October 14, 2010

Ms. Jaclynne Drummond
Division of Waste Management - Solid Waste Section
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Semi-Annual Groundwater Monitoring Event (October 2010)
Lee County Landfill - Sanford, NC
NCDWM-Solid Waste Section Permit # 53-01
Terraquest Project No. 02296

Dear Ms. Drummond:

On behalf of the Lee County Department of Public Works, Terraquest Environmental Consultants, P.C. is reporting the results of a biannual ground and surface water sampling event that took place at the Lee County Landfill in Sanford, NC on October 4 and 5, 2010. In accordance with the NCDWM-SW's reporting requirements, a Solid Waste Section Environmental Monitoring Reporting Form is attached. The data from the event including analytical results, groundwater elevations, and field measured groundwater parameter data is summarized on the attached Table 1. The location of the site is shown on Figure 1, the vicinity of the site on Figure 2, and site's layout on Figure 3. Figure 4 presents the recent potentiometric surface. The full analytical report is also attached. The following summarizes the event:

On October 4, 2010, Terraquest personnel sampled monitoring wells MW5, MW6, MW9, MW13, and MW14, and collected one surface water sample, SW2. Due to a mixup in the field, Terraquest personnel returned to the site and collected a sample from MW12 on October 5, 2010. All of the water samples were analyzed per EPA Methods 8260A Appendix I and 8 RCRA Metals. All water samples were collected following technical methods and standard procedures as outlined on the enclosed sheets. Terraquest personnel also collected dissolved oxygen, pH, temperature, and conductivity measurements from each of the sampled monitoring wells following purging of the well. These measurements are listed on the attached Table 1.

The analytical results revealed detectable concentrations of petroleum-type compounds by the 8260A Appendix I sampling method in monitoring well MW12 only. Benzene, was reported at a concentration in excess of the standard set forth under Title 15A of the North Carolina Administrative Code Subchapter 2L .0202(g). Results of the 8 RCRA Metals analysis indicate that all of the monitoring wells and the surface water sample had a detection of at least one metal. The analytical results are summarized in Table 1.

A potentiometric surface map (Figure 4) depicting an interpreted groundwater flow direction at the site as measured on October4, 2010 is attached. Based upon the water levels in the monitoring wells, the groundwater flow direction is to the southeast toward Mare Branch Creek. This flow direction conforms with historical flow directions. Table 1 lists the groundwater elevations for the monitoring wells.

If you have any questions regarding the sampling event or analytical report, please contact Ryan Kerins at (919) 563-9091 or Mr. Joseph Cherry of the Lee County Public Works Department at (919) 774-8440. Thank you.

Sincerely,

TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.

Ryan D. Kerins
Project Manager

Michael J. Brown, P.G.
President

Attachments: Solid Waste Section Environmental Monitoring Reporting Form
Table 1 – Groundwater Data 10/4/10 – 10/5/10
Figure 1 – Site Location Map
Figure 2 – Site Vicinity Map
Figure 3 – Site Layout Map
Figure 4 – Potentiometric Surface Map (10/4/10)
Analytical Report
Technical Methods/Standard Procedures

DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Terraquest Environmental Consultants, P.C.

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Ryan D. Kerins Phone: (919) 563-9091

E-mail: rdkerins@terraquestpc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Lee County Landfill	331 Landfill Rd, Sanford, NC 27332	53-01	.1600	October 4&5, 2010

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify)
☐ Other(specify)

Notification attached?

☐ No. No groundwater or surface water standards were exceeded.
☒ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Ryan D. Kerins	Project Manager	(919) 563-9091
Facility Representative Name (Print)	Title	(Area Code) Telephone Number
Signature	10-14-10 Date	Affix NC Licensed/ Professional Geologist/Engineer Seal here:

NORTH CAROLINA LICENSED SEAL 1185 GEOLOGIST MICHAEL J. BROWN

Revised 01/2007

Table 1 (continued)
Date: 10/14/10

GROUNDWATER DATA 10/4/10 - 10/5/10
Facility Name: Lee County Landfill

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	QUALIFIER	DILUTION	COLLECT DATE	EXTRACTION	ANALYSIS DATE
53-01	MW12	7439-97-6	132	Mercury	0.20	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	7440-38-2	14	Arsenic	7.8	ug/L	JP1	1	10/5/2010	*	10/8/2010
53-01	MW12	7440-39-3	15	Barium	1,600	ug/L	U	1	10/5/2010	*	10/8/2010
53-01	MW12	7440-43-9	34	Cadmium	1.5	ug/L	JP1	1	10/5/2010	*	10/8/2010
53-01	MW12	7440-47-3	51	Chromium	2.1	ug/L	JP1	1	10/5/2010	*	10/8/2010
53-01	MW12	7439-92-1	131	Lead	5	ug/L	U	1	10/5/2010	*	10/8/2010
53-01	MW12	7782-49-2	183	Selenium	20	ug/L	U	1	10/5/2010	*	10/8/2010
53-01	MW12	7440-22-4	184	Silver	7.5	ug/L	JP1J6	1	10/5/2010	*	10/8/2010
53-01	MW13	SW328	328	Top Of Casing	363.93	feet					
53-01	MW13	SW318	318	Depth To Water	10.55	feet					
53-01	MW13		427	Groundwater Elevation	353.4	feet					
53-01	MW13	SW320	320	pH (field)	4.59						
53-01	MW13	SW356	356	Dissolved Oxygen	1.00	mg/L					
53-01	MW13	SW325	325	Temperature	18.4	deg. C					
53-01	MW13	SW324	324	Conductivity	48	microS/sec					
53-01	MW13	71-43-2	16	Benzene	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	108-88-3	196	Toluene	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	100-41-4	110	Ethylbenzene	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	1330-20-7	346	Total Xylenes	3	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	7439-97-6	132	Mercury	0.20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	7440-38-2	14	Arsenic	13	ug/L	J	1	10/4/10	*	10/7/2010
53-01	MW13	7440-39-3	15	Barium	280	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	7440-43-9	34	Cadmium	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	7440-47-3	51	Chromium	1.8	ug/L	J	1	10/4/10	*	10/7/2010
53-01	MW13	7439-92-1	131	Lead	7.7	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	7782-49-2	183	Selenium	20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW13	7440-22-4	184	Silver	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	SW328	328	Top Of Casing	358.61	feet					
53-01	MW14	SW318	318	Depth To Water	8.09	feet					
53-01	MW14		427	Groundwater Elevation	350.5	feet					
53-01	MW14	SW320	320	pH (field)	5.22						
53-01	MW14	SW356	356	Dissolved Oxygen	0.82	mg/L					
53-01	MW14	SW325	325	Temperature	18.2	deg. C					
53-01	MW14	SW324	324	Conductivity	69	microS/sec					
53-01	MW14	71-43-2	16	Benzene	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	108-88-3	196	Toluene	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	100-41-4	110	Ethylbenzene	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	1330-20-7	346	Total Xylenes	3	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	7439-97-6	132	Mercury	0.20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	7440-38-2	14	Arsenic	9.4	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	7440-39-3	15	Barium	140	ug/L	J	1	10/4/10	*	10/7/2010
53-01	MW14	7440-43-9	34	Cadmium	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	7440-47-3	51	Chromium	5.3	ug/L	J	1	10/4/10	*	10/7/2010
53-01	MW14	7439-92-1	131	Lead	68	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	7782-49-2	183	Selenium	20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	MW14	7440-22-4	184	Silver	10	ug/L	U	1	10/4/10	*	10/7/2010

Note:
1. * Technically, this sample set didn't have any extractions. The metals were prepped and digested. The volatiles aren't involved in any extraction process. They are loaded directly onto the instrument.

Table 1 (continued) GROUNDWATER DATA 10/4/10 - 10/5/10
Date: 10/14/10 Facility Name: Lee County Landfill

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	QUALIFIER	DILUTION	COLLECT DATE	EXTRACTION	ANALYSIS DATE
53-01	MW9	SW328	328	Top Of Casing	384.2	feet					
53-01	MW9	SW318	318	Depth To Water	9.38	feet					
53-01	MW9		427	Groundwater Elevation	374.8	feet					
53-01	MW9	SW320	320	pH (field)	3.59						
53-01	MW9	SW356	356	Dissolved Oxygen	4.04	mg/L					
53-01	MW9	SW325	325	Temperature	20	deg. C					
53-01	MW9	SW324	324	Conductivity	42	microS/sec					
53-01	MW9	71-43-2	16	Benzene	1	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW9	108-88-3	196	Toluene	5	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW9	100-41-4	110	Ethylbenzene	1	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW9	1330-20-7	346	Total Xylenes	3	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW9	7439-97-6	132	Mercury	0.20	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW9	7440-38-2	14	Arsenic	16	ug/L	JP1	1	10/4/10	*	10/6/10
53-01	MW9	7440-39-3	15	Barium	98	ug/L	U	1	10/4/10	*	10/6/10
53-01	MW9	7440-43-9	34	Cadmium	0.90	ug/L	JP1	1	10/4/10	*	10/6/10
53-01	MW9	7440-47-3	51	Chromium	10	ug/L	U	1	10/4/10	*	10/6/10
53-01	MW9	7439-92-1	131	Lead	3.8	ug/L	JP1	1	10/4/10	*	10/6/10
53-01	MW9	7782-49-2	183	Selenium	20	ug/L	U	1	10/4/10	*	10/6/10
53-01	MW9	7440-22-4	184	Silver	10	ug/L	U	1	10/4/10	*	10/6/10
53-01	MW10	SW328	328	Top Of Casing	377.0	feet					
53-01	MW10	SW318	318	Depth To Water	9.16	feet					
53-01	MW10		427	Groundwater Elevation	367.8	feet					
53-01	MW11	SW328	328	Top Of Casing	399.6	feet					
53-01	MW11	SW318	318	Depth To Water	11.06	feet					
53-01	MW11		427	Groundwater Elevation	388.5	feet					
53-01	MW12	SW328	328	Top Of Casing	337.4	feet					
53-01	MW12	SW318	318	Depth To Water	4.42	feet					
53-01	MW12		427	Groundwater Elevation	333	feet					
53-01	MW12	SW320	320	pH (field)	5.59						
53-01	MW12	SW356	356	Dissolved Oxygen	1.32	mg/L					
53-01	MW12	SW325	325	Temperature	19.5	deg. C					
53-01	MW12	SW324	324	Conductivity	1,454	microS/sec					
53-01	MW12	71-43-2	16	Benzene	2.8	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	108-88-3	196	Toluene	0.40	ug/L	J	1	10/5/2010	*	10/7/2010
53-01	MW12	100-41-4	110	Ethylbenzene	1	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	1330-20-7	346	Total Xylenes	3	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	108-20-3	366	Di-isopropyl ether	1	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	108-90-7	39	Chlorobenzene	8.7	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	75-00-3	41	Chloroethane	89	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	95-50-1	69	1,2-Dichlorobenzene	1	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12			1,3-Dichlorobenzene	1	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	106-46-7	71	1,4-Dichlorobenzene	2.9	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	75-71-8	74	Dichlorodifluoromethane	5	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	75-34-3	75	1,1-Dichloroethane	9.3	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	107-06-2	76	1,2-Dichloroethane	0.38	ug/L	J	1	10/5/2010	*	10/7/2010
53-01	MW12	98-82-8	367	Isopropylbenzene	0.64	ug/L	J	1	10/5/2010	*	10/7/2010
53-01	MW12	75-09-2	140	Methylene Chloride	5	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12			2-Chlorotoluene	1	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12	91-20-3	148	Napthalene	5	ug/L	U	1	10/5/2010	*	10/7/2010
53-01	MW12			n-Propylbenzene	1	ug/L	U	1	10/5/2010	*	10/7/2010

Note:
1. * Technically, this sample set didn't have any extractions. The metals were prepped and digested. The volatiles aren't involved in any extraction process. They are loaded directly onto the instrument.

Table 1 GROUNDWATER DATA 10/4/10 - 10/5/10
Date: 10/14/10 Facility Name: Lee County Landfill

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	QUALIFIER	DILUTION FACTOR	COLLECT DATE	EXTRACTION DATE*	ANALYSIS DATE
53-01	MW4	SW328	328	Top Of Casing	345.9	feet					
53-01	MW4	SW318	318	Depth To Water	15.31	feet					
53-01	MW4		427	Groundwater Elevation	330.6	feet					
53-01	MW5	SW328	328	Top Of Casing	351.1	feet					
53-01	MW5	SW318	318	Depth To Water	6.55	feet					
53-01	MW5			Groundwater Elevation	344.6	feet					
53-01	MW5	SW320	320	pH (field)	6.44						
53-01	MW5	SW356	356	Dissolved Oxygen	2.14	mg/L					
53-01	MW5	SW325	325	Temperature	17.5	deg. C					
53-01	MW5	SW323	323	Conductivity	130	microS/sec					
53-01	MW5	71-43-2	16	Benzene	1	ug/L	U				
53-01	MW5	108-88-3	196	Toluene	5	ug/L	U				
53-01	MW5	100-41-4	110	Ethylbenzene	1	ug/L	U				
53-01	MW5	1330-20-7	346	Total Xylenes	3	ug/L	U				
53-01	MW5	7439-97-6	132	Mercury	0.20	ug/L	U				
53-01	MW5	7440-38-2	14	Arsenic	22	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW5	7440-39-3	15	Barium	360	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW5	7440-43-9	34	Cadmium	5	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW5	7440-47-3	51	Chromium	7	ug/L	J	1	10/4/10	*	10/7/10
53-01	MW5	7439-92-1	131	Lead	26	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW5	7782-49-2	183	Selenium	7	ug/L	J	1	10/4/10	*	10/7/10
53-01	MW5	7440-22-4	184	Silver	10	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	SW328	328	Top Of Casing	402.1	feet					
53-01	MW6	SW318	318	Depth To Water	9.94	feet					
53-01	MW6		427	Groundwater Elevation	392.2	feet					
53-01	MW6	SW320	320	pH (field)	3.97						
53-01	MW6	SW356	356	Dissolved Oxygen	2.11	mg/L					
53-01	MW6	SW325	325	Temperature	18.1	deg. C					
53-01	MW6	SW324	324	Conductivity	23	microS/sec					
53-01	MW6	71-43-2	16	Benzene	1	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	108-88-3	196	Toluene	5	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	100-41-4	110	Ethylbenzene	1	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	1330-20-7	346	Total Xylenes	3	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	7439-97-6	132	Mercury	0.20	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	91-20-3	148	Napthalene	5	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6			1,2,4-Trimethylbenzene	1	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	7440-38-2	14	Arsenic	9.7	ug/L	J	1	10/4/10	*	10/7/10
53-01	MW6	7440-39-3	15	Barium	77	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	7440-43-9	34	Cadmium	5	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	7440-47-3	51	Chromium	10	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW6	7439-92-1	131	Lead	4.3	ug/L	J	1	10/4/10	*	10/7/10
53-01	MW6	7782-49-2	183	Selenium	10	ug/L	J	1	10/4/10	*	10/7/10
53-01	MW6	7440-22-4	184	Silver	10	ug/L	U	1	10/4/10	*	10/7/10
53-01	MW7	SW328	328	Top Of Casing	360.3	feet					
53-01	MW7	SW318	318	Depth To Water	11.06	feet					
53-01	MW7		427	Groundwater Elevation	349.2	feet					

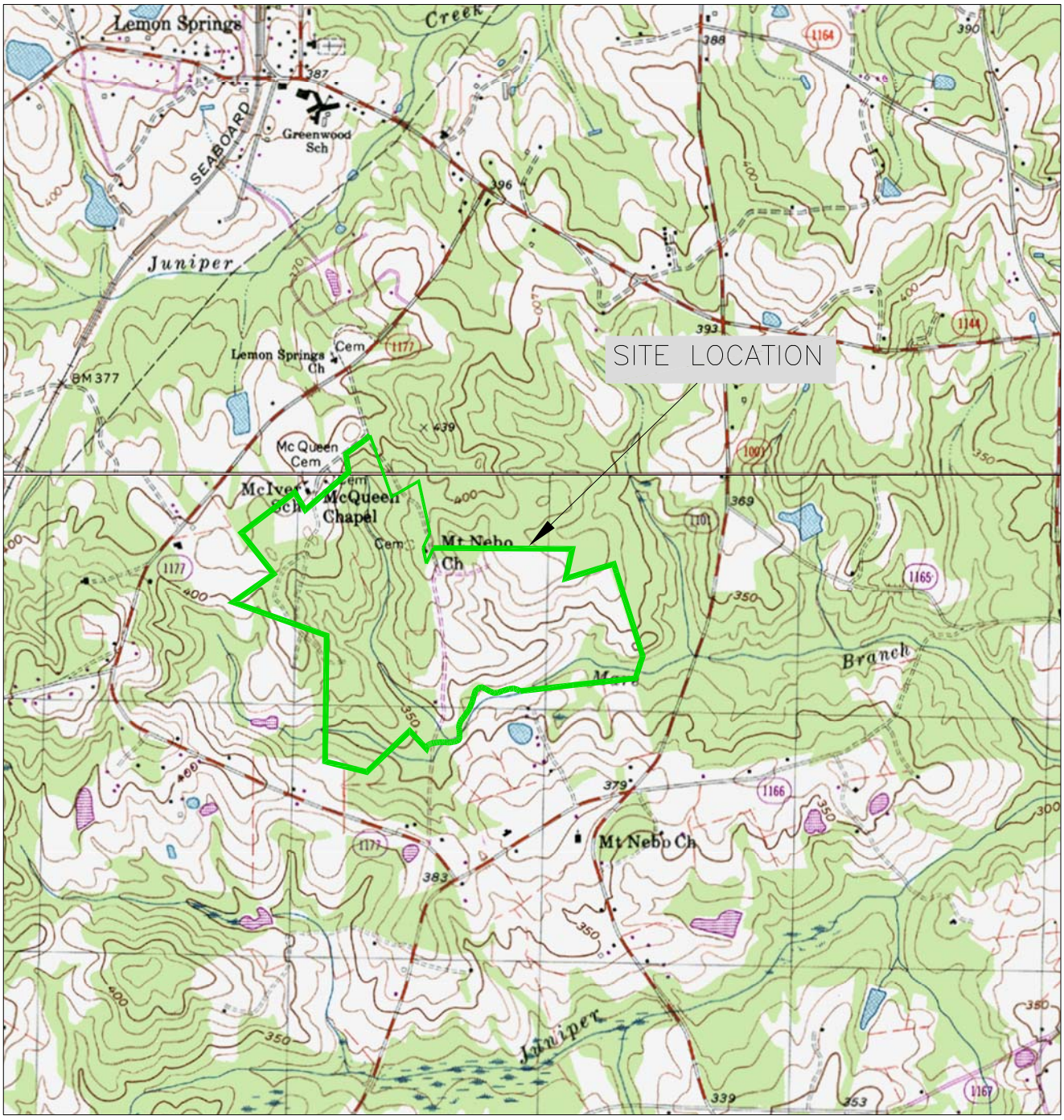
Note:
1. * Technically, this sample set didn't have any extractions. The metals were prepped and digested. The volatiles aren't involved in any extraction process. They are loaded directly onto the instrument.

Table 1 (continued)
Date: 10/14/10

GROUNDWATER DATA 10/4/10 - 10/5/10
Facility Name: Lee County Landfill

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	QUALIFIER	DILUTION	COLLECT DATE	EXTRACTION	ANALYSIS DATE
53-01	SW2	71-43-2	16	Benzene	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	108-88-3	196	Toluene	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	100-41-4	110	Ethylbenzene	1	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	1330-20-7	346	Total Xylenes	3	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7439-97-6	132	Mercury	0.20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7440-38-2	14	Arsenic	20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7440-39-3	15	Barium	94	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7440-43-9	34	Cadmium	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7440-47-3	51	Chromium	10	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7439-92-1	131	Lead	5	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7782-49-2	183	Selenium	20	ug/L	U	1	10/4/10	*	10/7/2010
53-01	SW2	7440-22-4	184	Silver	10	ug/L	U	1	10/4/10	*	10/7/2010

Note:
1. * Technically, this sample set didn't have any extractions. The metals were prepped and digested. The volatiles aren't involved in any extraction process. They are loaded directly onto the instrument.



N

MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHICS – SANFORD AND MURCHISONTOWN, NC

GRAPHIC SCALE

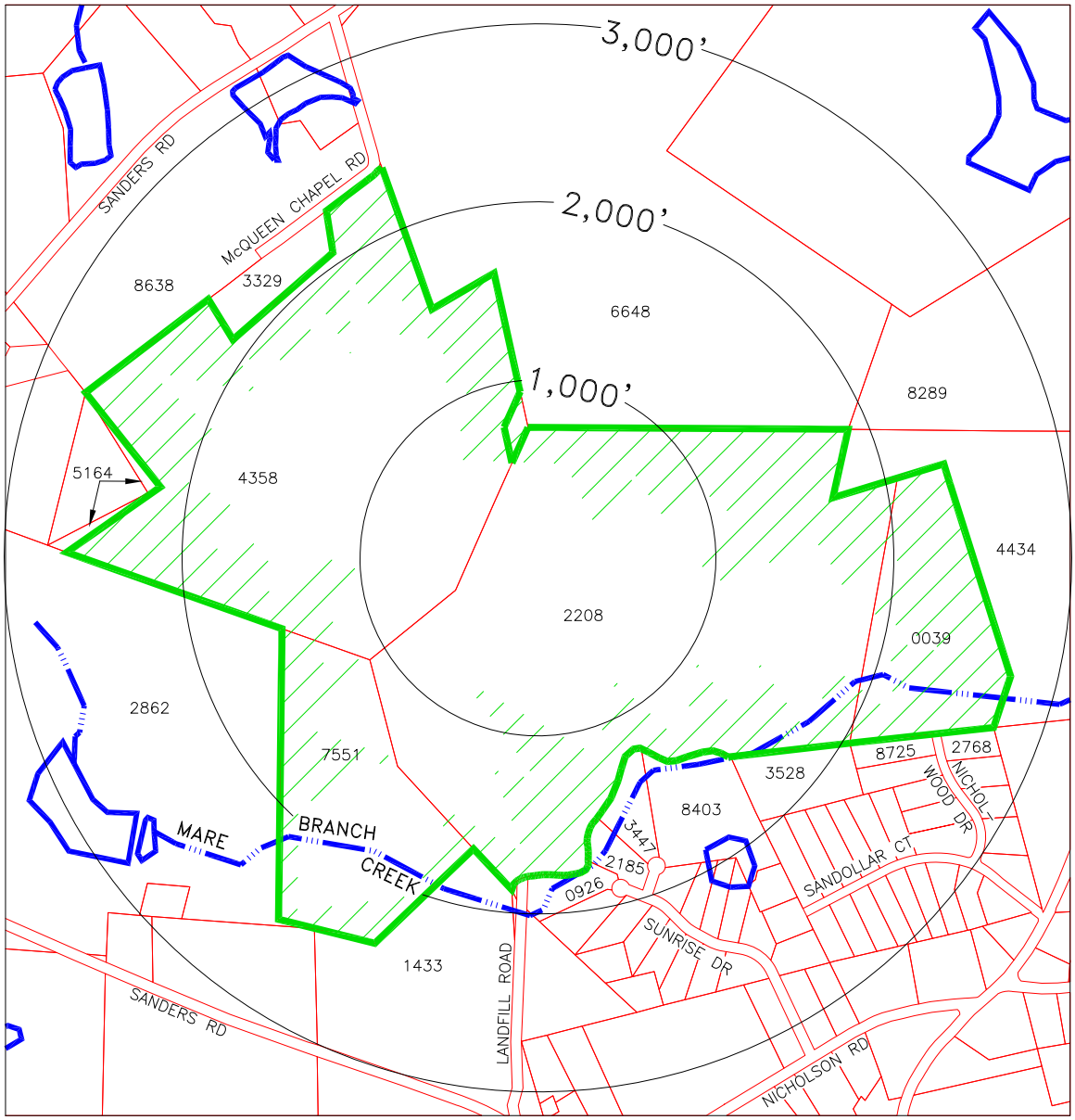
0' 2000' 4000'

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

SITE LOCATION MAP
LEE COUNTY LANDFILL
331 LANDFILL ROAD
LEE COUNTY, NORTH CAROLINA

LEE COUNTY PUBLIC WORKS SANFORD, NC

PROJECT NO.	02296	DRAWN BY:	RDK	DATE:	10/14/10
SCALE:	1" = 2000'	CHECKED BY:	JRG/MJB	FIGURE NO.	1



LEGEND

LANDFILL PROPERTY BOUNDARY

PARCEL BOUNDARIES

DISTANCE FROM LANDFILL CENTER

SURFACE WATER BODY

2106 TAX PARCEL ID (SEE TABLE 1)

GRAPHIC SCALE (1" = 1,000')

0' 500' 1,000' 2,000'

(NOTE: MAP ADAPTED FROM INFORMATION PROVIDED BY THE LEE COUNTY DEPARTMENT OF STRATEGIC SERVICES)

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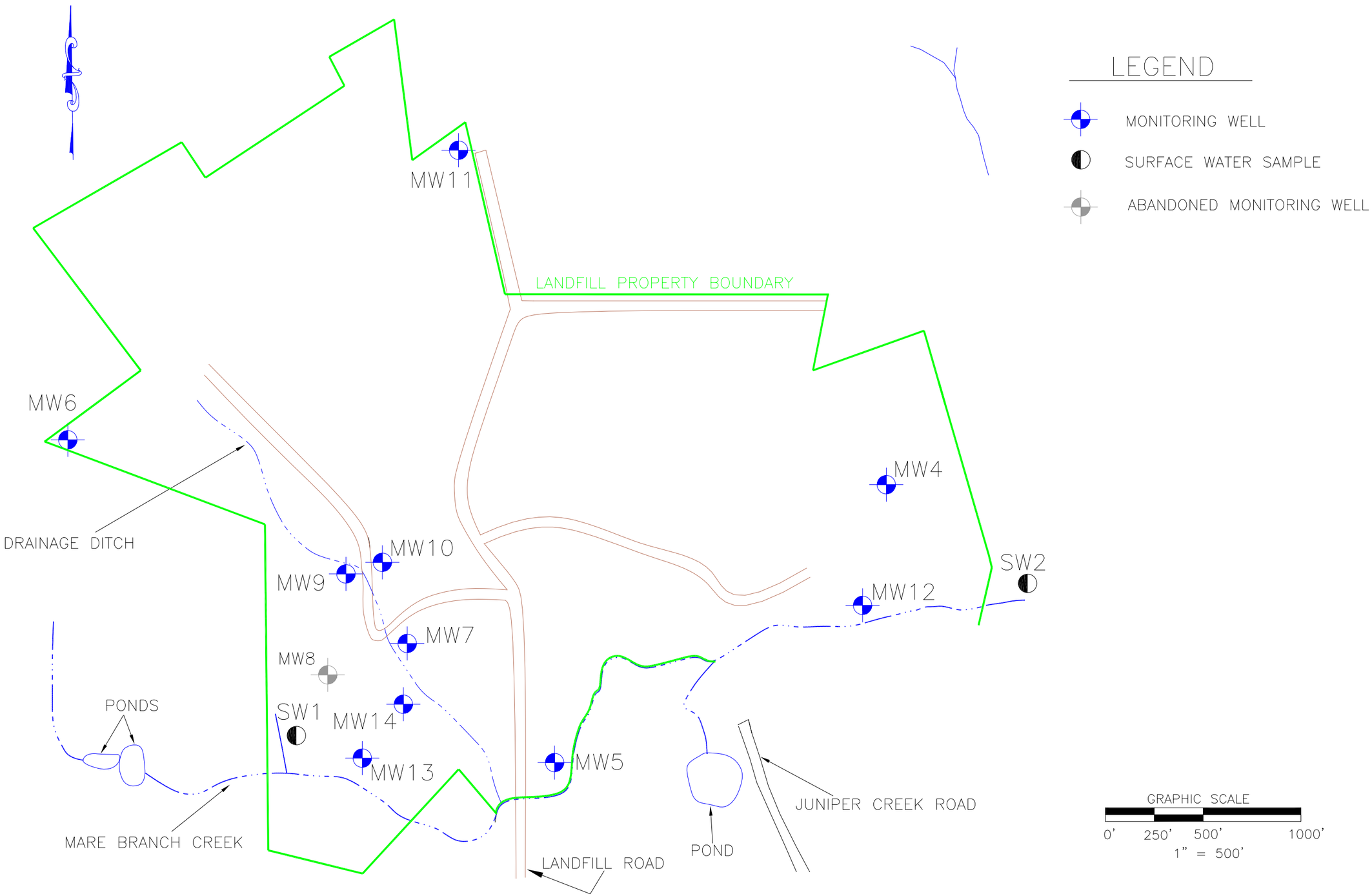
SITE VICINITY MAP

LEE COUNTY LANDFILL
331 LANDFILL ROAD
SANFORD, LEE COUNTY, NC 27332

LKEE COUNTY PUBLIC WORKS — SANFORD, NC

PROJECT NO.	02296	DRAWN BY:	RDK	DATE:	10/14/10
SCALE:	1" = 1,000'	CHECKED BY:	MJB	FIGURE NO.	2



SITE LAYOUT MAP
LEE COUNTY LANDFILL

LEE COUNTY PUBLIC WORKS DEPARTMENT — SANFORD, NC

PROJECT NO: 02296	CHECKED BY: MJB/JRG	FIGURE NO. 3	
SCALE: 1" = 500'	DRAWN BY: JRG/RDK	DATE: 10/14/10	

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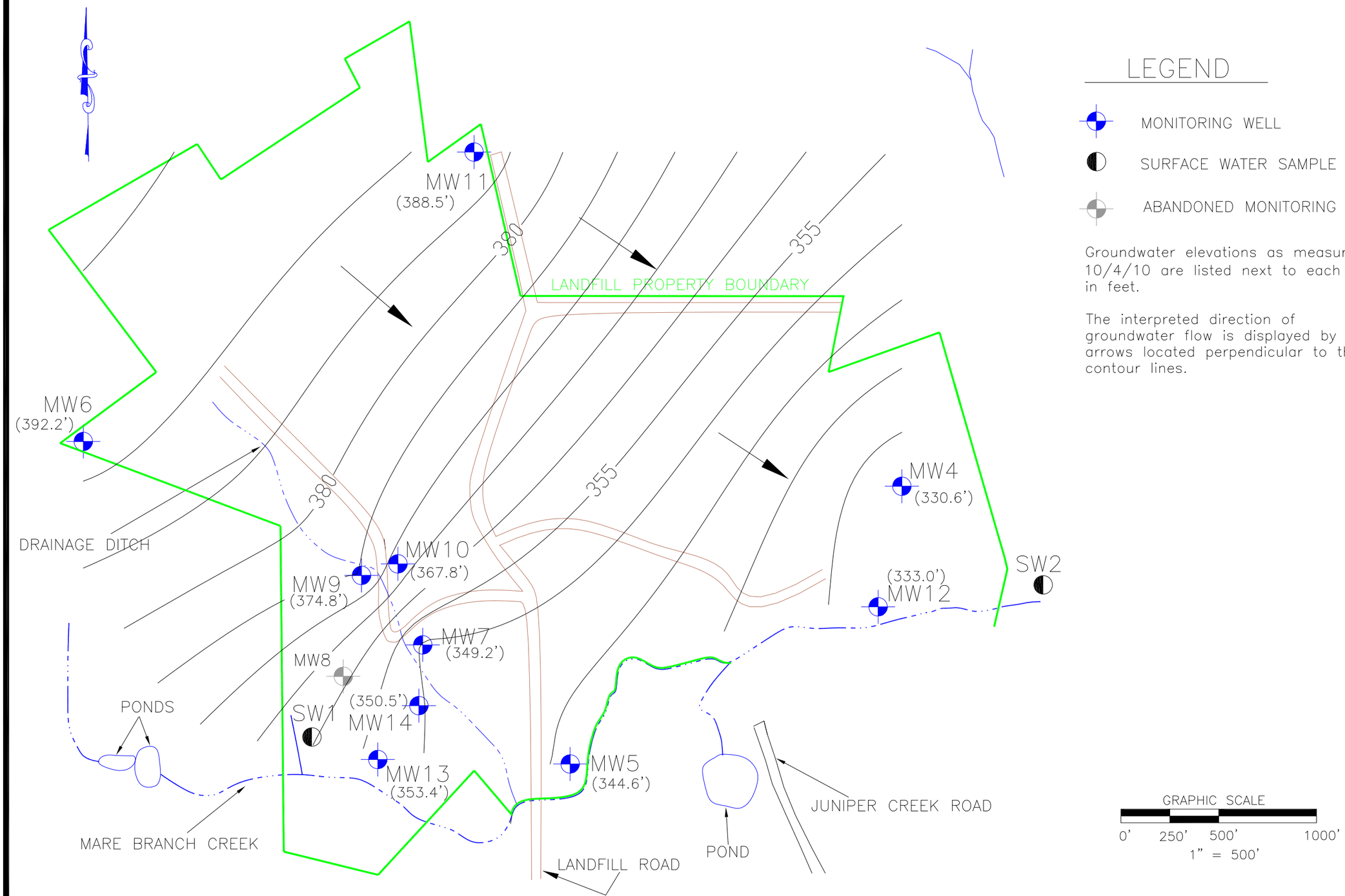

LEGEND

- MONITORING WELL
- SURFACE WATER SAMPLE
- ABANDONED MONITORING WELL

Groundwater elevations as measured on 10/4/10 are listed next to each well in feet.

The interpreted direction of groundwater flow is displayed by the arrows located perpendicular to the contour lines.

POTENTIOMETRIC SURFACE MAP (4/9/08)

LEE COUNTY LANDFILL

LEE COUNTY PUBLIC WORKS DEPARTMENT — SANFORD, NC

PROJECT NO: 02296	CHECKED BY: MJB/JRG	FIGURE NO.	4
SCALE: 1" = 500'	DRAWN BY: JRG/RDK	DATE:	10/14/10

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TECHNICAL METHODS/STANDARD PROCEDURES

Groundwater Sampling

Groundwater samples are collected from temporary or permanent monitoring wells according to established sampling protocol. When permanent monitoring wells are sampled the well is purged of a minimum of three well-bore volumes prior to sample collection in order to assure that sampled water is representative of aquifer conditions. In temporary wells, the first water which migrates into the open borehole is sampled. Samples from both temporary and permanent monitoring wells are collected using individually wrapped disposable teflon bailers by a field personnel wearing disposable latex gloves. Only one well is sampled with a given bailer in order to prevent sample cross-contamination. Also, field personnel change gloves between different samples to reduce the chance of cross-contamination. Water samples are transferred from the bailer to laboratory-prepared sampling containers using slow emptying devices to reduce the chance of contamination loss through volatilization. Preservatives, such as acids, are added to samples directly after they are collected if preservation is necessary. The samples are labeled with the sample location, sample identification, date of collection, time of collection, the analytical method, the preservative, and the sampler's initials. The samples are cooled on ice to four degrees centigrade, sent to a certified laboratory, and analyzed before the expiration of an analytical method's prescribed holding time. Chain-of-custody documentation is maintained for each sample collected in the field.

Surface Water Sampling

Surface water samples, specifically samples from creeks or streams, are collected from a moving/flowing portion of the creek or stream to ensure that stagnant water is not collected. Field personnel are careful to collect samples from flowing areas that are not so turbulent as to cause a loss of volatile contaminants which might have been contained in the creek's/stream's water. Samples are collected by field personnel wearing disposable latex gloves. Field personnel change gloves between different locations to reduce the chance of cross-contamination. Samples are collected directly from the appropriate creek or stream location and placed into the appropriate laboratory-prepared containers. Preservatives, such as acids, are added to samples directly after they are collected if preservation is necessary. The samples are labeled with the sample location, sample identification, date of collection, time of collection, the analytical method, the preservative, and the sampler's initials. The samples are cooled on ice to approximately four degrees centigrade, sent to a certified laboratory, and analyzed before the expiration of an analytical method's prescribed holding time. Chain-of-custody documentation is maintained for each sample collected in the field.

Field Measurements

Field measurements taken to determine the pH, conductivity, temperature, and dissolved oxygen concentration of a particular groundwater sample are taken directly after a particular monitoring well has been adequately purged. Once purging of the monitoring

well is complete, a new, disposable teflon bailer is slowly lowered into the appropriate monitoring well and a representative groundwater sample is retrieved. A slow pouring device is fitted onto the end of the disposable bailer and the sample is slowly poured into a new, disposable plastic cup.

For pH, conductivity, and temperature, a Hanna Instruments Model 991300 portable meter is utilized. This unit is periodically calibrated and maintained in accordance with the unit's operations manual by field personnel. The procedure used for sample measurement involves lowering the meter's probe into the new, disposable cup containing the groundwater sample to be measured and slowly stirring the probe to force groundwater across the probe's membrane. The measurements displayed by the meter are then recorded.

For dissolved oxygen concentration measurements, a YSI Model 55 Handheld Dissolved Oxygen System is utilized. This unit is periodically calibrated and maintained in accordance with the unit's operations manual by field personnel. The procedure used for sample measurement involves adjusting the unit for the correct altitude where the sampling will take place and adjusting the reported units desired. Once this is done, the unit's probe is inserted into the new, disposable cup containing the groundwater sample to be measured and the probe is slowly stirred to force the groundwater across the probe's membrane. The measurements displayed by the unit are then recorded.