 17:43
trans-1,4-Dichloro-2-butene	ND		100	ug/L	20	09/11/2012 17:43

Surrogates

1,2-Dichloroethane-d4	105		64.0-140	%	20	09/11/2012 17:43
4-Bromofluorobenzene	100		85.0-115	%	20	09/11/2012 17:43
Toluene d8	101		82.0-117	%	20	09/11/2012 17:43

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**

Results of TW-1

Client Sample ID: **TW-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867002-D
 Lab Project ID: 31202867

Collection Date: 09/06/2012 17:10
 Received Date: 09/10/2012 14:45
 Matrix: Water

Results by SW-846 8270D

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
1,2,4-Trichlorobenzene	ND		5.20	ug/L	1	09/14/2012 0:08
1,2-Dichlorobenzene	ND		5.20	ug/L	1	09/14/2012 0:08
1,3-Dichlorobenzene	ND		5.20	ug/L	1	09/14/2012 0:08
1,4-Dichlorobenzene	ND		5.20	ug/L	1	09/14/2012 0:08
2,4,5-Trichlorophenol	ND		5.20	ug/L	1	09/14/2012 0:08
2,4,6-Trichlorophenol	ND		5.20	ug/L	1	09/14/2012 0:08
2,4-Dichlorophenol	ND		5.20	ug/L	1	09/14/2012 0:08
2,4-Dinitrophenol	ND		26.0	ug/L	1	09/14/2012 0:08
2,4-Dinitrotoluene	ND		5.20	ug/L	1	09/14/2012 0:08
2,6-Dinitrotoluene	ND		5.20	ug/L	1	09/14/2012 0:08
2-Chloronaphthalene	ND		5.20	ug/L	1	09/14/2012 0:08
2-Chlorophenol	ND		5.20	ug/L	1	09/14/2012 0:08
2-Methylnaphthalene	ND		5.20	ug/L	1	09/14/2012 0:08
2-Methylphenol	ND		5.20	ug/L	1	09/14/2012 0:08
2-Nitroaniline	ND		5.20	ug/L	1	09/14/2012 0:08
2-Nitrophenol	ND		5.20	ug/L	1	09/14/2012 0:08
3 and/or 4-Methylphenol	ND		5.20	ug/L	1	09/14/2012 0:08
3,3'-Dichlorobenzidine	ND		10.4	ug/L	1	09/14/2012 0:08
3-Nitroaniline	ND		26.0	ug/L	1	09/14/2012 0:08
4,6-Dinitro-2-methylphenol	ND		26.0	ug/L	1	09/14/2012 0:08
4-Chloro-3-methylphenol	ND		5.20	ug/L	1	09/14/2012 0:08
4-Chloroaniline	ND		26.0	ug/L	1	09/14/2012 0:08
4-Chlorophenyl phenyl ether	ND		5.20	ug/L	1	09/14/2012 0:08
Acenaphthene	ND		5.20	ug/L	1	09/14/2012 0:08
Acenaphthylene	ND		5.20	ug/L	1	09/14/2012 0:08
Anthracene	ND		5.20	ug/L	1	09/14/2012 0:08
Benzo(a)anthracene	ND		5.20	ug/L	1	09/14/2012 0:08
Benzo(a)pyrene	ND		5.20	ug/L	1	09/14/2012 0:08
Benzo(b)fluoranthene	ND		5.20	ug/L	1	09/14/2012 0:08
Benzo(g,h,i)perylene	ND		5.20	ug/L	1	09/14/2012 0:08
Benzo(k)fluoranthene	ND		5.20	ug/L	1	09/14/2012 0:08
Benzoic acid	ND		5.20	ug/L	1	09/14/2012 0:08
Bis(2-Chloroethoxy)methane	ND		5.20	ug/L	1	09/14/2012 0:08
Bis(2-Chloroethyl)ether	ND		5.20	ug/L	1	09/14/2012 0:08
Bis(2-Chloroisopropyl)ether	ND		5.20	ug/L	1	09/14/2012 0:08
Bis(2-Ethylhexyl)phthalate	ND		5.20	ug/L	1	09/14/2012 0:08
4-Bromophenyl phenyl ether	ND		5.20	ug/L	1	09/14/2012 0:08
Butyl benzyl phthalate	ND		5.20	ug/L	1	09/14/2012 0:08
Chrysene	ND		5.20	ug/L	1	09/14/2012 0:08
Di-n-butyl phthalate	ND		5.20	ug/L	1	09/14/2012 0:08
Di-n-octyl phthalate	ND		5.20	ug/L	1	09/14/2012 0:08
Dibenz(a,h)anthracene	ND		5.20	ug/L	1	09/14/2012 0:08
Dibenzofuran	ND		5.20	ug/L	1	09/14/2012 0:08

Results of TW-1

Client Sample ID: **TW-1**
 Client Project ID: **70127335 U-3315 Parcel#82**
 Lab Sample ID: 31202867002-D
 Lab Project ID: 31202867

Collection Date: 09/06/2012 17:10
 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		5.20	ug/L	1	09/14/2012 0:08
Dimethyl phthalate	ND		5.20	ug/L	1	09/14/2012 0:08
2,4-Dimethylphenol	ND		5.20	ug/L	1	09/14/2012 0:08
Diphenylamine	ND		5.20	ug/L	1	09/14/2012 0:08
Fluoranthene	ND		5.20	ug/L	1	09/14/2012 0:08
Fluorene	ND		5.20	ug/L	1	09/14/2012 0:08
Hexachlorobenzene	ND		5.20	ug/L	1	09/14/2012 0:08
Hexachlorobutadiene	ND		5.20	ug/L	1	09/14/2012 0:08
Hexachlorocyclopentadiene	ND		10.4	ug/L	1	09/14/2012 0:08
Hexachloroethane	ND		5.20	ug/L	1	09/14/2012 0:08
Indeno(1,2,3-cd)pyrene	ND		5.20	ug/L	1	09/14/2012 0:08
Isophorone	ND		5.20	ug/L	1	09/14/2012 0:08
Naphthalene	22.4		5.20	ug/L	1	09/14/2012 0:08
4-Nitroaniline	ND		26.0	ug/L	1	09/14/2012 0:08
Nitrobenzene	ND		5.20	ug/L	1	09/14/2012 0:08
4-Nitrophenol	ND		26.0	ug/L	1	09/14/2012 0:08
Pentachlorophenol	ND		26.0	ug/L	1	09/14/2012 0:08
Phenanthrene	ND		5.20	ug/L	1	09/14/2012 0:08
Phenol	ND		5.20	ug/L	1	09/14/2012 0:08
Pyrene	ND		5.20	ug/L	1	09/14/2012 0:08
n-Nitrosodi-n-propylamine	ND		5.20	ug/L	1	09/14/2012 0:08

Surrogates

2,4,6-Tribromophenol	101		29.3-152	%	1	09/14/2012 0:08
2-Fluorobiphenyl	93.0		50.0-107	%	1	09/14/2012 0:08
2-Fluorophenol	81.0		33.1-118	%	1	09/14/2012 0:08
Nitrobenzene-d5	96.0		46.0-118	%	1	09/14/2012 0:08
Phenol-d6	96.0		49.0-120	%	1	09/14/2012 0:08
Terphenyl-d14	99.0		22.1-142	%	1	09/14/2012 0:08

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.: **961 mL**
 Prep Extract Vol: **5 mL**



CHAIN OF CUSTODY RECORD
SGS North America Inc.

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• New York
• Ohio

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104679

1 CLIENT: TERRACON
CONTACT: BEN SWIFT
PHONE NO: (919) 873-2211
PROJECT: 70127335
SITE/PSID#: 0-3315 # 82
REPORTS TO: Lora Hoffman
l.hoffman@terracecon.com FAX NO.: ()
INVOICE TO:
QUOTE #: NLDOT
P.O. NUMBER:

SGS Reference: 3202867 PAGE 1 OF 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	NO CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis Required	REMARKS
	5-1	9-6-12	1620	SS	5	G	X	X	
	TW-1	1	1710	GW	5	L	I	I	

5 Collected/Relinquished By: (1) Ben Swift
Date: 9-7-12 Time: 0834
Received By: [Signature] Date: 9/8/12 Time: 1715
Relinquished By: (2) [Signature]
Date: 9-10-12 Time: 1200
Received By: [Signature]
Relinquished By: (3) [Signature]
Date: 9/10/12 Time: 1445
Received By: [Signature]
Relinquished By: (4) [Signature]
Date: Time:

Shipping Carrier: Samples Received Cold? (Circle) YES NO
Shipping Ticket No: Temperature C: 0.2c.
Special Deliverable Requirements: Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time: RUSH STD Date Needed: STD

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: NCDOT-Terracon Work Order No.: 31202867

- 1. Shipped
 Hand Delivered
- 2. COC Present on Receipt
 No COC
 Additional Transmittal Forms
- 3. Custody Tape on Container
 No Custody Tape
- 4. Samples Intact
 Samples Broken / Leaking
- 5. 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. Sufficient Sample Submitted
 Insufficient Sample Submitted
- 7. Chlorine absent
 HNO3 < 2
 HCL < 2
 Additional Preservatives verified (see notes)
- 8. Received Within Holding Time
 Not Received Within Holding Time
- 9. No Discrepancies Noted
 Discrepancies Noted
 NCDENR notified of Discrepancies*
- 10. 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