

**REVISED REMEDIAL INVESTIGATION SUMMARY**  
**SPRING HOPE DUMP**  
**SPRING HOPE, NASH COUNTY, NORTH CAROLINA**  
ID No. NONCD0000452  
State Contract No. N110003S  
Task Order 452SUM-1



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**Submitted To:**

**North Carolina Department of Environmental  
Quality  
Division of Waste Management  
Inactive Hazardous Sites Branch  
Superfund Section  
Pre-Regulatory Landfill Unit  
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## TABLE OF CONTENTS

<b>1.0 INTRODUCTION</b> .....	3
<b>2.0 SENSITIVE ENVIRONMENTS</b> .....	4
<b>3.0 SITE GEOLOGY AND HYDROGEOLOGY</b> .....	4
<b>4.0 WASTE DISPOSAL AREA</b> .....	5
<b>5.0 MEDIA CHARACTERIZATION</b> .....	5
5.1 Soil and Sediment Characterization .....	5
<b>5.1.1 Soil and Sediment Remedial Goals</b> .....	5
<b>5.1.2 Soil Sampling</b> .....	6
<b>5.1.3 Sediment Sampling</b> .....	6
5.2 Water Characterization .....	6
<b>5.2.1 Groundwater Monitor Wells</b> .....	6
5.3 Landfill Gas Characterization.....	7
<b>6.0 REFERENCES</b> .....	7
<b>7.0 SOLE USE STATEMENT</b> .....	7
<b>8.0 CERTIFICATION STATEMENT</b> .....	8

## TABLES

Table 1: Soil Cover Analytical Exceedances
Table 2: Soil Analytical Exceedances
Table 3: Soil Asbestos Sampling Results
Table 4: Sediment Analytical Exceedances
Table 5: Groundwater Analytical Exceedances
Table 6: Surface Water Analytical Exceedances

## FIGURES

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil Cover Thickness Map
Figure 4: Background Sampling Results Map
Figure 5: Soil Cover Sampling Locations Map
Figure 6: Soil Sampling Results Map
Figure 7: Soil Asbestos Sampling Results Map
Figure 8: Sediment Sampling Locations Map
Figure 9: Groundwater Potentiometric Map
Figure 10: Groundwater Sampling Results Map
Figure 11: Surface Water Sampling Results Map

**ACRONYMS**

NCDEQ -	North Carolina Department of Environmental Quality
USGS -	United States Geological Survey
Ft-AMSL -	Feet Above Mean Sea Level
USACE -	United States Army Corps of Engineers
Ft. bgs -	Feet Below Ground Surface
IHSB -	North Carolina Inactive Hazardous Sites Branch
PSRGs -	Preliminary Soil Remediation Goals
MCLs -	Federal Maximum Contaminant Levels
TMW -	Temporary Monitoring Well
COC -	Contaminants of Concern
NCAC -	North Carolina Administrative Code
PW -	Potable Well
DUP -	Duplicate sample
VOC -	Volatile Organic Compounds
SVOC -	Semi-Volatile Organic Compounds
FID -	Flame Ionization Detector
GPS -	Global Positioning System
VP -	Vapor Probe
NC 2B -	North Carolina's 15A NCAC 2B. 0200 (Surface Water) Standards
NC 2L -	North Carolina's 15A NCAC 02L .0202 (Groundwater) Standards

## 1.0 INTRODUCTION

S&ME, Inc. (S&ME) is submitting this report to the North Carolina Department of Environmental Quality (NCDEQ), Pre-Regulatory Landfill Unit (Unit). The purpose of the report is to provide an executive summary of risks identified during the remedial investigation. Remedial Investigation activities were performed in general conformance with our State contract N10003S and with individual Task Orders for each activity.

### Site Specific Information:

Site Name:	Spring Hope Dump
ID Number:	NONCD0000452
Location:	South Walnut Street, Spring Hope, Nash County
Waste Disposal Area:	Approximately 1.8 acres
Parcel Size:	13.8 acres
PIN(s):	<u>276911671248</u> Owner: Town of Spring Hope Spring Hope, NC 27882 <u>276911677462</u> Owner: Murray, Charlette and Phillip 3605 Ridge Rd., Spring Hope, NC 27882
Current Use:	Vacant – no on-site structures
Site Access:	From NC Highway 581 (South Walnut Street), east on unnamed gravel road north of Meeks Cemetery
Site entrance coordinates:	35.938206° N and 78.100876° S
Zoning:	RA – Residential-Agricultural District
River Basin:	Tar-Pamlico

The Spring Hope Dump site is located in a heavily wooded rural area east of South Walnut Street in Spring Hope, Nash County. The site and vicinity are zoned primarily as Residential/Agricultural (Residential-Agricultural District, RA). The largest portion of the site is contained on a parcel (PIN No. 276911671248) owned by the Town of Spring Hope and shared by the Spring Hope Waste Water Treatment Plant to the north and the Meeks Cemetery to the south. The eastern portion of the site is contained on a privately owned parcel (PIN No. 276911677462). Two gravel roads intersect within the waste disposal area. A Vicinity map is included as **Figure 1**. A Site Map showing ground conditions and certain utilities is included as **Figure 2**.

The topography of the property generally slopes downward to the north, east and west. Hendricks Creek flows eastward along the northern waste disposal area boundary. A wetland area is located east of the waste disposal area. A surface water drainage feature flows northward along the western waste disposal area boundary to Hendricks Creek.

The site was operated from approximately 1951 through 1971. Typical household trash and discarded construction debris (concrete and asphalt pavement) were disposed at the site. There

appears to have been unauthorized dumping of white goods at the site since the landfill ceased operation. Approximate locations of areas containing surficial waste are shown on **Figure 2**.

## **2.0 SENSITIVE ENVIRONMENTS**

On-site surface water features having U.S. Army Corps of Engineers (USACE) jurisdiction include the Hendricks Creek which borders the northern portion of the waste disposal area. The site and surrounding areas drain into Hendricks Creek, which is a tributary of Sapony Creek, which flows into an impaired reach (due to low dissolved oxygen) of the Tar River. The Tar River is listed on 2010 303(d) list of impaired waters, as reported to the EPA. The entire Tar-Pamlico River Basin is considered Nutrient Sensitive. According to USACE, any activity on this property needs to eliminate or mitigate sediment and nutrient runoff to Hendricks Creek that would eventually contribute to turbidity and reduced dissolved oxygen levels in the Tar-Pamlico River Basin.

## **3.0 SITE GEOLOGY AND HYDROGEOLOGY**

According to the Geologic Map of North Carolina dated 1985, the Spring Hope Dump is located in the Eastern Slate Belt in a formation of Felsic Metavolcanic Rock. According to the Soil Survey of Nash County, the central portion of the Spring Hope Dump lies within an area mapped as Wehadkee Loam (frequently flooded). This poorly drained soil has a profile depth of approximately 80 inches with parent material of loamy alluvium derived from igneous and metamorphic rock. The soil's capacity of the most limiting layer to transmit water under saturated conditions (Ksat) is documented as being moderately high to high (0.57 to 1.98 inches per hour). The typical soil profile predominantly contains loam and sandy loam textures throughout.

The southern portion of the Spring Hope Dump lies within an area mapped as the Norfolk, Georgeville and Faceville soil complex. This complex is frequently flooded. The complex's Ksat is documented as being moderately high to high (0.57 to 1.98 inches per hour). The typical soil profile contains an upper 14 inches of loamy sand texture underlain by sandy clay loam to the total depth of the profile.

In general, poorly drained soils in the central and northern portions of the site are surrounded by deep, well drained soils overlying competent bedrock. Concerns for the site were not identified with regard to the underlying geology.

Based on consultation with the Nash County Health Department and published sources (Chapman, et.al (2012)), iron and manganese naturally occur in Nash County at concentrations frequently above regulatory standards. The iron and manganese concentrations detected by the laboratory in soil and groundwater samples collected at the site were within the expected ranges for the site's geographic location.

## 4.0 WASTE DISPOSAL AREA

An estimated 40 cubic yards of surface debris has accumulated across the site from post closure dumping. Surface waste consists primarily of large concrete debris with some metal debris (scrap metal and old appliances). The amount of surface debris varies across the site, with the majority located on the north-central and eastern portions of the waste disposal area. Debris is also located in portions of the onsite stream and drainage feature, which are located at the toe-of-slope of the waste disposal area. Approximate locations of areas containing surficial waste are shown on **Figure 2**.

The waste disposal area covers approximately 1.8 acres (**Figure 2**). Subsurface waste was encountered up to an approximate depth of 18 feet below ground surface (bgs). The total estimated volume of buried waste is 20,000 cubic yards. In general, waste identified across the site consisted of glass, plastic, brick and textiles. Decomposed organic waste (black muck) was also encountered.

Soil cover thickness overlying the subsurface waste ranges from approximately 0 – 3 feet across the site. Observed soil cover thicknesses are shown on **Figure 3**.

## 5.0 MEDIA CHARACTERIZATION

### 5.1 Soil and Sediment Characterization

#### 5.1.1 Soil and Sediment Remedial Goals

Soil and sediment analytical results were initially compared to the Preliminary Soil Remediation Goals (PSRGs) established by the North Carolina Inactive Hazardous Sites Branch (IHSB) and protection of groundwater. Remediation goals are established in a manner consistent with applicable standards. The following site specific health based Soil Remediation Goals (SRGs) include the following (shown in parts per million (ppm)):

<b><u>Inorganics</u></b>	<b><u>SRGs (ppm)</u></b>
Antimony	31
Arsenic	34
Cadmium	70
Lead	400
Selenium	390
Zinc	23,000

<b><u>Organics</u></b>	<b><u>SRGs (ppm)</u></b>
Benzo[a]anthracene	1.88
Benzo[b]fluoranthene	1.88
Benzo[k]fluoranthene	18.75
Benzo[a]pyrene	0.19
Chrysene	187.50
Dibenzo(a,e)pyrene	0.25
Indeno(1,2,3,-cd)pyrene	1.88
Naphthalene	45

Two metals (iron and manganese) were detected by the laboratory at naturally occurring concentrations for Nash County.

### 5.1.2 Soil Sampling

Laboratory analysis of background soil samples detected two contaminants at one location approximately 500 feet from the waste disposal area: one metal (arsenic) was detected at concentrations greater than the SRG in samples collected from depths between 5 to 9 feet bgs and chrysotile asbestos was detected (at a concentration greater than 1%) in a sample collected at a depth of 9 to 15 feet bgs. Background sampling locations and results are shown on **Figure 4**.

Laboratory analysis of soil cover samples detected no contaminants at concentrations greater than the SRGs or naturally occurring concentrations, as summarized on **Table 1**. Soil cover sampling locations are shown on **Figure 5**.

Analytical results of collected soil/waste samples indicated that three metals (antimony, arsenic, and lead) and five SVOCs (benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) were present at concentrations greater than the SRGs in one or more samples, as summarized on **Table 2** and **Figure 6**.

Laboratory analysis detected chrysotile asbestos (detected at a concentration greater than 1%) in samples collected from two borings at depths ranging from 2.5 to 7.0 feet bgs., as summarized on **Table 3** and **Figure 7**.

### 5.1.3 Sediment Sampling

Laboratory analysis of collected sediment samples detected no contaminants at concentrations greater than the SRGs or naturally occurring concentrations, as summarized on **Table 4**. Sediment sampling locations are shown on **Figure 8**.

## 5.2 Water Characterization

Groundwater analytical results were compared to the North Carolina's 15A NCAC 02L .0202 Standards. Surface water results were compared to North Carolina's 15A NCAC 2B. 0200 Standards.

### 5.2.1 Groundwater Monitor Wells

The observed depth to groundwater across the site ranges from approximately 1.9 to 7.3 feet, and groundwater flow direction is generally northward toward Hendricks Creek. A groundwater potentiometric map is included as **Figure 9**.

Laboratory analysis of collected groundwater samples detected two naturally occurring metals (iron and manganese) and ammonia at a concentration greater than the NCAC 2L Standard, as summarized on **Table 5** and **Figure 10**.

### 5.2.2 Surface Water

Laboratory analysis of collected surface water samples detected iron at concentrations greater than the NCAC 2B Standard, as summarized on **Table 6** and **Figure 11**.

### 5.3 Landfill Gas Characterization

No concentrations of VOCs, methane, hydrogen sulfide, or mercury were detected in above-ground vapor or soil gas at concentrations greater than the IHSB - Acceptable Soil Gas concentrations (residential or industrial/commercial).

## 6.0 REFERENCES

- *Phase I Environmental Site Assessment, December 2007*, by Environmental Services, Inc.
- *Subsurface Assessment – May Farm Associates Property, January 31, 2008*, by Environmental Services, Inc.
- *Water Supply Well Sampling Report, May 20, 2011*, by S&ME, Inc.;
- *Remedial Investigation - First Phase Report, 452FP, September 11, 2012*, by S&ME, Inc.
- *Remedial Investigation - Contamination Delineation Phase Report, 452DP-2, February 18, 2013*, by S&ME, Inc.
- *Remedial Investigation – Waste Disposal Perimeter Delineation, 452DP-4, July 29, 2013*, by S&ME, Inc.
- *Remedial Investigation Report – Sampling and Analysis of Soils/Waste along the Perimeter of the Landfill and Groundwater Monitoring, 452DP-6, January 8, 2014*, by S&ME, Inc.
- *Water Quality, Sedimentation, and Erosion Control Jurisdiction Contact Letter Report, 452DP-7, July 2, 2014*, by S&ME, Inc.
- *Remedial Investigation Report – Sampling and Analysis of Soil Asbestos and Additional SVOCs and Metals, 452DP-8, October 10, 2014*, by S&ME, Inc.
- *Remedial Investigation Report – Sampling and Analysis of Soils/Waste in the Extended Eastern Area of the Spring Hope Dump, 452DP-10, December 19, 2014*, by S&ME, Inc.
- Chapman, Melinda J., Charles A. Cravotta III, Zoltan Szabo, and Bruce D. Lindsey, *Naturally Occurring Contaminants in the Piedmont and Blue Ridge Crystalline-Rock Aquifers and Piedmont Early Mesozoic Basin Siliciclastic-Roc Aquifers, Eastern United States, 1994-2008*, United States Geologic Survey, Scientific Investigations Report 2013-5072, 2013.

## 7.0 SOLE USE STATEMENT

This report is solely intended for use by the NCDENR for the services that were performed in accordance with S&ME's proposal dated June 29, 2015 as authorized by NCDENR Task Order 452SUM-1, dated July 15, 2015.

**8.0 CERTIFICATION STATEMENT**

"I certify that to the best of my knowledge, after thorough investigation, the information contained in or accompanying this certification is true, accurate, and complete."

**Thomas P. Raymond, P.E. / S&ME, Inc.**

Name of Environmental Consultant / Company

\_\_\_\_\_  
Signature of Environmental Consultant

\_\_\_\_\_  
Date

I, \_\_\_\_\_, a Notary Public of said County and State, do hereby certify that \_\_\_\_\_ did personally appear and sign before me this day, produced proper identification in the form of \_\_\_\_\_, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this \_\_\_\_ day of \_\_\_\_\_, 2016.

(OFFICIAL SEAL)

\_\_\_\_\_  
Notary Public (signature)

My commission expires: \_\_\_\_\_.

**TABLE 1**  
**Soil Cover Analytical Exceedances**  
**Spring Hope Dump**  
**Spring Hope, Nash County, North Carolina**  
**ID No. NONCD0000452 Task Order 452SUM-1**

Method	Parameter	SB-39 6IN	SB-39 2FT	SB-41 6IN	SB-42 A	SB-42 B	SB-43 6IN	SB-43 2FT	SB-44 6IN	SB-44 18IN	SB-46 6IN	SB-47 6IN	SB-48 6IN	SB-48 2FT	SRG
		10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	
<b>Metals by EPA 6020</b>	Arsenic	4.9	4.3	9.5	1.2	1.6	1.5	ND	22	1.9	2.0	3.4	3.2	8.8	<b>34</b>
	Iron	16,000	12,000 V	23,000	16,000	14,000	8,800	14,000	27,000	18,000	23,000	27,000	35,000	21,000	<b>Natural Occurrence</b>
	Lead	110	300 J3,V	94	8.6	19	58	12	12	34	47	48	27	8.2	<b>400</b>
	Manganese	320	140 J5	82	96	260	85	250	12	220	160	120	34	17	<b>Natural Occurrence</b>
<b>SVOCs By EPA 8270D</b>	Benzo(a)pyrene	ND	ND	ND	ND	ND	0.061	ND	ND	ND	ND	ND	ND	0.041	<b>0.19</b>

**Notes**

Concentrations are reported in milligrams per kilogram (mg/kg), unless otherwise noted.

SRG: Soil Remediation Goal, Provided by NCDEQ, Inactive Hazardous Sites Branch, October 9, 2015.

Detections that exceed the SRGs are shown in **BOLD**.

Target compounds not shown for the method were not detected above the SRGs.

ND: Not Detected

NE: Regulatory standard not established for constituent.

J3: The associated batch QC was outside the established quality control range for precision.

J5: The sample matrix interfered with the ability to make any accurate determination; spike value is high.

V: Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

**TABLE 2**  
**Soil Analytical Exceedances**  
**Spring Hope Dump**  
**Spring Hope, North Carolina**  
**ID No. NONCD0000452 Task Order No. 452SUM-1**

Method	Sample ID	SB-1 (1-2)	SB-1 (5-6)	SB-1 (9-10)	SB-2 (1-2)	SB-3 (1-2)	Dup 2 (SB-3 (1-2))	SB-3 (5-6)	SB-3 (9-10)	SB-4 (1-2)	SB-5 (1-2)	SB-5 (6-7)	SB-5 (9-10)	SB-6 (1-2)	SB-6 (5-6)	SB-6 (9-10)	SB-7 (1-2)	SB-DUP-1 (SB-7 (1-2))	SB-7 (5-6)	SB-7 (9-10)	SRG
	Date Collected>> Parameter	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	10/3/13	
Metals by EPA 6020A	Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31
	Arsenic	ND	ND	ND	ND	ND	ND	ND	<b>38.9 D</b>	ND	ND	ND	26.4 JD	15.2 JD	ND	ND	ND	ND	13.5 JD	ND	34
	Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	70
	Iron	50,500 D	5,550 D	21,700 D	5,390 D	5,970 D	6,950 D	5,770 D	15,300 D	13,900 D	8,570 D	2,710 D	13,900 D	12,300 D	9,390 D	11,300 D	21,300 D	19,800 D	53,600 D	15,500 D	Natural Occurrence
	Lead	<b>587 D</b>	ND	ND	95.6 JD	38.3 JD	34.9 JD	13.0 JD	20.8 JD	96.2 JD	12.4 JD	ND	7.16 JD	13.3 JD	10.3 JD	13.9 JD	6.86 JD	ND	80.2 JD	6.78 JD	400
	Manganese	355 D	ND	59.6 D	84.4 D	56.0 D	54.0 D	8.92 JD	31.3 D	316 D	54.8 D	ND	85.7 D	30.8 D	12.5 JD	ND	ND	ND	629 D	110 D	Natural Occurrence
	Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	390
	Zinc	1,090 D	ND	ND	152 D	34.2 JD	82.0 JD	ND	ND	289 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	23,000
SVOCs by EPA 8270D	Benzo(a)anthracene	0.33 J	ND	ND	0.10 J	0.055 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.88
	Benzo(b)fluoranthene	0.50	ND	ND	0.19 J	0.11 J	ND	ND	ND	0.18 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.88
	Benzo(k)fluoranthene	0.21 J	ND	ND	0.073 J	0.058 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.75
	Benzo(a)pyrene	<b>0.40 J</b>	ND	ND	0.12 J	0.060 J	ND	ND	ND	0.12 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.19
	Chrysene	0.37 J	ND	ND	0.12 J	0.10 J	ND	ND	ND	0.12 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	187.50
	Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25
	Indeno(1,2,3-cd)pyrene	0.17 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.88
	Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	45
Phenanthrene	0.25 J	ND	ND	0.15 J	0.19 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	

**Notes:**

Soil concentrations are reported in milligrams per kilogram (mg/kg), unless otherwise noted.

SRG: Soil Remediation Goal, Provided by NCDEQ, Inactive Hazardous Sites Branch, October 9, 2015.

Concentrations exceeding a IHSB SRGs are shown in **BOLD** fields.

Analytes that are not shown for the method were not detected above the IHSB SRGs.

NE: Regulatory standard not established for contaminant

ND: Not detected.

NA: Not analyzed

D: The sample was analyzed at a dilution. The sample specific dilution factor is indicated in the laboratory report.

J: Laboratory Qualifier. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J3: The associated batch QC was outside the established quality control range for precision.

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low.

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

V: Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

**TABLE 2**  
**Soil Analytical Exceedances**  
**Spring Hope Dump**  
**Spring Hope, North Carolina**  
**ID No. NONCD0000452 Task Order No. 452SUM-1**

Method	Sample ID	SB-21 0-2.5 FT	SB-21 2.5-5 FT	SB-21 5-7 FT	SB-21 7-8.5 FT	SB-22 0-2.5 FT	SB-22 2.5-5 FT	SB-22 5-7.5 FT	SB-22 7.5-10 FT	SB-22 10-15 FT	SB-23 1-3 FT	SB-24 0-3 FT	SB-25 0-2.5 FT	SB-25 2.5-5 FT	SB-25 5-7.5 FT	SB-25 7.5-10 FT	SB-26 1.5-4 FT	SB-27 0-2.5 FT	SB-27 2.5-5 FT	SB-27 5-7.5 FT	SB-27 7.5-10 FT	SB-28 0-2.5 FT	SB-28 2.5-5 FT	SB-28 5-7.5 FT	SB-28 7.5-10 FT	SB-29 0-2.5 FT	SB-29 2.5-5 FT	SB-29 5-7.5 FT	SRG
		Date Collected>> Parameter	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	
Metals by EPA 6020A	Antimony	ND	ND	ND	ND	ND	ND	12	<b>34</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.9	6.9	<b>31</b>
	Arsenic	2.0 O	17 J6	9.6	1.5	1.3	2.5	10	10	1.6	3.8	5.9	3.3	4.1	5.7	1.7	4.6	1.2	2.8	8	8.4	20	19	3.6	3.4	BDL	8.6	10	<b>34</b>
	Cadmium	ND	4.9	3.6	ND	ND	ND	12	10	ND	ND	1.10	ND	ND	ND	ND	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	16	<b>70</b>
	Iron	24,000	49,000 O1, V	34,000	7,800	BDL	BDL	120,000	120,000	BDL	18,000	15,000	36,000	22,000	25,000	7,100	41,000	BDL	28,000	BDL	9,000	49,000	43,000	30,000	29,000	9,200	62,000	78,000	<b>Natural Occurrence</b>
	Lead	22	<b>670 O1, V</b>	370	8.4	42	380	<b>660</b>	<b>460</b>	31	240	300	71	400	<b>420</b>	32	<b>490</b>	26	9.4	35	15	10	11	110	7.3	59	<b>860</b>	<b>600</b>	<b>400</b>
	Manganese	180	370 O1, V, J3	250	22	110	200	680	530	92	250	460	340	360	390	18	590	47	150	14	6	20	18	2,900	80	140	490	560	<b>Natural Occurrence</b>
	Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>390</b>
	Zinc	35	470 O1, V	360	13	85	350	1,700	3,400	46	170	980	140	520	350	63	520	29	19	ND	ND	14	ND	22	16	130	1,300	1,000	<b>23,000</b>
SVOCs by EPA 8270D	Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>58</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>1.88</b>
	Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>55</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>1.88</b>
	Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>18.75</b>
	Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>36</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>0.19</b>
	Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>187.50</b>
	Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>3.1</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>0.25</b>
	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>6.9</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>1.88</b>
	Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>45</b>
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>NE</b>	

**Notes:**

Soil concentrations are reported in milligrams per kilogram (mg/kg), unless otherwise noted.

SRG: Soil Remediation Goal, Provided by NCDEQ, Inactive Hazardous Sites Branch, October 9, 2015.

Concentrations exceeding a IHSB SRGs are shown in **BOLD** fields.

Analytes that are not shown for the method were not detected above the IHSB SRGs.

NE: Regulatory standard not established for contaminant

ND: Not detected.

NA: Not analyzed

D: The sample was analyzed at a dilution. The sample specific dilution factor is indicated in the laboratory report.

J: Laboratory Qualifier. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J3: The associated batch QC was outside the established quality control range for precision.

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low.

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

V: Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

**TABLE 2**  
**Soil Analytical Exceedances**  
**Spring Hope Dump**  
**Spring Hope, North Carolina**  
**ID No. NONCD0000452 Task Order No. 452SUM-1**

Method	Sample ID	SB-29	SB-29	SB-30 0	SB-30	SB-30 5-	SB-30	SB-30 15-	DUP	SB-31 0-	SB-31	SB-31 5-	SB-33B	SB-33B	SB-33B	SB-33B	DUP (SB-	SB-34A	SB-34A	SB-34A	SB-34A	SB-35 0	SB-35 2.5	SB-36 0-	SB-37 0-	SB-37	SB-37	SB-38	SRG	
		7.5-10 FT	11-13 FT	2.5 FT	2.5-5 FT	7.5 FT	7.5-10 FT	17.5 FT	(SB-30 2.5-5 FT)	2.5FT	2.5-5FT	7.5FT	0-2.5FT	2.5-5FT	5-7.5FT	7.5-10FT	33B 7.5-10FT)	0-2.5FT	2.5-5FT	5-7.5FT	7.5-10FT	2.5FT	5FT	1FT	2.5FT	2.5-5FT	5-7.5FT	0-1FT		
	Date Collected>> Parameter	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	7/31/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14		
Metals by EPA 6020A	Antimony	4.5	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31	
	Arsenic	16	2.9	3.6	2.8	11	4.4	1.4	1.9	1.7	3.8	3.1	130	160	360	380	310	17	13	9.0	15	4.3	17	2.1	3.7	5.0	8.9	4.9	34	
	Cadmium	19	ND	4.0	0.8	23	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND	70	
	Iron	77,000	BDL	19,000	27,000	110,000	46,000	17,000	22,000	17,000	14,000	44,000	29,000	26,000	23,000	21,000	25,000	73,000	38,000	60,000	61,000	15,000	16,000	8,500	18,000	30,000	15,000	13,000	Natural Occurrence	
	Lead	890	7.8	650	1,800	1,500	360	6.2	170	11	11	7.0	10	12	11	12	12	27	15	24	18	110	95	36	18	260	38	45	400	
	Manganese	370	10	270	240	480	280	72	170	29	33	88	60	74	390	480	440	45	14	16	15	120	42	16	130	110	43	29	Natural Occurrence	
	Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	2.1	6.0	ND	ND	ND	ND	ND	ND	1.8	1.9	ND	ND	2.2	ND	2.3	1.7	ND	1.3	390
	Zinc	2,200	14	660	540	1,400	660	58	210	ND	ND	66	ND	ND	16	17	17	44	15	15	12	150	99	86	31	400	52	61	23,000	
SVOCs by EPA 8270D	Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.88	
	Benzo(b)fluoranthene	ND	ND	ND	ND	ND	0.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.88	
	Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.75	
	Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.19	
	Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	187.50	
	Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25	
	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.88	
	Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	45	
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE		

**Notes:**

Soil concentrations are reported in milligrams per kilogram (mg/kg), unless otherwise noted.

SRG: Soil Remediation Goal, Provided by NCDEQ, Inactive Hazardous Sites Branch, October 9, 2015.

Concentrations exceeding a IHSB SRGs are shown in **BOLD** fields.

Analytes that are not shown for the method were not detected above the IHSB SRGs.

NE: Regulatory standard not established for contaminant

ND: Not detected.

NA: Not analyzed

D: The sample was analyzed at a dilution. The sample specific dilution factor is indicated in the laboratory report.

J: Laboratory Qualifier. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J3: The associated batch QC was outside the established quality control range for precision.

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low.

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

V: Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

**TABLE 3**  
**Soil Asbestos Analysis Results**  
**Spring Hope Dump**  
**NC 581 Spring Hope, North Carolina**  
**ID No. NONCD0000452 Task Order 452SUM-1**

<b>SAMPLE NAME</b>	<b>Asbestos Type Detected</b>	<b>Concentration</b>
SB-21 (0.0-2.5')	ND	ND
SB-21 (2.5-5.0')	ND	ND
SB-21 (5.0-7.0')	Chrysotile	Greater than 1 %
SB-21 (7.0-8.5')	ND	ND
SB-22 (0.0-2.5')	ND	ND
SB-22 (2.5-5.0')	ND	ND
SB-22 (5.0-7.5')	ND	ND
SB-22 (7.5-10')	ND	ND
SB-22 (13.0-15.0')	ND	ND
SB-23 (1.0-3.0')	ND	ND
SB-24 (0.0-3.0')	ND	ND
SB-25 (0.0-2.5')	ND	ND
SB-25 (2.5-5.0')	ND	ND
SB-25 (5.0-7.5')	ND	ND
SB-25 (9.0-10.0')	ND	ND
SB-26 (1.5-4.0')	ND	ND
SB-29 (0.0-2.5')	ND	ND
SB-29 (2.5-5.0')	ND	ND
SB-29 (5.0-7.5')	ND	ND
SB-29 (7.5-10')	ND	ND
SB-29 (11-13')	ND	ND
SB-30 (0.0-2.5')	ND	ND
SB-30 (2.5-5.0')	Chrysotile	Greater than 1 %
SB-30 (5.0-7.5')	Chrysotile	Greater than 1 %
SB-30 (7.5-10)	ND	ND
SB-30 (15.0-17.5')	ND	ND

Notes:

ND = Not Detected

**TABLE 4**  
**Sediment Analytical Exceedances**  
**Spring Hope Dump**  
**NC 581 Spring Hope, NC**  
**ID No. NONCD0000452 Task Order 452SUM-1**

Method	Sample ID		SED-1	SED-2	SED-3	Duplicate (SED-1)	SRG
	Parameter	Date	1/2/13	1/2/13	1/2/13	1/2/13	
<b>Metals by EPA 6020A/7471B</b>	Antimony		ND	ND	1.0 J	ND	<b>31</b>
	Arsenic		2.3	3.4	2.1	1.50	<b>34</b>
	Iron		7,200	13,000	10,000	5,500	<b>Natural Occurrence</b>
	Manganese		29	270	130	21	<b>Natural Occurrence</b>

**Notes:**

Soil concentrations are reported in milligrams per kilogram (mg/kg).

Analytes that are not shown for the method were not detected.

SRG: Soil Remediation Goal, Provided by NCDEQ, Inactive Hazardous Sites Branch, October 9, 2015.

Concentrations exceeding a IHSB SRGs are shown in **BOLD** fields.

ND: Not Detected

J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

**TABLE 5**  
**Groundwater Analytical Exceedances**  
**Spring Hope Dump**  
**NC 581 Spring Hope, North Carolina**  
**ID No. NONCD0000452 Task Order 452SUM-1**

Method	Sample ID	TMW-1	TMW-2	TMW-3	TMW-5	TMW-7	GW-DUP	2L Standard
	Date Collected	10/11/2013	10/11/2013	10/11/2013	10/11/2013	10/11/2013	10/11/2013	
	Parameter							
EPA 350.1	Ammonia as N	<b>19,000</b>	150	ND	ND	ND	ND	<b>1,500*</b>
Metals by EPA 6020A	Iron	9,430 D	3,280 D	184	84.7	272	276	<b>Natural Occurrence</b>
	Manganese	14,000 BD	613 BD	340 B	55.9 B	224 B	228 B	<b>Natural Occurrence</b>

**Notes:**

Concentrations are reported in micrograms per liter (µg/L).

Detections that exceed the 2L Standards are shown in **BOLD**.

2L Standard: North Carolina Groundwater Quality Standards: 15A NCAC 2L.0202 (April 2013).

\* IMAC: Interim Maximum Allowable Concentrations (July 2012).

ND: Not detected

B: The constituent was also detected in the laboratory method blank.

D: The sample was analyzed at a dilution, as indicated in the laboratory report.

**TABLE 6**  
**Surface Water Analytical Exceedances**  
**Spring Hope Dump**  
**NC 581 Spring Hope, NC**  
**ID No. NONCD0000452 Task Order 452SUM-1**

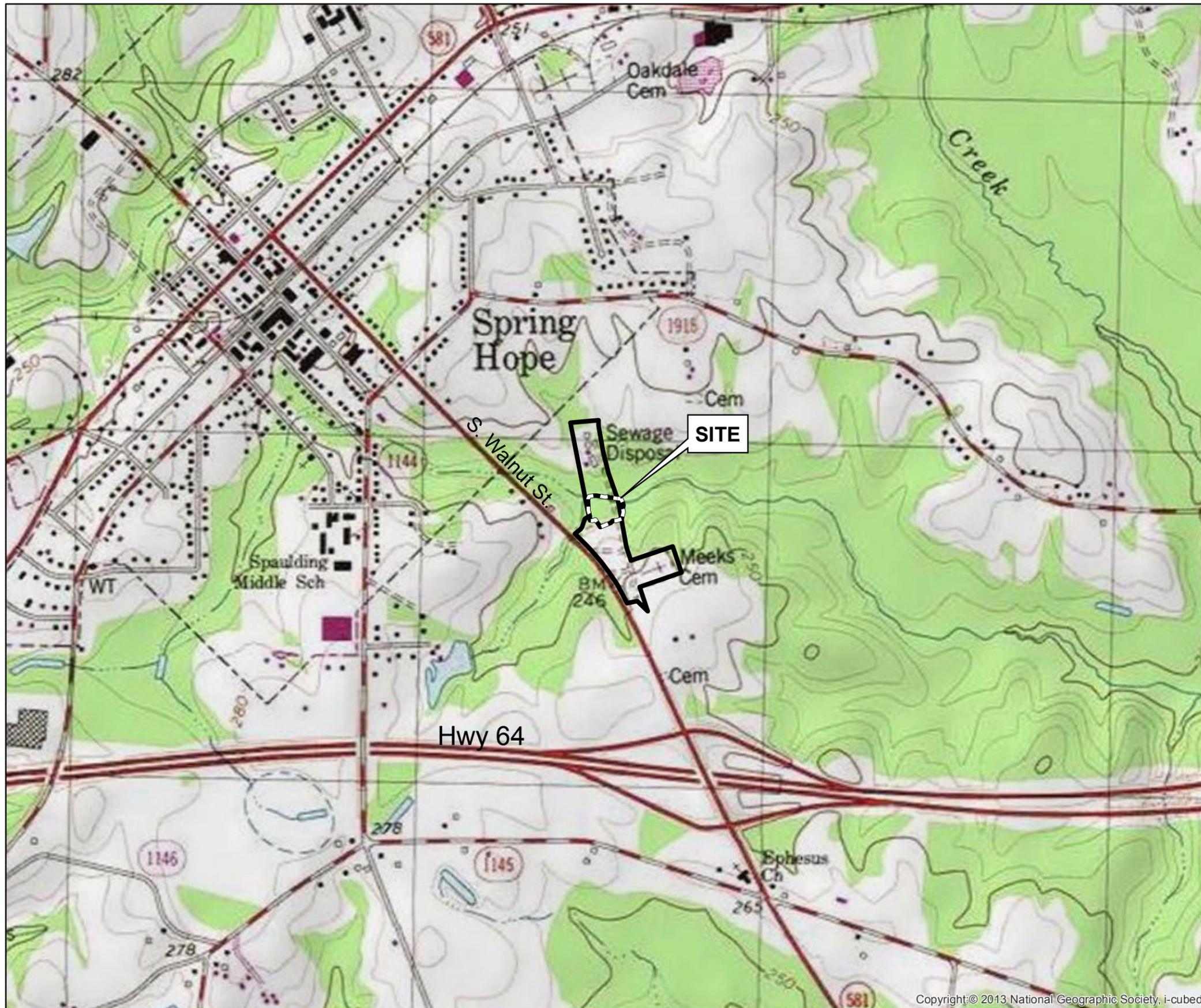
Method	Sample ID		SW-1	SW-2	SW-3	Duplicate (SW-1)	2B Standard
	Parameter	Date	1/2/13	1/2/13	1/2/13	1/2/13	
Metals by EPA 6020A	Iron		1,700	1,200	1,800	1,400	1,000

**Notes:**

Concentrations are reported in micrograms per liter ( $\mu\text{g/L}$ ).

Only analytes detected above 2B Standards are shown.

2B Standard: North Carolina Surface Water Standards: 15 NCAC 2B.0200.



PARCEL SOURCE:  
NASH COUNTY GIS, DATED JAN. 2012

USGS TOPOGRAPHIC MAP, DATED 2013



**LEGEND**

- WASTE DISPOSAL AREA
- PROPERTY BOUNDARY

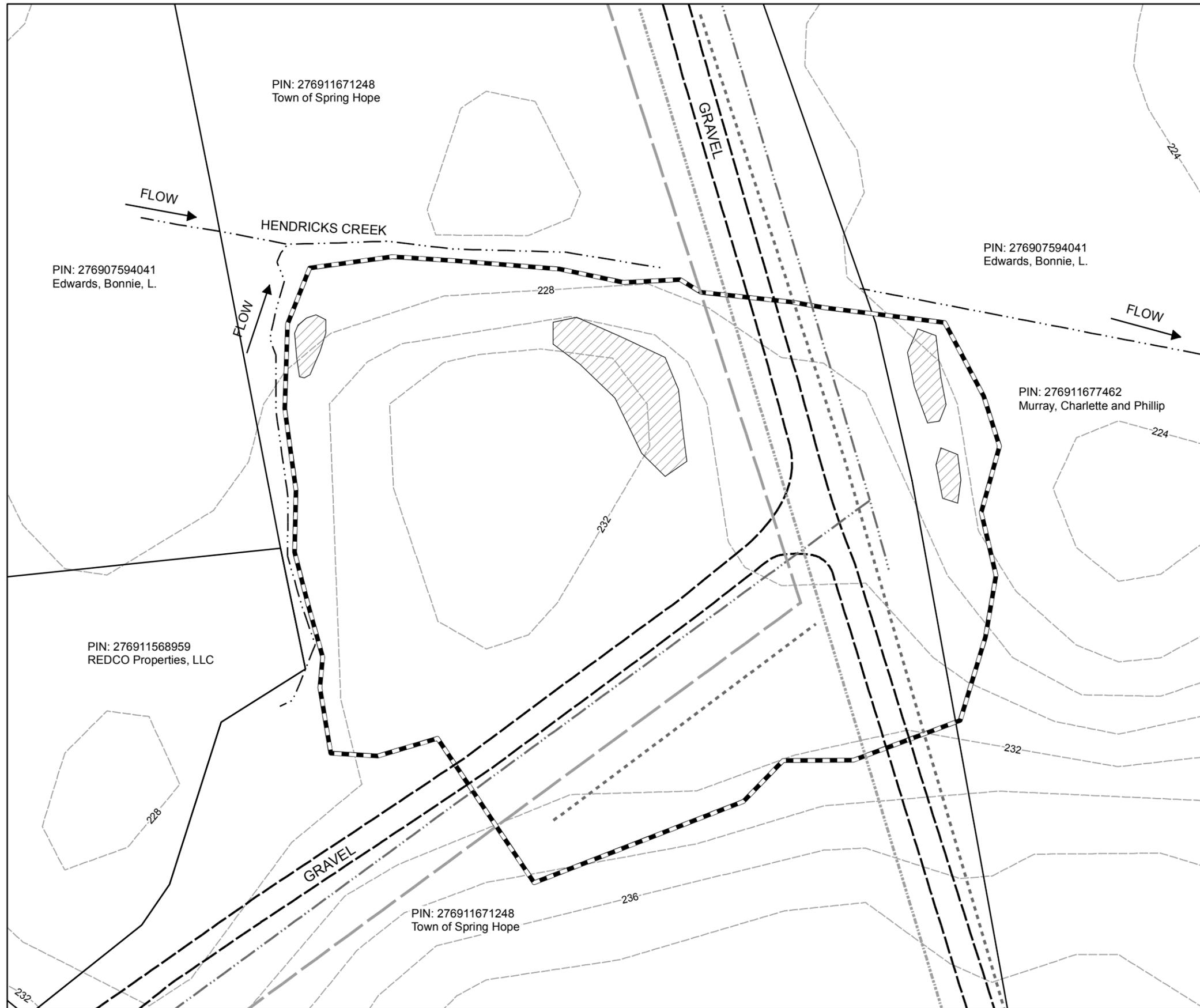
Copyright © 2013 National Geographic Society, i-cubed

DATE:	JUNE 2016
SCALE:	1" = 1,000'
PROJECT NO.:	1054-11-1019
DRAWN BY:	JLV
CHECKED BY:	
<b>S&amp;ME</b> WWW.SMEINC.COM	
NC ENG. LICENSE #F-0176 3201 SPRING FOREST RD, RALEIGH, NC 27616	

**VICINITY MAP**

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**1**

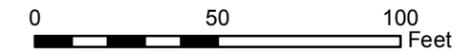


PARCEL SOURCE:  
 JOYNER KEENY, PLLC SURVEY MARCH 2016  
 NASH COUNTY GIS, DATED JAN. 2012

STREET SOURCE:  
 NASH COUNTY GIS, DATED JUNE 2010

CONTOUR DATA:  
 NCDOT LIDAR BASED, DATED 2007

DRIVEWAY AND TREE LINE DIGITIZED USING  
 AERIAL IMAGERY FROM NC ONEMAP, DATED 2010



LEGEND	
	SANITARY SEWER
	TELEPHONE
	OVERHEAD POWER
	UNKNOWN UTILITY
	DRIVEWAY
	STREAM
	WASTE DISPOSAL AREA
	SURFACE DEBRIS AREA
	PROPERTY BOUNDARY
	2-FOOT GROUND ELEVATION CONTOUR

DATE:	JUNE 2016
SCALE:	1" = 50'
PROJECT NO.:	1054-11-1019
DRAWN BY:	JLV
CHECKED BY:	
DRAWING NUMBER:	

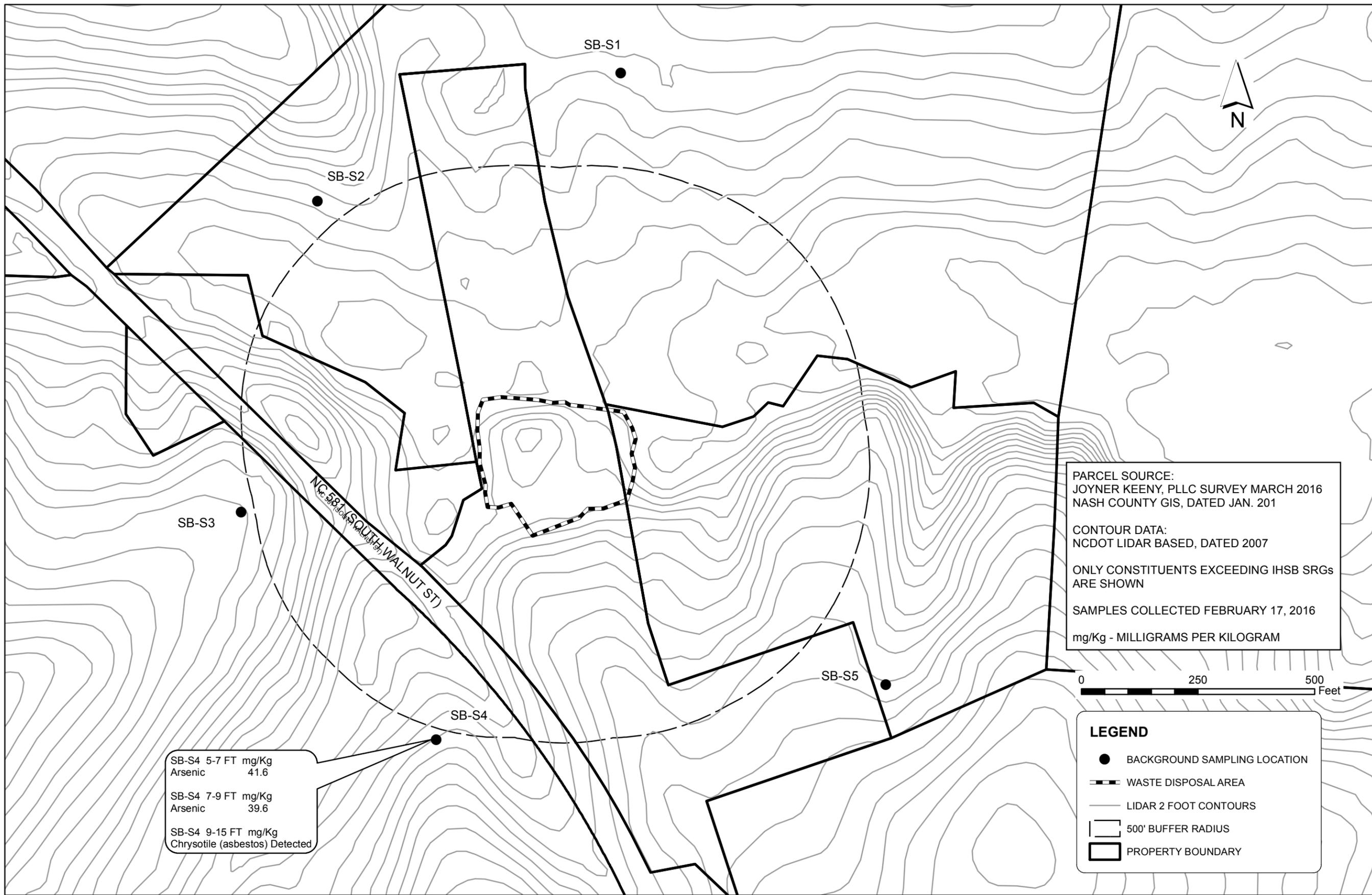
**S&ME**  
[WWW.SMEINC.COM](http://WWW.SMEINC.COM)  
 NC ENG. LICENSE #F-0176  
 3201 SPRING FOREST RD, RALEIGH, NC 27616

**SITE MAP**

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
 SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**2**





SB-S4 5-7 FT mg/Kg  
Arsenic 41.6

SB-S4 7-9 FT mg/Kg  
Arsenic 39.6

SB-S4 9-15 FT mg/Kg  
Chrysotile (asbestos) Detected

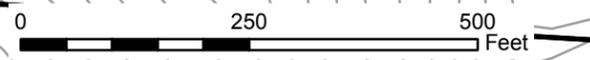
PARCEL SOURCE:  
JOYNER KEENY, PLLC SURVEY MARCH 2016  
NASH COUNTY GIS, DATED JAN. 201

CONTOUR DATA:  
NCDOT LIDAR BASED, DATED 2007

ONLY CONSTITUENTS EXCEEDING IHSB SRGs  
ARE SHOWN

SAMPLES COLLECTED FEBRUARY 17, 2016

mg/Kg - MILLIGRAMS PER KILOGRAM



**LEGEND**

- BACKGROUND SAMPLING LOCATION
- WASTE DISPOSAL AREA
- LIDAR 2 FOOT CONTOURS
- 500' BUFFER RADIUS
- PROPERTY BOUNDARY

DATE: JUNE 2016

SCALE: 1" = 200'

PROJECT NO: 1054-11-1019

DRAWN BY: JLV

DRAWING NUMBER:

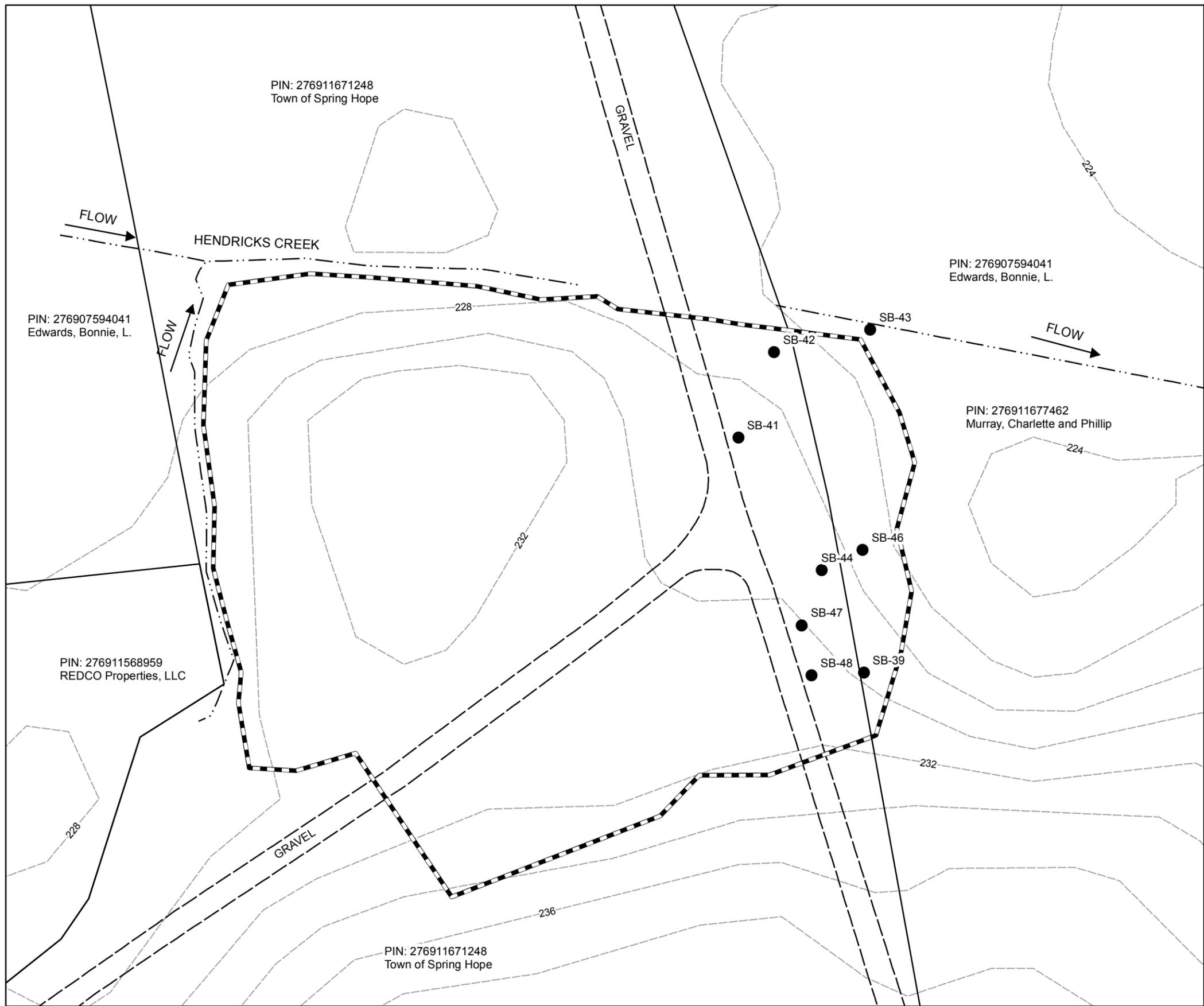
CHECKED BY:



**BACKGROUND SAMPLING RESULTS MAP**

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**4**

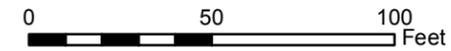


PARCEL SOURCE:  
JOYNER KEENY, PLLC SURVEY MARCH 2016  
NASH COUNTY GIS, DATED JAN. 2012

STREET SOURCE:  
NASH COUNTY GIS, DATED JUNE 2010

DRIVEWAY AND TREE LINE DIGITIZED USING  
AERIAL IMAGERY FROM NC ONEMAP, DATED 2010

SAMPLES COLLECTED OCT. 27, 2014



**LEGEND**

- SOIL COVER SAMPLING LOCATION
- - - STREAM
- ▬ WASTE DISPOSAL AREA
- - - DRIVEWAY
- - - 2-FOOT GROUND ELEVATION CONTOUR
- ▭ PROPERTY BOUNDARY

DATE:	JUNE 2016
SCALE:	1" = 50'
PROJECT NO.:	1054-11-1019
DRAWN BY:	JLV
CHECKED BY:	
DRAWING NUMBER:	

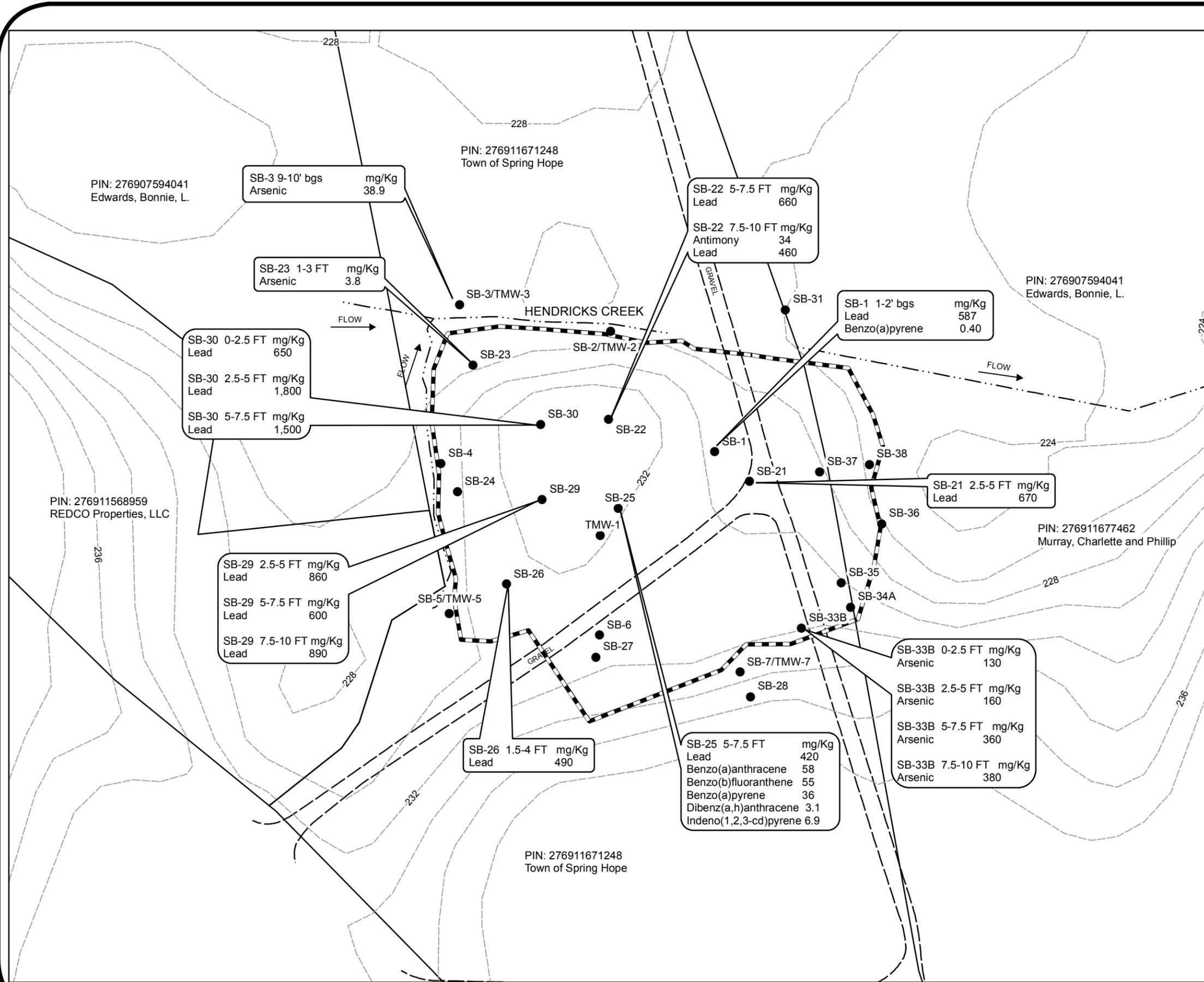
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**SOIL COVER SAMPLING LOCATIONS MAP**

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**5**



PARCEL SOURCE:  
JOYNER KEENY, PLLC SURVEY MARCH 2016  
NASH COUNTY GIS, DATED JAN. 2012

STREET SOURCE:  
NASH COUNTY GIS, DATED JUNE 2010

CONTOUR DATA:  
NCDOT LIDAR BASED, DATED 2007

DRIVEWAY AND TREE LINE DIGITIZED USING  
AERIAL IMAGERY FROM NC ONEMAP, DATED 2010

ONLY CONSTITUENTS EXCEEDING IHSB SRGS  
ARE SHOWN

SAMPLES COLLECTED OCTOBER 3 & 4, 2013,  
JULY 31, 2014 AND OCTOBER 27, 2014

mg/Kg - MILLIGRAMS PER KILOGRAM

0 75 150 Feet

**LEGEND**

- SOIL SAMPLE LOCATION
- - - STREAM
- ▬ WASTE DISPOSAL AREA
- - - 2-FOOT GROUND ELEVATION CONTOUR
- - - DRIVEWAY
- ▭ PROPERTY BOUNDARY

DATE:	JUNE 2016
SCALE:	1" = 75'
PROJECT NO.:	1054-11-1019
DRAWN BY:	JLV
CHECKED BY:	
DRAWING NUMBER:	

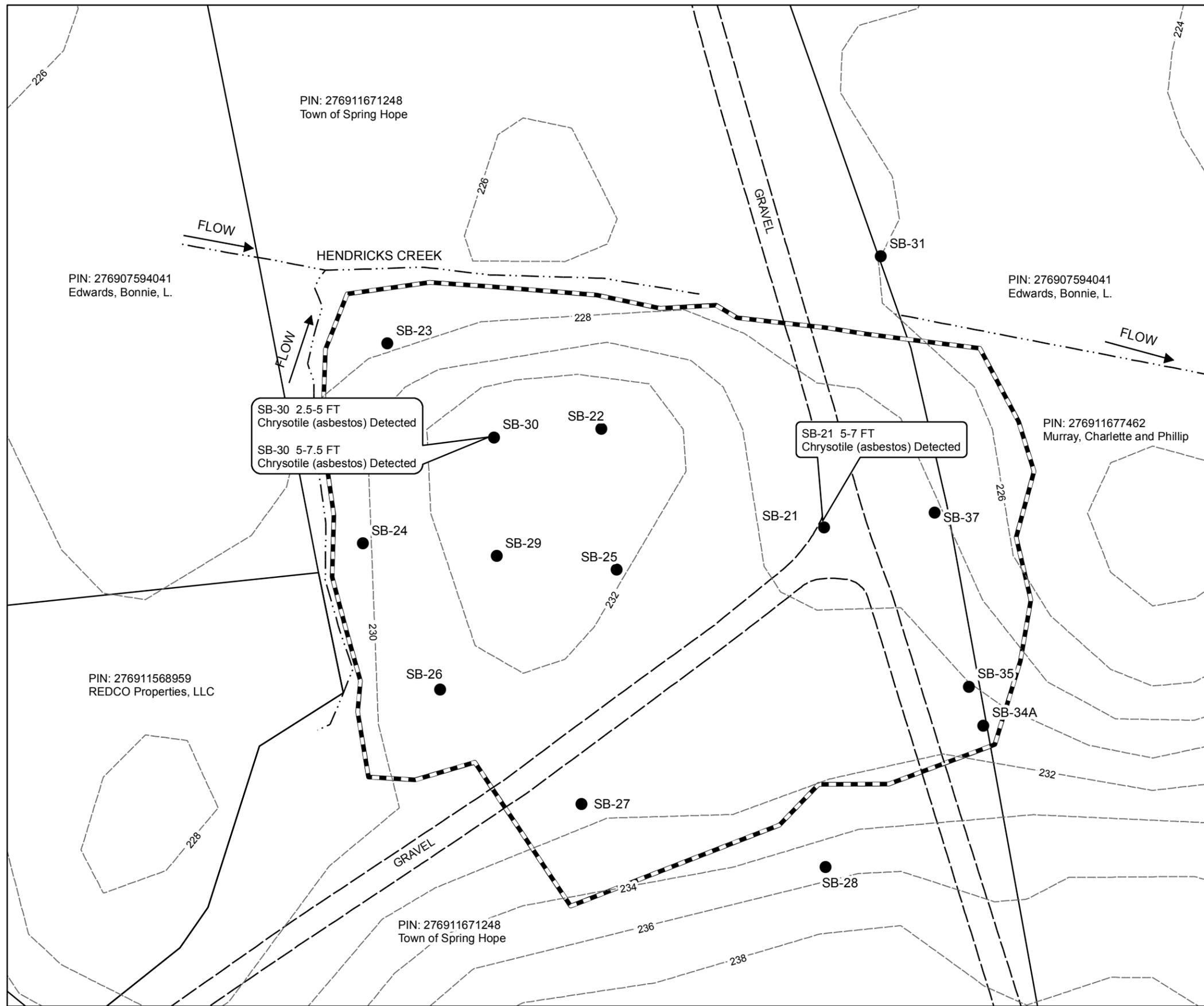
**S&ME**  
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NC ENG. LICENSE #F-0176  
3201 SPRING FOREST RD., RALEIGH, NC 27616

**SOIL SAMPLING RESULTS MAP**

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**6**



PARCEL SOURCE:  
JOYNER KEENY, PLLC SURVEY MARCH 2016  
NASH COUNTY GIS, DATED JAN. 2012

STREET SOURCE:  
NASH COUNTY GIS, DATED JUNE 2010

DRIVEWAY AND TREE LINE DIGITIZED USING  
AERIAL IMAGERY FROM NC ONEMAP, DATED 2010

SAMPLES COLLECTED OCT. 27, 2014



**LEGEND**

- SOIL SAMPLE LOCATION
- - - 2 FOOT GROUND CONTOUR
- GRAVEL
- - - - - STREAM
- ▬ WASTE DISPOSAL AREA
- ▭ PROPERTY BOUNDARY

DATE:	JUNE 2016
SCALE:	1" = 50'
PROJECT NO.:	1054-11-1019
DRAWN BY:	JLV
CHECKED BY:	
DRAWING NUMBER:	

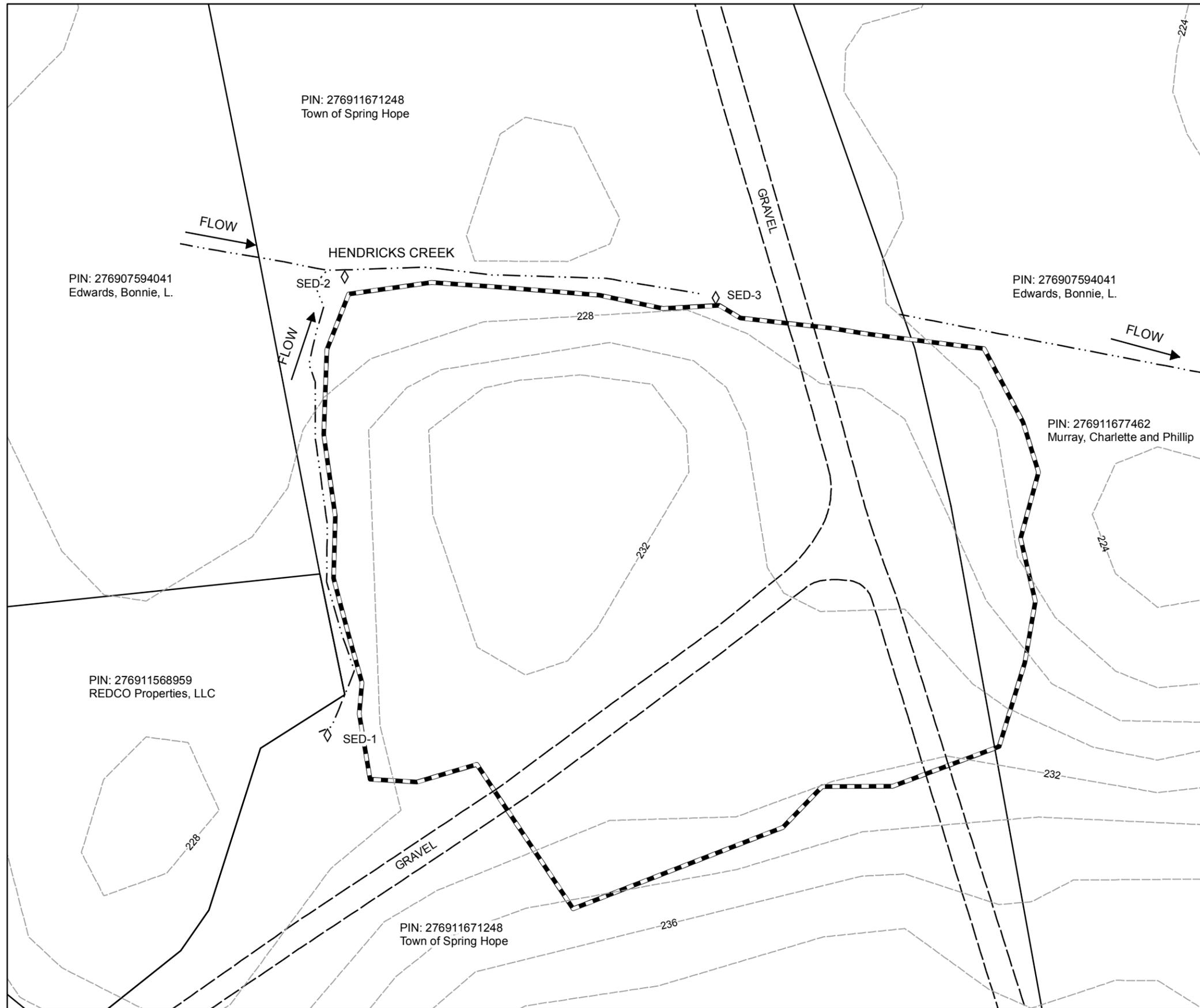
**S&ME**  
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NC ENG. LICENSE #F-0176  
3201 SPRING FOREST RD, RALEIGH, NC 27616

ASBESTOS SAMPLING RESULTS MAP

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**7**



PARCEL SOURCE:  
 JOYNER KEENY, PLLC SURVEY MARCH 2016  
 NASH COUNTY GIS, DATED JAN. 2012  
  
 STREET SOURCE:  
 NASH COUNTY GIS, DATED JUNE 2010  
  
 CONTOUR DATA:  
 NCDOT LIDAR BASED, DATED 2007  
  
 DRIVEWAY AND TREE LINE DIGITIZED USING  
 AERIAL IMAGERY FROM NC ONEMAP, DATED 2010  
  
 SAMPLES COLLECTED JAN. 2, 2013



**LEGEND**

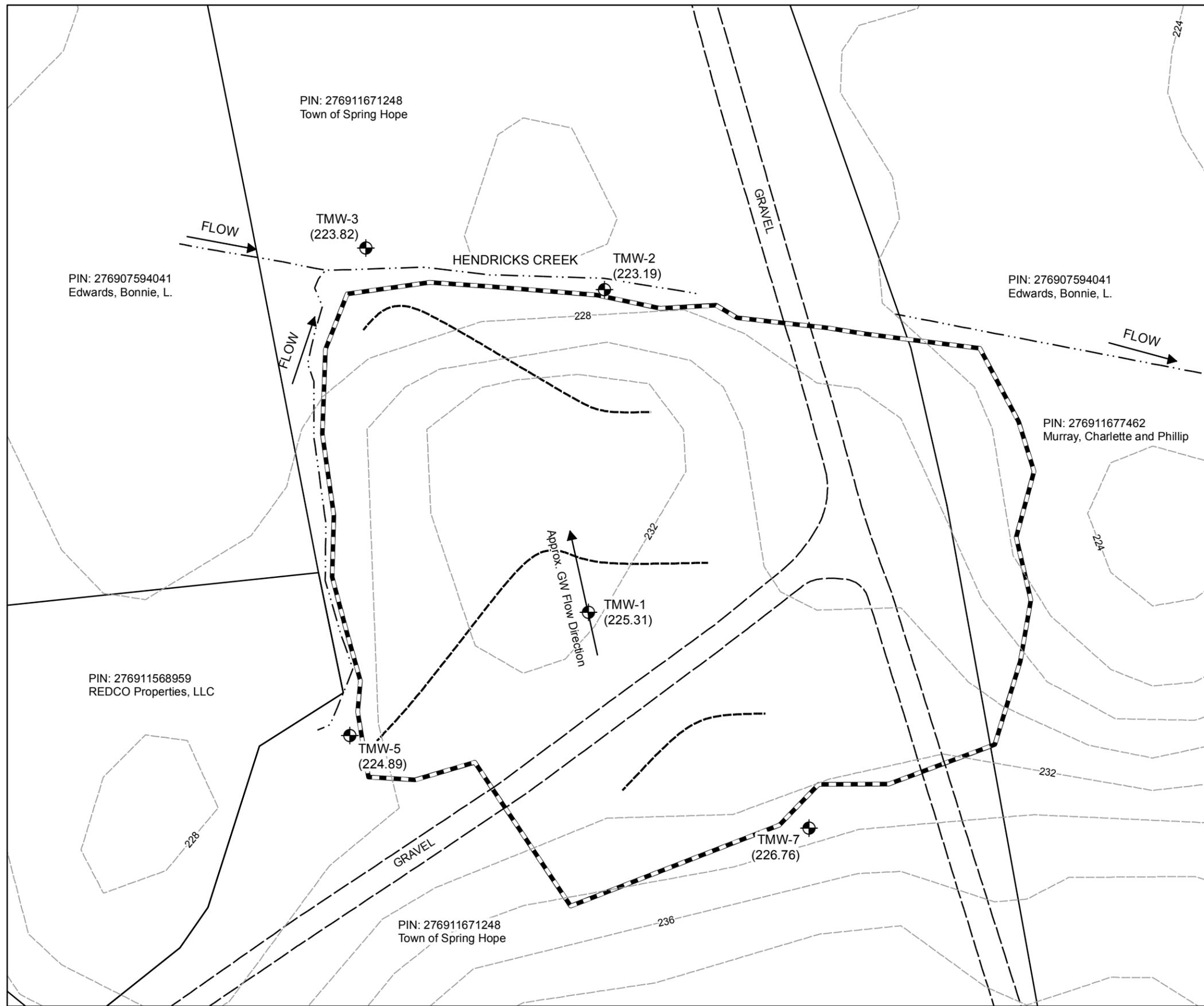
- ◇ SEDIMENT SAMPLE LOCATION
- - - 2-FOOT GROUND ELEVATION CONTOUR
- - - DRIVEWAY
- · - · - STREAM
- ▬ WASTE DISPOSAL AREA
- PROPERTY BOUNDARY

DATE: JUNE 2016	SCALE: 1" = 50'
DRAWN BY: JLJ	PROJECT NO: 1054-11-1019
CHECKED BY:	DRAWING NUMBER:

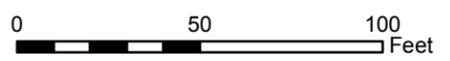
  
 NC ENG. LICENSE #F-0176  
 3201 SPRING FOREST RD, RALEIGH, NC 27616

**SEDIMENT SAMPLING LOCATIONS MAP**  
 SPRING HOPE DUMP - TASK ORDER 452SUM-1  
 SPRING HOPE, NORTH CAROLINA

FIGURE NO.  
**8**



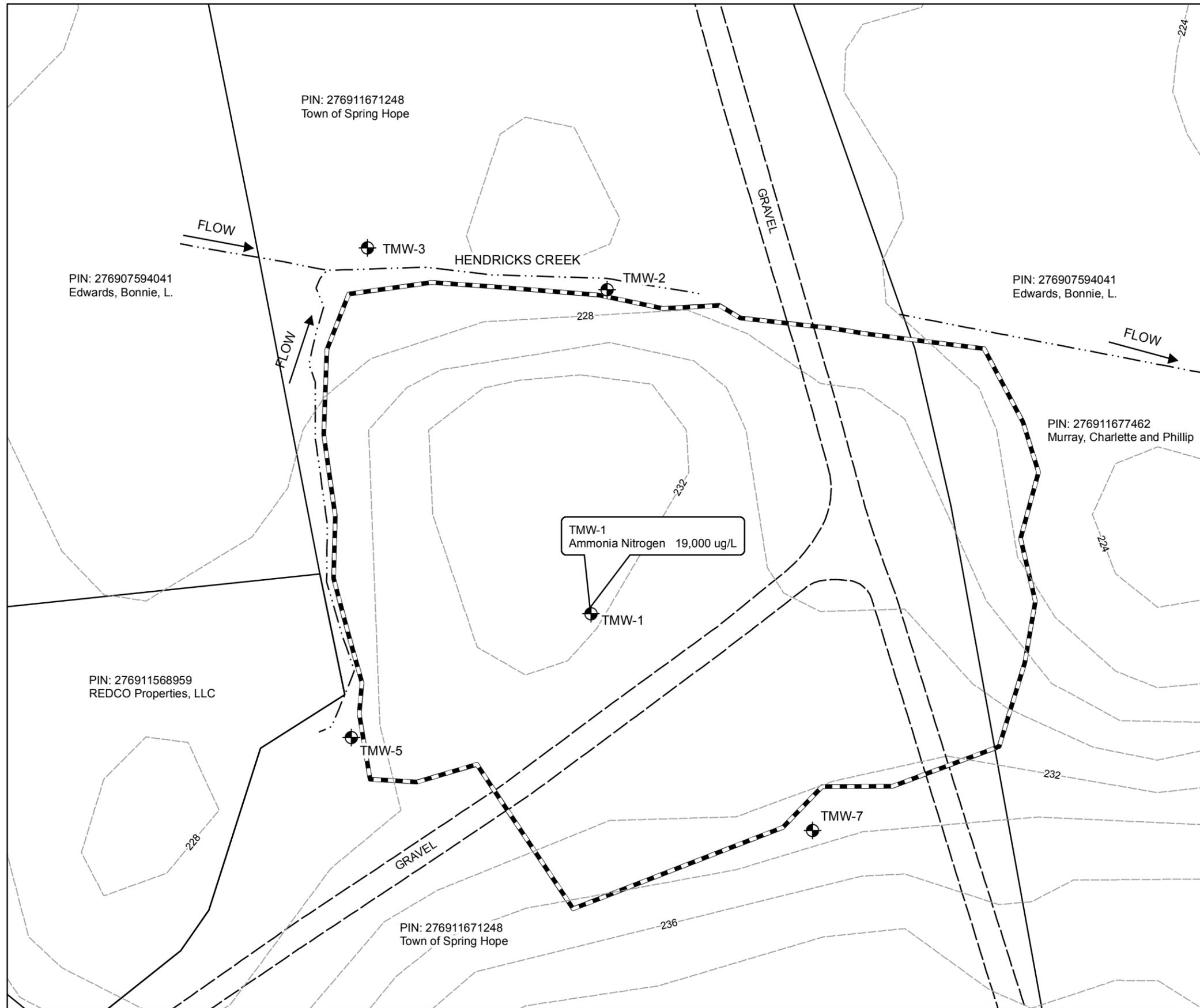
PARCEL SOURCE:  
 JOYNER KEENEY, PLLC SURVEY MARCH 2016  
 NASH COUNTY GIS, DATED JAN. 2012  
  
 STREET SOURCE:  
 NASH COUNTY GIS, DATED JUNE 2010  
  
 CONTOUR DATA:  
 NCDOT LIDAR BASED, DATED 2007  
  
 DRIVEWAY AND TREE LINE DIGITIZED USING  
 AERIAL IMAGERY FROM NC ONEMAP, DATED 2010  
  
 GROUNDWATER ELEVATIONS MEASURED  
 OCT. 11, 2013



- LEGEND**
- TEMPORARY MONITOR WELL LOCATION
  - 2-FOOT GROUND ELEVATION CONTOUR
  - GROUNDWATER ELEVATION CONTOUR
  - DRIVEWAY
  - STREAM
  - WASTE DISPOSAL AREA
  - PROPERTY BOUNDARY

DATE: JUNE 2016	SCALE: 1" = 50'
DRAWN BY: JLJ	PROJECT NO: 1054-11-1019
CHECKED BY:	DRAWING NUMBER:
<small>NC ENG. LICENSE #F-0176 3201 SPRING FOREST RD, RALEIGH, NC 27616</small>	

**GROUNDWATER POTENTIOMETRIC MAP**  
  
 SPRING HOPE DUMP - TASK ORDER 452SUM-1  
 SPRING HOPE, NORTH CAROLINA



PARCEL SOURCE:  
JOYNER KEENY, PLLC SURVEY MARCH 2016  
NASH COUNTY GIS, DATED JAN. 2012

STREET SOURCE:  
NASH COUNTY GIS, DATED JUNE 2010

CONTOUR DATA:  
NCDOT LIDAR BASED, DATED 2007

DRIVEWAY AND TREE LINE DIGITIZED USING  
AERIAL IMAGERY FROM NC ONEMAP, DATED 2010

ONLY CONSTITUENTS EXCEEDING 2L STANDARDS  
ARE SHOWN

SAMPLES COLLECTED OCTOBER 11, 2013

ug/L - MICROGRAMS PER LITER

0 50 100 Feet

**LEGEND**

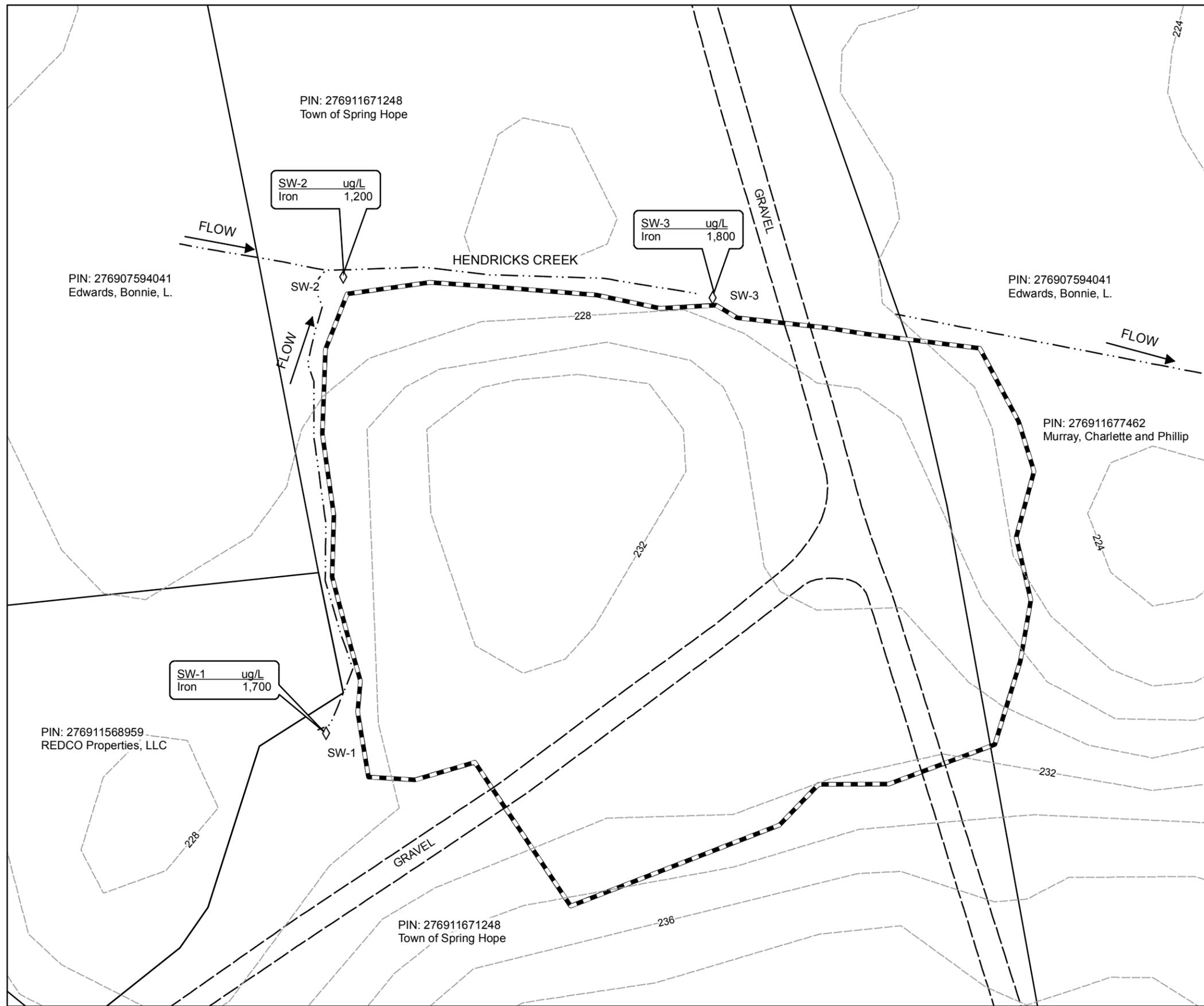
- TEMPORARY MONITOR WELL LOCATION
- 2-FOOT GROUND ELEVATION CONTOUR
- STREAM
- WASTE DISPOSAL AREA
- DRIVEWAY
- PROPERTY BOUNDARY

DATE: JUNE 2016	SCALE: 1" = 50'
DRAWN BY: JLJ	PROJECT NO: 1054-11-1019
CHECKED BY:	DRAWING NUMBER:

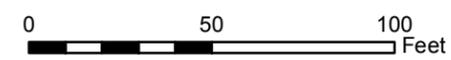
**S&ME**  
WWW.SMEINC.COM  
NC ENG. LICENSE #F-0176  
3201 SPRING FOREST RD, RALEIGH, NC 27616

**GROUNDWATER SAMPLING RESULTS MAP**

SPRING HOPE DUMP - TASK ORDER 452SUM-1  
SPRING HOPE, NORTH CAROLINA



PARCEL SOURCE:  
 JOYNER KEENY, PLLC SURVEY MARCH 2016  
 NASH COUNTY GIS, DATED JAN. 2012  
  
 STREET SOURCE:  
 NASH COUNTY GIS, DATED JUNE 2010  
  
 CONTOUR DATA:  
 NCDOT LIDAR BASED, DATED 2007  
  
 DRIVEWAY AND TREE LINE DIGITIZED USING  
 AERIAL IMAGERY FROM NC ONEMAP, DATED 2010  
  
 ONLY CONSTITUENTS EXCEEDING 2B STANDARDS  
 ARE SHOWN  
  
 SAMPLES COLLECTED JAN. 2, 2013  
  
 ug/L - MICROGRAMS PER LITER



LEGEND	
	SURFACE WATER SAMPLE LOCATION
	2-FOOT GROUND ELEVATION CONTOUR
	DRIVEWAY
	STREAM
	WASTE DISPOSAL AREA
	PROPERTY BOUNDARY

DATE:	JUNE 2016
SCALE:	1" = 50'
PROJECT NO.:	1054-11-1019
DRAWN BY:	JLV
CHECKED BY:	
DRAWING NUMBER:	

**S&ME**  
[WWW.SMEINC.COM](http://WWW.SMEINC.COM)  
 NC ENG. LICENSE #F-0176  
 3201 SPRING FOREST RD, RALEIGH, NC 27616

SURFACE WATER SAMPLING RESULTS MAP  
 SPRING HOPE DUMP - TASK ORDER 452SUM-1  
 SPRING HOPE, NORTH CAROLINA  
 FIGURE NO.  
**11**