ENVIRONMENT & INFRASTRUCTURE

8/22/2005

To: **Brett Gorham, COR/NYD/USACE**
From, **Rich Hamlin, Conti Environment & Infrastructure Inc.**

Contract: **DACA41-01-D-0004 Task Order 0002 & 0003.**
Former Griffiss Air Force Base, Rome NY.

Contractor: **Conti Environment & Infrastructure Inc.**
Subject: **Landfill 1 Gas Remediation Plan At The Former Griffiss Air Force Base.**

Conti Environment & Infrastructure and EA Engineering have continued to monitor gas readings monthly at landfill 1. (See Attached "Table 1")

As a result of these readings collected to date Conti Environment & Infrastructure Inc. and EA Engineering are proposing three additional, "Course of Actions" at landfill 1. (See Attached Letter)

General Summary:

- **Install a Passive Gas Collection Trench between the Northwestern perimeter of landfill 1 and the Northern property boundary.**

- **Demolition of building #853 located to the South of landfill 1.**

- **Modifications to the landfill 1 O&M and LTM Plans.**

(See Attached Letter for Details)

Thank you,

Rich Hamlin,
Project Superintendent.

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22 August 2005

Mr. Richard Hamlin
Project Superintendent
Conti Environment and Infrastructure, Inc.
153 Brooks Road
Rome, New York 13441

RE: Landfill Gas Remediation Plan at the Former Griffiss Air Force Base
EA Project No. 30002.04

Dear Mr. Hamlin:

At the request of Conti Environment and Infrastructure, Inc. (Conti), EA Engineering, P.C. and its affiliate EA Science and Technology (EA) have prepared this letter to summarize results of the ongoing gas investigations at Landfill 1 at the former Griffiss Air Force Base (Griffiss) in Rome, New York and to present a plan to address landfill gas detected at three locations around the landfill; the northern property boundary, Building #853 to the south of the landfill, and the leachate collection trench to the west of the landfill. In general, the remediation plans include the installation of a passive gas vent trench along a portion of the northern property boundary, the demolition Building #853, and the incorporation of health and safety measures into the Landfill 1 Long Term Monitoring Work Plan in order to address potential hazards related to the leachate collection trench. Each of these areas is discussed in more detail in the remainder of this letter.

I. BACKGROUND

In August 2004, FPM Group detected methane in perimeter gas probes at Landfill 1 at concentrations that exceeded the Lower Explosive Limit (LEL). Conti completed supplemental investigations in September 2004 and submitted a Mitigation Plan to the U.S. Army Corps of Engineers (USACE) in November 2004. The USACE submitted the plan to the Air Force Real Property Agency, who then forwarded it to the New York State Department of Environmental Conservation, New York State Department of Health, and U.S. Environmental Protection Agency, and the plan was subsequently approved by these agencies. In accordance with the Mitigation Plan the following activities were completed:

- Conti installed one passive gas vent and two additional probes at the northern property boundary of Landfill 1.
- Conti installed five additional probes around structures adjacent to Landfill 1.
- Conti installed turbine ventilators on the existing passive gas vents to enhance gas venting from the subsurface.

- Conti continued monthly gas monitoring from December 2004 to the present. AFRPA submitted results to the regulatory agencies on a quarterly basis.

Conti and EA have reviewed the results, which indicate methane is present in 3 probes along the northern property boundary of Landfill 1 at concentrations above 100 percent Lower Explosive Limit. The results of landfill gas monitoring are provided in Table 1. The locations of the gas monitoring points are depicted in Figure 1. The November 2004 Mitigation Plan is provided in Attachment A.

Based on the findings of these investigations, and in accordance with landfill operation requirements of 6 NYCRR Part 360-2.17 (f)(3)(ii), Conti and EA present the following plan to address methane gas at Landfill 1.

II. PASSIVE GAS COLLECTION TRENCH

A. Trench Construction

Conti will install a passive gas vent trench between the northwestern perimeter of Landfill 1 and the northern property boundary. Conti will excavate the trench to a minimum of 2-ft wide and 665-ft long and to a maximum depth of the observed groundwater elevation. To reduce the potential of soil gas migration beyond the trench, Conti will install a low density polyethylene geomembrane material along the outside (property line side) trench wall. Conti will install vertical vent pipes inside the trench at a spacing of 95 ft laterally to a height of 4 ft above the surface. The depth of the pipe will vary based on the observed field conditions. The vertical pipes will consist of 6-in. perforated Schedule 40 polyvinyl chloride pipe and be fitted with vent turbines equivalent to the existing passive gas vents.

The trench will be backfilled with New York State Department of Transportation No. 2 stone to a depth of 12 in. below the existing surface. Conti will install a geotextile fabric along the finished stone surface and place 12 in. of topsoil material over the geotextile to the existing ground surface. Conti will grade the final surface to the existing elevations and hydroseed the final surface. The location of the new trench and passive gas vents are depicted in Figure 2 and a detail of the new trench construction is depicted in Figure 3.

B. Long-Term Monitoring Work Plan

EA and Conti will install three additional gas probes between the new gas vent trench and the property boundary. These additional gas probes will be installed in accordance with the Landfill 1 Closure Plan (EA 2002). The locations of new gas probes are depicted in Figure 2 and a probe detail is provided in Figure 3. The as-built probe locations will be recorded during construction.

Following completion of the passive gas vent trench and probes, EA and Conti recommend that the new passive gas vents and gas probes be included in the Long-Term Monitoring Work Plan for Landfill 1.

III. BUILDING DEMOLITION

A. Building #853

In accordance with 6 NYCRR Part 360 Section 360-2.17 (f), landfill gas must be controlled to avoid hazards to health, safety, or property. Results of the on-going gas investigation indicate that methane has been detected at the perimeter of Building #853, which is an unoccupied structure adjacent to Landfill 1. In order to eliminate the potential for landfill gas to concentrate in this structure, Conti will demolish Building #853 and remove the demolition materials from the site. The demolition will include removal of the existing structure, the foundation, and any utilities. Conti will remove the building foundation to a depth of 12 inches below the existing grade. Following the demolition activities, Conti will backfill the excavation and will restore the disturbed areas. Conti will dispose of and/or recycle building materials in accordance with local, state, and federal regulations.

B. Long-Term Monitoring Work Plan

Following the building demolition, Conti will maintain perimeter gas probes LF1GMP-13, LF1GMP-14, and LF1GMP-15, which were installed as part of the November 2004 Mitigation Plan. EA and Conti recommend that the new probes are included in the Long-Term Monitoring Work Plan for Landfill 1. The location of Building #853 and the existing probes are depicted in Figure 4.

IV. IDENTIFICATION OF POTENTIAL HAZARDS

A. Recommended Monitoring of Surrounding Structures and Utilities

In 2003, Conti constructed components of a leachate collection system on the west side of Landfill 1. These facilities include a leachate collection trench, treatment building, pump station manholes, pump station cleanouts and underground utilities. These facilities could potentially collect or convey landfill gases associated with Landfill 1. EA and Conti recommend that potential health and safety hazards related to explosive gases be considered for any future work at the site. In addition to standard health and safety programs, EA and Conti recommend the Long Term Maintenance Contractor include the following in their health and safety plan:

- Monitoring of ambient air for explosive gases inside the treatment building both quarterly and before any planned occupation.

- Monitoring of ambient air for explosive gases prior to confined space entry to the leachate trench manholes, if required.

- Monitoring of explosive gas inside pump station manholes, cleanouts and utility conduits before sampling events or activation of electrical components.

The location of the leachate building, manholes and utilities is depicted in Figure 5.

V. SUMMARY

In summary, Conti and EA present the following remediation plan for Landfill 1:

- Conti will install a passive gas vent trench between the northwestern landfill perimeter and the northern property boundary as depicted in Figure 2.
- Conti will install three additional gas probes at the property boundary of Landfill 1 as presented on Figure 2.
- EA and Conti recommend that additional passive gas vents and gas probes installed as part of this Remediation Plan be included in the Long-Term Monitoring Work Plan.
- Conti will demolish Building #853 adjacent to Landfill 1.
- EA and Conti recommend that the three gas probes adjacent to Building #853 are included in the Long-Term Monitoring Work Plan.
- Conti and EA recommend incorporating gas monitoring around existing structures and utilities associated with the leachate trench to the west of the landfill into the long-term maintenance contractor's health and safety plan in order to address potential safety and health hazards.
- Conti and EA recommend updating the Landfill 1 Post-Closure Operations and Maintenance Manual to include the modifications suggested in this letter and references to the Long-Term Monitoring Work Plan.

If you have any questions or require additional information, please do not hesitate to contact me at (315) 431-4610.

Sincerely,

EA ENGINEERING, P.C.

Christopher J. Canonica, P.E.
Vice President/Senior Engineer

CJC/mkp

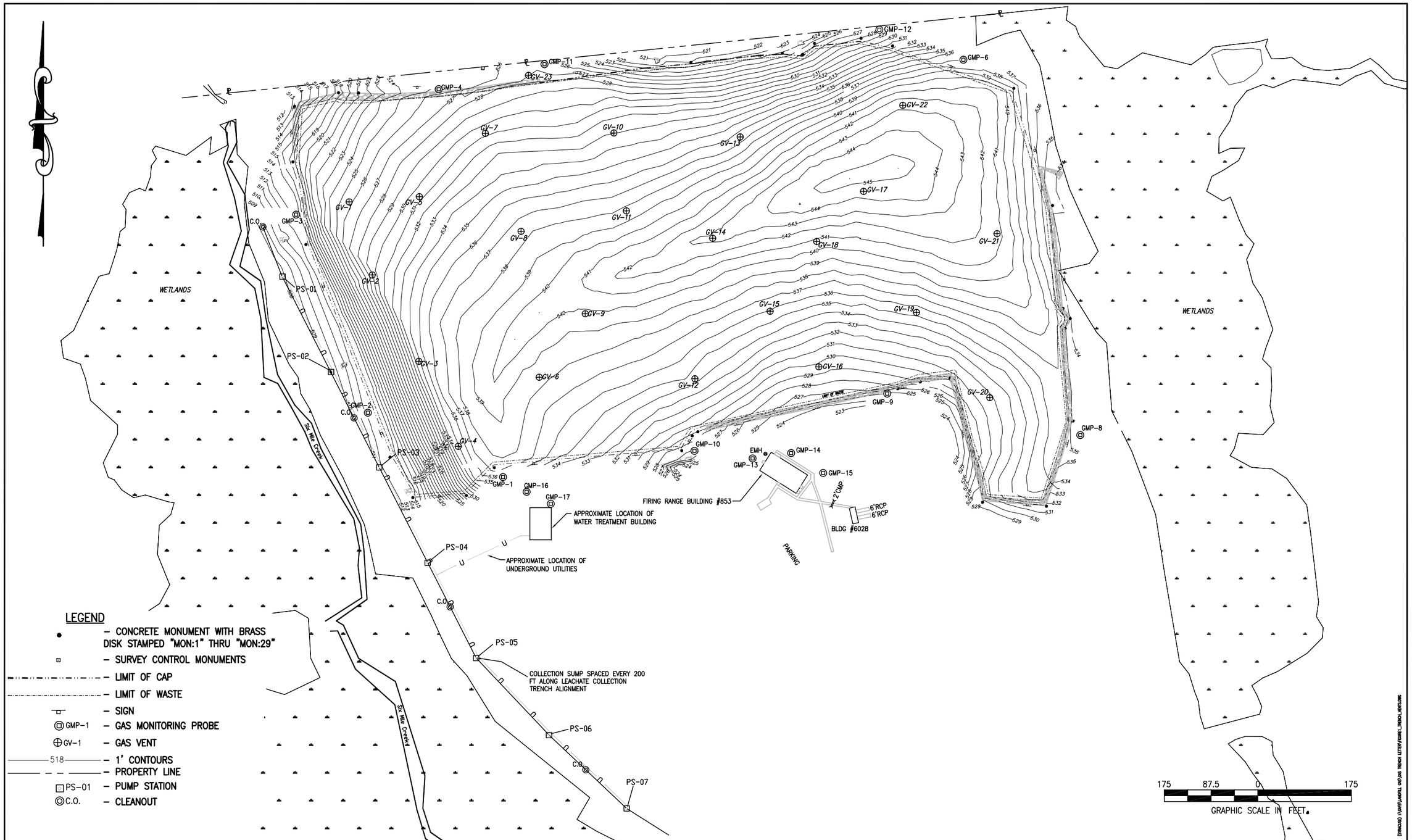
TABLE 1 GAS MONITORING RESULTS, LANDFILL 1
FORMER GRIFFISS AIR FORCE BASE, ROME, NEW YORK

Sample Location	16 DEC 2004				17 JAN 2005				17 FEB 2005			
	Barometric Pressure (in.) = 29.73				Barometric Pressure (in.) = 29.77				Barometric Pressure (in.) = 29.34			
	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)
LF1GMP-01	>100	98.4	1.6	0.0	>100	98.8	0.4	0.8	>100	99.8	0.2	0.0
LF1GMP-02	>100	52.1	0.0	25.2	>100	46.6	0.2	21.4	>100	40.2	0.2	22.4
LF1GMP-03	>100	54.1	0.0	37.1	>100	40.8	0.4	30.8	>100	30.2	0.2	31.0
LF1GMP-04	>100	34.2	4.7	21.5	>100	61.4	0.4	38.0	>100	60.4	0.5	39.1
LF1GMP-06	>100	77.6	0.0	3.9	>100	62.8	0.8	2.6	>100	69.0	0.5	2.7
LF1GMP-08	10	0.5	20.9	0.0	0	0.0	5.5	11.0	0	0.0	6.7	9.8
LF1GMP-09	>100	41.4	0.2	19.2	>100	38.6	1.7	14.9	>100	47.2	0.0	18.2
LF1GMP-10	>100	33.9	0.0	29.3	>100	26.4	0.2	21.8	>100	24.0	0.1	24.1
LF1GMP-11	>100	18.1	0.0	19.6	>100	8.8	0.3	17.2	>100	7.9	0.1	18.8
LF1GMP-12	4	0.2	18.7	2.5	0	0.0	19.3	1.7	0	0.0	19.0	1.8
LF1GMP-13	10	0.5	15.8	0.3	0	0.0	16.2	1.0	0	0.0	16.4	1.2
LF1GMP-14	4	0.2	17.3	0.4	0	0.0	18.1	0.2	0	0.0	18.6	0.2
LF1GMP-15	4	0.2	19.1	0.8	0	0.0	19.3	0.3	0	0.0	20.1	0.2
LF1GMP-16	0	0.0	17.6	2.6	0	0.0	17.6	2.2	0	0.0	17.7	2.3
LF1GMP-17	0	0.0	18.3	1.7	0	0.0	18.3	1.4	0	0.0	18.6	1.4
LF1GV-01	>100	14.4	0.1	17.3	>100	9.4	12.7	9.0	62	3.1	14.4	6.5
LF1GV-02	>100	13.8	1.0	20.2	>100	9.0	10.5	12.0	56	2.8	10.3	9.2
LF1GV-03	50	2.5	3.6	11.3	10	0.5	18.6	1.6	2	0.1	15.8	3.3
LF1GV-04	>100	11.5	1.9	18.5	62	3.1	15.9	5.5	4	0.2	15.5	4.0
LF1GV-05	>100	20.4	0.0	23.0	>100	13.5	10.4	12.7	88	4.4	11.0	8.6
LF1GV-06	>100	16.8	0.0	23.3	>100	21.1	1.5	20.7	16	0.8	6.1	12.4
LF1GV-07	>100	19.0	0.1	24.4	>100	20.3	5.6	18.9	>100	9.9	10.9	12.9
LF1GV-08	>100	26.7	0.1	23.1	>100	21.2	3.5	18.6	64	3.2	5.8	12.7
LF1GV-09	>100	6.4	1.9	14.6	>100	20.1	4.2	14.9	64	3.2	14.9	5.8
LF1GV-10	>100	17.1	1.3	22.8	>100	16.5	5.6	18.6	48	2.4	10.7	9.3
LF1GV-11	>100	17.0	0.7	16.1	>100	14.6	10.3	10.7	46	2.3	16.6	3.3
LF1GV-12	>100	12.7	1.2	20.2	>100	18.4	2.6	18.3	12	0.6	12.1	6.6
LF1GV-13	>100	21.9	1.2	27.5	>100	16.9	1.4	20.4	>100	10.3	1.1	20.1
LF1GV-14	>100	27.4	1.1	19.3	>100	26.6	4.9	15.0	>100	11.3	12.1	8.4
LF1GV-15	>100	7.1	0.8	14.3	>100	9.5	6.4	10.9	24	1.2	13.9	5.2
LF1GV-16	68	3.4	5.2	8.2	80	4.0	8.9	7.1	0	0.0	16.6	3.0
LF1GV-17	>100	14.9	5.2	14.2	>100	25.1	6.1	12.5	>100	19.1	9.9	12.1
LF1GV-18	>100	29.0	0.8	22.6	>100	27.2	4.4	15.7	>100	16.1	7.4	12.9
LF1GV-19	>100	9.1	0.2	16.3	>100	12.6	6.1	12.5	46	2.3	11.4	7.9
LF1GV-20	>100	14.8	1.8	15.9	>100	12.5	5.5	11.7	72	3.6	13.8	4.6
LF1GV-21	>100	34.2	0.8	18.0	>100	37.6	1.9	14.0	>100	26.9	2.6	13.2
LF1GV-22	>100	23.6	1.1	19.4	>100	24.8	2.5	16.1	>100	16.2	6.2	14.1
LF1GV-23	16	0.8	15.9	2.1	2	0.1	20.2	0.4	2	0.1	17.8	1.6

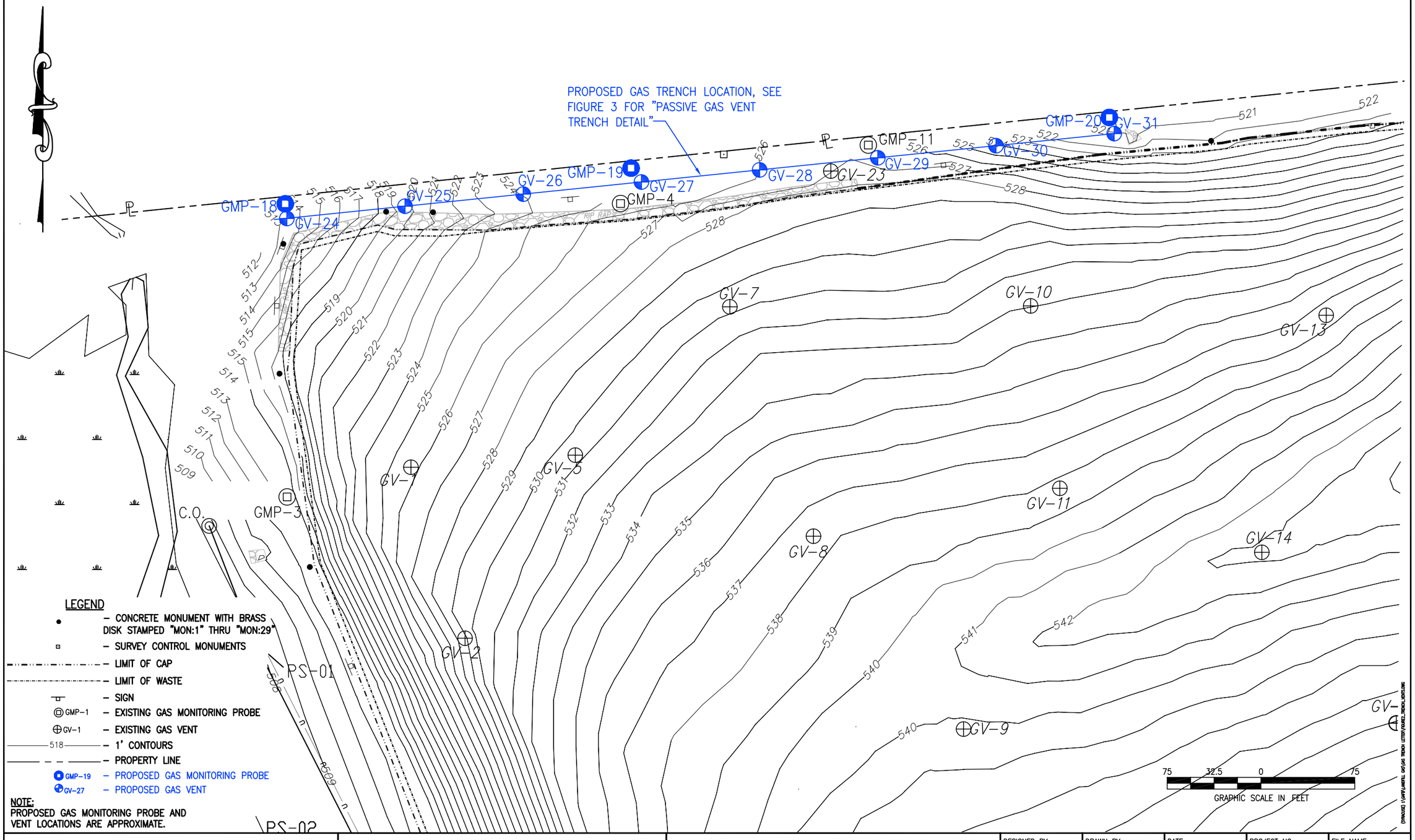
NOTE: LEL = Lower Explosive Limit.

Sample Location	24 MAR 2005 Barometric Pressure (in.) = 30.00				28 APR 2005 Barometric Pressure (in.) = 29.28			
	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)
LF1GMP-01	0	0.0	21.0	0.0	>100	52.1	4.2	26.8
LF1GMP-02	>100	32.5	0.8	21.5	>100	24.8	6.2	17.7
LF1GMP-03	>100	25.1	0.6	30.1	>100	27.2	0.5	30.3
LF1GMP-04	>100	59.5	0.4	40.1	>100	57.5	0.5	36.7
LF1GMP-06	>100	62.5	0.5	2.2	>100	65.5	0.8	2.5
LF1GMP-08	0	0.0	11.6	6.6	0	0.0	4.7	11.4
LF1GMP-09	>100	44.3	0.8	17.0	>100	32.3	2.2	17.5
LF1GMP-10	>100	18.4	0.2	22.4	>100	16.6	2.1	23.2
LF1GMP-11	>100	5.9	1.0	19.0	>100	9.0	0.7	19.1
LF1GMP-12	0	0.0	18.4	2.2	0	0.0	19.4	1.5
LF1GMP-13	0	0.0	15.7	1.5	0	0.0	16.6	1.9
LF1GMP-14	0	0.0	18.4	0.3	2	0.1	19.1	0.5
LF1GMP-15	0	0.0	20.0	0.0	2	0.1	19.5	0.4
LF1GMP-16	0	0.0	17.3	2.4	0	0.0	17.8	2.9
LF1GMP-17	0	0.0	18.7	1.3	0	0.0	18.7	1.5
LF1GV-01	12	0.6	20.2	0.9	>100	6.6	14.2	9.9
LF1GV-02	10	0.5	19.9	1.0	46	2.3	15.2	7.1
LF1GV-03	0	0.0	21.0	0.0	2	0.1	21.0	0.0
LF1GV-04	0	0.0	21.0	0.0	4	0.2	21.0	0.0
LF1GV-05	4	0.2	20.8	0.3	>100	5.3	16.0	7.6
LF1GV-06	0	0.0	21.2	0.0	16	0.8	13.5	7.2
LF1GV-07	4	0.2	21.0	0.2	>100	5.0	16.9	7.1
LF1GV-08	0	0.0	21.0	0.0	20	1.5	15.0	5.2
LF1GV-09	0	0.0	21.1	0.0	>100	7.1	11.9	9.8
LF1GV-10	0	0.0	21.1	0.0	0	0.0	20.4	0.9
LF1GV-11	0	0.0	21.2	0.0	48	2.4	18.3	3.1
LF1GV-12	0	0.0	21.2	0.0	6	0.3	17.3	3.6
LF1GV-13	0	0.0	21.1	0.0	14	0.7	17.3	3.5
LF1GV-14	0	0.0	21.3	0.0	14	0.7	20.1	0.6
LF1GV-15	0	0.0	20.9	0.0	54	2.7	9.6	9.6
LF1GV-16	0	0.0	19.5	0.9	0	0.0	20.9	0.0
LF1GV-17	80	4.0	18.8	2.2	46	2.3	19.5	1.4
LF1GV-18	18	0.9	19.9	1.0	14	0.7	20.1	0.7
LF1GV-19	4	0.2	18.9	1.5	0	0.0	21.0	0.0
LF1GV-20	0	0.0	20.8	0.2	8	0.4	20.1	0.7
LF1GV-21	46	2.3	19.7	0.9	70	3.5	19.0	1.7
LF1GV-22	>100	5.1	18.2	3.0	36	1.8	19.5	1.3
LF1GV-23	0	0.0	21.1	0.0	0	0.0	20.0	0.6

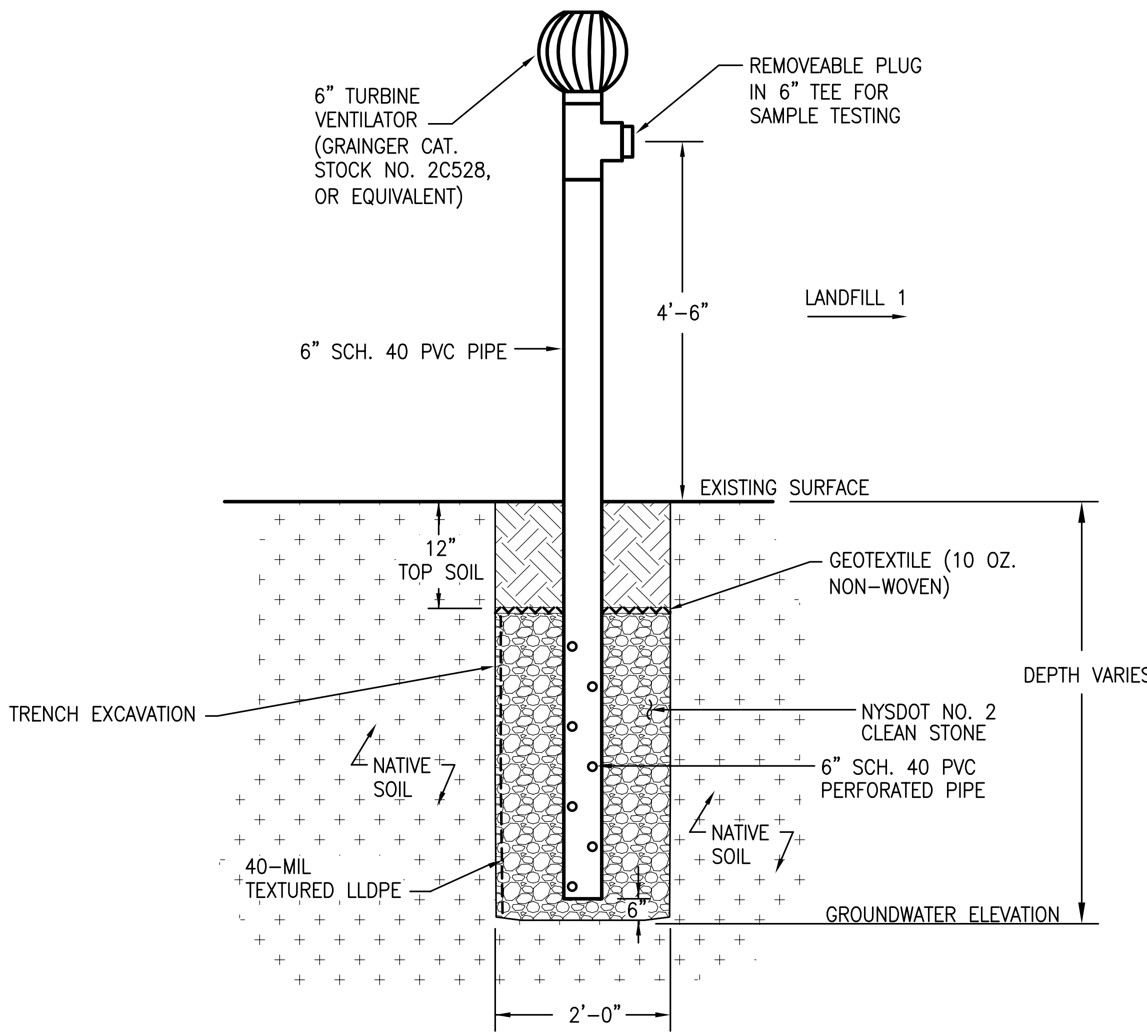
Sample Location	26 MAY 2005 Barometric Pressure (in.) = 29.23				23 JUN 2005 Barometric Pressure (in.) = 29.61			
	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)
LF1GMP-01	>100	67.5	0.6	26.5	>100	74.4	0.9	24.2
LF1GMP-02	>100	33.5	1.0	21.0	>100	34.8	1.1	27.5
LF1GMP-03	>100	30.8	0.4	30.1	>100	37.0	1.1	40.4
LF1GMP-04	>100	54.5	0.9	35.6	>100	52.1	1.7	44.2
LF1GMP-06	>100	64.5	0.7	3.5	>100	63.1	1.2	4.4
LF1GMP-08	0	0.0	11.2	7.5	0	0.0	11.7	7.4
LF1GMP-09	>100	38.9	0.8	19.2	>100	35.3	1.2	24.1
LF1GMP-10	>100	17.3	1.6	24.3	>100	14.4	2.9	24.5
LF1GMP-11	>100	6.6	0.7	20.1	>100	11.5	1.2	23.2
LF1GMP-12	0	0.0	19.6	1.6	0	0.0	18.8	2.2
LF1GMP-13	0	0.0	18.9	1.5	0	0.0	19.1	1.1
LF1GMP-14	0	0.0	20.2	0.5	0	0.0	19.9	0.5
LF1GMP-15	2	0.1	19.8	0.4	0	0.0	20.0	0.5
LF1GMP-16	0	0.0	18.2	2.7	0	0.0	17.8	2.8
LF1GMP-17	0	0.0	18.4	1.8	0	0.0	17.9	2.5
LF1GV-01	>100	17.9	12.1	14.4	>100	21.3	1.0	31.9
LF1GV-02	>100	24.1	9.6	17.4	>100	21.3	1.2	30.0
LF1GV-03	>100	36.1	0.3	30.4	>100	8.4	2.4	22.0
LF1GV-04	>100	26.6	5.1	23.6	>100	8.0	6.2	20.1
LF1GV-05	>100	28.2	6.2	23.9	>100	22.1	1.0	31.4
LF1GV-06	>100	35.4	0.8	30.4	>100	10.0	1.3	23.0
LF1GV-07	>100	26.1	8.4	21.6	>100	24.3	1.0	34.1
LF1GV-08	>100	37.0	1.8	26.4	>100	15.1	1.1	23.6
LF1GV-09	>100	35.2	4.2	23.9	>100	8.1	1.5	22.2
LF1GV-10	>100	5.3	17.5	4.5	>100	15.7	3.8	23.8
LF1GV-11	>100	5.8	17.9	3.6	>100	14.8	2.0	21.9
LF1GV-12	>100	32.1	1.7	30.3	>100	8.6	1.5	22.4
LF1GV-13	>100	25.9	2.7	23.5	>100	20.6	1.0	26.2
LF1GV-14	>100	31.2	6.2	19.8	>100	30.7	4.2	27.5
LF1GV-15	>100	17.4	5.8	17.5	>100	16.0	6.6	20.2
LF1GV-16	50	2.5	2.7	14.6	18	0.9	6.7	13.5
LF1GV-17	>100	26.6	9.6	15.5	>100	32.5	5.3	26.2
LF1GV-18	>100	22.1	9.7	15.4	>100	22.1	7.4	20.7
LF1GV-19	>100	17.4	1.7	20.3	>100	12.3	2.8	22.3
LF1GV-20	>100	8.2	13.5	7.1	>100	10.3	6.2	15.4
LF1GV-21	>100	43.1	3.6	18.4	>100	24.8	7.5	15.4
LF1GV-22	>100	34.5	5.2	20.8	>100	27.8	0.9	25.8
LF1GV-23	48	2.4	15.3	6.1	42	2.1	14.9	6.2



EA®	LANDFILL 1 FORMER GRIFFISS AIR FORCE BASE ROME, NEW YORK	FIGURE 1 EXISTING SITE PLAN	DESIGNED BY WAS	DRAWN BY WEL	DATE 8-2-05	PROJECT NO. 30002.04	FILE NAME –
			CHECKED BY DE	PROJECT MGR. CC	SCALE 1" = 175'	DRAWING NO. –	FIGURE 1



EA®	LANDFILL 1 FORMER GRIFFISS AIR FORCE BASE ROME, NEW YORK	FIGURE 2 PROPOSED GAS TRENCH/VENTS AND GAS PROBES LOCATIONS PLAN	DESIGNED BY WAS	DRAWN BY WEL	DATE 8-2-05	PROJECT NO. 30002.04	FILE NAME –
			CHECKED BY DE	PROJECT MGR. CC	SCALE 1" = 75'	DRAWING NO. –	FIGURE 2



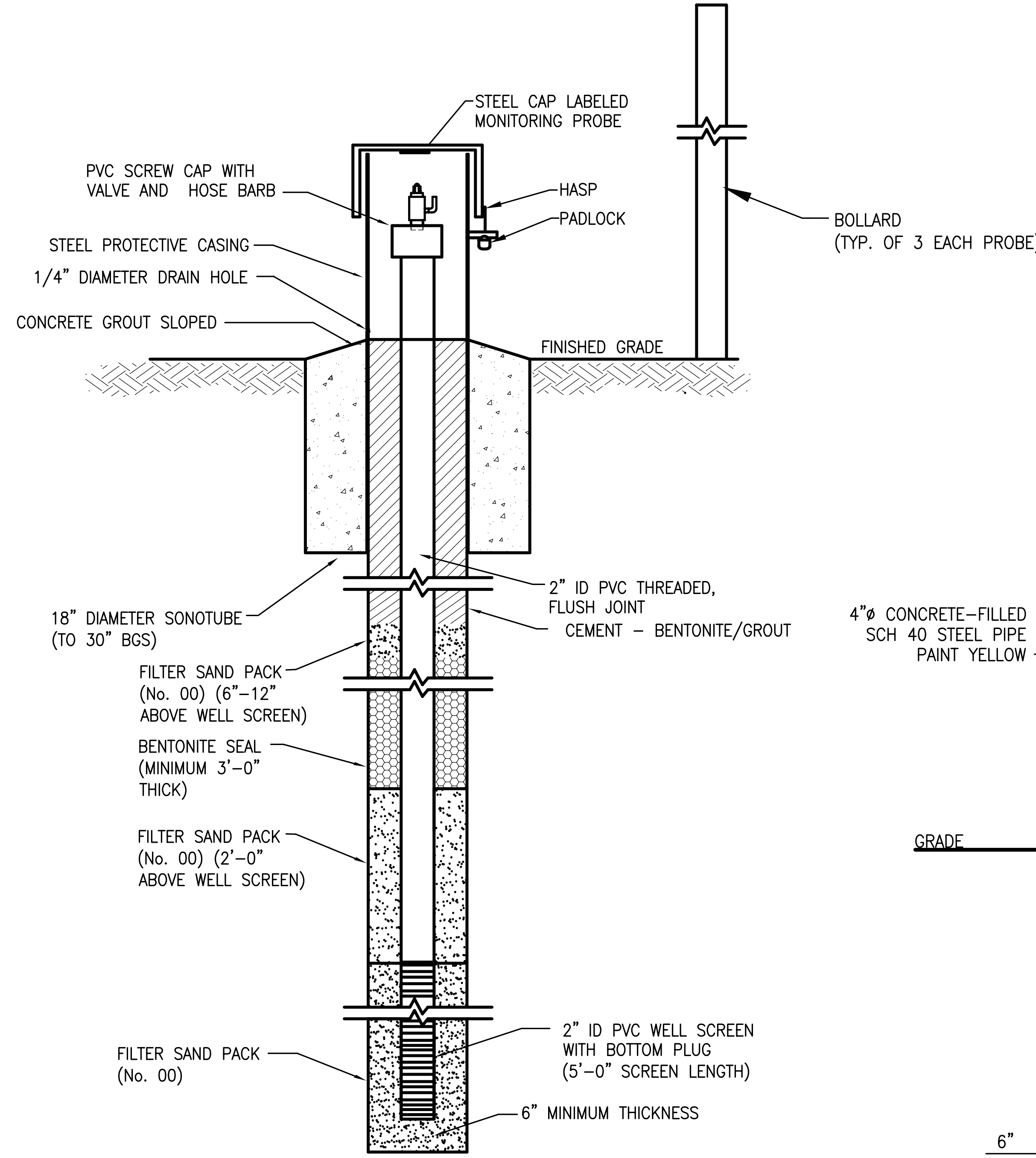
NOTES:

1. GAS VENT TRENCH EXCAVATION TO BE APPROXIMATELY 665' LONG AND DEPTH TO GROUNDWATER.

2. GAS VENT RISERS TO BE INSTALLED APPROXIMATELY 95' ON CENTER ALONG TRENCH CONSTRUCTION. SEE FIGURE 2 FOR GAS VENTS AND TRENCH LOCATIONS.

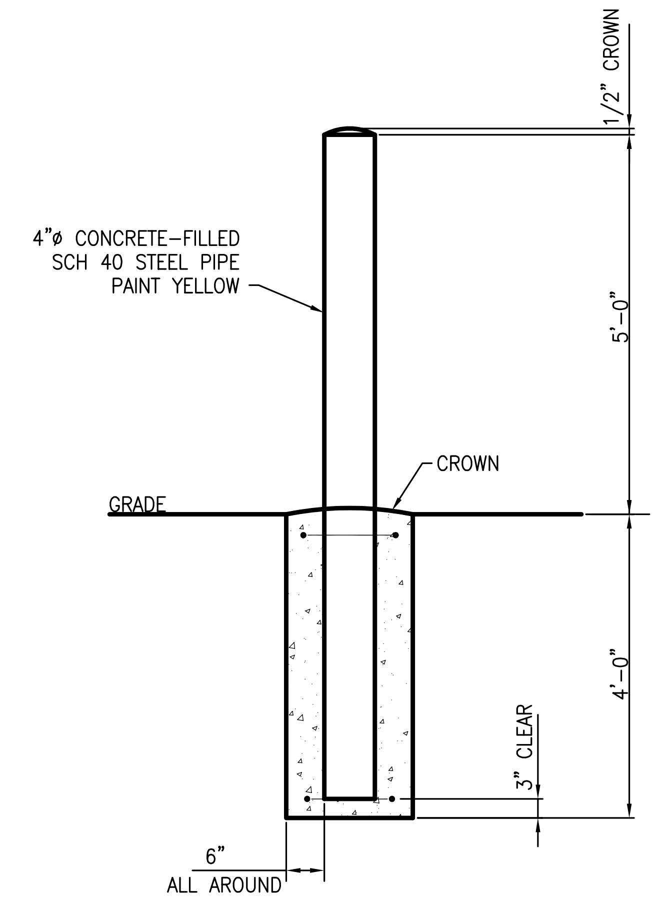
PASSIVE GAS VENT TRENCH DETAIL

NOT TO SCALE



GAS MONITORING PROBE DETAIL

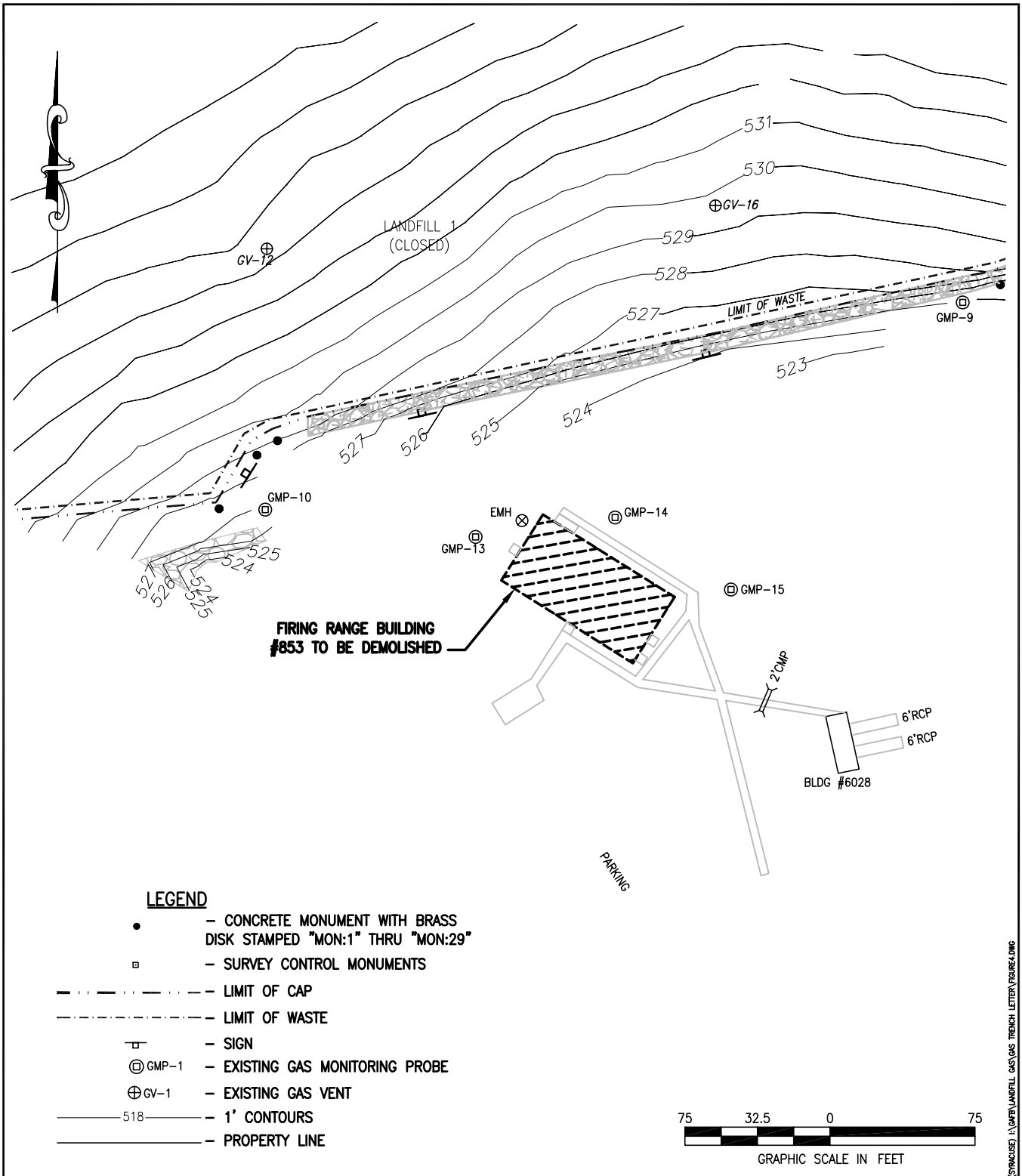
NOT TO SCALE



BOLLARD DETAIL

NOT TO SCALE

EA®	LANDFILL 1 FORMER GRIFFISS AIR FORCE BASE ROME, NEW YORK	FIGURE 3 DETAILS	DESIGNED BY WAS	DRAWN BY WEL	DATE 8-2-05	PROJECT NO. 30002.04	FILE NAME –
			CHECKED BY DE	PROJECT MGR. CC	SCALE AS NOTED	DRAWING NO. –	FIGURE 3



	LANDFILL 1 FORMER GRIFFISS AIR FORCE BASE ROME, NEW YORK	FIGURE 4 EXISTING SITE PLAN DETAIL

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT NO	FIGURE
CC	WAS	WEL	DE	1" = 75'	8-2-05	30002.04	4

LEGEND:

- Rich Sloping Fen
- USACE/NYSDEC RO-48 Wetlands
- Engineered Seep Locations
- Piezometer Locations
- Pump Station Locations
- Monitoring Well Locations
- Steam Gauge Locations
- Landfill Area

Six Mile Creek

C.O.

PS-01

LANDFILL 1
(CLOSED)

PS-02

PZ-1

PZ-2

PZ-3

C.O.

Six Mile Creek

PS-03

LF1MW-6

PS-04

APPROXIMATE LOCATION OF
TREATMENT BUILDING

LF1P-2

C.O.

PS-05

LF1MW-5

LF1P-5

Six Mile Creek

COLLECTION SUMP SPACED
EVERY 200 FT ALONG LEACHATE
COLLECTION TRENCH ALIGNMENT

PZ-4

PS-06

PZ-5

PZ-6

C.O.

PS-07

LF1P-3

100 0 50 100

APPROXIMATE SCALE (FT)

	LANDFILL 1 FORMER GRIFFISS AIR FORCE BASE ROME, NEW YORK				FIGURE 5 EXISTING LEACHATE COLLECTION SYSTEM		
PROJECT MGR: CJC	DESIGNED BY: WAS	DRAWN BY: WEL	CHECKED BY: DE	SCALE: AS SHOWN	DATE: 8-2-05	PROJECT NO: 30002.04	FILE NO: Figure5.DWG

Attachment A

Mitigation Plan Letter

ENVIRONMENT & INFRASTRUCTURE

11/15/2004

To: Brett Gorham, COR/NYD/USACE
From: Rich Hamlin, Project Superintendent Conti Environment & Infrastructure, Inc.

Contract #, DACA41-01-D-0004 Task Order 0003.
Former Griffiss Air Force Base
Contractor, Conti Environment & Infrastructure, Inc.
Subject: Landfills 1 Gas Monitoring

Conti Environment & Infrastructure and EA Engineering have reviewed the initial gas monitoring results from landfill 1 generated by the FPM Group and verified their results. Based on those findings seven additional gas monitoring probes were installed to determine if action would be required for compliance to 6 NYCRR Part 360 Section 360-2.17(f). The attached text and figures describe the locations and testing results of the additional gas monitoring probes as well as a course of recommended action to help reduce the gas concentrations.

Conti is currently moving forward with implementing all of the actions identified in the attached text to help prevent the migration of gases onto the adjacent property. In addition to the attached recommendations additional signage will be installed around the perimeter of the landfill that reads "NO SMOKING, MATCHES OR OPEN LIGHTS)"

CC: Joe Wojnas, USACE

Conti Environment & Infrastructure, Inc. 678 Perimeter Rd., Rome, NY 13441
(315) 336-9474 – Telephone (315) 336-9478– Fax

EA Engineering, P.C. and Its Affiliate
EA Science and Technology

6731 Collamer Road, Suite 2
East Syracuse, New York 13057-9808
Telephone: 315-431-4610
Fax: 315-431-4280
www.eaest.com

15 November 2004

Mr. Richard Hamlin
Project Superintendent
Conti Environmental
678 Perimeter Road
Rome, New York 13441

RE: Former Griffiss Air Force Base
Landfill 1 Gas Monitoring
EA Project No. 30002.04

Dear Mr. Hamlin:

EA Engineering, P.C. and its affiliate EA Science and Technology have prepared this letter to summarize the results of recent landfill gas monitoring at Landfill 1, discuss the supplemental investigation at the property line and around nearby structures, and recommend future action to protect human health and reduce the concentration of landfill gas detected at the perimeter of the landfill and at existing structures adjacent to Landfill 1 as necessary.

I. BACKGROUND

As you are aware, FPM Group measured gas concentrations in 8 perimeter gas monitoring probes at Landfill 1 during an August 2004 monitoring event. FPM's measurements showed that gas concentrations exceeded 100 percent of the lower explosive limit (LEL) in all gas monitoring probes around Landfill 1. In September 2004, Conti and EA sampled the 22 gas vents and resampled the gas monitoring probes at Landfill 1 and achieved similar results. USEPA and NYSDEC were notified of the results on 30 September 2004.

II. SUPPLEMENTAL INVESTIGATION

The requirements provided in 6 NYCRR Part 360 Section 360-2.17 (f) regarding decomposition gases are as follows:

"Decomposition gases generated within a landfill must be controlled to avoid hazards to health, safety, or property. Measures to control decomposition gases must be undertaken in accordance with the following requirements:

(1) The concentration of methane and other explosive gases generated by the facility must not exceed:

(i) 25 percent of the lower explosive limit for gases in structures on or off-site, excluding gas control or recovery system components; and

(ii) The lower explosive limit for the gases at or beyond the property boundary."

The existing gas probes sampled during the above referenced monitoring events are approximately 15 feet from the limit of waste and therefore do not provide adequate information to determine compliance with the regulations as described above. In order to further define the extent of potential gas migration the following have been installed:

- Two permanent gas monitoring probes along the northern property line between existing gas probes LF1GMP-4 and LF1GMP-6 to determine if gas is present at the property line above the LEL.

- Three permanent gas monitoring probes around Firing Range Building #853 to determine if gas is present at 25% of the LEL.

- Two permanent gas monitoring probes along the northern portion of the leachate treatment building to determine if gas is present at 25% of the LEL.

The approximate locations of these additional gas probes are provided on the attached figure. The probes were sampled on 8 November 2004 and the following results were documented:

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
LF1GMP-11	>100	40.0	0.0	35.2	29.60
LF1GMP-12	0	0.0	18.2	3.5	29.60
LF1GMP-13	0	0.0	18.4	1.0	29.60
LF1GMP-14	0	0.0	18.6	0.9	29.60
LF1GMP-15	0	0.0	19.1	0.9	29.60
LF1GMP-16	0	0.0	17.1	3.3	29.60
LF1GMP-17	0	0.0	18.3	1.9	29.60

As shown in the above table, landfill gas is present at greater than 100% LEL along a portion of the northern property line. However, landfill gas was not found in the gas monitoring probes located around the two structures.

III. MITIGATION PLAN

It is our understanding that the owners of the adjacent property to the north of Landfill 1, Mr. and Mrs. Randall Webster, have been informed of the potential hazards associated with certain activities while a contingency plan is being developed and implemented. We also understand that the Oneida Indian Nation Police, who occasionally use Firing Range Building #853, have been asked to adhere to certain safety procedures while the extent of potential landfill gas

migration is being evaluated. Access to the Building #853 has been restricted and closely controlled. If access is required, the interior space will be sampled immediately prior to entry and during occupancy.

As shown in the table below, results from three different monitoring events show a steady decline in the methane concentration at the two permanent probes originally installed along the northern perimeter of Landfill 1.

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
Results from September 27, 2004 Investigation					
LF1GMP-4	>100	63.8	0.0	36.4	29.68
LF1GMP-6	>100	76.4	0.0	10.6	29.68
Results from November 5, 2004 Investigation					
LF1GMP-4	>100	56.6	0.5	42.7	29.11
LF1GMP-6	>100	74.8	0.2	7.7	29.11
Results from November 8, 2004 Investigation					
LF1GMP-4	>100	52.0	3.6	41.8	29.60
LF1GMP-6	>100	64.3	3.2	6.6	29.60

Based on the results described in this letter and our understanding of Part 360 Section 2.17 (f), EA recommends the following additional activities at Landfill 1 to mitigate landfill gas migration beyond the perimeter of the landfill and ensure safety of human health.

- Installation of an additional passive gas vent along northern property line close to GMP-11. This additional gas vent will promote venting of landfill gas in the affected area to the surface prior to migration beyond the property line.

- Installation of turbine ventilators on every passive gas vent on Landfill 1, including the additional gas vent proposed above. These turbines will be capable of producing flows of approximately 140 cubic feet per minute and will expedite venting of landfill gases to the surface of the landfill.

- Monitoring of the gas probes on a monthly basis for the first year to identify and evaluate trends in landfill gas concentrations and potential migration. The recently installed gas probes will be monitored as part of this effort and will ultimately be incorporated into the Long Term Monitoring Plan for the landfill.

Results from the monthly monitoring events will be evaluated and additional action will be considered based on the results. Copies of the monitoring reports will also be forwarded to the

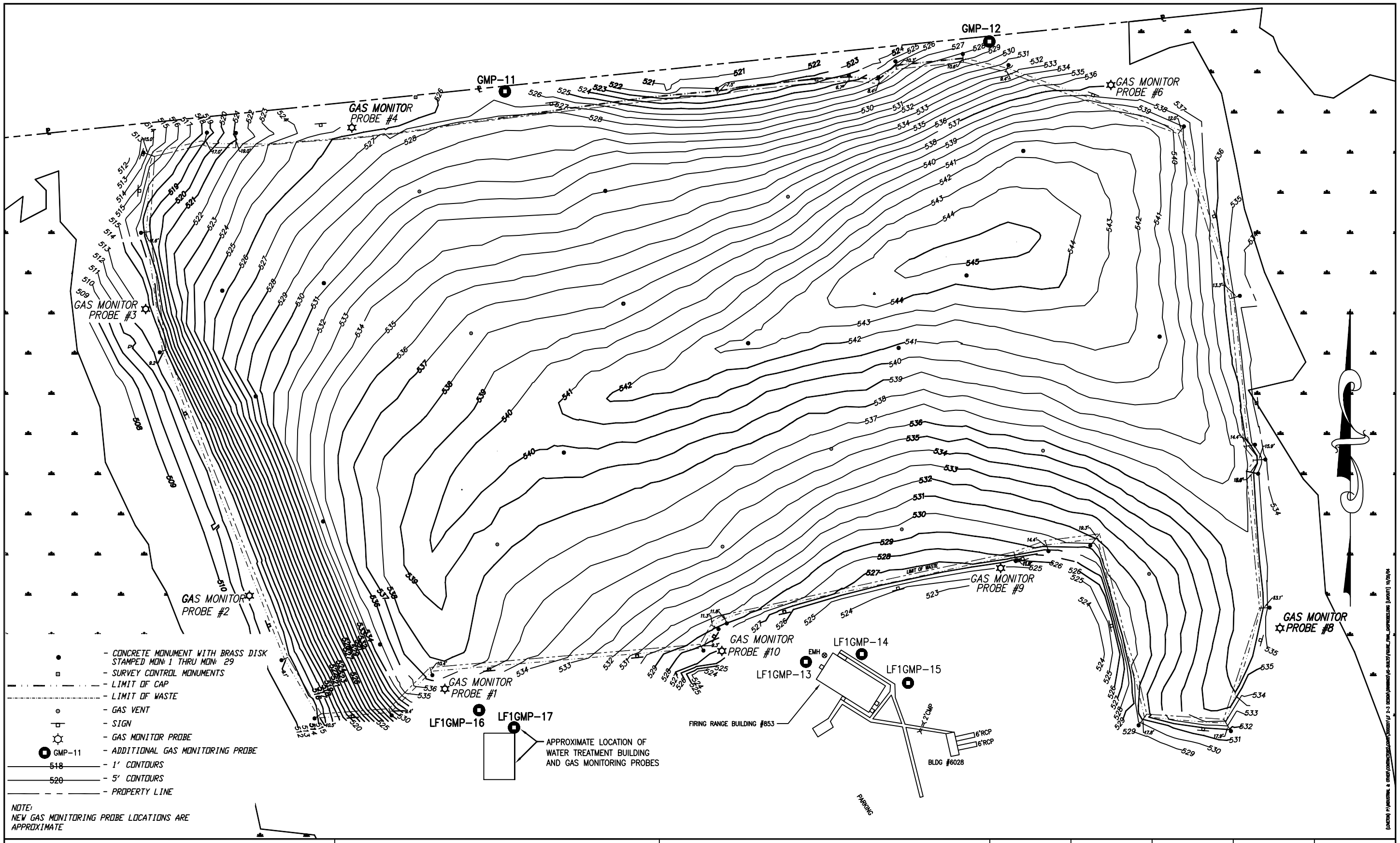
USEPA and NYSDEC. If you have any questions regarding these results or require additional information, feel free to contact me at (315) 431-4610.

Sincerely,

EA ENGINEERING, P.C.

Christopher J. Canonica, P.E.
Assistant Vice President

CC/mr
Enclosures



EA SCIENCE AND TECHNOLOGY	LANDFILL 1 FORMER GRIFFISS AIR FORCE BASE ROME, NEW YORK	PROPOSED GAS PROBE LOCATIONS	DESIGNED BY DOK	DRAWN BY DOK	DATE 11-08-04	PROJECT NO. 30002.04	FILE NAME -
			CHECKED BY DE	PROJECT MGR. CC	SCALE 1" = 120'	DRAWING NO. -	FIGURE 1