

ALTAMONT ENVIRONMENTAL, INC.

ENGINEERING & HYDROGEOLOGY

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*Transmitted by email:
christine.ritter@ncdenr.gov*

December 10, 2009

Ms. Christine Ritter
Hydrogeologist, Permitting Branch
North Carolina Department of Environment and Natural Resources
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Subject: Landfill Gas Monitoring Plan
Closed International Paper Company Landfill 5C
Permit #44-01, Canton, NC

Dear Ms. Ritter,

This letter responds to the September 29, 2009 Facility Compliance Audit Report for the referenced site, which contained a Notice of Violation (NOV). In particular, this letter describes the actions International Paper Company (IP) intends to take to address the NOV. IP plans to install and monitor landfill gas monitoring probes in order to establish a compliance boundary monitoring network at the site. On behalf of IP, Western North Carolina Regional Livestock Center (WNCRLC), and Altamont Environmental, Inc. (Altamont), this letter requests approval from the North Carolina Department of Environment and Natural Resources Solid Waste Section (SWS) of this Landfill Gas Monitoring Plan for the site.

BACKGROUND

Altamont installed 11 permanent landfill gas probes and four temporary landfill gas probes at the site during the week of September 9, 2009, in accordance with the Geotechnical and Environmental Investigation Plan approved on August 17, 2009 by the SWS. These probes were installed to investigate the ability of the closed landfill to produce landfill gas. All but two of the probes installed as part of the Geotechnical and Environmental Investigation Plan were installed in waste. Results from the initial screenings and subsequent monitoring of those probes indicate that waste contained within the landfill cells is producing methane gas (described in previous correspondence to the SWS). Therefore, the following Landfill Gas Monitoring Plan establishes an approach to the installation of compliance boundary landfill gas probes, monitoring, and reporting of landfill gas concentrations at these probes.

LANDFILL GAS MONITORING PLAN

Compliance Boundary Landfill Gas Probe Installation

The Attached Figure 1 shows the proposed locations for 16 additional landfill gas probes around the perimeter of the site. An effort has been made, per recommendations made in the November 6, 2009 letter from the SWS to Altamont, to locate the wells at 500-foot intervals, no more than 250 feet from landfill waste boundaries, and at least 50 feet within the landfill property boundary. This being said, some covered waste areas at the site are less than 50 feet from the property line. For this reason, as well as some access constraints, not all of the proposed probes meet the spacing requested by the SWS. The proposed compliance boundary landfill gas probes have been located in accordance with the SWS recommendations to the extent possible while maintaining a focus on areas closest to potential receptors on adjacent properties.

The attached Figure 1 shows proposed landfill gas probe locations and labels. Figure 2 shows a cross-section of proposed typical landfill gas monitoring probes. All landfill gas monitoring probes will be positioned above the water table. Additionally, if the vadose zone above the water table is at any location greater than 30 feet in depth, landfill gas monitoring probes will be installed in pairs such that one probe is constructed with a screened interval in the upper portion of the soil column and the other probe is constructed with a screened interval in the lower portion of the soil column.

Landfill Gas Monitoring

Each new probe will be monitored for landfill gas within one week of being installed. Periodic landfill gas monitoring will be completed on a quarterly basis. In addition, continuous methane monitoring equipment will be installed inside the large metal building and the concession building on the Landfill 5B area. The quarterly monitoring locations will include the 16 compliance boundary probes as well as 15 ambient readings at locations within structures at the site. The 15 ambient locations within structures can be described by the following:

Landfill 5B:

- Existing Concession Stand – one sample
- Existing Temporary Storage Buildings
 - Football Storage Building – one sample
 - Little League T-ball Storage Building – one sample
 - Maintenance Office – one sample
- Existing Large Corrugated Metal Storage Building – two samples

Landfill 5C:

- Proposed WNCRLC Facility
 - Auditorium – one sample
 - Lobby – one sample
 - Banquet Hall – one sample
 - Offices – one sample
 - Concession Area – one sample
 - Ticket Vending – one sample

- Restrooms – two samples
- Proposed WNCRLC Storage Shed – one sample

Methane concentrations will be measured with a Landtec GEM 500 or Landtec GEM 2000 portable landfill gas meter. The samples will be analyzed to determine if there are detections greater than 25 percent of the lower explosive limit for methane in on-site structures, and 100 percent of the lower explosive limit for methane at the property boundary which would constitute an exceedance of guidelines established by the SWS.

Additionally, continuous landfill gas monitoring equipment will be installed within existing structures on the Landfill 5B area and within the enclosed portions of structures proposed for the Western North Carolina Regional Livestock Center on the Landfill 5C area.

Landfill Gas Reporting

If landfill gas sampling reveals that there are no exceedances within structures or at the established compliance boundary, the results of the initial landfill gas monitoring will be provided to the SWS within 30 days of collecting the readings. Quarterly methane monitoring will be conducted thereafter. Those results collected from the above-mentioned locations will be reported to the SWS on an annual basis with the groundwater quality monitoring report for the site.

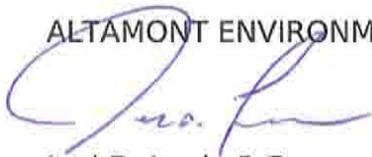
In the event that a methane exceedance (e.g. greater than 25 percent of the lower explosive limit for methane in on-site structures, and 100 percent of the lower explosive limit for methane at the property boundary) is found during screening of ambient air or in compliance boundary landfill gas probes, IP or its representatives will notify the SWS within seven days of detection. Additionally, IP will place, in the operating record, the methane gas levels detected and a description of the steps taken to protect human health. Furthermore, within 60 days of a detected exceedance, IP or its representative will implement a remediation plan for the methane gas exceedance, place a copy of the plan in the operating record, and notify the SWS that the plan has been implemented. The plan will describe the nature and extent of the problem and the proposed remedy.

Ms. Ritter
December 10, 2009
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Altamont, on behalf of International Paper Company and Western North Carolina Regional Livestock Center, LLC, appreciates your assistance with this project. If you have any questions or would like additional information, please contact the undersigned at (828) 281-3350.

Sincerely,

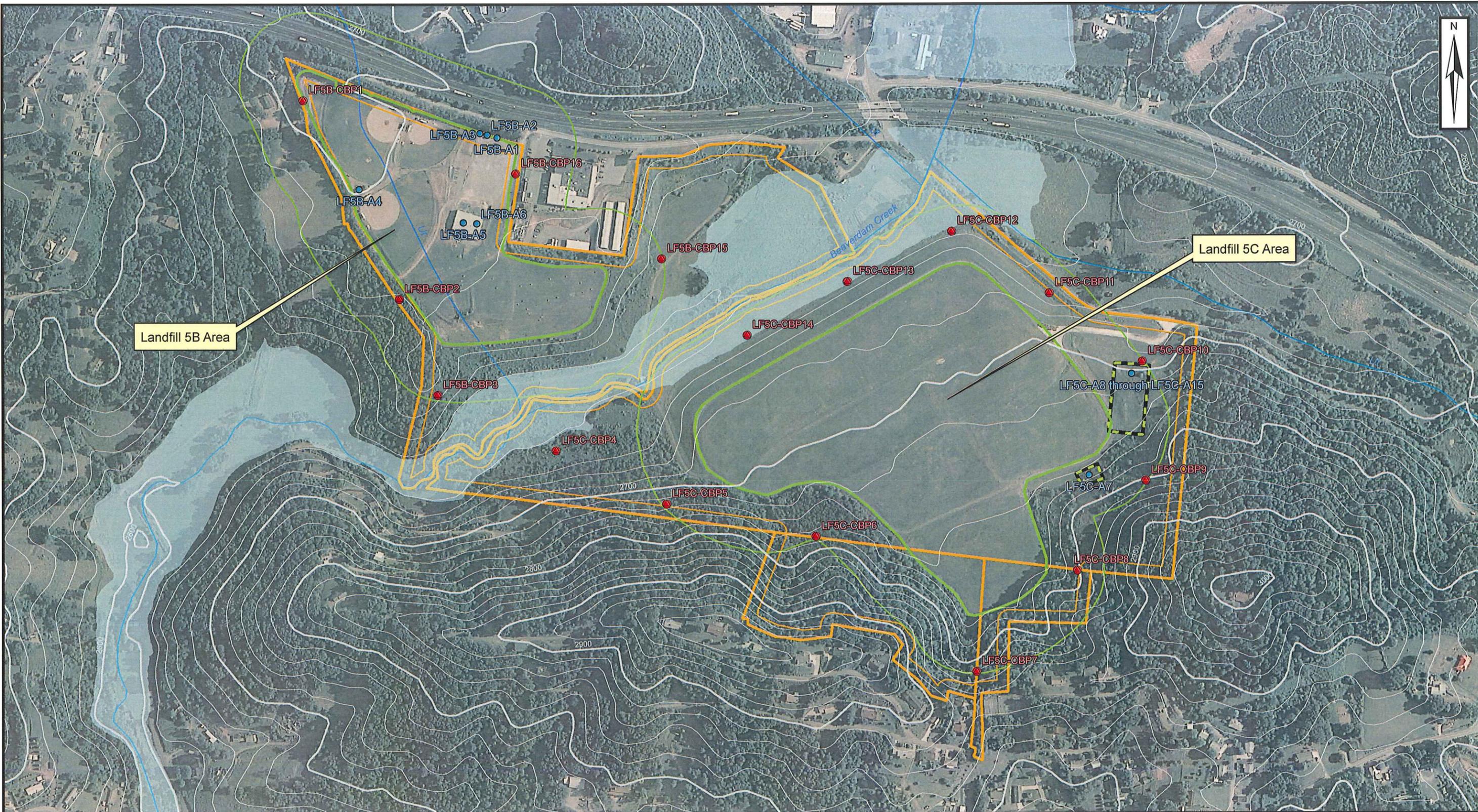
ALTAMONT ENVIRONMENTAL, INC.



Joel D. Lenk, P.G.

Enclosures: Figure 1–Landfill Gas Monitoring Well Locations
Figure 2–Landfill Gas Probe (Typical)

cc: Tom Richardson, International Paper Company
Allen Gaither, SWS Asheville Regional Office
Andrea Keller, SWS Asheville Regional Office
L.T. Ward, Western North Carolina Regional Livestock Center



Landfill 5B Area

Landfill 5C Area

- Legend**
- Proposed Ambient Landfill Gas Monitoring Locations
 - Proposed Landfill Gas Compliance Boundary Probe Locations
 - 100-Foot Interval Contours
 - 20-Foot Interval Contours
 - 250-foot Buffer from Approximate Waste Boundary
 - Approximate Waste Boundary
 - 50-foot Buffer from Property Boundary
 - Property Boundary
 - Approximate Locations of Proposed WNCRLC Buildings
 - 100-Year Floodplain
 - Haywood County Hydrology

SOURCE:
 Color Orthophotograph - NCDA Haywood County 2008
 Property Boundary - Haywood County GIS 2009
 Hydrology - Haywood County GIS
 100-Year Floodplain - NC Floodplain Mapping Program
 Contour Lines - NCDOT, 2007 LIDAR

REV	DATE	DESCRIPTION	BY	CHK	APV

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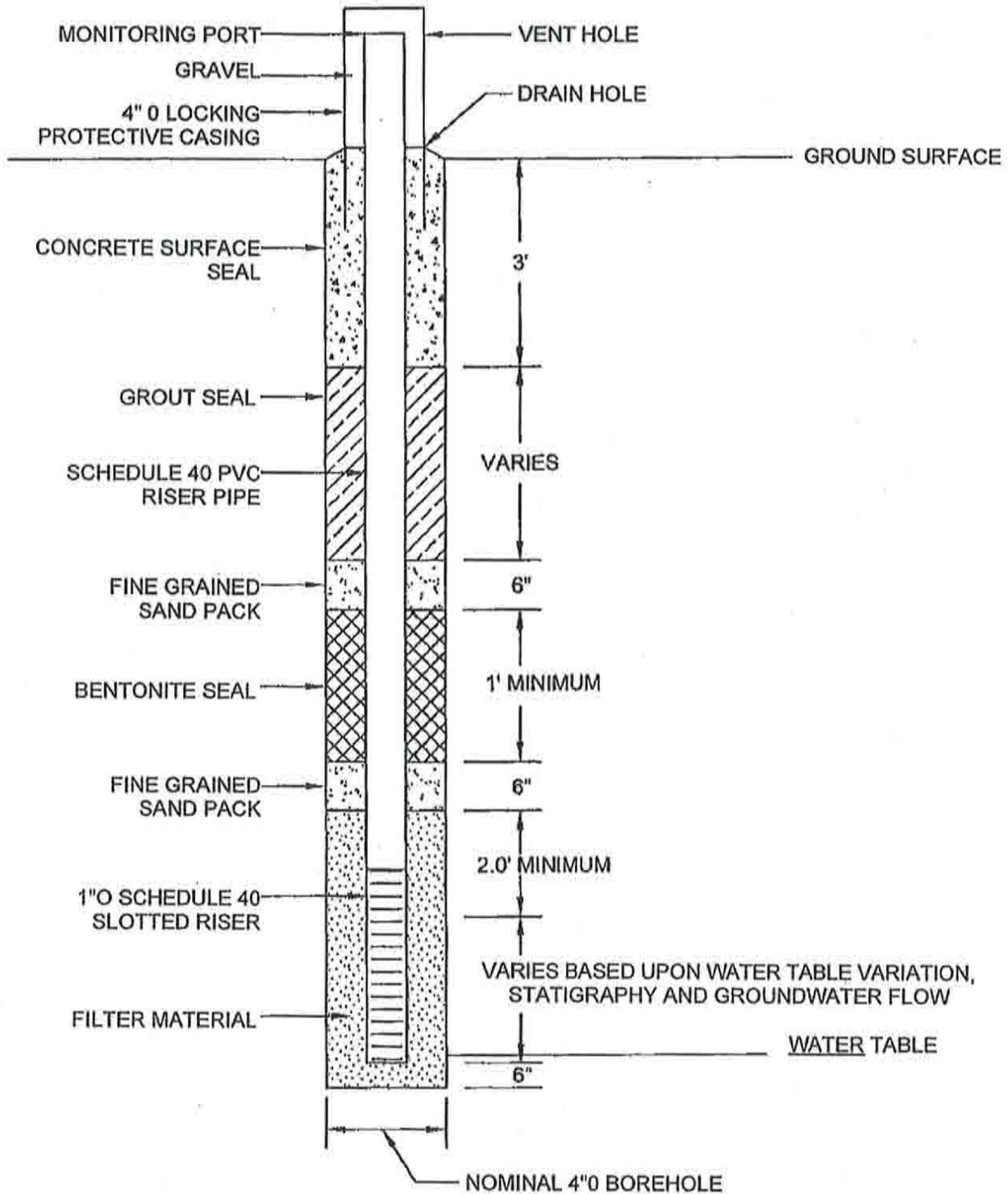
DRAWN BY: Anna Saylor
 PROJECT MANAGER: Joel Lenk
 CLIENT: International Paper Co.
 DATE: 12/10/2009

SCALE
 0 100 200 400 Feet

Proposed Landfill Gas Compliance Boundary Probes and Ambient Monitoring Locations
 Landfill 5 (44-01)
 Closed International Paper Landfill
 Canton, North Carolina

FIGURE
1

P:\V\LF 5\Landfill Gas Investigation\Figures\Fig 1-Existing and Proposed LFG locations.mxd



NOTES: LANDFILL GAS PROBES WILL BE INSTALLED ABOVE THE WATERING TABLE USING CONSTRUCTION TECHNIQUES SIMILAR TO THOSE METHODS USED FOR INSTALLATION OF GROUNDWATER MONITORING WELLS.
 THE MINIMUM DEPTH OF THE CONCRETE SURFACE SEAL IS SIX INCHES.
 BENTONITE MAY BE SUBSTITUTED FOR GROUT SEAL AND FINE GRAINED SAND PACK.
 SOURCE: WASTE MANAGEMENT, INC. - LANDFILL GAS PROBE CONSTRUCTION - HIGH ACRES LANDFILL AND RECYCLING

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**LANDFILL GAS PROBE
 (TYPICAL)**
 INTERNATIONAL PAPER LANDFILL 5C
 PERMIT# 44-01
 HAYWOOD COUNTY, NORTH CAROLINA

FIGURE
2

DRAWN BY: PAUL DOW
 PROJECT MANAGER: JOEL LENK
 CLIENT: IP / WNCC, LLC
 DATE: 07/08/09

NOT TO SCALE