APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 12/20/12 BY Brian Wootton
ID # 17956 Hydrogeologist

NORTH CAROLINA PROFESSIONAL SEAL 20390 ENGINEER ROBERT C. SALLACH
Robert Sallach
11-19-12

CRAMERTON LANDFILL
PERMIT NO. 36-01

LANDFILL GAS MONITORING PLAN UPDATE

NOVEMBER 2012

Prepared for:

GASTON COUNTY SEAL N. C. 1846

Gaston County, North Carolina
P.O. Box 1578
Gastonia, NC 28053-1578

Prepared by:

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8720 Red Oak Boulevard, Suite 505
Charlotte, North Carolina 28217
N.C. License No. F-1165

Project Number 21420

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1.0 INTRODUCTION

1.1 Purpose

This Landfill Gas Monitoring Plan (LFGMP) presents information and procedures associated with the landfill gas monitoring program for the closed Cramerton Landfill (Permit No. 36-01). The Cramerton Landfill is owned and maintained by the Gaston County Department of Public Works and is located on Cramerton Road in Gastonia, North Carolina. A site location map of the Cramerton Landfill is included in Appendix A – Figure 1.

1.2 Regulatory Requirements

The Cramerton Landfill did not receive waste after October 9, 1991, and is subject to compliance with the closure requirements of 15A NCAC 13B.0510. The County has historically monitored the site for explosive gases and groundwater contamination.

The LFGMP, as described herein, is for monitoring of methane gas concentrations at the property boundary, and to document post-closure care actions and landfill gas (LFG) monitoring procedures already set in-place by the County.

In accordance with 15A NCAC 13B.0503, the following requirements must be met:

- The concentration of explosive gases generated by the site shall not exceed (i) 25 percent of the limit for the gases in site structures (excluding gas control or recovery system components); and (ii) the lower explosive limit for the gases at the property boundary.

2.0 SITE HISTORY

2.1 Background

The Cramerton Landfill is a pre-Subtitle D (unlined) landfill that operated from 1974 until it was closed in 1984. A chronology of key events is presented in the following table:

TABLE 1
Cramerton Landfill Key Events

Activity	Date
First Permitted	November 1974
Landfill stops receiving waste	October 1983
County receives letter from State recognizing placement of 2-feet of final cover and stating that additional grading and seeding is required for final closure certification.	January 1984
Debris from Hurricane Hugo is stored at the site as an emergency measure	September 1989
Hugo debris is cleared from the site	Mid-1993
County installs groundwater monitoring system	February 1994
First groundwater monitoring report submitted to SWS	April 1994

TABLE 1
Cramerton Landfill Key Events

Activity	Date
SWS determination that facility has been closed in accordance with applicable requirements	July 1996
County notification that facility will be maintained in accordance with the post-closure conditions specified in SWS letter dated July 24, 1996. County requests effective closure date of November 28, 1995 to coincide with first groundwater monitoring event.	August 1996
SWS approves effective closure date of November 28, 1995	August 1996

The landfill is currently well vegetated and the final layer of waste is covered by a minimum of 2 feet of soil cover in accordance with 15A NCAC 13B.0505.

The County currently performs post-closure care activities that include site maintenance, storm-water management, erosion and sediment control, groundwater monitoring, and landfill gas monitoring.

2.2 Landfill Gas Monitoring

The County currently performs annual LFG monitoring at eight permanent wells located near the property boundary. Refer to Appendix B – Figure 3 for well locations. Based upon recent monitoring results (from year 2006 to 2012), the recorded concentration of explosive (methane) gas is not detected or is below the regulatory requirements noted in Section 1.2 at all monitoring locations. Per this monitoring plan revision, the County will continue to monitor wells MW-1, MW-3, MW-5, MW-6, and MW-7A. Four shallow probes (SP-1, SP-2, SP-3 and SP-6) will be installed at the proposed locations noted on Figure 3 in Appendix B. Figures 4 and 5 provide available information and details regarding the existing permanent well construction, shallow probe construction, and head space revision for gas monitoring.

3.0 Continued Long-Term Monitoring Plan

3.1 Monitoring

As required by 15A NCAC 13B.503, the County is responsible for assessing and monitoring for LFG migration, specifically off-site migration beyond the property boundary, and for determining if methane is accumulating in any on-site structures.

There are no on-site structures located at the Cramerton Landfill, thus the Monitoring Plan for this site consists of continued monitoring of the wells noted in Section 2.2. The County will also conduct ambient surface monitoring of specific locations on an as-needed basis if the presence of LFG is suspected.

3.2 Frequency

The County will continue to monitor the permanent compliance wells on a quarterly basis throughout the remainder of the post-closure care period. The shallow probes will be monitored quarterly for a

period of one year. Based upon the monitoring results, the County will make a recommendation to SWS regarding continued monitoring or abandonment of the probes. The effective date of the Cramerton facility was determined to be November 28, 1995 (see Table 1). If methane concentration levels that exceed the regulatory requirements are observed, the County will institute more frequent monitoring, following the implementation of corrective measures, until such time as it can be demonstrated that any migration issue is resolved to the satisfaction of the County and the Division of Waste Management.

3.3 Monitoring Protocols

Prior to initiating a LFG monitoring event, monitoring personnel (County or a third party) will record pertinent weather information. Via the use of a LFG analyzer, the following will typically be recorded at each monitoring well or on-site structure:

- Verification of sample tube purge;
- Time pumped in seconds;
- Barometric pressure;
- Methane concentrations (percent volume in air and lower explosive limit);
- Oxygen, carbon dioxide, and balance gas concentration; and
- Any field observations or comments.

Concentrations of gases, using a CES-Landtech, GEM 2000 analyzer (or equivalent type analyzer) at the monitoring wells, will be determined using the following sampling procedures:

- The instrument will be calibrated per the manufacturer's recommendations prior to use.
- The instrument will be turned on prior to sampling of the monitoring well.
- The instrument's sampling pump will be started and readings will be observed and recorded. Typically, two monitoring well volumes will be pumped and purged prior to recording measurements.
- Readings will be measured for a three-five minute time interval following the well purging.

The LFG Monitoring Report form is presented in Appendix D.

3.4 Detections and Exceedences

If methane concentrations are detected above 1.25 percent by volume in on-site structures or above 5.00 percent by volume at the property boundary, the County will:

- Notify the Division of Waste Management, Solid Waste Section (SWS);
- Perform a site investigation;
- Provide SWS monitoring data related to the exceedence; and
- Propose appropriate corrective actions.

3.5 Notification and Reporting

Landfill gas monitoring under this Plan will be scheduled quarterly.

The LFG Monitoring Report form is presented in Appendix D. LFG monitoring results will be submitted to SWS within 30 days following the completion of the monitoring event. However, if methane concentrations from any monitoring well exceed the prescribed regulatory requirements, the County will:

- Immediately take all necessary steps to ensure protection of human health and notify the Division of Waste Management, SWS);
- Within seven days of detection, place the monitoring results and a description of the steps taken to protect human health in the operating record; and
- Within 60 days of detection, implement a remediation plan and notify the SWS that the plan has been implemented.

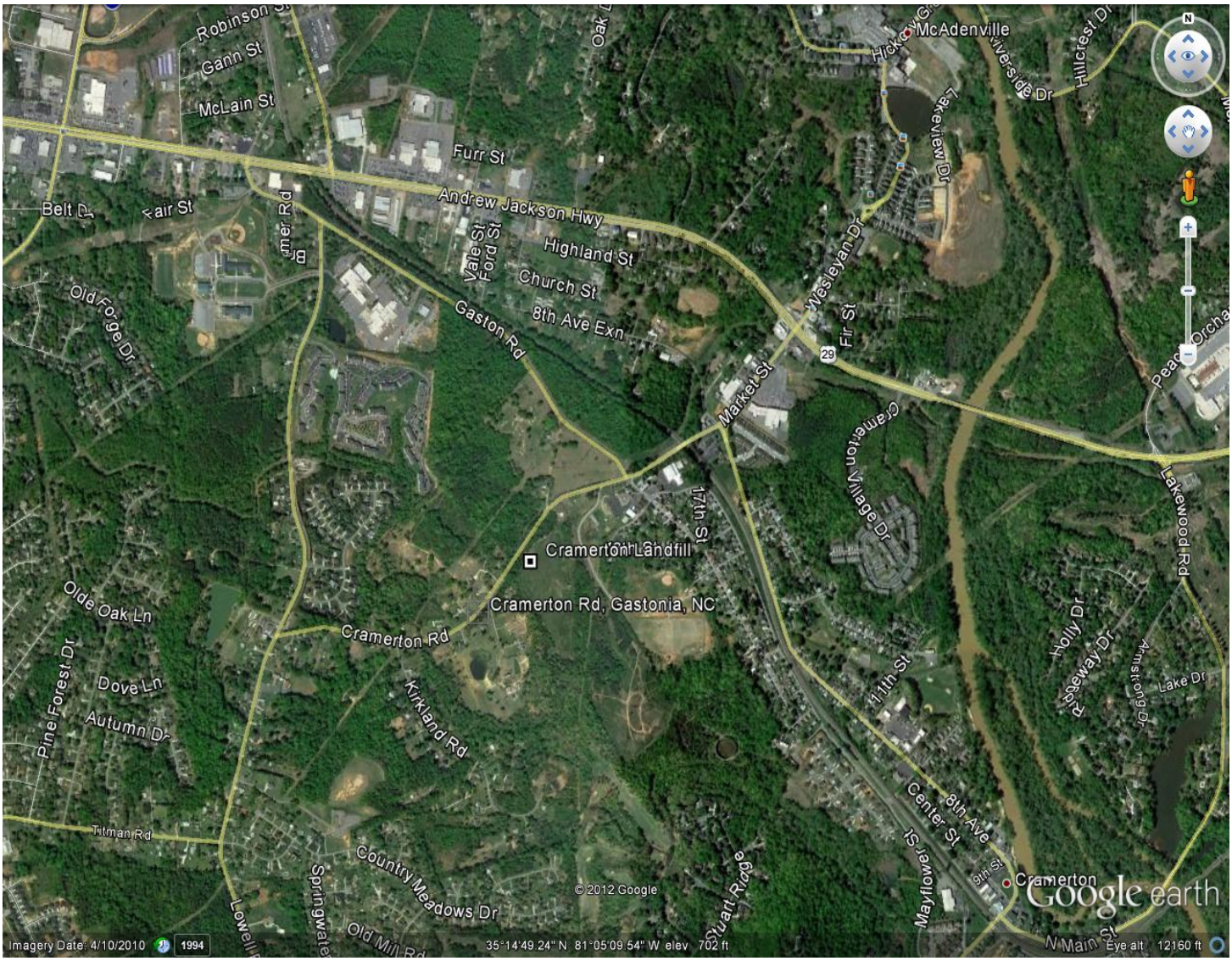
3.6 Revisions to the Plan

The County will implement the propose changes to the LFGMP in accordance with the following conditions:

- Within 90 days of approval of the LFGMP by the SWS, the new gas monitoring probes will be installed at the proposed locations as depicted on the site drawings.
- A Professional Engineer or a North Carolina Professional Geologist must certify/supervise the installation of all LFG monitoring probes.
- Within 30 days of completion of the LFG monitoring probes, a well construction record and/or boring log and a diagram for each probe, including but not limited to total depth, screened interval, and distance above seasonal high groundwater elevation, will be submitted to the SWS. The submittal will also include a scaled topographic map showing the surveyed location and identification of new, existing, and abandoned gas monitoring probes.

APPENDIX A

Site Location Map



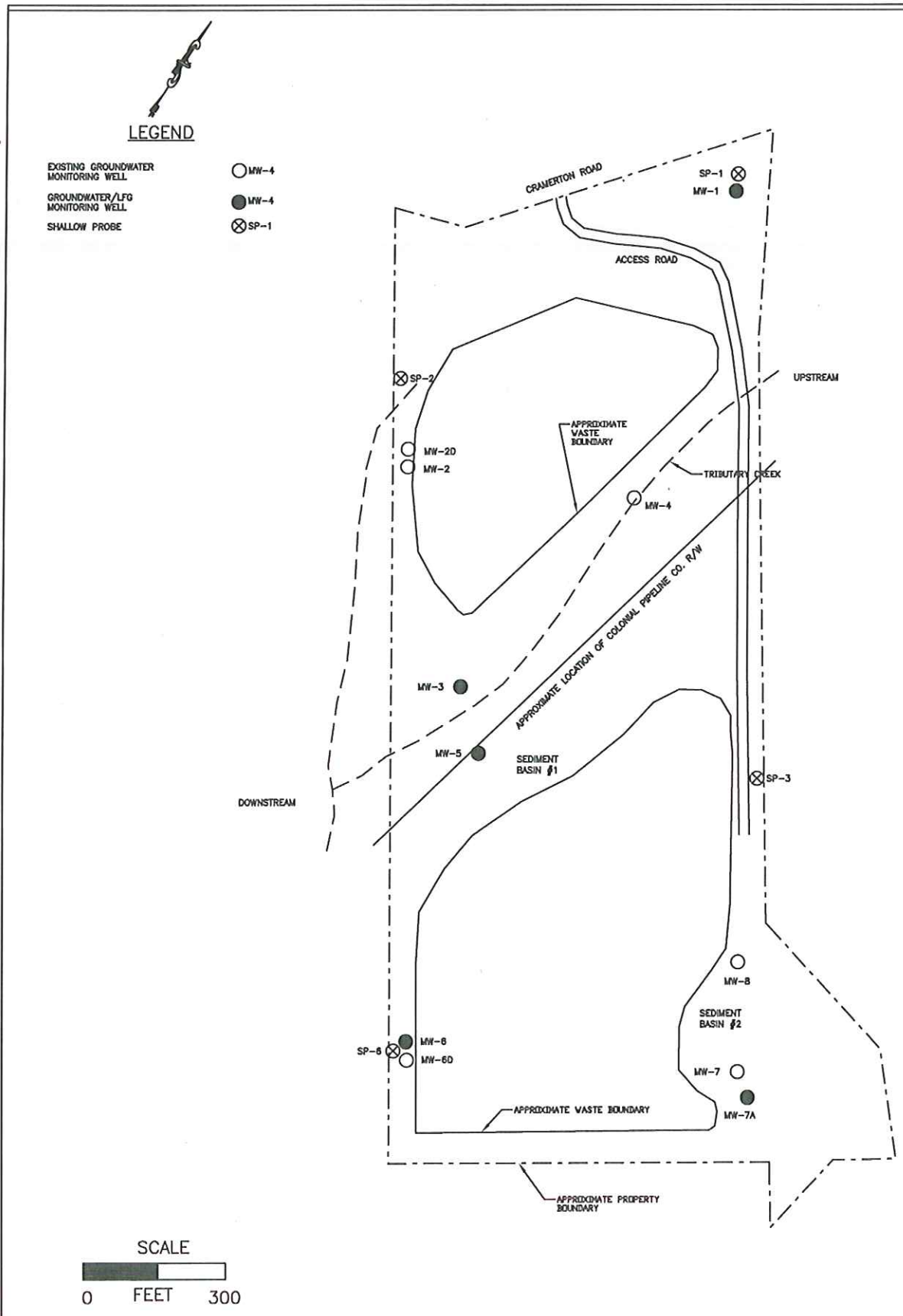
Cramerton Landfill – Site Location Map

Figure 1

APPENDIX B

Monitoring Well Location Plans

Cramerton Landfill – Monitoring Well Location Plan
Figure 2



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CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA

LANDFILL GAS MONITORING PLAN UPDATE

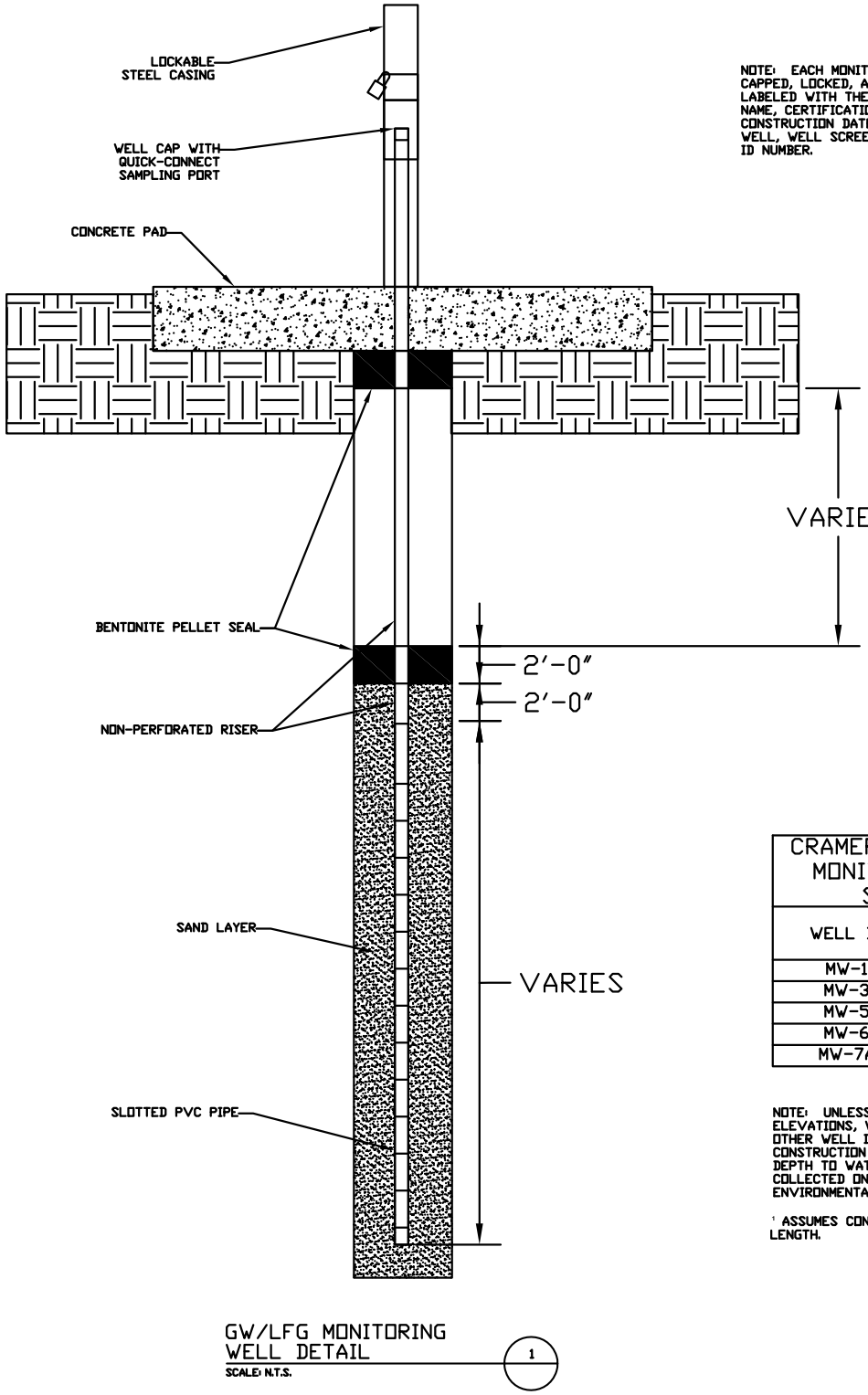
PROJECT NO. 21420

DATE: AUGUST 2012

FIGURE 3

APPENDIX C

Groundwater/LFG Monitoring Well Typical Detail



NOTE: EACH MONITORING WELL SHALL BE CAPPED, LOCKED, AND PERMANENTLY LABELED WITH THE WELL CONTRACTOR NAME, CERTIFICATION NUMBER, WELL CONSTRUCTION DATE, TOTAL DEPTH OF WELL, WELL SCREEN LENGTH, AND WELL ID NUMBER.

CRAMERTON LANDFILL MONITORING WELL SCHEDULE	
WELL ID	FREE SCREEN LENGTH (FT.)
MW-1	3.12
MW-3	4.34
MW-5	0.93
MW-6	2.45
MW-7A	3.85[1]

NOTE: UNLESS OTHERWISE NOTED, TOC ELEVATIONS, WELL SCREEN LENGTHS, AND OTHER WELL INFORMATION IS FROM CONSTRUCTION AS-BUILT DOCUMENTS. DEPTH TO WATER MEASUREMENTS WERE COLLECTED ON MAY 22, 2012 BY BUXTON ENVIRONMENTAL.

[1] ASSUMES CONSTRUCTION INCLUDED 10' SCREEN LENGTH.

GW/LFG MONITORING WELL DETAIL 1

SCALE: N.T.S.

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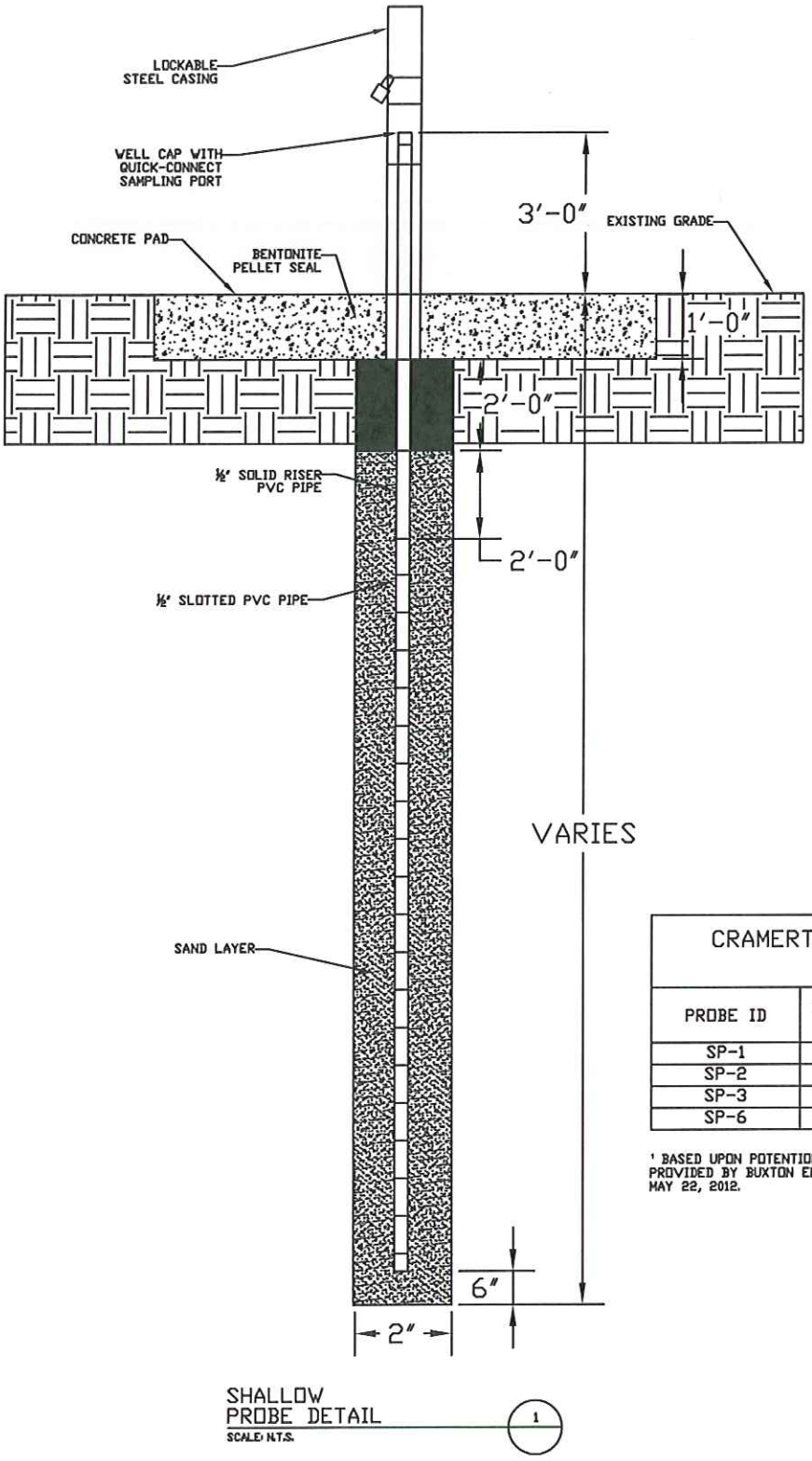
CRAMERTON LANDFILL GROUNDWATER/LFG MONITORING WELL

REVISED TYPICAL DETAIL

PROJECT NO. 21420

DATE: AUGUST 2012

FIGURE 4



SHALLOW PROBE DETAIL (1)
SCALE: N.T.S.

CRAMERTON LANDFILL SHALLOW PROBE SCHEDULE			
PROBE ID	PROBE DEPTH (FT.)	DEPTH TO GROUNDWATER (FT.)[1]	FREE SCREEN LENGTH (FT.)
SP-1	15	20	9.5
SP-2	15	14	8.5
SP-3	10	9	3.5
SP-6	15	27	9.5

[1] BASED UPON POTENTIOMETRIC CONTOUR MAPS PROVIDED BY BUXTON ENVIRONMENTAL DATED MAY 22, 2012.

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CRAMERTON LANDFILL
SHALLOW PROBE

TYPICAL DETAIL

PROJECT NO. 21420

DATE: AUGUST 2012

FIGURE 5

APPENDIX D

LFG Monitoring Report Form

CRAMERTON
LANDFILL

LANDFILL GAS MONITORING REPORT – CLOSED LANDFILL

Date: _____

Facility Name: **Cramerton Landfill**

Permit Number: **36-01**

Sampling Personnel: _____

Instrument Used: _____

Date Instrument Calibrated and Standard Used: _____

Weather Conditions: _____

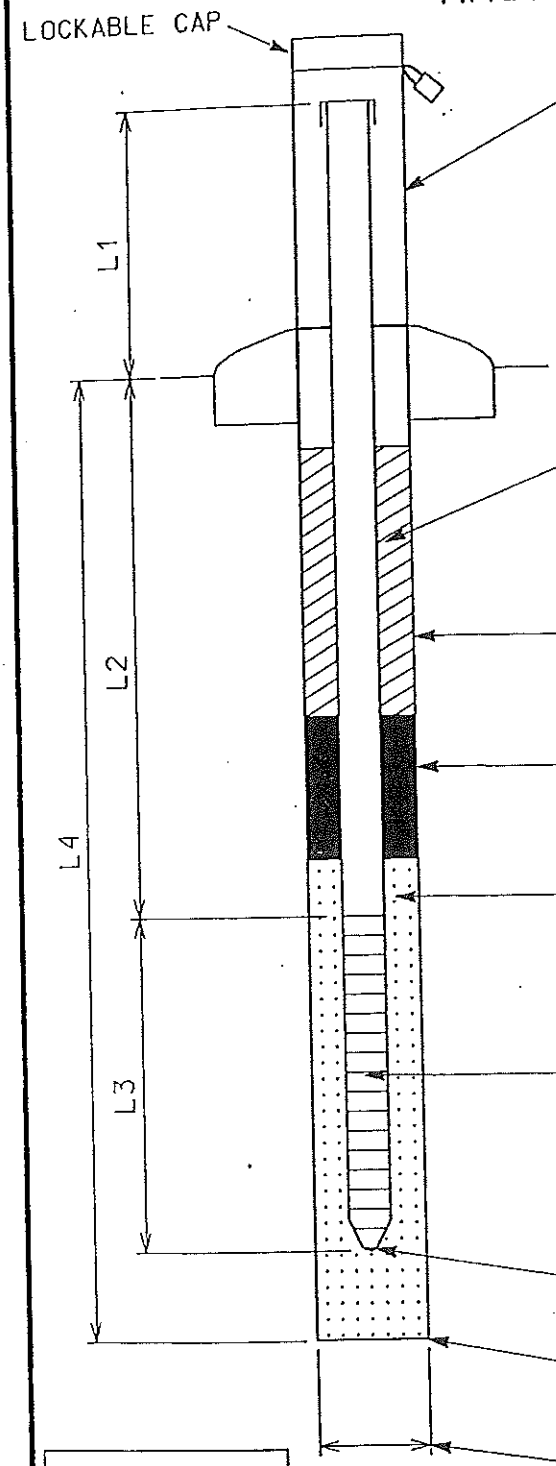
Monitoring Well/Probe	% LEL	% CH_4	% O_2	% CO_2	% Balance Gas	Comments
Facility Structures	**% LEL**	**% CH_4**	**% O_2**	**% CO_2**	**% Balance Gas**	**Comments**

List wells/probes not sampled during this monitoring event: _____

APPENDIX E

Well Construction As-Builts

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD

P. CASING MATERIAL	Steel
P. CASING DIAMETER	4 inch
P. CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	2.5 feet
PAD ELEVATION	700.00 feet msl
TOP OF CASING ELEVATION	702.23 feet msl

WELL RISER CASING

MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	13.23 feet

BACKFILL AROUND RISER

MATERIAL	Bentonite/Grout
THICKNESS	8 feet

ANNULAR SEAL

TYPE OF SEAL	Bentonite Chips
THICKNESS	1 foot

FILTER PACK

TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	2 feet
LENGTH	12 feet

WELL SCREEN

SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	10 feet
SLOT SIZE	0.010 inch

DEPTH TO BOTTOM OF MONITORING WELL	21 feet
DEPTH TO BOTTOM OF FILTER SAND	23.2 feet
DIAMETER OF BOREHOLE	10 inch

L1 = 2.23 FT.
L2 = 11 FT.
L3 = 10 FT.
L4 = 21 FT.

CROSS-SECTIONAL VIEW

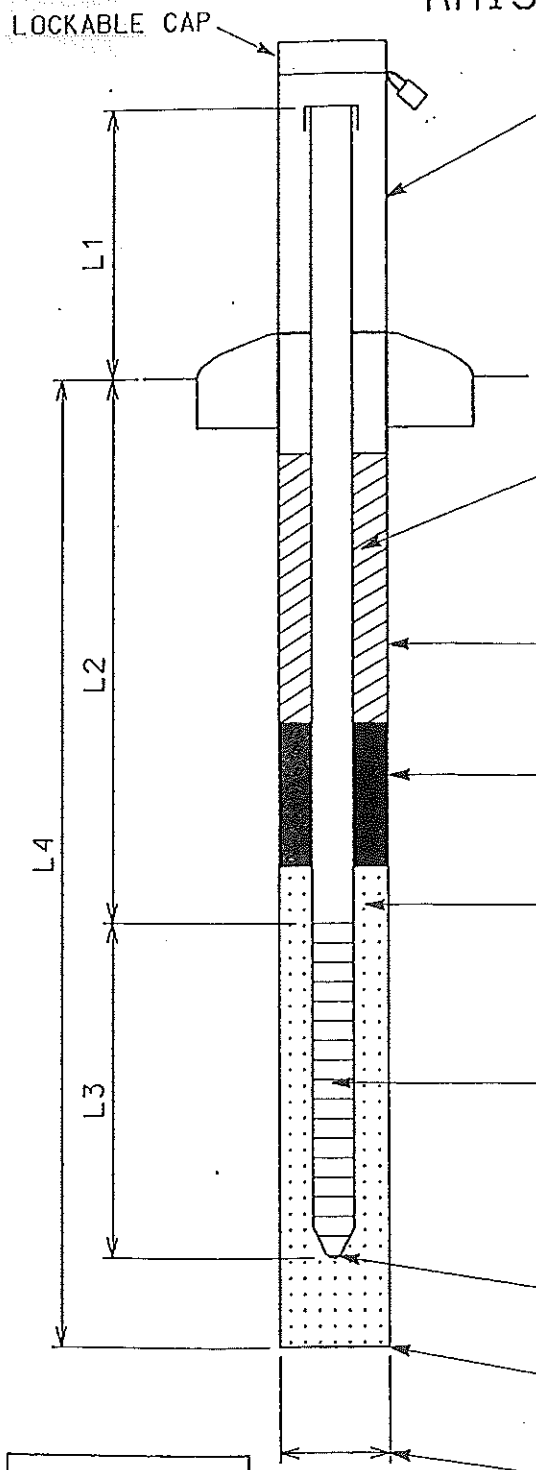
TITLE

MONITOR WELL MW-1
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/02/94

ATEC Environmental Consultants

CAD FILE	PREP. BY	REV. BY	DATE	PROJECT NO.
	GG	KD	03/18/94	35-07-93-00130

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD	
P. CASING MATERIAL	Steel
P. CASING DIAMETER	4 inch
P. CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	3.45 feet
PAD ELEVATION	649.14 feet msl
TOP OF CASING ELEVATION	652.34 feet msl
WELL RISER CASING	
MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	7.18 feet
BACKFILL AROUND RISER	
MATERIAL	Bentonite/Grout
THICKNESS	2 feet
ANNULAR SEAL	
TYPE OF SEAL	Bentonite Pellets
THICKNESS	1 foot
FILTER PACK	
TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	1 foot
LENGTH	11 feet
WELL SCREEN	
SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	10 feet
SLOT SIZE	0.010 inch
DEPTH TO BOTTOM OF MONITORING WELL	14 feet
DEPTH TO BOTTOM OF FILTER SAND	16 feet
DIAMETER OF BOREHOLE	10 inch

L1 = 3.20 FT.
L2 = 4 FT.
L3 = 10 FT.
L4 = 16 FT.

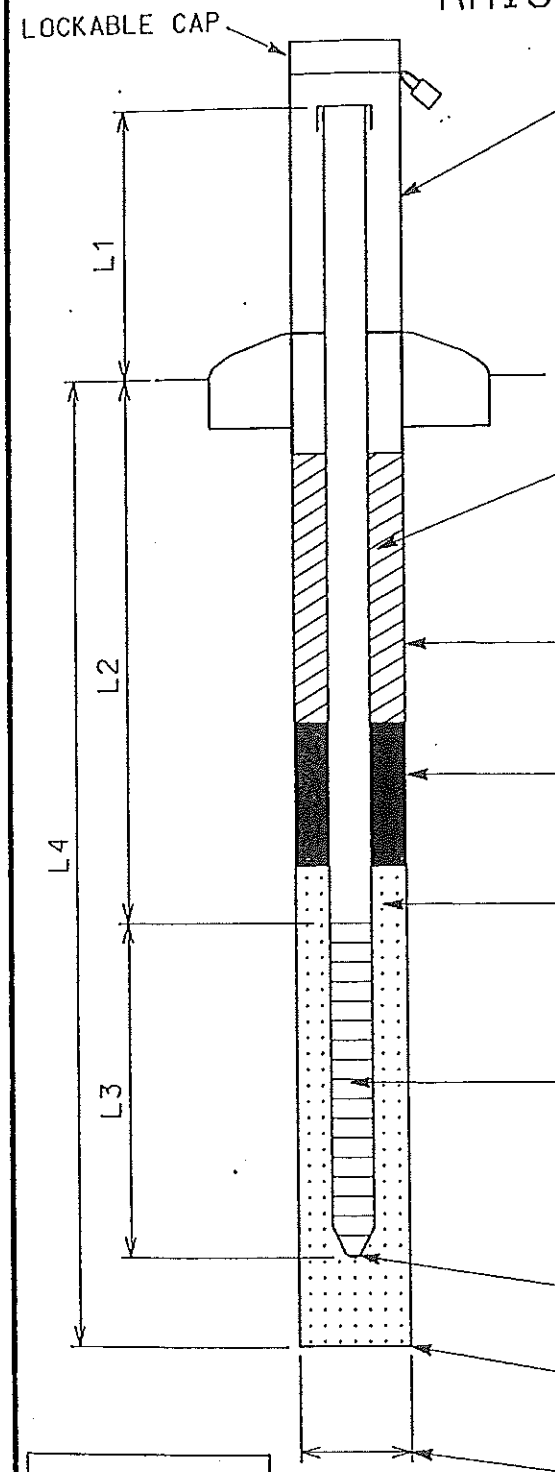
CROSS-SECTIONAL VIEW

TITLE
MONITOR WELL MW-2
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/17/94

ATEC Environmental Consultants

CAD FILE	PREP. BY	REV. BY	DATE	PROJECT NO.
	GG	KD	03/18/94	35-07-93-00130

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD

P. CASING MATERIAL	Steel
P. CASING DIAMETER	4 inch
P. CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	2.45 feet
PAD ELEVATION	641.61 feet msl
TOP OF CASING ELEVATION	643.73 feet msl

WELL RISER CASING

MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	5.15 feet

BACKFILL AROUND RISER

MATERIAL	Bentonite/Grout
THICKNESS	1 foot

ANNULAR SEAL

TYPE OF SEAL	Bentonite Chips
THICKNESS	1 foot

FILTER PACK

TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	1 foot
LENGTH	12.5 feet

WELL SCREEN

SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	10 feet
SLOT SIZE	0.010 inch

DEPTH TO BOTTOM OF MONITORING WELL	13 feet
DEPTH TO BOTTOM OF FILTER SAND	13.5 feet
DIAMETER OF BOREHOLE	10 inch

L1 = 2.12 FT.
L2 = 3 FT.
L3 = 10 FT.
L4 = 13.5 FT.

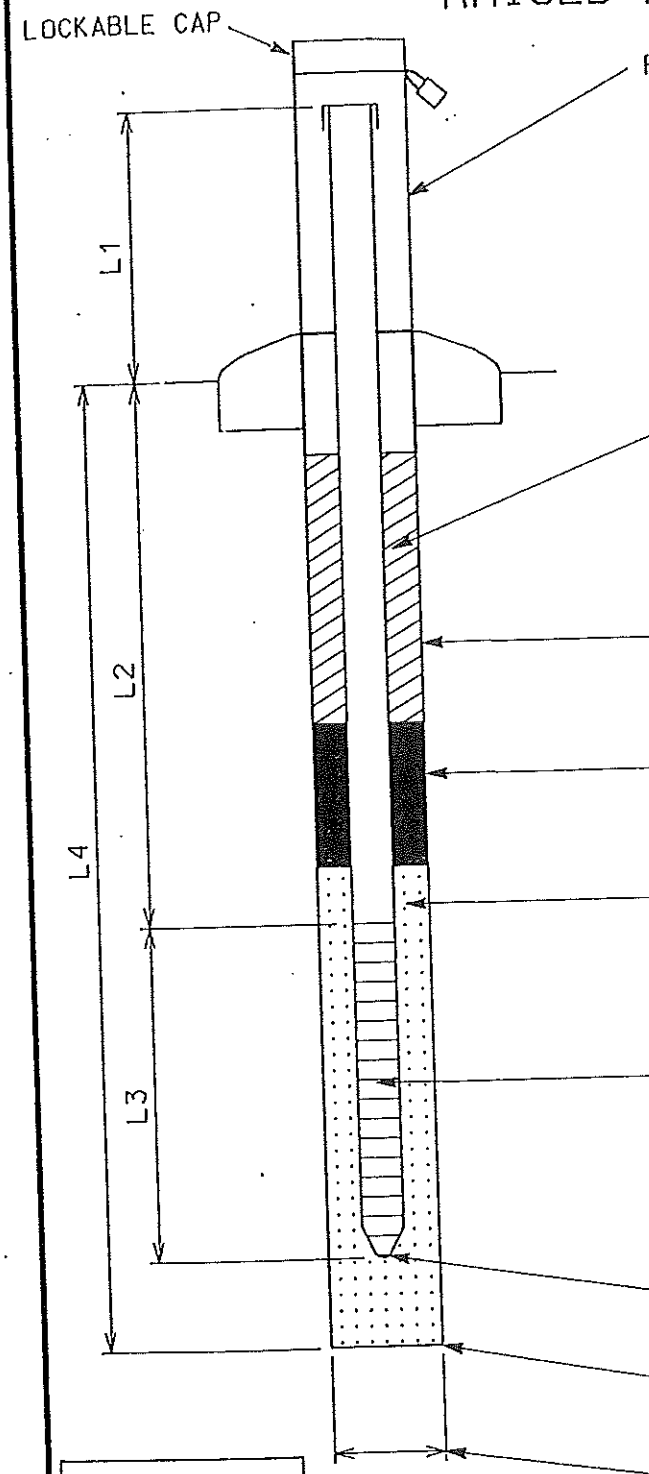
CROSS-SECTIONAL VIEW

TITLE
MONITOR WELL MW-3
GRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/08/94

ATEC Environmental Consultants

CAD FILE	PREP. BY	REV. BY	DATE	PROJECT NO.
	GG	KD	03/18/94	35-07-93-00130

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD	
P. CASING MATERIAL	Steel
P. CASING DIAMETER	4 inch
P. CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	3.67 feet
PAD ELEVATION	663.25 feet msl
TOP OF CASING ELEVATION	667.20 feet msl
WELL RISER CASING	
MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	6.67 feet
BACKFILL AROUND RISER	
MATERIAL	Bentonite/Grout
THICKNESS	0.5 feet
ANNULAR SEAL	
TYPE OF SEAL	Bentonite Pellets
THICKNESS	1 foot
FILTER PACK	
TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	0.5 feet
LENGTH	5 feet
WELL SCREEN	
SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	4 feet
SLOT SIZE	0.010 inch
DEPTH TO BOTTOM OF MONITORING WELL	7.0 feet
DEPTH TO BOTTOM OF FILTER SAND	7.5 feet
DIAMETER OF BOREHOLE	10 inch

L1 = 3.95 FT.
L2 = 3 FT.
L3 = 4 FT.
L4 = 7.5 FT.

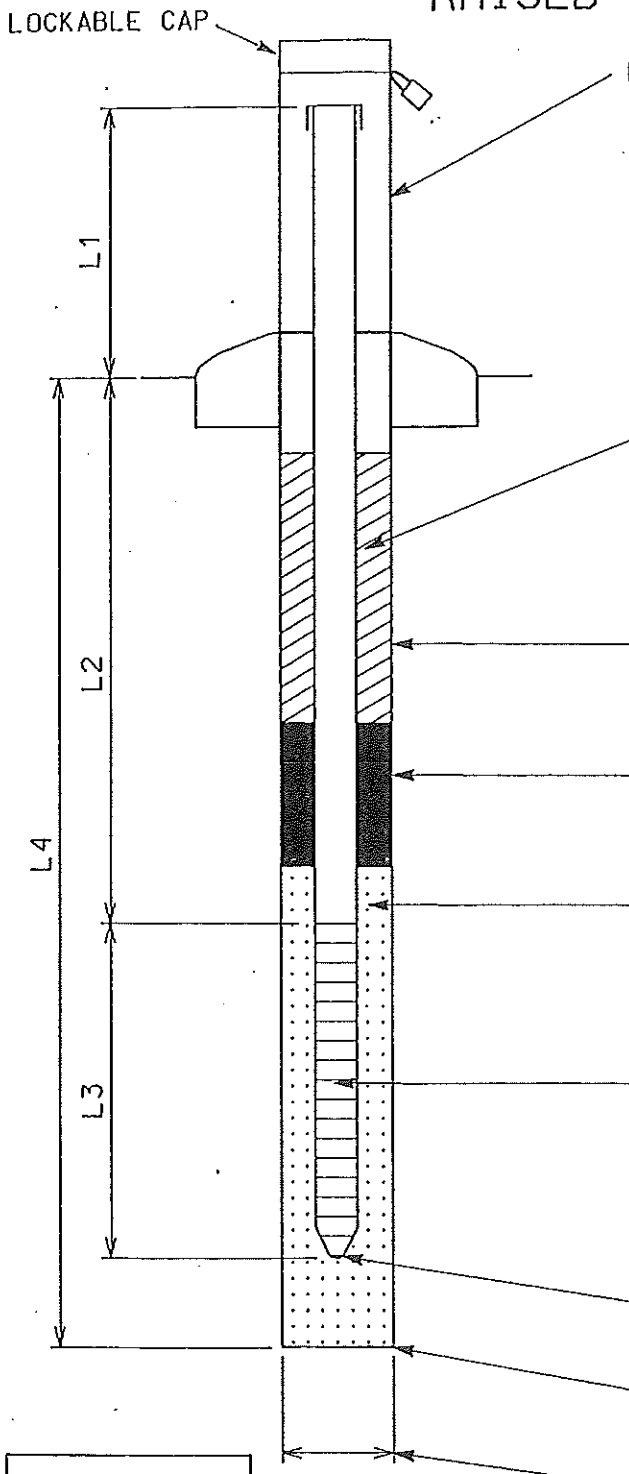
CROSS-SECTIONAL VIEW

TITLE
MONITOR WELL MW-4
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/17/94

ATEC Environmental Consultants

CAD FILE	PREP. BY	REV. BY	DATE	PROJECT NO.
	GG	KD	03/18/94	35-07-93-00130

RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD	
P. CASING MATERIAL	Steel
P. CASING DIAMETER	4 inch
P. CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	3.32 feet
PAD ELEVATION	643.90 feet msl
TOP OF CASING ELEVATION	646.88 feet msl
WELL RISER CASING	
MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	6.52 feet
BACKFILL AROUND RISER	
MATERIAL	Bentonite/Grout
THICKNESS	1.5 feet
ANNULAR SEAL	
TYPE OF SEAL	Bentonite Chips
THICKNESS	1 foot
FILTER PACK	
TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	1 foot
LENGTH	6.5 feet
WELL SCREEN	
SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	5 feet
SLOT SIZE	0.010 inch
DEPTH TO BOTTOM OF MONITORING WELL	8.5 feet
DEPTH TO BOTTOM OF FILTER SAND	8.5 feet
DIAMETER OF BOREHOLE	10 inch

L1 = 2.98 FT.
L2 = 3.5 FT.
L3 = 5 FT.
L4 = 8.5 FT.

CROSS-SECTIONAL VIEW

TITLE

MONITOR WELL MW-5
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/09/94

ATEC Environmental Consultants

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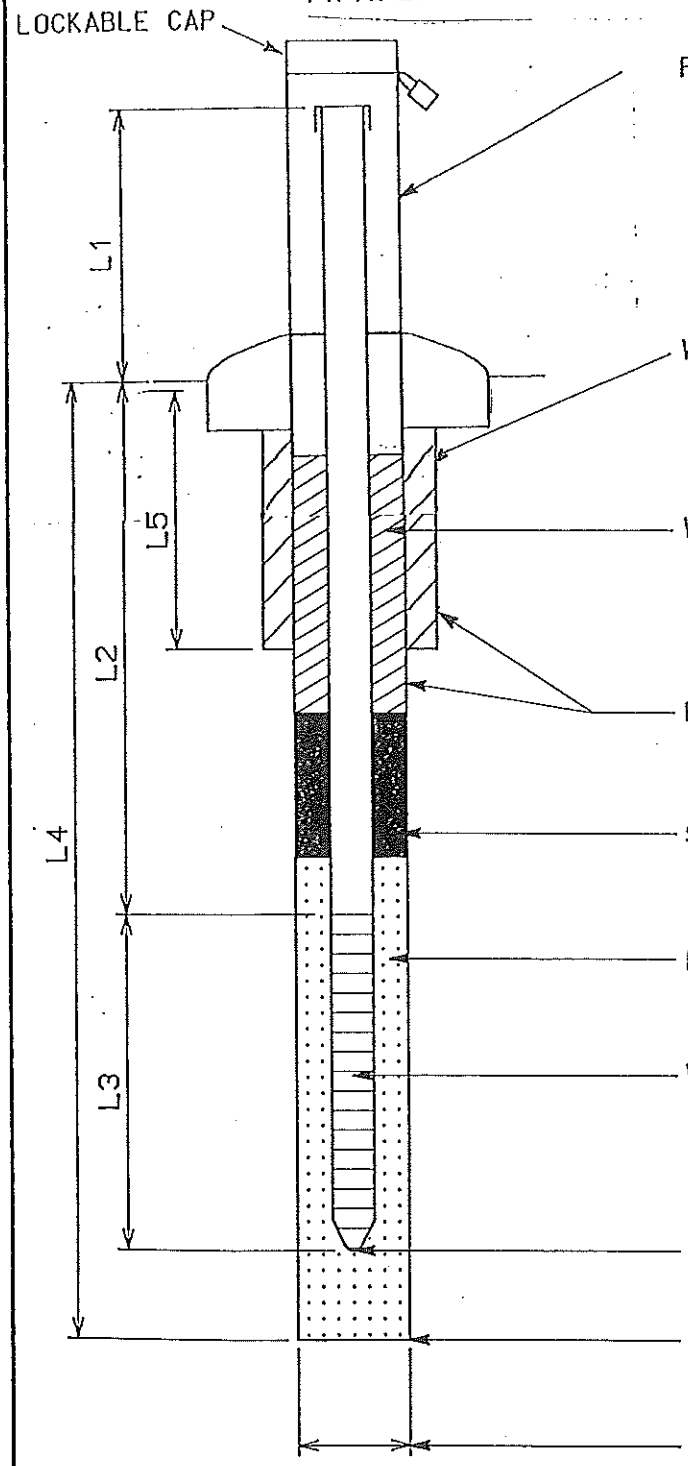
	GG	KD	03/18/94	35-07-93-00130

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD

CASING MATERIAL	Steel
CASING DIAMETER	4 inch
CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	3.08 feet
PAD ELEVATION	679.66 feet msl
TOP OF CASING ELEVATION	682.36 feet msl

WELL CASING

MATERIAL	SCH 40 PVC
DIAMETER	6 inch
JOINT TYPE	Flush Thread
LENGTH	21 feet

WELL CASING

MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	23.74 feet

BACKFILL AROUND CASING

MATERIAL	Bentonite/Grout
THICKNESS	21 feet/17 feet

SEAL

TYPE OF SEAL	Bentonite Pellets
THICKNESS	3 feet

FILTER PACK

TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	1 foot

WELL SCREEN

SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	6 feet
SLOT SIZE	0.010 inch

DEPTH TO BOTTOM OF MONITORING WELL	27 feet
DEPTH TO BOTTOM OF FILTER SAND	27.8 feet
DIAMETER OF BOREHOLE	6 inch

L1 = 2.70 FT.
L2 = 21 FT.
L3 = 6 FT.
L4 = 27.8 FT.
L5 = 21 FT.

TITLE

MONITOR WELL MW-6
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/17/94

ATEC Environmental Consultants

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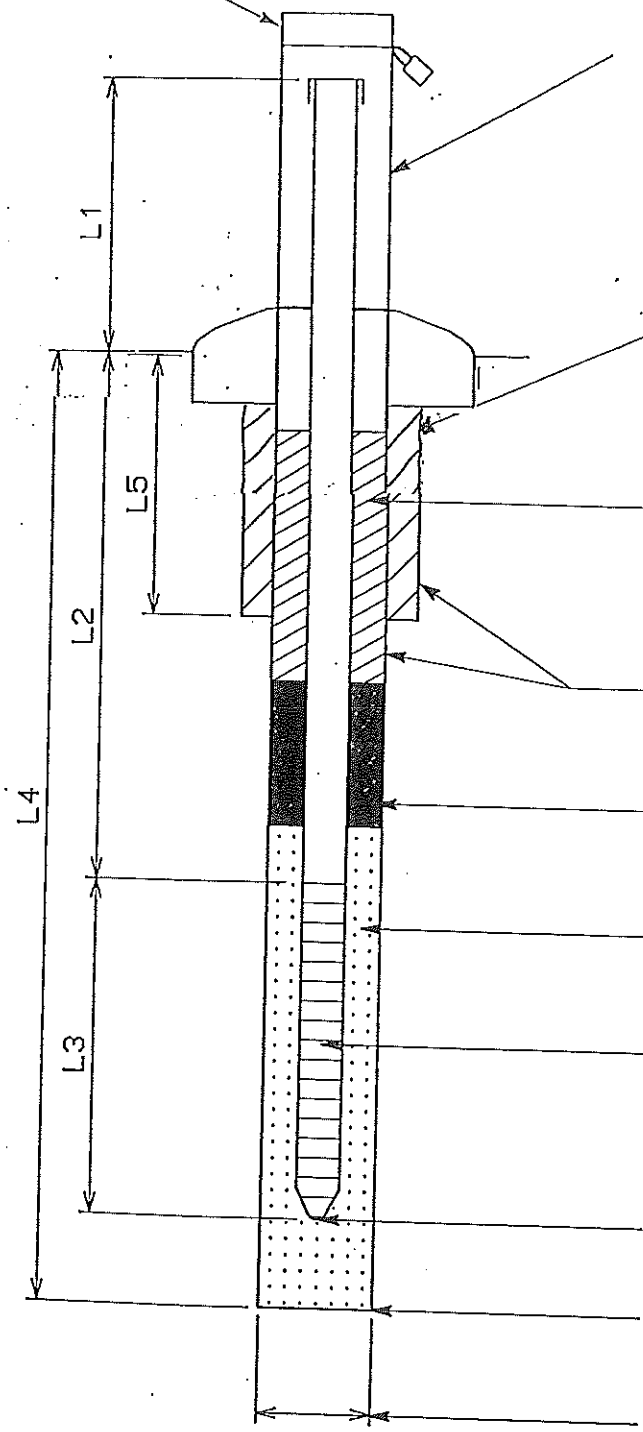
	GG	KD	03/18/94	35-07-93-00130

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD

CASING MATERIAL	Steel
CASING DIAMETER	4 inch
CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	2.5 feet
PAD ELEVATION	669.22 feet msl
TOP OF CASING ELEVATION	671.39 feet msl

WELL CASING

MATERIAL	SCH 40 PVC
DIAMETER	6 inch
JOINT TYPE	Flush Thread
LENGTH	18.5 feet

WELL CASING

MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	19.2 feet

BACKFILL AROUND CASING

MATERIAL	Bentonite/Grout
THICKNESS	18.5 feet/15 feet

SEAL

TYPE OF SEAL	Bentonite Pellets
THICKNESS	1 foot

FILTER PACK

TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	1 foot

WELL SCREEN

SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	5 feet
SLOT SIZE	0.010 inch

DEPTH TO BOTTOM OF MONITORING WELL	22 feet
DEPTH TO BOTTOM OF FILTER SAND	22 feet
DIAMETER OF BOREHOLE	6 inch

L1 =	2.17 FT.
L2 =	17 FT.
L3 =	5 FT.
L4 =	22 FT.
L5 =	18.5 FT.

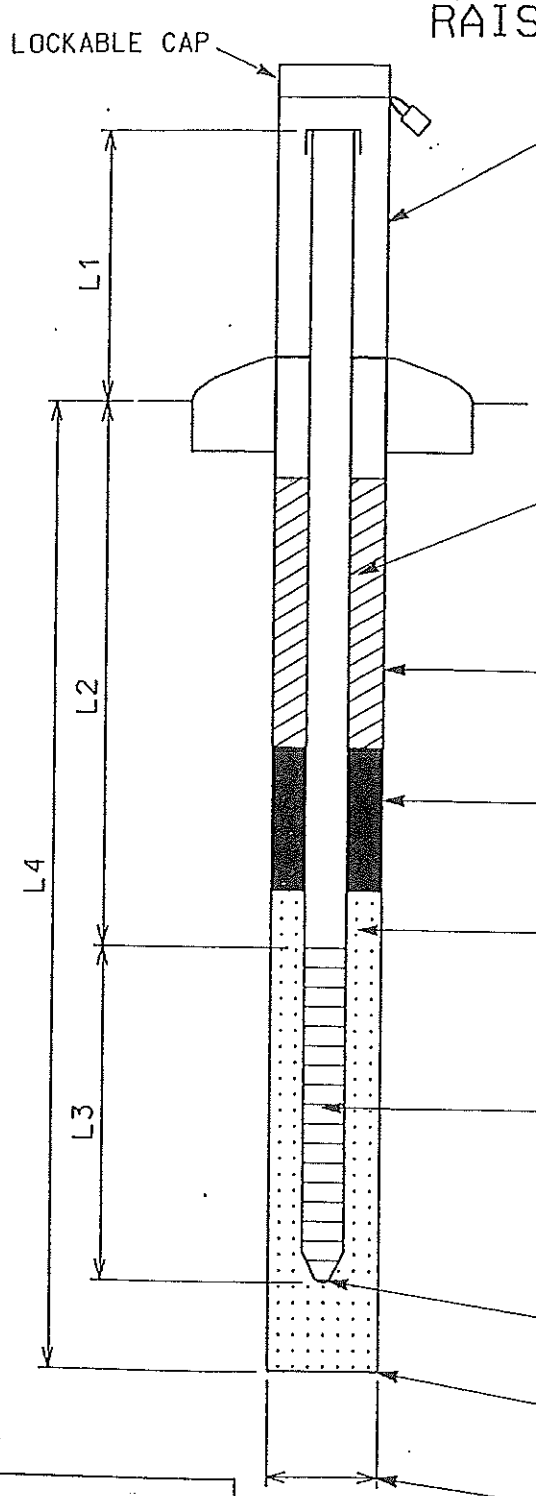
TITLE

MONITOR WELL MW-7
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/16/94

ATEC Environmental Consultants

CAD FILE	PREP. BY	REV. BY	DATE	PROJECT NO.
	GG	KD	03/18/94	35-07-93-00130

MONITORING WELL CONSTRUCTION DETAILS
RAISED PROTECTIVE CASING



PROTECTIVE CASING AND CONCRETE PAD	
P. CASING MATERIAL	Steel
P. CASING DIAMETER	4 inch
P. CASING LENGTH	5 feet
PAD DIMENSIONS	2 x 2 feet
HEIGHT ABOVE GROUND	2.62 feet
PAD ELEVATION	668.69 feet msl
TOP OF CASING ELEVATION	671.01 feet msl
WELL RISER CASING	
MATERIAL	SCH 40 PVC
DIAMETER	2 inch
JOINT TYPE	Flush Thread
LENGTH	10.2 feet
BACKFILL AROUND RISER	
MATERIAL	Bentonite/Grout
THICKNESS	5.6 feet
ANNULAR SEAL	
TYPE OF SEAL	Bentonite Chips
THICKNESS	1.4 feet
FILTER PACK	
TYPE OF FILTER	#2 Sand
DISTANCE ABOVE SCREEN	1 foot
LENGTH	16 feet
WELL SCREEN	
SCREEN MATERIAL	SCH 40 PVC
DIAMETER	2 inch
LENGTH	15 feet
SLOT SIZE	0.010 inch
DEPTH TO BOTTOM OF MONITORING WELL	23 feet
DEPTH TO BOTTOM OF FILTER SAND	23 feet
DIAMETER OF BOREHOLE	10 inch

L1 = 2.32 FT.
L2 = 8 FT.
L3 = 15 FT.
L4 = 23 FT.

CROSS-SECTIONAL VIEW

TITLE

MONITOR WELL MW-8
CRAMERTON LANDFILL
GASTON COUNTY, NORTH CAROLINA
02/02/94

ATEC Environmental Consultants

CAD FILE	PREP. BY	REV. BY	DATE	PROJECT NO.
	GG	KD	03/18/94	35-07-93-00130