

September 18, 2012

Ms. Jaclynne Drummond  
Hydrogeologist  
NC DENR Solid Waste Section – Compliance  
1646 Mail Service Center  
Raleigh, NC 27699-1646

RE: **Well Installation and Abandonment  
Martin County Landfill, Permit No. 59-01**

Dear Ms. Drummond:

Smith Gardner, Inc. (S+G), (formerly Richardson Smith Gardner and Associates, Inc.) recently completed the installation of two landfill gas wells and two groundwater wells, as well as the abandonment of three groundwater wells at the Martin County C&D Landfill, in accordance with the approved Water Quality Monitoring Plan updated January 2012<sup>1</sup>. This letter summarizes installation and abandonment activities conducted August 16 & 17, 2012.

#### Well Installation

Geologic Explorations, Inc. performed the well installation with oversight provided by S+G personnel. Two landfill gas wells (LFG-1 and LFG-2) were installed up-gradient of the C&D landfill in accordance with 15A NCAC 2C.0108 and the landfill gas monitoring plan<sup>2</sup> for the site. Borings were advanced to the water table (approximately ten feet below ground surface (bgs)) using HSA drilling technology and wells were constructed of two-inch diameter, manufactured PVC well screens with 10-slot per inch intake spacing and solid PVC riser pipe. A sand filter pack was placed around the screened interval, to a height of one foot above the screen, with a one foot hydrated bentonite plug positioned above the sand pack to seal each well. The annular space above the bentonite seal was properly grouted to ground surface. A protective steel casing and a cement pad for surface protection were also situated. Landfill gas well casings are distinguishable from ground water monitoring wells by reflective labeling outside of the well casing. Quick-connect fittings were installed in accordance with SWS guidance in the cap as a monitoring port. Boring logs for the existing wells are provided in **Appendix A**.

Two groundwater monitoring wells (CDW-5 and CDW-6) were installed down-gradient of the C&D landfill before the creek. Borings were advanced to approximately fifteen feet bgs using HSA drilling technology and wells were constructed of two-inch diameter, manufactured PVC well screens with 10-slot per inch intake spacing and solid PVC riser pipe. A sand filter pack was placed around the screened interval, to a height of one foot above the screen, with a one foot hydrated bentonite plug positioned above the sand pack to seal each well. The annular space above the bentonite seal was properly grouted to ground surface. A protective steel casing and a cement pad for surface protection

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<sup>1</sup> Water Quality Monitoring Plan, Martin County C&D Landfill, January 2012. Richardson Smith Gardner and Associates, Inc.

<sup>2</sup> Landfill Gas Monitoring Plan, Martin County C&D Landfill, January 2012. Richardson Smith Gardner and Associates, Inc.

Jaclyne Drummond  
September 18, 2012  
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were also situated and reflective labeling was applied outside the well casing. Well boring logs and construction detail sheets are included in **Appendix A**.

Sampling locations are shown on **Figure 1**.

Well Abandonment

Three groundwater monitoring wells (CDW-1, CDW-3 and CDW-4) were abandoned in accordance with 15A NCAC 02C .0113. They were removed from the groundwater monitoring plan due to an excess of deep, up-gradient groundwater monitoring wells. Abandoned well locations are shown on **Figure 1**.

Please contact us with questions or if you require additional information regarding this matter at 919-828-0577 or the email provided below.

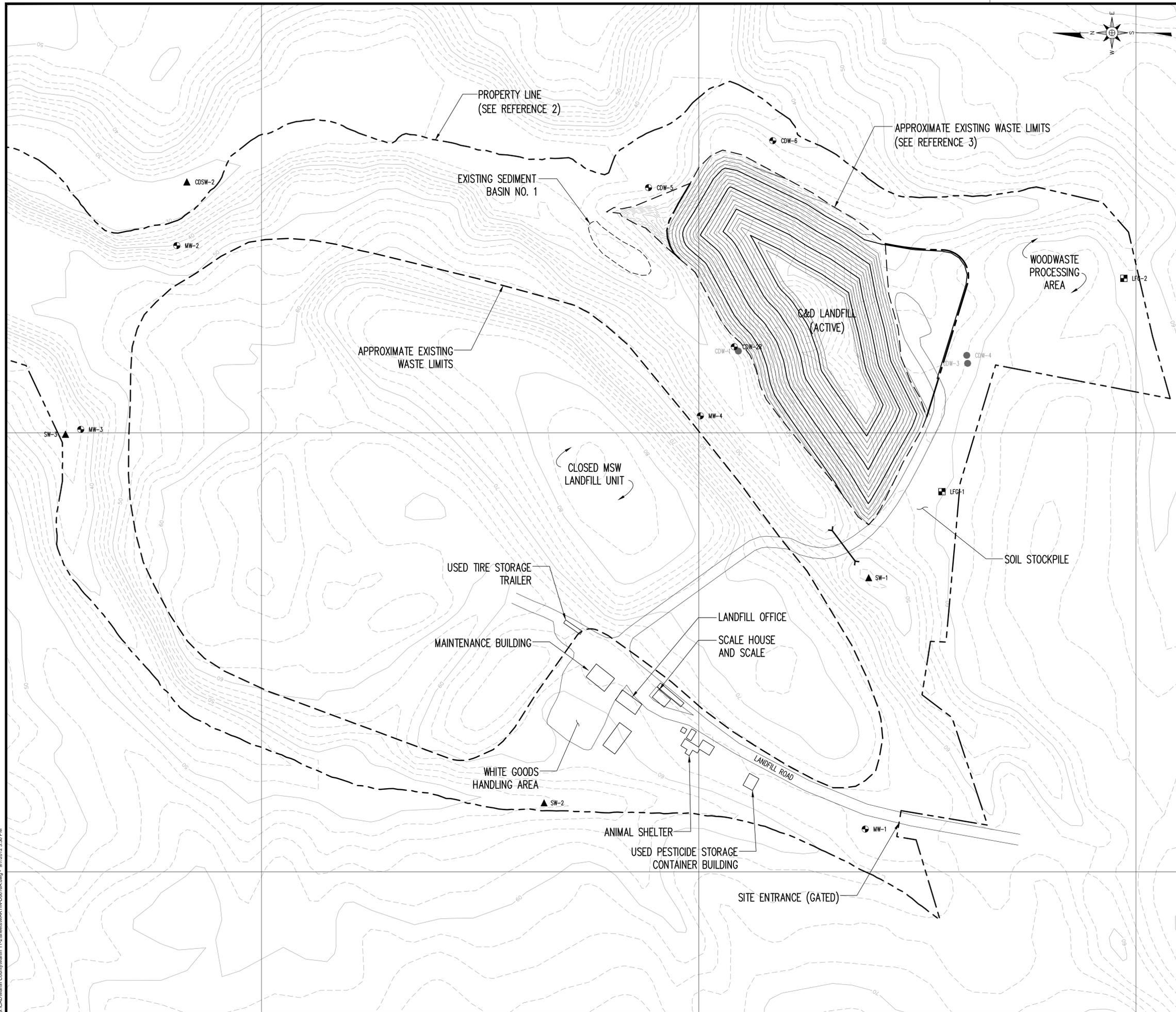
Sincerely,  
**SMITH GARDNER, INC.**



Madeline German, PG  
Project Geologist  
[madeline@smithgardnerinc.com](mailto:madeline@smithgardnerinc.com)



Joan Smyth, PG  
Senior Hydrogeologist  
[joan@smithgardnerinc.com](mailto:joan@smithgardnerinc.com)



PREPARED FOR:  
**MARTIN COUNTY**

PREPARED BY:  
NC LIC. NO. C-0828 (ENGINEERING)  
**SMITH+GARDNER**  
ENGINEERS  
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

SEAL

SEAL

REV.	DATE	DESCRIPTION

PROJECT TITLE:  
**MSW AND C&D LANDFILL MONITORING REPORT**

DRAWING TITLE:  
**MONITORING WELL LOCATION MAP**

DESIGNED: MGG PROJECT NO: MARTIN 11-2  
DRAWN: WRB SCALE: AS SHOWN  
APPROVED: DATE: JULY 2012  
FILENAME: MARTIN-DD016A  
SHEET NUMBER: DRAWING NUMBER:  
**FIG. 1**

- LEGEND**
- EXISTING CONTOUR (SEE REFERENCE 1)
  - - - - - PROPERTY LINE (SEE REFERENCE 2)
  - - - - - APPROXIMATE EXISTING WASTE LIMITS
  - — — — — LIMIT OF FUTURE WASTE PLACEMENT
  - 55 GROUNDWATER SURFACE CONTOUR (5' INTERVAL)(DASHED WHERE INFERRED)
  - MW-2 EXISTING MONITORING WELL
  - TOC TOP OF CASING ELEVATION
  - DTW MEASURED DEPTH TO WATER
  - GWE GROUNDWATER SURFACE ELEVATION
  - ▲ SW-1 SURFACE WATER SAMPLING LOCATION
  - LFG-1 LANDFILL GAS SAMPLING LOCATION
  - CDW-3 ABANDONED MONITORING WELL

**NOTE**  
1. CDW-3 NOT USED IN CONTOURING.

- REFERENCES**
- OVERALL BASE TOPOGRAPHY REFERENCES NCDOT GIS DEPARTMENT DATA RELEASE MARCH 2005.
  - PROPERTY LINE FROM GIS PARCEL DATA PROVIDED BY MARTIN COUNTY GIS DEPARTMENT.
  - TOPOGRAPHY WITHIN THE APPROXIMATE EXISTING WASTE LIMITS FROM FIELD SURVEY DATED JUNE 22, 2011 BY ROANOKE LAND SURVEYING, WILLIAMSTON, NC.
  - GROUNDWATER POTENTIOMETRIC SURFACE FROM DATA COLLECTED ON MAY 16, 2012.



G:\CAD\Martin County\Martin 11-2\Drawings\MARTIN-DD016A.dwg - 8/7/2012 3:30 PM

## **Appendix A**





# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3552

### 1. WELL CONTRACTOR:

VINCE FEDERLE  
 Well Contractor (Individual) Name  
 GEOLOGIC EXPLORATION, INC  
 Well Contractor Company Name  
 176 COMMERCE BLVD  
 Street Address  
 STATESVILLE NC 28625  
 City or Town State Zip Code  
 (704) 872-7686  
 Area code Phone number

### 2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# \_\_\_\_\_  
 OTHER ASSOCIATED PERMIT#(if applicable) \_\_\_\_\_  
 SITE WELL ID #(if applicable) CDW-6

3. WELL USE (Check One Box) Monitoring  Municipal/Public   
 Industrial/Commercial  Agricultural  Recovery  Injection   
 Irrigation  Other  (list use) \_\_\_\_\_  
 DATE DRILLED 08/16/12

### 4. WELL LOCATION:

1445 LANDFILL ROAD 27892  
 (Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: WILLIAMSTON COUNTY MARTIN

TOPOGRAPHIC / LAND SETTING: (check appropriate box)

Slope  Valley  Flat  Ridge  Other \_\_\_\_\_

LATITUDE 35 ° 51 ' 50.4600 " DMS OR \_\_\_\_\_ DD

LONGITUDE 77 ° 5 ' 27.1200 " DMS OR \_\_\_\_\_ DD

Latitude/longitude source:  GPS  Topographic map  
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 5. FACILITY (Name of the business where the well is located.)

MARTIN COUNTY LANDFILL N/A  
 Facility Name Facility ID# (if applicable)

1445 LANDFILL ROAD  
 Street Address  
 WILLIAMSTON NC 27892  
 City or Town State Zip Code

MARTIN COUNTY  
 Contact Name  
 1445 LANDFILL ROAD  
 Mailing Address  
 WILLIAMSTON NC 27892  
 City or Town State Zip Code

( ) \_\_\_\_\_  
 Area code Phone number

### 6. WELL DETAILS:

- a. TOTAL DEPTH: 15.0 FEET
- b. DOES WELL REPLACE EXISTING WELL? YES  NO
- c. WATER LEVEL Below Top of Casing: 3.0 FT.  
 (Use "+" if Above Top of Casing)

d. TOP OF CASING IS 2.5 FT. Above Land Surface\*  
 \*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): N/A METHOD OF TEST N/A

f. DISINFECTION: Type N/A Amount N/A

g. WATER ZONES (depth):  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_

7. CASING: Depth		Diameter	Thickness/Weight	Material
Top <u>0.0</u>	Bottom <u>5.0</u>	Ft. <u>2 INCH</u>	<u>SCH 40</u>	<u>PVC</u>
Top _____	Bottom _____	Ft. _____	_____	_____
Top _____	Bottom _____	Ft. _____	_____	_____

8. GROUT: Depth		Material	Method
Top <u>0.0</u>	Bottom <u>3.0</u>	Ft. <u>PORTLAND BENTONITE</u>	<u>SLURRY</u>
Top _____	Bottom _____	Ft. _____	_____
Top _____	Bottom _____	Ft. _____	_____

9. SCREEN: Depth		Diameter	Slot Size	Material
Top <u>5.0</u>	Bottom <u>15.0</u>	Ft. <u>2.0 in.</u>	<u>.010 in.</u>	<u>PVC</u>
Top _____	Bottom _____	Ft. _____ in.	_____ in.	_____
Top _____	Bottom _____	Ft. _____ in.	_____ in.	_____

10. SAND/GRAVEL PACK: Depth		Size	Material
Top <u>4.0</u>	Bottom <u>15.0</u>	Ft. <u>20-40</u>	<u>FINE SILICA SAND</u>
Top _____	Bottom _____	Ft. _____	_____
Top _____	Bottom _____	Ft. _____	_____

11. DRILLING LOG		Formation Description
Top	Bottom	
<u>0.0</u>	<u>1.0</u>	<u>TOPSOIL</u>
<u>1.0</u>	<u>15.0</u>	<u>GRAY/TAN SILTY SANDY CLAY</u>
/	/	_____
/	/	_____
/	/	_____
/	/	_____
/	/	_____
/	/	_____
/	/	_____

12. REMARKS:  
BENTONITE SEAL FROM 3.0 TO 4.0 FEET

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Vincent R Federle 08/27/12  
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

VINCE FEDERLE  
 PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit within 30 days of completion to: Division of Water Quality - Information Processing, 1617 Mail Service Center, Raleigh, NC 27699-161, Phone : (919) 807-6300



# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3552

### 1. WELL CONTRACTOR:

VINCE FEDERLE  
 Well Contractor (Individual) Name  
GEOLOGIC EXPLORATION, INC  
 Well Contractor Company Name  
176 COMMERCE BLVD  
 Street Address  
STATESVILLE NC 28625  
 City or Town State Zip Code  
 (704) 872-7686  
 Area code Phone number

### 2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# \_\_\_\_\_  
 OTHER ASSOCIATED PERMIT#(if applicable) \_\_\_\_\_  
 SITE WELL ID #(if applicable) LFG-1

### 3. WELL USE (Check One Box) Monitoring Municipal/Public

Industrial/Commercial  Agricultural  Recovery  Injection   
 Irrigation  Other  (list use) LANDFILL GAS

DATE DRILLED 08/16/12

### 4. WELL LOCATION:

1445 LANDFILL ROAD 27892  
 (Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: WILLIAMSTON COUNTY MARTIN

TOPOGRAPHIC / LAND SETTING: (check appropriate box)

Slope  Valley  Flat  Ridge  Other \_\_\_\_\_

LATITUDE 35 ° 51 ' 46.5500 " DMS OR \_\_\_\_\_ DD

LONGITUDE 77 ° 5 ' 37.2800 " DMS OR \_\_\_\_\_ DD

Latitude/longitude source:  GPS  Topographic map  
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 5. FACILITY (Name of the business where the well is located.)

MARTIN COUNTY LANDFILL N/A  
 Facility Name Facility ID# (if applicable)

1445 LANDFILL ROAD  
 Street Address  
WILLIAMSTON NC 27892  
 City or Town State Zip Code

MARTIN COUNTY  
 Contact Name  
1445 LANDFILL ROAD  
 Mailing Address  
WILLIAMSTON NC 27892  
 City or Town State Zip Code

( ) \_\_\_\_\_  
 Area code Phone number

### 6. WELL DETAILS:

- a. TOTAL DEPTH: 10.0 FEET
- b. DOES WELL REPLACE EXISTING WELL? YES  NO
- c. WATER LEVEL Below Top of Casing: 8.0 FT.  
 (Use "+" if Above Top of Casing)

d. TOP OF CASING IS 2.5 FT. Above Land Surface\*  
 \*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): N/A METHOD OF TEST N/A

f. DISINFECTION: Type N/A Amount N/A

### g. WATER ZONES (depth):

Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_

7. CASING: Depth	Diameter	Thickness/Weight	Material
Top <u>0.0</u> Bottom <u>5.0</u> Ft.	<u>2 INCH</u>	<u>SCH 40</u>	<u>PVC</u>
Top _____ Bottom _____ Ft.	_____	_____	_____
Top _____ Bottom _____ Ft.	_____	_____	_____

8. GROUT: Depth	Material	Method
Top <u>0.0</u> Bottom <u>3.0</u> Ft.	<u>PORTLAND BENTONITE</u>	<u>SLURRY</u>
Top _____ Bottom _____ Ft.	_____	_____
Top _____ Bottom _____ Ft.	_____	_____

9. SCREEN: Depth	Diameter	Slot Size	Material
Top <u>5.0</u> Bottom <u>10.0</u> Ft.	<u>2.0</u> in.	<u>.010</u> in.	<u>PVC</u>
Top _____ Bottom _____ Ft.	_____ in.	_____ in.	_____
Top _____ Bottom _____ Ft.	_____ in.	_____ in.	_____

10. SAND/GRAVEL PACK: Depth	Size	Material
Top <u>4.0</u> Bottom <u>10.0</u> Ft.	<u>20-40</u>	<u>FINE SILICA SAND</u>
Top _____ Bottom _____ Ft.	_____	_____
Top _____ Bottom _____ Ft.	_____	_____

11. DRILLING LOG		Formation Description
Top	Bottom	
<u>0.0</u>	<u>1.0</u>	<u>TOPSOIL</u>
<u>1.0</u>	<u>10.0</u>	<u>GRAY/TAN SILTY SANDY CLAY</u>
/	/	_____
/	/	_____
/	/	_____
/	/	_____
/	/	_____
/	/	_____
/	/	_____

### 12. REMARKS:

BENTONITE SEAL FROM 3.0 TO 4.0 FEET

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Vincent R. Federle 08/27/12  
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

VINCE FEDERLE  
 PRINTED NAME OF PERSON CONSTRUCTING THE WELL



# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3552

### 1. WELL CONTRACTOR:

VINCE FEDERLE  
 Well Contractor (Individual) Name  
 GEOLOGIC EXPLORATION, INC  
 Well Contractor Company Name  
 176 COMMERCE BLVD  
 Street Address  
 STATESVILLE NC 28625  
 City or Town State Zip Code  
 (704) 872-7686  
 Area code Phone number

### 2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# \_\_\_\_\_  
 OTHER ASSOCIATED PERMIT#(if applicable) \_\_\_\_\_  
 SITE WELL ID #(if applicable) LFG-2

3. WELL USE (Check One Box) Monitoring  Municipal/Public   
 Industrial/Commercial  Agricultural  Recovery  Injection   
 Irrigation  Other  (list use) LANDFILL GAS  
 DATE DRILLED 08/16/12

### 4. WELL LOCATION:

1445 LANDFILL ROAD 27892  
 (Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)  
 CITY: WILLIAMSTON COUNTY MARTIN  
 TOPOGRAPHIC / LAND SETTING: (check appropriate box)  
 Slope  Valley  Flat  Ridge  Other \_\_\_\_\_  
 LATITUDE 35 ° 51 ' 43.0500 " DMS OR \_\_\_\_\_ DD  
 LONGITUDE 77 ° 5 ' 32.0000 " DMS OR \_\_\_\_\_ DD  
 Latitude/longitude source:  GPS  Topographic map  
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 5. FACILITY (Name of the business where the well is located.)

MARTIN COUNTY LANDFILL N/A  
 Facility Name Facility ID# (if applicable)  
 1445 LANDFILL ROAD  
 Street Address  
 WILLIAMSTON NC 27892  
 City or Town State Zip Code  
 MARTIN COUNTY  
 Contact Name  
 1445 LANDFILL ROAD  
 Mailing Address  
 WILLIAMSTON NC 27892  
 City or Town State Zip Code

( ) \_\_\_\_\_  
 Area code Phone number

### 6. WELL DETAILS:

a. TOTAL DEPTH: 10.0 FEET  
 b. DOES WELL REPLACE EXISTING WELL? YES  NO   
 c. WATER LEVEL Below Top of Casing: 8.0 FT.  
 (Use "+" if Above Top of Casing)

d. TOP OF CASING IS 2.5 FT. Above Land Surface\*  
 \*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): N/A METHOD OF TEST N/A

f. DISINFECTION: Type N/A Amount N/A

g. WATER ZONES (depth):  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_

7. CASING: Depth Diameter Thickness/Weight Material  
 Top 0.0 Bottom 5.0 Ft. 2 INCH SCH 40 PVC  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

8. GROUT: Depth Material Method  
 Top 0.0 Bottom 3.0 Ft. PORTLAND BENTONITE SLURRY  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

9. SCREEN: Depth Diameter Slot Size Material  
 Top 5.0 Bottom 10.0 Ft. 2.0 in. .010 in. PVC  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in. \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in. \_\_\_\_\_

10. SAND/GRAVEL PACK: Depth Size Material  
 Top 4.0 Bottom 10.0 Ft. 20-40 FINE SILICA SAND  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_  
 Top \_\_\_\_\_ Bottom \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

11. DRILLING LOG		Formation Description
Top	Bottom	
0.0	1.0	TOPSOIL
1.0	10.0	GRAY/TAN SILTY SANDY CLAY
/	/	
/	/	
/	/	
/	/	
/	/	
/	/	
/	/	
/	/	

12. REMARKS:  
BENTONITE SEAL FROM 3.0 TO 4.0 FEET

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Vincent R. Federle 08/27/12  
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

VINCE FEDERLE  
 PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit within 30 days of completion to: Division of Water Quality - Information Processing, 1617 Mail Service Center, Raleigh, NC 27699-161, Phone : (919) 807-6300



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3552

1. WELL CONTRACTOR:

VINCE FEDERLE
Well Contractor (Individual) Name
GEOLOGIC EXPLORATION, INC
Well Contractor Company Name
176 COMMERCE BLVD
Street Address
STATESVILLE NC 28625
City or Town State Zip Code
(704) 872-7686
Area code Phone number

2. WELL INFORMATION:

SITE WELL ID # (if applicable) CDW-3
STATE WELL PERMIT # (if applicable)
COUNTY WELL PERMIT # (if applicable)
DWQ or OTHER PERMIT # (if applicable)
WELL USE (Check applicable use): [X] Monitoring [ ] Residential
[ ] Municipal/Public [ ] Industrial/Commercial [ ] Agricultural
[ ] Recovery [ ] Injection [ ] Irrigation
[ ] Other (list use)

3. WELL LOCATION:

COUNTY MARTIN QUADRANGIE NAME
NEAREST TOWN: WILLIAMSTON
1445 LANDFILL ROAD 27892
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)
TOPOGRAPHIC / LAND SETTING:
[ ] Slope [ ] Valley [X] Flat [ ] Ridge [ ] Other
(Latitude/longitude source: [X] GPS [ ] Topographic map)
LATITUDE 35 ° 51 ' 46.0400 " DMS OR
LONGITUDE 77 ° 5 ' 32.9400 " DMS OR

4a. FACILITY - The name of the business where the well is located. Complete 4a : (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable)
NAME OF FACILITY MARTIN COUNTY LANDFILL
STREET ADDRESS 1445 LANDFILL ROAD
WILLIAMSTON NC 27892
City or Town State Zip Code

4b. CONTACT PERSON/WELL OWNER:

NAME MARTIN COUNTY
STREET ADDRESS 1445 LANDFILL ROAD WILLIAMSTON, NC 27892

5. WELL DETAILS:

a. Total Depth 51.0 ft. Diameter: 2.0 in.
b. Water Level (Below Measuring Point): ft.
Measuring point is ft. above land surface.

6. CASING:

Length Diameter
a. Casing Depth (if known): N/A ft. in.
b. Casing Removed: N/A ft. in.

7. DISINFECTION: N/A

(Amount of 65% 75% calcium hypochlorite used)

8. SEALING MATERIAL:

Neat Cement Sand Cement
Cement lb. Cement lb.
Water gal. Water gal.
Bentonite
Bentonite lb.
Type: [X] Slurry [ ] Pellets
Water gal.
Other
Type material PORTLAND BENTONITE SLURRY
Amount 8.5 GALLONS

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

VIA TREMIE PIPE WITH PORTLAND BENTONITE SLURRY

10. WELL DIAGRAM : Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used

11. DATE WELL ABANDONED 08/17/12

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Vincent R. Federle 08/27/12
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

VINCE FEDERLE
PRINTED NAME OF PERSON ABANDONING THE WELL



# WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3552

### 1. WELL CONTRACTOR:

VINCE FEDERLE  
 Well Contractor (Individual) Name  
 GEOLOGIC EXPLORATION, INC  
 Well Contractor Company Name  
 176 COMMERCE BLVD  
 Street Address  
 STATESVILLE NC 28625  
 City or Town State Zip Code  
 (704) 872-7686  
 Area code Phone number

### 2. WELL INFORMATION:

SITE WELL ID # (if applicable) CDW-4  
 STATE WELL PERMIT # (if applicable) \_\_\_\_\_  
 COUNTY WELL PERMIT # (if applicable) \_\_\_\_\_  
 DWQ or OTHER PERMIT # (if applicable) \_\_\_\_\_  
 WELL USE (Check applicable use)  Monitoring  Residential  
 Municipal/Public  Industrial/Commercial  Agricultural  
 Recovery  Injection  Irrigation  
 Other (list use) \_\_\_\_\_

### 3. WELL LOCATION:

COUNTY MARTIN QUADRANGLE NAME \_\_\_\_\_  
 NEAREST TOWN: WILLIAMSTON  
 1445 LANDFILL ROAD 27892  
 (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

#### TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other \_\_\_\_\_  
 (Check appropriate setting)

LATITUDE 35 ° 51 ' 46.0100 " DMS OR \_\_\_\_\_ DD  
 LONGITUDE 77 ° 5 ' 32.8400 " DMS OR \_\_\_\_\_ DD

Latitude/longitude source:  GPS  Topographic map  
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 4a. FACILITY - The name of the business where the well is located. Complete 4a: (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable) \_\_\_\_\_  
 NAME OF FACILITY MARTIN COUNTY LANDFILL  
 STREET ADDRESS 1445 LANDFILL ROAD  
WILLIAMSTON NC 27892  
 City or Town State Zip Code

### 4b. CONTACT PERSON/WELL OWNER:

NAME MARTIN COUNTY  
 STREET ADDRESS 1445 LANDFILL ROAD WILLIAMSTON, NC 27892

### 5. WELL DETAILS:

a. Total Depth 18.0 ft. Diameter: 2.0 in.  
 b. Water Level (Below Measuring Point): \_\_\_\_\_ ft.  
 Measuring point is \_\_\_\_\_ ft. above land surface.

### 6. CASING:

	Length	Diameter
a. Casing Depth (if known):	<u>N/A</u> ft.	_____ in.
b. Casing Removed:	<u>N/A</u> ft.	_____ in.

### 7. DISINFECTION: N/A

(Amount of 65% calcium hypochlorite used)

### 8. SEALING MATERIAL:

<b>Neat Cement</b>	<b>Sand Cement</b>
Cement _____ lb.	Cement _____ lb.
Water _____ gal.	Water _____ gal.

#### Bentonite

Bentonite \_\_\_\_\_ lb.  
 Type:  Slurry  Pellets  
 Water \_\_\_\_\_ gal.

#### Other

Type material PORTLAND BENTONITE SLURRY  
 Amount 3.0 GALLONS

### 9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

VIA TREMIE PIPE WITH PORTLAND BENTONITE SLURRY

### 10. WELL DIAGRAM : Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used

### 11. DATE WELL ABANDONED 08/17/12

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Vincent R. Federle 08/27/12  
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

\_\_\_\_\_  
 SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE  
 (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

VINCE FEDERLE  
 PRINTED NAME OF PERSON ABANDONING THE WELL



# WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 3552

### 1. WELL CONTRACTOR:

VINCE FEDERLE  
 Well Contractor (Individual) Name  
 GEOLOGIC EXPLORATION, INC  
 Well Contractor Company Name  
 176 COMMERCE BLVD  
 Street Address  
 STATESVILLE NC 28625  
 City or Town State Zip Code  
 (704) 872-7686  
 Area code Phone number

### 2. WELL INFORMATION:

SITE WELL ID # (if applicable) CDW-1  
 STATE WELL PERMIT # (if applicable) \_\_\_\_\_  
 COUNTY WELL PERMIT # (if applicable) \_\_\_\_\_  
 DWQ or OTHER PERMIT # (if applicable) \_\_\_\_\_  
 WELL USE (Check applicable use)  Monitoring  Residential  
 Municipal/Public  Industrial/Commercial  Agricultural  
 Recovery  Injection  Irrigation  
 Other (list use) \_\_\_\_\_

### 3. WELL LOCATION:

COUNTY MARTIN QUADRANGIE NAME \_\_\_\_\_  
 NEAREST TOWN: WILLIAMSTON  
 1445 LANDFILL ROAD 27892  
 (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

### TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other \_\_\_\_\_  
 (Check appropriate setting)

LATITUDE 35 ° 51 ' 51.3300 " DMS OR \_\_\_\_\_ DD

LONGITUDE 77 ° 5 ' 37.4000 " DMS OR \_\_\_\_\_ DD

Latitude/longitude source:  GPS  Topographic map  
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

4a. FACILITY - The name of the business where the well is located. Complete 4a ;  
 (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable) \_\_\_\_\_  
 NAME OF FACILITY MARTIN COUNTY LANDFILL  
 STREET ADDRESS 1445 LANDFILL ROAD  
WILLIAMSTON NC 27892  
 City or Town State Zip Code

### 4b. CONTACT PERSON/WELL OWNER:

NAME MARTIN COUNTY  
 STREET ADDRESS 1445 LANDFILL ROAD WILLIAMSTON, NC 27892

### 5. WELL DETAILS:

a. Total Depth 50.0 ft. Diameter: 2.0 in.  
 b. Water Level (Below Measuring Point): \_\_\_\_\_ ft.  
 Measuring point is \_\_\_\_\_ ft. above land surface.

### 6. CASING:

Length Diameter  
 a. Casing Depth (if known): N/A ft. \_\_\_\_\_ in.  
 b. Casing Removed: N/A ft. \_\_\_\_\_ in.

### 7. DISINFECTION: N/A

(Amount of 65% 75% calcium hypochlorite used)

### 8. SEALING MATERIAL:

<b>Neat Cement</b>	<b>Sand Cement</b>
Cement _____ lb.	Cement _____ lb.
Water _____ gal.	Water _____ gal.

**Bentonite**  
 Bentonite \_\_\_\_\_ lb.  
 Type:  Slurry  Pellets  
 Water \_\_\_\_\_ gal.

**Other**  
 Type material PORTLAND BENTONITE SLURRY  
 Amount 8.25 GALLONS

### 9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

VIA TREMIE PIPE WITH PORTLAND BENTONITE SLURRY

10. WELL DIAGRAM : Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used

11. DATE WELL ABANDONED 08/17/12

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Vincent R. Federle 08/27/12  
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

\_\_\_\_\_  
 SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE  
 (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

VINCE FEDERLE  
 PRINTED NAME OF PERSON ABANDONING THE WELL

## Boring Logs

**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

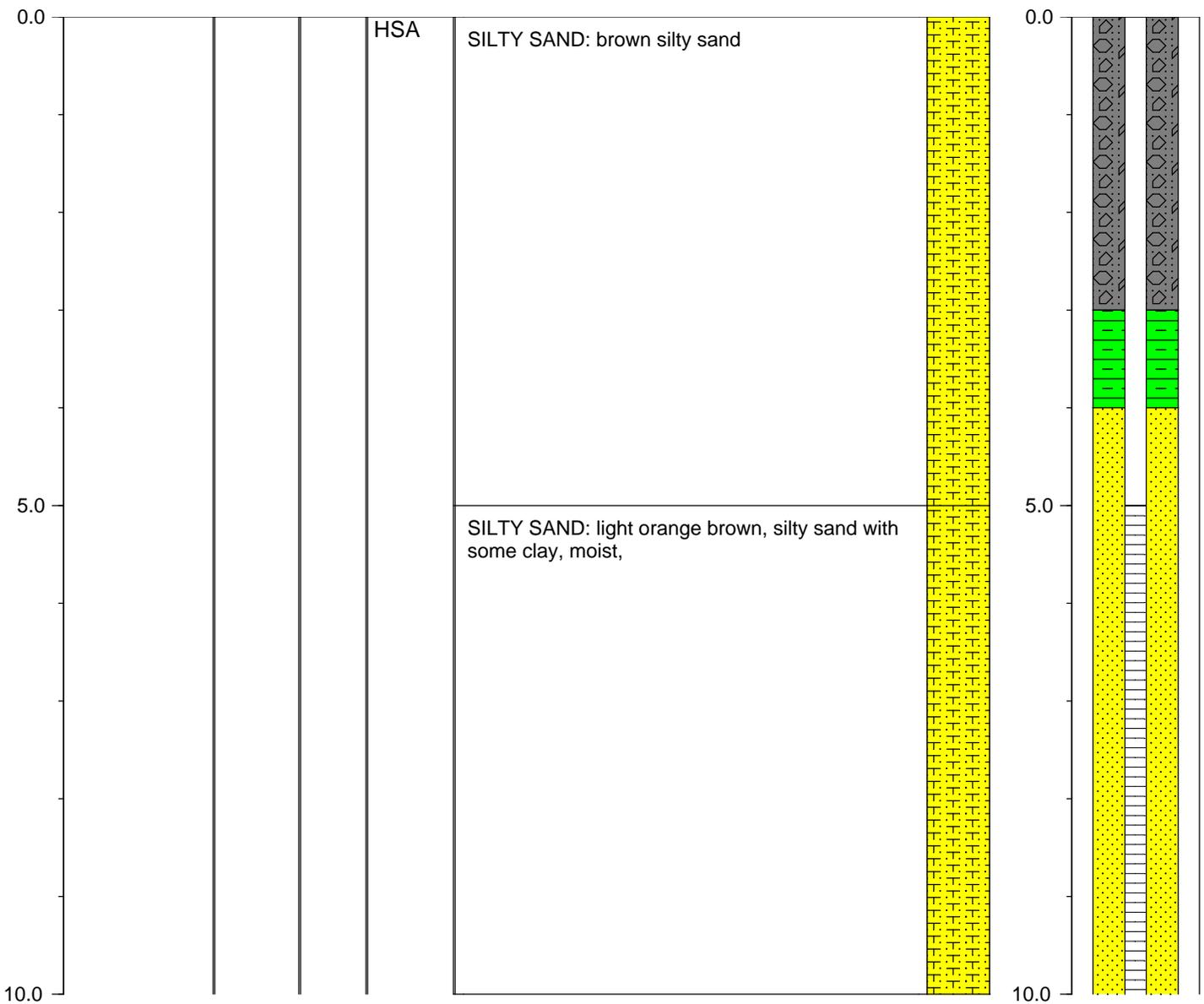
BOREHOLE NUMBER **CDW-5** Page 1 of 2

PROJECT NAME: **Martin County**  
 LOCATION: **Williamston, NC**  
 DRILLING CO: **Geologic Explorations, Inc.**  
 DRILLING METHOD: **AIR ROTARY**  
 FIELD PARTY: **Vince Federle**  
 GEOLOGIST: **Madeline German**  
 DATE BEGUN: **08/16/12** COMPLETED: **08/16/2012**

TOTAL DEPTH: **15 feet bgs**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	17.5 feet	stick up estimated
Time	1315	
Date	08/16/2012	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

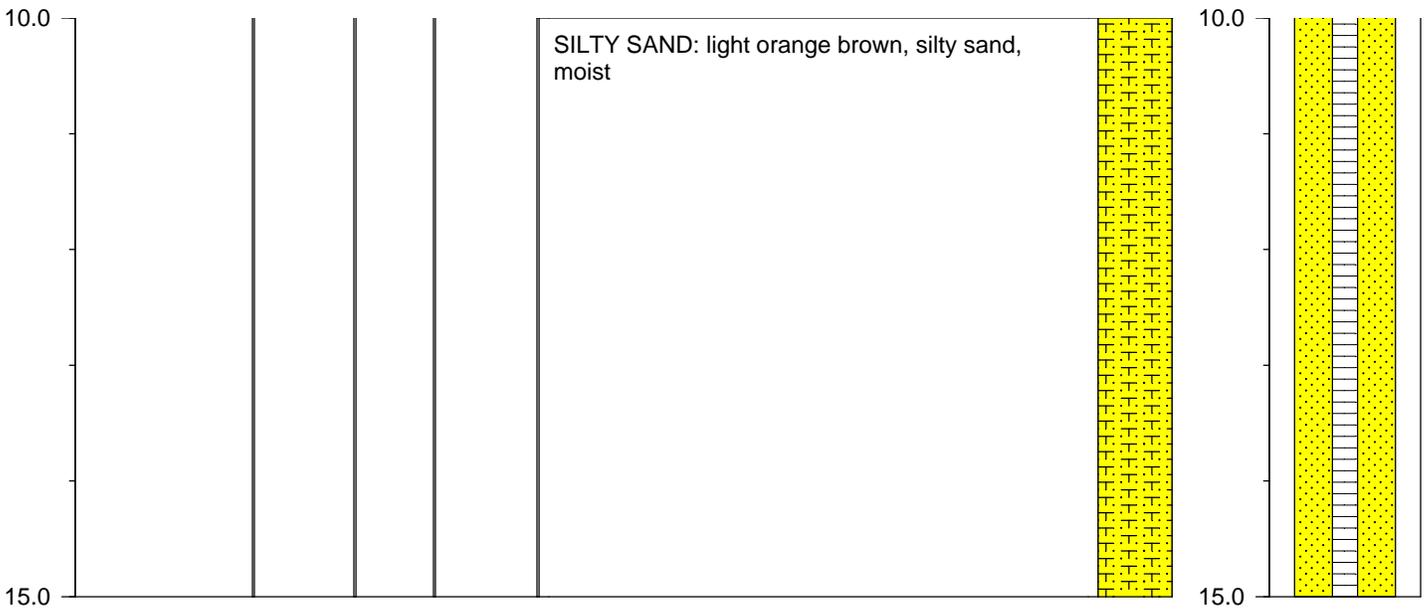
BOREHOLE NUMBER **CDW-5** Page 2 of 2

PROJECT NAME: **Martin County**  
 LOCATION: **Williamston, NC**  
 DRILLING CO: **Geologic Explorations, Inc.**  
 DRILLING METHOD: **AIR ROTARY**  
 FIELD PARTY: **Vince Federle**  
 GEOLOGIST: **Madeline German**  
 DATE BEGUN: **08/16/12** COMPLETED: **08/16/2012**

TOTAL DEPTH: **15 feet bgs**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	17.5 feet	stick up estimated
Time	1315	
Date	08/16/2012	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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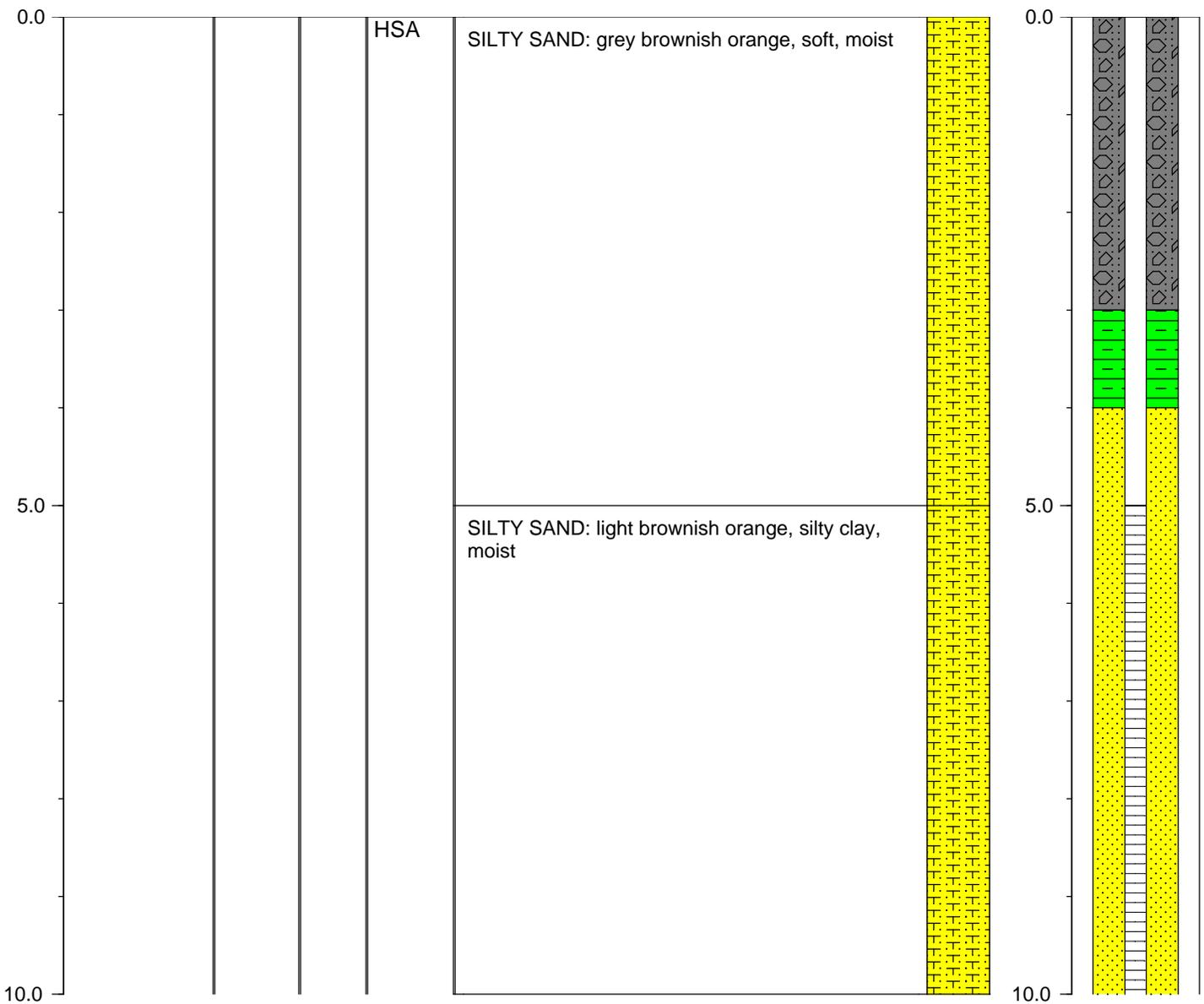


PROJECT NAME: **Martin County**  
 LOCATION: **Williamston, NC**  
 DRILLING CO: **Geologic Explorations, Inc.**  
 DRILLING METHOD: **AIR ROTARY**  
 FIELD PARTY: **Vince Federle**  
 GEOLOGIST: **Madeline German**  
 DATE BEGUN: **08/16/12** COMPLETED: **08/16/2012**

TOTAL DEPTH: **15 feet bgs**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	17.5 feet	stick up estimated
Time	1130	
Date	08/16/2012	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

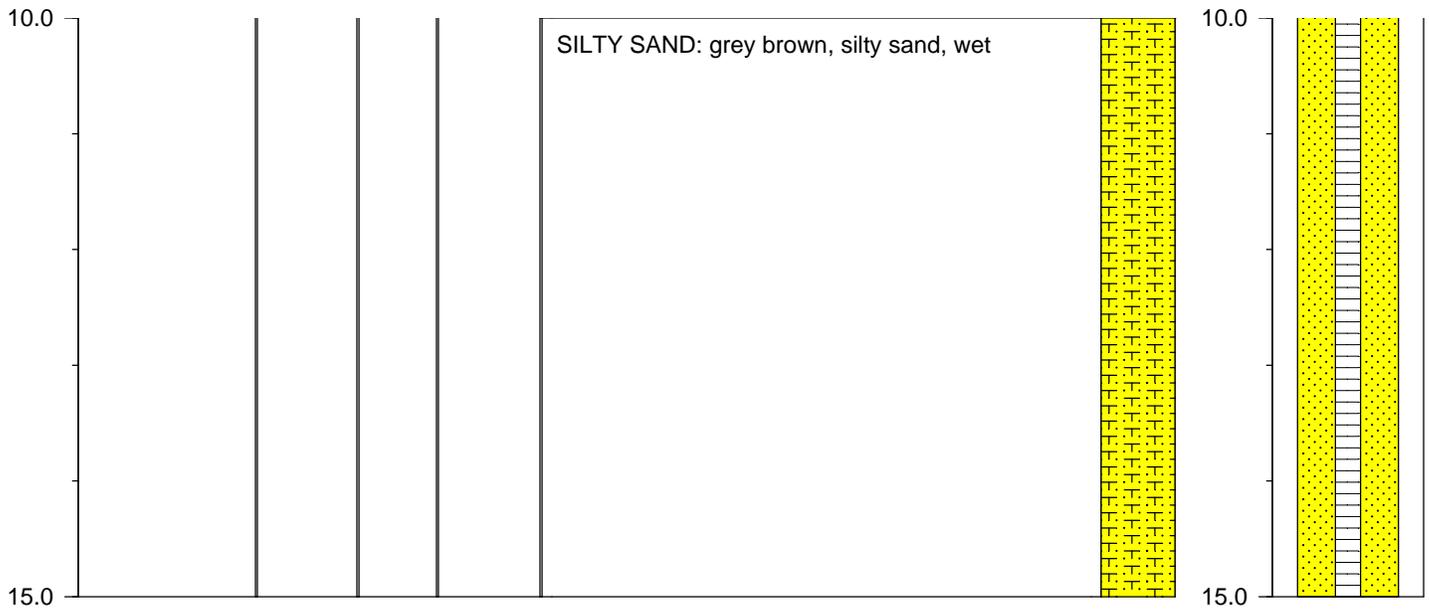
BOREHOLE NUMBER **CDW-6** Page 2 of 2

PROJECT NAME: **Martin County**  
 LOCATION: **Williamston, NC**  
 DRILLING CO: **Geologic Explorations, Inc.**  
 DRILLING METHOD: **AIR ROTARY**  
 FIELD PARTY: **Vince Federle**  
 GEOLOGIST: **Madeline German**  
 DATE BEGUN: **08/16/12** COMPLETED: **08/16/2012**

TOTAL DEPTH: **15 feet bgs**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	17.5 feet	stick up estimated
Time	1130	
Date	08/16/2012	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

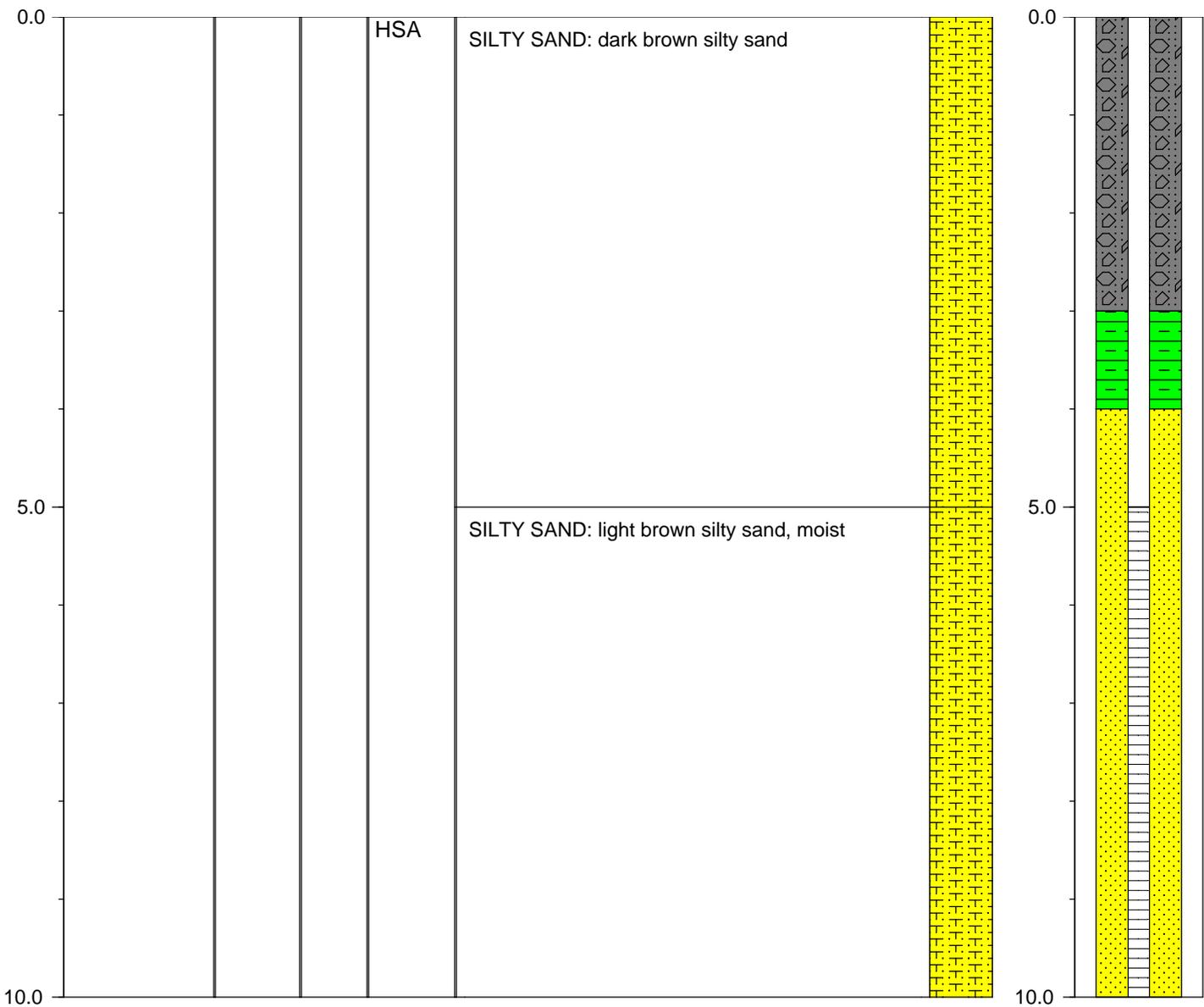
BOREHOLE NUMBER **LFG-1** Page 1 of 1

PROJECT NAME: **Martin County**  
 LOCATION: **Williamston, NC**  
 DRILLING CO: **Geologic Explorations, Inc.**  
 DRILLING METHOD: **AIR ROTARY**  
 FIELD PARTY: **Vince Federle**  
 GEOLOGIST: **Madeline German**  
 DATE BEGUN: **08/16/12** COMPLETED: **08/16/2012**

TOTAL DEPTH: **10 feet bgs**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	12.5 feet	stick up estimated
Time	1700	
Date	08/16/2012	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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PROJECT NAME: **Martin County**  
 LOCATION: **Williamston, NC**  
 DRILLING CO: **Geologic Explorations, Inc.**  
 DRILLING METHOD: **AIR ROTARY**  
 FIELD PARTY: **Vince Federle**  
 GEOLOGIST: **Madeline German**  
 DATE BEGUN: **08/16/12** COMPLETED: **08/16/2012**

TOTAL DEPTH: **10 feet bgs**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	12.5 feet	stick up estimated
Time	1530	
Date	08/16/2012	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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