



May 16, 2016

Mr. David Kwiatkowski, Hydrogeologist
North Carolina Department of Environmental Quality
Division of Waste Management, Pre-Regulatory Landfill Unit
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Reference: **TASK ORDER 375DP-5**
Remedial Investigation – Media Sampling and Wetland/Floodway
Determination
Stedman Landfill
2550 Page Road
Stedman, Cumberland County, North Carolina
ID # NONCD0000375
State Contract # N13001S
ESP Project No. E6-BN12.611.003

Dear Mr. Kwiatkowski:

This Remedial Investigation – Media Sampling and Wetland/Floodway Determination report has been prepared by ESP Associates, P.A. (ESP) to present the results of cover soil resampling and analysis to confirm total chromium concentrations previously identified and to determine presence of hexavalent chromium at the Stedman Landfill (NONCD0000375) located at 2550 Page Road, Stedman, Cumberland County, North Carolina. In addition, this report presents the results of a wetlands delineation and a topographic survey in the near vicinity of the waste disposal area as well as Preliminary Notices of an Inactive Hazardous Substance or Waste Disposal Site (“Preliminary Plats”) for the impacted properties. The activities presented in this report were performed in accordance with ESP’s work plan for Task Order 375DP-4 dated January 11, 2016, and ESP’s Standard Operating Procedures (SOP) and Quality Assurance (QA) Manual dated April 18, 2013, both approved by the Pre-Regulatory Landfill Unit of the North Carolina Department of Environmental Quality (NCDEQ). Any deviations from the work plan or SOP and QA Manual are noted in the respective sections of this report.

1.0 COVER SOIL SAMPLING

A field logbook and field boring logs were completed in the field to document the cover soil sampling field activities. The cover soil sampling field documentation is provided in Attachment B. Electronically-produced boring logs are provided in Attachment A.

1.1 Advancement of Soil Borings

On February 11, 2016, ESP advanced four soil borings (designated SB-2 through SB-5) to various depths ranging from 2 to 3 feet (ft) below ground surface (ft bgs) using a decontaminated stainless steel hand auger to collect cover soil samples. Figure 1 depicts the locations of the four soil borings.

During advancement of the soil borings, retrieved soil samples were visually classified and logged in general accordance with the Unified Soil Classification System. As noted on the boring logs in Appendix A, encountered soils consisted predominantly of clay, sandy clay, and sand. Waste was encountered in soil borings SB-2, SB-3, and SB-5 at an approximate depth of 2.5 ft bgs; waste was not encountered in soil boring SB-4.

1.2 Collection of Cover Soil Samples

Cover soil samples were collected for laboratory analysis from the soil borings as follows:

- All four soil borings - a soil sample was collected from the approximate 0.5 to 1.5 ft bgs depth interval; and
- Soil borings SB-3 and SB-5 - soil samples were collected from the approximate 2.0 to 2.5 ft bgs and 2.5 to 3.0 ft bgs depth intervals, respectively. These soil samples were collected at a shallower depth interval than planned because of the presence of waste at 2.5 ft bgs and/or auger refusal. At each of these locations, the soil borings had to be offset several times to reach an acceptable depth for collection of these deeper cover soil samples.

1.3 GPS Coordinates

According to the work plan, soil boring coordinate locations were to have been recorded using a global positioning system (GPS) unit. However, since the boring locations had been sampled previously and evidence of the soil borings was visible in the form of bentonite plugs, an alternative approach using internet navigational tools was utilized. The soil borings for this investigation were offset a few feet from the prior soil boring locations. The soil boring coordinates for the soil borings SB-2 through SB-5 for this investigation, therefore, are the same as those reported in the report for Task Order 375DP-3.

1.4 Soil Sample Laboratory Analysis

The cover soil samples collected on February 11, 2016, were analyzed for the following parameters by a North Carolina-certified laboratory:

- Total chromium by USEPA SW-846 Method 6020A; and
- Hexavalent chromium by USEPA SW-846 Method 7196A.

1.5 Soil Sample Analytical Results

Detected cover soil sample analytical results are tabulated in Table 1. The full laboratory analytical reports are provided in Appendix C. Hexavalent chromium was not detected in any of the cover soil samples. Therefore, the total chromium results are compared to the Residential Health Preliminary Soil Remediation Goal (PSRG) established by NCDEQ's Inactive Hazardous Sites Branch for trivalent chromium of 24,000 milligrams per kilogram (mg/kg). As shown on Table 1, total chromium was detected at concentrations ranging from 3.1 to 29 mg/kg, all of which are well below the PSRG for trivalent chromium.

1.6 Quality Assurance/Quality Control

1.6.1 Quality Control Samples

The following quality control (QC) samples were collected and analyzed:

- Equipment Rinsate Blank - Sampling equipment used to collect the cover soil samples was decontaminated prior to initiation of sampling, between sampling locations, and at the completion of the field effort to minimize the potential for cross-contamination of samples. One equipment rinsate blank (Rinsate Blank) was collected from the soil sampling equipment and was analyzed for the parameters listed in Section 1.4, and there were no detected analytes.
- Field Duplicate Samples – One blind duplicate sample was collected during the cover soil investigation. The duplicate soil sample (Duplicate) was collected from the SB-2 (0.5-1.5) location on February 11, 2016. The field duplicate sample was analyzed for the parameters listed in Section 1.4. Detected sample analytical results for the field duplicate sample are tabulated in Table 1.

1.6.2 Analytical Data Completeness Review

ESP conducted a completeness check for the analytical results reported by the laboratory. Samples were received intact and properly preserved. Samples were analyzed using the specified analytical methods, and were prepared and analyzed within their respective holding times. QC results that did not meet laboratory specifications are discussed in the Case Narratives of the laboratory analytical reports (see Attachment C), and the effect on reported sample results discussed. Based on ESP's review, the laboratory data for the samples collected are useable for their intended purpose.

2.0 WETLANDS AND FLOODWAY DETERMINATION

On February 11, 2016, a wetland biologist, procured by ESP, performed the necessary activities to identify and locate potential wetlands in the vicinity of the waste disposal area. The wetland determination mapping extended out approximately 200 ft from the waste disposal area boundary, but was restricted to Tax Parcel Nos. 1408-01-1301-, 1408-01-1016-, and 0489-90-7716-. The wetland biologist's field sketch and data sheets documenting his identification and delineation of potential wetlands are provided in Attachment D. The wetland biologist also flagged the potential wetlands. A North Carolina licensed surveyor, procured by ESP, surveyed

and mapped the wetland delineation flags. The wetland delineation map is provided in Attachment F.

The Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps (FIRMs) showing the floodplain/floodway associated with the South River, located approximately 740 ft east of the waste disposal area boundary (i.e., Map Nos. 3720048800J, 3720140800J, 3720140600J, and 3720048600J) are provided in Attachment E. The location of the floodplain within 500 ft of the waste disposal area boundary is shown on the wetlands delineation map in Attachment F.

3.0 TOPOGRAPHIC SURVEY

From March 14 to 17, 2016, a North Carolina licensed surveyor, procured by ESP, completed a topographic survey for the area extending out approximately 100 ft from the waste disposal boundary, but restricted to Tax Parcel Nos. 1408-01-1301-, 1408-01-1016-, and 0489-90-7716-. The topographic survey included topographic contours (1-foot intervals), property boundaries, underground utilities and utility right-of-ways/easements, tree line, on-site structures, driveways, and other site features. The completed topographic survey is provided in Attachment F.

4.0 PRELIMINARY PLATS

From March 14 to 17, 2016, a North Carolina licensed surveyor, procured by ESP, completed boundary surveys for Tax Parcel Nos. 1408-01-1301- and 1408-01-1016- to prepare Preliminary Plats for each of the properties impacted by the Stedman Landfill. Due the presence of wetlands on the eastern portion of Tax Parcel No. 1408-01-1016-, resurveying the boundary in the eastern portion of that parcel was problematic. Therefore, the Preliminary Plat for Tax Parcel No. 1408-01-1016- depicts a partial boundary survey covering the western portion of the parcel. The Preliminary Plats are provided in Attachment G.

5.0 CERTIFICATION

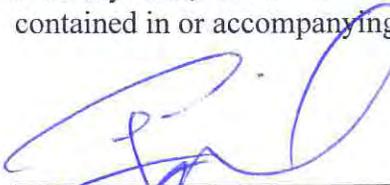
Document Name: Remedial Investigation – Media Sampling and Wetland/Floodway
Determination

Site Name: Stedman Landfill

Site ID: NONCD0000375

Task Order: 375DP-5

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.



Christopher Ward, P.G., RSM
ESP Associates, P.A.

5/16/16

Date

I, MARY M. BEARE, a Notary Public of said County and State, do hereby
certify that CHRISTOPHER J. WARD did personally appear before me this day,
produced proper identification in the form of Licence, was duly sworn to be the
authorized person referenced above, and signed this certification in my presence.

Witness my hand and official seal this 16 day of May, 2016.

Mary M. Beare

Notary Public (signature)

4/11/21

My Commission Expires On

NC

State

Mecklenburg

County

(OFFICIAL SEAL)

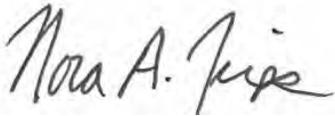


6.0 SOLE USE STATEMENT

This document was prepared solely for the intended use of the NCDEQ's Inactive Hazardous Sites Branch, as defined in the scope of work for this Task Order. Use or reliance on this document for other purposes or by other parties is at the sole risk of the user.

Should you have any questions regarding this report, please do not hesitate to contact Nora Zirps at (336) 232-5213.

Sincerely,
ESP Associates, P.A.



Nora A. Zirps, P.E.
Senior Project Engineer

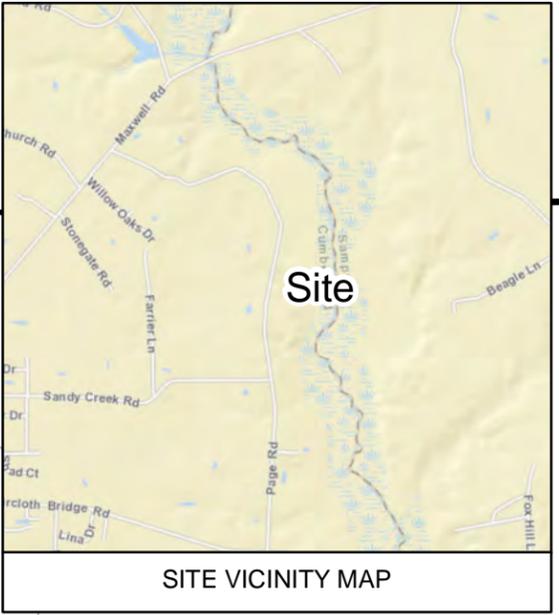
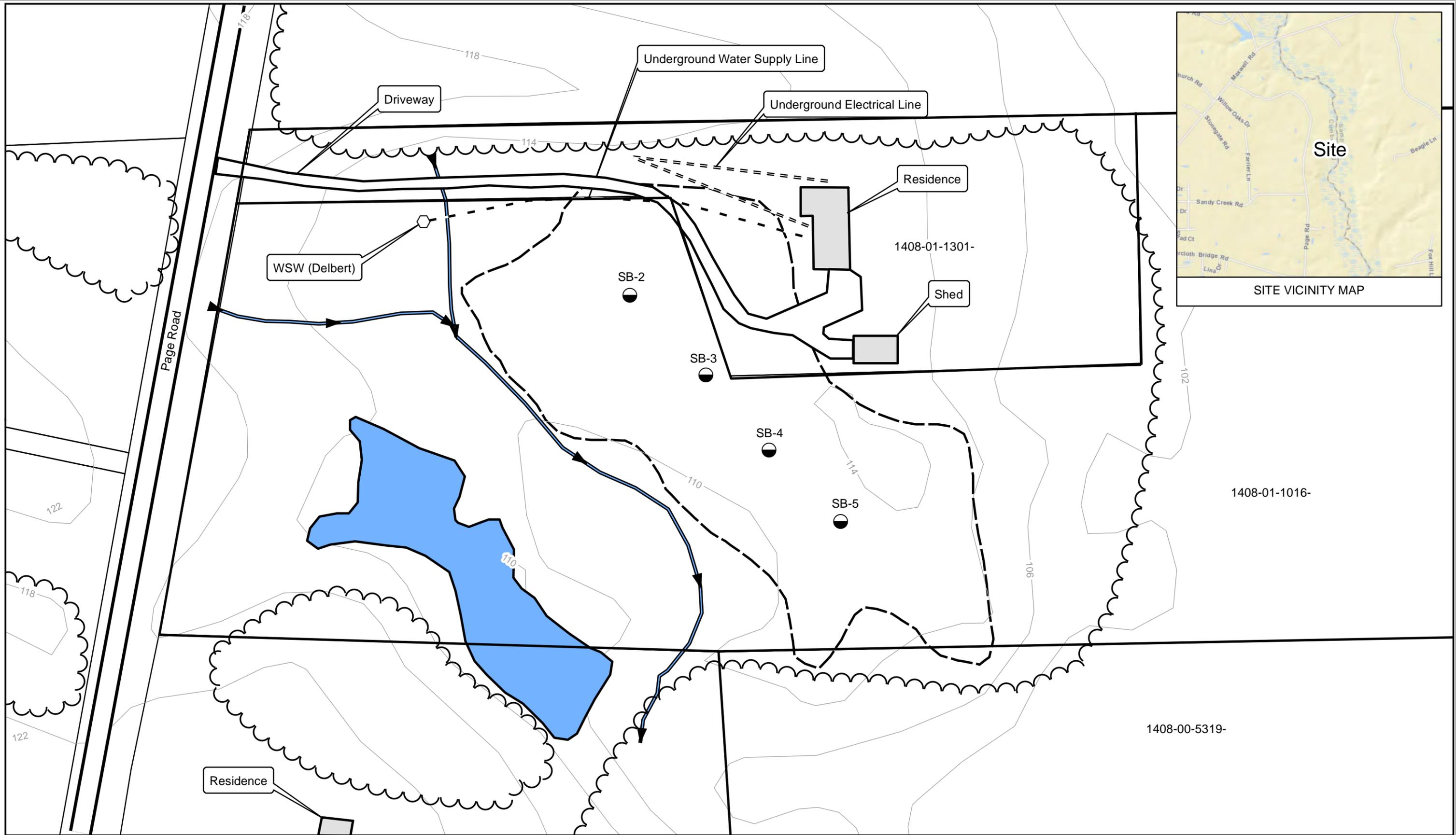


Christopher J. Ward, PG
Project Manager

Attachments:

- Figure 1 - Sample Locations Map
- Table 1 - Summary of Cover Soil Analytical Results
- Attachment A - Boring Logs
- Attachment B - Cover Soil Sampling Field Documentation
- Attachment C - Laboratory Analytical Report
- Attachment D - Wetlands Delineation Field Documentation
- Attachment E - FEMA Flood Insurance Rate Maps
- Attachment F - Topographic Survey and Wetlands Delineation Plan
- Attachment G - Preliminary Plats

FIGURES



- Soil Boring
- Waste Disposal Area Boundary (per delineation evaluation)
- LiDAR 4 foot Contour Elevation Interval
- Tree Line
- Water Feature
- Tax Parcel
- Water Supply Well
- Property Line

SHEET TITLE:
Figure 1
 Soil Sample Locations Map
 Stedman Landfill
 Stedman, North Carolina
 ID# NONCD0000375

0 20 40 80 120
 Feet

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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DATE: April 20, 2016

PROJECT NO.:	BN12.611
SCALE:	As Shown
DRAWN BY:	WB/FN
CHECKED BY:	NZ

ESP Associates, P.A.
 P.O. Box 7030
 Charlotte NC, 28241
www.espassociates.com
 Phone: 803-802-2440

TABLES

**Table 1
Summary of Cover Soil Analytical Results
Stedman Landfill**

Analyte	Residential Health PSRG	Analytical Results						
Field Sample ID	SB-2 (0.5-1.5)	Duplicate ^a	SB-3 (0.5-1.5)	SB-3 (2.0-2.5)	SB-4 (0.5-1.5)	SB-5 (0.5-1.5)	SB-5 (2.5-3.0)	
Sample Depth (ft)	0.5-1.5	0.5-1.5	0.5-1.5	2.0-2.5	0.5-1.5	0.5-1.5	2.5-3.0	
Collection Date	2/11/2016	2/11/2016	2/11/2016	2/11/2016	2/11/2016	2/11/2016	2/11/2016	
Metals by SW-846 6020A (mg/kg)								
Chromium, Total	24,000 ^b	17	15	29	12	19	3.1	9.5

^a Duplicate of SB-2 (0.5-1.5).

^b Residential Health PSRG shown is for Chromium III. Laboratory analysis was run for Total Chromium. Chromium VI was non-detect in all the samples.

mg/kg - Milligrams per kilogram.

PSRG - Preliminary Soil Remediation Goal (Inactive Hazardous Sites Branch PSRG Table - September 2015).

**ATTACHMENT A
BORING LOGS**

PROJECT: Stedman Landfill
Stedman, North Carolina

Boring No. SB-2

PROJECT No.: BN12.611.003	ELEVATION:	DRILLING METHOD: Hand Auger	DRILLING COMPANY: N/A
LOGGED BY: Eddie Rogers	BORING DEPTH: 3 Feet	DRILL RIG: N/A	NOTES: Waste encountered at 2.5'.
DATE DRILLED: 02/11/16	WATER LEVEL: N/A		

DEPTH (ft)	SAMPLE	Blows/ft	Recovery (%)	PID (ppm)	USCS	GRAPHIC LOG	SOIL DESCRIPTION	WATER LEVEL	DEPTH (ft)
					CL		TOPSOIL/GRASSMAT Gray Brown CLAY , with rock fragments		
					CL		Tan Orange Fine to Coarse Sandy CLAY		
							Waste debris/soil mix		
							Boring was terminated at 3 feet.		
5									5
10									10
15									15
20									20
25									25
30									30
35									35

ESP_TBR_4_BN12.611.003.GPJ LOG-LAB.GDT 4/20/16

DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE BORING LOCATIONS.

DO NOT USE DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.



t

0316

PROJECT: Stedman Landfill
Stedman, North Carolina

Boring No. SB-3

PROJECT No.: BN12.611.003	ELEVATION:	DRILLING METHOD: Hand Auger	DRILLING COMPANY: N/A
LOGGED BY: Eddie Rogers	BORING DEPTH: 2.5 Feet	DRILL RIG: N/A	NOTES: Waste encountered at 2.5'.
DATE DRILLED: 02/11/16	WATER LEVEL: N/A		

DEPTH (ft)	SAMPLE	Blows/ft	Recovery (%)	PID (ppm)	USCS	GRAPHIC LOG	SOIL DESCRIPTION	WATER LEVEL	DEPTH (ft)
					CL		TOPSOIL/GRASSMAT Gray Brown CLAY , with rock fragments		
					CL		Tan Orange Fine to Coarse Sandy CLAY Waste debris Auger refusal encountered at 2.5 feet. Boring was terminated at 2.5 feet.		
5									5
10									10
15									15
20									20
25									25
30									30
35									35

DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE BORING LOCATIONS.

DO NOT USE DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.



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0316

ESP_TBR_4_BN12.611.003.GPJ LOG-LAB.GDT 4/20/16

PROJECT: Stedman Landfill
Stedman, North Carolina

Boring No. SB-4

PROJECT No.: BN12.611.003	ELEVATION:	DRILLING METHOD: Hand Auger	DRILLING COMPANY: N/A
LOGGED BY: Eddie Rogers	BORING DEPTH: 2 Feet	DRILL RIG: N/A	NOTES: No waste encountered.
DATE DRILLED: 02/11/16	WATER LEVEL: N/A		

DEPTH (ft)	SAMPLE	Blows/ft	Recovery (%)	PID (ppm)	USCS	GRAPHIC LOG	SOIL DESCRIPTION	WATER LEVEL	DEPTH (ft)
					CH		TOPSOIL/GRASSMAT Gray Tannish Brown Fine Sandy High Plasticity CLAY		
							Boring was terminated at 2 feet.		
5									5
10									10
15									15
20									20
25									25
30									30
35									35

DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE BORING LOCATIONS.

DO NOT USE DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.



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0316

ESP_TBR_4_BN12.611.003.GPJ LOG-LAB.GDT 4/20/16

PROJECT: Stedman Landfill
Stedman, North Carolina

Boring No. SB-5

PROJECT No.: BN12.611.003	ELEVATION:	DRILLING METHOD: Hand Auger	DRILLING COMPANY: N/A
LOGGED BY: Eddie Rogers	BORING DEPTH: 3 Feet	DRILL RIG: N/A	NOTES: Waste encountered at 2.5'.
DATE DRILLED: 02/11/16	WATER LEVEL: N/A		

DEPTH (ft)	SAMPLE	Blows/ft	Recovery (%)	PID (ppm)	USCS	GRAPHIC LOG	SOIL DESCRIPTION	WATER LEVEL	DEPTH (ft)
					CL		TOPSOIL/GRASSMAT Gray Brown CLAY , with rock fragments		
					SW		Tan to Reddish Brown Fine to Coarse SAND , with rock fragments		
							Waste debris		
							Auger refusal encountered at 3 feet. Boring was terminated at 3 feet.		
5									5
10									10
15									15
20									20
25									25
30									30
35									35

DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE BORING LOCATIONS.

DO NOT USE DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.



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0316

ESP_TBR_4_BN12.611.003.GPJ LOG-LAB.GDT 4/20/16

ATTACHMENT B
COVER SOIL SAMPLING FIELD DOCUMENTATION

2.10.16 *Stedman Landfill*
BN12, 611, 003 Task 02
0800 Prepare for tomorrow's task
activities, load equipment
1100 Finish

2.11.16 Stedman Landfill
 BN12, 611,003, Task 02
 0545 Depart for site 171
 0905 Arrive site 51855
 0930 Begin marking boring locations
 1000 Wetlands Biologist Bill
 Mullin on site
 1020 Landowner Mike Daibert
 stopped by to speak
 1045 Begin securing SB-2
 1105 Sample SB-2 (0.5-1.5)
 1115 ~~Sample Duplicate~~
 1125 Move to SB-3
 1145 Sample SB-3 (0.5-1.5)
~~Sample SB-3 (3.0-4.0)~~
 1200 Notified PM waste at 2.5'
 - sample at 3-4
 1245 Notified PM, ~~waste~~ answer
 refusal at 2.5' offset fence, will
 notify DENR.
 1250 Move to SB-4 - no DENR
 notified PM to sample SB-3 as
 deep as possible
 1305 Sample SB-3 (2.0-2.5)

1315 Move to SB-4
 1350 Sample SB-4 (0.5-1.5)
 1410 Move to SB-5
 1430 Sample SB-5 (0.5-1.5)
 offset 3~~4~~ times 0.5, 1.0, 1.5
 1540 Sample SB-5 (2.5-3.0)
 1600 Sample RB Rinse Blank
 1615 Begin securing samples for Feed Ex
 transport, site admin, COC's
 1640 Depart site for Feed Ex 51855
 1705 Arrive Feed Ex 51875
 1715 Depart Feed Ex for hotel
 1740 Arrive hotel 51886

2.12.16 Stedman Landfill
 BN12, 611, 003 02
 0800 Depart hotel 51886
 1130 Arrive office 52055
 upload equipment
 1200 finish

3.14.16 Stedman Landfill
 BN12, 611, 003 375 DA. 4+5
 Subtask D - surveying
 0545 Depart to site 53017
 0905 Arrive site 53189
 0910 Contact Glen Deibert
 0920 Voff Green on site (JG)
 0930 AASP review, site, JG begins
 setting up for surveying task.
 0940 Glen Deibert arrives, spoke
 about task, said no reason
 to call him any further while
 were on site.
 1010 Spoke with Mike Deibert.
 1345 JG to lunch.
 1425 JG back from lunch, continue
 survey.
 1630 ESP, JG depart site 53189
 1705 Arrive hotel 53202

11.75

Return via Rain

3.15.16 Stedman Landfill
 BIN 12.611.002 375-DP 4,5
 subtask D - surveying
 0700 Depart ~~site~~ hotel 53202
 0730 Arrive site 53215 JG on site
 0740 HASP review, sigs, set up equipment
 0800 continue surveying task
 1240 JG to lunch
 1345 Contact PM on daily site status
 1410 JG back from lunch
 1430 continue surveying task
 1725 ESP, JG depart site 53215
 1745 Arrive hotel 53228

3.16.16 Stedman Landfill
 BIN 12.611.003 375-DP 4,5
 subtask D - surveying
 0700 Depart ~~site~~ hotel 53228
 0730 Arrive site 53240
 0745 HASP review, sigs, set up equipment
 0755 Continue surveying task
 1300 JG to lunch
 1330 Continue surveying task
 1630 ESP, JG depart site
 1700 Arrive hotel 53253

10.75

10.0

Return to Palm

3.17.16 Stedman Landfill
BN12.611.003 375 DP 4.5
subtask D surveying
0700 Depart hotel 53253
0730 Arrive site, 53266
0745 H.A.S.P review, site
0755 Set up, prepare for today's surveying
0815 Continue surveying task
1100 Depart site to hotel (53266
1205 Return from hotel (53291)
1230 Surveying task complete
1240 Depart site, 53291
1600 Arrive office 53472

9.0

Ritter

FIELD BORING LOG

PROJECT: BN12.611.003	BORING ID: SB-2	Page 1 of 1
Location: Stedman Landfill	GPS Coords (decimal to 5th order):	
Drilling Company: N/A	Drilling Method: N/A	
Driller's Name: N/A	Drill Rig Type: N/A	
Logged By: Eddie Rogers	Sampling Equipment: hand auger	
Time / Date Boring Started: 2.11.16, 1045	Boring Completion Depth (ft bgs): 1.5	
Time / Date Boring Completed: 2.11.16 1105	Depth to Groundwater at Time of Drilling (ft bgs): NA	
Weather: p. cloudy	Depth Interval of Encountered Waste (ft bgs): 2.5	

Depth (ft)	Lab Sample ID (depth interval)	SPT Blow Counts / Recovery (%)	Material Description	USCS Class.	PID Reading (ppm)
0-0.3			topsoil, grassmat	CL	
0.3-1.5			Gray, brown CLAY with rock fragments		
5					
1.5-2.5			Tan, orange f. to cse. sandy CLAY	CL	
2.5-3			Waste debris soil mix		
10					
15					
20					
25					
30					

FIELD BORING LOG

PROJECT: BN12.611.003	BORING ID: SB-3	Page 1 of 1
Location: Stedman Landfill	GPS Coords (decimal to 5th order):	
Drilling Company: N/A	Drilling Method: N/A	
Driller's Name: N/A	Drill Rig Type: N/A	
Logged By: Eddie Rogers	Sampling Equipment: hand auger	
Time / Date Boring Started: 2.11.16 1125	Boring Completion Depth (ft bgs): 2.5	
Time / Date Boring Completed: 2.11.16 1305	Depth to Groundwater at Time of Drilling (ft bgs): NA	
Weather: p. cloudy	Depth Interval of Encountered Waste (ft bgs): 2.5	

Depth (ft)	Lab Sample ID (depth interval)	SPT Blow Counts / Recovery (%)	Material Description	USCS Class.	PID Reading (ppm)
0-0.3			topsoil, grassmat		
0.3-2.0			Gray, brown, CLAY with rock frags	CL	
2.0-2.5			Tan, orange, f. to cse. sandy CLAY	CL	
2.5			Waste debris - auger refusal		
5					
10					
15					
20					
25					
30					

Notes:



FIELD BORING LOG

PROJECT: BN12.611.003	BORING ID: SB-4	Page 1 of 1
Location: Stedman Landfill	GPS Coords (decimal to 5th order):	
Drilling Company: N/A	Drilling Method: N/A	
Driller's Name: N/A	Drill Rig Type: N/A	
Logged By: Eddie Rogers	Sampling Equipment: hand auger	
Time / Date Boring Started: 2.16.16 1315	Boring Completion Depth (ft bgs): 2.0	
Time / Date Boring Completed: 2.11.16 1350	Depth to Groundwater at Time of Drilling (ft bgs): N/A	
Weather: p. cloudy	Depth Interval of Encountered Waste (ft bgs): N/A	

Depth (ft)	Lab Sample ID (depth interval)	SPT Blow Counts / Recovery (%)	Material Description	USCS Class.	PID Reading (ppm)
0-0.3			top soil, grassmat		
0.3-2.0			Gray, tan, brown f. sandy high plastic CLAY	CH	
5					
10					
15					
20					
25					
30					

Notes:



FIELD BORING LOG

PROJECT: BN12.611.003	BORING ID: SB-5	Page 1 of 1
Location: Stedman Landfill	GPS Coords (decimal to 5th order):	
Drilling Company: N/A	Drilling Method: N/A	
Driller's Name: N/A	Drill Rig Type: N/A	
Logged By: Eddie Rogers	Sampling Equipment: hand auger	
Time / Date Boring Started: 2.11.16 1410	Boring Completion Depth (ft bgs): 3.0	
Time / Date Boring Completed: 2.11.16 1540	Depth to Groundwater at Time of Drilling (ft bgs): NA	
Weather: P. cloudy	Depth Interval of Encountered Waste (ft bgs): 2.5	

Depth (ft)	Lab Sample ID (depth interval)	SPT Blow Counts / Recovery (%)	Material Description	USCS Class.	PID Reading (ppm)
0-0.3			topsoil, grassmat		
0.3-1.5			Gray, brown CLAY with rock fragments	CL	
1.5-2.5			Tan to reddish brown f. to est SAND with rock fragments	SU	
2.5-3.0			Waste debris - auger refusal at 3.0		
10			offset 3 times		
15					
20					
25					
30					

Notes:



ATTACHMENT C
LABORATORY ANALYTICAL REPORT

February 22, 2016

Christopher Ward
ESP Associates
3475 Lakemont Rd
Ft. Mill, SC 29708

Project Location: Stedman, NC
Client Job Number:
Project Number: BN12.611.003
Laboratory Work Order Number: 16B0569

Enclosed are results of analyses for samples received by the laboratory on February 11, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa Worthington", is displayed on a light gray rectangular background.

Lisa A. Worthington
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ESP Associates
 3475 Lakemont Rd
 Ft. Mill, SC 29708
 ATTN: Christopher Ward

REPORT DATE: 2/22/2016

PURCHASE ORDER NUMBER: 375 DP-4

PROJECT NUMBER: BN12.611.003

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 16B0569

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Stedman, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB-2 (0.5-1.5)	16B0569-01	Soil		SM 2540G SW-846 6020A SW-846 7196A	
SB-3 (0.5-1.5)	16B0569-02	Soil		SM 2540G SW-846 6020A SW-846 7196A	
SB-3 (2.0-2.5)	16B0569-03	Soil		SM 2540G SW-846 6020A SW-846 7196A	
SB-4 (0.5-1.5)	16B0569-04	Soil		SM 2540G SW-846 6020A SW-846 7196A	
SB-5 (0.5-1.5)	16B0569-05	Soil		SM 2540G SW-846 6020A SW-846 7196A	
SB-5 (2.5-3.0)	16B0569-06	Soil		SM 2540G SW-846 6020A SW-846 7196A	
Duplicate	16B0569-07	Soil		SM 2540G SW-846 6020A SW-846 7196A	

EXECUTIVE SUMMARY

Client ID: **SB-2 (0.5-1.5)**

Lab ID: **16B0569-01**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	17	0.48	7.6	mg/Kg dry	SW-846 6020A
% Solids	76.8			% Wt	SM 2540G

Client ID: **SB-3 (0.5-1.5)**

Lab ID: **16B0569-02**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	29	0.55	8.6	mg/Kg dry	SW-846 6020A
% Solids	67.3			% Wt	SM 2540G

Client ID: **SB-3 (2.0-2.5)**

Lab ID: **16B0569-03**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	12	0.42	6.7	mg/Kg dry	SW-846 6020A
% Solids	87.2			% Wt	SM 2540G

Client ID: **SB-4 (0.5-1.5)**

Lab ID: **16B0569-04**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	19	0.41	6.5	mg/Kg dry	SW-846 6020A
% Solids	90.2			% Wt	SM 2540G

Client ID: **SB-5 (0.5-1.5)**

Lab ID: **16B0569-05**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	3.1 J	0.40	6.4	mg/Kg dry	SW-846 6020A
% Solids	91.5			% Wt	SM 2540G

Client ID: **SB-5 (2.5-3.0)**

Lab ID: **16B0569-06**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	9.5	0.41	6.5	mg/Kg dry	SW-846 6020A
% Solids	90.0			% Wt	SM 2540G

Client ID: **Duplicate**

Lab ID: **16B0569-07**

Analyte	Results/Qual	DL	RL	Units	Method
Chromium	15	0.45	7.1	mg/Kg dry	SW-846 6020A
% Solids	83.4			% Wt	SM 2540G

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 7196A

Qualifications:**DL-03**

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:**Hexavalent Chromium**

16B0569-03[SB-3 (2.0-2.5)], 16B0569-04[SB-4 (0.5-1.5)]

MS-16

For solid method SW846-7196A, the matrix spike is outside of control limits. pH and ORP results were indicative of reducing conditions. Reanalysis is not required. Analysis is in control based on LCS recoveries.

Analyte & Samples(s) Qualified:**Hexavalent Chromium**

16B0569-01[SB-2 (0.5-1.5)], B142440-MS1, B142440-MS3, B142440-MSD1

W-06

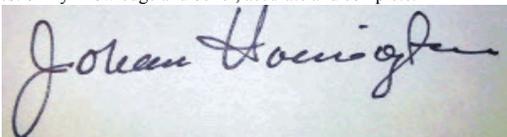
Elevated method reporting limit due to intense color of sample

Analyte & Samples(s) Qualified:**Hexavalent Chromium**

16B0569-01[SB-2 (0.5-1.5)], 16B0569-02[SB-3 (0.5-1.5)], 16B0569-07[Duplicate]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Johanna K. Harrington

Manager, Laboratory Reporting

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-2 (0.5-1.5)

Sampled: 2/11/2016 11:05

Sample ID: 16B0569-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	17	7.6	0.48	mg/Kg dry	5		SW-846 6020A	2/16/16	2/18/16 9:50	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-2 (0.5-1.5)

Sampled: 2/11/2016 11:05

Sample ID: 16B0569-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	1.0	mg/Kg dry	5	MS-16, W-06	SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	76.8		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Sampled: 2/11/2016 11:45

Field Sample #: SB-3 (0.5-1.5)

Sample ID: 16B0569-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	29	8.6	0.55	mg/Kg dry	5		SW-846 6020A	2/16/16	2/18/16 10:01	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Sampled: 2/11/2016 11:45

Field Sample #: SB-3 (0.5-1.5)

Sample ID: 16B0569-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	1.2	mg/Kg dry	5	W-06	SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	67.3		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Sampled: 2/11/2016 13:05

Field Sample #: SB-3 (2.0-2.5)

Sample ID: 16B0569-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	12	6.7	0.42	mg/Kg dry	5		SW-846 6020A	2/16/16	2/18/16 10:04	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-3 (2.0-2.5)

Sampled: 2/11/2016 13:05

Sample ID: 16B0569-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	0.89	mg/Kg dry	5	DL-03	SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	87.2		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-4 (0.5-1.5)

Sampled: 2/11/2016 13:50

Sample ID: 16B0569-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	19	6.5	0.41	mg/Kg dry	5		SW-846 6020A	2/16/16	2/18/16 10:06	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-4 (0.5-1.5)

Sampled: 2/11/2016 13:50

Sample ID: 16B0569-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	0.87	mg/Kg dry	5	DL-03	SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	90.2		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-5 (0.5-1.5)

Sampled: 2/11/2016 14:30

Sample ID: 16B0569-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	3.1	6.4	0.40	mg/Kg dry	5	J	SW-846 6020A	2/16/16	2/18/16 10:09	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-5 (0.5-1.5)

Sampled: 2/11/2016 14:30

Sample ID: 16B0569-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	0.17	mg/Kg dry	1		SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	91.5		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Field Sample #: SB-5 (2.5-3.0)

Sampled: 2/11/2016 15:40

Sample ID: 16B0569-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	9.5	6.5	0.41	mg/Kg dry	5		SW-846 6020A	2/16/16	2/18/16 10:12	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Sampled: 2/11/2016 15:40

Field Sample #: SB-5 (2.5-3.0)

Sample ID: 16B0569-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	0.17	mg/Kg dry	1		SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	90.0		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Sampled: 2/11/2016 16:00

Field Sample #: Duplicate

Sample ID: 16B0569-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	15	7.1	0.45	mg/Kg dry	5		SW-846 6020A	2/16/16	2/18/16 10:15	MJH

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Project Location: Stedman, NC

Sample Description:

Work Order: 16B0569

Date Received: 2/11/2016

Sampled: 2/11/2016 16:00

Field Sample #: Duplicate

Sample ID: 16B0569-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	0.93	mg/Kg dry	5	W-06	SW-846 7196A	2/18/16	2/19/16 11:45	LL
% Solids	83.4		% Wt	1		SM 2540G	2/13/16	2/15/16 8:13	MRL

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
16B0569-01 [SB-2 (0.5-1.5)]	B142117	02/13/16
16B0569-02 [SB-3 (0.5-1.5)]	B142117	02/13/16
16B0569-03 [SB-3 (2.0-2.5)]	B142117	02/13/16
16B0569-04 [SB-4 (0.5-1.5)]	B142117	02/13/16
16B0569-05 [SB-5 (0.5-1.5)]	B142117	02/13/16
16B0569-06 [SB-5 (2.5-3.0)]	B142117	02/13/16
16B0569-07 [Duplicate]	B142117	02/13/16

Prep Method: SW-846 3050B-SW-846 6020A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16B0569-01 [SB-2 (0.5-1.5)]	B142252	1.08	50.0	02/16/16
16B0569-02 [SB-3 (0.5-1.5)]	B142252	1.08	50.0	02/16/16
16B0569-03 [SB-3 (2.0-2.5)]	B142252	1.07	50.0	02/16/16
16B0569-04 [SB-4 (0.5-1.5)]	B142252	1.07	50.0	02/16/16
16B0569-05 [SB-5 (0.5-1.5)]	B142252	1.07	50.0	02/16/16
16B0569-06 [SB-5 (2.5-3.0)]	B142252	1.08	50.0	02/16/16
16B0569-07 [Duplicate]	B142252	1.06	50.0	02/16/16

SW-846 7196A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16B0569-01 [SB-2 (0.5-1.5)]	B142440	2.52	100	02/18/16
16B0569-02 [SB-3 (0.5-1.5)]	B142440	2.52	100	02/18/16
16B0569-03 [SB-3 (2.0-2.5)]	B142440	2.57	100	02/18/16
16B0569-04 [SB-4 (0.5-1.5)]	B142440	2.55	100	02/18/16
16B0569-05 [SB-5 (0.5-1.5)]	B142440	2.58	100	02/18/16
16B0569-06 [SB-5 (2.5-3.0)]	B142440	2.57	100	02/18/16
16B0569-07 [Duplicate]	B142440	2.58	100	02/18/16

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B142252 - SW-846 3050B										
Blank (B142252-BLK1)					Prepared: 02/16/16 Analyzed: 02/18/16					
Chromium	ND	6.2	mg/Kg wet							
LCS (B142252-BS1)					Prepared: 02/16/16 Analyzed: 02/18/16					
Chromium	169	47	mg/Kg wet	182		92.9	78.7-120.6			
LCS Dup (B142252-BSD1)					Prepared: 02/16/16 Analyzed: 02/18/16					
Chromium	173	49	mg/Kg wet	182		95.1	78.7-120.6	2.29	30	
Duplicate (B142252-DUP1)					Source: 16B0569-01 Prepared: 02/16/16 Analyzed: 02/18/16					
Chromium	13.5	7.6	mg/Kg dry		16.7			21.4	35	
Matrix Spike (B142252-MS1)					Source: 16B0569-01 Prepared: 02/16/16 Analyzed: 02/18/16					
Chromium	42.2	30	mg/Kg dry	30.2	16.7	84.3	75-125			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B142117 - % Solids										
Duplicate (B142117-DUP2)		Source: 16B0569-01			Prepared: 02/13/16 Analyzed: 02/15/16					
% Solids	75.0		% Wt		76.8			2.37	20	
Batch B142440 - SW-846 7196A										
Blank (B142440-BLK1)					Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	ND	0.16	mg/Kg wet							
LCS (B142440-BS1)					Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	83	3.6	mg/Kg wet	99.8		82.9	80-120			
LCS Dup (B142440-BSD1)					Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	81	3.6	mg/Kg wet	99.5		81.8	80-120	1.65	20	
Matrix Spike (B142440-MS1) Soluble MS		Source: 16B0569-01			Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	30	1.0	mg/Kg dry	51.4	ND	58.4 *	75-125			MS-16
Matrix Spike (B142440-MS2) PDMS		Source: 16B0569-01			Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	43	1.0	mg/Kg dry	51.9	ND	82.7	75-125			
Matrix Spike (B142440-MS3) Insoluble MS		Source: 16B0569-01			Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	500	41	mg/Kg dry	824	ND	60.7 *	75-125			MS-16
Matrix Spike Dup (B142440-MSD1) Soluble MS Dup		Source: 16B0569-01			Prepared: 02/18/16 Analyzed: 02/19/16					
Hexavalent Chromium	32	1.0	mg/Kg dry	51.6	ND	61.4 *	75-125	5.48	35	MS-16

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-03	Elevated reporting limit due to matrix.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
MS-16	For solid method SW846-7196A, the matrix spike is outside of control limits. pH and ORP results were indicative of reducing conditions. Reanalysis is not required. Analysis is in control based on LCS recoveries.
W-06	Elevated method reporting limit due to intense color of sample

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 6020A in Soil</i>	
Chromium	NY
<i>SW-846 7196A in Soil</i>	
Hexavalent Chromium	NY,CT,NH,NC,ME,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2016
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2016
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2016
FL	Florida Department of Health	E871027 NELAP	06/30/2016
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2016
WA	State of Washington Department of Ecology	C2065	02/23/2016
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016

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East Longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

Phone: 413-525-2332
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Email: info@contestlabs.com
http://www.contestlabs.com



Company Name: ESP Associates PA

Address: 3475 Lakemont Blvd

Attention: Chris Ward

Project Location: Stedman, NC

Sampled By: Sabie Rogers

Telephone: 803.835.0915

Project # BNA2.611.003

Client PO# 375 DP-4

DATA DELIVERY (check all that apply)
 FAX EMAIL WEBSITE

Fax #

Email: ward@espass.com

Format: OPDF EXCEL OGIS

OTHER

"Enhanced Data Package"

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection			Conc Code
		Beginning Date/Time	Ending Date/Time	Grab	
01	SB-2 (0.5-1.5)		2.11.105	✓	S
02	SB-3 (0.5-1.5)		2.11.145	✓	S
03	SB-3 (2.0-2.5)		2.11.1305	✓	S
04	SB-4 (0.5-1.5)		2.11.1350	✓	S
05	SB-5 (0.5-1.5)		2.11.1430	✓	S
06	SB-5 (2.5-3.0)		2.11.1540	✓	S
07	Duplicate		2.11.1600	✓	S

Analysis Requested	# of Containers	** Preservation	*** Container Code
Dissolved Metals			
<input type="checkbox"/> Field Filtered			
<input type="checkbox"/> Lab to Filter			
***Cont. Code:			
A=amber glass			
G=glass			
P=plastic			
ST=sterile			
V= vial			
S=summa can			
T=tetlar bag			
O=Other			
**Preservation			
I = Iced			
H = HCL			
M = Methanol			
N = Nitric Acid			
S = Sulfuric Acid			
B = Sodium bisulfate			
X = Na hydroxide			
T = Na thiosulfate			
O = Other			
*Matrix Code:			
GW= groundwater			
WW= wastewater			
DW= drinking water			
A = air			
S = soil/solid			
SL = sludge			
O = other			

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Program Information

DSCA IHSB Orphaned Landfill
 SWS Landfill UST REC
 Other: _____



 NELAC & AIHA Certified
 WBE/DBE Certified

Turnaround^{††}

5-Day
 5-7-Day
 10-Day
RUSH[†]
 24-Hr r 48-Hr
 72-Hr r 4-Day
[†] Requires Lab Approval

Detection Limit Requirements

North Carolina
 2L
 GWPC
 SWSL
 OTHER

Relinquished by: (signature) Sabie Rogers Date/Time: 2.11.16 1700
 Received by: (signature) Chris Ward Date/Time: 9:37
 Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____

Comments:

TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

39 Spruce St.
 East Longmeadow, MA. 01028
 P: 413-525-2332
 F: 413-525-6405
 www.contestlabs.com



Sample Receipt Checklist

CLIENT NAME: ESP Associates **RECEIVED BY:** PB **DATE:** 2/12/2016

1) Was the chain(s) of custody relinquished and signed? Yes x No **No COC Incl.**

2) Does the chain agree with the samples? Yes x No

If not, explain:

3) Are all the samples in good condition? Yes x No

If not, explain:

4) How were the samples received:

On Ice x Direct from Sampling Ambient In Cooler(s) x

Were the samples received in Temperature Compliance of (2-6°C)? Yes x No N/A

Temperature °C by Temp blank 3 Temperature °C by Temp gun

5) Are there Dissolved samples for the lab to filter? Yes No x

Who was notified Date Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes No x

Who was notified Date Time

7) Location where samples are stored:

Login

Permission to subcontract samples? Yes No
 (Walk-in clients only) if not already approved
 Client Signature:

8) Do all samples have the proper Acid pH: Yes No N/A x

9) Do all samples have the proper Base pH: Yes No N/A x

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes N/A x

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	14 Ambers
250 mL Amber (8oz amber)		4 oz amber/clear jar	
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl # Methanol Time and Date Frozen:
 # Bisulfate # DI Water
 # Thiosulfate Unpreserved

Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	NA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	NA		
14) Sample collection date/times are provided.	T		
15) Appropriate sample containers are used.	T		
16) Proper collection media used.	T		
17) No headspace sample bottles are completely filled.	NA		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
19) Trip blanks provided if applicable.	NA		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA		
21) Samples do not require splitting or compositing.	T		

Doc #277 Rev. 4 August 2013 **Who notified of False statements?** **Date/Time:**
Log-In Technician Initials: PB **Date/Time: 2/12/16**

February 25, 2016

Christopher Ward
ESP Associates
3475 Lakemont Rd
Ft. Mill, SC 29708

Project Location: Stedman, NC
Client Job Number:
Project Number: BN12.611.003
Laboratory Work Order Number: 16B0570

Enclosed are results of analyses for samples received by the laboratory on February 11, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa A. Worthington", is displayed on a light gray rectangular background.

Lisa A. Worthington
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ESP Associates
3475 Lakemont Rd
Ft. Mill, SC 29708
ATTN: Christopher Ward

REPORT DATE: 2/25/2016

PURCHASE ORDER NUMBER: 375 DP-4

PROJECT NUMBER: BN12.611.003

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 16B0570

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Stedman, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Rinsate Blank	16B0570-01	Water		SM21-22 3500 Cr B SW-846 6020A	

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EXECUTIVE SUMMARY

Client ID: **Rinsate Blank**

Lab ID: **16B0570-01**

No Results Detected

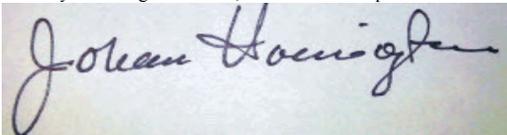
Con-Test does not accept liability for the consequences of any actions taken solely on the basis of the information provided in the Executive Summary section of this report. Users must review this report in its entirety to determine data usability and assessment.

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A photograph of a handwritten signature in black ink on a light-colored background. The signature is written in a cursive style and appears to read "Johanna K. Harrington".

Johanna K. Harrington
Manager, Laboratory Reporting

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Stedman, NC

Sample Description:

Work Order: 16B0570

Date Received: 2/11/2016

Field Sample #: Rinsate Blank

Sampled: 2/11/2016 16:00

Sample ID: 16B0570-01

Sample Matrix: Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chromium	ND	2.0	0.89	µg/L	2		SW-846 6020A	2/25/16	2/25/16 12:45	MJH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Stedman, NC

Sample Description:

Work Order: 16B0570

Date Received: 2/11/2016

Sampled: 2/11/2016 16:00

Field Sample #: Rinsate Blank

Sample ID: 16B0570-01

Sample Matrix: Water

Conventional Chemistry Parameters by EPA/PHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexavalent Chromium	ND	0.0040	mg/L	1		SM21-22 3500 Cr B	2/12/16	2/12/16 13:00	LL

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Sample Extraction Data

SM21-22 3500 Cr B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
16B0570-01 [Rinsate Blank]	B142089	50.0	50.0	02/12/16

Prep Method: SW-846 3005A-SW-846 6020A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
16B0570-01 [Rinsate Blank]	B142908	50.0	50.0	02/25/16

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B142908 - SW-846 3005A										
Blank (B142908-BLK1)				Prepared & Analyzed: 02/25/16						
Chromium	ND	2.0	µg/L							
LCS (B142908-BS1)				Prepared & Analyzed: 02/25/16						
Chromium	259	5.0	µg/L	250		103	80-120			
LCS Dup (B142908-BSD1)				Prepared & Analyzed: 02/25/16						
Chromium	260	5.0	µg/L	250		104	80-120	0.607	20	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B142089 - SM21-22 3500 Cr B										
Blank (B142089-BLK1)				Prepared & Analyzed: 02/12/16						
Hexavalent Chromium	ND	0.0040	mg/L							
LCS (B142089-BS1)				Prepared & Analyzed: 02/12/16						
Hexavalent Chromium	0.10	0.0040	mg/L	0.100		103	90.8-114			
LCS Dup (B142089-BSD1)				Prepared & Analyzed: 02/12/16						
Hexavalent Chromium	0.097	0.0040	mg/L	0.100		97.1	90.8-114	6.26	7.51	
Duplicate (B142089-DUP1)				Source: 16B0570-01			Prepared & Analyzed: 02/12/16			
Hexavalent Chromium	ND	0.0040	mg/L		ND			NC	20	
Matrix Spike (B142089-MS1)				Source: 16B0570-01			Prepared & Analyzed: 02/12/16			
Hexavalent Chromium	0.097	0.0040	mg/L	0.100	ND	97.1	45.2-136			

FLAG/QUALIFIER SUMMARY

- * QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- ‡ Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SM21-22 3500 Cr B in Water</i>	
Hexavalent Chromium	NY,CT,NH,RI,ME,VA,NC
<i>SW-846 6020A in Water</i>	
Chromium	CT,NH,NY,ME,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2016
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2016
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2016
FL	Florida Department of Health	E871027 NELAP	06/30/2016
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2016
WA	State of Washington Department of Ecology	C2065	02/23/2016
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016

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 East Longmeadow, MA. 01028
 P: 413-525-2332
 F: 413-525-6405
 www.contestlabs.com



Sample Receipt Checklist

CLIENT NAME: ESP Associates RECEIVED BY: RLF DATE: 2/12/2016

- 1) Was the chain(s) of custody relinquished and signed? Yes X No No COC Incl.
- 2) Does the chain agree with the samples? Yes X No
 If not, explain: _____
- 3) Are all the samples in good condition? Yes X No
 If not, explain: _____

4) How were the samples received:
 On Ice X Direct from Sampling Ambient In Cooler(s) X

Were the samples received in Temperature Compliance of (2-6°C)? Yes X No N/A

Temperature °C by Temp blank Temperature °C by Temp gun 3

- 5) Are there Dissolved samples for the lab to filter? Yes No X
 Who was notified Date Time
- 6) Are there any RUSH or SHORT HOLDING TIME samples? Yes X No
 Who was notified Lucy Date Time

7) Location where samples are stored:

Permission to subcontract samples? Yes No
 (Walk-in clients only) if not already approved
 Client Signature: _____

- 8) Do all samples have the proper Acid pH: Yes X No N/A
- 9) Do all samples have the proper Base pH: Yes No N/A X
- 10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes N/A X

Containers received at Con-Test

	# of containers			# of containers
1 Liter Amber			16 oz amber	
500 mL Amber			8 oz amber/clear jar	
250 mL Amber (8oz amber)			4 oz amber/clear jar	
1 Liter Plastic			2 oz amber/clear jar	
500 mL Plastic			Plastic Bag / Ziploc	
250 mL plastic	2		SOC Kit	
40 mL Vial - type listed below			Perchlorate Kit	
Colisure / bacteria bottle			Flashpoint bottle	
Dissolved Oxygen bottle			Other glass jar	
Encore			Other	

COC was not completely filled out, took the analyses from the sample labels.

40 mL vials: # HCl <u> </u> # Methanol <u> </u>	Time and Date Frozen: _____
Doc# 277 # Bisulfate <u> </u> # DI Water <u> </u>	
Rev. 4 August 2013 # Thiosulfate <u> </u> Unpreserved <u> </u>	

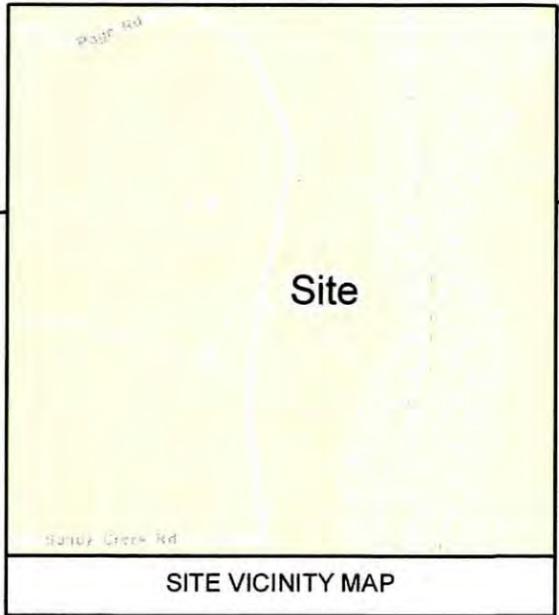
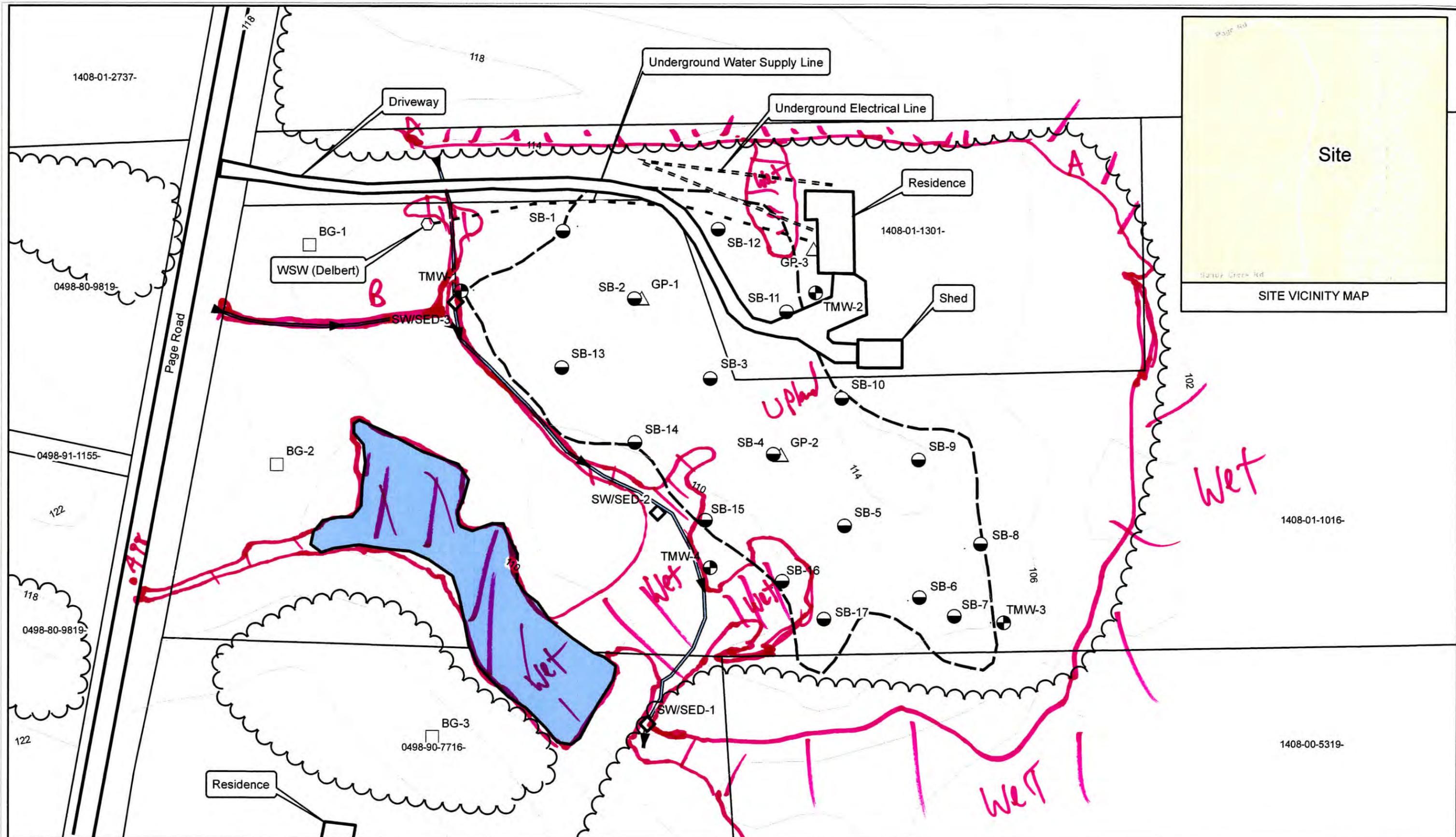
Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	T		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	N/A		
14) Sample collection date/times are provided.	T		
15) Appropriate sample containers are used.	T		
16) Proper collection media used.	T		
17) No headspace sample bottles are completely filled.	T		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
19) Trip blanks provided if applicable.	N/A		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A		
21) Samples do not require splitting or compositing.	T		

Doc #277 Rev. 4 August 2013 **Who notified of False statements?**
Log-In Technician Initials: RLF

Date/Time:
Date/Time: 2/12/16 9:37

ATTACHMENT D
WETLAND DELINEATION FIELD DOCUMENTATION



Legend

Temporary Groundwater Well	Disposal Area Boundary (per delineation evaluation)
Surface Water/Sediment Sample	LIDAR 4 foot Contour Elevation Interval
Soil Boring	Tree Line
Flux Chamber	Water Feature
Background Boring	Tax Parcel

SHEET TITLE:
Figure 1
Media Sampling Locations Map
 Stedman Landfill
 Stedman, North Carolina
 ID# NONCD0000375

0 20 40 80 120
 Feet
 The reproduction, alteration, copying, or other use of this drawing without written consent is prohibited and any infringement will be subject to legal action.

N
 DATE: August 24, 2015

PROJECT NO.: BN12.611
 SCALE: As Shown
 DRAWN BY: WB
 CHECKED BY: CS

ESP Associates, P.A.
 P.O. Box 7030
 Charlotte NC, 28241
www.espassociates.com
 Phone: 803-802-2440

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Steadman Landfill - ESP site City/County: Cumberland Sampling Date: 2-11-16
 Applicant/Owner: ESP Associate State: NC Sampling Point: A-75 up
 Investigator(s): W. Mullin Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Slope / terrace Local relief (concave, convex, none): Somewhat flat to concave Slope (%): 5-8%
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: 83-NAD
 Soil Map Unit Name: Waynes loamy sand NWI classification: JPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <p style="font-size: 1.2em; margin: 0;">This area marks an upland in a historic Landfill area or at least adjacent to a landfill - agricultural area</p>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: A75 up

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. <u>Pinus taeda</u>		<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Sapling Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Herb Stratum (Plot size: _____)				
1. <u>Daucus carota</u>		<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Eupatorium capillifolium</u>		<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Poa sp.</u>				
4. <u>Allium vineale</u>		<input checked="" type="checkbox"/>	<u>FACU</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Woody Vine Stratum (Plot size: _____)				
1. <u>Smilax rotundifolia</u>		<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 5 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species _____ x 1 = _____
 FACW species _____ x 2 = _____
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: _____ (A) _____ (B)
 Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: A 75 UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 5/2	160						loamy sand
4-16	10YR 6/3							loamy sand

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Stedman Landfill City/County: Cumberland Sampling Date: 2-11-16
 Applicant/Owner: ESP State: Nc Sampling Point: A75wet
 Investigator(s): W. Mullin Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): slope, Ditch area Local relief (concave, convex, none): concave Slope (%): 10% ~~11~~
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Wagram NWI classification: PEM1
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres along Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
<p>Field Observations:</p> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>10</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: A 75 wet

Tree Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>		<u>x</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
 Total Number of Dominant Species Across All Strata: _____ (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Coccoloba styraciflua</u>		<u>x</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by:
 OBL species _____ x 1 = _____
 FACW species _____ x 2 = _____
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: _____ (A) _____ (B)
 Prevalence Index = B/A = _____

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Morella alba</u>		<u>x</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juncus effusus</u>		<u>x</u>	<u>FACW</u>
2. <u>Andropogon glomeratus</u>		<u>x</u>	<u>FACW</u>
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			

Definitions of Five Vegetation Strata:
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody vine – All woody vines, regardless of height.

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Smilax rotundifolia</u>		<u>x</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: A75wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 8/2							Sandy loam
5-16	10YR 4/1	85	10YR 4/6	15	C	M		clay sand loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

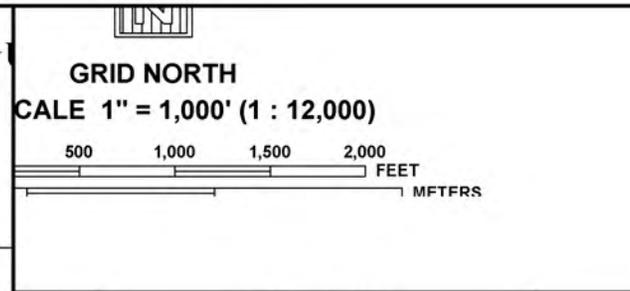
Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

ATTACHMENT E
FEMA FLOOD INSURANCE RATE MAPS



PANEL 0488J

FIRM

FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 0488
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	CID No.	PANEL	SUFFIX
CUMBERLAND COUNTY	370076	0488	J
SAMPSON COUNTY	370220	0488	J

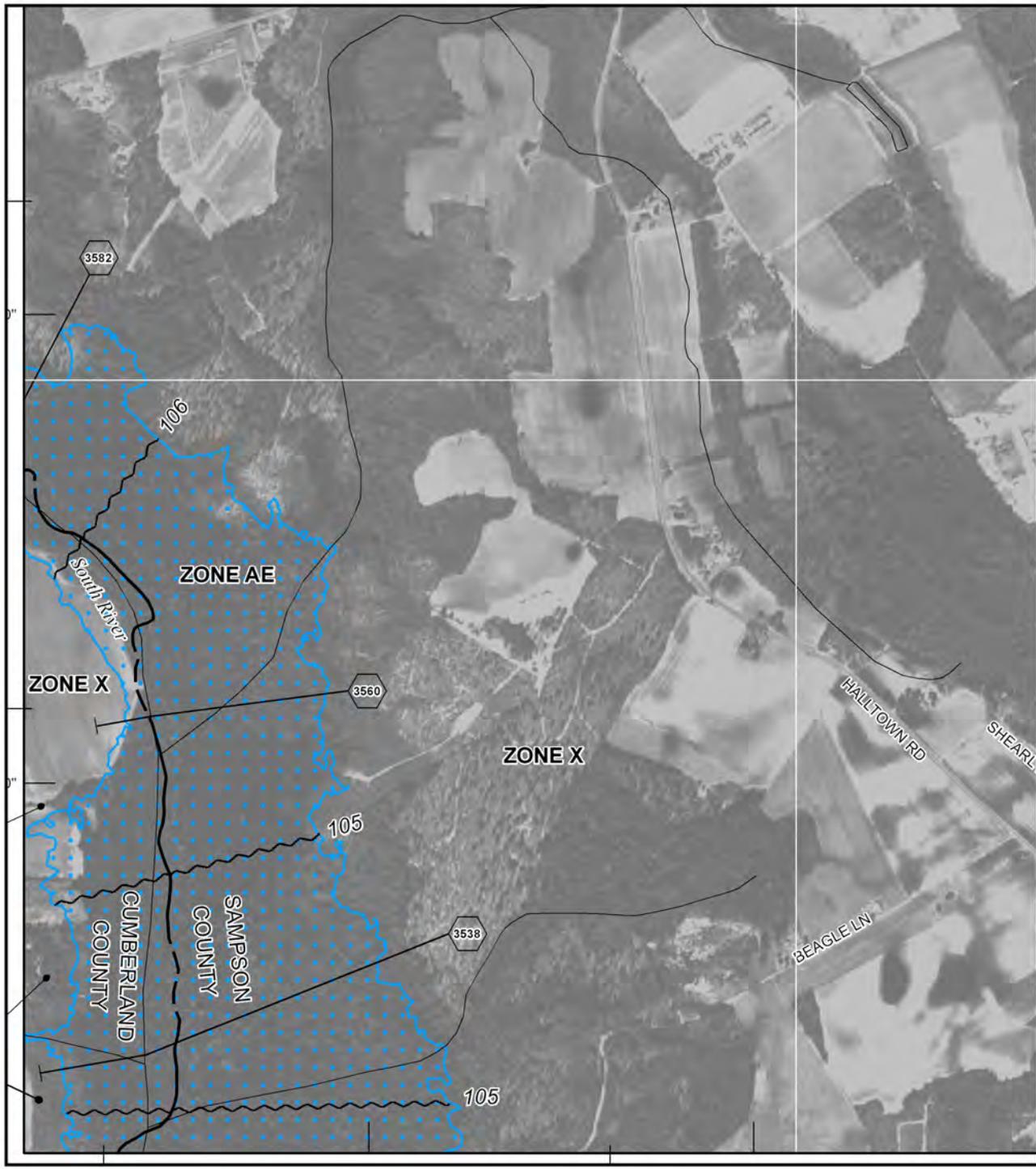
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE **MAP NUMBER**
JANUARY 5, 2007 **3720048800J**

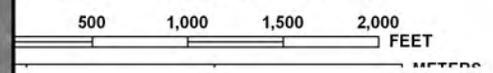



State of North Carolina
Federal Emergency Management Agency

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GRID NORTH
SCALE 1" = 1,000' (1 : 12,000)



PANEL 1408J

FIRM
FLOOD INSURANCE RATE MAP
NORTH CAROLINA

PANEL 1408
 (SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>CID No.</u>	<u>PANEL</u>	<u>SUFFIX</u>
CUMBERLAND COUNTY	370076	1408	J
SAMPSON COUNTY	370220	1408	J

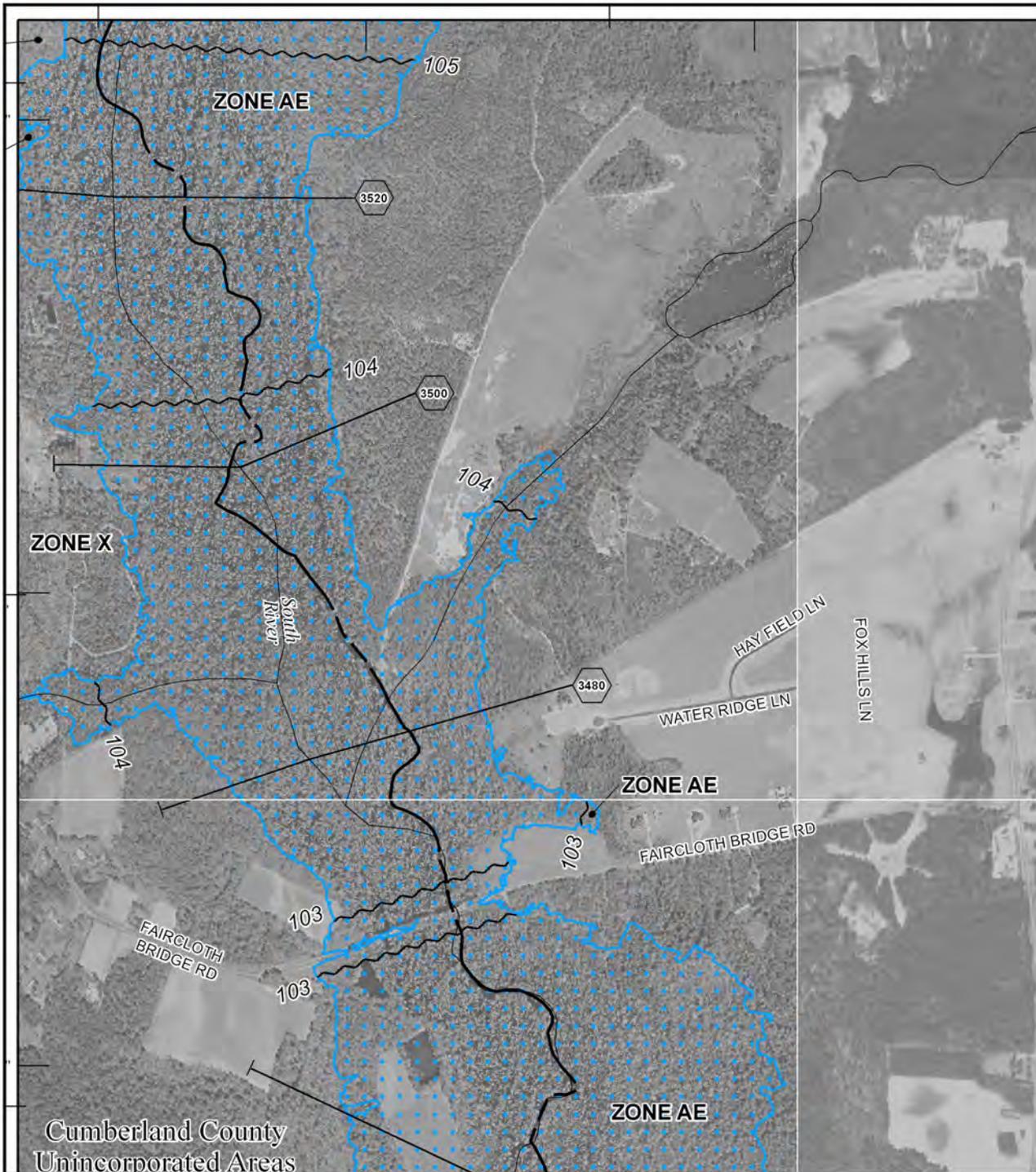
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE **MAP NUMBER**
JANUARY 5, 2007 **3720140800J**



State of North Carolina
 Federal Emergency Management Agency

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Cumberland County
Unincorporated Areas



GRID NORTH
SCALE 1" = 1,000' (1 : 12,000)



PANEL 1406J

FIRM
FLOOD INSURANCE RATE MAP
NORTH CAROLINA

PANEL 1406
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>CID No.</u>	<u>PANEL</u>	<u>SUFFIX</u>
CUMBERLAND COUNTY	370076	1406	J
SAMPSON COUNTY	370220	1406	J

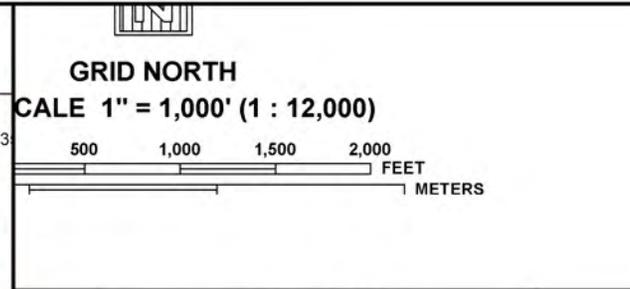
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE **MAP NUMBER**
JANUARY 5, 2007 **3720140600J**



State of North Carolina
Federal Emergency Management Agency

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PANEL 0486J

FIRM

FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 0486
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	CID No.	PANEL	SUFFIX
CUMBERLAND COUNTY	370076	0486	J
STEDMAN, TOWN OF	370534	0486	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

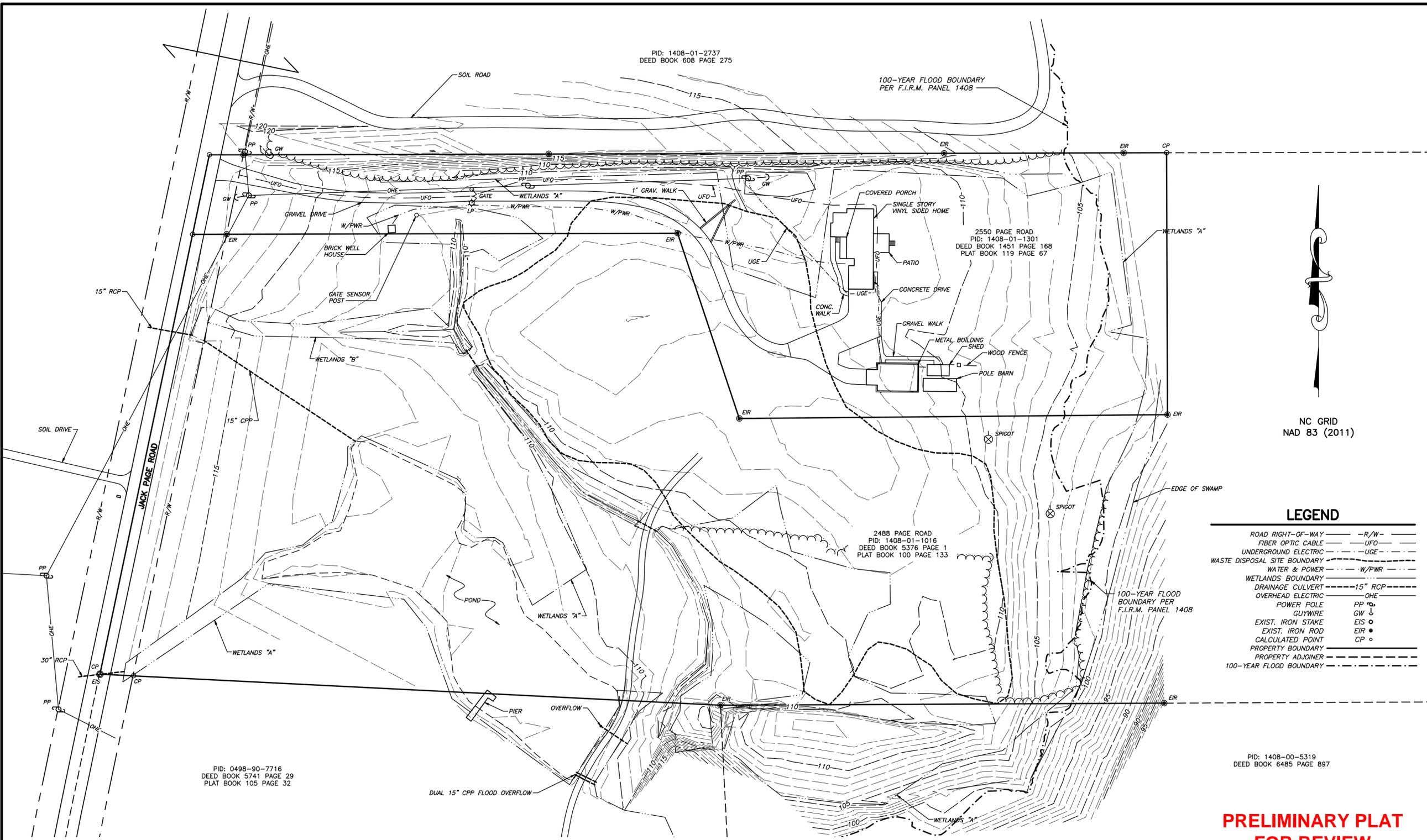
EFFECTIVE DATE **MAP NUMBER**
JANUARY 5, 2007 **3720048600J**




State of North Carolina
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

ATTACHMENT F
TOPOGRAPHIC SURVEY AND WETLANDS DELINEATION PLAN



PID: 1408-01-2737
DEED BOOK 608 PAGE 275

2550 PAGE ROAD
PID: 1408-01-1301
DEED BOOK 1451 PAGE 168
PLAT BOOK 119 PAGE 67

2488 PAGE ROAD
PID: 1408-01-1016
DEED BOOK 5376 PAGE 1
PLAT BOOK 100 PAGE 133

PID: 0498-90-7716
DEED BOOK 5741 PAGE 29
PLAT BOOK 105 PAGE 32

PID: 1408-00-5319
DEED BOOK 6485 PAGE 897

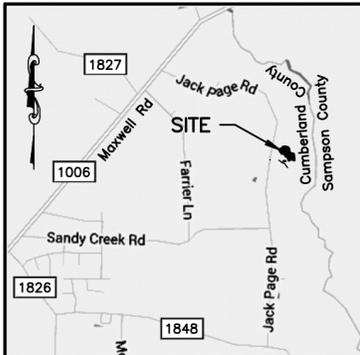


NC GRID
NAD 83 (2011)

LEGEND

ROAD RIGHT-OF-WAY	-R/W-
FIBER OPTIC CABLE	-UFO-
UNDERGROUND ELECTRIC	-UGE-
WASTE DISPOSAL SITE BOUNDARY	-W/PWR-
WATER & POWER	-W/PWR-
WETLANDS BOUNDARY	-15" RCP-
DRAINAGE CULVERT	-OHE-
OVERHEAD ELECTRIC	-OHE-
POWER POLE	PP
GUYWIRE	GW
EXIST. IRON STAKE	EIS
EXIST. IRON ROD	EIR
CALCULATED POINT	CP
PROPERTY BOUNDARY	---
PROPERTY ADJOINER	---
100-YEAR FLOOD BOUNDARY	---

**PRELIMINARY PLAT
FOR REVIEW
PURPOSES ONLY**



VICINITY MAP 1"=4000'

GREEN LAND SURVEYING, PLLC
planning | surveying



5322 Big Oak Church Road
Eagle Springs, North Carolina 27242
Phone: 910.975.2306 License Number: P-0602
greenlandsurveying@hotmail.com

**TOPOGRAPHIC SURVEY AND
WETLANDS DELINEATION PLAN**
PREPARED FOR: NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
Stedman Landfill
ID # NONCD00000375

TOPOGRAPHY SURVEY DATE:
03/14/2016 -03/17/2016

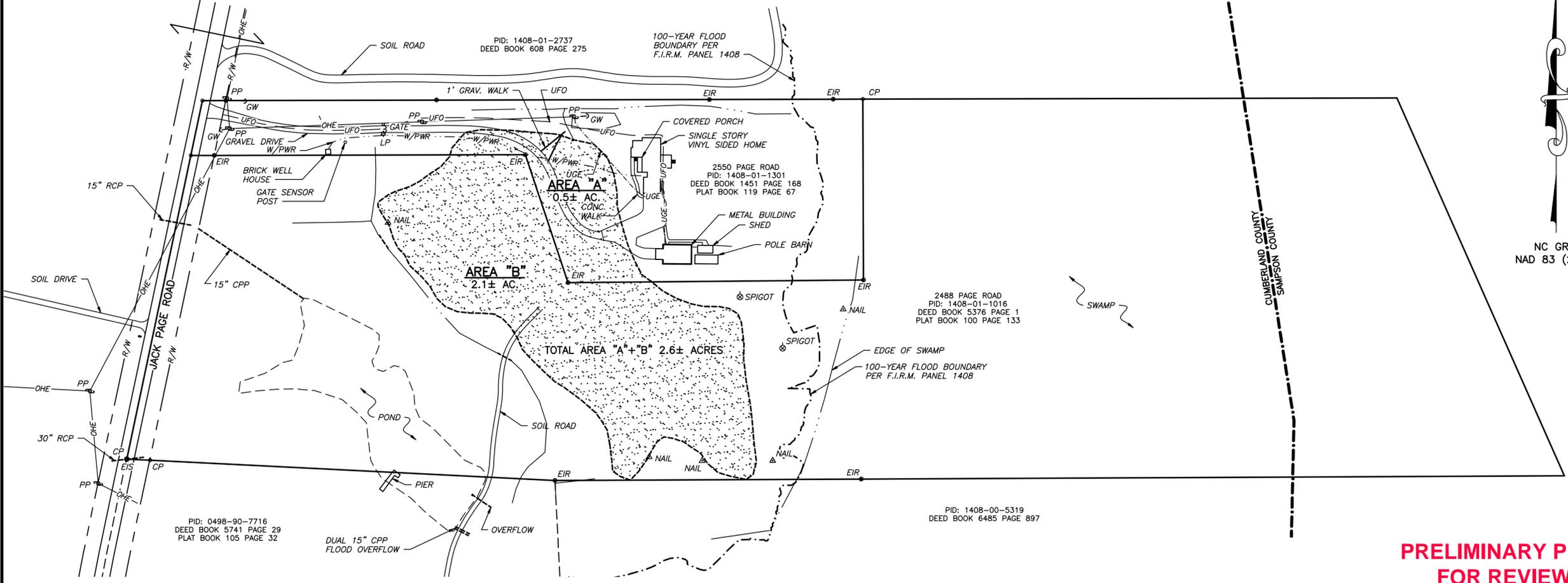
WETLANDS DELINEATION SURVEY DATE:
02/11/2016



SCALE IN FEET

**ATTACHMENT G
PRELIMINARY PLATS**

OVERVIEW SITE MAP - STEDMAN LANDFILL

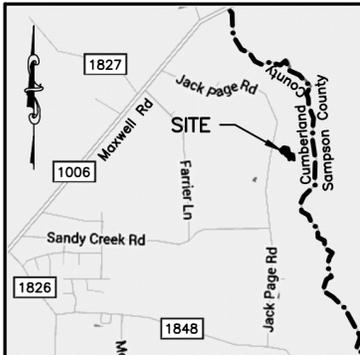


NC GRID
NAD 83 (2011)

**PRELIMINARY PLAT
FOR REVIEW
PURPOSES ONLY**

LEGEND

ROAD RIGHT-OF-WAY	--R/W--
FIBER OPTIC CABLE	-UFO-
UNDERGROUND ELECTRIC	-UGE-
WASTE DISPOSAL SITE BOUNDARY	- - - - -
WATER & POWER	-W/PWR-
DRAINAGE CULVERT	-15" RCP-
OVERHEAD ELECTRIC	-OHE-
POWER POLE	PP
GUYWIRE	GW
EXIST. IRON STAKE	EIS
EXIST. IRON ROD	EIR
CALCULATED POINT	CP
PROPERTY BOUNDARY	- - - - -
PROPERTY ADJONER	- - - - -
100-YEAR FLOOD	- - - - -
COUNTY LINE	- - - - -



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greenlandsurveying@hotmail.com

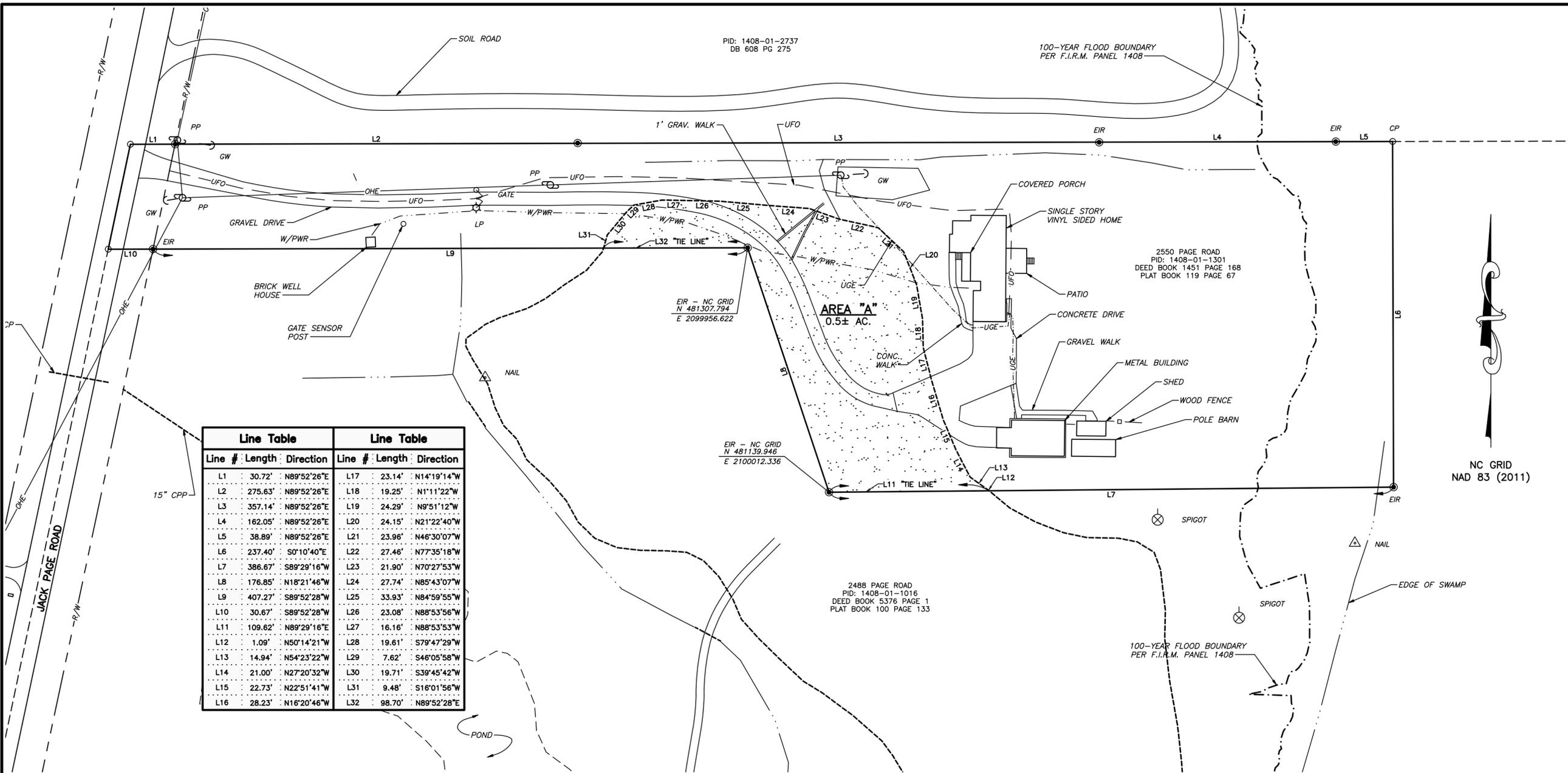
PLAT OF ENVIRONMENTAL SURVEY

Stedman Landfill
ID # NONC00000375

ORIGINAL BOUNDARY SURVEY DATE:
03/14/2016 - 03/17/2016

SCALE IN FEET
0 50 100

SHEET 1 of 3



Line Table			Line Table		
Line #	Length	Direction	Line #	Length	Direction
L1	30.72'	N89°52'26"E	L17	23.14'	N14°19'14"W
L2	275.63'	N89°52'26"E	L18	19.25'	N1°11'22"W
L3	357.14'	N89°52'26"E	L19	24.29'	N9°51'12"W
L4	162.05'	N89°52'26"E	L20	24.15'	N21°22'40"W
L5	38.89'	N89°52'26"E	L21	23.96'	N46°30'07"W
L6	237.40'	S0°10'40"E	L22	27.46'	N77°35'18"W
L7	386.67'	S89°29'16"W	L23	21.90'	N70°27'53"W
L8	176.85'	N18°21'46"W	L24	27.74'	N85°43'07"W
L9	407.27'	S89°52'28"W	L25	33.93'	N84°59'55"W
L10	30.67'	S89°52'28"W	L26	23.08'	N88°53'56"W
L11	109.62'	N89°29'16"E	L27	16.16'	N88°53'53"W
L12	1.09'	N50°14'21"W	L28	19.61'	S79°47'29"W
L13	14.94'	N54°23'22"W	L29	7.62'	S46°05'58"W
L14	21.00'	N27°20'32"W	L30	19.71'	S39°45'42"W
L15	22.73'	N22°51'41"W	L31	9.48'	S16°01'56"W
L16	28.23'	N16°20'46"W	L32	98.70'	N89°52'28"E

LEGEND

ROAD RIGHT-OF-WAY	-R/W-
FIBER OPTIC CABLE	-UFO-
UNDERGROUND ELECTRIC	-UGE-
WASTE DISPOSAL SITE BOUNDARY	---
WATER & POWER	-W/PWR-
DRAINAGE CULVERT	-15" RCP-
OVERHEAD ELECTRIC	-OHE-
POWER POLE	PP
GUYWIRE	GW
EXIST. IRON STAKE	EIS
EXIST. IRON ROD	EIR
CALCULATED POINT	CP
PROPERTY BOUNDARY	---
PROPERTY ADJOINER	---
100-YEAR FLOOD	---

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 greenlandsurveying@hotmail.com

PLAT OF ENVIRONMENTAL SURVEY

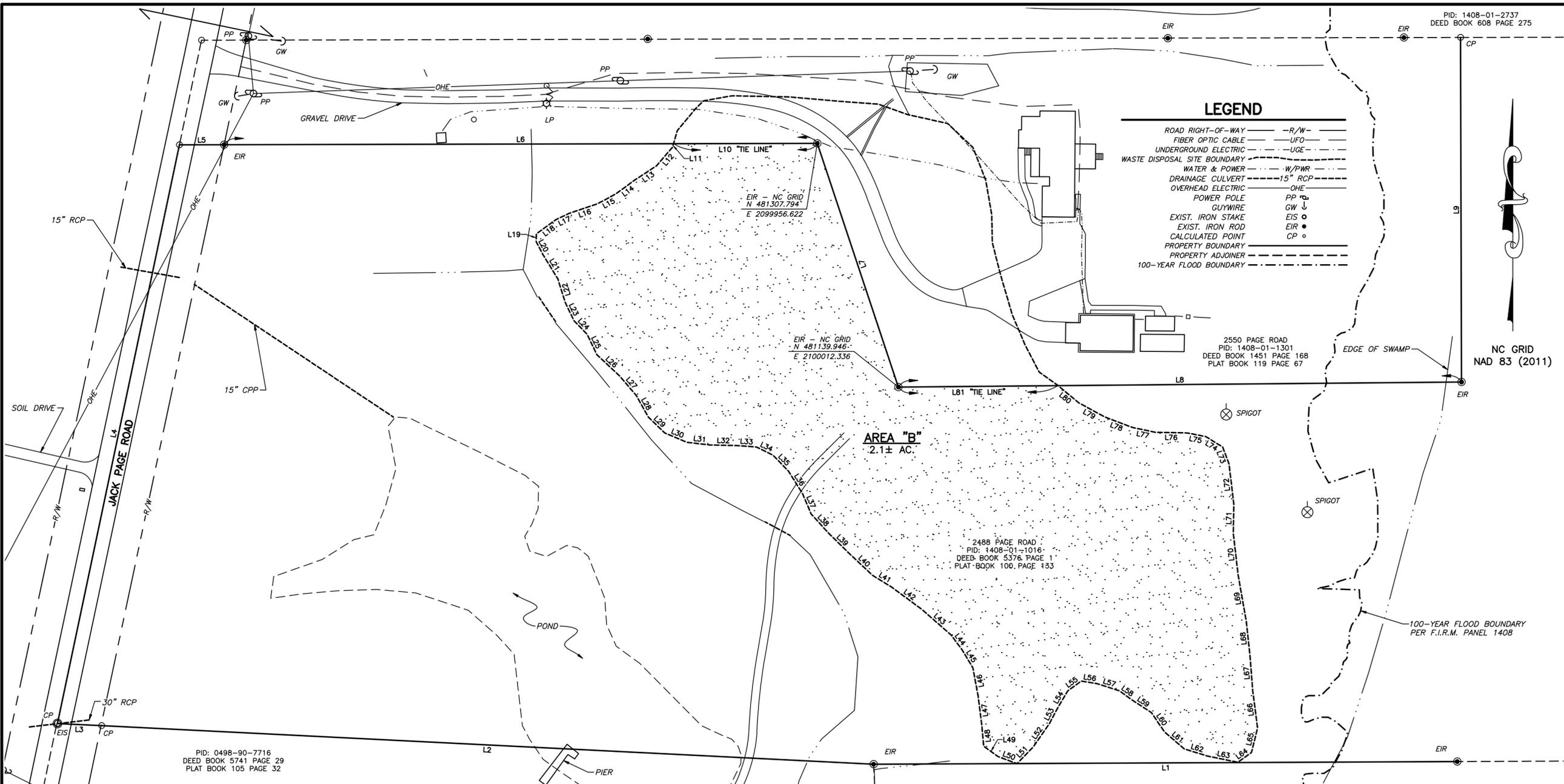
Stedman Landfill
 ID # NONC0000375

ORIGINAL BOUNDARY SURVEY DATE:
 03/14/2016 - 03/17/2016

SCALE IN FEET
 0 25 50

SHEET 2 of 3

**PRELIMINARY PLAT
 FOR REVIEW
 PURPOSES ONLY**



LEGEND

ROAD RIGHT-OF-WAY	-R/W-
FIBER OPTIC CABLE	-UFO-
UNDERGROUND ELECTRIC	-UGE-
WASTE DISPOSAL SITE BOUNDARY	-WDS-
WATER & POWER	-W/PWR-
DRAINAGE CULVERT	-15" RCP-
OVERHEAD ELECTRIC	OHE
POWER POLE	PP
GUYWIRE	GW
EXIST. IRON STAKE	EIS
EXIST. IRON ROD	EIR
CALCULATED POINT	CP
PROPERTY BOUNDARY	-SOLID LINE-
PROPERTY ADJOINER	-DASHED LINE-
100-YEAR FLOOD BOUNDARY	-DOTTED LINE-

PID: 1408-01-2737
DEED BOOK 608 PAGE 275

NC GRID
NAD 83 (2011)

GREEN LAND SURVEYING, PLLC
planning | surveying

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PLAT OF ENVIRONMENTAL SURVEY

Stedman Landfill
ID # NONCD0000375

PID: 0498-90-7716
DEED BOOK 5741 PAGE 29
PLAT BOOK 105 PAGE 32

Line #	Length	Direction	Line #	Length	Direction	Line #	Length	Direction
L1	400.75'	S89°44'07"W	L28	16.89'	S28°58'00"E	L55	11.54'	N54°13'56"E
L2	530.72'	N87°07'30"W	L29	15.79'	S45°52'27"E	L56	10.88'	S80°46'07"E
L3	30.31'	N87°14'55"W	L30	16.57'	S67°05'50"E	L57	16.06'	S72°11'57"E
L4	407.38'	N11°51'37"E	L31	16.23'	S83°27'28"E	L58	9.39'	S53°54'27"E
L5	30.67'	N89°52'28"E	L32	17.70'	S88°53'58"E	L59	17.29'	S56°37'24"E
L6	407.27'	N89°52'28"E	L33	13.87'	S85°43'07"E	L60	16.01'	S34°06'59"E
L7	176.85'	S18°21'46"E	L34	12.74'	S63°52'55"E	L61	18.03'	S49°05'37"E
L8	386.67'	N89°29'16"E	L35	15.23'	S43°53'55"E	L62	16.80'	S72°57'11"E
L9	237.40'	N0°10'40"W	L36	18.35'	S31°55'22"E	L63	21.13'	S78°24'25"E
L10	98.70'	S89°52'28"W	L37	15.15'	S22°51'41"E	L64	11.54'	N54°13'48"E
L11	2.46'	S16°01'56"W	L38	17.96'	S42°09'47"E	L65	17.36'	N13°54'22"E
L12	16.94'	S40°34'24"W	L39	20.14'	S45°26'51"E	L66	26.44'	N7°15'54"W
L13	17.71'	S56°43'14"W	L40	21.79'	S46°45'39"E	L67	23.96'	N4°25'36"W
L14	16.47'	S53°41'47"W	L41	15.17'	S58°25'59"E	L68	24.05'	N6°15'04"W
L15	14.12'	S61°44'35"W	L42	26.47'	S53°21'40"E	L69	32.14'	N9°56'23"W
L16	20.44'	S71°18'10"W	L43	26.20'	S48°39'45"E	L70	28.72'	N6°35'41"W
L17	10.32'	S64°32'07"W	L44	12.62'	S36°28'04"E	L71	20.00'	N1°06'05"E
L18	16.46'	S53°41'45"W	L45	14.52'	S30°54'16"E	L72	27.96'	N6°48'23"W
L19	5.39'	S1°06'11"W	L46	19.32'	S10°22'15"E	L73	12.43'	N20°41'59"W
L20	9.64'	S27°30'38"E	L47	21.30'	S7°13'05"E	L74	13.46'	N57°56'07"W
L21	20.06'	S31°22'10"E	L48	13.93'	S5°14'21"E	L75	13.28'	N78°53'26"W
L22	17.03'	S17°20'04"E	L49	12.16'	S54°12'14"E	L76	21.54'	N88°53'55"W
L23	13.76'	S25°27'49"E	L50	13.87'	S69°27'34"E	L77	16.45'	N78°06'54"W
L24	13.06'	S43°53'54"E	L51	15.79'	N44°07'36"E	L78	20.44'	N69°06'00"W
L25	15.48'	S25°27'52"E	L52	19.42'	N34°47'28"E	L79	19.96'	N61°20'46"W
L26	21.79'	S46°45'37"E	L53	12.04'	N27°40'00"E	L80	18.61'	N50°14'21"W
L27	17.44'	S40°19'24"E	L54	14.12'	N30°27'30"E	L81	109.62'	S89°29'16"W

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