Fountain Avenue Landfill
Brooklyn, New York
NYSDEC Site No. 224003

Annual Post Closure Operation, Maintenance and Monitoring Program

January 2023 through December 2023

January 2024

New York City Department of Environmental Protection
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Table of Contents

List of Figures

List of Tables

Section 1 – Introduction

This Post-Closure Annual Report (Report) has been prepared by the New York City Department of Environmental Protection (DEP) to fulfill the reporting requirements contained in the Fountain Avenue Landfill (FAL) Operation and Maintenance (O&M) Manual, the FAL Monitoring Plan, and 6NYCRR Parts 360 and 363. This Report contains current background information and documents the operation, maintenance and monitoring activities performed between January 1, 2023, and December 31, 2023.

Section 2 – Site Background

The FAL is an inactive hazardous waste disposal site located on 297 acres at the southern end of Fountain Avenue in Brooklyn, New York. It is bounded on the northwest by the Belt Parkway, on the southeast by Jamaica Bay, on the southwest by Hendrix Creek and on the east by Old Mill Creek. A site location map is provided in Figure 1.

The FAL was opened in 1961, when land-filling activities shifted from the Pennsylvania Avenue Landfill (PAL) located on the other side of Hendrix Creek. Under the responsibility of the New York City Department of Sanitation (DOS), the landfill received municipal and industrial wastes between 1961 and 1985. It is reported that, between 1974 and 1980, illegal dumping of hazardous wastes occurred at the site. Liquid wastes reportedly disposed of at the FAL included waste oils, and spent plating baths, sludges, thinners and lacquers. Asbestos and medical wastes were also reported to have been discarded at this site. In addition, contaminated waste oils were sprayed on site access roads for dust control.

The FAL was added to the New York State Registry of Inactive Hazardous Waste Disposal Sites initially as a Class 3 site, requiring further surveillance. In 1983, the FAL was reclassified as a Class 2 site, posing a significant threat to public health and the environment.

In 1974, ownership of the lands on which the FAL is situated was transferred from the City of New York to the United States Department of the Interior, National Park Service (NPS), with the understanding that landfill operations could continue at the site until the end of 1985.

On December 16, 1985 and again on April 17, 1990, the New York State Department of Environmental Conservation (NYSDEC) executed Orders on Consent with DOS to close and remediate the site. On May 15, 1992, DEP entered into an Order on Consent (Index 2-24-003) with the NYSDEC for the remediation of the FAL. In response, the DEP initiated a Remedial Investigation/Feasibility Study (RI/FS) in March 1993 to assess the nature and extent of contamination. The Remedial Investigation Report was released in May 1994, and the Feasibility Study Report was released in September 1994. The RI/FS revealed that certain areas and media at the site required remediation. A summary of the findings is as follows:

- Soil – Surface soils exhibited semi-volatile organic compounds (SVOCs) and metal levels that exceeded soil cleanup guidelines.

- Groundwater – Levels of volatile organic compounds (VOCs), SVOCs, metals and polychlorinated biphenyls (PCBs) exceeding the drinking water standards were confined to groundwater samples collected from the leachate mound (Fill Aquifer). The Upper Glacial Aquifer does not require remediation because it did not exhibit significant levels of contamination.
- Surface Water – The primary landfill-related exceedances of surface water standards were for chlorobenzene, which was present in low concentrations in the leachate mound and in high concentrations in surface water at the drainage outlet into Old Mill Creek.
- Sediment – Samples taken along the Hendrix Creek demonstrated levels of VOCs, SVOCs, metals, PCBs and pesticides that generally exceeded the wildlife and human bioaccumulation guideline concentrations, but were below the benthic toxicity guidelines.

As specified by the Order on Consent, Interim Remedial Measures (IRMs) were implemented. An interim cover was placed to prevent casual contact with exposed waste and rip-rap was installed for shoreline protection.

The goals for the remediation program were set to eliminate or minimize the threats to public health and the environment by addressing the contamination of surface soils and waste disposal areas by protecting surface waters through eradication of run-off and erosion from contaminated substrates, eliminating migration of leachate into surrounding waters, minimizing the impact of contaminated groundwater, reducing soil and sediment contamination levels and removing the possibility of human or animal contact, and controlling and containing landfill gas emissions.

Subsequently, in 1995, the NYSDEC published the Record of Decision (ROD) for the FAL, which mandated that the selected remedy for the site consist of "landfill capping with active gas collection and long term environmental monitoring." In accordance with the ROD, in October 2000, the DEP awarded Construction Contract No. LF-FAL-G4 for the remediation of the FAL. The main elements of the selected remedy included regrading of the top of the landfill to ensure proper drainage and minimize erosion, installing a landfill cap meeting the requirements of the 6 NYCRR Part 360 regulations, and achieving landfill gas control with an active collection system. The gas collection system consists of extraction wells screened in the waste layer and connected via blowers to an enclosed flare. Construction of the final cover, stormwater management, landfill gas management, environmental monitoring and ancillary systems was completed in July 2009.

Once construction of the landfill remedial systems was completed, responsibility for their operation and maintenance was transferred from the DEP Bureau of Engineering Design and Construction (BEDC) to the DEP Bureau of Wastewater Treatment (BWT) and the operations, maintenance and monitoring contractor. The landfill cover, stormwater, and ancillary systems were transferred to BWT on March 1, 2009. The landfill gas management system was transferred to BWT on August 1, 2009.

The ROD called for a pre-approved Post-Closure Monitoring, Sampling and Analysis Plan (the Monitoring Plan, or the Plan) to commence within one month of DEP's receipt of NYSDEC's written acceptance of the Final Engineering Report (FER). The Plan requires monitoring water-

level elevations and groundwater quality in twelve monitoring wells, and monitoring for the presence of methane in seven gas monitoring wells located beyond the perimeter of the cap. The Plan was approved in March 2009. Subsequently, NYSDEC approved the following modifications to the groundwater monitoring portion of the Plan in a letter of May 9, 2011 to the DEP:

- Monitoring can be performed independently of the tide cycle.
- The low-flow purging and sampling method can be used to collect the samples.
- Sampling can be performed annually in rotating calendar quarters instead of quarterly.
- During the first five-year review period, monitoring should be performed for all Plan parameters.
- Based on the results from the first five annual monitoring rounds, the NYSDEC may allow non-detected parameters to be excluded from subsequent annual monitoring rounds, except as indicated below.
- Monitoring for all Plan parameters will be performed once every five years.

Additionally, per 6 NYCRR Part 360/363, the groundwater samples are to be analyzed by a State-certified environmental laboratory and validated by an independent data validation company.

The FER was submitted to NYSDEC for review on September 7, 2011, and was accepted by the NYSDEC on January 31, 2012. Accordingly, the post-closure monitoring period officially began on February 1, 2012. The first official round of quarterly gas monitoring was performed in February 2012, within one month of the start of the post-closure period. With the concurrence of the NYSDEC, the first round of annual groundwater monitoring was performed during the second quarter of 2012 to coincide with the annual groundwater monitoring round at the PAL Site so that both sites are on the same monitoring schedule. Annual groundwater monitoring will be performed in rotating calendar quarters (i.e., once every five quarters) thereafter, similar to the PAL Site.

In July 2012, the NYSDEC changed the classification of the FAL Site from a Class 2 to a Class 4 site on the Registry of Inactive Hazardous Waste Disposal Sites since it was properly remediated and would meet the requirement for future site management.

The Gateway National Recreation Area in which the former PAL and FAL are situated was established by the NPS, Site Owner, in order to "preserve and protect for the use and enjoyment of present and future generations an area possessing outstanding natural and recreational features". In 2017, NPS proposed, and DEP and the New York State Office of Parks, Recreation and Historic Preservation (NYS Parks) agreed, that it would be to the mutual advantage of the Federal, State and City governments, and to the benefit of the public, to develop the concept of a park and restoration plan for this area.

Pursuant to said proposal, NYS Parks entered into a General Agreement with NPS, allowing the State to invest State funds for the design, construction, operation and maintenance of a NYS Park at the former PAL and FAL. NPS, NYS Parks, and DEP subsequently entered into a Cooperative Management Agreement to effectuate the development of Phase 1 of this State Park (Park), to be named in honor of Shirley Chisholm. In accordance with the requirements of the sites'

Environmental Notice, in December 2017, NYS Parks received approval from NYSDEC and the New York State Department of Health to change the Site's land use from a closed landfill to a closed landfill with NYSDEC-approved passive recreational uses.

On August 24, 2018, an agreement between the DEP and the NYS Parks was executed in order to delineate the responsibilities of the two agencies in relation to NYS Parks' efforts for the development of the PAL and FAL into the Shirley Chisholm State Park (Park). NYS Parks has made capital improvements to the sites to create the Park and is responsible for the maintenance of those improvements as well as the maintenance of portions of the capping and closure systems. All work performed by NYS Parks must be done in accordance with the sites' RODs, Consent Orders, Environmental Notices and O&M Plans. The Park was opened to the public in 2019.

Section 3 – Annual Summary

This Section of the Report covers the period from January 1 through December 31, 2023. It summarizes the operation, maintenance and monitoring activities at the site during this period.

3.1 Landfill Gas Management System

The landfill gas management system represents one of the elements of the selected remedy in the site's ROD. The ROD required the selected remedy "to ensure full collection and control of landfill gas". This system must also meet the requirements of 6 NYCRR Part 363 to limit off-site gas migration to 25% of the lower explosive limit (LEL) at the property line and in structures (i.e., 1.25% CH_4 gas in air). In 2011, due to below-threshold NOx emissions, the NYSDEC downgraded the Air Title V Facility Permit for the landfill gas flare emissions to an Air Facility Registration (Certificate # 2-6105-00687/00003). The FAL was subject to the EPA's Greenhouse Gas Reporting Rule through 2016, but due to relatively low emissions the EPA determined that no further monitoring/reporting of greenhouse gas emissions was required for this site. The landfill gas management system continues to operate in accordance with a Methane Recovery Operations Permit issued by the Fire Department of the City of New York (FDNY) Bureau of Fire Prevention.

The system features 265 gas extraction wells (EWs), a below-grade polyethylene collection header piping network with 56 isolation valves, three 2,600-scfm centrifugal blowers, a condensate collection system, an enclosed high temperature flare system, a process instrumentation and control loop, a programmable logic control (PLC) management system, a fire alarm system, and an emergency condition alarm auto-dialer phone system. The system passed the annual FDNY Alarm System inspection conducted on June 16, 2023. A schematic diagram of the overall Landfill Gas Management System, with the locations of the extraction wells, header pipes and flare facility, is shown in Figure 2.

All 265 EWs were inspected and monitored for gas content (percent CH_4, CO_2 and O_2), temperature and vacuum pressure each month. Deficiencies such as missing signage, entry hatch frame cleaning/adjustment or sampling port repair were corrected, when possible, at the times of the inspections. Work orders are issued for all other work. On occasion, when the LFGMS operation is affected by condensate accumulation in the headers, appropriate corrective action is

taken. The LFG-3 reports for monthly extraction well monitoring are included in Appendix A of the Quarterly Reports.

The main headers that convey the landfill gas slope continuously around the landfill to a low point adjacent to the blower and flare station located at the southeastern corner of the landfill. Each of the headers is connected to a condensate drain line at its low point. These drain lines and the drain lines from the three blower demisters (knock-out pots) empty into the 8,000 gallon condensate tank located within the flare station. On June 2, 4,200 gallons, and on June 6, 1,500 gallons of condensate were removed by a private waste hauler for proper off-site disposal. At the end of September, the condensate tank inventory had reached the 8,000 gallon tank capacity. This was due to impacts from a heavy storm. Arrangements were made for immediate condensate removal.

The landfill gas collection system is comprised of three closed loops, each of which is split into two headers. The system includes 56 isolation valve boxes for pressure and flow adjustments and to isolate portions of the system for repairs. As the six (two 8-inch and four 12-inch) headers come up into the blower and flare station they each contain a manually operated butterfly valve for individual header vacuum adjustment, temperature and vacuum gauges, and monitoring ports. They then join into the 12-inch main header on the vacuum side of the blower station. This main header contains an electric modulating butterfly valve which automatically adjusts the valve position to control the landfill vacuum or flow according to PLC programming. This is followed by an electro-pneumatic butterfly valve which, actuated by compressed nitrogen, automatically closes in the event of any system failure or shutdown.

The landfill gas then flows through three 12” plug valves into the three demisters, exits through 12” piping which is reduced to 8” before entering the blowers, exits the blowers through 8” plug valves and discharges through a single 16-inch header and flame arrestor into the enclosed flare. The system is operated with one blower in service and the remaining two on standby. Blowers are switched periodically, and preventive maintenance is performed to ensure all three blowers remain in good operating condition. The flare support system includes a propane fired pilot, a purge air blower, two manual and two automatic dampers, and temperature control with three thermocouples. The flare operation is normally on automatic control using the bottom thermocouple at a target temperature of 1,600 ^{o}F. Currently, the bottom thermocouple is malfunctioning. Control has been switched to the middle thermocouple. Figure 3 exhibits the layout of the Flare and Blower Station.

Daily inspections are conducted, and readings are recorded on the LFG-1 inspection logs. The monthly summary reports of the LFG-1 daily inspections can be found in Appendix A of the Quarterly Reports.

During this annual reporting period, the landfill gas flaring system processed 409,274,013 SCF of landfill gas at an average methane content of 18.2%. The flare ran for 55.6% of the time at an average flow of 1,401.7 SCFM. The flare operation down time totaled 3,893.7 hours or 44.4% of the twelve-month interval. Down time was due to poor gas quality, flame loss, flame monitoring and temperature faults, actuated isolation valve nitrogen leak, power loss, blower and soft start

faults, and system maintenance and repair. During this annual reporting period, Blower No. 2 and the motor for Blower No. 1 were sent out for repair, re-installed and placed back in service, the bearings on Blowers No. 1 and No. 3 were replaced, and the filter pads on the three demisters were replaced. Landfill gas flow data is summarized in the table that follows.

MONTH	TIME IN SERVICE (Hours)	TOTAL FLOW (SCF)	AVERAGE MONTHLY CH_4 (% by Volume)
January	458.7	40,292,000	19.8
February	425.5	37,135,000	18.5
March	351.0	30,658,000	17.8
April	391.2	34,338,000	17.1
May	401.6	34,417,000	18.6
June	418.4	35,389,000	17.6
July	459.2	38,908,000	14.8
August	508.5	42,676,000	15.7
September	330.6	27,312,000	16.6
October	291.0	24,718,000	18.4
November	437.9	33,721,000	21.2
December	392.7	29,710,013	21.8
Average		**34,106,168**	**18.2**
TOTAL	**4,866.3**	**409,274,013**	

Bi-weekly (LFG-2) and quarterly (LFG-4) inspections were conducted, and copies are included in Appendix A of the Quarterly Reports. Deficiencies encountered at the flare and blower station during scheduled inspections, and still pending, include the damaged flare stack insulation, a malfunctioning louver actuator motor, blower No. 2 soft start malfunction and electro-pneumatic valve nitrogen system Work orders are being issued to address these deficiencies. Maintenance conducted included servicing, adjustment and lubrication of the blowers, stack louvers and station valves, PLC Operator's Interface Computer corrections, and oxygen sensor, flame monitor and pilot ignition system repairs and cleaning. Equipment components exposed to the Hurricane Sandy surge that are currently operational, but were not designated for replacement, will continue to be monitored and assessed over time and may be replaced in the future, if necessary.

3.2 Final Cover System

The landfill final cover system prevents stormwater infiltration into the landfill, and landfill gas migration into the atmosphere. The ROD stipulated the construction of a 6 NYCRR Part 360 landfill cap. The landfill final cover system is comprised of layers, from top to bottom, as follows:

- Vegetative topsoil layer with a minimum thickness of 6 inches.
- 12-inch thick barrier protection layer.
- Geocomposite drainage layer as follows.
    - A cushion geotextile in the Type 1 Cover System (areas with <5% slopes); or
    - A double-sided Geocomposite in the Type 2 Cover System (areas with >5% slopes).
- Linear Low Density Polyethylene (LLDPE) geomembrane material.
    - Smooth 40-mil thick LLDPE geomembrane in the Type 1 Cover System (areas with <5% slopes); or
    - Textured 40-mil thick LLDPE geomembrane in the Type 2 Cover System (areas with >5% slopes).
- 6-inch-thick Type II cover soil layer was placed over the re-graded waste material.

The O&M Manual requires that the final cover system be inspected on a monthly basis and immediately after each major rainfall event equal to or exceeding the 2-year 24-hour precipitation event (3.5 inches in 24 hours). The surface of the landfill was divided into 16 inspection zones. All 16 inspection zones are shown in Figure 4, which is utilized to identify the system components. This figure is also utilized to identify the components of the stormwater and ancillary systems. A record of the final cover system inspection is summarized on a Monthly Checklist Form FCS-1, with deficiencies noted on the Deficiency and Problems Form (DP-1). The monthly inspection reports can be found in Appendix B of the Quarterly Reports. The final cover system is inspected for surface cracking, vegetative growth, vector penetration, settlement, erosion, slope stability, seepage, and vandalism. The inspection is performed by walking up and down the side slopes and across each zone several times. Work orders are issued for deficiencies noted during monthly inspections that cannot be addressed at the time.

Under the Agreement executed on August 24, 2018 between the DEP and NYS Parks, NYS Parks is responsible for the maintenance/repair of the following elements of the Final Cover System:

- Surface restoration and replanting of the grass cover and topsoil layer of the final cover system; and
- Landscaping, both existing and any landscaping installed by NYS Parks. At a minimum, NYS Parks shall perform all landscaping work, including maintenance and repair of existing vegetation/landscaping including those in the existing planting islands, required in the O&M Manual.

3.3 Stormwater Management System

The stormwater management system is an integral part of the capping and closure system required under the 6 NYCRR Part 360/363 regulations to protect the landfill final cover system. The system was designed to collect, transport and discharge stormwater to the surface waters surrounding the FAL in order to prevent stormwater ponding and erosion damage to the final cover system.

This system consists of several components (as shown on Figure 4) which require monitoring, inspection, and periodic maintenance. The system has been divided into three subsystems (SWM-1, SWM-2 and SWM-3) for ease of inspection and reporting. These subsystems include:

- SWM-1: Stormwater drainage swales, wetlands and revetment area
- SWM-2: Outlets, culverts, and rip-rap inlet and outlet protection, and
- SWM-3: Down chute pipes, manholes, pipe trenches and energy dissipation structures.

The O&M Manual requires that stormwater management systems SWM-1, SWM-2 and SWM-3 be inspected on a monthly basis and immediately after each major rainfall event equal to or exceeding the 2-year 24-hour precipitation event (3.5 inches in 24 hours). A record of the inspection is summarized on Monthly Checklist Forms SWM-1, SWM-2, SWM-3 and DP-1 in accordance with the requirements of the O&M Manual. A Deficiency and Problems Form DP-1 is completed to summarize the items marked not satisfactory (NS) in the stormwater system checklist forms.

The deficiencies identified during the period covered by this Annual Report do not necessarily affect the overall performance of this system. The results of the monthly inspections indicate that the system is working adequately. Work orders are issued when necessary to perform repair work as identified on the DP-1 Forms. Repair work for erosion around Culverts C1 and C2 due to overgrown vegetation is being coordinated with NYS Parks. The DP-1 Form also identifies other locations where overgrown vegetation, erosion, sediment and standing water have been observed and provides corrective actions for each location. Where necessary, investigations are being performed, repair details are being developed and repairs will be addressed. The work order to repair Swale F2 and the surrounding area was completed in October, 2023. The monthly inspection reports and DP-1 Forms can be found in Appendix B of the Quarterly Reports.

Under the Agreement executed on August 24, 2018 between the DEP and NYS Parks, NYS Parks is responsible for the maintenance/repair of the following elements of the Stormwater Management System:

- Clearing of overgrown vegetation, sediment and debris, including trash, from stormwater swales;
- Clearing of visible sediment, debris, including trash, and vegetative growth from outlets and culverts, culvert inlet/outlet rip-rap protection and energy dissipaters; and
- Removal of trash and debris from rip-rap in revetment areas.

3.4 Ancillary Systems

The ancillary systems (ANS) are those support systems at the FAL that are used for site access and security. The ancillary systems include seven (7) access roads (A through G) along with fences, gates, and locks, as shown in Figure 4. The roadways are integral in providing access to perform required inspection, monitoring and maintenance activities. In addition, since the selected remedy resulted in leaving waste onsite, the security fences and gates provide important institutional controls to prevent site access to unauthorized individuals. In anticipation of the site being developed into a State Park, DEP installed security cameras at the site entrance, DEP Office Trailer, and Flare Station to maintain security of DEP facilities during off-hours. The security system is monitored by DEP Central Communications personnel.

The O&M Manual requires that the ANS be inspected on a monthly basis. A record of the inspection is summarized on Monthly Checklist Forms ANS-1 and DP-1 (for ANS-1) in accordance with the requirements of the O&M Manual. Work orders are issued when necessary to perform repair work as identified on the DP-1 Forms. The instructions for the checklists further require inspections immediately after each major rainfall event equal to or exceeding the 2-year 24-hour precipitation event (3.5 inches in 24 hours). These are incorporated into the monthly inspections found in Appendix B of the Quarterly Reports.

Safety inspections are performed monthly. Damaged and missing "Confined Space" and/or "Hazard" signs are also replaced when necessary.

Under the Agreement executed on August 24, 2018 between the DEP and NYS Parks, NYS Parks is responsible for the maintenance/repair of the following elements of the Ancillary Systems:

- Maintain the surface condition of all gravel paths and the perimeter stone and paved roads necessary for operation of the State Park. Such maintenance shall not include repairs required because of subsurface settlement or other subsurface conditions;
- Maintain and, when necessary, repair or replace Site perimeter fencing including gates and locks to prevent unauthorized access to the Site when the State Park is closed; and
- Install, maintain and, when necessary, repair or replace signage, except that the DEP shall maintain signage relating to Landfill Infrastructure and City Property security and/or safety.

3.5 Post-Closure Environmental Monitoring

As noted previously in Section 2, the Plan for the FAL went into effect on February 1, 2012 following acceptance of the FER by the NYSDEC, and now incorporates modifications approved by the NYSDEC in 2011. The Plan addresses the performance evaluation of the effectiveness of the cap and/or landfill gas collection system in controlling leachate and landfill gas migration. The Plan entails quarterly monitoring of soil gas quality in seven perimeter gas monitoring wells (GMW wells) and annual monitoring in rotating calendar quarters (i.e., once every five quarters) of the groundwater elevation and quality at twelve wells (HF wells), all of which are located around the perimeter of the landfill outside the limits of the cap, as shown on Figure 5. Additionally, the

landfill surface is monitored semi-annually for potential landfill gas emissions, although this is not a regulatory requirement at this site.

3.5.1 Gas Monitoring Program

Perimeter soil gas quarterly monitoring event was conducted on January 17, March 21, May 22, September 27 and December 30, 2023. Readings were taken at the seven perimeter gas monitoring wells. Figure 5 shows the locations of the perimeter gas wells. The gas monitoring results are summarized in Table 1. Monitoring at these perimeter gas monitoring wells is performed in accordance with 6 NYCRR Part 363 (effective November 4, 2017) to ensure that subsurface methane gas is less than 25% of the lower explosive limit (LEL) at the property line (i.e., 1.25% CH_4 gas in air). Monitoring data is included in Appendix C of the Quarterly Reports.

During these monitoring events, there was no methane detected at monitoring well GMW-4. Methane readings at GMW-1 and GWL-2 were 0.0%, with one reading of 0.2% at GWL-1 and one reading of 0.4% by volume at GWL-2. Methane readings were between 0.9% and 2.3% at monitoring well GMW-3, between 0.8% and 1.2% at GMW-5, between 13.9% and 15.6% at GMW-6, and between 42.1% and 47.1% by volume at GMW-7. Methane detected at wells GMW-3, GMW-6 and GMW-7 were above 1.25%. For every instance where methane readings were above 1.25%, bar-hole readings were taken in the shallow subsurface soil in the vicinity of these wells and results showed 0.0% methane by volume. As noted in previous reports, while methane levels at GMW-6 and GMW-7 are consistently above 1.25%, these wells are not located near the property line and historically these methane levels have been attributed to the gas monitoring wells being screened in the naturally-occurring tidal marsh deposits present at depth at certain locations, not due to landfill gas migration. It should also be noted that there is a naturally-occurring tidal marsh deposit present at depth in the vicinity of both GMW-3 and GMW-5 as well. The perimeter gas monitoring results, including the bar-hole results, confirm that landfill gas is being controlled by the LFG Management System.

On May 15 and October 25, 2023, landfill surface gas readings were taken, with no gas detections observed throughout the cover surface or in the area around the perimeter gas monitoring wells. Although the O&M Manual does not require surface emission monitoring since the landfill does not meet the applicability requirements of 6 NYCRR Part 208, the DEP has included this task in the OM&M Contract. The levels encountered during this monitoring event are well below the 6 NYCRR Part 208.1 requirement at which landfill gas collection systems be operated so that methane concentrations are less than 500 ppm above the background at the landfill surface. Figure 6 shows the sampling locations, and monitoring results are included in Appendix C of the Quarterly Reports.

Based on the results of the post-closure landfill-gas monitoring performed during this reporting period, the landfill gas being generated by the FAL is being contained by the collection and treatment system, and off-site methane migration is being prevented. It is expected that landfill gas generation will continue to decrease over time as the landfill ages.

3.5.2 Groundwater Monitoring Program

Post-closure groundwater monitoring at the FAL began during the second quarter of 2012 and is performed on the same schedule as the adjacent Pennsylvania Avenue Landfill (PAL) site for work coordination purposes. This NYSDEC-approved groundwater monitoring schedule (i.e., once every five quarters) allows results to be obtained once in each of the four calendar quarters during every five-year review period. Subsequent annual groundwater monitoring rounds were performed during the third quarter of 2013, the fourth quarter of 2014, the first quarter of 2016, the second quarter of 2017, the third quarter of 2018, the fourth quarter of 2019, the first quarter of 2021, the second quarter of 2022, and the third quarter of this annual reporting period. Monitoring was not performed in 2015 or 2020, due to the fifth-quarter schedule. In 2017, the NYSDEC approved the DEP's request to reduce the frequency of monitoring for pesticides and PCBs to once every five years. Monitoring for pesticides and PCBs for the current (third) five-year review period (2022-2026) was performed during the 2022 monitoring round.

The work order to repair Wells HF-10-2D, HF-102-S, HF-104-U and HF-104-S was completed in January 2023.

The 2023 annual groundwater monitoring round was performed during the third quarter and this report includes a discussion of the results. A comparison to previous years' results and trend analyses will be provided in the Third Five-Year Review Report, which will be submitted in early 2027.

The FAL groundwater monitoring wells are designated by aquifer and depth as follows:

- U – fill aquifer (i.e., the saturated zone above the tidal marsh deposit (TMD))
- S – shallow zone of underlying upper glacial aquifer (UGA), 10-20 feet below the TMD
- D – deep zone of UGA, 45-55 feet below the TMD

The 2023 annual groundwater monitoring round was performed on September 19 and 20. It entailed measuring the depth-to-water in 10 of the site's 12 monitoring wells (shown in Figure 5) and collecting samples from 10 of the monitoring wells. The other two wells, HF-102-U and HF-104-U, were dry and could not be sampled. These wells are screened in the fill aquifer. The fact that they were not sampled is not a significant data gap because since the fill aquifer is unsaturated at this location, there is no potential for contaminant migration via the groundwater pathway.

Per the Plan, the groundwater samples were collected with a portable peristaltic pump and dedicated tubing using the low-flow purging and sampling procedure, and were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), leachate indicator parameters and inorganic parameters (metals). The QA/QC-related samples required by the Plan were also collected and analyzed. The laboratory results for one of the samples (Well 602-D) were validated by an independent data validator. The field data, Laboratory Final Report and Data Usability Summary Report are provided in Appendix D of the Third Quarter Report.

Review of the field sampling logs indicates that except for greater than 0.3 feet of drawdown in Wells HF-102-S and HF-602-U, and the samples were collected in accordance with low-flow protocols.

The results for each detected parameter group (VOCs, SVOCs, leachate indicators and inorganic parameters) are summarized in Tables 2 through 5, respectively. Note that Tables 2 and 3 only list the target VOCs and SVOCs detected in at least one well. Nearly all the VOCs and SVOCs analyzed for were not detected. Overall, the 2023 results are consistent with previous results, and continue to indicate that the FAL is not a significant source of releases of hazardous or toxic substances to groundwater.

As shown in Table 2, only three of the 46 VOCs analyzed for were detected in at least one well, and exceedances only occurred in two wells. At Well HF-608-U, a fill aquifer well, chlorobenzene was detected at 14.0 ug/L, exceeding the 5-ug/L Class GA standard, consistent with prior results for this well. At Well HF-102-D, chloroform was detected at 23.5 ug/L, exceeding the 7-ug/L Class GA standard. Acetone was detected in four wells, but only at concentrations much lower than the Class GA guidance value and <10X the concentration detected in the field blank collected at the PAL, As such, the acetone detections may represent laboratory contamination.

As shown in Table 3, only seven of the 70 SVOCs analyzed for were detected in at least one well. Six SVOCs were only detected in Well HF-608-U, a fill aquifer well, and the other SVOC was only detected in Well HF-104-S. Except for naphthalene in Well HF-608-U, all the SVOC detections were low, estimated concentrations. The 31.1-ug/L naphthalene concentration in Well HF-608-U exceeded the 10-ug/L guidance value.

The leachate indicator and inorganic parameter results (shown in Tables 4 and 5, respectively) are consistent with an old, closed and capped landfill and the fact that the groundwater beneath the site is naturally saline. The concentrations of a number of leachate indicator and inorganic parameters exceed their Class GA standard or guidance value. However, most of the exceedances are for parameters that are related to the naturally saline groundwater beneath the site. The exceedances for site-related parameters, such as ammonia, are not a significant concern because the groundwater is non-potable. Except for barium in Well HF-104-S, cadmium in Well HF-102-D, and chromium in HF-608-U, heavy metal (i.e., the eight RCRA metals) concentrations were lower than Class GA standards, and RCRA metals were typically either not detected or only detected sporadically at low, primarily estimated concentrations.

Appendix D of the Third Quarter Report contains the synoptic water-level data, the sample collection field logs, a full copy of the Laboratory Final Report and the data validator's Data Usability Summary Report (DUSR). Following the five-quarter schedule, the next round of groundwater monitoring will be performed during the fourth quarter of 2024, and will include VOCs, SVOCs, leachate indicators and inorganic parameters pending further reductions in monitoring being requested by the DEP and approved by the NYSDEC.

Section 4 – Conclusions and Recommendations

Based on the results of the post-closure activities performed during this reporting period, the FAL engineering controls and associated institutional controls are in place, performing properly, and remain effective. The FAL remedy continues to be protective of public health and the environment and is compliant with the FAL ROD. The activities associated with the O&M Manual and the Post-Closure Monitoring Plan (as approved by the NYSDEC) continue to be implemented.

Routine system maintenance and repair of each of the remediation systems should continue, in compliance with the requirements of the FAL O&M Manual. In general, it has previously been recommended that components exposed to the Hurricane Sandy storm surge that are currently operational, but were not designated for repair or replacement, will continue to be monitored and assessed over time and may be replaced in the future, if necessary.

During the Third Quarter of 2018, the DEP and NYS Parks entered into an agreement in support of NYS Parks' efforts to develop the PAL and FAL into the Shirley Chisholm State Park. Under this agreement, NYS Parks has made capital improvements to the sites to create the Park and is responsible for the maintenance of those improvements, as well as the maintenance of portions of the Final Cover System, Stormwater Management System and Ancillary System identified under Section 3 of this Report. All work performed by NYS Parks must be done in accordance with the sites' RODs, Consent Orders, Environmental Notices and O&M Manuals. DEP will continue to be responsible for the inspection and reporting of the condition of all components of these systems. The DEP and NYS Parks will continue to work together to coordinate these efforts.

Specific conclusions and recommendations for this reporting period for each of the remedial systems are identified in the following paragraphs.

4.1 Landfill Gas Management System

The landfill gas management system continued to be operational and is preventing off-site gas migration. The operational equipment components that were impacted by the Hurricane Sandy surge that are currently operational but were not designated for replacement should continue to be monitored and assessed over time, and may be replaced in the future, if necessary. In addition, the recommended corrective actions when listed in Form DP-1, Landfill Gas System, Descriptions of Deficiencies and Problems, in Appendix A of the Quarterly Reports should be implemented.

4.2 Final Cover System

Overall the landfill final cover system is in good condition and protecting the landfill cap beneath it as intended. Conditions found are typical of those encountered during the landfill post-closure period, with only a few deficiencies noted. It is recommended that routine maintenance continue to be performed to control problem areas. This would include filling ruts caused by erosion, reseeding areas where necessary, and maintaining landfill surface slope to promote stormwater runoff. Mowing should be conducted as needed to control invasive species and to provide access for inspections and maintenance. Perimeter areas beyond the final cover system limits, affected by

Hurricane Sandy, that were restored under Contract No. 1400-FLP, should continue to be maintained. The recommended corrective actions listed in Form DP-1, FCS-1, Descriptions of Deficiencies and Problems, in Appendix B of the Quarterly Reports, should be implemented.

4.3 Stormwater Management System

The stormwater management system continues to convey stormwater runoff to its outfall locations. Conditions found are typical of those encountered during the landfill post-closure period, with a few deficiencies noted. In general, it is recommended that silt and vegetation in drainage swales continue to be periodically removed and sediment be removed from other portions of the drainage system. Areas of the stormwater management system affected by Hurricane Sandy that were restored to their condition prior to the storm event, under Contract No 1400-FLP, should continue to be maintained. Specifically, the recommended corrective actions listed in Form DP-1 (SWM-1, SWM-2 SWM-3), Descriptions of Deficiencies and Problems, in Appendix B of the Quarterly Reports, should be implemented.

4.4 Ancillary Systems

The roads of the ancillary system continue to provide access throughout the site while the fencing and gates continue to allow for controlled site access. The shoreline embankment and the shoulder of Road A, damaged by Hurricane Sandy, were restored under Contract No. 1400-FLP, should continue to be maintained. Other conditions found are typical of those encountered during the landfill post-closure period, with a few deficiencies noted. In general, it is recommended that routine maintenance continue to be performed to control problem areas from expanding and worsening. This would include filling ruts and potholes in roads and repairing site fencing and gates when necessary. Specifically, the recommended corrective actions listed in Form DP-1, ANS-1, Descriptions of Deficiencies and Problems, in Appendix B of the Quarterly Reports, should be implemented.

4.5 Post-Closure Environmental Monitoring

Based on the results of the post-closure environmental monitoring performed to date, the FAL remedy continues to be protective of public health and the environment and is compliant with the FAL ROD.

The results of the post-closure landfill-gas monitoring performed during this annual reporting period, showed that methane level measurements met the 6NYCRR Part 363 requirements in the vicinity of the property line, indicating that the landfill gas being generated by the FAL is being contained by the collection and treatment system, and off-site methane migration is being prevented. It is expected that landfill gas concentrations will continue to decrease over time as the landfill ages.

Overall, the results of the 2023 annual groundwater monitoring round are consistent with previous results, and continue to indicate that the FAL is not a significant source of releases of hazardous or toxic substances to groundwater.

Recommendations for this reporting period are to continue to perform the environmental monitoring in accordance with the modified Plan (2011). Specifically, as noted in Section 2, with the concurrence of the NYSDEC, groundwater monitoring is to be performed in rotating calendar quarters (i.e., once every five quarters) and the reduction in the frequency of monitoring for pesticides and PCBs to once every five years. Accordingly, the next groundwater monitoring round will be performed during the fourth quarter of 2024, and the samples will be analyzed for VOCs, SVOCs, leachate indicators and inorganic parameters pending further reductions in monitoring being requested by the DEP and approved by the NYSDEC. Perimeter gas monitoring will continue to be performed quarterly.

FIGURES

Figure 1: Fountain Avenue Landfill Site Map

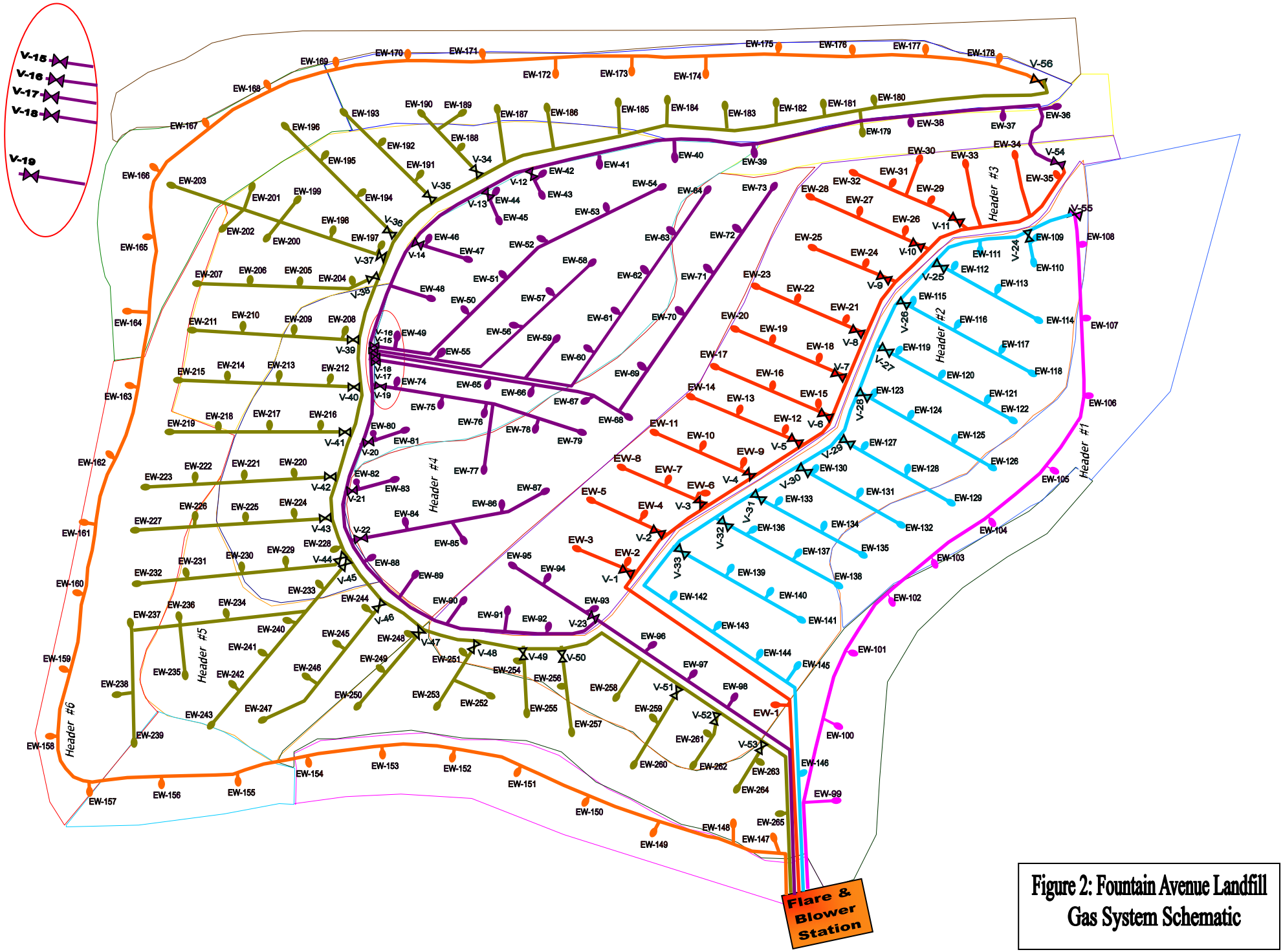
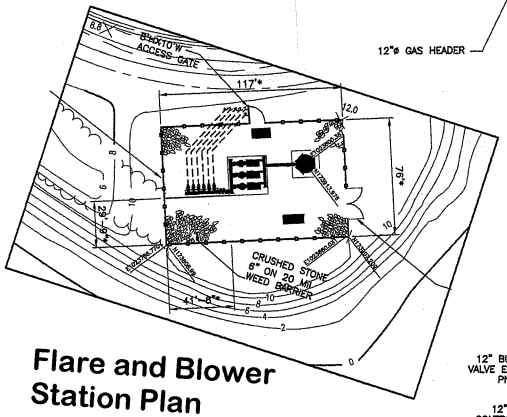
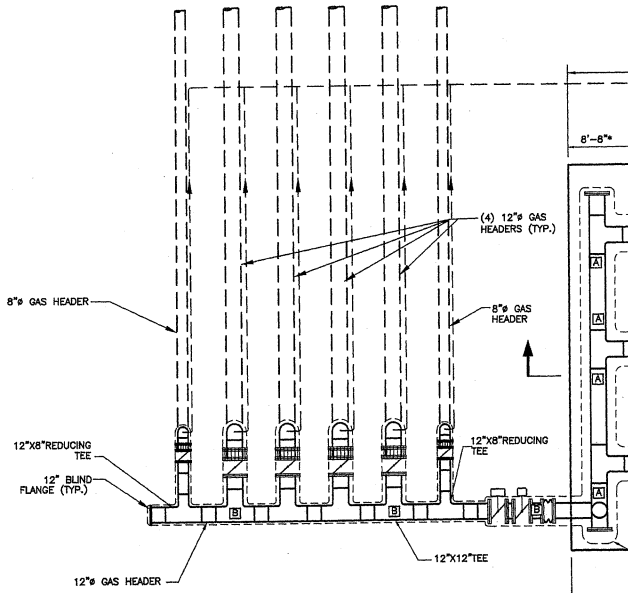


Figure 2: Fountain Avenue Landfill Gas System Schematic

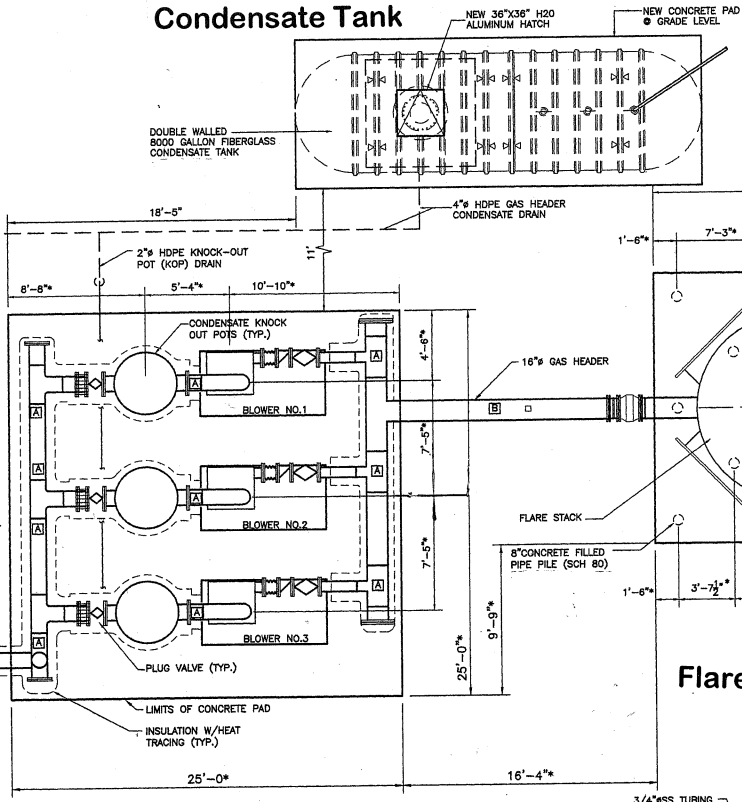
Figure 3: Fountain Avenue Landfill Flare and Blower Station

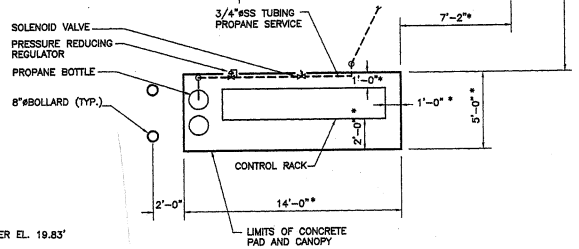


Flare and Blower Station Plan



LFG Headers





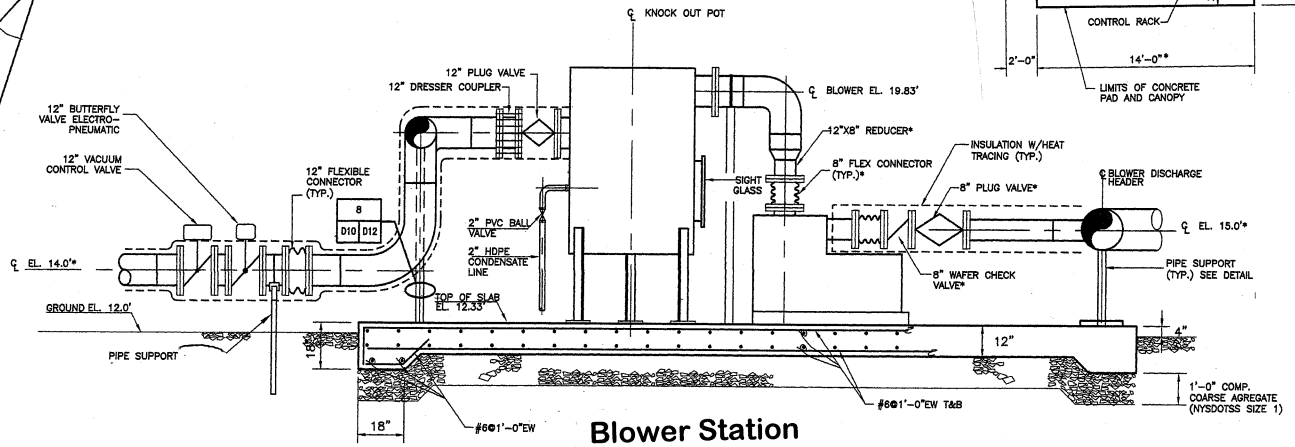


Figure 4: Fountain Avenue Landfill Stormwater Management, Final Cover Zones and Roads

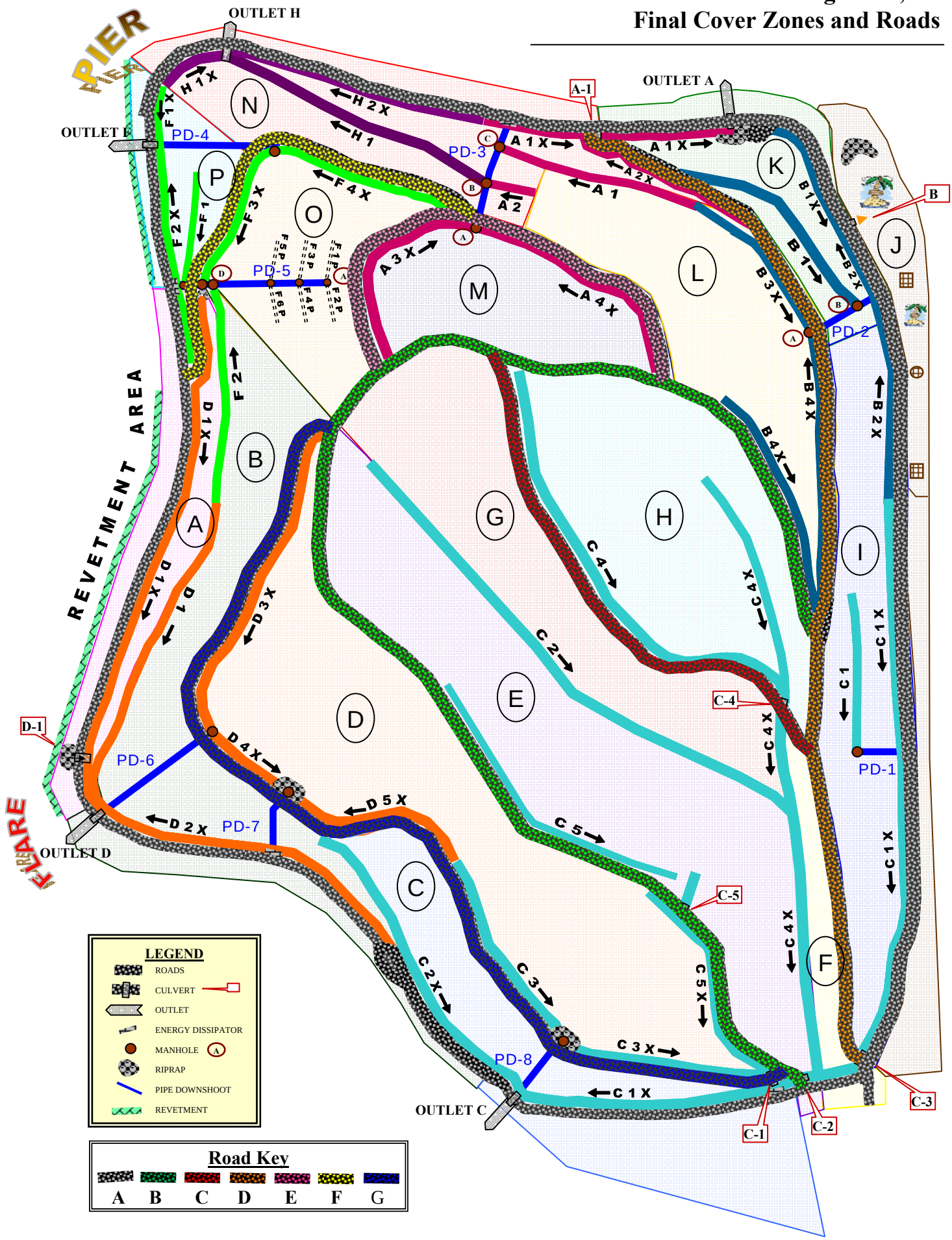
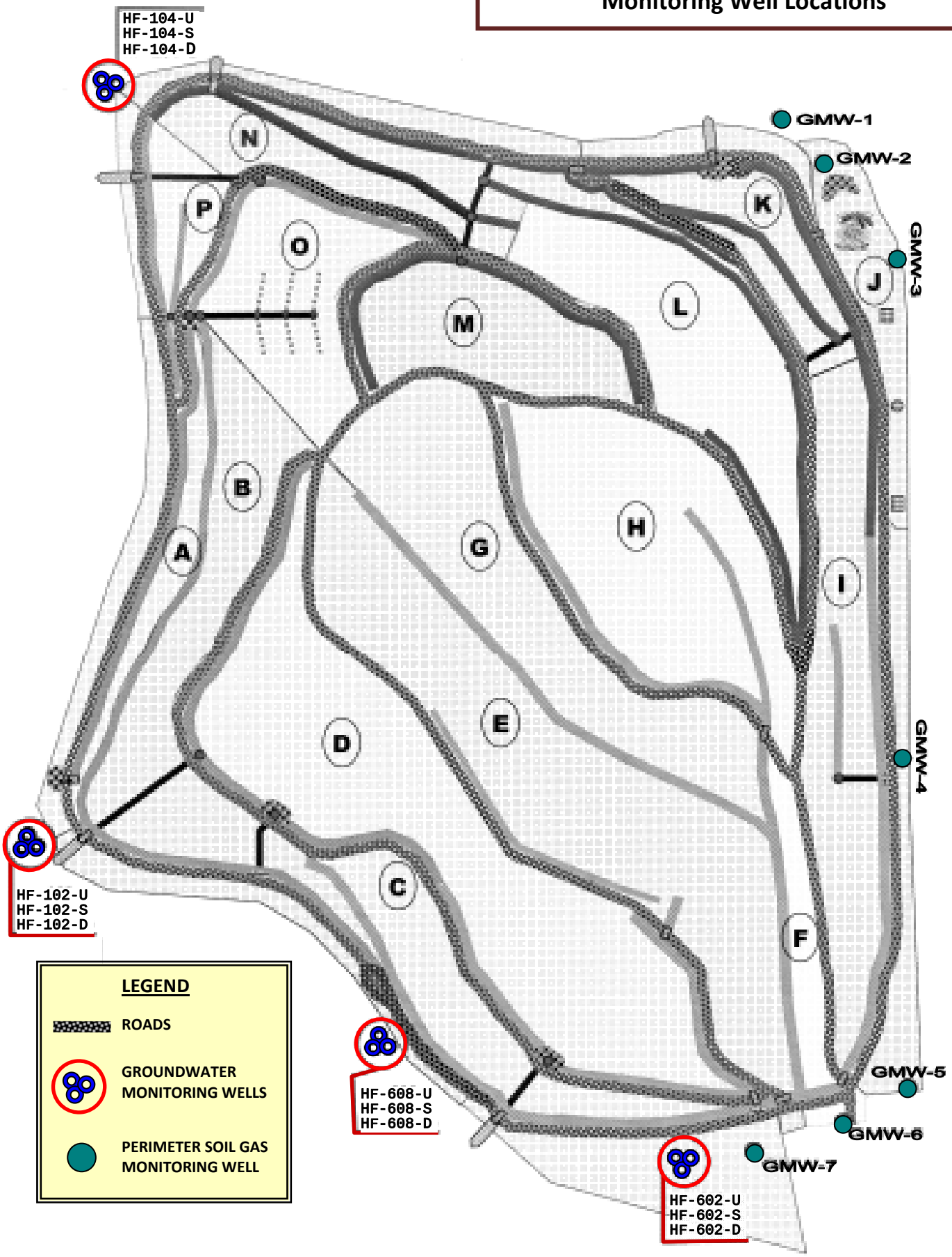


Figure 5: Fountain Avenue Landfill Groundwater and Perimeter Gas Monitoring Well Locations



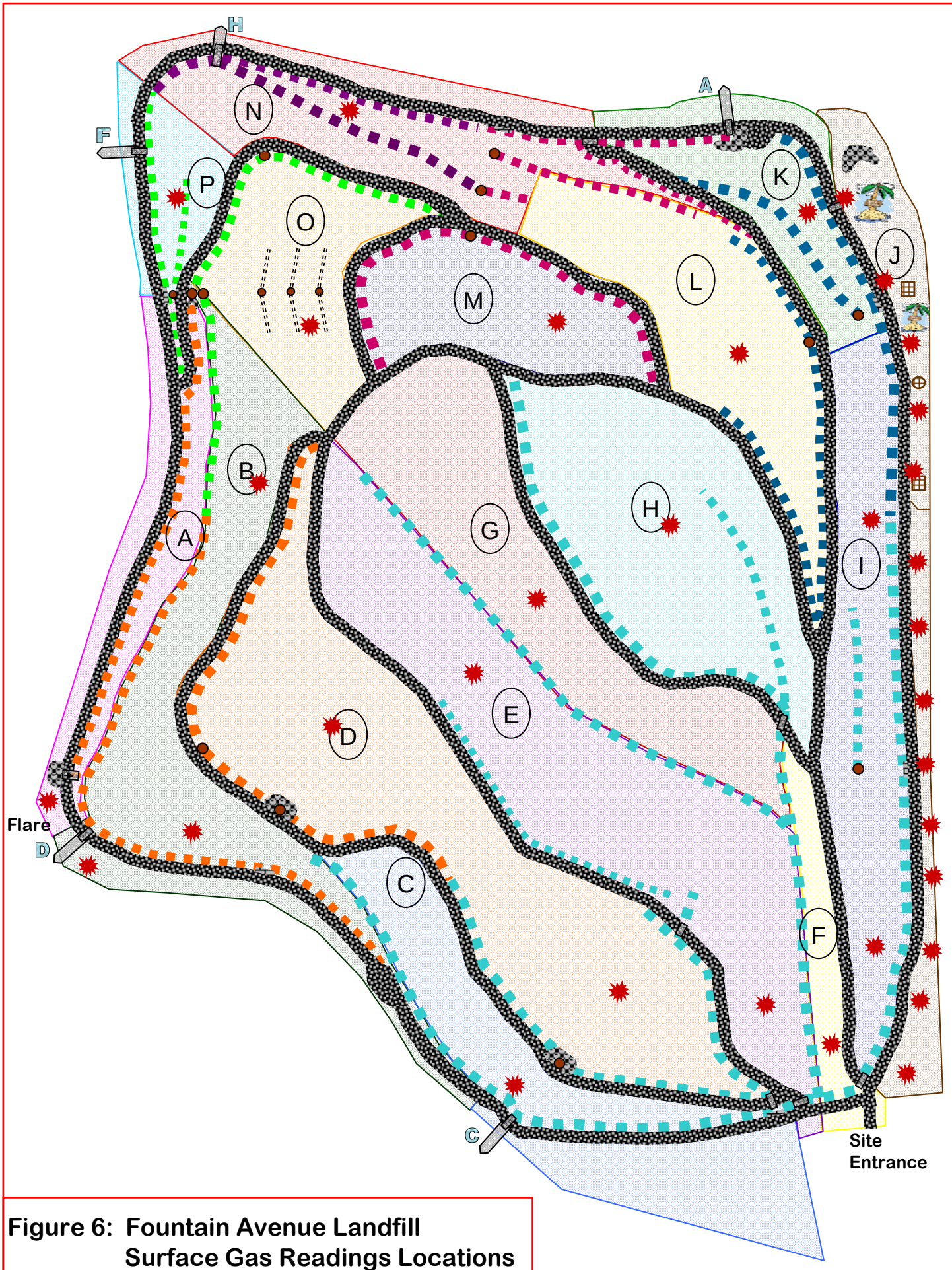


Figure 6: Fountain Avenue Landfill
Surface Gas Readings Locations

TABLES

Table 1

2023 Annual Summary of Perimeter Gas Monitoring Well Results

Fountain Avenue Landfill, Brooklyn, NY

Quarterly Round:		1Q2023		2Q2023	3Q2023	4Q2023
Monitoring Date:		17-Jan	21-Mar	22-May	27-Sep	20-Dec
METHANE (% BY Volume)	GMW-1	0.0	0.0	0.2	0.0	0.0
	GMW-2	0.0	0.0	0.4	0.0	0.0
	GMW-3	1.8	2.3	0.9	1.6	2.1
	GMW-4	0.0	0.0	0.0	0.0	0.0
	GMW-5	1.0	1.2	1.2	1.0	0.8
	GMW-6	14.8	13.9	13.9	15.3	15.6
	GMW-7	45.7	44.1	47.1	42.1	46.2
CARBON DIOXIDE (% BY Volume)	GMW-1	4.0	2.7	6.5	5.1	5.2
	GMW-2	1.6	1.2	5.9	2.2	3.7
	GMW-3	2.5	2.9	5.2	3.6	2.7
	GMW-4	3.1	2.7	5.3	3.2	4.5
	GMW-5	6.8	6.6	5.3	6.7	8.9
	GMW-6	8.4	8.8	7.4	7.6	7.8
	GMW-7	11.1	10.3	14.3	12.2	12.3
OXYGEN (% BY Volume)	GMW-1	16.3	16.4	17.2	16.1	15.3
	GMW-2	17.7	17.1	18.1	18.1	18.1
	GMW-3	16.5	15.7	18.3	15.7	16.3
	GMW-4	17.8	16.8	17.6	17.5	17.4
	GMW-5	15.2	0.0	17.8	15.1	16.1
	GMW-6	10.3	16.2	16.9	9.6	9.5
	GMW-7	0.0	0.0	2.0	0.0	0.0

BARHOLE READINGS							
Date:			17-Jan	21-Mar	22-May	27-Sep	20-Dec
METHANE (% BY Volume)	GMW-3	5 ft East	0.0	0.0		0.0	0.0
		5 ft West	0.0	0.0		0.0	0.0
	GMW-6	5 ft North	0.0	0.0	0.0	0.0	0.0
		5 ft South	0.0	0.0	0.0	0.0	0.0
	GMW-7	5 ft North	0.0	0.0	0.0	0.0	0.0
		5 ft South	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE (% BY Volume)	GMW-3	5 ft East	0.0	0.0		0.0	0.0
		5 ft West	0.0	0.0		0.0	0.0
	GMW-6	5 ft North	0.0	0.0	0.0	0.0	0.0
		5 ft South	0.0	0.0	0.0	0.0	0.0
	GMW-7	5 ft North	0.0	0.0	0.0	0.0	0.0
		5 ft South	0.0	0.0	0.0	0.0	0.0
OXYGEN (% BY Volume)	GMW-3	5 ft East	20.8	20.8		20.8	20.8
		5 ft West	20.8	20.8		20.8	20.8
	GMW-6	5ft North	20.8	20.8	20.7	20.8	20.8
		5 ft South	20.8	20.8	20.8	20.8	20.8
	GMW-7	5 ft North	20.8	20.8	20.8	20.8	20.7
		5 ft South	20.6	20.6	20.6	20.6	20.6

Table 2

Summary of Target Volatile Organic Compounds (VOCs) Detected in Groundwater Samples

Fountain Avenue Landfill, Brooklyn, NY

VOCs Detected In Groundwater Samples	Class GA Standard	Well Number and Result, in ug/L									
		HF-102-D	HF-102-S	HF-104-D	HF-104-S	HF-602-D	HF-602-S	HF-602-U	HF-608-D	HF-608-S	HF-608-U
Acetone	50[GV]	<5.0	<5.0	<5.0	7.4	<5.0	5.3	<5.0	<5.0	5.3	10.1
Chlorobenzene	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**14.0**
Chloroform	7	**23.5**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Footnotes: ug/L = Micrograms per Liter.
Class GA standards are from 6NYCRR Part 703.
GV = Guidance value from NYSDEC TOGS 1.1.1 (No Class GA standard for this parameter).
Bold font indicates exceedance of Class GA standard or TOGS 1.1.1 guidance value.
Acetone was detected in the field blank at an estimated concentration of 3.1 J.
These actetone detections may be due to laboratory contamination because they are <10X the field blank result.

Table 3

Summary of Target Semi-Volatile Organic Compounds (SVOCs) Detected in Groundwater Samples

Fountain Avenue Landfill, Brooklyn, NY

SVOCs Detected In Groundwater Samples	Class GA Standard	Well Number and Result, in ug/L									
		HF-102-D	HF-102-S	HF-104-D	HF-104-S	HF-602-D	HF-602-S	HF-602-U	HF-608-D	HF-608-S	HF-608-U
Acenaphthene	20[GV]	<5.1	<5.0	<5.1	1.8 J	<4.7	<4.9	<4.9	<5.1	<5.1	1.4 J
Fluoranthene	50[GV]	<5.1	<5.0	<5.1	0.71 J	<4.7	<4.9	<4.9	<5.1	<5.1	<4.8
Fluorene	50[GV]	<5.1	<5.0	<5.1	<5.1	<4.7	<4.9	<4.9	<5.1	<5.1	0.72 J
2-Methylnaphthalene	NA	<5.1	<5.0	<5.1	<5.1	<4.7	<4.9	<4.9	<5.1	<5.1	1.6 J
Naphthalene	10[GV]	<5.1	<5.0	<5.1	<5.1	<4.7	<4.9	<4.9	<5.1	<5.1	**31.1**
N-Nitrosodiphenylamine	50[GV]	<5.1	<5.0	<5.1	<5.1	<4.7	<4.9	<4.9	<5.1	<5.1	1.4 J
Phenanthrene	50[GV]	<5.1	<5.0	<5.1	<5.1	<4.7	<4.9	<4.9	<5.1	<5.1	1.1 J

Footnotes: ug/L = Micrograms per Liter.
J = Estimated concentration.
Class GA Standards are from 6NYCRR Part 703.
GV = Guidance value from NYSDEC TOGS 1.1.1 (No Class GA Standard for this parameter).
NA = Not Available (No Class GA standard or TOGS 1.1.1 guidance value for this parameter).
Bold font indicates exceedance of Class GA standard or guidance value.

Table 4

Summary of Leachate Indicator Parameters Detected in Groundwater Samples

Fountain Avenue Landfill, Brooklyn, NY

Leachate Indicator Parameters	Class GA Standard	Well Number and Result, in mg/L*									
		HF-102-D	HF-102-S	HF-104-D	HF-104-S	HF-602-D	HF-602-S	HF-602-U	HF-608-D	HF-608-S	HF-608-U
Alkalinity, Total as CaCO3	NA	<1.0	313	1,730	140	313	962	922	303	1,070	<1.0
Apparent Color	15	<5.0	**140**	**220**	**50**	15	**60**	**17**	15	**85**	**1,500**
BOD, 5 day	NA	<2.0	<2.0	5.1	<2.0	<2.0	<4.0	8.2	<2.0	<2.0	<20.0
Bromide	2[GV]	**7.6**	**42.3**	**3.0**	**57.1**	**18.2**	**4.7**	0.71	**40.8**	**20.0**	**10.5**
Chemical Oxygen Demand	NA	113	1,050	792	313	438	126	67.9	1,000	286	939
Chloride	250	**2,190**	**12,200**	**585**	**15,700**	**8,680**	**1,100**	192	**12,000**	**5,470**	**1,150**
Cyanide	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0118
Nitrate-Nitrite (as N)	10	0.046 J	<0.050	<0.050	0.26	0.097 J	<0.050	<0.050	0.80	<0.050	<0.050
Nitrite as N	1	<0.050	<0.050	0.028 J	0.036 J	<0.050	<0.050	0.038 J	<0.050	<0.050	0.048 J
Nitrogen, Ammonia	2	0.36	**5.7**	**2.1**	**161**	0.22	**33.1**	**35.7**	<0.10	0.59	**484**
Nitrogen, Kjeldahl, Total	NA	0.49	6	2.2	127	1.6	29.0	31.2	<0.10	2.6	422
pH	6.5-8.5	**3.3**	6.9	7.2	6.9	7.0	6.8	6.7	7.9	7.6	7.4
Phenolics, Total Recoverable	0.001	**0.0721**	**0.0232**	**0.113**	**0.0945**	<0.010	NA	**0.0065 J**	**0.118**	**0.0153**	**0.0243**
Sulfate	250	**276**	**1,560**	37.6	**2,220**	**1,180**	**361**	15.9	**1,510**	**751**	8.7 J
Tot Hardness asCaCO3	NA	822,000	3,400,000	4,170,000	786,000	2,900,000	763,000	490,000	3,200,000	1,340,000	290,000
Total Dissolved Solids	500**	**4,380**	**17,300**	**4,500**	**26,200**	**14,800**	**740**	280	**19,800**	**9,300**	**4,250**
Mean Total Organic Carbon	NA	1.1	6.6	2.5	108	3.6	17.9	20.5	4.6	20.5	361

Footnotes:

mg/L = Milligrams per Liter.
J = Estimated concentration.
Class GA standards are from 6NYCRR Part 703.
GV = Guidance value from NYSDEC TOGS 1.1.1 (No Class GA Standard for this parameter).
NA = Not Available (No Class GA standard or TOGS 1.1.1 guidance value for this parameter).
Bold font indicates exceedance of Class GA standard or TOGS 1.1.1 guidance value.
* = Except for Color, which is in Color Units.
** = Standard is the more stringent Federal SMCL (The Class GA TDS standard is <1,000 mg/L).

Table 5

Summary of Inorganic Parameters Detected in Groundwater Samples

Fountain Avenue Landfill, Brooklyn, NY

Metals	Class GA Standard	Well Number and Result, in ug/L									
		HF-102-D	HF-102-S	HF-104-D	HF-104-S	HF-602-D	HF-602-S	HF-602-U	HF-608-D	HF-608-S	HF-608-U
Aluminum	NA	215	<200	89.3 J	181 J	<200	<200	<200	<200	<200	142 J
Antimony	3	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0
Arsenic*	10	6.5 J	6.8 J	8.3 J	<10.0	7.1 J	<10.0	<10.0	6.2 J	5.8 J	7.0 J
Barium*	1,000	61.6 J	100 J	84.7 J	**1,410**	46.6 J	<200	408	43.1 J	31.4 J	471
Beryllium	3[GV]	<5.0	<5.0	<5.0	**<5.0**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Boron	1,000	260	**3,070**	**3,270**	**2,420**	**1,820**	**1,550**	365	**2,610**	**2,980**	**7,470**
Cadmium*	5	**15.8**	<2.5	<2.5	0.35 J	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Calcium	NA	115,000	242,000	267,000	209,000	217,000	74,500	165,000	220,000	99,900	54,100
Chromium*	50	<10.0	3.1 J	<10.0	9.8 J	1.2 J	8.1 J	1.9 J	1.5 J	4.7 J	**102**
Cobalt	NA	30.2 J	<50.0	<50.0	7.4 J	<50.0	<50.0	<50.0	<50.0	<50.0	25.8 J
Copper	200	7.9 J	<25.0	5.1 J	6.3 J	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Iron	300	**317**	**21,200**	**10,500**	**5,410**	74.4 J	55.0 J	**576**	38.5 J	**683**	**3,990**
Lead*	25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium	35,000[GV]	**130,000**	**678,000**	**850,000**	**64,200**	**573,000**	**140,000**	19,000	**644,000**	**266,000**	**37,500**
Manganese	300	**1,290**	**694**	**497**	135	195	14.5	**363**	<10.0	145	82.9
Mercury*	0.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	31.4 J	38.3 J	22.3 J	37.6 J	35.1 J	38.9 J	36.2 J	37.7 J	62.7	73.4
Potassium	NA	42,300	366,000	454,000	108,000	267,000	125,000	23,300	336,000	216,000	274,000
Selenium	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Silver*	50	<10.0	<10.0	1.4 J	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Sodium	20,000	**912,000**	**6,720,000**	**8,280,000**	**497,000**	**4,420,000**	**687,000**	**195,000**	**5,920,000**	**3,460,000**	**1,220,000**
Thallium*	0.5[GV]	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Vanadium	NA	5.8 J	4.6 J	5.7 J	11.2 J	3.6 J	25.5 J	5.4 J	4.0 J	6.5 J	126
Zinc	2,000[GV]	96.8	<20.0	9.9 J	22.8	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

Footnotes: ug/L = Micrograms per Liter.
J = Estimated concentration.
Class GA standards are from 6NYCRR Part 703.
GV = Guidance value from NYSDEC TOGS 1.1.1 (No Class GA Standard for this parameter).
NA = Not Available (No Class GA standard or TOGS 1.1.1 guidance value for this parameter).
Bold font indicates exceedance of Class GA standard or TOGS 1.1.1 guidance value.
* = RCRA metal.