

Monthly Compliance Report

Solid Waste Permit #588
Bristol Integrated Solid Waste Management Facility
2655 Valley Drive
Bristol, VA 24201
(276) 645-7233

SCS ENGINEERS

02218208.05 | November 10, 2022

15521 Midlothian Turnpike Suite 305
Midlothian, VA 23113
804-378-7440

Table of Contents

| Section | Page |
|--|------|
| Executive Summary..... | 1 |
| 1.0 Gas Collection..... | 1 |
| 1.1 Surface and Leachate Collection Emissions | 1 |
| 1.1.1 Surface Emissions..... | 1 |
| 1.1.2 Leachate Collection Emissions..... | 2 |
| 1.2 Existing Gas Extraction System Performance..... | 2 |
| 1.3 Remote Monitoring System | 3 |
| 1.4 Large-Diameter Dual-Phase Extraction Wells..... | 4 |
| 1.5 VDEQ Concurrence on Wells..... | 4 |
| 2.0 Sidewall Odor Mitigation..... | 4 |
| 2.1 Perimeter Gas Collection System | 4 |
| 2.2 Sidewall Odor Mitigation System..... | 5 |
| 2.3 Pilot System Construction..... | 6 |
| 2.4 Full System Construction | 6 |
| 3.0 Waste Temperature Monitoring | 6 |
| 3.1 Temperature Monitoring System design..... | 6 |
| 3.2 Temperature Monitoring System Installation | 7 |
| 4.0 Leachate Extraction and Monitoring..... | 7 |
| 4.1 Existing System Optimization..... | 8 |
| 4.2 Sampling and Analysis Plan..... | 9 |
| 4.3 Sampling and Analysis | 10 |
| 5.0 Settlement Monitoring and Management | 10 |
| 5.1 Settlement Monitoring and Management Plan | 10 |
| 5.2 Monthly Topographic Surveys..... | 11 |
| 6.0 Intermediate Cover and EVOH Cover System..... | 12 |
| 6.1 Intermediate Cover Installation | 12 |
| 6.2 EVOH Cover System Design | 14 |
| 6.3 EVOH Cover System Procurement..... | 14 |
| 6.4 EVOH Cover System Installation..... | 14 |
| 7.0 Storm Water Management | 14 |
| 8.0 Cease Waste Acceptance | 14 |
| 9.0 Long-Term Plan..... | 14 |
| 10.0 Community Outreach Program..... | 14 |

Table of Contents

| Section | Page |
|--|------|
| Figures | |
| Figure 1. Wellhead Temperature Sensor and Adaptor Saddle | 3 |
| Figure 2. Conceptual Cross Section of Dual-Phase Extraction Wells included in Landfill GCCS Expansion | 4 |
| Figure 3. Conceptual Cross Section of Perimeter Gas Extraction Wells included in Landfill GCCS Expansion | 5 |
| Figure 4. Conceptual Cross Section of the Sidewall Odor Mitigation System..... | 5 |
| Figure 5. Temperature Monitoring System Drilling..... | 7 |
| Figure 6. Settlement Plate Detail..... | 11 |
| Figure 7. Intermediate Cover Depth Checks..... | 13 |

Tables

| | |
|--|---|
| Table 1. Summary of October Surface Emissions Monitoring..... | 1 |
| Table 2. Cleanout Pipe Identification | 2 |
| Table 3. Summary of Dual Extraction Well Pump Stroke Counter Data..... | 8 |
| Table 4. Summary of Dual Extraction Well Pump Liquids Removal | 9 |

Appendices

| | |
|------------|--|
| Appendix A | Surface Emissions Monitoring Summary Letters |
| Appendix B | SCS-FS October Summary Report |
| Appendix C | Sidewall Odor Mitigation System Design Drawings |
| Appendix D | Dual Phase Landfill Gas Extraction Well Leachate Monitoring Plan |
| Appendix E | Monthly Topography Analysis |

EXECUTIVE SUMMARY

On behalf of the City of Bristol, Virginia (City), SCS Engineers has prepared this report to the Virginia Department of Environmental Quality (VDEQ) outlining steps taken towards the action items outlined in the Plan of Action submitted to VDEQ on July 6, 2022. This report covers the Solid Waste Permit #588 landfill during the month of October.

1.0 GAS COLLECTION

The City has continued steps to operate, develop, and improve the facility's landfill gas collection and control system (GCCS). The following sections outline steps City is taking in collaboration with its consultants and operations and monitoring contractor.

1.1 SURFACE AND LEACHATE COLLECTION EMISSIONS

1.1.1 Surface Emissions

In addition to standard regulatory quarterly surface emissions monitoring, SCS performed additional surface emissions monitoring on October 10, 2022, October 21, 2022, and October 28, 2022. This Surface Emissions Monitoring (SEM) Event was performed in accordance with Section 3.5 of the Plan of Action in Response to the Expert Panel Report, submitted to VDEQ on July 6, 2022.

The monitoring generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The monitoring route included applicable areas of the Permit No. 588 landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint outside of the active filling area.

SCS submitted letters to VDEQ outlining the results of the October 21, 2022, and October 28, 2022. Copies of those submittals are included in Appendix A. Table 1 summarizes the results of the three monitoring events in October.

Table 1. Summary of October Surface Emissions Monitoring

| Description | October 10, 2022 | October 21, 2022 | October 28, 2022 |
|--|------------------|------------------|------------------|
| Number of Points Sampled | 140 | 142 | 140 |
| Number of Points in Serpentine Route | 100 | 102 | 100 |
| Number of Points at Surface Cover Penetrations | 40 | 40 | 40 |
| Number of Exceedances ¹ | 15 | 7 | 6 |

¹ Exceedance locations were marked in the field with red flagging and were identified to landfill personnel to initiate corrective actions.

| Description | October 10, 2022 | October 21, 2022 | October 28, 2022 |
|--|------------------|------------------|------------------|
| Number of Serpentine Exceedances | 0 | 0 | 0 |
| Number of Pipe Penetration Exceedances | 15 | 7 | 6 |

1.1.2 Leachate Collection emissions

SCS Field Services (SCS-FS) visited the Bristol Landfill during the month of October and performed monitoring of the leachate, witness zone, and gradient control clean-outs at the northern and southern ends of the landfill. The results of that monitoring are included in SCS-FS' summary report for the month of October dated November 8, 2022. A copy of this report is included in Appendix B. The monitoring data for the clean-outs at the southern end of the landfill are listed as LC01 – LC10. The monitoring data for the clean-outs at the northern end of the landfill are listed as NC01 – NC10. Based on site records and correspondence, SCS prepared a summary of the pipe numbering relative to the function of the pipes shown in Table 2.

Table 2. Cleanout Pipe Identification

| Northern Cleanouts | | Southern Cleanouts | |
|--------------------|----------------------|--------------------|----------------------|
| ID # | Description | ID # | Description |
| NC01 | Leachate East | LC01 | Gradient West |
| NC02 | Leachate Center | LC02 | Gradient East |
| NC03 | Leachate West | LC03 | Leachate Center |
| NC04 | Witness East | LC04 | Witness East |
| NC05 | Witness Center | LC05 | Leachate West |
| NC06 | Witness West | LC06 | Gradient Center West |
| NC07 | Gradient East | LC07 | Leachate East |
| NC08 | Gradient Center East | LC08 | Gradient Center East |
| NC09 | Gradient Center West | LC09 | Leachate West |
| NC10 | Gradient West | LC10 | Witness Center |

1.2 EXISTING GAS EXTRACTION SYSTEM PERFORMANCE

SCS and SCS-FS have been coordinating with the City to improve the performance of the existing gas system. Specific actions taken to maintain and improve the system are detailed in SCS-FS' summary report for the month of October.

In addition to the activities outlined in the report on October 14, 2022 SCS submitted the design drawings for upgrades to the southern leachate clean-out gas collection system to the City. The City initiated procurement of materials for the project. The project is anticipated to be completed by SCS-FS in November.

The project involves replacing the existing 4-inch landfill gas (LFG) header connecting the wellheads on the southern cleanouts with the rest of the (GCCS) with a larger header. The header will be

replaced by an 8-inch or 12-inch header depending on the location. The resulting upgrades are anticipated to increase LFG flows from the southern clean-outs.

1.3 REMOTE MONITORING SYSTEM

SCS Remote Monitoring & Control (SCS-RMC) had previously furnished 25 industrial internet of things (IIoT) temperature sensors for installation on landfill gas wells at the Bristol Landfill, VA. The sensors are capable of recording and transmitting gas temperatures and GPS locations. The sensors will upload data collected via a cellular connection to a database managed by SCS-RMC

Two sensors were initially installed on wells and began recording temperature data. An initial review of the data and comparison with temperature readings recorded by field staff indicated that the measurements taken by the remote sensors were impacted by ambient air temperatures. The installation of additional sensors was put on hold until the installations could be modified to improve the accuracy of temperature readings.

During the month of October the City, SCS, SCS-FS, and SCS-RMC coordinated with the wellhead manufacturer to identify an installation configuration that provided more direct access to gas flow. The proposed solution was to thread the sensor into a saddle that could be attached to the wellhead. The City procured the necessary adapter parts which were delivered to the site during the month of October. Figure 1 shows a sensor attached to the saddle adaptor. SCS-FS will begin the installation of the remaining sensors in November.

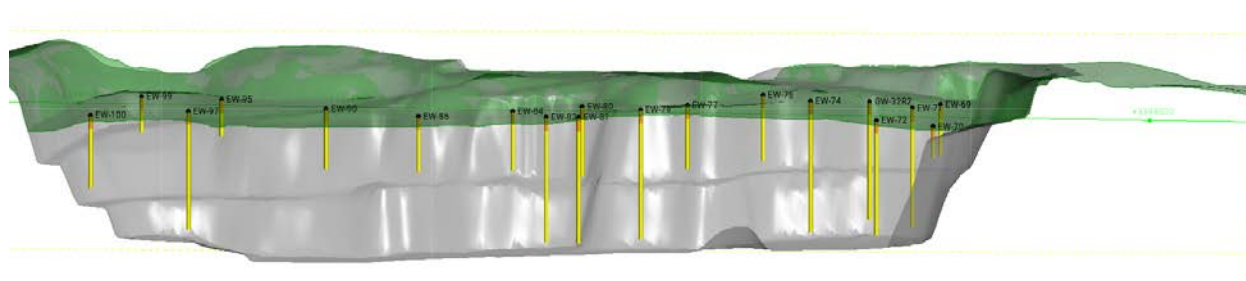
Figure 1. Wellhead Temperature Sensor and Adaptor Saddle



1.4 LARGE-DIAMETER DUAL-PHASE EXTRACTION WELLS

SCS has initiated design work on an expansion of the existing GCCS. The proposed expansion is anticipated to include at least 5 large diameter dual-phase extraction wells. A conceptual cross section of the proposed additional wells is shown in Figure 2. SCS will submit the design to VDEQ prior to December 31, 2022. The City intends to initiate the bidding process for construction of the GCCS prior to December 31, 2022.

Figure 2. Conceptual Cross Section of Dual-Phase Extraction Wells included in Landfill GCCS Expansion



1.5 VDEQ CONCURRENCE ON WELLS

The City has engaged with VDEQ in discussions about the proposed approach for landfill GCCS improvements and expansions. On October 27, 2022 SCS provided VDEQ with an overview of the proposed GCCS expansion design outlined in Section 1.4. The City and SCS intend to continue engaging with the Department throughout the design and installation process. The City intends to delay installation of temporary or final cover systems until the City and VDEQ agree that the GCCS is sufficient.

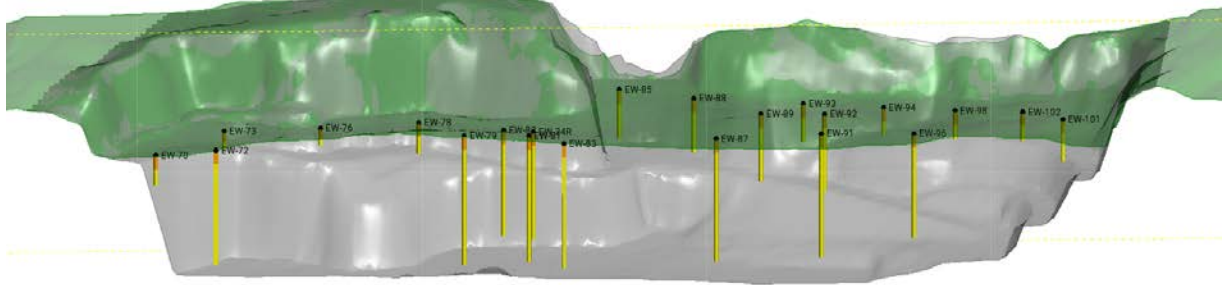
2.0 SIDEWALL ODOR MITIGATION

The City has initiated design work to address fugitive emission emanating from the quarry sidewalls. Specific aspects of the proposed design features are outlined in the following sections.

2.1 PERIMETER GAS COLLECTION SYSTEM

SCS' design of the GCCS expansion outlined in Section 1.5 will include perimeter LFG wells. These wells are intended to collect gas near the sidewalls that may not be collected by the rest of the GCCS. These wells will be placed closer to the sidewall to intercept landfill gas that potentially could migrate to the quarry wall. These wells will supplement the sidewall odor mitigation system described in section 2.2. A conceptual cross section of the proposed additional wells is shown in Figure 3. SCS will submit a design to VDEQ which includes these wells prior to December 31, 2022. The City intends to initiate the bidding process for construction of the GCCS expansion prior to December 31, 2022.

Figure 3. Conceptual Cross Section of Perimeter Gas Extraction Wells included in Landfill GCCS Expansion

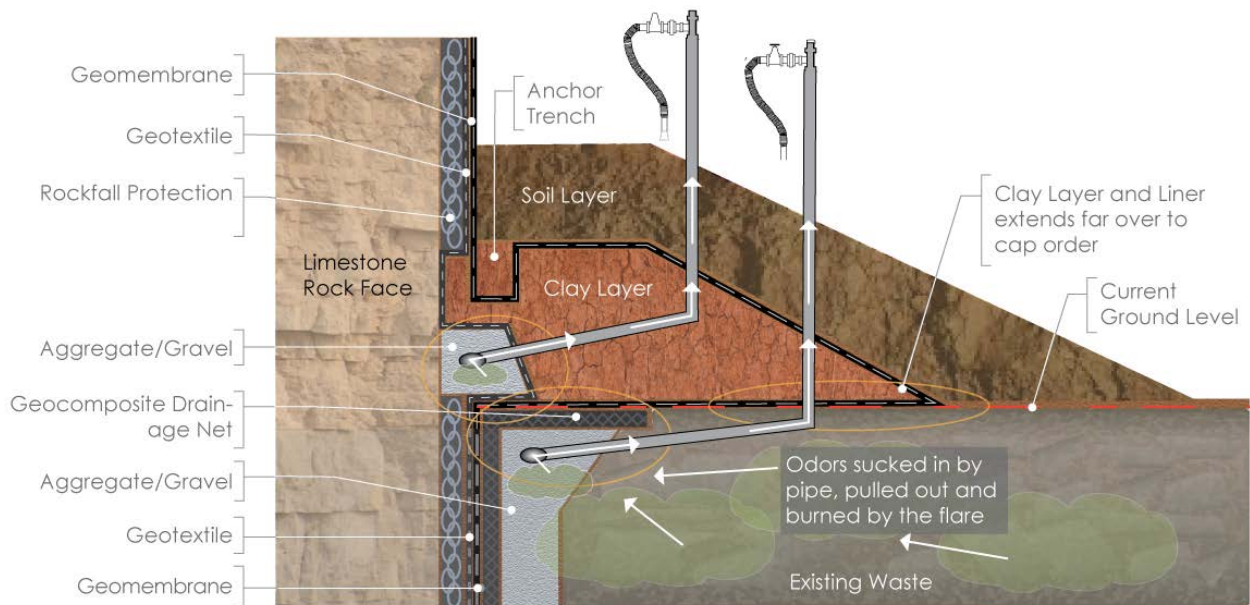


2.2 SIDEWALL ODOR MITIGATION SYSTEM

On behalf of the City and in an effort to capture emissions from the quarry sidewall SCS prepared the design of a sidewall odor mitigation system during the month of October. A conceptual cross section of the proposed system is shown in Figure 4. The system consists of the following features:

- A perimeter LFG horizontal collector
- An external odor mitigation system horizontal collector
- A low permeability soil plug
- A protective soil cover

Figure 4. Conceptual Cross Section of the Sidewall Odor Mitigation System



The perimeter LFG horizontal collector will be installed in a trench excavated in the waste. It will consist of a perforated pipe, aggregate, and the existing geocomposite drainage layer. It is intended to intercept LFG that may be flowing through the aggregate/fluff layer adjacent to the sidewall or the

geocomposite drainage layer. The collector will serve as a final piece of collection infrastructure between the waste and sidewall liner to collect gas that is not captured by the rest of the GCCS.

The external odor mitigation system horizontal collector will have the same basic construction as the perimeter LFG horizontal collector, but will be installed behind the sidewall liner. The sidewall liner will be removed above the existing grade and the collector will be placed above the waste. The geotextile from the sidewall liner system will be wrapped around the collector and tied back to the sidewall liner system.

The external odor mitigation system horizontal collector will be covered by a low permeability soil with a minimum thickness of 5 feet. The geomembrane from the sidewall liner will be wrapped around the low permeability soil layer. Additional geomembrane will be attached to supplement as needed. The entire system will be covered with a 2 foot thick soil layer to protect the system from weather and impact from other activities on the site.

The proposed system will be connected to the existing GCCS as well as a secondary blower flare. A series of valves will allow the City to direct gas one or both collectors to the existing GCCS or to the secondary flare. At low points along the SOMS, pumps will be placed in vertical pipes to remove liquids from the system. Liquids discharged from the pumps will flow into forcemains connected to the existing GCCS.

On October 20, 2022 SCS provided an overview of the proposed system to VDEQ staff. The design of this system was prepared in anticipation of submittal to VDEQ on November 1st. A copy of the design of this system is included in Appendix C. A project manual detailing the system specifications of the system was developed concurrently with the design of the system.

2.3 PILOT SYSTEM CONSTRUCTION

The City intends to put the proposed system out for bid during the month of November. The proposed system is designed to be constructed in two phases. Phase 1 will include approximately 200 feet along the western sidewall. The intent is for Phase 1 to serve as a test segment prior to completing construction of the remainder of the system. The City intends to include a milestone date of December 31, 2022 in the contract for construction of the proposed system.

2.4 FULL SYSTEM CONSTRUCTION

The remainder of the sidewall odor mitigation system will be constructed as part of Phase 2. Based on constructability and effectiveness of Phase 1, modifications to the design and methods of construction may be made prior to constructing Phase 2. The City intends to include contract times in the construction contract that require the contractor to complete Phase 2 before June 14, 2023.

3.0 WASTE TEMPERATURE MONITORING

On behalf of the City SCS has designed a temperature monitoring system that is designed to collect temperature data throughout the waste mass. The City has selected a contractor to install the system. That contractor mobilized to the site and began working in October.

3.1 TEMPURATURE MONITORING SYSTEM DESIGN

The temperature monitoring system consists of 9 boreholes drilled into the waste mass. A steel casing will be placed in each borehole and the hole will be backfilled around the casing with

aggregate. A series of temperature sensors will be placed inside the steel casing. At the top of each borehole, an industrial internet of things (IIoT) transmitter will collect the data from the sensors and transmit it to a cloud-based RMC system. The City intends to submit design of the temperature monitoring system to VDEQ by November 30, 2022.

3.2 TEMPURATURE MONITORING SYSTEM INSTALLATION

On October 1st, 2022 the City awarded the construction contract for the temperature monitoring system to Connelly & Associates, Inc (Connelly). Connelly began drilling on October 26, 2022. By October 31st, 2022 Connelly had completed 160 feet of the first borehole. Drilling and installation is expected to continue into November. A photo of drilling activities taken during the month of October is shown in Figure 5.

Figure 5. Temperature Monitoring System Drilling



4.0 LEACHATE EXTRACTION AND MONITORING

The City has begun taking steps to improve the extraction of leachate from the waste mass and collect analytical data about the leachate. The following sections detail steps taken to achieve these goals.

4.1 EXISTING SYSTEM OPTIMIZATION

During mobilizations to conduct surface emissions monitoring outlined in Section 1.1.1, SCS also collected stroke counter data from the pumps installed in the GCCS wells. Stroke counts were collected from 18 wells on October 10, 2022; October 21, 2022; and October 28, 2022. The data collected is summarized in Table 3.

Table 3. Summary of Dual Extraction Well Pump Stroke Counter Data

| Well | October 10, 2022 | October 21, 2022 | October 28, 2022 |
|------|------------------|------------------|------------------|
| GW64 | 97936 | 97942 | 97942 |
| GW61 | 193233 | 211534 | 211540 |
| GW50 | 497578 | 524193 | 551369 |
| GW49 | 438118 | 438133 | 438133 |
| GW60 | 55250 | 55250 | 55250 |
| GW52 | 227419 | 227419 | 227419 |
| GW68 | 1259680 | 1259685 | 1259685 |
| GW67 | 87445 | 87445 | 87445 |
| GW54 | 105740 | 105740 | 105740 |
| GW55 | 529010 | 529010 | 529010 |
| GW58 | 1608419 | 1608418 | 1608418 |
| GW59 | | 547361 | 547361 |
| GW57 | 120591 | 120834 | 124834 |
| GW65 | 552 | 558 | 558 |
| GW63 | 47624 | 47625 | 47625 |
| GW62 | 113958 | 113995 | 113995 |
| GW53 | 779731 | 779736 | 779736 |
| GW56 | 28427 | 29172 | 29930 |

Based on this data and stroke counts taken on September 30, 2022, SCS can estimate the number of gallons of liquid pumped from each well. SCS assumed that each stroke correlates to approximately 0.3 gallons of liquid removed from the well. This data will then be used to repair or replace pumps or replace nonfunctional stroke counters. Estimates of the quantities of liquids removed between the reading dates is shown in Table 4 below.

Table 4. Summary of Dual Extraction Well Pump Liquids Removal

| Well | Liquids Removed (gal) September 30, 2022 to October 10, 2022 | Liquids Removed (gal) October 10, 2022 to October 21, 2022 | Liquids Removed (gal) October 21, 2022 to October 28, 2022 |
|-------------------|---|---|---|
| EW64 | 0 | 1.8 | 0 |
| EW61 | 3583.5 | 5490.3 | 1.8 |
| EW50 | 10019.4 | 7984.5 | 8152.8 |
| EW49 | 0 | 4.5 | 0 |
| EW60 | 0 | 0 | 0 |
| EW52 ² | 0 | 0 | 0 |
| EW68 | 0 | 1.5 | 0 |
| EW67 | 0 | 0 | 0 |
| EW54 | 0 | 0 | 0 |
| EW55 | 0 | 0 | 0 |
| EW58 ³ | 0 | 0 | 0 |
| EW59 | 7.8 | - | 0 |
| EW57 | - | - | 0 |
| EW65 | 150.9 | 72.9 | 1200 |
| EW63 | 1.2 | 1.8 | 0 |
| EW62 | 0 | 0.3 | 0 |
| EW53 | 0 | 11.1 | 0 |
| EW56 | 0 | 1.5 | 0 |

As outlined in Appendix B repairs were made to the liquids removal system during the month of October. The effects of those repairs may not be fully reflected in this data. The City’s contractors will continue repairs of pumping infrastructure and pumps during the month of November.

4.2 SAMPLING AND ANALYSIS PLAN

SCS prepared a the Dual Phase Landfill Gas Extraction Well Leachate Monitoring Plan for the Bristol Integrated Solid Waste Management Facility Solid Waste Permit #588 Landfill for submittal to VDEQ on November 1, 2022. The Plan documents procedures and instructions necessary to implement a leachate monitoring program for the Dual Phase Landfill Gas Extraction Wells (LFG-EWs) installed within the Permit #588 Landfill. The Plan was prepared in response to the Expert Panel Report

² Subsequent investigation indicated that the pump in EW 52 is working but strokes are not being recorded.

³ Subsequent investigation indicated that the pump in EW 58 is working but strokes are not being recorded.

prepared by the Expert Panel convened by the Virginia Department of Environmental Quality to address odor problems and operational concerns at the Facility. A copy of the plan is included in Appendix D.

4.3 SAMPLING AND ANALYSIS

SCS will begin sampling and analysis in accordance with the submitted plan on the City's behalf in November.

5.0 SETTLEMENT MONITORING AND MANAGEMENT

The City is taking steps to track and manage settlement occurring in the landfill. A summary of actions taken to quantify and manage settlement is included in the sections below.

5.1 SETTLEMENT MONITORING AND MANAGEMENT PLAN

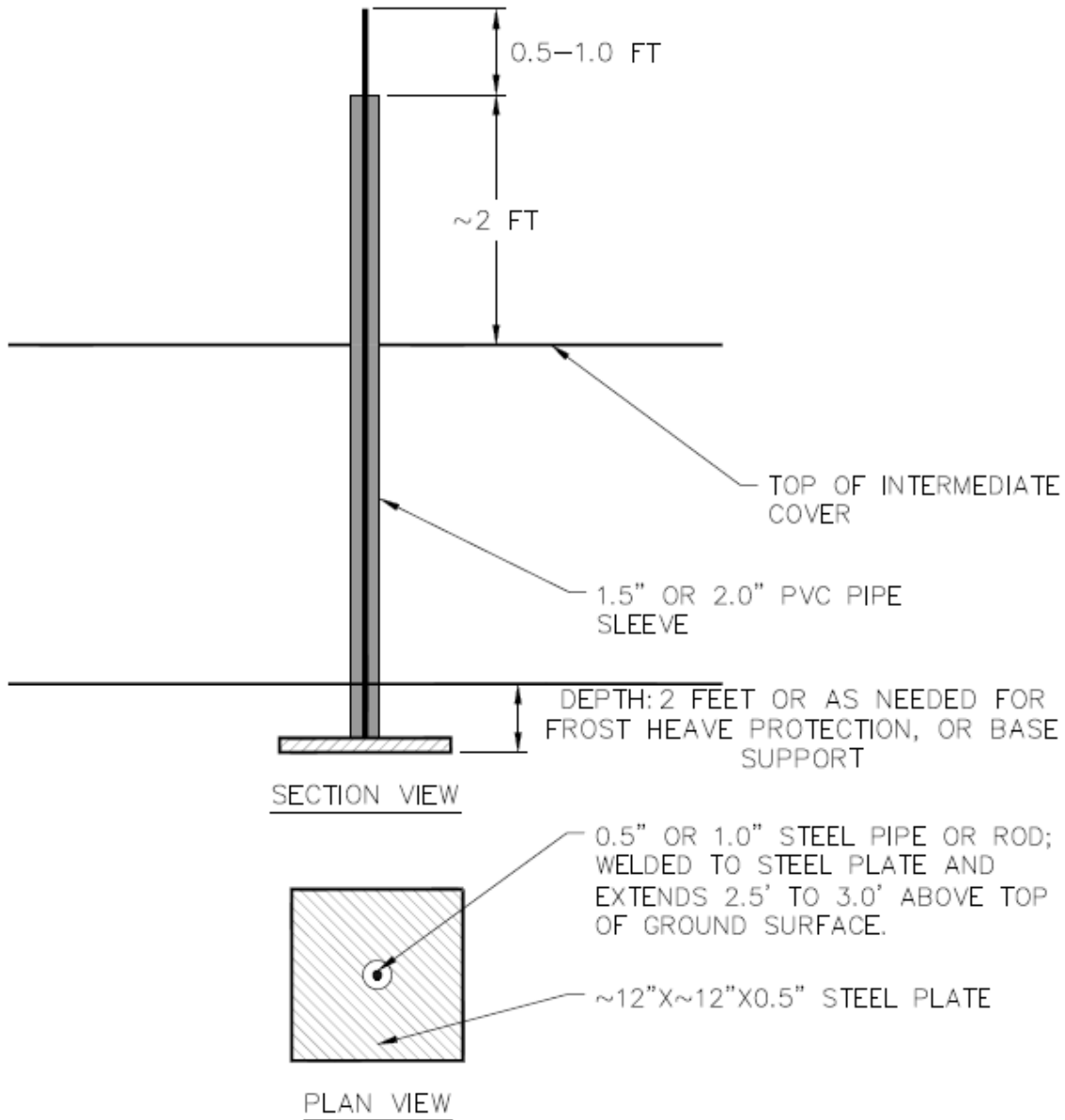
On behalf of the City SCS has begun preparing a settlement monitoring and management plan. The plan will address both how to monitor settlement and how to mitigate the effects of settlement on landfill infrastructure.

Settlement monitoring is anticipated to include two components:

- Installation and monitoring of settlement plates installed within the waste mass
- Monthly surveys of the landfill topography

The City contracted with SCS-FS to fabricate settlement plates based on the design included in the Plan of Action. The general settlement plate design is shown in Figure 6. The settlement plates will be installed during the month of November.

Figure 6. Settlement Plate Detail



SURFACE BENCHMARK SETTLEMENT PLATE NTS

5.2 MONTHLY TOPOGRAPHIC SURVEYS

The City through SCS, contracted with NV5 (formerly Quantum Spatial) to collect topographic data of the entire landfill property using aerial Light Detection and Ranging (Lidar). On October 7, 2022 the flight was completed and the topographic data collected. The topographic data collected is shown on Sheet 1 in Appendix E.

The topography within the landfill footprint was compared to topographic data collected by Draper Aden Associates (DAA) in June 2021. A drawing depicting the June 2021 topography is included as Sheet 3 in Appendix E.

Based on a comparison of the topographic data collected on those two dates, settlement occurred that reduced the volume of waste in the landfill by approximately 102,100 cubic yards. During that same time period approximately 120,700 cubic yards of waste and cover soil were placed on the landfill. This resulted in a net volume increase of approximately 18,600 cubic yards. Filling primarily occurred in the southwest corner of the landfill. Settlement was spread across the remainder of the landfill. A visual depiction of settlement and filling at the landfill during this time is depicted on Sheet 4 in Appendix E.

SCS will collect topographic data covering the landfill surface again in November using photogrammetric methods via an unmanned aerial vehicle (UAV or drone). This data will be compared to the data collected in October.

6.0 INTERMEDIATE COVER AND EVOH COVER SYSTEM

The City is taking steps to provide intermediate and temporary cover of the wastes in the landfill. The sections below outline the steps taken by the City.

6.1 INTERMEDIATE COVER INSTALLATION

The City has been hauling soil to the landfill to install a 12-inch thick intermediate cover across the entire landfill. The cover is being placed in accordance with 9VAC20-81-140(B)(1)(d). The City completed hauling and placement prior to October 10, 2022.

On October 11, 2022 an employee of Golder Associates dug test holes which were observed by SCS' project manager Brandon King. All of the test holes indicated at least 12 inches of soil cover was in place on top of the waste. On October 20, 2022 SCS dug 7 additional test holes across the landfill confirm the depth of intermediate cover. The depth of intermediate cover exceeded 12 inches at all 7 locations. The approximate locations of the test holes are shown in Figure 7.

Figure 7. Intermediate Cover Depth Checks



Intermediate Cover Depth Check Locations

6.2 EVOH COVER SYSTEM DESIGN

SCS has begun the process of preparing a scope for the EVOH cover system design for submittal to the City.

6.3 EVOH COVER SYSTEM PROCUREMENT

City has initiated discussion with EVOH cover vendors to facilitate future procurement of an EVOH cover system.

6.4 EVOH COVER SYSTEM INSTALLATION

Installation of the EVOH cover system will begin after completion of installation of other infrastructure is complete.

7.0 STORM WATER MANAGEMENT

SCS is reviewing the topography collected on October 7, 2022 to determine the scope of design needed to manage stormwater on the site. SCS is preparing an approach for submittal to the City that will address stormwater management design, construction, and stormwater sampling.

8.0 CEASE WASTE ACCEPTANCE

The City ceased acceptance of offsite waste at the Solid Waste Permit #588 landfill prior to September 12, 2022.


9.0 LONG-TERM PLAN

The City has begun reviewing available resources and the workload associated with long term maintenance and monitoring of the landfill.

10.0 COMMUNITY OUTREACH PROGRAM

The City has hired an outside consultant to lead community outreach efforts. In addition to posting updates and data on the City's website the City has set up a website specific to the landfill (bristolvalandfill.org).

Earlier this month, the City began planning for an open house held on November 1, 2022. The open house was set-up to provide the public with the opportunity to get information about activities at the landfill and to ask questions.



Appendix A
Surface Emissions Monitoring Summary Letters

October 27, 2022
File No. 02218208.04

Mr. Jonathan Chapman
Enforcement Specialist
Virginia Department of Environmental Quality
SW Regional Office
355-A Deadmore Street
Abingdon, VA 24210

Subject: Weekly Surface Emissions Monitoring Event – October 21, 2022
Bristol Integrated Solid Waste Facility – Bristol, Virginia

Dear Mr. Chapman:

On behalf of the City of Bristol (City), SCS Engineers (SCS), is pleased to submit the results of the Weekly Surface Emissions Monitoring event performed at the Bristol Integrated Solid Waste Facility located in Bristol, Virginia on October 21, 2022. This Weekly Surface Emissions Monitoring (SEM) Event was performed in accordance with Section 3.5 of the Plan of Action in Response to the Expert Panel Report, submitted to VDEQ on July 6, 2022.

The monitoring generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The monitoring route included applicable areas of the Permit No. 588 landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint outside of the active filling area. The approximate monitoring route and sampling locations are presented in the attached Drawing.

At the time of monitoring, all areas of the Permit No. 588 landfill footprint are subject to regulatory monitoring based on the regulatory time schedule stipulated in 40 CFR 63.1960(b) and 40 CFR 60.36f(b). The Permit 588 Landfill has a surface area of approximately 17.3 acres. Therefore, the minimum number of sampling points to cover the appropriate portion of the landfill footprint, utilizing a 30-meter grid interval, is approximately 82 (4.75 points per acre). A summary of the results of the surface emissions monitoring is provided in Table 1.



Table 1. Summary of Surface Emissions Monitoring

| Description | Quantity |
|--|----------|
| Number of Points Sampled | 142 |
| Number of Points in Serpentine Route | 102 |
| Number of Points at Surface Cover Penetrations | 40 |
| Number of Exceedances ¹ | 7 |
| Number of Serpentine Exceedances | 0 |
| Number of Pipe Penetration Exceedances | 7 |

Proposed corrective actions at these locations involved addition and compaction of low permeability soil as well as vacuum adjustments to adjacent vertical wells. Results of corrective actions and remonitoring results will be presented in subsequent reports.

Remonitoring of Ongoing Exceedances

In accordance with 40 CFR 63.1960(c)(4)(ii) and 40 CFR 60.36f(c)(4)(ii), corrective actions and a remonitoring event are to be performed within 10 days of the initial exceedance. In accordance with 40 CFR 63.1960(c)(4)(iii) and 40 CFR 60.36f(c)(4)(iii) additional corrective actions and a second 10-day retest are to be performed if the initial 10-day retest indicates methane values greater than the regulatory threshold. The Facility performed corrective actions including wellhead vacuum adjustments and addition of soil cover prior to this event at locations that previously exhibited elevated methane concentrations².

In accordance with 40 CFR 63.1960(c)(4)(v) and 40 CFR 60.36f(c)(4)(v) a new well or collection device must be installed or an alternate remedy must be submitted within 120-days at locations That continue to exhibit methane concentrations above the regulatory threshold for two consecutive retests.

A summary of ongoing exceedance points is provided in Table 2.

¹ Exceedance locations were marked in the field with red flagging and were identified to landfill personnel to initiate corrective actions.

Table 2. Ongoing Weekly SEM Exceedances

| Point ID | Initial Exceedance Date | 10/21/22 Event | 10/21/22 Event Result | Comments |
|----------|-------------------------|--------------------|-----------------------|--------------------------|
| Tag 25 | 9/16/22 | 30-Day Retest | Pass | No Further Action |
| EW-38 | 9/16/22 | 30-Day Retest | Pass | No Further Action |
| EW-34 | 9/23/22 | Not Required | Pass | Requires 30-Day Retest |
| EW-66 | 9/23/22 | Not Required | Pass | Requires 30-Day Retest |
| EW-46 | 10/10/22 | First10-Day Retest | Pass | Requires 30-Day Retest |
| EW-67 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-56 | 8/4/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-57 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-41 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-53 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-40 | 8/4/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-51 | 8/4/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-68 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-42 | 8/12/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-52 | 8/19/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-39 | 8/19/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-48 | 8/26/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-47 | 8/26/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-54 | 9/2/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-35 | 9/9/22 | N/A | Fail | Subject to 1960(c)(4)(v) |

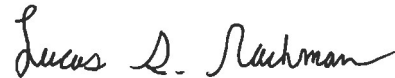
Mr. Jonathan Chapman
October 27, 2022
Page 4

If you have questions or require additional information, please contact either of the undersigned.

Sincerely,



Charles J. Warren
Project Manager
SCS Engineers



Lucas S. Nachman
Project Professional
SCS Engineers

LSN/LEH/cjw

cc: Randall Eads, City of Bristol
Mike Martin, City of Bristol
Joey Lamie, City of Bristol
Jake Chandler, City of Bristol
Crystal Bazyk, VDEQ
Charles Warren, SCS Engineers

Encl. Surface Emissions Monitoring Results
Bristol SEM Route Drawing

SCS ENGINEERS**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - OCTOBER 21, 2022
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|--------------------------|------------|-----------------|-------|---------------------------|
| | | | Lat. | Long. | |
| 1 | 3.8 PPM | OK | | | Start Serpentine Route |
| 2 | 6.1 PPM | OK | | | |
| 3 | 3.7 PPM | OK | | | |
| 4 | 34.1 PPM | OK | | | |
| 5 | 11.6 PPM | OK | | | |
| 6 | 35.8 PPM | OK | | | |
| 7 | 151.0 PPM | OK | | | |
| 8 | 8.3 PPM | OK | | | |
| 9 | 6.7 PPM | OK | | | |
| 10 | 113.0 PPM | OK | | | |
| 11 | 266.0 PPM | OK | | | |
| 12 | 118.0 PPM | OK | | | |
| 13 | 100.0 PPM | OK | | | |
| 14 | 93.5 PPM | OK | | | |
| 15 | 258.0 PPM | OK | | | |
| 16 | 80.5 PPM | OK | | | |
| 17 | 65.5 PPM | OK | | | |
| 18 | 269.0 PPM | OK | | | |
| 19 | 294.0 PPM | OK | | | |
| 20 | 229.0 PPM | OK | | | |
| 21 | 23.7 PPM | OK | | | |
| 22 | 42.8 PPM | OK | | | |
| 23 | 13.7 PPM | OK | | | |
| 24 | 104.0 PPM | OK | | | |
| 25 | 32.8 PPM | OK | | | |
| 26 | 97.4 PPM | OK | | | |
| 27 | 455.0 PPM | OK | | | |
| 28 | 424.0 PPM | OK | | | |
| 29 | 237.0 PPM | OK | | | |
| 30 | 384.0 PPM | OK | | | |
| 31 | 144.0 PPM | OK | | | |
| 32 | 104.0 PPM | OK | | | |
| 33 | 67.6 PPM | OK | | | |
| 34 | 40.0 PPM | OK | | | |
| 35 | 90.0 PPM | OK | | | |
| 36 | 9.2 PPM | OK | | | |
| 37 | 4.5 PPM | OK | | | |
| 38 | 15.8 PPM | OK | | | |
| 39 | 60.1 PPM | OK | | | |
| 40 | 209.0 PPM | OK | | | |
| 41 | 27.4 PPM | OK | | | |
| 42 | 61.0 PPM | OK | | | |

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - OCTOBER 21, 2022
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|--------------------------|------------|-----------------|-------|----------|
| | | | Lat. | Long. | |
| 43 | 401.0 PPM | OK | | | |
| 44 | 22.3 PPM | OK | | | |
| 45 | 2.6 PPM | OK | | | |
| 46 | 6.7 PPM | OK | | | |
| 47 | 8.9 PPM | OK | | | |
| 48 | 33.4 PPM | OK | | | |
| 49 | 2.6 PPM | OK | | | |
| 50 | 1.2 PPM | OK | | | |
| 51 | 1.2 PPM | OK | | | |
| 52 | 10.8 PPM | OK | | | |
| 53 | 3.9 PPM | OK | | | |
| 54 | 2.0 PPM | OK | | | |
| 55 | 5.6 PPM | OK | | | |
| 56 | 64.2 PPM | OK | | | |
| 57 | 11.6 PPM | OK | | | |
| 58 | 7.8 PPM | OK | | | |
| 59 | 10.6 PPM | OK | | | |
| 60 | 23.6 PPM | OK | | | |
| 61 | 6.7 PPM | OK | | | |
| 62 | 7.1 PPM | OK | | | |
| 63 | 27.6 PPM | OK | | | |
| 64 | 21.4 PPM | OK | | | |
| 65 | 9.7 PPM | OK | | | |
| 66 | 4.7 PPM | OK | | | |
| 67 | 3.5 PPM | OK | | | |
| 68 | 33.6 PPM | OK | | | |
| 69 | 5.7 PPM | OK | | | |
| 70 | 49.3 PPM | OK | | | |
| 71 | 19.9 PPM | OK | | | |
| 72 | 64.0 PPM | OK | | | |
| 73 | 8.1 PPM | OK | | | |
| 74 | 6.0 PPM | OK | | | |
| 75 | 36.3 PPM | OK | | | |
| 76 | 16.2 PPM | OK | | | |
| 77 | 8.4 PPM | OK | | | |
| 78 | 8.4 PPM | OK | | | |
| 79 | 4.7 PPM | OK | | | |
| 80 | 299.0 PPM | OK | | | |
| 81 | 90.4 PPM | OK | | | |
| 82 | 57.1 PPM | OK | | | |
| 83 | 129.0 PPM | OK | | | |
| 84 | 82.7 PPM | OK | | | |

SCS ENGINEERS

EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS WEEKLY MONITORING EVENT - OCTOBER 21, 2022 BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|--------------------------|------------|-----------------|-----------|-------------------------|
| | | | Lat. | Long. | |
| 85 | 10.2 PPM | OK | | | |
| 86 | 15.2 PPM | OK | | | |
| 87 | 40.4 PPM | OK | | | |
| 88 | 6.9 PPM | OK | | | |
| 89 | 5.7 PPM | OK | | | |
| 90 | 5.4 PPM | OK | | | |
| 91 | 4.8 PPM | OK | | | |
| 92 | 10.2 PPM | OK | | | |
| 93 | 9.5 PPM | OK | | | |
| 94 | 22.8 PPM | OK | | | |
| 95 | 16.0 PPM | OK | | | |
| 96 | 24.5 PPM | OK | | | |
| 97 | 335.0 PPM | OK | | | |
| 98 | 14.2 PPM | OK | | | |
| 99 | 252.0 PPM | OK | | | |
| 100 | 56.3 PPM | OK | | | |
| 101 | 196.0 PPM | OK | | | |
| 102 | 24.2 PPM | OK | | | End Serpentine Route |
| 103 | 4396.0 PPM | HIGH_ALARM | 36.59916 | -82.14769 | EW-35 |
| 104 | 5957.0 PPM | HIGH_ALARM | 36.59900 | -82.14750 | EW-52 |
| 105 | 296.0 PPM | OK | | | EW-60 |
| 106 | 4461.0 PPM | HIGH_ALARM | 36.59950 | -82.14753 | EW-48 |
| 107 | 3.7 PPM | OK | | | EW-61 |
| 108 | 4.4 PPM | OK | | | EW-36 |
| 109 | 138.0 PPM | OK | | | EW-34 |
| 110 | 11.6 PPM | OK | | | EW-65 |
| 111 | 56.0 PPM | OK | | | EW-50 |
| 112 | 134.0 PPM | OK | | | EW-55 |
| 113 | 1318.0 PPM | HIGH_ALARM | 36.59865 | -82.14743 | EW-54 |
| 114 | 228.0 PPM | OK | | | EW-47 |
| 115 | 40.9 PPM | OK | | | EW-67 |
| 116 | 9838.0 PPM | HIGH_ALARM | 36.59864 | -82.14796 | EW-40 |
| 117 | 245.0 PPM | OK | | | EW-53 |
| 118 | 84.8 PPM | OK | | | EW-41 |
| 119 | 114.0 PPM | OK | | | EW-46 |
| 120 | 16.6 PPM | OK | | | EW-66 |
| 121 | 202.0 PPM | OK | | | EW-58 |
| 122 | 446.0 PPM | OK | | | EW-57 |
| 123 | 3.6 PPM | OK | | | EW-59 |
| 124 | 6071.0 PPM | HIGH_ALARM | 36.59789 | -82.14790 | EW-56 |
| 125 | 895.0 PPM | HIGH_ALARM | 36.59884 | -82.14786 | EW-51 |

SCS ENGINEERS

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - OCTOBER 21, 2022
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|-----------------------|------------|-----------------|-------|----------|
| | | | Lat. | Long. | |
| 126 | 213.0 PPM | OK | | | EW-39 |
| 127 | 41.8 PPM | OK | | | EW-68 |
| 128 | 468.0 PPM | OK | | | EW-38 |
| 129 | 2.0 PPM | OK | | | EW-49 |
| 130 | 1.5 PPM | OK | | | EW-31R |
| 131 | 3.1 PPM | OK | | | EW-37 |
| 132 | 5.8 PPM | OK | | | EW-65 |
| 133 | 3.3 PPM | OK | | | EW-30R |
| 134 | 4.8 PPM | OK | | | EW-63 |
| 135 | 361.0 PPM | OK | | | EW-42 |
| 136 | 4.8 PPM | OK | | | EW-33R |
| 137 | 4.4 PPM | OK | | | EW-62 |
| 138 | 1.8 PPM | OK | | | EW-29R |
| 139 | 8.8 PPM | OK | | | EW-25 |
| 140 | 5.6 PPM | OK | | | EW-24 |
| 141 | 2.7 PPM | OK | | | EW-32 |
| 142 | 6.9 PPM | OK | | | EW-32R |

| | |
|---------------------------------|-----|
| Number of locations sampled: | 142 |
| Number of exceedance locations: | 7 |

NOTES:

Points 1 through 102 represent serpentine SEM route.
 Points 103 through 143 represent SEM at Pipe Penetrations
 Weather Conditions: Sunny 55°F Wind: 0 MPH

Sampling Calibration: Methane - 500 ppm, Zero Air - 0.0 ppm

| | | | |
|------------|------|------|-----------|
| 10/21/2022 | 8:57 | ZERO | 0.1 PPM |
| 10/21/2022 | 9:00 | SPAN | 504.0 PPM |

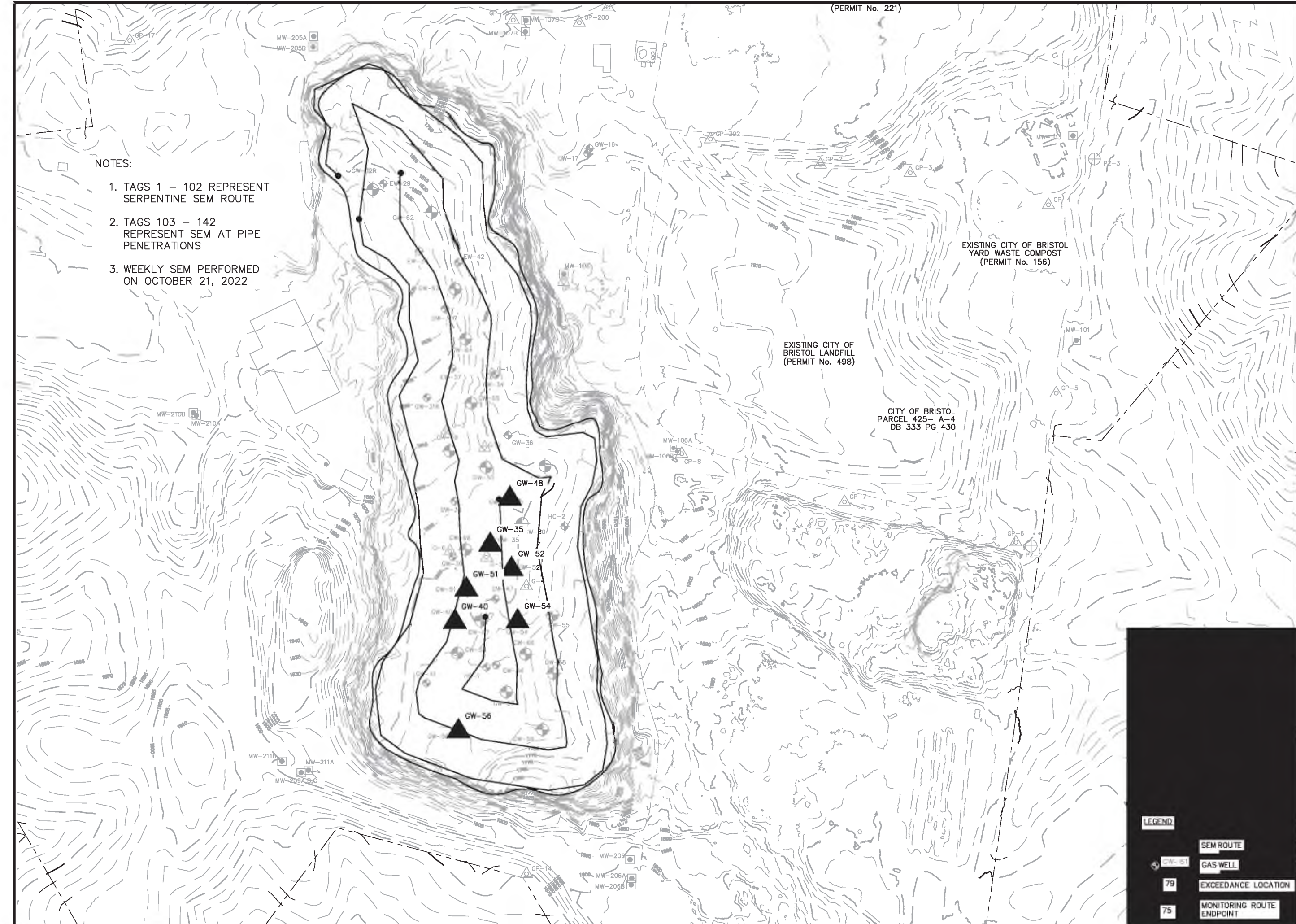
Background Reading:

| | | | |
|------------|------|----------|---------|
| 10/21/2022 | 9:10 | Upwind | 2.2 PPM |
| 10/21/2022 | 9:12 | Downwind | 6.3 PPM |

(PERMIT No. 221)

NOTES:

1. TAGS 1 - 102 REPRESENT SERPENTINE SEM ROUTE
2. TAGS 103 - 142 REPRESENT SEM AT PIPE PENETRATIONS
3. WEEKLY SEM PERFORMED ON OCTOBER 21, 2022



| | | | |
|---|--|--|----------|
| CLIENT | BRISTOL SEM ROUTE | | DATE |
| | BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2125 SHAKESVILLE RD BRISTOL, VA | | REVISION |
| SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 2620 MIDWINTER BLVD PH: (804) 376-1440 FAX: (804) 376-1433 | SHEET TITLE | PROJECT TITLE | NO. |
| | BRISTOL SEM ROUTE | WEEKLY SURFACE EMISSIONS MONITORING SOLID WASTE PERMIT #588 | |
| | CADD FILE: | DATE: | SCALE: |
| 0221B206_04 | 10/21/22 | AS SHOWN | 1 of 1 |
| DWG. BY: LSN CHK. BY: DBK | D/A BY: LSN APP. BY: DBK | | |

LEGEND

- SEM ROUTE
- GAS WELL
- 79 EXCEEDANCE LOCATION
- 75 MONITORING ROUTE ENDPOINT

November 2, 2022
File No. 02218208.04

Mr. Jonathan Chapman
Enforcement Specialist
Virginia Department of Environmental Quality
SW Regional Office
355-A Deadmore Street
Abingdon, VA 24210

Subject: Weekly Surface Emissions Monitoring Event – October 28, 2022
Bristol Integrated Solid Waste Facility – Bristol, Virginia

Dear Mr. Chapman:

On behalf of the City of Bristol (City), SCS Engineers (SCS), is pleased to submit the results of the Weekly Surface Emissions Monitoring event performed at the Bristol Integrated Solid Waste Facility located in Bristol, Virginia on October 28, 2022. This Weekly Surface Emissions Monitoring (SEM) Event was performed in accordance with Section 3.5 of the Plan of Action in Response to the Expert Panel Report, submitted to VDEQ on July 6, 2022.

The monitoring generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The monitoring route included applicable areas of the Permit No. 588 landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint outside of the active filling area. The approximate monitoring route and sampling locations are presented in the attached Drawing.

At the time of monitoring, all areas of the Permit No. 588 landfill footprint are subject to regulatory monitoring based on the regulatory time schedule stipulated in 40 CFR 63.1960(b) and 40 CFR 60.36f(b). The Permit 588 Landfill has a surface area of approximately 17.3 acres. Therefore, the minimum number of sampling points to cover the appropriate portion of the landfill footprint, utilizing a 30-meter grid interval, is approximately 82 (4.75 points per acre). A summary of the results of the surface emissions monitoring is provided in Table 1.



Table 1. Summary of Surface Emissions Monitoring

| Description | Quantity |
|--|----------|
| Number of Points Sampled | 140 |
| Number of Points in Serpentine Route | 100 |
| Number of Points at Surface Cover Penetrations | 40 |
| Number of Exceedances ¹ | 6 |
| Number of Serpentine Exceedances | 0 |
| Number of Pipe Penetration Exceedances | 6 |

Proposed corrective actions at these locations involved addition and compaction of low permeability soil as well as vacuum adjustments to adjacent vertical wells. In some select locations a foam seal or a well bore skirt may be installed. Results of corrective actions and remonitoring results will be presented in subsequent reports.

Remonitoring of Ongoing Exceedances

In accordance with 40 CFR 63.1960(c)(4)(ii) and 40 CFR 60.36f(c)(4)(ii), corrective actions and a remonitoring event are to be performed within 10 days of the initial exceedance. In accordance with 40 CFR 63.1960(c)(4)(iii) and 40 CFR 60.36f(c)(4)(iii) additional corrective actions and a second 10-day retest are to be performed if the initial 10-day retest indicates methane values greater than the regulatory threshold. The Facility performed corrective actions including wellhead vacuum adjustments and addition of soil cover prior to this event at locations that previously exhibited elevated methane concentrations².

In accordance with 40 CFR 63.1960(c)(4)(v) and 40 CFR 60.36f(c)(4)(v) a new well or collection device must be installed or an alternate remedy must be submitted within 120-days at locations That continue to exhibit methane concentrations above the regulatory threshold for two consecutive retests.

A summary of ongoing exceedance points is provided in Table 2.

¹ Exceedance locations were marked in the field with red flagging and were identified to landfill personnel to initiate corrective actions.

Table 2. Ongoing Weekly SEM Exceedances

| Point ID | Initial Exceedance Date | 10/28/22 Event | 10/28/22 Event Result | Comments |
|----------|-------------------------|----------------|-----------------------|--------------------------|
| EW-34 | 9/23/22 | 30-Day Retest | Pass | No Further Action |
| EW-66 | 9/23/22 | 30-Day Retest | Pass | No Further Action |
| EW-46 | 10/10/22 | N/A | Pass | Requires 30-Day Retest |
| EW-67 | 8/4/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-56 | 8/4/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-57 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-41 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-53 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-40 | 8/4/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-51 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-68 | 8/4/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-42 | 8/12/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-52 | 8/19/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-39 | 8/19/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-48 | 8/26/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-47 | 8/26/22 | N/A | Pass | Subject to 1960(c)(4)(v) |
| EW-54 | 9/2/22 | N/A | Fail | Subject to 1960(c)(4)(v) |
| EW-35 | 9/9/22 | N/A | Fail | Subject to 1960(c)(4)(v) |

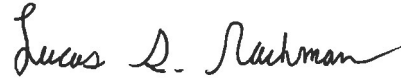
Mr. Jonathan Chapman
November 2, 2022
Page 4

If you have questions or require additional information, please contact either of the undersigned.

Sincerely,



Charles J. Warren
Project Manager
SCS Engineers



Lucas S. Nachman
Project Professional
SCS Engineers

LSN/LEH/cjw

cc: Randall Eads, City of Bristol
Mike Martin, City of Bristol
Joey Lamie, City of Bristol
Jake Chandler, City of Bristol
Crystal Bazyk, VDEQ
Charles Warren, SCS Engineers

Encl. Surface Emissions Monitoring Results
Bristol SEM Route Drawing

SCS ENGINEERS**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - OCTOBER 28, 2022
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|--------------------------|------------|-----------------|-------|---------------------------|
| | | | Lat. | Long. | |
| 1 | 122.0 PPM | OK | | | Start Serpentine Route |
| 2 | 223.0 PPM | OK | | | |
| 3 | 7.5 PPM | OK | | | |
| 4 | 9.7 PPM | OK | | | |
| 5 | 80.0 PPM | OK | | | |
| 6 | 10.2 PPM | OK | | | |
| 7 | 108.0 PPM | OK | | | |
| 8 | 40.1 PPM | OK | | | |
| 9 | 9.3 PPM | OK | | | |
| 10 | 15.9 PPM | OK | | | |
| 11 | 20.7 PPM | OK | | | |
| 12 | 42.4 PPM | OK | | | |
| 13 | 47.2 PPM | OK | | | |
| 14 | 129.0 PPM | OK | | | |
| 15 | 17.5 PPM | OK | | | |
| 16 | 35.8 PPM | OK | | | |
| 17 | 32.8 PPM | OK | | | |
| 18 | 33.1 PPM | OK | | | |
| 19 | 21.1 PPM | OK | | | |
| 20 | 35.4 PPM | OK | | | |
| 21 | 33.0 PPM | OK | | | |
| 22 | 42.4 PPM | OK | | | |
| 23 | 89.2 PPM | OK | | | |
| 24 | 44.8 PPM | OK | | | |
| 25 | 99.3 PPM | OK | | | |
| 26 | 53.8 PPM | OK | | | |
| 27 | 58.2 PPM | OK | | | |
| 28 | 90.0 PPM | OK | | | |
| 29 | 13.7 PPM | OK | | | |
| 30 | 6.9 PPM | OK | | | |
| 31 | 2.5 PPM | OK | | | |
| 32 | 3.3 PPM | OK | | | |
| 33 | 16.3 PPM | OK | | | |
| 34 | 18.0 PPM | OK | | | |
| 35 | 8.1 PPM | OK | | | |
| 36 | 4.8 PPM | OK | | | |
| 37 | 1.5 PPM | OK | | | |
| 38 | 43.6 PPM | OK | | | |
| 39 | 55.8 PPM | OK | | | |
| 40 | 22.0 PPM | OK | | | |
| 41 | 71.1 PPM | OK | | | |
| 42 | 324.0 PPM | OK | | | |

SCS ENGINEERS**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - OCTOBER 28, 2022
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|--------------------------|------------|-----------------|-------|----------|
| | | | Lat. | Long. | |
| 43 | 63.8 PPM | OK | | | |
| 44 | 8.8 PPM | OK | | | |
| 45 | 2.8 PPM | OK | | | |
| 46 | 3.6 PPM | OK | | | |
| 47 | 5.2 PPM | OK | | | |
| 48 | 6.5 PPM | OK | | | |
| 49 | 21.9 PPM | OK | | | |
| 50 | 21.5 PPM | OK | | | |
| 51 | 9.0 PPM | OK | | | |
| 52 | 6.0 PPM | OK | | | |
| 53 | 18.1 PPM | OK | | | |
| 54 | 9.1 PPM | OK | | | |
| 55 | 7.7 PPM | OK | | | |
| 56 | 11.4 PPM | OK | | | |
| 57 | 22.3 PPM | OK | | | |
| 58 | 21.0 PPM | OK | | | |
| 59 | 16.2 PPM | OK | | | |
| 60 | 17.6 PPM | OK | | | |
| 61 | 9.3 PPM | OK | | | |
| 62 | 8.3 PPM | OK | | | |
| 63 | 3.6 PPM | OK | | | |
| 64 | 7.2 PPM | OK | | | |
| 65 | 7.0 PPM | OK | | | |
| 66 | 28.7 PPM | OK | | | |
| 67 | 8.0 PPM | OK | | | |
| 68 | 18.1 PPM | OK | | | |
| 69 | 16.3 PPM | OK | | | |
| 70 | 7.4 PPM | OK | | | |
| 71 | 35.3 PPM | OK | | | |
| 72 | 79.7 PPM | OK | | | |
| 73 | 97.2 PPM | OK | | | |
| 74 | 7.6 PPM | OK | | | |
| 75 | 98.4 PPM | OK | | | |
| 76 | 48.1 PPM | OK | | | |
| 77 | 26.2 PPM | OK | | | |
| 78 | 35.9 PPM | OK | | | |
| 79 | 26.4 PPM | OK | | | |
| 80 | 13.5 PPM | OK | | | |
| 81 | 13.3 PPM | OK | | | |
| 82 | 165.0 PPM | OK | | | |
| 83 | 11.6 PPM | OK | | | |
| 84 | 20.4 PPM | OK | | | |

SCS ENGINEERS

EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS WEEKLY MONITORING EVENT - OCTOBER 28, 2022 BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|--------------------------|------------|-----------------|-----------|-------------------------|
| | | | Lat. | Long. | |
| 85 | 5.9 PPM | OK | | | |
| 86 | 7.8 PPM | OK | | | |
| 87 | 10.5 PPM | OK | | | |
| 88 | 18.6 PPM | OK | | | |
| 89 | 11.2 PPM | OK | | | |
| 90 | 7.2 PPM | OK | | | |
| 91 | 33.1 PPM | OK | | | |
| 92 | 8.8 PPM | OK | | | |
| 93 | 11.8 PPM | OK | | | |
| 94 | 47.6 PPM | OK | | | |
| 95 | 28.4 PPM | OK | | | |
| 96 | 279.0 PPM | OK | | | |
| 97 | 8.7 PPM | OK | | | |
| 98 | 65.0 PPM | OK | | | |
| 99 | 11.7 PPM | OK | | | |
| 100 | 42.3 PPM | OK | | | End Serpentine Route |
| 101 | 1426.0 PPM | HIGH_ALRM | 36.59916 | -82.14769 | EW-35 |
| 102 | 12100.0 PPM | HIGH_ALRM | 36.59900 | -82.14750 | EW-52 |
| 103 | 79.1 PPM | OK | | | EW-60 |
| 104 | 365.0 PPM | OK | | | EW-48 |
| 105 | 13.2 PPM | OK | | | EW-61 |
| 106 | 15.7 PPM | OK | | | EW-36 |
| 107 | 44.8 PPM | OK | | | EW-34 |
| 108 | 10.1 PPM | OK | | | EW-65 |
| 109 | 64.7 PPM | OK | | | EW-50 |
| 110 | 124.0 PPM | OK | | | EW-55 |
| 111 | 1260.0 PPM | HIGH_ALRM | 36.59865 | -82.14743 | EW-54 |
| 112 | 290.0 PPM | OK | | | EW-47 |
| 113 | 145.0 PPM | OK | | | EW-41 |
| 114 | 21100.0 PPM | HIGH_ALRM | 36.59864 | -82.14774 | EW-67 |
| 115 | 29800.0 PPM | HIGH_ALRM | 36.59864 | -82.14796 | EW-40 |
| 116 | 430.0 PPM | OK | | | EW-53 |
| 117 | 10.3 PPM | OK | | | EW-46 |
| 118 | 11.1 PPM | OK | | | EW-66 |
| 119 | 193.0 PPM | OK | | | EW-58 |
| 120 | 15.1 PPM | OK | | | EW-57 |
| 121 | 2136.0 PPM | HIGH_ALRM | 36.59789 | -82.14790 | EW-56 |
| 122 | 276.0 PPM | OK | | | EW-59 |
| 123 | 31.9 PPM | OK | | | EW-51 |
| 124 | 51.8 PPM | OK | | | EW-39 |
| 125 | 94.2 PPM | OK | | | EW-68 |

SCS ENGINEERS

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - OCTOBER 28, 2022
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

| ID # | Methane Concentration | Compliance | GPS Coordinates | | Comments |
|------|-----------------------|------------|-----------------|-------|----------|
| | | | Lat. | Long. | |
| 126 | 6.3 PPM | OK | | | EW-38 |
| 127 | 5.1 PPM | OK | | | EW-49 |
| 128 | 1.5 PPM | OK | | | EW-31R |
| 129 | 0.4 PPM | OK | | | EW-37 |
| 130 | 1.7 PPM | OK | | | EW-64 |
| 131 | 1.4 PPM | OK | | | EW-30R |
| 132 | 27.7 PPM | OK | | | EW-63 |
| 133 | 7.0 PPM | OK | | | EW-42 |
| 134 | 2.9 PPM | OK | | | EW-33R |
| 135 | 4.3 PPM | OK | | | EW-62 |
| 136 | 13.1 PPM | OK | | | EW-25 |
| 137 | 12.7 PPM | OK | | | EW-24 |
| 138 | 3.7 PPM | OK | | | EW-32 |
| 139 | 15.5 PPM | OK | | | EW-29 |
| 140 | 11.9 PPM | OK | | | EW-32R |

| | |
|---------------------------------|-----|
| Number of locations sampled: | 140 |
| Number of exceedance locations: | 6 |

NOTES:

Points 1 through 100 represent serpentine SEM route.
 Points 101 through 140 represent SEM at Pipe Penetrations
 Weather Conditions: Sunny 55°F Wind: E - 10 MPH

Sampling Calibration: Methane - 500 ppm, Zero Air - 0.0 ppm

| | | | |
|------------|------|------|-----------|
| 10/28/2022 | 8:59 | ZERO | 0.0 PPM |
| 10/28/2022 | 9:02 | SPAN | 502.0 PPM |

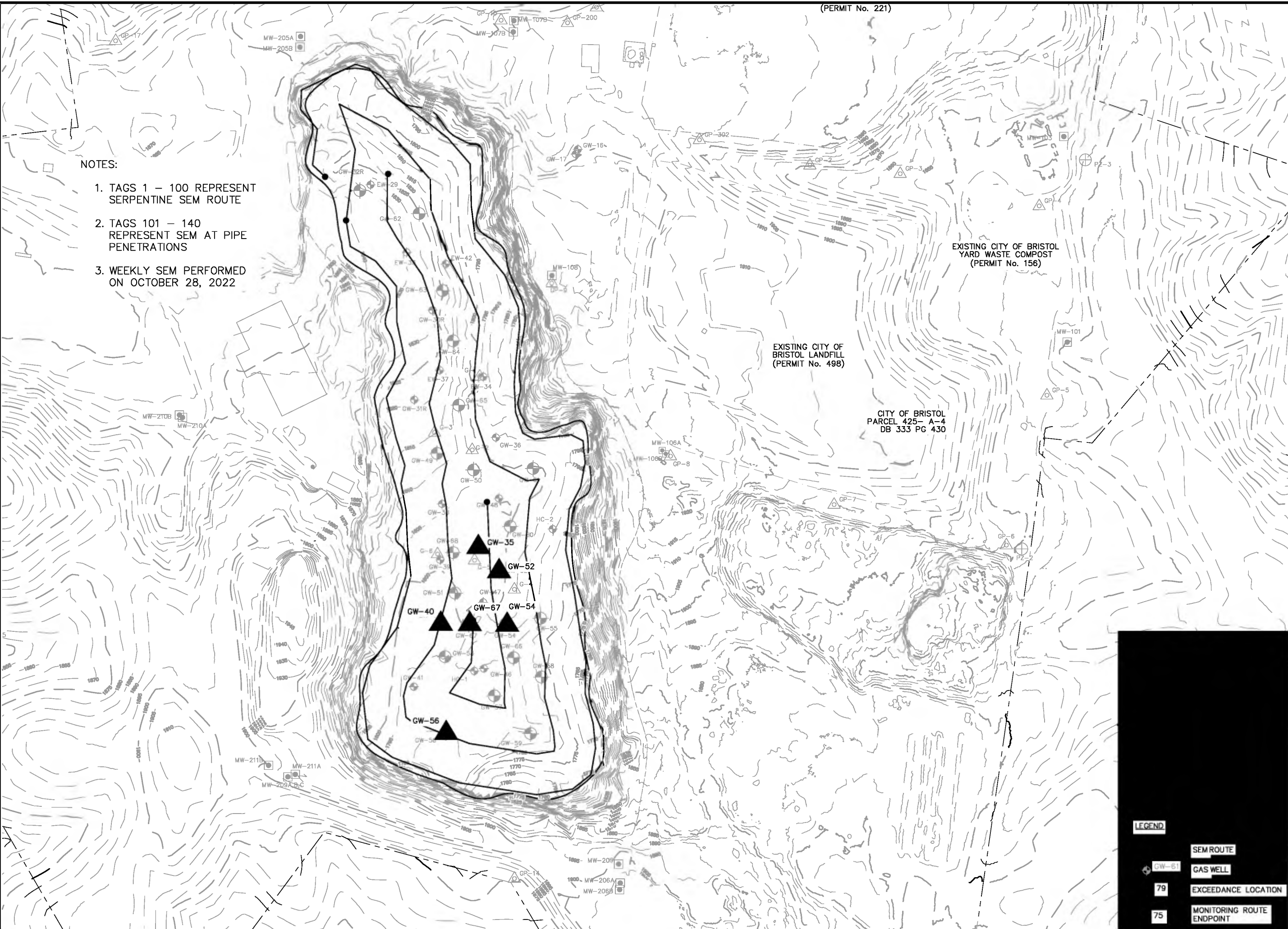
Background Reading:

| | | | |
|------------|------|----------|---------|
| 10/28/2022 | 9:09 | Upwind | 2 PPM |
| 10/28/2022 | 9:10 | Downwind | 1.8 PPM |

(PERMIT No. 221)


NOTES:

1. TAGS 1 - 100 REPRESENT SERPENTINE SEM ROUTE
2. TAGS 101 - 140 REPRESENT SEM AT PIPE PENETRATIONS
3. WEEKLY SEM PERFORMED ON OCTOBER 28, 2022



| LEGEND | |
|--------|---------------------------|
| | SEM ROUTE |
| | GAS WELL |
| | EXCEEDANCE LOCATION |
| | MONITORING ROUTE ENDPOINT |

| | | | | | | | | | | | | | | |
|---|--|------------------------------|----------|---------|-------------|-----|-----|--|---------|---------|--|-----|-----|------------|
| CLIENT BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2125 SHAKESVILLE RD BRISTOL, VA | SHEET TITLE BRISTOL SEM ROUTE | NO. | REVISION | DATE | | | | | | | | | | |
| | PROJECT TITLE WEEKLY SURFACE EMISSIONS MONITORING SOLID WASTE PERMIT #588 | Δ | Δ | Δ | | | | | | | | | | |
| | <table border="1"> <tr> <td>PROJ. NO.</td> <td>DWG. BY:</td> <td>D/W BY:</td> </tr> <tr> <td>0221B205.04</td> <td>LSN</td> <td>LSN</td> </tr> <tr> <td></td> <td>CHK BY:</td> <td>APP BY:</td> </tr> <tr> <td></td> <td>LSN</td> <td>DBK</td> </tr> </table> | PROJ. NO. | DWG. BY: | D/W BY: | 0221B205.04 | LSN | LSN | | CHK BY: | APP BY: | | LSN | DBK | CADD FILE: |
| PROJ. NO. | DWG. BY: | D/W BY: | | | | | | | | | | | | |
| 0221B205.04 | LSN | LSN | | | | | | | | | | | | |
| | CHK BY: | APP BY: | | | | | | | | | | | | |
| | LSN | DBK | | | | | | | | | | | | |
| | SCALE: AS SHOWN | DRAWING NO. 1 of 1 | | | | | | | | | | | | |



Appendix B
SCS-FS October Summary Report

November 8, 2022
Job No. 07220028.00

Mr. Michael Martin
City of Bristol
2125 Shakesville Road
Bristol, VA 24201

Subject: Summary of Operation, Monitoring, and Maintenance (OM&M) Services for Gas Collection Control System (GCCS) at the City of Bristol Landfill, Bristol, Virginia
October 2022

Dear Mr. Martin:

SCS Field Services (SCS-FS) visited the Bristol Landfill during the month of October, 2022, for routine and non-routine monitoring and maintenance on the gas collection and control system (GCCS). This report summarizes the work performed and presents the data collected. The monitoring data is presented in the following attachments:

- Attachment 1. Wellfield Monitoring Data
- Attachment 2. Exceedance Detail Report
- Attachment 3. Enhanced Monitoring Record Form and Analytical Results
- Attachment 4. Daily Logs

GCCS SITE ACTIVITIES

On October 12, SCS-FS visited the landfill for routine and non-routine monitoring. The Flare was operating and the Ingenco Power Plant was not operating. SCS-FS monitored the blower/flare station (BFS) and the extraction wells (EW) in Cell 221 and 588.

SCS-FS conducted non-routine enhanced monitoring and sampling for carbon monoxide (CO) analysis (enhanced monitoring) for compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP). SCS-FS sampled EW-37, -57, and -67, and submitted the samples to Enthalpy Analytical for analysis. Analytical results are included in Attachment 3.

Between October 12 and 14, SCS-FS made the following repairs and system modifications:

- Repaired two broken air lines and one broken force main in Cell 588.
- Installed an air release valve on the force main near EW-32R.
- Replaced a 6-inch butterfly valve on the header for Cell 498.
- Started investigating lack of vacuum on header in Cell 498.
- Repaired a broken test port on boundary probe GP-9.
- Installed new fittings on EW-37, -40, and -67.
- Repaired the discharge line on EW-57.

On October 19, SCS-FS monitored the BFS and conducted non-routine enhanced monitoring at EW-37 and -57. A sample was collected for CO at EW-37 and submitted to Enthalpy Analytical for analysis. A sample could not be collected from EW-57 due to liquid at the sampling port. SCS-FS

conducted non-routine recheck monitoring at EW-40 for a pressure exceedance and found no available vacuum on the system or the well sides of the wellhead. SCS-FS monitored the north and south leachate clean outs.

On October 26, SCS-FS monitored the BFS and conducted non-routine enhanced monitoring and CO analysis sampling at EW-57. SCS-FS conducted non-routine recheck monitoring at EW-40 for a pressure exceedance and determined there was vacuum on the system and well sides of the wellhead. SCS-FS monitored the north and south leachate clean outs.

RECOMMENDATIONS

SCS-FS has the following recommendations based on observations made during our site visits:


- Continue adding cover to the landfill surface and realigning the header so liquid drains to condensate sumps.
- Maintain spare pumps in working order.
- Connect wells in permit area 498 to the active extraction system.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned if you have any questions or need additional information.

Very truly yours,



Mike Gibbons
Project Manager
SCS FIELD SERVICES



Thomas M. Lock
Vice President / Northeast Region Manager
SCS FIELD SERVICES

Attachments

cc: Bob Dick, SCS Engineers

Attachments

1. Wellfield Monitoring Data
2. Exceedance Detail Report
3. Enhanced Monitoring Record Forms and Analytical Results
4. Daily Logs

Attachment 1

Wellfield Monitoring Data

Bristol Virginia Landfill - Blower/Flare Station Data - 10/01/2022 to 10/31/2022

| Point Name | Record Date | CH4 (% by vol) | CO2 (% by vol) | O2 (% by vol) | Bal Gas (% by vol) | Static Pressure ("H2O) | Temp (F) | Flow (scfm) | Comments |
|---------------------------|------------------|-------------------|------------------------|------------------|-----------------------|------------------------------|-------------|----------------|----------|
| Blower Inlet | 10/12/2022 08:38 | 26.7 | 25.5 | 8.3 | 39.5 | -24.3 | 64.8 | 894.0 | |
| Blower Inlet | 10/12/2022 15:04 | 23.0 | 21.1 | 11.8 | 44.1 | -24.3 | 84.5 | 778.0 | |
| Blower Inlet | 10/14/2022 10:30 | 34.6 | 29.8 | 5.8 | 29.8 | -24.2 | 77.4 | 780.0 | |
| Blower Inlet | 10/19/2022 10:27 | 31.2 | 31.0 | 6.0 | 31.8 | -24.3 | 78.3 | 765.0 | |
| Blower Inlet | 10/26/2022 08:09 | 31.4 | 29.5 | 6.0 | 33.1 | -24.3 | 54.0 | 690.0 | |
| | | | | | | | | | |
| L221 Header | 10/12/2022 08:35 | 14.9 | 11.3 | 14.7 | 59.1 | -24.1 | 61.4 | 890.0 | |
| L221 Header | 10/14/2022 09:38 | 33.7 | 29.8 | 6.1 | 30.4 | -24.3 | 59.4 | 768.0 | |
| Technician/Weather | | | | | | | | | |
| Field Technician | Record Date | Ambient Temp | Barometric Pressure | Wind Speed | Wind Direction | General Weather | | | |
| Will Fabre/Ryan Seymour | 10/12/2022 | 52 | 28.22 | 12 | NE | Partly Cloudy | | | |
| Ryan Seymour | 10/14/2022 | 68 | 28.34 | 9 | SW | Clear | | | |
| Ryan Seymour | 10/26/2022 | 45 | 27.83 | 12 | NE | Partly Cloudy | | | |



Bristol Virginia Landfill - Extraction Well Data - 10/01/2022 to 10/31/2022

| Point Name | Record Date | CH4 (% by vol) | CO2 (% by vol) | O2 (% by vol) | Bal Gas (% by vol) | Init Static Pressure ("H2O) | Adj Static Pressure ("H2O) | Temp (F) | Flow (scfm) | System Pressure ("H2O) | Comments |
|------------|------------------|-------------------|-------------------|------------------|-----------------------|-----------------------------------|----------------------------------|-------------|----------------|------------------------------|------------------------------|
| 01 | 10/12/2022 09:16 | 21.4 | 15.6 | 11.4 | 51.6 | -22.8 | -22.7 | 59.6 | | -22.6 | |
| 02 | 10/12/2022 09:06 | 34.4 | 23.2 | 8.7 | 33.7 | -18.5 | -18.5 | 56.7 | 62.3 | -22.5 | Slightly Open |
| 03 | 10/12/2022 08:56 | 18.6 | 13.6 | 14.5 | 53.3 | -9.4 | -9.4 | 57.4 | 5.2 | -22.6 | |
| 04 | 10/12/2022 08:52 | 51.5 | 38.4 | 2.0 | 8.1 | -5.7 | -5.6 | 57.5 | 10.8 | -22.5 | |
| 05 | 10/12/2022 08:48 | 53.9 | 39.8 | 0.9 | 5.4 | -24.9 | -22.5 | 60.3 | | -22.3 | |
| 06 | 10/12/2022 09:49 | 18.7 | 12.3 | 14.2 | 54.8 | -20.4 | -20.4 | 64.3 | 3.0 | -22.5 | |
| 07 | 10/12/2022 09:45 | 57.9 | 40.1 | 0.0 | 2.0 | -9.4 | -9.4 | 67.7 | | -22.5 | |
| 08 | 10/12/2022 09:38 | 4.4 | 3.1 | 19.4 | 73.1 | -1.9 | -1.9 | 64.5 | | -22.4 | |
| 09 | 10/12/2022 09:34 | 50.0 | 35.7 | 3.1 | 11.2 | -21.9 | -21.9 | 61.1 | | -22.3 | |
| 10 | 10/12/2022 09:30 | 56.5 | 41.5 | 0.0 | 2.0 | -1.3 | -1.2 | 64.6 | 2.9 | -22.4 | Fully Closed |
| 11 | 10/12/2022 09:23 | 25.0 | 18.6 | 12.4 | 44.0 | -22.6 | -22.6 | 59.3 | | -22.4 | |
| 12 | 10/12/2022 09:19 | 27.5 | 20.0 | 12.3 | 40.2 | -22.8 | -22.8 | 66.0 | 5.6 | -22.7 | |
| 13 | 10/12/2022 08:59 | 55.0 | 38.7 | 5.3 | 1.0 | -22.5 | -22.5 | 60.3 | 9.0 | -22.5 | |
| 14 | 10/12/2022 09:41 | 39.5 | 24.5 | 7.5 | 28.5 | -1.6 | -1.6 | 67.8 | | -22.4 | |
| 15 | 10/12/2022 09:10 | 59.4 | 40.6 | 0.0 | 0.0 | -22.6 | -22.6 | 60.7 | 5.5 | -22.7 | Slightly Open |
| 16 | 10/12/2022 10:02 | 38.7 | 35.1 | 0.2 | 26.0 | -10.9 | -10.9 | 70.2 | | -18.8 | |
| 17 | 10/12/2022 10:06 | 33.1 | 26.6 | 13.1 | 27.2 | -15.2 | -15.1 | 58.7 | | -22.5 | |
| 18 | 10/12/2022 10:34 | 48.9 | 39.0 | 0.1 | 12.0 | -12.1 | -12.1 | 65.6 | 3.6 | -22.5 | |
| 23 | 10/12/2022 10:14 | 0.2 | 0.5 | 21.4 | 77.9 | -20.1 | -20.1 | 56.5 | | -22.0 | |
| 24 | 10/12/2022 09:34 | 2.0 | 2.2 | 19.6 | 76.2 | -1.1 | -1.0 | 59.8 | 4.0 | -21.7 | |
| 25 | 10/12/2022 09:32 | 0.1 | 0.3 | 20.5 | 79.1 | -0.1 | -0.1 | 59.2 | 27.4 | -22.2 | |
| 29 | 10/12/2022 09:39 | 59.1 | 40.9 | 0.0 | 0.0 | -2.6 | -2.7 | 108.0 | 98.9 | -10.7 | |
| 30R | 10/12/2022 10:23 | 32.2 | 23.4 | 5.9 | 38.5 | -1.3 | -1.3 | 89.0 | 70.6 | -1.3 | |
| 31R | 10/12/2022 10:01 | 23.5 | 23.4 | 5.9 | 47.2 | -1.6 | -1.5 | 85.8 | 70.7 | -1.4 | |
| 31R | 10/12/2022 10:20 | 32.2 | 66.0 | 1.8 | 0.0 | -1.2 | -1.1 | 168.3 | 46.6 | -1.0 | |
| 31R | 10/19/2022 10:55 | 19.9 | 21.2 | 6.8 | 52.1 | -1.5 | -1.5 | 131.2 | | | |
| 32R | 10/12/2022 09:22 | 47.8 | 37.8 | 0.0 | 14.4 | -3.1 | -3.1 | 133.8 | 35.9 | -8.2 | |
| 32 | 10/12/2022 09:27 | 58.0 | 42.0 | 0.0 | 0.0 | -11.2 | -11.3 | 76.4 | | -18.5 | |
| 33 | 10/19/2022 10:39 | 29.1 | 24.4 | 5.0 | 41.5 | -2.3 | -2.3 | 69.3 | 97.0 | -2.3 | Well needs extension/lowered |
| 34 | 10/12/2022 10:12 | 15.1 | 71.5 | 0.0 | 13.4 | -12.0 | -11.9 | 132.3 | | -11.6 | |
| 35 | 10/12/2022 11:05 | 59.4 | 35.3 | 3.0 | 2.3 | -2.4 | -2.4 | 88.5 | 1.5 | -12.4 | |
| 36 | 10/12/2022 11:39 | 42.0 | 29.1 | 6.3 | 22.6 | -1.3 | -1.3 | 63.1 | 68.7 | -1.2 | |
| 37 | 10/12/2022 10:08 | 20.5 | 25.5 | 7.6 | 46.4 | -2.7 | -2.6 | 152.0 | 91.2 | -12.4 | |
| 37 | 10/12/2022 14:36 | 28.3 | 26.1 | 7.1 | 38.5 | -2.7 | -2.8 | 151.0 | 94.8 | -13.0 | |



Bristol Virginia Landfill - Extraction Well Data - 10/01/2022 to 10/31/2022

| Point Name | Record Date | CH4 (% by vol) | CO2 (% by vol) | O2 (% by vol) | Bal Gas (% by vol) | Init Static Pressure ("H2O) | Adj Static Pressure ("H2O) | Temp (F) | Flow (scfm) | System Pressure ("H2O) | Comments |
|------------|------------------|-------------------|-------------------|------------------|-----------------------|-----------------------------------|----------------------------------|-------------|----------------|------------------------------|---|
| 37 | 10/19/2022 10:59 | 20.0 | 27.0 | 7.4 | 45.6 | -2.9 | -2.9 | 149.0 | | -13.3 | |
| 38 | 10/12/2022 10:54 | 60.8 | 34.5 | 2.9 | 1.8 | -6.4 | -6.4 | 105.7 | 163.5 | -6.4 | |
| 39 | 10/12/2022 10:57 | 59.0 | 40.9 | 0.1 | 0.0 | -8.0 | -8.4 | 110.2 | 192.1 | -8.1 | |
| 40 | 10/12/2022 11:30 | 56.8 | 43.2 | 0.0 | 0.0 | 1.1 | 1.1 | 105.1 | | 1.1 | |
| 40 | 10/14/2022 09:56 | 57.9 | 42.0 | 0.1 | 0.0 | 1.4 | 1.4 | 110.6 | | 1.4 | Fully Open,Surging Flow,Bad Sample Port,No system vac due to liquid |
| 40 | 10/26/2022 09:07 | 30.0 | 21.3 | 17.1 | 31.6 | -2.9 | -2.9 | 120.1 | 102.9 | -13.9 | |
| 41 | 10/12/2022 11:24 | 57.3 | 40.7 | 1.0 | 1.0 | -12.3 | -12.3 | 143.9 | | -12.3 | |
| 42 | 10/12/2022 09:47 | 47.0 | 35.0 | 2.7 | 15.3 | -1.4 | -1.4 | 115.6 | 72.8 | -1.4 | |
| 46 | 10/12/2022 11:20 | 43.0 | 38.3 | 4.8 | 13.9 | -13.5 | -13.5 | 119.4 | 4.0 | -13.7 | |
| 47 | 10/12/2022 11:22 | 58.4 | 41.6 | 0.0 | 0.0 | -16.5 | -16.5 | 132.8 | | -16.5 | |
| 48 | 10/12/2022 10:47 | 55.0 | 39.6 | 3.2 | 2.2 | -16.7 | -16.6 | 66.5 | | -16.5 | |
| 49 | 10/12/2022 10:31 | 42.2 | 32.6 | 3.4 | 21.8 | -6.6 | -6.5 | 134.1 | | -15.4 | |
| 50 | 10/12/2022 10:35 | 46.5 | 30.4 | 5.0 | 18.1 | -1.5 | -1.4 | 130.6 | 19.2 | -16.9 | |
| 51 | 10/12/2022 11:03 | 56.6 | 40.0 | 3.4 | 0.0 | -10.7 | -10.7 | 144.4 | | -10.7 | |
| 52 | 10/12/2022 11:11 | 50.9 | 37.3 | 3.9 | 7.9 | -12.7 | -12.6 | 110.5 | | -11.5 | |
| 53 | 10/12/2022 11:29 | 56.9 | 43.1 | 0.0 | 0.0 | -5.8 | -5.7 | 137.3 | 43.1 | -12.0 | |
| 54 | 10/12/2022 11:17 | 54.5 | 45.2 | 0.3 | 0.0 | -15.9 | -15.9 | 141.1 | | -15.9 | |
| 55 | 10/12/2022 11:14 | 32.2 | 23.5 | 7.5 | 36.8 | -15.9 | -15.9 | 97.5 | | -15.8 | |
| 56 | 10/12/2022 10:45 | 56.4 | 43.6 | 0.0 | 0.0 | -9.6 | -10.0 | 134.7 | | -9.2 | |
| 57 | 10/12/2022 11:02 | 18.8 | 14.7 | 10.2 | 56.3 | -0.1 | -1.0 | 183.6 | | -9.7 | |
| 57 | 10/19/2022 11:14 | 52.3 | 44.5 | 1.0 | 2.2 | -18.1 | -18.1 | 152.9 | | -18.2 | |
| 57 | 10/26/2022 09:16 | 32.4 | 29.3 | 8.0 | 30.3 | -18.3 | -18.3 | 149.3 | | -18.4 | |
| 58 | 10/12/2022 11:05 | 0.6 | 1.0 | 21.0 | 77.4 | -14.6 | -14.6 | 66.9 | 6.2 | -14.8 | |
| 59 | 10/12/2022 10:50 | 53.4 | 43.7 | 0.3 | 2.6 | -4.5 | -4.4 | 125.8 | | -0.5 | |
| 60 | 10/12/2022 10:50 | 59.6 | 36.1 | 1.3 | 3.0 | -13.2 | -13.1 | 135.7 | | -13.1 | |
| 61 | 10/12/2022 10:40 | 35.3 | 44.7 | 4.2 | 15.8 | -0.6 | -0.5 | 132.7 | 31.9 | -0.5 | |
| 62 | 10/12/2022 09:44 | 54.7 | 45.3 | 0.0 | 0.0 | -0.1 | 0.0 | 95.8 | 1.7 | -1.1 | |
| 62 | 10/14/2022 10:13 | 18.9 | 19.4 | 7.8 | 53.9 | -3.8 | -3.8 | 125.5 | 62.7 | -11.3 | |
| 63 | 10/12/2022 09:51 | 20.1 | 21.6 | 7.2 | 51.1 | -0.2 | -0.2 | 127.4 | 4.0 | -0.4 | |
| 64 | 10/12/2022 10:04 | 15.3 | 17.3 | 10.1 | 57.3 | -2.4 | -2.3 | 138.5 | 88.8 | -2.3 | |
| 65 | 10/12/2022 10:16 | 1.6 | 2.1 | 20.3 | 76.0 | -0.4 | -0.3 | 107.4 | 8.7 | -0.4 | |
| 66 | 10/12/2022 11:09 | 46.9 | 52.1 | 1.0 | 0.0 | -2.4 | -2.4 | 135.5 | | -13.8 | |



Bristol Virginia Landfill - Extraction Well Data - 10/01/2022 to 10/31/2022

| Point Name | Record Date | CH4 (% by vol) | CO2 (% by vol) | O2 (% by vol) | Bal Gas (% by vol) | Init Static Pressure ("H2O) | Adj Static Pressure ("H2O) | Temp (F) | Flow (scfm) | System Pressure ("H2O) | Comments |
|------------|------------------|-------------------|-------------------|------------------|-----------------------|-----------------------------------|----------------------------------|-------------|----------------|------------------------------|----------|
| 67 | 10/12/2022 11:24 | 46.2 | 53.8 | 0.0 | 0.0 | -16.2 | -16.2 | 154.5 | | -16.2 | |
| 67 | 10/12/2022 14:12 | 39.9 | 58.0 | 0.2 | 1.9 | -18.1 | -18.1 | 154.7 | | -18.1 | |
| 67 | 10/19/2022 11:11 | 31.8 | 56.0 | 0.2 | 12.0 | -18.7 | -18.7 | 140.3 | 17.9 | -18.8 | |
| 68 | 10/12/2022 11:35 | 57.1 | 40.8 | 2.0 | 0.1 | 0.2 | -0.1 | 77.6 | | -0.1 | |
| 68 | 10/14/2022 09:49 | 59.0 | 40.2 | 0.8 | 0.0 | -7.2 | -7.3 | 125.3 | 76.1 | -17.5 | |
| HC01 | 10/12/2022 11:15 | 0.1 | 0.4 | 21.5 | 78.0 | -13.5 | -13.5 | 64.2 | | | |



Bristol Virginia Landfill - North/South Cleanouts Data - 10/01/2022 to 10/31/2022

| Point Name | Record Date | CH4 (% by vol) | CO2 (% by vol) | O2 (% by vol) | Bal Gas (% by vol) | Static Pressure ("H2O) | Temp (F) | Comments |
|------------|------------------|-------------------|-------------------|------------------|-----------------------|------------------------------|-------------|----------|
| LC01 | 10/19/2022 12:06 | 0.7 | 0.6 | 20.5 | 78.2 | -4.3 | 71.1 | |
| LC01 | 10/26/2022 09:46 | 50.1 | 49.9 | 0.0 | 0.0 | -2.3 | 67.2 | |
| LC02 | 10/19/2022 12:07 | 0.8 | 0.7 | 20.6 | 77.9 | -4.5 | 71.5 | |
| LC02 | 10/26/2022 09:48 | 0.8 | 0.7 | 21.1 | 77.4 | -3.9 | 67.8 | |
| LC03 | 10/19/2022 12:08 | 1.0 | 0.9 | 20.5 | 77.6 | -4.3 | 71.1 | |
| LC03 | 10/26/2022 09:49 | 52.5 | 47.1 | 0.5 | | -7.3 | 67.8 | |
| LC04 | 10/19/2022 12:09 | 0.1 | 0.1 | 20.8 | 79.0 | -4.2 | 67.9 | |
| LC04 | 10/26/2022 09:50 | 53.1 | 46.3 | 0.6 | 0.0 | -7.0 | 67.3 | |
| LC05 | 10/19/2022 12:10 | 0.1 | 0.1 | 20.9 | 78.9 | -4.5 | 70.2 | |
| LC05 | 10/26/2022 09:52 | 51.2 | 48.8 | 0.0 | 0.0 | -2.4 | 65.6 | |
| LC06 | 10/19/2022 12:12 | 0.1 | 0.1 | 20.9 | 78.9 | -4.3 | 66.8 | |
| LC06 | 10/26/2022 09:53 | 54.5 | 45.1 | 0.4 | 0.0 | -7.2 | 66.2 | |
| LC07 | 10/19/2022 12:13 | 48.1 | 26.1 | 2.5 | 23.3 | -4.3 | 68.6 | |
| LC08 | 10/19/2022 12:15 | 52.6 | 28.7 | 0.5 | 18.2 | -4.3 | 69.3 | |
| LC08 | 10/26/2022 09:55 | 49.2 | 50.8 | 0.0 | 0.0 | -2.4 | 70.7 | |
| LC09 | 10/19/2022 12:16 | 50.3 | 27.5 | 1.3 | 20.9 | -4.3 | 69.2 | |
| LC09 | 10/26/2022 09:57 | 52.6 | 47.3 | 0.1 | 0.0 | -7.3 | 68.5 | |
| LC10 | 10/19/2022 12:17 | 0.2 | 0.2 | 20.8 | 78.8 | -4.1 | 69.3 | |
| LC10 | 10/26/2022 09:58 | 52.5 | 47.5 | 0.1 | | -7.2 | 68.1 | |
| NC01 | 10/19/2022 12:43 | 50.3 | 48.7 | 1.0 | 0.0 | -5.1 | 76.0 | |
| NC01 | 10/26/2022 08:16 | 2.7 | 1.9 | 19.3 | 76.1 | 0.0 | 55.0 | |
| NC02 | 10/19/2022 12:44 | 4.0 | 4.5 | 18.5 | 73.0 | -6.4 | 76.2 | |
| NC02 | 10/26/2022 08:18 | 2.8 | 1.9 | 19.4 | 75.9 | -0.1 | 55.1 | |
| NC03 | 10/19/2022 12:46 | 50.9 | 48.6 | 0.5 | 0.0 | -9.0 | 75.6 | |
| NC03 | 10/26/2022 08:19 | 4.0 | 2.6 | 19.0 | 74.4 | -0.1 | 55.1 | |
| NC04 | 10/19/2022 12:47 | 46.1 | 43.0 | 2.4 | 8.5 | -9.3 | 75.4 | |
| NC04 | 10/26/2022 08:20 | 51.0 | 27.7 | 6.0 | 15.3 | 0.0 | 55.2 | |
| NC05 | 10/19/2022 12:49 | 49.1 | 50.9 | 0.0 | 0.0 | -5.2 | 74.5 | |
| NC05 | 10/26/2022 08:22 | 39.3 | 21.8 | 5.3 | 33.6 | -0.1 | 55.2 | |
| NC06 | 10/19/2022 12:50 | 49.5 | 45.0 | 1.6 | 3.9 | -9.1 | 73.4 | |
| NC06 | 10/26/2022 08:23 | 25.0 | 13.4 | 12.0 | 49.6 | 0.0 | 55.1 | |



Bristol Virginia Landfill - North/South Cleanouts Data - 10/01/2022 to 10/31/2022

| Point Name | Record Date | CH4 (% by vol) | CO2 (% by vol) | O2 (% by vol) | Bal Gas (% by vol) | Static Pressure ("H2O) | Temp (F) | Comments |
|------------|------------------|-------------------|-------------------|------------------|-----------------------|------------------------------|-------------|----------|
| NC07 | 10/19/2022 12:54 | 75.0 | 8.0 | 0.0 | 17.0 | -0.2 | 72.2 | |
| NC07 | 10/26/2022 08:24 | 47.3 | 25.5 | 1.7 | 25.5 | 0.0 | 55.3 | |
| NC08 | 10/19/2022 12:53 | 46.7 | 53.3 | 0.0 | 0.0 | -5.3 | 72.6 | |
| NC08 | 10/26/2022 08:25 | 50.6 | 27.9 | 1.1 | 20.4 | -0.1 | 55.2 | |
| NC09 | 10/19/2022 12:55 | 51.1 | 48.2 | 0.7 | 0.0 | -9.6 | 71.8 | |
| NC09 | 10/26/2022 08:28 | 51.2 | 28.2 | 1.0 | 19.6 | -0.1 | 55.2 | |
| NC10 | 10/19/2022 12:57 | 49.2 | 50.8 | 0.0 | 0.0 | -9.4 | 71.5 | |
| NC10 | 10/26/2022 08:31 | 43.6 | 24.2 | 3.6 | 28.6 | 0.0 | 55.2 | |



Attachment 2

Exceedance Detail Report

Exceedance Detail Report

Date Range: 10/01/2022 to 10/31/2022

Report Date: 11/08/2022

Site Name: Bristol Virginia Landfill


| Point ID | Point Name | Record Date | Days Between Readings | Point Status | % by Volume | | Temperature (°F) | | Static Pressure | | Operation Comments | Total Days Open | Corrective Action Comments | Corrective Action Due Dates | | |
|-----------------|------------|------------------------|-----------------------|--------------|-------------|------|------------------|---------------|-------------------------------|--------------------------------|--------------------------|-----------------|----------------------------|-----------------------------|------------|-----------|
| | | | | | CH4 | O2 | Initial Temp | Adjusted Temp | Initial Static Pressure (H2O) | Adjusted Static Pressure (H2O) | | | | 5 Day | 15 Day | 120 Day |
| BRTLGW37 | | | | | Active | | >= 145 | >= 145 | >= 0 | >= 0 | | | NESHAP AAAA HOV 145 | 5 Day | 15 Day | 120 Day |
| 37 | | 3/30/2022 12:20:33 PM | 0 | | 13.8 | 6.4 | 150 | 150 | -1.24 | -1.75 | heck,,,,, | | | 4/3/2022 | 4/13/2022 | 7/27/2022 |
| 37 | | 4/6/2022 12:14:16 PM | 7 | | 14.2 | 7.3 | 149 | 149 | -1.98 | -1.95 | Comments:No Change,,,,, | | | | | |
| 37 | | 4/13/2022 1:45:11 PM | 7 | | 16.5 | 7 | 159 | 159 | -1.70 | -1.70 | Comments:,,,,, | | | | | |
| 37 | | 4/13/2022 1:47:58 PM | 0 | | 16 | 7 | 159 | 159 | -2.10 | -2.14 | Comments:,,,,, | | | | | |
| 37 | | 4/21/2022 7:24:55 AM | 8 | | 13.1 | 8.3 | 159 | 159 | -2.35 | -2.27 | Comments:,,,,, | | | | | |
| 37 | | 5/4/2022 12:21:07 PM | 13 | | 13 | 7.3 | 149 | 149 | -2.57 | -2.42 | Open,No Change,,,,, | | | | | |
| 37 | | 5/16/2022 10:51:43 AM | 12 | | 11.6 | 9.8 | 150 | 150 | -2.21 | -2.39 | Comments:Adjustment,,,,, | | | | | |
| 37 | | 5/16/2022 2:09:00 PM | 0 | | 14.9 | 9.8 | 159 | 159 | -2.48 | -2.48 | Comments:,,,,, | | | | | |
| 37 | | 5/24/2022 10:23:52 AM | 8 | | 17 | 7.8 | 150 | 150 | -3.44 | -3.43 | Comments:,,,,, | | | | | |
| 37 | | 5/24/2022 10:26:15 AM | 0 | | 17.3 | 7.9 | 150 | 150 | -3.47 | -3.44 | Comments:,,,,, | | | | | |
| 37 | | 6/1/2022 12:43:16 PM | 8 | | 22 | 6.2 | 150 | 150 | -2.89 | -2.89 | Comments:,,,,, | | | | | |
| 37 | | 6/8/2022 11:34:45 AM | 7 | | 6.5 | 14.8 | 155.8 | 155.9 | -12.72 | -12.63 | Comments:,,,,, | | | | | |
| 37 | | 6/16/2022 1:35:06 PM | 8 | | 21.6 | 6.7 | 153.9 | 153.8 | -2.56 | -2.54 | Comments:,,,,, | | | | | |
| 37 | | 7/6/2022 12:59:43 PM | 20 | | 19.2 | 6.6 | 154.2 | 153.8 | -2.44 | -2.43 | Comments:,,,,, | | | | | |
| 37 | | 7/11/2022 1:31:12 PM | 5 | | 19.8 | 6.7 | 155.5 | 155.5 | -2.25 | -2.19 | Comments:,,,,, | | | | | |
| 37 | | 7/11/2022 1:36:48 PM | 0 | | 19.6 | 6.5 | 155.7 | 155.8 | -2.12 | -2.10 | Comments:,,,,, | | | | | |
| 37 | | 8/3/2022 12:31:49 PM | 23 | | 20 | 7.3 | 155.5 | 155.5 | -2.39 | -2.38 | Comments:,,,,, | | | | | |
| 37 | | 8/3/2022 12:35:39 PM | 0 | | 20.2 | 7.3 | 155.4 | 155.4 | -2.72 | -2.77 | Comments:,,,,, | | | | | |
| 37 | | 8/3/2022 2:29:58 PM | 0 | | 19.5 | 6.6 | 152.2 | 152.9 | -3.03 | -3.01 | Comments:,,,,, | | | | | |
| 37 | | 8/24/2022 11:44:07 AM | 21 | | 19.2 | 7.6 | 152.7 | 152.8 | -15.16 | -15.14 | Open,,,,, | | | | | |
| 37 | | 9/1/2022 11:37:46 AM | 8 | | 20.8 | 7.6 | 155 | 154.7 | -3.14 | -3.14 | Comments:,,,,, | | | | | |
| 37 | | 9/1/2022 12:28:35 PM | 0 | | 18.9 | 7.9 | 152.7 | 152.7 | -15.15 | -15.13 | Comments:,,,,, | | | | | |
| 37 | | 10/12/2022 10:08:08 AM | 41 | | 20.5 | 7.6 | 152 | 151.5 | -2.69 | -2.64 | Comments:,,,,, | | | | | |
| 37 | | 10/12/2022 2:36:59 PM | 0 | | 28.3 | 7.1 | 151 | 151 | -2.74 | -2.75 | Comments:,,,,, | | | | | |
| 37 | | 10/19/2022 10:59:40 AM | 7 | | 20 | 7.4 | 149 | 149.1 | -2.94 | -2.85 | Comments:,,,,, | 216 | | | | |
| BRTLGW40 | | | | | Active | | >= 210 | >= 210 | >= 0 | >= 0 | | | NSPS AAAA HOV 210 | 5 Day | 15 Day | 120 Day |
| 40 | | 10/12/2022 11:30:24 AM | 0 | | 56.8 | 0 | 105.1 | 105.2 | 1.11 | 1.10 | Comments:,,,,, | | good reading on 10/26/2022 | 10/16/2022 | 10/26/2022 | 2/8/2023 |
| 40 | | 10/14/2022 9:55:31 AM | 2 | | 58.3 | 0.2 | 110.3 | 110.5 | 1.58 | 1.58 | Open,Surging Flow,Bad | | good reading on 10/26/2022 | | | |
| 40 | | 10/14/2022 9:56:33 AM | 0 | | 57.9 | 0.1 | 110.6 | 110.7 | 1.36 | 1.41 | Open,Surging Flow,Bad | | good reading on 10/26/2022 | | | |
| 40 | | 10/26/2022 9:07:18 AM | 12 | | 30 | 17.1 | 120.1 | 121.5 | -2.87 | -2.87 | Comments:,,,,, | 15 | | | | |
| BRTLGW57 | | | | | Active | | >= 145 | >= 145 | >= 0 | >= 0 | | | NESHAP AAAA HOV 145 | 5 Day | 15 Day | 120 Day |
| 57 | | 10/12/2022 11:02:07 AM | 0 | | 18.8 | 10.2 | 183.6 | 183.8 | -0.11 | -0.95 | Comments:,,,,, | | | 10/16/2022 | 10/26/2022 | 2/8/2023 |
| 57 | | 10/19/2022 11:14:39 AM | 7 | | 52.3 | 1 | 152.9 | 152.9 | -18.09 | -18.06 | Comments:,,,,, | | | | | |
| 57 | | 10/26/2022 9:16:32 AM | 7 | | 32.4 | 8 | 149.3 | 149.3 | -18.29 | -18.29 | Comments:,,,,, | 20 | | | | |
| BRTLGW67 | | | | | Active | | >= 145 | >= 145 | >= 0 | >= 0 | | | NESHAP AAAA HOV 145 | 5 Day | 15 Day | 120 Day |
| 67 | | 10/12/2022 11:24:40 AM | 0 | | 46.2 | 0 | 154.5 | 155.3 | -16.21 | -16.18 | Comments:,,,,, | | good reading on 10/19/2022 | 10/16/2022 | 10/26/2022 | 2/8/2023 |
| 67 | | 10/12/2022 2:12:15 PM | 0 | | 39.9 | 0.2 | 154.7 | 154.7 | -18.10 | -18.12 | Comments:,,,,, | | good reading on 10/19/2022 | | | |
| 67 | | 10/19/2022 11:11:24 AM | 7 | | 31.8 | 0.2 | 140.3 | 141 | -18.70 | -18.69 | Comments:,,,,, | 8 | | | | |



Exceedance Detail Report
Date Range: 10/01/2022 to 10/31/2022

Report Date: 11/08/2022
Site Name: Bristol Virginia Landfill

| Point ID | Point Name | Record Date | Days Between Readings | Point Status | % by Volume | | Temperature (°F) | | Static Pressure | | Operation Comments | Total Days Open | Corrective Action Comments | Corrective Action Due Dates | | |
|----------|------------|------------------------|-----------------------|--------------|-------------|-----|------------------|---------------|-------------------------------|--------------------------------|--------------------|-----------------|----------------------------|-----------------------------|------------|----------|
| | | | | | CH4 | O2 | Initial Temp | Adjusted Temp | Initial Static Pressure (H2O) | Adjusted Static Pressure (H2O) | | | | 5 Day | 15 Day | 120 Day |
| BRTLGW68 | | | | | Active | | | >= 145 | >= 145 | >= 0 | >= 0 | | NESHAP AAAA HOV 145 | | | |
| 68 | | 10/12/2022 11:35:18 AM | 0 | | 57.1 | 2 | 77.6 | 78.9 | 0.24 | -0.11 | Comments:,,,,,, | | good reading on 10/14/2022 | 10/16/2022 | 10/26/2022 | 2/8/2023 |
| 68 | | 10/12/2022 11:35:18 AM | 0 | | 57.1 | 2 | 77.6 | 78.9 | 0.24 | -0.11 | Comments:,,,,,, | | good reading on 10/14/2022 | | | |
| 68 | | 10/14/2022 9:49:40 AM | 2 | | 59 | 0.8 | 125.3 | 125.3 | -7.20 | -7.27 | Comments:,,,,,, | 3 | | | | |

| | | | |
|-------------------------|---|---|--|
| Points with Exceedances | 5 |  | Parameter exceeds rule (Exceedance) |
| Closed Exceedances | 3 | | |
| Open Exceedances | 2 |  | Parameter in compliance (Exceedance cleared) |



Attachment 3

Enhanced Monitoring Record Forms and Analytical Results

ENHANCED MONITORING RECORD FORM

- FORM TO BE COMPLETED IF ANY WELLHEAD TEMPERATURES OVER 145F THAT CANNOT BE CORRECTED IN 7 DAYS
- WEEKLY MONITORING MUST BEGIN WITHIN 7 DAYS OF EXCEEDANCE FOR CO AND VISUAL OBSERVATIONS
- TEMPERATURES AT OR ABOVE 165F REQUIRE ANNUAL DOWNHOLE TEMPERATURE MONITORING (10FT INTERVALS)
- TEMPERATURES AT OR ABOVE 170F REQUIRE 24-HOUR PADEP NOTIFICATION; IMMEDIATELY CONTACT ENGINEERS IN THIS CASE

Landfill Name: **Bristol**

Technician: **Ryan Seymour**

| Well ID | Date & Time | GEM Reading | | | If Temp >145F | | | | | If Temp ≥165F | If Temp ≥170F | Comments |
|---------|------------------------|-------------|--------|----------------|----------------------|-------------------|---------------------------------|--------------------------|-----------------|-------------------------------------|---------------------------------------|---|
| | | CH4 (%) | O2 (%) | Well Temp (°F) | Gas Sample Collected | Pickup Scheduled? | Visible Emissions (e.g. smoke)? | Smoldering Ash Observed? | Damage to Well? | Downhole Temp Monitoring Performed? | Contacted Engineers for Notification? | |
| | | Y/N | Y/N | Y/N | Y/N | Y/N | Y/N | Y/N | Y/N | Y/N | | |
| 57 | 2022-10-19 11:07:00 | 52.3 | 1.0 | 152.9 | yes | yes | yes | no | no | no | no | Well 67 beside it has visible smoke/steam coming out the ground around it |
| 37 | 2022-10-19 10:59:00 | 20.0 | 7.4 | 149 | yes | yes | no | no | no | no | no | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

ENHANCED MONITORING RECORD FORM

- FORM TO BE COMPLETED IF ANY WELLHEAD TEMPERATURES OVER 145F THAT CANNOT BE CORRECTED IN 7 DAYS
- WEEKLY MONITORING MUST BEGIN WITHIN 7 DAYS OF EXCEEDANCE FOR CO AND VISUAL OBSERVATIONS
- TEMPERATURES AT OR ABOVE 165F REQUIRE ANNUAL DOWNHOLE TEMPERATURE MONITORING (10FT INTERVALS)
- TEMPERATURES AT OR ABOVE 170F REQUIRE 24-HOUR PADEP NOTIFICATION; IMMEDIATELY CONTACT ENGINEERS IN THIS CASE

Landfill Name: **Bristol**

Technician: **Ryan Seymour**

| Well ID | Date & Time | GEM Reading | | | If Temp >145F | | | | | If Temp ≥165F | If Temp ≥170F | Comments |
|---------|------------------------|-------------|--------|----------------|----------------------|-------------------|---------------------------------|--------------------------|-----------------|-------------------------------------|---------------------------------------|----------|
| | | CH4 (%) | O2 (%) | Well Temp (°F) | Gas Sample Collected | Pickup Scheduled? | Visible Emissions (e.g. smoke)? | Smoldering Ash Observed? | Damage to Well? | Downhole Temp Monitoring Performed? | Contacted Engineers for Notification? | |
| | | | | | Y/N | Y/N | Y/N | Y/N | Y/N | Y/N | Y/N | |
| 57 | 2022-10-26 09:13:00 | 32.4 | 8.0 | 149.3 | yes | yes | no | no | no | no | no | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

| | | | |
|---------------|-------------------------------------|-----------------|------------------------|
| Client Name: | SCS Field Services - Harrisburg, PA | Date Received: | October 18, 2022 10:28 |
| | 4330 Lewis Road, Suite 1 | Date Issued: | October 21, 2022 14:15 |
| | Harrisburg, PA 17111 | Project Number: | [none] |
| Submitted To: | Tom Lock | Purchase Order: | |

Client Site I.D.: Bristol

Enclosed are the results of analyses for samples received by the laboratory on 10/18/2022 10:28. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads 'Ted Soyars'.

Ted Soyars

Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical, Inc.



TNI Accredited
VELAP ID 460021



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA Date Received: October 18, 2022 10:28
4330 Lewis Road, Suite 1 Date Issued: October 21, 2022 14:15
Harrisburg, PA 17111 Project Number: [none]
Submitted To: Tom Lock Purchase Order:
Client Site I.D.: Bristol

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|------------------|------------------|
| 37 | 22J0865-01 | Air | 10/12/2022 14:23 | 10/18/2022 10:28 |
| 67 | 22J0865-02 | Air | 10/12/2022 14:00 | 10/18/2022 10:28 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 18, 2022 10:28
Date Issued: October 21, 2022 14:15

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:
Field Sample #: 37
Sample ID: 22J0865-01
Sample Matrix: Air
Sampled: 10/12/2022 14:23
Sample Type: LG

Sample Description/Location:
Sub Description/Location:
Canister ID: 063-00087::00335
Canister Size: 1.4

Initial Vacuum(in Hg): 30
Final Vacuum(in Hg): 9.2
Receipt Vacuum(in Hg): 9.2
Flow Controller Type: Passive
Flow Controller ID:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

| Analyte | ppmv | | | Flag/Qual | Dilution | PF | Date/Time Analyzed | Analyst |
|------------------------------|--------|------|------|-----------|----------|----|--------------------|---------|
| | Result | MDL | LOQ | | | | | |
| Carbon Monoxide, as received | 94.5 | 90.0 | 90.0 | | 9 | 1 | 10/20/22 11:46 | DFH |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 18, 2022 10:28
Date Issued: October 21, 2022 14:15

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:
Field Sample #: 67
Sample ID: 22J0865-02
Sample Matrix: Air
Sampled: 10/12/2022 14:00
Sample Type: LG

Sample Description/Location:
Sub Description/Location:
Canister ID: 063-00204::9205
Canister Size: 1.4

Initial Vacuum(in Hg): 30
Final Vacuum(in Hg): 4.2
Receipt Vacuum(in Hg): 4.2
Flow Controller Type: Passive
Flow Controller ID:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

| Analyte | ppmv | | | Flag/Qual | Dilution | PF | Date/Time Analyzed | Analyst |
|------------------------------|--------|------|------|-----------|----------|----|--------------------|---------|
| | Result | MDL | LOQ | | | | | |
| Carbon Monoxide, as received | 580 | 90.0 | 90.0 | | 9 | 1 | 10/20/22 13:06 | DFH |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 18, 2022 10:28
Date Issued: October 21, 2022 14:15

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Analytical Summary

| Sample ID | Preparation Factors Initial / Final | Method | Batch ID | Sequence ID | Calibration ID |
|--|--|---------|---------------------|--------------------|----------------|
| Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis | | | Preparation Method: | No Prep VOC GC Air | |
| 22J0865-01 | 1.00 mL / 1.00 mL | ALT-145 | BFJ0773 | SFJ0750 | AG00026 |
| 22J0865-02 | 1.00 mL / 1.00 mL | ALT-145 | BFJ0773 | SFJ0750 | AG00026 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 18, 2022 10:28
Date Issued: October 21, 2022 14:15

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | Spike Level | Source | | %REC | | RPD | | Qual |
|---------|-----------|-------------|-------------|--------|------|--------|-----|-------|--|------|
| | Result | Limit Units | | Result | %REC | Limits | RPD | Limit | | |

Batch BFJ0773 - No Prep VOC GC Air

Blank (BFJ0773-BLK1)

Prepared & Analyzed: 10/20/2022

Carbon Monoxide < 10.0 ppmv

LCS (BFJ0773-BS1)

Prepared & Analyzed: 10/20/2022

| | | | | | | |
|-----------------|------|------|------|------|------|-------|
| Methane | 4480 | 500 | ppmv | 5000 | 89.6 | 0-200 |
| Carbon dioxide | 4420 | 500 | ppmv | 5000 | 88.4 | 0-200 |
| Oxygen (O2) | 5100 | 500 | ppmv | 5000 | 102 | 0-200 |
| Nitrogen (N2) | 5530 | 2000 | ppmv | 5000 | 111 | 0-200 |
| Hydrogen (H2) | 5710 | 200 | ppmv | 5100 | 112 | 0-200 |
| Carbon Monoxide | 4800 | 10 | ppmv | 5000 | 95.9 | 0-200 |

Duplicate (BFJ0773-DUP1)

Source: 22J0865-01

Prepared & Analyzed: 10/20/2022

| | | | | | | |
|-----------------|--------|-------|------|--------|-------|----|
| Methane | 147000 | 4500 | ppmv | 146000 | 0.992 | 25 |
| Carbon dioxide | 223000 | 4500 | ppmv | 219000 | 1.53 | 25 |
| Oxygen (O2) | 71900 | 4500 | ppmv | 71200 | 0.989 | 25 |
| Hydrogen (H2) | 11700 | 1800 | ppmv | 11600 | 0.305 | 25 |
| Nitrogen (N2) | 421000 | 18000 | ppmv | 416000 | 1.18 | 25 |
| Carbon Monoxide | < | 90.0 | ppmv | 94.5 | NA | 25 |

Duplicate (BFJ0773-DUP3)

Source: 22J0731-01

Prepared & Analyzed: 10/20/2022

| | | | | | | |
|-----------------|--------|-------|------|--------|--------|----|
| Methane | 311000 | 4500 | ppmv | 312000 | 0.268 | 25 |
| Carbon dioxide | 282000 | 4500 | ppmv | 282000 | 0.0129 | 25 |
| Oxygen (O2) | 10200 | 4500 | ppmv | 10300 | 0.915 | 25 |
| Hydrogen (H2) | < | 1800 | ppmv | <1800 | NA | 25 |
| Nitrogen (N2) | 326000 | 18000 | ppmv | 328000 | 0.436 | 25 |
| Carbon Monoxide | < | 90.0 | ppmv | <90.0 | NA | 25 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 18, 2022 10:28
Date Issued: October 21, 2022 14:15

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Certified Analytes included in this Report

| Analyte | Certifications | Analyte | Certifications |
|---------|-------------------------------------|---------------|----------------|
| Code | Description | Laboratory ID | Expires |
| MdDOE | Maryland DE Drinking Water | 341 | 12/31/2022 |
| NCDEQ | North Carolina DEQ | 495 | 12/31/2022 |
| NYDOH | New York DOH Drinking Water | 12096 | 04/01/2023 |
| PADEP | NELAP-Pennsylvania Certificate #007 | 68-03503 | 10/31/2022 |
| VELAP | NELAP-Virginia Certificate #12098 | 460021 | 06/14/2023 |
| WVDEP | West Virginia DEP | 350 | 11/30/2022 |

Qualifiers and Definitions

RPD Relative Percent Difference

Qual Qualifiers

-RE Denotes sample was re-analyzed

PF Preparation Factor

MDL Method Detection Limit

LOQ Limit of Quantitation

ppbv parts per billion by volume

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

All EPA method 3C results are reported as normalized values when the sum total of all evaluated constituents is outside $\pm 10\%$ of the absolute.

AIR ANALYSIS
CHAIN OF CUSTODY

Equipment due 10/31

| | | | | | |
|---|--|------------------------------------|--|--|--|
| COMPANY NAME: SCS Field Services - Harrisburg | | INVOICE TO: Same | | PROJECT NAME/Quote #: Bristol | |
| CONTACT: | | INVOICE CONTACT: | | SITE NAME: Bristol | |
| ADDRESS: | | INVOICE ADDRESS: | | PROJECT NUMBER: | |
| PHONE #: | | INVOICE PHONE #: | | P.O. #: | |
| FAX #: | | EMAIL: | | Pretreatment Program: | |
| Is sample for compliance reporting? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> | | Regulatory State: VA | | Is sample from a chlorinated supply? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | |
| PWS I.D. #: | | SAMPLER NAME (PRINT): Ryan Seymour | | SAMPLER SIGNATURE: Ryan Seymour | |
| Turn Around Time: Circle: 10 | | 5 Days | | or ___ Day | |
| Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other 01 | | | | 063-221-0016 | |

| CLIENT SAMPLE I.D. | Regulator Info | | Canister Information | | | | Sampling Start Information | | | | Sampling Stop Information | | | | Matrix (See Codes) | Alt | ANALYSIS | |
|--------------------|--------------------|-------------------|----------------------|----------|-------------------|--------------------------------------|---|------------|------------------------------------|---------------------------------|---------------------------|---------------------------|------------------------|-------------------------------|--------------------|-----|----------|-----------------------|
| | Flow Controller ID | Cal Flow (mL/min) | Canister ID | Size (L) | Cleaning Batch ID | LAB Outgoing Canister Vacuum (in Hg) | LAB Receiving Canister Vacuum (in Hg) | Start Date | Start Time (24hr clock) | Initial Canister Vacuum (in Hg) | Starting Sample Temp °F | Stop Date | Stop Time (24hr clock) | Final Canister Vacuum (in Hg) | | | | Ending Sample Temp °F |
| 1) 37 | LAB | LAB | 335 | 1.4 | 220412-07 | 20 | 9.2 | 10/12/22 | 14:20 | 18 | 151 | 10/12 14/22 | 14:28 | 3 | | LG | x | |
| 2) 67 | LAB | LAB | 9205 | 1.4 | 220901-01 | 20 | 4.2 | 10/12/22 | 13:58 | 0 | 159 | 10/12/22 | 14:00 | 0 | 159 | LG | x | |
| 3) 57 | | | 10224 | 1.4 | 220919-02 | 20 | This well is 183 degrees. black foam coming out | | spewing steam and I didn't want to | | | | | | | LG | x | |
| 4) 67 | | | 11317 | 1.4 | 220728-01 | 20 | Suck up in my gear. | | | | | | | | | LG | x | |

no seal no ice 20.2 310

| | | | | |
|---------------|-------------|----------------|------------------------------------|--------------|
| RELINQUISHED: | RECEIVED: | DATE / TIME | QC Data Package | LAB USE ONLY |
| | Fedexground | | Level I <input type="checkbox"/> | |
| RELINQUISHED: | Fedexground | DATE / TIME | Level II <input type="checkbox"/> | |
| | 70 | 10/18/22 10:28 | Level III <input type="checkbox"/> | |
| RELINQUISHED: | | DATE / TIME | Level IV <input type="checkbox"/> | |

SCS Field Services 22J0865
Bristol
Recd: 10/18/2022 Due: 10/25/2022

v130325002

The sample train gauge didn't work.



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 18, 2022 10:28
Date Issued: October 21, 2022 14:15

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Sample Conditions Checklist

| | |
|--|--------------|
| Samples Received at: | 20.20°C |
| How were samples received? | FedEx Ground |
| Were Custody Seals used? If so, were they received intact? | No |
| Are the custody papers filled out completely and correctly? | Yes |
| Do all bottle labels agree with custody papers? | Yes |
| Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken? | Yes |
| Are all samples within holding time for requested laboratory tests? | Yes |
| Is a sufficient amount of sample provided to perform the tests included? | Yes |
| Are all samples in appropriate containers for the analyses requested? | Yes |
| Were volatile organic containers received? | No |
| Are all volatile organic and TOX containers free of headspace? | NA |
| Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175. | NA |
| Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. | Yes |

Work Order Comments



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

| | | | |
|---------------|-------------------------------------|-----------------|------------------------|
| Client Name: | SCS Field Services - Harrisburg, PA | Date Received: | October 21, 2022 10:25 |
| | 4330 Lewis Road, Suite 1 | Date Issued: | October 28, 2022 15:13 |
| | Harrisburg, PA 17111 | Project Number: | [none] |
| Submitted To: | Tom Lock | Purchase Order: | |

Client Site I.D.: Bristol

Enclosed are the results of analyses for samples received by the laboratory on 10/21/2022 10:25. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads 'Ted Soyars'.

Ted Soyars

Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical, Inc.



TNI Accredited
VELAP ID 460021



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA Date Received: October 21, 2022 10:25
4330 Lewis Road, Suite 1 Date Issued: October 28, 2022 15:13
Harrisburg, PA 17111 Project Number: [none]
Submitted To: Tom Lock Purchase Order:
Client Site I.D.: Bristol

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|------------------|------------------|
| 57 | 22J1080-01 | Air | 10/19/2022 11:15 | 10/21/2022 10:25 |
| 37 | 22J1080-02 | Air | 10/19/2022 11:00 | 10/21/2022 10:25 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:
Field Sample #: 57
Sample ID: 22J1080-01
Sample Matrix: Air
Sampled: 10/19/2022 11:15
Sample Type: LG

Sample Description/Location:
Sub Description/Location:
Canister ID: 063-00373: 13954
Canister Size: 1.4

Initial Vacuum(in Hg): 30
Final Vacuum(in Hg): 6.6
Receipt Vacuum(in Hg): 6.6
Flow Controller Type: passive
Flow Controller ID:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

| Analyte | ppmv | | | Flag/Qual | Dilution | PF | Date/Time Analyzed | Analyst |
|------------------------------|--------|------|------|-----------|----------|----|--------------------|---------|
| | Result | MDL | LOQ | | | | | |
| Carbon Monoxide, as received | 102 | 90.0 | 90.0 | | 9 | 1 | 10/24/22 9:24 | DFH |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:
Field Sample #: 37
Sample ID: 22J1080-02
Sample Matrix: Air
Sampled: 10/19/2022 11:00
Sample Type: LG

Sample Description/Location:
Sub Description/Location:
Canister ID: 063-00372: 13957
Canister Size: 1.4

Initial Vacuum(in Hg): 30
Final Vacuum(in Hg): 7.8
Receipt Vacuum(in Hg): 7.8
Flow Controller Type: passive
Flow Controller ID:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

| Analyte | ppmv | | | Flag/Qual | Dilution | PF | Date/Time | | Analyst |
|------------------------------|--------|------|------|-----------|----------|----|-----------|-------|---------|
| | Result | MDL | LOQ | | | | Analized | | |
| Carbon Monoxide, as received | 94.9 | 90.0 | 90.0 | | 9 | 1 | 10/24/22 | 10:17 | DFH |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Analytical Summary

| Sample ID | Preparation Factors Initial / Final | Method | Batch ID | Sequence ID | Calibration ID |
|--|--|---------|---------------------|--------------------|----------------|
| Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis | | | Preparation Method: | No Prep VOC GC Air | |
| 22J1080-01 | 1.00 mL / 1.00 mL | ALT-145 | BFJ0870 | SFJ0832 | AG00026 |
| 22J1080-02 | 1.00 mL / 1.00 mL | ALT-145 | BFJ0870 | SFJ0832 | AG00026 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | Spike Level | Source | | %REC | | RPD | | Qual |
|---------|-----------|-------------|-------------|--------|------|--------|-----|-------|--|------|
| | Result | Limit Units | | Result | %REC | Limits | RPD | Limit | | |

Batch BFJ0870 - No Prep VOC GC Air

Blank (BFJ0870-BLK1)

Prepared & Analyzed: 10/24/2022

Carbon Monoxide < 10.0 ppmv

LCS (BFJ0870-BS1)

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|------|------|------|------|------|-------|--|--|--|
| Methane | 4490 | 500 | ppmv | 5000 | 89.8 | 0-200 | | | |
| Carbon dioxide | 4110 | 500 | ppmv | 5000 | 82.3 | 0-200 | | | |
| Oxygen (O2) | 5520 | 500 | ppmv | 5000 | 110 | 0-200 | | | |
| Nitrogen (N2) | 6690 | 2000 | ppmv | 5000 | 134 | 0-200 | | | |
| Hydrogen (H2) | 5790 | 200 | ppmv | 5100 | 113 | 0-200 | | | |
| Carbon Monoxide | 4820 | 10 | ppmv | 5000 | 96.3 | 0-200 | | | |

Duplicate (BFJ0870-DUP1)

Source: 22J1080-01

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|--------|-------|------|--------|--------|----|--|--|---|
| Methane | 412000 | 4500 | ppmv | 412000 | 0.0289 | 25 | | | |
| Carbon dioxide | 408000 | 4500 | ppmv | 407000 | 0.277 | 25 | | | |
| Oxygen (O2) | 20700 | 4500 | ppmv | 20700 | 0.0361 | 25 | | | C |
| Nitrogen (N2) | 81500 | 18000 | ppmv | 81100 | 0.426 | 25 | | | |
| Hydrogen (H2) | 22200 | 1800 | ppmv | 22300 | 0.0724 | 25 | | | |
| Carbon Monoxide | 105 | 90.0 | ppmv | 102 | 3.05 | 25 | | | |

Duplicate (BFJ0870-DUP2)

Source: 22J1080-02

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|--------|-------|------|--------|--------|----|--|--|---|
| Methane | 149000 | 4500 | ppmv | 149000 | 0.0974 | 25 | | | |
| Carbon dioxide | 229000 | 4500 | ppmv | 229000 | 0.293 | 25 | | | |
| Oxygen (O2) | 73200 | 4500 | ppmv | 73100 | 0.120 | 25 | | | C |
| Hydrogen (H2) | 10200 | 1800 | ppmv | 10100 | 0.769 | 25 | | | |
| Nitrogen (N2) | 431000 | 18000 | ppmv | 430000 | 0.125 | 25 | | | |
| Carbon Monoxide | 97.0 | 90.0 | ppmv | 94.9 | 2.25 | 25 | | | |

Duplicate (BFJ0870-DUP3)

Source: 22J1078-01

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|--------|-------|------|--------|-------|----|--|--|---|
| Methane | 324000 | 4500 | ppmv | 325000 | 0.413 | 25 | | | |
| Carbon dioxide | 268000 | 4500 | ppmv | 269000 | 0.419 | 25 | | | |
| Oxygen (O2) | 10900 | 4500 | ppmv | 11100 | 1.79 | 25 | | | C |
| Nitrogen (N2) | 322000 | 18000 | ppmv | 323000 | 0.549 | 25 | | | |
| Hydrogen (H2) | < | 1800 | ppmv | <1800 | NA | 25 | | | |
| Carbon Monoxide | < | 90.0 | ppmv | <90.0 | NA | 25 | | | |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | | Spike | Source | %REC | | RPD | Qual |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|------|
| | Result | Limit | Units | Level | Result | %REC | Limits | RPD | |

Batch BFJ0870 - No Prep VOC GC Air

| Duplicate (BFJ0870-DUP4) | | | | Source: 22J1089-01 | Prepared & Analyzed: 10/24/2022 | | | |
|--------------------------|--------|-------|------|--------------------|---------------------------------|--------|----|---|
| Methane | 276000 | 4500 | ppmv | | 275000 | 0.425 | 25 | |
| Carbon dioxide | 492000 | 4500 | ppmv | | 491000 | 0.156 | 25 | |
| Oxygen (O2) | < | 4500 | ppmv | | <4500 | NA | 25 | C |
| Hydrogen (H2) | 124000 | 1800 | ppmv | | 124000 | 0.0336 | 25 | |
| Nitrogen (N2) | 69000 | 18000 | ppmv | | 68900 | 0.0724 | 25 | |
| Carbon Monoxide | 647 | 90.0 | ppmv | | 636 | 1.71 | 25 | |

| Duplicate (BFJ0870-DUP5) | | | | Source: 22J1089-02 | Prepared & Analyzed: 10/24/2022 | | | |
|--------------------------|--------|-------|------|--------------------|---------------------------------|-------|----|---|
| Methane | 312000 | 4500 | ppmv | | 309000 | 0.742 | 25 | |
| Carbon dioxide | 494000 | 4500 | ppmv | | 489000 | 0.982 | 25 | |
| Oxygen (O2) | 19800 | 4500 | ppmv | | 19700 | 0.433 | 25 | C |
| Hydrogen (H2) | 46300 | 1800 | ppmv | | 46000 | 0.745 | 25 | |
| Nitrogen (N2) | 72200 | 18000 | ppmv | | 72000 | 0.355 | 25 | |
| Carbon Monoxide | 371 | 90.0 | ppmv | | 367 | 1.05 | 25 | |

| Duplicate (BFJ0870-DUP6) | | | | Source: 22J1089-03 | Prepared & Analyzed: 10/24/2022 | | | |
|--------------------------|--------|-------|------|--------------------|---------------------------------|--------|----|---|
| Methane | 64600 | 4500 | ppmv | | 64800 | 0.259 | 25 | |
| Carbon dioxide | 631000 | 4500 | ppmv | | 631000 | 0.0692 | 25 | |
| Oxygen (O2) | 13900 | 4500 | ppmv | | 14100 | 1.73 | 25 | C |
| Hydrogen (H2) | 182000 | 1800 | ppmv | | 182000 | 0.212 | 25 | |
| Nitrogen (N2) | 52400 | 18000 | ppmv | | 53300 | 1.80 | 25 | |
| Carbon Monoxide | 1430 | 90.0 | ppmv | | 1430 | 0.196 | 25 | |

| Duplicate (BFJ0870-DUP7) | | | | Source: 22J1307-01 | Prepared: 10/24/2022 Analyzed: 10/27/2022 | | | |
|--------------------------|--------|-------|------|--------------------|---|--------|----|--|
| Methane | 265000 | 9000 | ppmv | | 265000 | 0.114 | 25 | |
| Carbon dioxide | 463000 | 9000 | ppmv | | 461000 | 0.335 | 25 | |
| Oxygen (O2) | < | 9000 | ppmv | | <9000 | NA | 25 | |
| Hydrogen (H2) | 107000 | 3600 | ppmv | | 107000 | 0.0419 | 25 | |
| Nitrogen (N2) | 49500 | 36000 | ppmv | | 50000 | 1.06 | 25 | |
| Carbon Monoxide | 559 | 180 | ppmv | | 565 | 0.992 | 25 | |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | | Spike | Source | %REC | | | RPD | Qual |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|------|
| | Result | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | |

Batch BFJ0870 - No Prep VOC GC Air

| Duplicate (BFJ0870-DUP8) | | | | Source: 22J1307-02 | Prepared: 10/24/2022 | Analyzed: 10/27/2022 |
|--------------------------|--------|-------|------|--------------------|----------------------|----------------------|
| Methane | 207000 | 9000 | ppmv | 204000 | 1.66 | 25 |
| Carbon dioxide | 549000 | 9000 | ppmv | 542000 | 1.27 | 25 |
| Oxygen (O2) | < | 9000 | ppmv | <9000 | NA | 25 |
| Nitrogen (N2) | 61200 | 36000 | ppmv | 60100 | 1.83 | 25 |
| Hydrogen (H2) | 71400 | 3600 | ppmv | 70100 | 1.91 | 25 |
| Carbon Monoxide | 338 | 180 | ppmv | <180 | NA | 25 |

| Duplicate (BFJ0870-DUP9) | | | | Source: 22J1307-03 | Prepared: 10/24/2022 | Analyzed: 10/27/2022 |
|--------------------------|--------|-------|------|--------------------|----------------------|----------------------|
| Methane | 179000 | 9000 | ppmv | 176000 | 1.42 | 25 |
| Carbon dioxide | 332000 | 9000 | ppmv | 331000 | 0.378 | 25 |
| Oxygen (O2) | 63600 | 9000 | ppmv | 63100 | 0.683 | 25 |
| Nitrogen (N2) | 231000 | 36000 | ppmv | 229000 | 0.869 | 25 |
| Hydrogen (H2) | 61200 | 3600 | ppmv | 60600 | 0.931 | 25 |
| Carbon Monoxide | 523 | 180 | ppmv | 514 | 1.77 | 25 |

| Duplicate (BFJ0870-DUPA) | | | | Source: 22J1332-01 | Prepared: 10/24/2022 | Analyzed: 10/28/2022 |
|--------------------------|--------|-------|------|--------------------|----------------------|----------------------|
| Methane | 311000 | 4500 | ppmv | 309000 | 0.793 | 25 |
| Carbon dioxide | 308000 | 4500 | ppmv | 305000 | 0.760 | 25 |
| Oxygen (O2) | 58900 | 4500 | ppmv | 58900 | 0.000610 | 25 |
| Hydrogen (H2) | 23100 | 1800 | ppmv | 23300 | 1.16 | 25 |
| Nitrogen (N2) | 216000 | 18000 | ppmv | 216000 | 0.132 | 25 |
| Carbon Monoxide | 129 | 90.0 | ppmv | 120 | 6.80 | 25 |

Certified Analytes included in this Report

| Analyte | Certifications | Analyte | Certifications |
|---------|----------------|---------|----------------|
|---------|----------------|---------|----------------|



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

| Code | Description | Laboratory ID | Expires |
|-------|-------------------------------------|---------------|------------|
| MdDOE | Maryland DE Drinking Water | 341 | 12/31/2022 |
| NCDEQ | North Carolina DEQ | 495 | 12/31/2022 |
| NYDOH | New York DOH Drinking Water | 12096 | 04/01/2023 |
| PADEP | NELAP-Pennsylvania Certificate #007 | 68-03503 | 10/31/2022 |
| VELAP | NELAP-Virginia Certificate #12098 | 460021 | 06/14/2023 |
| WVDEP | West Virginia DEP | 350 | 11/30/2022 |

Qualifiers and Definitions

C Continuing calibration verification response for this analyte is outside specifications.

RPD Relative Percent Difference

Qual Qualifiers

-RE Denotes sample was re-analyzed

PF Preparation Factor

MDL Method Detection Limit

LOQ Limit of Quantitation

ppbv parts per billion by volume

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

All EPA method 3C results are reported as normalized values when the sum total of all evaluated constituents is outside $\pm 10\%$ of the absolute.

**AIR ANALYSIS
CHAIN OF CUSTODY**

Equipment due ~~9/30/22~~ **10/30/22**

Red

| | | | |
|---|--------|--|--|
| COMPANY NAME: SCS Field Services - Harrisburg | | INVOICE TO: Same | PROJECT NAME/Quote #: Bristol |
| CONTACT: Mike Byk | | INVOICE CONTACT: | SITE NAME: Bristol |
| ADDRESS: | | INVOICE ADDRESS: | PROJECT NUMBER: |
| PHONE #: | | INVOICE PHONE #: | P.O. #: |
| FAX #: | EMAIL: | Pretreatment Program: | |
| Is sample for compliance reporting? (YES) NO | | Regulatory State: VA | Is sample from a chlorinated supply? YES (NO) |
| SAMPLER NAME (PRINT): Ryan Seymour | | SAMPLER SIGNATURE: <i>Ryan Seymour</i> | Turn Around Time: Circle: 10 (5 Days) or __ Day |
| Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other LV | | | 063-221-0009 |

| CLIENT SAMPLE I.D. | Regulator Info | | Canister Information | | | | Sampling Start Information | | | | Sampling Stop Information | | | | Matrix (See Codes) | ANALYSIS | |
|--------------------|--------------------|-------------------|----------------------|----------|-------------------|--------------------------------------|---------------------------------------|------------|-------------------------|---------------------------------|---------------------------|-----------|------------------------|-------------------------------|--------------------|-----------------------|-----|
| | Flow Controller ID | Cal Flow (mL/min) | Canister ID | Size (L) | Cleaning Batch ID | LAB Outgoing Canister Vacuum (in Hg) | LAB Receiving Canister Vacuum (in Hg) | Start Date | Start Time (24hr clock) | Initial Canister Vacuum (in Hg) | Starting Sample Temp °F | Stop Date | Stop Time (24hr clock) | Final Canister Vacuum (in Hg) | | Ending Sample Temp °F | Alt |
| 1) 57 | N BOX | | 13954 | 1.4 | 220902-01 | 30 | 29 (6.6) | 10/19/22 | 11:14 AM | 29 | 152° | 10/19/22 | 11:15 AM | 2 | 152° | LG | x |
| 2) 37 | N BOX | | 13957 | 1.4 | 220902-01 | 30 | 29 (7.8) | 10/19/22 | 10:59 AM | 29 | 149° | 10/19/22 | 11:00 AM | 2 | 149° | LG | x |
| 3) | | | 13964 | 1.4 | 220902-01 | 30 | | | | | | | | | | LG | x |
| 4) | | | 13967 | 1.4 | 220902-01 | 30 | | | | | | | | | | LG | x |

316 203 noise nasal

| | | | | |
|-------------------------------|-------------------------------|------------------------------------|------------------------------------|--|
| RELINQUISHED: | RECEIVED: <i>sedex ground</i> | DATE / TIME | QC Data Package | LAB USE ONLY |
| INQUIRED: <i>sedex ground</i> | RECEIVED: <i>NO</i> | DATE / TIME: <i>10/21/22 10:25</i> | Level I <input type="checkbox"/> | SCS Field Services 22J1080 Bristol Recd: 10/21/2022 Due: 10/28/2022 v130325002 |
| INQUIRED: | RECEIVED: | DATE / TIME: | Level II <input type="checkbox"/> | |
| INQUIRED: | RECEIVED: | DATE / TIME: | Level III <input type="checkbox"/> | |
| INQUIRED: | RECEIVED: | DATE / TIME: | Level IV <input type="checkbox"/> | |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: [none]

Client Site I.D.: Bristol

Purchase Order:

Sample Conditions Checklist

| | |
|--|--------------|
| Samples Received at: | 20.30°C |
| How were samples received? | FedEx Ground |
| Were Custody Seals used? If so, were they received intact? | No |
| Are the custody papers filled out completely and correctly? | Yes |
| Do all bottle labels agree with custody papers? | Yes |
| Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken? | Yes |
| Are all samples within holding time for requested laboratory tests? | Yes |
| Is a sufficient amount of sample provided to perform the tests included? | Yes |
| Are all samples in appropriate containers for the analyses requested? | Yes |
| Were volatile organic containers received? | No |
| Are all volatile organic and TOX containers free of headspace? | NA |
| Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175. | NA |
| Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. | Yes |

Work Order Comments



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

| | | | |
|-------------------|-------------------------------------|-----------------|------------------------|
| Client Name: | SCS Field Services - Harrisburg, PA | Date Received: | October 27, 2022 10:12 |
| | 4330 Lewis Road, Suite 1 | Date Issued: | November 3, 2022 16:29 |
| | Harrisburg, PA 17111 | Project Number: | Bristol |
| Submitted To: | Tom Lock | Purchase Order: | |
| Client Site I.D.: | Bristol | | |

Enclosed are the results of analyses for samples received by the laboratory on 10/27/2022 10:12. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads 'Ted Soyars'.

Ted Soyars
Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical, Inc.



TNI Accredited
VELAP ID 460021



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA Date Received: October 27, 2022 10:12
4330 Lewis Road, Suite 1 Date Issued: November 3, 2022 16:29
Harrisburg, PA 17111 Project Number: Bristol
Submitted To: Tom Lock Purchase Order:
Client Site I.D.: Bristol

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|------------------|------------------|
| 57 | 22J1332-01 | Air | 10/26/2022 09:17 | 10/27/2022 10:12 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

ANALYTICAL RESULTS

Project Location:
Field Sample #: 57
Sample ID: 22J1332-01
Sample Matrix: Air
Sampled: 10/26/2022 09:17
Sample Type: LG

Sample Description/Location:
Sub Description/Location:
Canister ID: 063-00208::00286
Canister Size: 1.4

Initial Vacuum(in Hg): 30
Final Vacuum(in Hg): 16
Receipt Vacuum(in Hg): 16
Flow Controller Type: Passive
Flow Controller ID:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis ALT-145

| Analyte | ppmv | | | Flag/Qual | Dilution | PF | Date/Time | | Analyst |
|------------------------------|--------|------|------|-----------|----------|----|-----------|-------|---------|
| | Result | MDL | LOQ | | | | Analized | | |
| Carbon Monoxide, as received | 133 | 90.0 | 90.0 | | 9 | 1 | 10/28/22 | 10:01 | MER |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

Analytical Summary

| Sample ID | Preparation Factors Initial / Final | Method | Batch ID | Sequence ID | Calibration ID |
|--|--|---------|---------------------|--------------------|----------------|
| Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis | | | Preparation Method: | No Prep VOC GC Air | |
| 22J1332-01 | 1.00 mL / 1.00 mL | ALT-145 | BFJ0870 | SFJ1078 | AG00026 |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | Spike Level | Source | | %REC | | RPD | | Qual |
|---------|-----------|-------------|-------------|--------|------|--------|-----|-------|--|------|
| | Result | Limit Units | | Result | %REC | Limits | RPD | Limit | | |

Batch BFJ0870 - No Prep VOC GC Air

Blank (BFJ0870-BLK1)

Prepared & Analyzed: 10/24/2022

Carbon Monoxide < 10.0 ppmv

LCS (BFJ0870-BS1)

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|------|------|------|------|------|-------|--|--|--|
| Methane | 4490 | 500 | ppmv | 5000 | 89.8 | 0-200 | | | |
| Carbon dioxide | 4110 | 500 | ppmv | 5000 | 82.3 | 0-200 | | | |
| Oxygen (O2) | 5520 | 500 | ppmv | 5000 | 110 | 0-200 | | | |
| Nitrogen (N2) | 6690 | 2000 | ppmv | 5000 | 134 | 0-200 | | | |
| Hydrogen (H2) | 5790 | 200 | ppmv | 5100 | 113 | 0-200 | | | |
| Carbon Monoxide | 4820 | 10 | ppmv | 5000 | 96.3 | 0-200 | | | |

Duplicate (BFJ0870-DUP1)

Source: 22J1080-01

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|--------|-------|------|--------|--------|----|--|--|---|
| Methane | 412000 | 4500 | ppmv | 412000 | 0.0289 | 25 | | | |
| Carbon dioxide | 408000 | 4500 | ppmv | 407000 | 0.277 | 25 | | | |
| Oxygen (O2) | 20700 | 4500 | ppmv | 20700 | 0.0361 | 25 | | | C |
| Nitrogen (N2) | 81500 | 18000 | ppmv | 81100 | 0.426 | 25 | | | |
| Hydrogen (H2) | 22200 | 1800 | ppmv | 22300 | 0.0724 | 25 | | | |
| Carbon Monoxide | 105 | 90.0 | ppmv | 102 | 3.05 | 25 | | | |

Duplicate (BFJ0870-DUP2)

Source: 22J1080-02

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|--------|-------|------|--------|--------|----|--|--|---|
| Methane | 149000 | 4500 | ppmv | 149000 | 0.0974 | 25 | | | |
| Carbon dioxide | 229000 | 4500 | ppmv | 229000 | 0.293 | 25 | | | |
| Oxygen (O2) | 73200 | 4500 | ppmv | 73100 | 0.120 | 25 | | | C |
| Hydrogen (H2) | 10200 | 1800 | ppmv | 10100 | 0.769 | 25 | | | |
| Nitrogen (N2) | 431000 | 18000 | ppmv | 430000 | 0.125 | 25 | | | |
| Carbon Monoxide | 97.0 | 90.0 | ppmv | 94.9 | 2.25 | 25 | | | |

Duplicate (BFJ0870-DUP3)

Source: 22J1078-01

Prepared & Analyzed: 10/24/2022

| | | | | | | | | | |
|-----------------|--------|-------|------|--------|-------|----|--|--|---|
| Methane | 324000 | 4500 | ppmv | 325000 | 0.413 | 25 | | | |
| Carbon dioxide | 268000 | 4500 | ppmv | 269000 | 0.419 | 25 | | | |
| Oxygen (O2) | 10900 | 4500 | ppmv | 11100 | 1.79 | 25 | | | C |
| Nitrogen (N2) | 322000 | 18000 | ppmv | 323000 | 0.549 | 25 | | | |
| Hydrogen (H2) | < | 1800 | ppmv | <1800 | NA | 25 | | | |
| Carbon Monoxide | < | 90.0 | ppmv | <90.0 | NA | 25 | | | |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | | Spike | Source | %REC | | RPD | Qual |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|------|
| | Result | Limit | Units | Level | Result | %REC | Limits | RPD | |

Batch BFJ0870 - No Prep VOC GC Air

| Duplicate (BFJ0870-DUP4) | | | | Source: 22J1089-01 | Prepared & Analyzed: 10/24/2022 | | |
|--------------------------|--------|-------|------|--------------------|---------------------------------|----|---|
| Methane | 276000 | 4500 | ppmv | 275000 | 0.425 | 25 | |
| Carbon dioxide | 492000 | 4500 | ppmv | 491000 | 0.156 | 25 | |
| Oxygen (O2) | < | 4500 | ppmv | <4500 | NA | 25 | C |
| Hydrogen (H2) | 124000 | 1800 | ppmv | 124000 | 0.0336 | 25 | |
| Nitrogen (N2) | 69000 | 18000 | ppmv | 68900 | 0.0724 | 25 | |
| Carbon Monoxide | 647 | 90.0 | ppmv | 636 | 1.71 | 25 | |

| Duplicate (BFJ0870-DUP5) | | | | Source: 22J1089-02 | Prepared & Analyzed: 10/24/2022 | | |
|--------------------------|--------|-------|------|--------------------|---------------------------------|----|---|
| Methane | 312000 | 4500 | ppmv | 309000 | 0.742 | 25 | |
| Carbon dioxide | 494000 | 4500 | ppmv | 489000 | 0.982 | 25 | |
| Oxygen (O2) | 19800 | 4500 | ppmv | 19700 | 0.433 | 25 | C |
| Hydrogen (H2) | 46300 | 1800 | ppmv | 46000 | 0.745 | 25 | |
| Nitrogen (N2) | 72200 | 18000 | ppmv | 72000 | 0.355 | 25 | |
| Carbon Monoxide | 371 | 90.0 | ppmv | 367 | 1.05 | 25 | |

| Duplicate (BFJ0870-DUP6) | | | | Source: 22J1089-03 | Prepared & Analyzed: 10/24/2022 | | |
|--------------------------|--------|-------|------|--------------------|---------------------------------|----|---|
| Methane | 64600 | 4500 | ppmv | 64800 | 0.259 | 25 | |
| Carbon dioxide | 631000 | 4500 | ppmv | 631000 | 0.0692 | 25 | |
| Oxygen (O2) | 13900 | 4500 | ppmv | 14100 | 1.73 | 25 | C |
| Hydrogen (H2) | 182000 | 1800 | ppmv | 182000 | 0.212 | 25 | |
| Nitrogen (N2) | 52400 | 18000 | ppmv | 53300 | 1.80 | 25 | |
| Carbon Monoxide | 1430 | 90.0 | ppmv | 1430 | 0.196 | 25 | |

| Duplicate (BFJ0870-DUP7) | | | | Source: 22J1307-01 | Prepared: 10/24/2022 Analyzed: 10/27/2022 | | |
|--------------------------|--------|-------|------|--------------------|---|----|--|
| Methane | 265000 | 9000 | ppmv | 265000 | 0.114 | 25 | |
| Carbon dioxide | 463000 | 9000 | ppmv | 461000 | 0.335 | 25 | |
| Oxygen (O2) | < | 9000 | ppmv | <9000 | NA | 25 | |
| Hydrogen (H2) | 107000 | 3600 | ppmv | 107000 | 0.0419 | 25 | |
| Nitrogen (N2) | 49500 | 36000 | ppmv | 50000 | 1.06 | 25 | |
| Carbon Monoxide | 546 | 180 | ppmv | 567 | 3.72 | 25 | |



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

| Analyte | Reporting | | | Spike | Source | %REC | | RPD | Qual |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|------|
| | Result | Limit | Units | Level | Result | %REC | Limits | RPD | |

Batch BFJ0870 - No Prep VOC GC Air

| Duplicate (BFJ0870-DUP8) | | | | Source: 22J1307-02 | | Prepared: 10/24/2022 Analyzed: 10/27/2022 | |
|--------------------------|--------|-------|------|--------------------|------|---|--|
| Methane | 207000 | 9000 | ppmv | 204000 | 1.66 | 25 | |
| Carbon dioxide | 549000 | 9000 | ppmv | 542000 | 1.27 | 25 | |
| Oxygen (O2) | < | 9000 | ppmv | <9000 | NA | 25 | |
| Nitrogen (N2) | 61200 | 36000 | ppmv | 60100 | 1.83 | 25 | |
| Hydrogen (H2) | 71400 | 3600 | ppmv | 70100 | 1.91 | 25 | |
| Carbon Monoxide | 354 | 180 | ppmv | 350 | 1.14 | 25 | |

| Duplicate (BFJ0870-DUP9) | | | | Source: 22J1307-03 | | Prepared: 10/24/2022 Analyzed: 10/27/2022 | |
|--------------------------|--------|-------|------|--------------------|-------|---|---|
| Methane | 179000 | 9000 | ppmv | 176000 | 1.42 | 25 | |
| Carbon dioxide | 332000 | 9000 | ppmv | 331000 | 0.378 | 25 | |
| Oxygen (O2) | 63600 | 9000 | ppmv | 63100 | 0.683 | 25 | C |
| Nitrogen (N2) | 231000 | 36000 | ppmv | 229000 | 0.869 | 25 | |
| Hydrogen (H2) | 61200 | 3600 | ppmv | 60600 | 0.931 | 25 | |
| Carbon Monoxide | 530 | 180 | ppmv | 507 | 4.45 | 25 | |

| Duplicate (BFJ0870-DUPA) | | | | Source: 22J1332-01 | | Prepared: 10/24/2022 Analyzed: 10/28/2022 | |
|--------------------------|--------|-------|------|--------------------|----------|---|---|
| Methane | 311000 | 4500 | ppmv | 309000 | 0.793 | 25 | |
| Carbon dioxide | 308000 | 4500 | ppmv | 305000 | 0.760 | 25 | |
| Oxygen (O2) | 58900 | 4500 | ppmv | 58900 | 0.000610 | 25 | C |
| Hydrogen (H2) | 23100 | 1800 | ppmv | 23300 | 1.16 | 25 | |
| Nitrogen (N2) | 216000 | 18000 | ppmv | 216000 | 0.132 | 25 | |
| Carbon Monoxide | 135 | 90.0 | ppmv | 133 | 1.28 | 25 | |

Certified Analytes included in this Report

| Analyte | Certifications | Analyte | Certifications |
|---------|----------------|---------|----------------|
|---------|----------------|---------|----------------|



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

| Code | Description | Laboratory ID | Expires |
|-------|-------------------------------------|---------------|------------|
| MdDOE | Maryland DE Drinking Water | 341 | 12/31/2022 |
| NC | North Carolina DENR | 495 | 07/31/2023 |
| NCDEQ | North Carolina DEQ | 495 | 07/31/2023 |
| NCDOH | North Carolina Department of Health | 51714 | 07/31/2023 |
| NYDOH | New York DOH Drinking Water | 12096 | 04/01/2023 |
| PADEP | NELAP-Pennsylvania Certificate #007 | 68-03503 | 10/31/2023 |
| VELAP | NELAP-Virginia Certificate #12157 | 460021 | 06/14/2023 |
| WVDEP | West Virginia DEP | 350 | 11/30/2022 |

Qualifiers and Definitions

- C Continuing calibration verification response for this analyte is outside specifications.
- RPD Relative Percent Difference
- Qual Qualifiers
- RE Denotes sample was re-analyzed
- PF Preparation Factor
- MDL Method Detection Limit
- LOQ Limit of Quantitation
- ppbv parts per billion by volume

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

All EPA method 3C results are reported as normalized values when the sum total of all evaluated constituents is outside ± 10% of the absolute.

**AIR ANALYSIS
CHAIN OF CUSTODY**

Equipment due 10/31/2022

| | | | |
|---|--------|--|--|
| COMPANY NAME: SCS Field Services - Harrisburg | | INVOICE TO: Same | PROJECT NAME/Quote #: |
| CONTACT: Mike Byk | | INVOICE CONTACT: | SITE NAME: Bristol |
| ADDRESS: | | INVOICE ADDRESS: | PROJECT NUMBER: Bristol |
| PHONE #: | | INVOICE PHONE #: | P.O. #: |
| FAX #: | EMAIL: | Pretreatment Program: | |
| Is sample for compliance reporting? YES <input checked="" type="radio"/> NO <input type="radio"/> | | Regulatory State: VA | Is sample from a chlorinated supply? YES <input type="radio"/> NO <input checked="" type="radio"/> |
| PWS I.D. #: | | Turn Around Time: Circle: 10 5 Days or __ Day | |
| SAMPLER NAME (PRINT): Ryan Seymour | | SAMPLER SIGNATURE: <i>Ryan Seymour</i> | |
| Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other _____ | | 063-22J-0014 | |

| CLIENT SAMPLE I.D. | Regulator Info | | Canister Information | | | | | Sampling Start Information | | | | Sampling Stop Information | | | | ANALYSIS | | |
|--------------------|--------------------|-------------------|----------------------|----------|-------------------|--------------------------------------|---------------------------------------|----------------------------|-------------------------|---------------------------------|-------------------------|---------------------------|------------------------|-------------------------------|-----------------------|-------------|----|---|
| | Flow Controller ID | Cal Flow (mL/min) | Canister ID | Size (L) | Cleaning Batch ID | LAB Outgoing Canister Vacuum (in Hg) | LAB Receiving Canister Vacuum (in Hg) | Barometric Pres. (in Hg): | | | | Barometric Pres. (in Hg): | | | | | | |
| | | | | | | | | Start Date | Start Time (24hr clock) | Initial Canister Vacuum (in Hg) | Starting Sample Temp °F | Stop Date | Stop Time (24hr clock) | Final Canister Vacuum (in Hg) | Ending Sample Temp °F | | | |
| 1) 57 | KF2 | | 286 | 1.4 | 220921-02 | 30 | | 10/26/22 | 9:14 AM | 35 hg | 149° | 9:17 AM | 10/26/22 | 9:17 AM | 16 hg | 149° | LG | x |
| 2) | | | 11078 | 1.4 | 220921-02 | 30 | | | | | | | | | | | LG | x |
| 3) | | | 11307 | 1.4 | 220921-03 | 30 | | | | | | | | | | | LG | x |
| 4) | | | 12464 | 1.4 | 220921-02 | 30 | | | | | | | | | | | LG | x |

20.3°C 310 noise noseal

| | | | |
|-----------------------------------|------------------------------|------------------------------|-----------------------------------|
| RELINQUISHED: <i>Ryan Seymour</i> | DATE / TIME: 2:45 pm | RECEIVED: FEDEX | DATE / TIME: |
| RELINQUISHED: FEDEX | DATE / TIME: 10/26/22 | RECEIVED: <i>[Signature]</i> | DATE / TIME: 10/27/22 10/2 |
| RELINQUISHED: | DATE / TIME: | RECEIVED: | DATE / TIME: |

QC Data Package

LAB USE ONLY

Level I

Level II

Level III

Level IV

SCS Field Services 22J1332
Bristol
Recd: 10/27/2022 Due: 11/03/2022



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1332

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Date Received: October 27, 2022 10:12
Date Issued: November 3, 2022 16:29

Harrisburg, PA 17111

Submitted To: Tom Lock

Project Number: Bristol

Client Site I.D.: Bristol

Purchase Order:

Sample Conditions Checklist

| | |
|--|--------------|
| Samples Received at: | 20.30°C |
| How were samples received? | FedEx Ground |
| Were Custody Seals used? If so, were they received intact? | No |
| Are the custody papers filled out completely and correctly? | Yes |
| Do all bottle labels agree with custody papers? | Yes |
| Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken? | Yes |
| Are all samples within holding time for requested laboratory tests? | Yes |
| Is a sufficient amount of sample provided to perform the tests included? | Yes |
| Are all samples in appropriate containers for the analyses requested? | Yes |
| Were volatile organic containers received? | No |
| Are all volatile organic and TOX containers free of headspace? | NA |
| Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175. | NA |
| Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. | Yes |

Work Order Comments

Attachment 4

Daily Logs

SCS FIELD SERVICES

DAILY LOG

JOB NO. 90000017.07 TASK NO. 00001 DATE 10.12.22 PROJECT NAME BRISTOL
 TEMP 45 WEATHER Partly cloudy B.P. 28.15 WIND 12NE

| SCS-FS LABOR | HOURS | OT | | HOURS | OT | |
|--------------|-------|----|--|-------------|----|--|
| Ryan Seymour | 8 | | | | | |
| | | | | | | |
| | | | | DAILY TOTAL | 8 | |

| EQUIP, SVCS, , MLG | QTY | UNITS | | QTY | UNITS | |
|--------------------|-----|-------|-----------|-----|-------|--|
| GEM 5000 | 1 | Day | MX4 | | Day | |
| Truck | 1 | Day | Generator | | Day | |

| INSTRUMENT CALIBRATION (CAL. GAS) | | CH4 (%-VOL) | CH4 (%-LEL) | O2 LOW CAL (%-VOL) | CO2 (%-VOL) | H2S (PPM) |
|-----------------------------------|--------|-------------|-------------|--------------------|-------------|-----------|
| MODEL | S/N | | | | | |
| 5000 | 500399 | 50 | | 20.9 | 35.1 | |
| | | | | | | |
| | | | | | | |

SUMMARY Scs was on site for monthly well monitoring and some fixes of the quarry and probe 9. I calibrated my gem and mx4. Got fitted with 2 badges my project manager gave me.
 Blower reading: CH4- 26.7% C02-25.5 % O2-8.3 % BAL-39.6 %
 While in the quarry I get a strong odor of sulfur walking down the road.

I had to replace flex hose at 68 it was too short.
 EW57 was at 183 degrees it's going to need down hole temp probe and dug up. I couldn't get a sample off it because it's steaming.
 Will had 2 exeedances. 37 and 67 they were both over 145 degrees.

PREPARED BY:
 RYAN
 SEYMOUR

ACCEPTED BY: _____

I understand that when performing a one person job assignment, I am acting as my own supervisor.

SCS FIELD SERVICES

DAILY LOG

JOB NO. 02218208.04 **TASK NO.** 4 **DATE** 10/12/2022 **PROJECT NAME** City of Bristol

TEMP 72deg **WEATHER** Mostly Cloudy **B.P.** 28.18 **WIND** S 9MPH

| SCS-FS LABOR | HOURS | OT | | HOURS | OT |
|--------------|-------|----|-------------|-------|----|
| Mike Gibbons | 8 | | | | |
| Ryan Seymour | 6 | | | | |
| | | | DAILY TOTAL | | |

| EQUIP, SVCS, , MLG | QTY | UNITS | | QTY | UNITS |
|----------------------|-----|-------|--|-----|-------|
| Tool Truck | 1 | DAY | | | |
| Generator 3500watt | 1 | DAY | | | |
| C-4 Fusion Equipment | 1 | DAY | | | |

| INSTRUMENT CALIBRATION (CAL. GAS) | | CH4 (%-VOL) | CH4 (%-LEL) | O2 LOW SCALE %-VOL) | CO2 (%-VOL) | H2S (PPM) |
|-----------------------------------|-----|----------------|----------------|---------------------------|----------------|-----------|
| MODEL | S/N | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | |
|----------------|--|
| SUMMARY | SCS-FS arrived on site at 7:30am |
| | At 7:45am SCS-FS began wearing the organic vapors badges at the scale house. |
| | @8:00am SCS-FS fueled up equipment at the landfill office garage. |
| | @8:30am SCS-FS began making the repair to the first air-line brake near the poly tank. |
| | @9:30am SCS-FS began operating the mini excavator to uncover the second air-line brake and force main brake. |
| | @1:00pm SCS-FS (mike) assisted Ryan with doing some CO sampling at extraction well 67 and Brandon had me make a repair at well 57. |
| | @3:00pm SCS-FS began uncovering the force main near extraction 32 and installed a 4" HDPE tee for an air release valve. |
| | @7:30pm end of day and took off badges |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

PREPARED BY: Mike Gibbons ACCEPTED BY: _____

I understand that when performing a one person job assignment, I am acting as my own supervisor.

SCS FIELD SERVICES

DAILY LOG

JOB NO. 02218208.04 **TASK NO.** 4 **DATE** 10/13/2022 **PROJECT NAME** City of Bristol

TEMP 69deg **WEATHER** Mostly Cloudy **B.P.** 29.77 **WIND** W 13MPH

| SCS-FS LABOR | HOURS | OT | | | | HOURS | OT |
|-----------------------------------|-------|-------------|-------------|----------------------|-------------|-----------|-------|
| Mike Gibbons | 8 | | | | | | |
| Ryan Seymour | 10 | | | | | | |
| | | | DAILY TOTAL | | | | |
| EQUIP, SVCS, , MLG | QTY | UNITS | | | | QTY | UNITS |
| Tool Truck | 1 | DAY | Hand Tools | | | 1 | DAY |
| Generator 3500watt | 1 | DAY | | | | | |
| C-6 Fusion Equipment | 1 | DAY | | | | | |
| INSTRUMENT CALIBRATION (CAL. GAS) | | CH4 (%-VOL) | CH4 (%-LEL) | O2 LOW SCALE (%-VOL) | CO2 (%-VOL) | H2S (PPM) | |
| MODEL | S/N | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | |
|----------------|--|
| SUMMARY | SCS-FS arrived on site at 7:30am |
| | At 8:00am SCS-FS began wearing the organic vapors badges at the scale house. |
| | @8:30am SCS-FS fueled up equipment at the landfill office garage. |
| | @8:30am SCS-FS (Mike) checked inspected a manhole where he city would like to have a valve replaced. (leachate tank) |
| | @9:00am SCS-FS began operating the mini excavator to uncover the broken valve for permit area 498 and replaced it. |
| | @1:00pm SCS-FS began locating the 6" header for 498 on other side of road |
| | @6:00pm end of day and took off badges |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

PREPARED BY: Mike Gibbons ACCEPTED BY: _____

I understand that when performing a one person job assignment, I am acting as my own supervisor.

SCS FIELD SERVICES

DAILY LOG

JOB NO. 02218208.04 **TASK NO.** 4 **DATE** 10/14/2022 **PROJECT NAME** City of Bristol

TEMP 68deg **WEATHER** Clear **B.P.** 28.34 **WIND** SW 9MPH

| SCS-FS LABOR | HOURS | OT | | HOURS | OT |
|--------------|-------|----|-------------|-------|----|
| Mike Gibbons | 8 | | | | |
| Ryan Seymour | 8 | | | | |
| | | | DAILY TOTAL | | |

| EQUIP, SVCS, , MLG | QTY | UNITS | | QTY | UNITS |
|----------------------|-----|-------|--|-----|-------|
| Tool Truck | 1 | DAY | | | |
| Generator 3500watt | 1 | DAY | | | |
| C-6 Fusion Equipment | 1 | DAY | | | |

| INSTRUMENT CALIBRATION (CAL. GAS) | | CH4 (%-VOL) | CH4 (%-LEL) | O2 LOW SCALE %-VOL) | CO2 (%-VOL) | H2S (PPM) |
|-----------------------------------|-----|----------------|----------------|---------------------------|----------------|-----------|
| MODEL | S/N | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

SUMMARY | SCS-FS arrived on site at 7:30am

At 8:00am SCS-FS began wearing the organic vapors badges at the scale house.

@8:30am SCS-FS fueled up equipment at the landfill office garage.

@9:00am SCS-FS began uncovering the 6" header piping in permit area 498

@12:00pm stopped for lunch and to delivery badges to FedEx for shipment in TN.

@2:00pm continued uncovering header but still could find any issue to why there is no vacuum at EW19.

@3:30pm began to recovering the header piping.

@5:30pm completed recovering header piping

PREPARED BY: Mike Gibbons ACCEPTED BY: _____

I understand that when performing a one person job assignment, I am acting as my own supervisor.

SCS FIELD SERVICES

DAILY LOG

JOB NO. 90000017.07 TASK NO. 00001 DATE 10.19.22 PROJECT NAME BRISTOL
 WIND 12NE

TEMP _____ WEATHER _____ B.P. _____

| SCS-FS LABOR | HOURS | OT | HOURS | OT |
|--------------|-------|----|-------------|----|
| Ryan Seymour | 13 | | | |
| | | | | |
| | | | DAILY TOTAL | 13 |

| EQUIP, SVCS, , MLG | QTY | UNITS | QTY | UNITS |
|--------------------|-----|-------|-----------|-------|
| GEM 5000 | 1 | Day | MX4 | Day |
| Truck | 1 | Day | Generator | Day |

| INSTRUMENT CALIBRATION (CAL. GAS) | | CH4 (%-VOL) | CH4 (%-LEL) | O2 LOW CAL (%-VOL) | CO2 (%-VOL) | H2S (PPM) |
|-----------------------------------|--------|-------------|-------------|--------------------|-------------|-----------|
| MODEL | S/N | | | | | |
| 5000 | 500399 | 50 | | 20.9 | 35.1 | |
| | | | | | | |
| | | | | | | |

SUMMARY Scs was on site for exceedance rechecks and to grab samples from wells over 145 degrees.
 Blower reading: CH4- 31.2% C02-31.0 % O2- 6.0 % BAL-31.8 %

I drilled and tapped 33 to get a reading. It's by a bunch of excavation. Not reachable.
 Put new fittings on 37, 67, and 40. I could not get vacuum to 40. But I grabbed samples from 57 and 37 today.
 I also collected data from the North and South Lechete cleanouts. I didn't grab strobe counters.
 I tried to work on temperature probes but the one attached to 68 that I was going to work on was not operating correctly. Next week I will work on installing a "saddle" to the QED well head for the temp probe.

PREPARED BY:
 RYAN
 SEYMOUR

ACCEPTED BY: _____

I understand that when performing a one person job assignment, I am acting as my own supervisor.

SCS FIELD SERVICES

DAILY LOG

JOB NO. 07220028.00 **TASK NO.** 00001 **DATE** 10.26.22 **PROJECT NAME** BRISTOL
TEMP 45 **WEATHER** Partly cloudy **B.P.** 28.15 **WIND** 12NE

| SCS-FS LABOR | HOURS | OT | | HOURS | OT | |
|--------------|-------|----|--|-------------|----|--|
| Ryan Seymour | 13 | | | | | |
| | | | | | | |
| | | | | DAILY TOTAL | 13 | |

| EQUIP, SVCS, , MLG | QTY | UNITS | | QTY | UNITS | |
|--------------------|-----|-------|-----------|-----|-------|--|
| GEM 5000 | 1 | Day | MX4 | | Day | |
| Truck | 1 | Day | Generator | | Day | |

| INSTRUMENT CALIBRATION (CAL. GAS) | | CH4 (%-VOL) | CH4 (%-LEL) | O2 LOW CAL (%-VOL) | CO2 (%-VOL) | H2S (PPM) |
|-----------------------------------|--------|-------------|-------------|--------------------|-------------|-----------|
| MODEL | S/N | | | | | |
| 5000 | 500399 | 50 | | 20.9 | 35.1 | |
| | | | | | | |
| | | | | | | |

SUMMARY Scs was on site for exceedance rechecks and to grab samples from wells over 145 degrees. As well as I put a new saddle on ew 68 for the temperature probes. I took readings at the blower, and the cleanouts north and south sides. Got vacuum on 40. And sampled 57
 Blower reading: CH4- 31.4% CO2-29.5 % O2- 6.0 % BAL-33.1%
 While in the quarry I get a strong odor of sulfur walking down the road.

The saddles will work good for the temperature probes.

PREPARED BY:
 RYAN
 SEYMOUR

ACCEPTED BY: _____

I understand that when performing a one person job assignment, I am acting as my own supervisor.

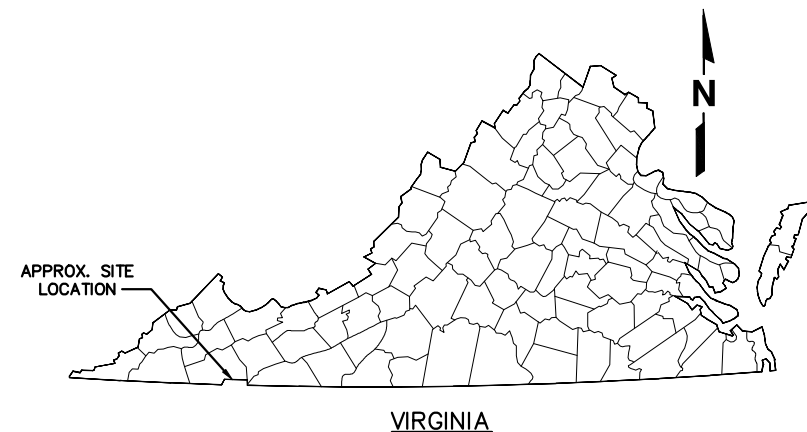
Appendix C

Sidewall Odor Mitigation System Design Drawings

BRISTOL, VIRGINIA INTEGRATED SOLID WASTE MANAGEMENT FACILITY SOLID WASTE PERMIT #588

SIDEWALL ODOR MITIGATION SYSTEM

BRISTOL, VIRGINIA



INDEX OF DRAWINGS

| SHEET | DRAWING NO. | SHEET TITLE |
|-------|-------------|--|
| 1 | 0 | COVER SHEET |
| 2 | 1 | EXISTING CONDITIONS |
| 3 | 2 | PHASE I - SIDEWALL ODOR MITIGATION SYSTEM |
| 4 | 2A | PHASE II - SIDEWALL ODOR MITIGATION SYSTEM |
| 5 | 3 | SYSTEM PROFILE VIEW |
| 6 | 4 | DETAIL SHEET 1 |
| 7 | 5 | DETAIL SHEET 2 |
| 8 | 6 | DETAIL SHEET 3 |
| 9 | 7 | DETAIL SHEET 4 |

PREPARED FOR:

CITY OF BRISTOL, VIRGINIA
300 LEE STREET
BRISTOL, VIRGINIA 24201

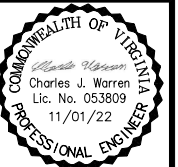
INTEGRATED SOLID WASTE MANAGEMENT
FACILITY
2655 VALLEY DRIVE
BRISTOL, VIRGINIA 24201

SCS ENGINEERS

STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
15521 MIDLOTHIAN TURNPIKE, SUITE 305
MIDLOTHIAN, VIRGINIA 23113-7313
PH. (804) 378-7440 FAX. (703) 471-6676
WWW.SCSENGINEERS.COM

SCS PROJECT NO. 02218208.11

NOVEMBER 1, 2022



| NO. | REVISION | DATE |
|-----|----------|------|
| △ | | |
| △ | | |
| △ | | |
| △ | | |
| △ | | |

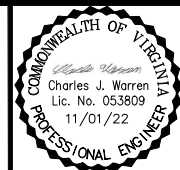
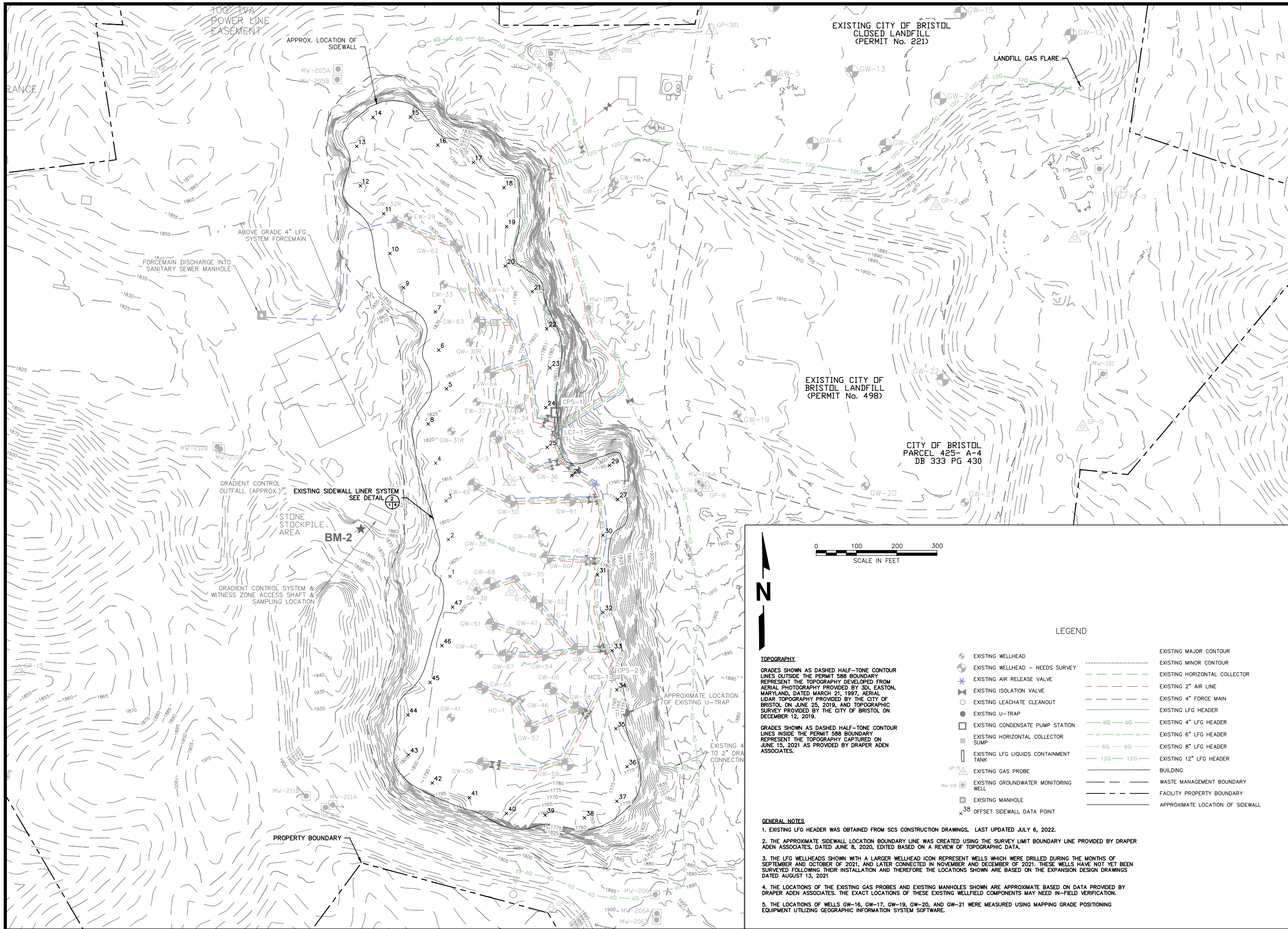
| | |
|---------------|--|
| SHEET TITLE | COVER SHEET |
| PROJECT TITLE | SIDEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT |

| | |
|--------|---|
| CLIENT | CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VA 24201 |
|--------|---|

| | |
|------------------|---|
| SCS ENGINEERS | STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 15521 MIDLOTHIAN TURNPIKE - MIDLOTHIAN, VA 23113 PH. (804) 378-7440 FAX. (804) 378-7433 |
| DATE: 02/21/2022 | DWG. BY: HCW CHK. BY: CUIW APP. BY: CUIW |
| DATE: 11/01/2022 | S/A R/W BY: RED APP. BY: CUIW |

| | |
|------------|-------------|
| CADD FILE: | 02218208.11 |
| DATE: | 11/01/2022 |
| SCALE: | |

| | |
|-------------|--------|
| DRAWING NO. | 0 of 7 |
|-------------|--------|



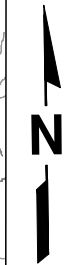
| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |
| | | |

SHEET TITLE: **EXISTING CONDITIONS**
 PROJECT TITLE: **SEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7453

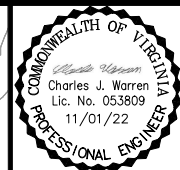
CADD FILE: 02218208.11
 DATE: 11/01/22
 SCALE: AS SHOWN
 DRAWING NO. **1**



- TOPOGRAPHY**
- GRADES SHOWN AS DASHED HALF-TONE CONTOUR LINES INSIDE THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY DEVELOPED FROM AERIAL PHOTOGRAPHY PROVIDED BY 3D1, EASTON, MARYLAND, DATED MARCH 21, 1997, AERIAL LIDAR TOPOGRAPHY PROVIDED BY THE CITY OF BRISTOL ON JUNE 25, 2019, AND TOPOGRAPHIC SURVEY PROVIDED BY THE CITY OF BRISTOL ON DECEMBER 12, 2019.
 - GRADES SHOWN AS DASHED HALF-TONE CONTOUR LINES INSIDE THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY CAPTURED ON JUNE 15, 2021 AS PROVIDED BY DRAPER ADEN ASSOCIATES.

- GENERAL NOTES**
- EXISTING LFG HEADER WAS OBTAINED FROM SCS CONSTRUCTION DRAWINGS. LAST UPDATED JULY 6, 2022.
 - THE APPROXIMATE SEWALL LOCATION BOUNDARY LINE WAS CREATED USING THE SURVEY LIMIT BOUNDARY LINE PROVIDED BY DRAPER ADEN ASSOCIATES, DATED JUNE 8, 2020, EDITED BASED ON A REVIEW OF TOPOGRAPHIC DATA.
 - THE LFG WELLHEADS SHOWN WITH A LARGER WELLHEAD ICON REPRESENT WELLS WHICH WERE DRILLED DURING THE MONTHS OF SEPTEMBER AND OCTOBER OF 2021, AND LATER CONNECTED IN NOVEMBER AND DECEMBER OF 2021. THESE WELLS HAVE NOT YET BEEN SURVEYED FOLLOWING THEIR INSTALLATION AND THEREFORE THE LOCATIONS SHOWN ARE BASED ON THE EXPANSION DESIGN DRAWINGS DATED AUGUST 13, 2021.
 - THE LOCATIONS OF THE EXISTING GAS PROBES AND EXISTING MANHOLES SHOWN ARE APPROXIMATE BASED ON DATA PROVIDED BY DRAPER ADEN ASSOCIATES. THE EXACT LOCATIONS OF THESE EXISTING WELLFIELD COMPONENTS MAY NEED IN-FIELD VERIFICATION.
 - THE LOCATIONS OF WELLS GW-16, GW-17, GW-19, GW-20, AND GW-21 WERE MEASURED USING MAPPING GRADE POSITIONING EQUIPMENT UTILIZING GEOGRAPHIC INFORMATION SYSTEM SOFTWARE.

- LEGEND**
- EXISTING WELLHEAD
 - EXISTING WELLHEAD - NEEDS SURVEY
 - EXISTING AIR RELEASE VALVE
 - EXISTING ISOLATION VALVE
 - EXISTING LEACHATE CLEANOUT
 - EXISTING U-TRAP
 - EXISTING CONDENSATE PUMP STATION
 - EXISTING HORIZONTAL COLLECTOR SUMP
 - EXISTING LFG LIQUIDS CONTAINMENT TANK
 - EXISTING GAS PROBE
 - EXISTING GROUNDWATER MONITORING WELL
 - EXISTING MANHOLE
 - OFFSET SEWALL DATA POINT
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - EXISTING HORIZONTAL COLLECTOR
 - EXISTING 2" AIR LINE
 - EXISTING 4" FORCE MAIN
 - EXISTING LFG HEADER
 - EXISTING 4" LFG HEADER
 - EXISTING 6" LFG HEADER
 - EXISTING 8" LFG HEADER
 - EXISTING 12" LFG HEADER
 - WASTE MANAGEMENT BOUNDARY
 - FACILITY PROPERTY BOUNDARY
 - APPROXIMATE LOCATION OF SEWALL



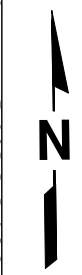
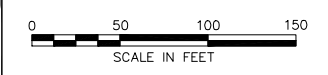
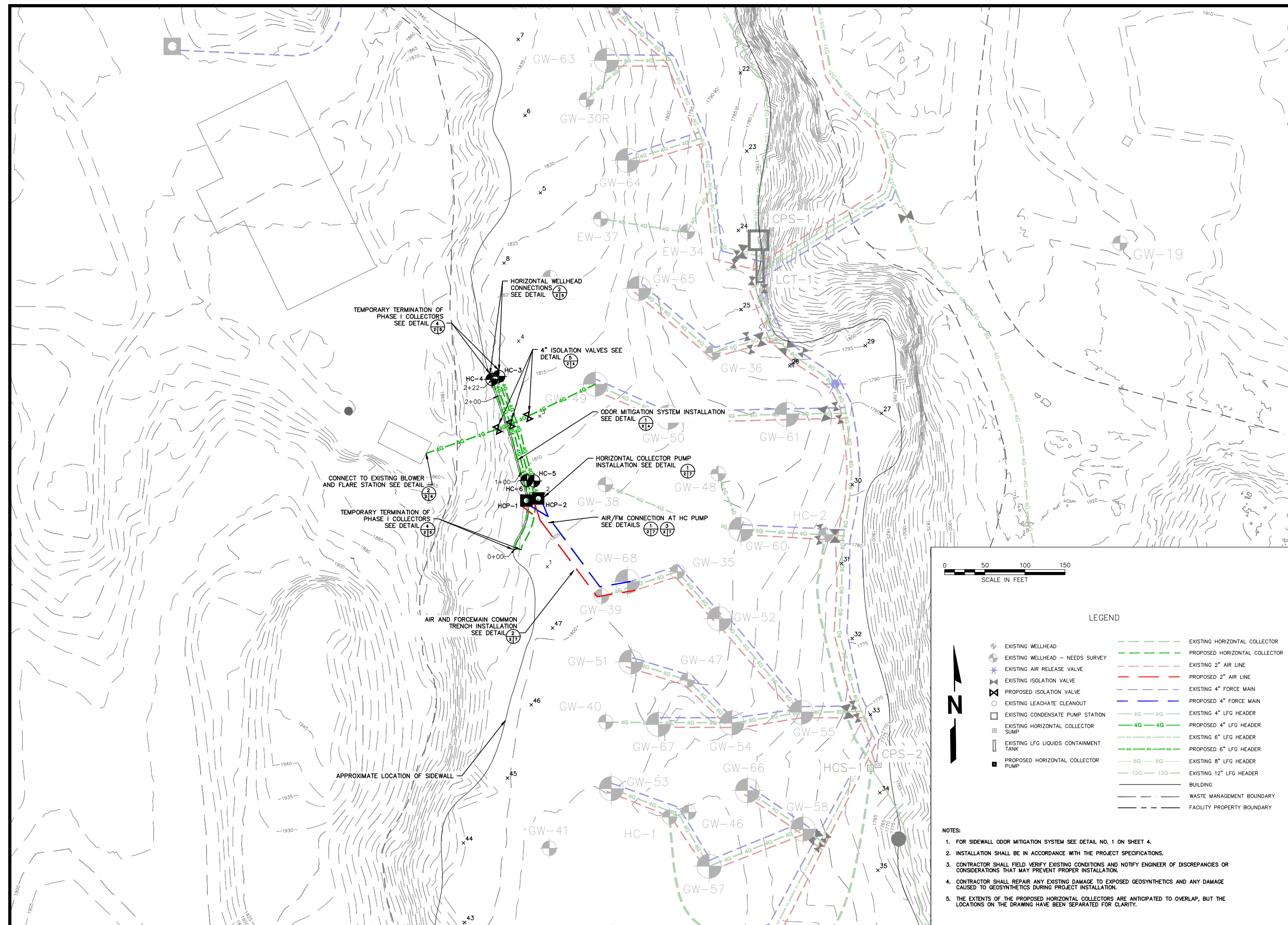
| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |
| | | |

SHEET TITLE: PHASE I
 SIDEWALL ODOR MITIGATION SYSTEM
 PROJECT TITLE: SIDEWALL ODOR MITIGATION SYSTEM
 CAPITAL PROJECT

CLIENT: CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7453

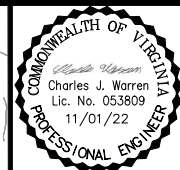
CADD FILE: 02218208.11
 DATE: 11/01/22
 SCALE: AS SHOWN
 DRAWING NO. 2



LEGEND

| | | | |
|--|---------------------------------------|--|-------------------------------|
| | EXISTING WELLHEAD | | EXISTING HORIZONTAL COLLECTOR |
| | EXISTING WELLHEAD - NEEDS SURVEY | | PROPOSED HORIZONTAL COLLECTOR |
| | EXISTING AIR RELEASE VALVE | | EXISTING 2" AIR LINE |
| | EXISTING ISOLATION VALVE | | PROPOSED 2" AIR LINE |
| | PROPOSED ISOLATION VALVE | | EXISTING 4" FORCE MAIN |
| | EXISTING LEACHATE CLEANOUT | | PROPOSED 4" FORCE MAIN |
| | EXISTING CONDENSATE PUMP STATION | | EXISTING 4" LFG HEADER |
| | EXISTING HORIZONTAL COLLECTOR SUMP | | PROPOSED 4" LFG HEADER |
| | EXISTING LFG LIQUIDS CONTAINMENT TANK | | EXISTING 6" LFG HEADER |
| | PROPOSED HORIZONTAL COLLECTOR PUMP | | PROPOSED 6" LFG HEADER |
| | | | EXISTING 8" LFG HEADER |
| | | | EXISTING 12" LFG HEADER |
| | BUILDING | | |
| | WASTE MANAGEMENT BOUNDARY | | |
| | FACILITY PROPERTY BOUNDARY | | |

- NOTES:
1. FOR SIDEWALL ODOR MITIGATION SYSTEM SEE DETAIL NO. 1 ON SHEET 4.
 2. INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 3. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF DISCREPANCIES OR CONSIDERATIONS THAT MAY PREVENT PROPER INSTALLATION.
 4. CONTRACTOR SHALL REPAIR ANY EXISTING DAMAGE TO EXPOSED GEOSYNTHETICS AND ANY DAMAGE CAUSED TO GEOSYNTHETICS DURING PROJECT INSTALLATION.
 5. THE EXTENTS OF THE PROPOSED HORIZONTAL COLLECTORS ARE ANTICIPATED TO OVERLAP, BUT THE LOCATIONS ON THE DRAWING HAVE BEEN SEPARATED FOR CLARITY.



| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |

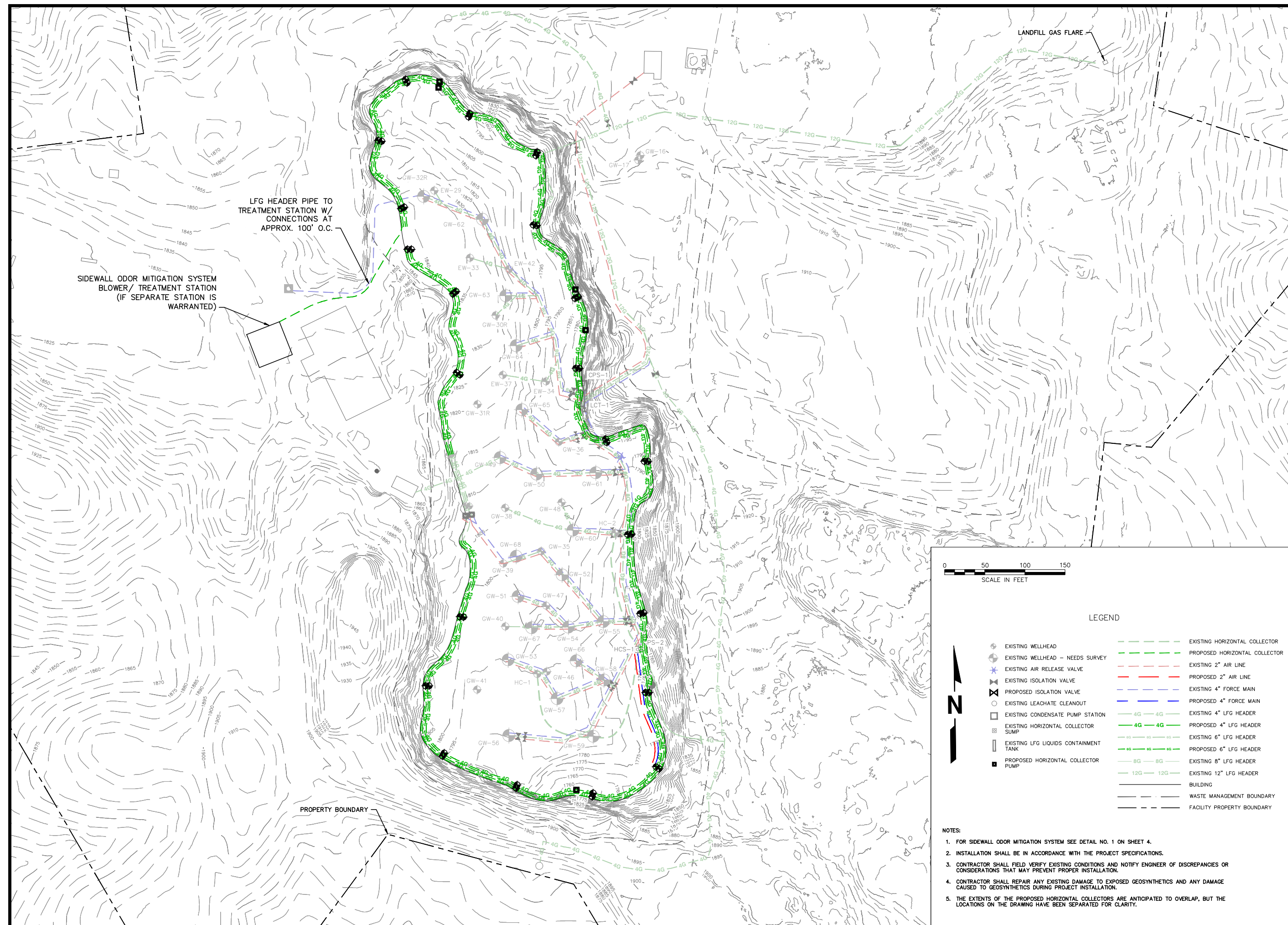
SHEET TITLE: PHASE II
 SIDEWALL ODOR MITIGATION SYSTEM
 PROJECT TITLE: SIDEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT

CLIENT: CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 18821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7453

PROJ. NO. 02218208.11
 DES. BY: HGW
 DWN. BY: HGW
 CHK. BY: CAJW
 APP. BY: CAJW

CADD FILE: 02218208.11
 DATE: 11/01/22
 SCALE: AS SHOWN
 DRAWING NO. **2A**

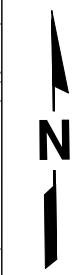
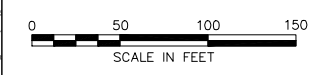


LFG HEADER PIPE TO TREATMENT STATION W/ CONNECTIONS AT APPROX. 100' O.C.

SIDEWALL ODOR MITIGATION SYSTEM BLOWER/ TREATMENT STATION (IF SEPARATE STATION IS WARRANTED)

PROPERTY BOUNDARY

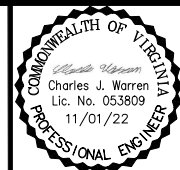
LANDFILL GAS FLARE



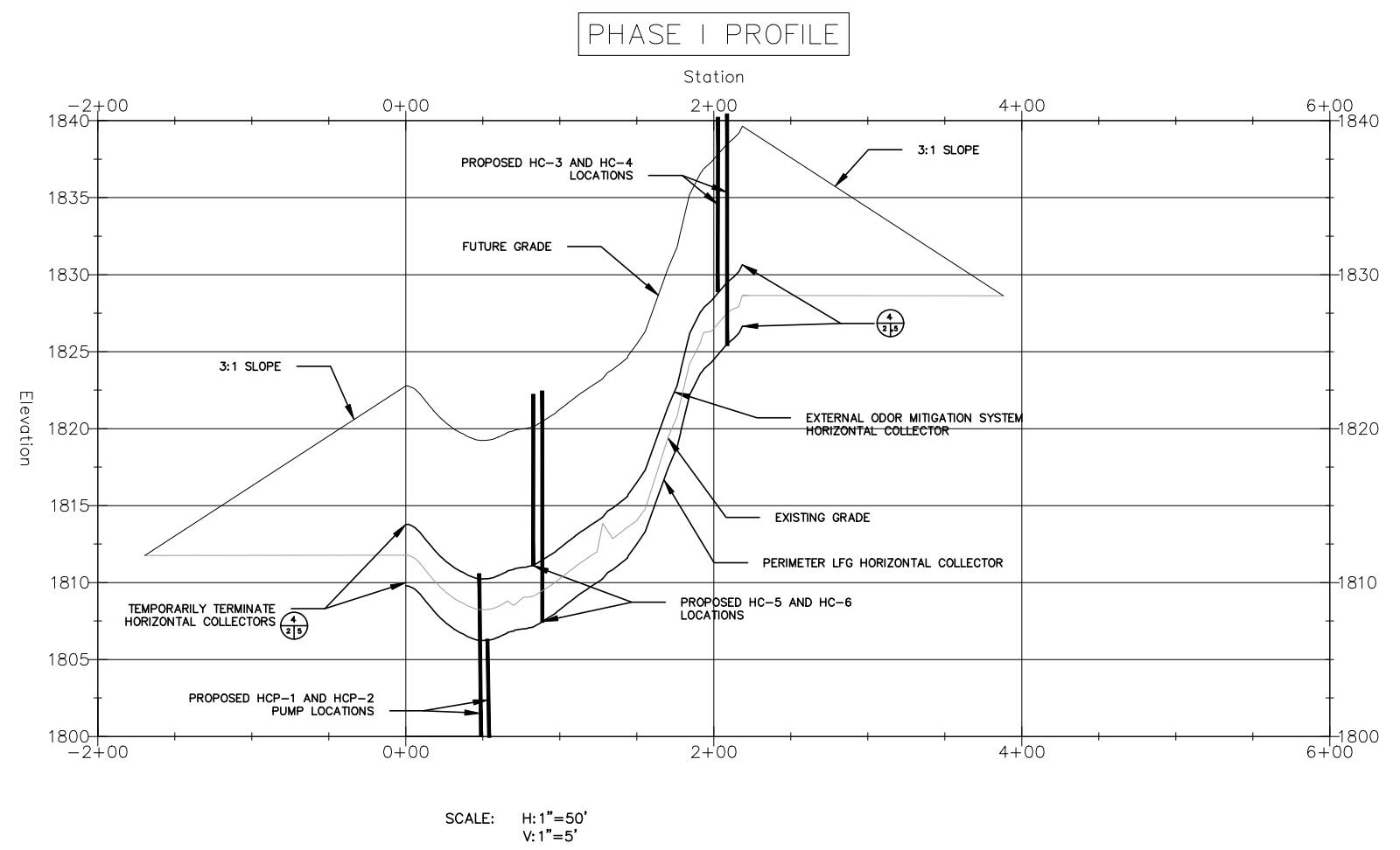
LEGEND

| | | | |
|--|---------------------------------------|--|-------------------------------|
| | EXISTING WELLHEAD | | EXISTING HORIZONTAL COLLECTOR |
| | EXISTING WELLHEAD - NEEDS SURVEY | | PROPOSED HORIZONTAL COLLECTOR |
| | EXISTING AIR RELEASE VALVE | | EXISTING 2" AIR LINE |
| | EXISTING ISOLATION VALVE | | PROPOSED 2" AIR LINE |
| | PROPOSED ISOLATION VALVE | | EXISTING 4" FORCE MAIN |
| | EXISTING LEACHATE CLEANOUT | | PROPOSED 4" FORCE MAIN |
| | EXISTING CONDENSATE PUMP STATION | | EXISTING 4" LFG HEADER |
| | EXISTING HORIZONTAL COLLECTOR SUMP | | PROPOSED 4" LFG HEADER |
| | EXISTING LFG LIQUIDS CONTAINMENT TANK | | EXISTING 6" LFG HEADER |
| | PROPOSED HORIZONTAL COLLECTOR PUMP | | PROPOSED 6" LFG HEADER |
| | | | EXISTING 8" LFG HEADER |
| | | | EXISTING 12" LFG HEADER |
| | | | BUILDING |
| | | | WASTE MANAGEMENT BOUNDARY |
| | | | FACILITY PROPERTY BOUNDARY |

- NOTES:
- FOR SIDEWALL ODOR MITIGATION SYSTEM SEE DETAIL NO. 1 ON SHEET 4.
 - INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF DISCREPANCIES OR CONSIDERATIONS THAT MAY PREVENT PROPER INSTALLATION.
 - CONTRACTOR SHALL REPAIR ANY EXISTING DAMAGE TO EXPOSED GEOSYNTHETICS AND ANY DAMAGE CAUSED TO GEOSYNTHETICS DURING PROJECT INSTALLATION.
 - THE EXTENTS OF THE PROPOSED HORIZONTAL COLLECTORS ARE ANTICIPATED TO OVERLAP, BUT THE LOCATIONS ON THE DRAWING HAVE BEEN SEPARATED FOR CLARITY.



| NO. | REVISION | DATE |
|-----|----------|------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |



SHEET TITLE
SYSTEM PROFILE VIEW

PROJECT TITLE
**SIDEWALL ODOR MITIGATION SYSTEM
CAPITAL PROJECT**

CLIENT
**CITY OF BRISTOL INTEGRATED SOLID
WASTE MANAGEMENT FACILITY**
2655 VALLEY DRIVE
BRISTOL, VA 24201

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
16821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
PH. (804) 378-7440 FAX. (804) 378-7453

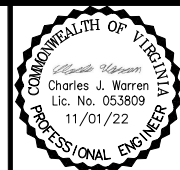
| | | | |
|--------------------------|-----------------|----------------|------------------|
| PROJ. NO. 02218208.11 | DESIGNER HGW | CHECKER HGW | DATE 11/01/22 |
| APP. BY CJW | APP. BY CJW | APP. BY CJW | APP. BY CJW |

CADD FILE:
02218208.11

DATE:
11/01/22

SCALE:
AS SHOWN

DRAWING NO.



| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |
| | | |

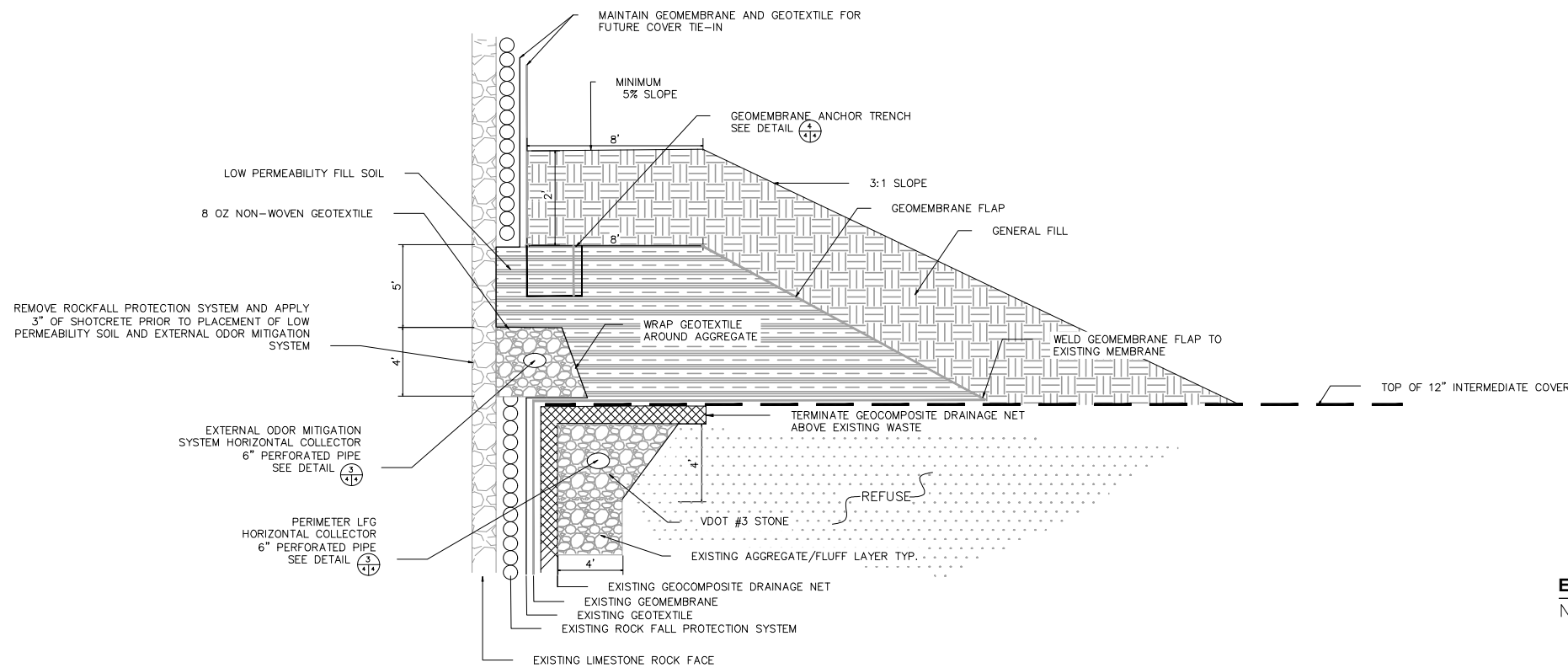
SHEET TITLE: **DETAIL SHEET 1**
 PROJECT TITLE: **SIDEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7433

PROJ. NO. 02218208.11
 DES. BY: HGW
 CHK. BY: HGW
 APP. BY: C.J.W.
 DATE: 11/01/22

CADD FILE: 02218208.11
 DATE: 11/01/22
 SCALE: AS SHOWN
 DRAWING NO.

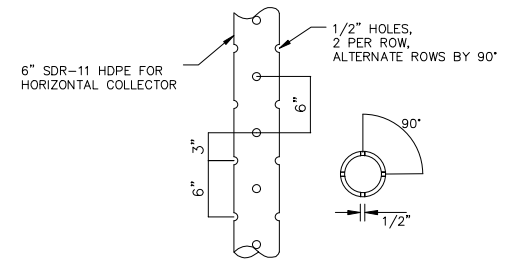


ODOR MITIGATION SYSTEM DETAIL

NOT TO SCALE



- NOTES:
- CONTRACTOR SHOULD EXCAVATE IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE EXISTING LINER. EXCAVATION BY HAND WILL BE REQUIRED. ANY DAMAGE TO THE LINER SYSTEM MUST BE REPAIRED PRIOR TO BACKFILLING.
 - CONTRACTOR TO PROVIDE ADDITIONAL GEOSYNTHETICS AND INSTALL AS NEEDED TO ACHIEVE THE CONFIGURATION SHOWN. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - CONTRACTOR SHALL INSPECT EXISTING INTERMEDIATE COVER PRIOR TO GEOMEMBRANE PLACEMENT AND CONFIRM THAT THE MATERIAL MEETS THE PROJECT SPECIFICATIONS.
 - CONTRACTOR SHALL INSTALL ADDITIONAL GEOSYNTHETICS AS NEEDED TO ACHIEVE THE DIMENSIONS SHOWN ON THE DETAIL. GEOSYNTHETICS SHALL BE JOINED TO EXISTING GEOSYNTHETICS AS OUTLINED IN THE CORRESPONDING MATERIAL SPECIFICATIONS.

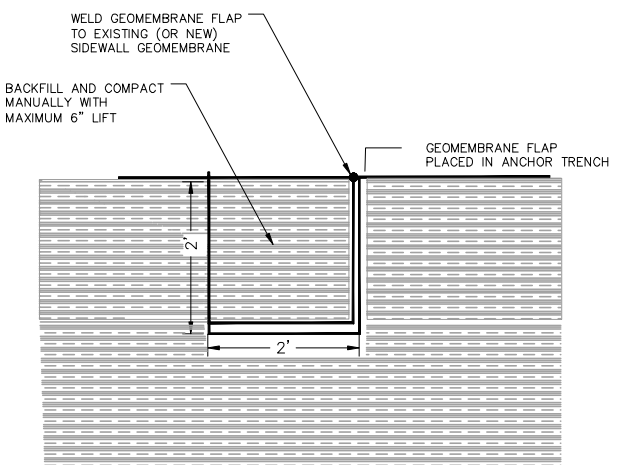


PERFORATED PIPE DETAIL

NOT TO SCALE



- NOTES:
- PERFORATIONS SPACED 90° APART HORIZONTALLY.
 - PERFORATIONS SPACED 6" APART VERTICALLY.
 - 90° AND 270° ROWS STAGGERED 3" BELOW 0° AND 180° ROWS.

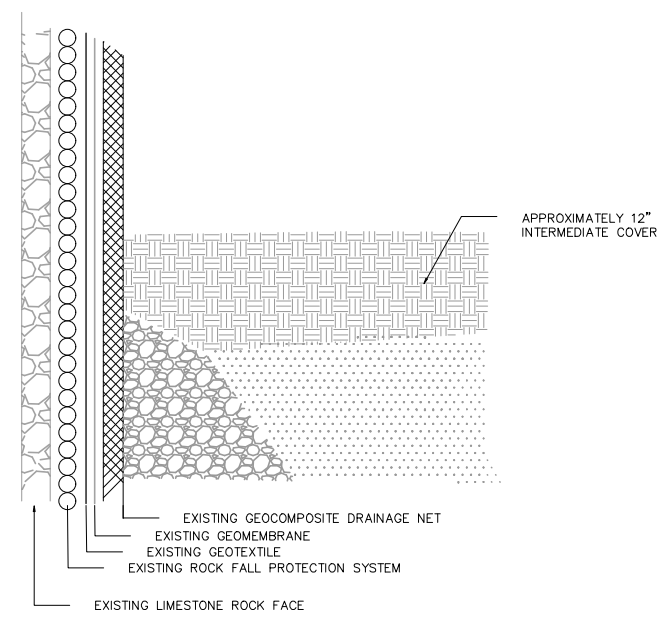


GEOMEMBRANE ANCHOR TRENCH DETAIL

NOT TO SCALE

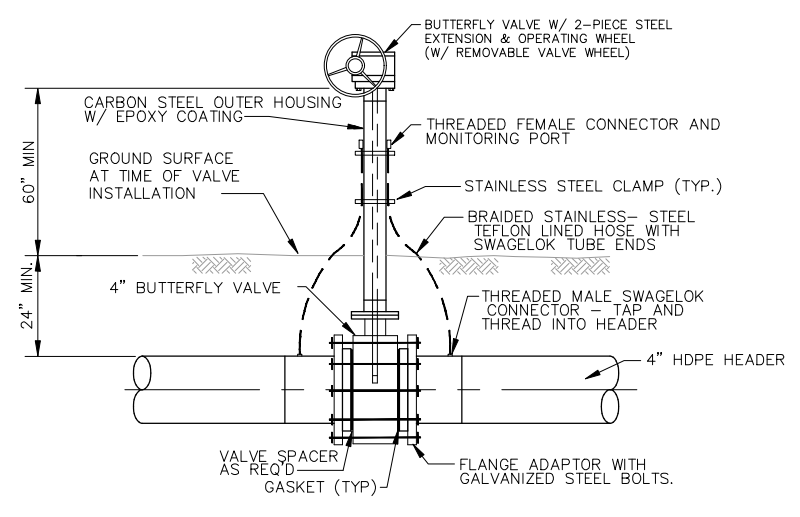


- NOTES:
- ANCHOR TRENCH FILL SOIL SHALL BE THE SAME SOIL TYPE AS THE SURROUNDING SOIL.
 - ADDITIONAL GEOMEMBRANE FLAP TO BE INSTALLED BETWEEN ANCHOR TRENCH AND QUARRY WALL USING EXTRUSION WELDS.



EXISTING SIDEWALL LINER SYSTEM DETAIL

NOT TO SCALE

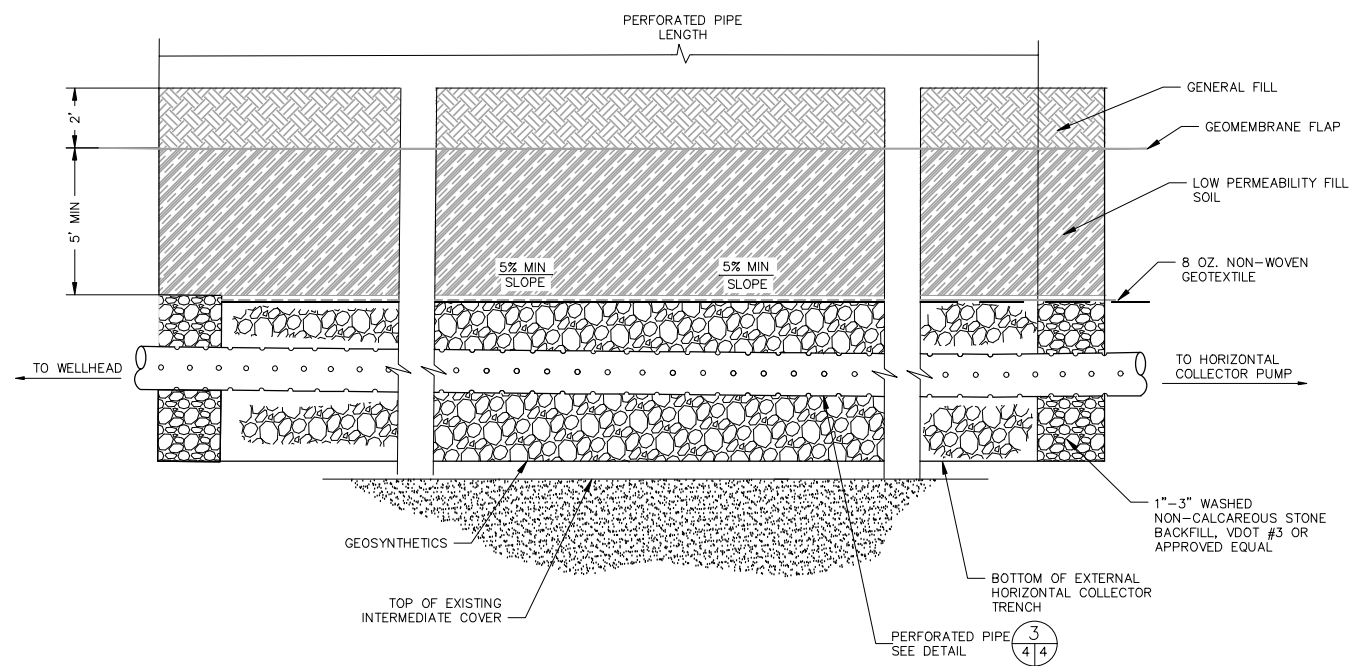


ISOLATION VALVE DETAIL

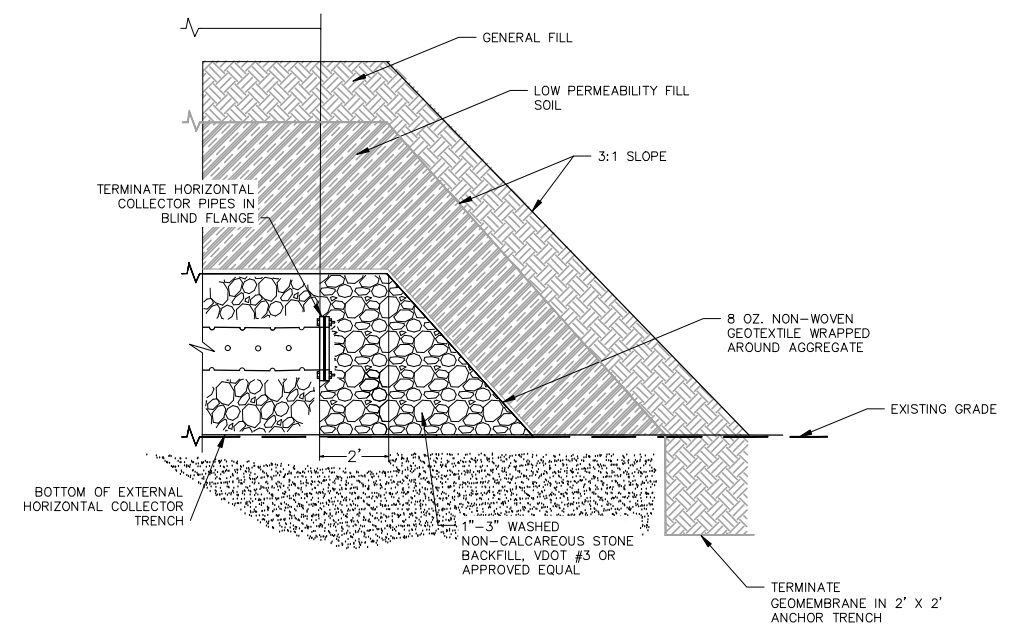
NOT TO SCALE



- NOTES:
- WRAP AND TAPE THE VALVE, FLANGE, AND BOLTS IN POLYETHYLENE SHEETING PRIOR TO BACKFILLING.

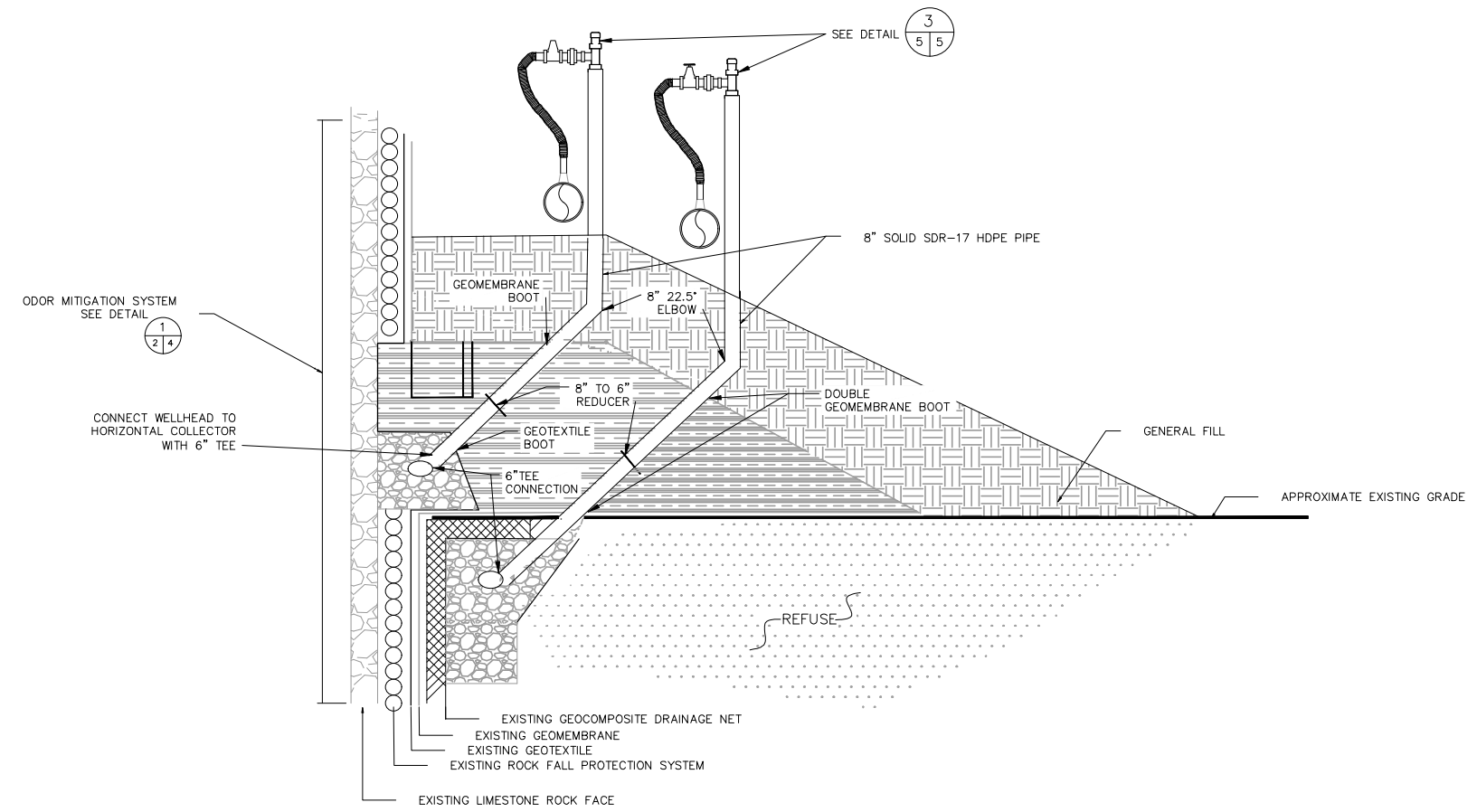


HORIZONTAL COLLECTOR DETAIL
 NOT TO SCALE



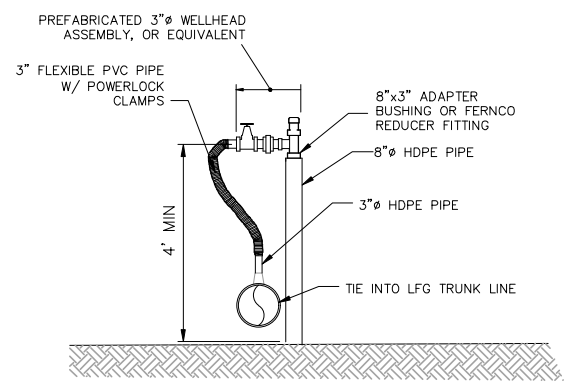
TEMPORARY TERMINATION OF PHASE I HORIZONTAL COLLECTOR DETAIL
 NOT TO SCALE

- NOTE:
- ROCKFALL PROTECTION SHALL BE REMOVED FROM QUARRY WALL PRIOR TO PLACING EXTERNAL HORIZONTAL COLLECTOR AND STONE AGAINST QUARRY WALL.
 - ROCKFALL PROTECTION SHALL BE REMOVED FROM QUARRY WALL AND 3" OF SHOTCRETE APPLIED PRIOR TO PLACING LOW PERMEABILITY FILL SOIL AGAINST QUARRY WALL.



HORIZONTAL COLLECTOR WELLHEAD TIE-IN DETAIL
 NOT TO SCALE

- NOTE:
- CONNECTION OF THE HORIZONTAL COLLECTOR TO SOLID 6" HDPE VERTICAL RISER TO BE MADE WITH A TEE OR BRANCH SADDLE USING HEAT FUSION PROCESSES RECOMMENDED BY THE MANUFACTURER.



HORIZONTAL COLLECTOR WELLHEAD DETAIL
 NOT TO SCALE

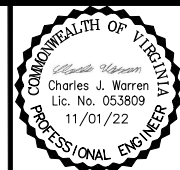
| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |
| | | |

SHEET TITLE: **DETAIL SHEET 2**
 PROJECT TITLE: **SIDEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7453

CADD FILE: 02218208.11
 DATE: 11/01/22
 SCALE: AS SHOWN
 DRAWING NO.



| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |
| | | |

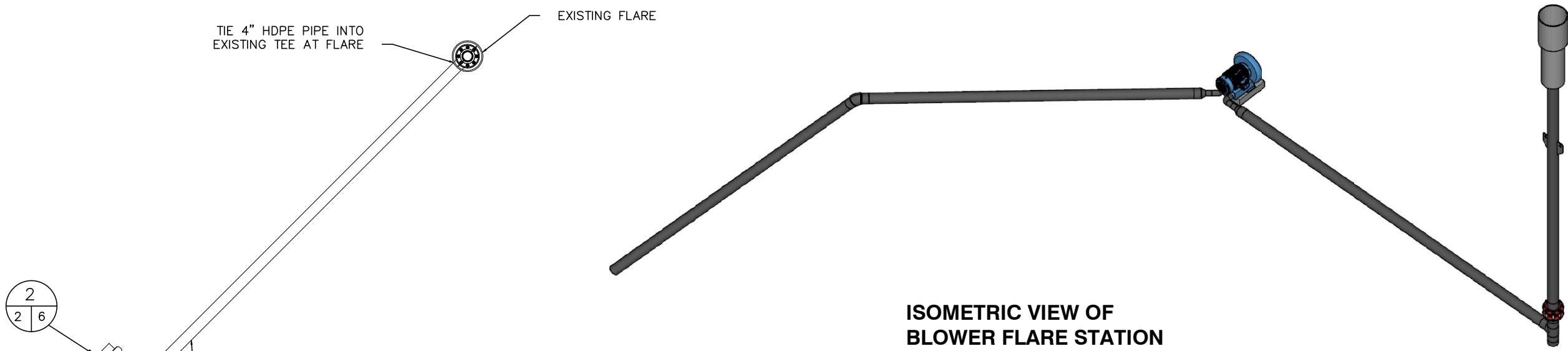
SHEET TITLE: **DETAIL SHEET 3**
 PROJECT TITLE: **SIDEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7453

| | | | |
|-----------------------|-----------------|----------------|----------------|
| PROJ. NO. 02218208.11 | DESIGN BY: SRS | CHECK BY: SRS | DATE: 11/01/22 |
| APP. BY: SRS | APP. BY: C.J.W. | DATE: 11/01/22 | |

CADD FILE: 02218208.11
 DATE: 11/01/22
 SCALE: AS SHOWN
 DRAWING NO.



ISOMETRIC VIEW OF BLOWER FLARE STATION

2
2 6

TIE 4" HDPE PIPE INTO EXISTING TEE AT FLARE

EXISTING FLARE

INSTALL 4"Ø HDPE PIPE; REMOVE EXISTING 4" PVC PIPING AND FITTINGS

INSTALL 4" HDPE 45 DEG ELBOW

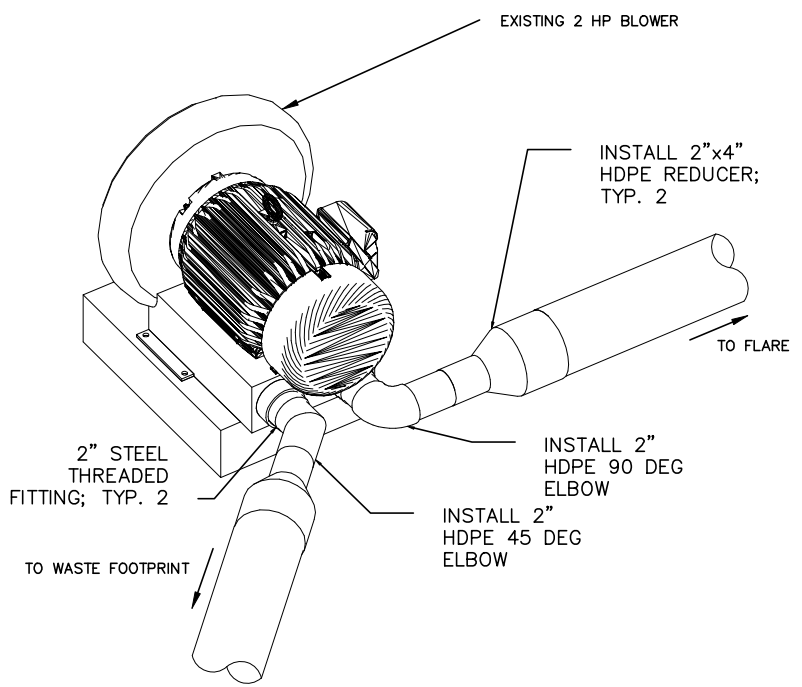
INSTALL 4"Ø HDPE PIPE; REMOVE EXISTING 2"Ø PVC PIPING AND FITTINGS

TO WASTE FOOTPRINT

PHASE I BLOWER FLARE STATION DETAIL

NOT TO SCALE

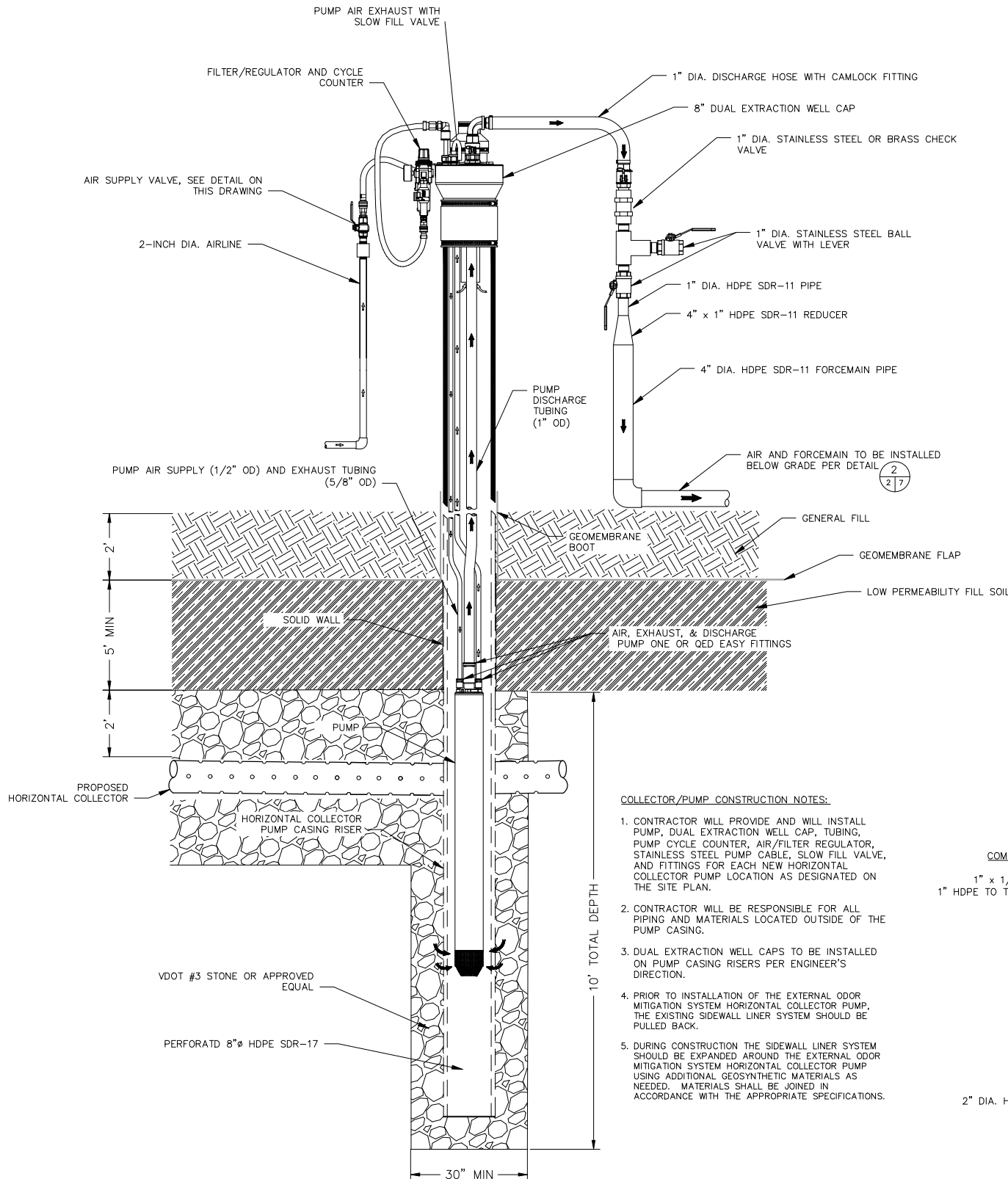
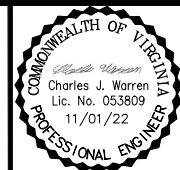
1
6 6



BLOWER CONNECTION POINT DETAIL

NOT TO SCALE

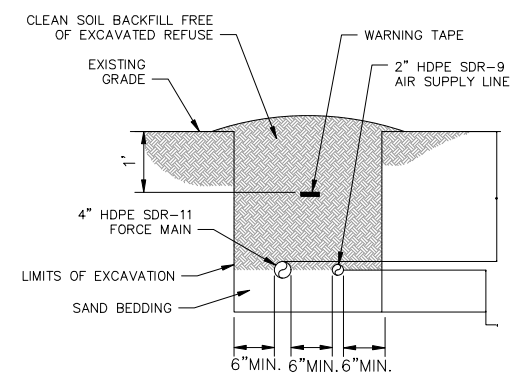
2
2 6



HORIZONTAL COLLECTOR PUMP DETAIL

NOT TO SCALE

1
2 7

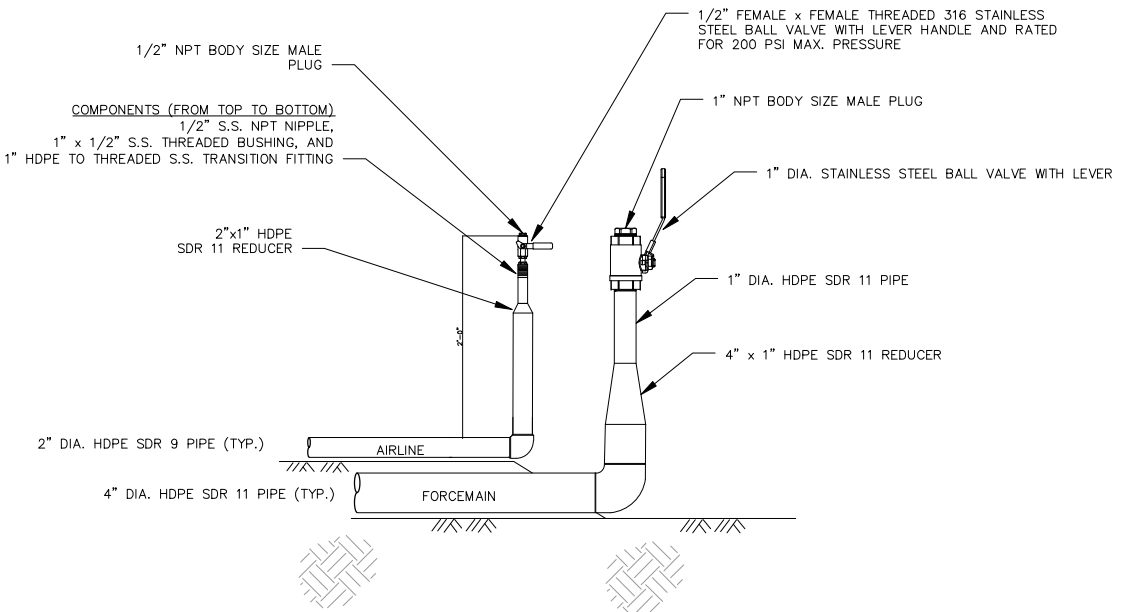


AIR SUPPLY AND FORCE MAIN PIPE TRENCH DETAIL

NOT TO SCALE

2
2 7

- NOTES:
- TRENCH DEPTH SHALL BE 18" MIN. WITHIN WASTE LIMITS.
 - AIR SUPPLY AND FORCE MAIN PIPES SHALL BE IN COMMON TRENCH.

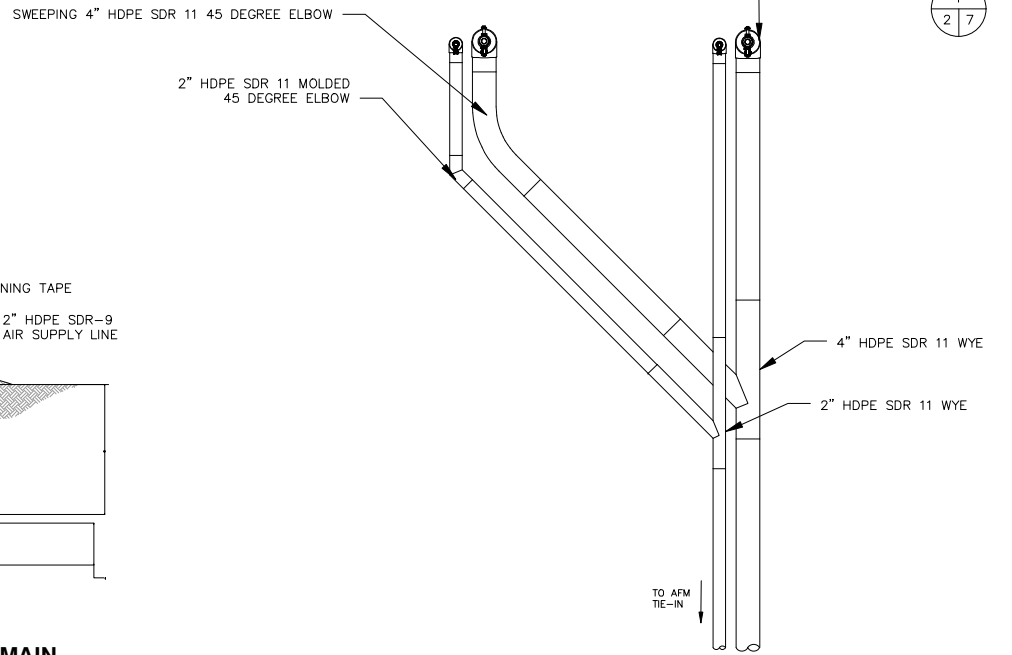


- NOTES:
- STUB-UPS SHALL BE INSTALLED ON NEW AIR AND FORCEMAIN PIPING ADJACENT TO HORIZONTAL COLLECTOR PUMP (HCP) LOCATIONS.
 - AIR AND FORCEMAIN PIPING SHALL BE INSTALLED BELOW GRADE PER DETAIL 2 ON THIS SHEET.

AIR AND FORCEMAIN STUB-UP DETAIL

NOT TO SCALE

3
2 7



AIR AND FORCEMAIN STUB-UP DETAIL PLAN VIEW

NOT TO SCALE

4
7 7

| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |
| | | |

SHEET TITLE: **DETAIL SHEET 4**

PROJECT TITLE: **SIDEWALL ODOR MITIGATION SYSTEM CAPITAL PROJECT**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15821 MIDLOTHIAN TRPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7453

PROJ. NO. 02218208.11
 DES. BY: HGM/SRB
 CHK. BY: CAW
 APP. BY: CAW
 DATE: 11/01/22

CADD FILE: 02218208.11

DATE: 11/01/22

SCALE: AS SHOWN

DRAWING NO.

Appendix D

Dual Phase Landfill Gas Extraction Well Leachate Monitoring Plan

Dual Phase Landfill Gas Extraction Well
Leachate Monitoring Plan
Bristol Integrated Solid Waste Management
Facility
Solid Waste Permit #588



2125 Shakesville Road
Bristol, VA 24201

SCS ENGINEERS

02218208.15 | November 1, 2022

296 Victory Road
Winchester, VA 22602
540-662-7097

Signature/Certification Sheet

We certify that we have prepared this Plan, that it has been prepared in accordance with industry standards and practices, and that the information contained herein is truthful and accurate to the best of our knowledge.

Name: Jennifer S. Robb, Vice President/Project Director

Signature:



Date: November 1, 2022

Name: Charles Warren, PE, Project Manager

Signature:



Date: November 1, 2022

Virginia Professional Engineer's Certification:

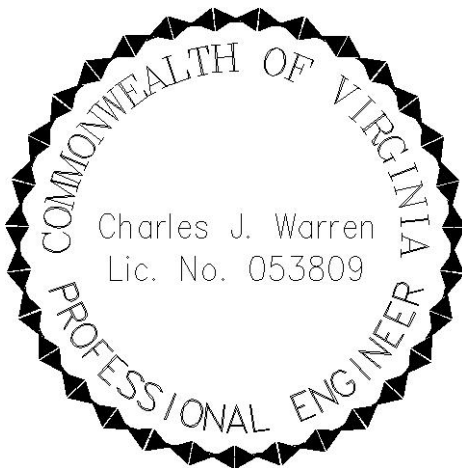


Table of Contents

| Section | Page |
|---|----------|
| 1.0 Introduction..... | 1 |
| 1.1 Site Background | 1 |
| 1.2 Physical Setting | 1 |
| 1.3 Landfill Gas Extraction System | 1 |
| 2.0 LFG-EW Leachate Monitoring Program | 2 |
| 2.1 Extraction Well and Pump Maintenance..... | 2 |
| 2.2 Leachate Sampling Procedures..... | 2 |
| 2.2.1 Bottle Kit Preparation..... | 3 |
| 2.2.2 Sample Collection Procedures..... | 3 |
| 2.2.3 Sample Documentation | 4 |
| 2.2.3.1 Sample Bottle Labeling..... | 4 |
| 2.2.3.2 Field Logs..... | 4 |
| 2.2.3.3 Chain-of-Custody | 4 |
| 2.3 Quality Control Sampling..... | 5 |
| 2.4 Laboratory Analysis | 5 |
| 2.5 Data Validation | 6 |
| 3.0 Reporting | 6 |
| 4.0 References..... | 6 |

List of Figures

- Figure 1. Topographic Quadrangle Map
Figure 2. Site Map

List of Appendices

- Appendix A Dual Phase LFG-EW Pump Cycle Count Log
Daily Field Log
Dual Phase LFG-EW Liquid Level Measurement Log
Laboratory Analytical/Bottle Kit Request Sheet
Dual Phase LFG-EW Sample Collection Log
Sample Label
Custody Seal
Chain-of-Custody Form

1.0 INTRODUCTION

This Monitoring Plan documents procedures and instructions necessary to implement a leachate monitoring program for Dual Phase Landfill Gas Extraction Wells (LFG-EWs) installed within the City of Bristol Integrated Solid Waste Management Facility Solid Waste Permit #588 Landfill. This plan was prepared in response to the Expert Panel Report (Virginia Tech, 2022) prepared by the Expert Panel convened by the Virginia Department of Environmental Quality (VDEQ) to address odor problems and operational concerns at the Facility.

1.1 SITE BACKGROUND

The City of Bristol Integrated Solid Waste Management Facility, which includes Solid Waste Permit Landfills #221, 498, and 588, is owned and operated by the City of Bristol. Solid Waste Permit #588 was issued by VDEQ on February 13, 1996. The Facility is located in the southeastern section of the City of Bristol, approximately 1,000 feet north of the Tennessee border.

The Permit #588 Landfill is constructed within a former rock quarry. Prior to July 2007, the waste was baled prior to its placement in the landfill. In July 2007, the City of Bristol initiated placement of loose waste in the former quarry as the primary method of waste disposal. The Permit #588 Landfill is lined with a primary high-density polyethylene geomembrane and compacted clay liner placed above a secondary compacted clay liner, with a 12-inch witness zone between the two liner systems. An additional linear low-density polyethylene geomembrane liner system is in place on the quarry walls. A gradient control underdrain system is in place beneath the secondary liner for the purpose of controlling the water level to a maximum elevation of 1,557 feet above mean sea level. This gradient control water currently discharges to the Bristol Virginia Utilities (BVU) Authority Sewer.

1.2 PHYSICAL SETTING

The City of Bristol Integrated Solid Waste Management Facility is located on Shakesville Road in the southeastern section of the City of Bristol, approximately 1,000 feet north of the Tennessee border. The location of the Facility is illustrated on a portion of the Bristol, Virginia, United States Geologic Society 7.5-minute topographic quadrangle map presented as **Figure 1**. The land surrounding the Facility is primarily wooded and residential. Residents in the area are served by public water supply.

The Facility encompasses approximately 138 acres. The limits of waste occupied by the Permit #588 Landfill encompasses approximately 20 acres. The base of the quarry covers approximately 5.6 acres. The Permit #588 Landfill is bordered to the east by the Permit #498 Landfill and to the north by intermittent streams which drain into Sinking Creek.

Based on a review of the Bristol, Virginia USGS 7.5-minute topographic quadrangle map, several unnamed tributaries of Sinking Creek are intermittent streams located east of the adjacent Permit No. 498 landfill. Sinking Creek is the nearest permanent water body and is located east/southeast of the adjacent Permit No. 498 facility.

1.3 LANDFILL GAS EXTRACTION SYSTEM

Permit No. 588 was required to have an active LFG collection system operational in Phase I by May 2, 2001. The City previously installed horizontal collectors in Permit No. 588 in stages upon placement of vertical lifts of waste. This ceased when waste reached a depth that allowed the installation of vertical gas collection wells. Additional gas collection lines installed in Landfill No. 588

became operational during July 2010. Three additional vertical gas wells were installed in Permit No. 588 to increase LFG flows in preparation for the landfill gas to energy project. The additional wells became operational in September 2013.

The Landfill Gas to Energy plant began operating in December 2015. The plant is owned and operated by Ingenco, LLC. Subsequent gas collection and control system expansions have occurred in the Permit No. 588 landfill in 2016 and 2017. An additional expansion project at the Permit 588 landfill occurred in the Fall of 2021. During this expansion, 21 new vertical extraction wells were installed along with new header and force main lines. Subsequently, dewatering infrastructure was constructed and dewatering pumps were placed in 19 of the vertical wells.

As of July 2022, there are 52 vertical wells in the gas collection system: 15 in Permit 221 and 37 in Permit 588. Note that an additional six functional collectors located in Permit 221. An additional four, non-functioning wells are located in Permit 498. Several leachate cleanouts and horizontal collectors are also found at the Facility. The layout of the Permit #588 Landfill gas collection system is shown on **Figure 2**.

2.0 LFG-EW LEACHATE MONITORING PROGRAM

Sampling of the leachate in the Dual-Phase LFG-EWs will be conducted on a monthly basis. In addition, extraction pump cycle count data will be recorded on a weekly basis. A sample pump cycle log is included in **Appendix A**. The current list of dual phase LFG-EWs include those shown below and their locations are shown on **Figure 2**. New dual-phase LFG-EWs will be incorporated into this monitoring plan.

- EW-49, EW-50, EW-51, EW-52, EW-53, EW-54, EW-55, EW-56, EW-57, EW-58, EW-59, EW-60, EW-61, EW-62, EW-63, EW-64, EW-65 EW-67, and EW-68

2.1 EXTRACTION WELL AND PUMP MAINTENANCE

During each monitoring event, the field technician will visually observe each Dual-Phase LFG-EW for evidence of damage and obstructions. Conditions of the Dual-Phase LFG-EW will be documented. A sample daily field log is included in **Appendix A**. If the well is damaged, a note will be made on the daily field log and the project manager will be alerted so the need for repair or replacement of the well can be assessed. Repair of the well should occur within 30-days of identification of the issue. If this timeframe cannot be met, VDEQ will be notified of an alternate schedule. If the well requires replacement, VDEQ will be notified of the need and schedule for replacement.

In addition, a liquid level will be measured and recorded to assess the presence of liquids within the well if weekly pump cycle count data indicates no leachate has been extracted from the Dual-Phase LFG-EW. A sample liquid level measurement log is included in **Appendix A**. If liquids are found to be present at a level at which extraction should be occurring, a note will be made on the daily field log and the project manager will be alerted so the need for maintenance or replacement of the pump can be assessed. Maintenance or replacement of the pump should occur within 30-days of identification of the issue. If this timeframe cannot be met, VDEQ will be notified of an alternate schedule.

2.2 LEACHATE SAMPLING PROCEDURES

The following subsections outline the procedures for monitoring event preparation and sample collection. Procedures are also provided for field documentation of sample collection.

2.2.1 Bottle Kit Preparation

A sample collection bottle kit will be prepared by the laboratory according to the laboratory analytical/bottle kit request sheet and in accordance with approved sample analysis methods. A sample of the laboratory analytical/bottle kit request sheet is included in **Appendix A**. The sample kit will be stored in clean laboratory-provided coolers for transport to the site.

2.2.2 Sample Collection Procedures

Samples will be collected from the manual ball valve located along the liquids discharge line of the extraction pump at the wellhead as shown on **Exhibit 1**. At the time of sample collection, the following parameters will be measured and recorded: pH, dissolved oxygen, oxidation-reduction potential, temperature, turbidity, and specific conductivity. A sample Dual Phase LFG-EW sample collection log is included in **Appendix A**.

Exhibit 1. Dual-Phase LFG Extraction Wellhead



Samples for laboratory analysis will be collected in new, laboratory-provided sampling containers with the appropriate volume and preservatives needed as specified by the selected analytical method. The sampler will be careful not to displace the preservative from the pre-preserved sample container. Samples will be stored in a clean, iced cooler immediately after sample collection and secured and tracked using chain-of-custody procedures as specified by the contract laboratory.

If a sample is unable to be collected, the liquid level within the well will be measured and recorded to assess the presence of liquids within the well. If liquids are found to be present at a level at which extraction should be occurring, a note will be made on the daily field log and the project manager will be alerted so the need for maintenance or replacement of the pump can be assessed. Maintenance or replacement of the pump should occur within 30-days of identification of the issue. If this timeframe cannot be met, VDEQ will be notified of an alternate schedule.

2.2.3 Sample Documentation

The following subsections outline the sample documentation procedures. These procedures include sample bottle labeling, field log documentation, and sample chain-of-custody forms.

2.2.3.1 Sample Bottle Labeling

The sample containers will be laboratory certified bottles and properly labeled for identification including the following information. A sample label is included in **Appendix A**.

- Sample ID
- Date and Time
- Sample Type – grab or composite
- Analysis Parameter(s)/Method
- Preservative
- Sampler(s)
- Project Name/Site ID

2.2.3.2 Field Logs

As previously indicated, field technicians will maintain field logs documenting information pertaining to field activities. The field notes will be reviewed monthly to verify that the monitoring requirements of this Plan are met and to identify unusual circumstances which may affect the implementation of the Plan.

2.2.3.3 Chain-of-Custody

Sample transport and handling will be controlled to reduce the opportunity of the samples to be tampered with. Chain-of-Custody control for the samples will consist of the following:

- Sample containers will be securely placed in coolers (iced) and will remain in the continuous possession of the field technician until transfer of the samples to the laboratory.
- If the samples leave the possession of the sampling crew, the sample containers or coolers will be individually sealed to reduce the opportunity for disruption/tampering of the samples during transportation. A sample custody seal is included in **Appendix A**.
- Upon delivery to a Virginia Environmental Laboratory Accreditation Program (VELAP) certified laboratory, samples will be given unique laboratory sample numbers and recorded into a logbook indicating the client, well number, and date and time of delivery. The laboratory director or his/her designee will sign the Chain-of-Custody form(s) and formally receive the samples. The field technician and laboratory director will work together to maintain proper refrigeration of the samples.
- The Chain-of-Custody document will contain the following information (see example in **Appendix A**):
 - Client Name
 - Client Project Name
 - Client Contact
 - Client Address
 - Client Phone/Fax Number/Email Address
 - Date of Collection
 - Time of Collection
 - Type of Container and Preservative
 - Number of Containers
 - Sample Matrix

- Sampler(s) Name and Signature
- Sample ID(s)
- Sample Type - Grab or Composite
- Analysis Parameter(s)/Method

2.3 QUALITY CONTROL SAMPLING

Field quality control may involve the collection and analysis trip blanks, to verify that the sample handling processes have not impaired the quality of the samples. Trip blanks are prepared for volatile organic compound analysis via SW-846 Methods 8260. Laboratory personnel fill one of each type of sample bottle with distilled/deionized water and transport them to the site. Trip blanks are prepared immediately prior to the sampling event and transported with the empty bottle kits. Field personnel handle the trip blanks like a sample; they remain un-opened, are transported in the sample cooler, and are returned to the laboratory for analysis. A trip blank is used to indicate potential contamination due to migration of volatile organic compounds from the air on-site or in the sample shipping containers through the septum or around the lid of the sampling vials and into the sample.

2.4 LABORATORY ANALYSIS

The leachate samples will be analyzed for parameters listed in Appendix E of the Expert Panel Report (Virginia Tech, 2022) via wastewater matrix methods, if available. A list of these parameters provided below. Laboratory analysis will be performed by a VELAP certified laboratory. The laboratory's Quality Assurance/Quality Control Manual will be used to maintain the integrity of the data.

- Ammonia
- Biological Oxygen Demand
- Chemical Oxygen Demand
- Nitrate and Nitrite
- Total Kjeldahl Nitrogen
- Semi-Volatile Organic Compound: Anthracene
- Total Metals: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, and Zinc
- Total Recoverable Phenolics
- Volatile Fatty Acids: Acetic Acid, Butyric Acid, Lactic Acid, Propionic Acid, and Pyruvic Acid
- Volatile Organic Compounds: Acetone, Benzene, Ethyl benzene, Methyl ethyl ketone, Tetrahydrofuran, Toluene, and Total Xylenes

Upon receipt by the laboratory, samples, including the blanks, will be assigned a unique laboratory identification number and inspected for integrity and consistency with information entered on the Chain-of-Custody document. The samples will also be tested for proper preservation or, in the case of volatile organic samples, inspected for lack of air bubbles in the sample vials. Deviations from applicable protocol will be noted on the Chain-of-Custody document and laboratory's sample conditions checklist. If possible, missing, broken, or improperly preserved samples will be replaced within 10 working days from the date that the deviation is first noted.

While awaiting analysis, samples will be stored in a secure location under the appropriate method of preservation (i.e. refrigeration). If a method-prescribed holding time is exceeded, the sample will be discarded and replaced. If possible, samples will be replaced within 10 working days from the date that the deviation is first noted.

Sample analyses should be completed within 14 days after receipt by the contract laboratory. The laboratory will alert the project manager if there is to be a delay in analysis. Analytical results will be

reported relative to the limit of quantitation (LOQ). LOQ values are parameter, method, and matrix-specific. Sub-LOQ results will be reported as not detected.

2.5 DATA VALIDATION

Data validation will be performed within 14 days of receipt of the final laboratory's certificate of analysis for each semi-annual monitoring event. Data from each monitoring event are reviewed to identify analytical data that may not represent valid results. Samples with parameter detections less than five times that of the trip blank and/or method/laboratory blank detection but greater than the laboratory's LOQ are flagged with a "B" qualifier. Samples with common lab contaminant parameter (Yacoub, 1996) detections less than 10 times that of the trip blank and/or method/laboratory blank detection but greater than the laboratory laboratory's LOQ are flagged with a "B" qualifier. B qualified detections are considered not validated as the detection may be anomalous to due to sampling, laboratory, or transportation errors.

3.0 REPORTING

Monthly monitoring reports will be submitted to VDEQ by the tenth of the following month. The monthly report will document the following. The report will also include historical pump cycle data and leachate analytical results and may include notifications of well or pump replacement, if needed.

- Weekly pump cycle recordings
- Monthly LFG-EW leachate sample collection and laboratory analyses
- Extraction well maintenance (if any)
- Extraction pump maintenance (if any)

Reporting may be submitted as part of a larger monthly report outlining remediation activities at the Solid Waste Permit #588 landfill or may be submitted as a standalone document.

4.0 REFERENCES

United States Environmental Protection Agency. National Functional Guidelines for Organic Superfunds Methods Data Review. January 2017.

United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods Compendium (SW-846). July 2014.

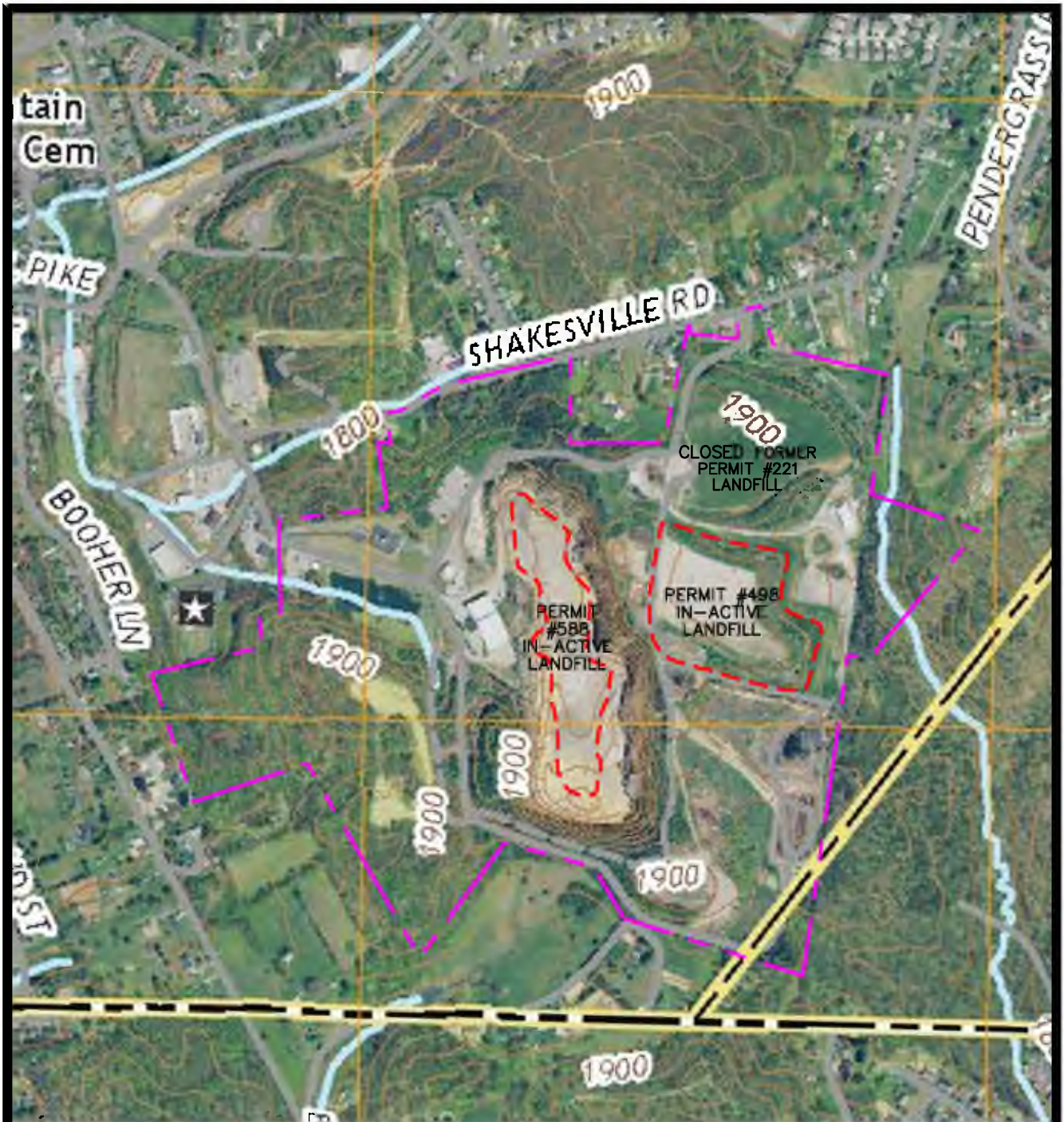
Virginia Tech College of Engineering. Expert Panel Report: Bristol Integrated Solid Waste Management Facility, Bristol, Virginia. April 25, 2022.

Yacoub, Nabil. Common Laboratory Contaminants. ECL User's Manual. Appendix C. July 27, 2016

Figures

- 1 - Topographic Quadrangle Map
- 2 - Site Map

DATE: 09/27/2021 FILE NAME: W:\Projects\02218208.07\Figures\Topo Quad
DRAWN BY: LAH



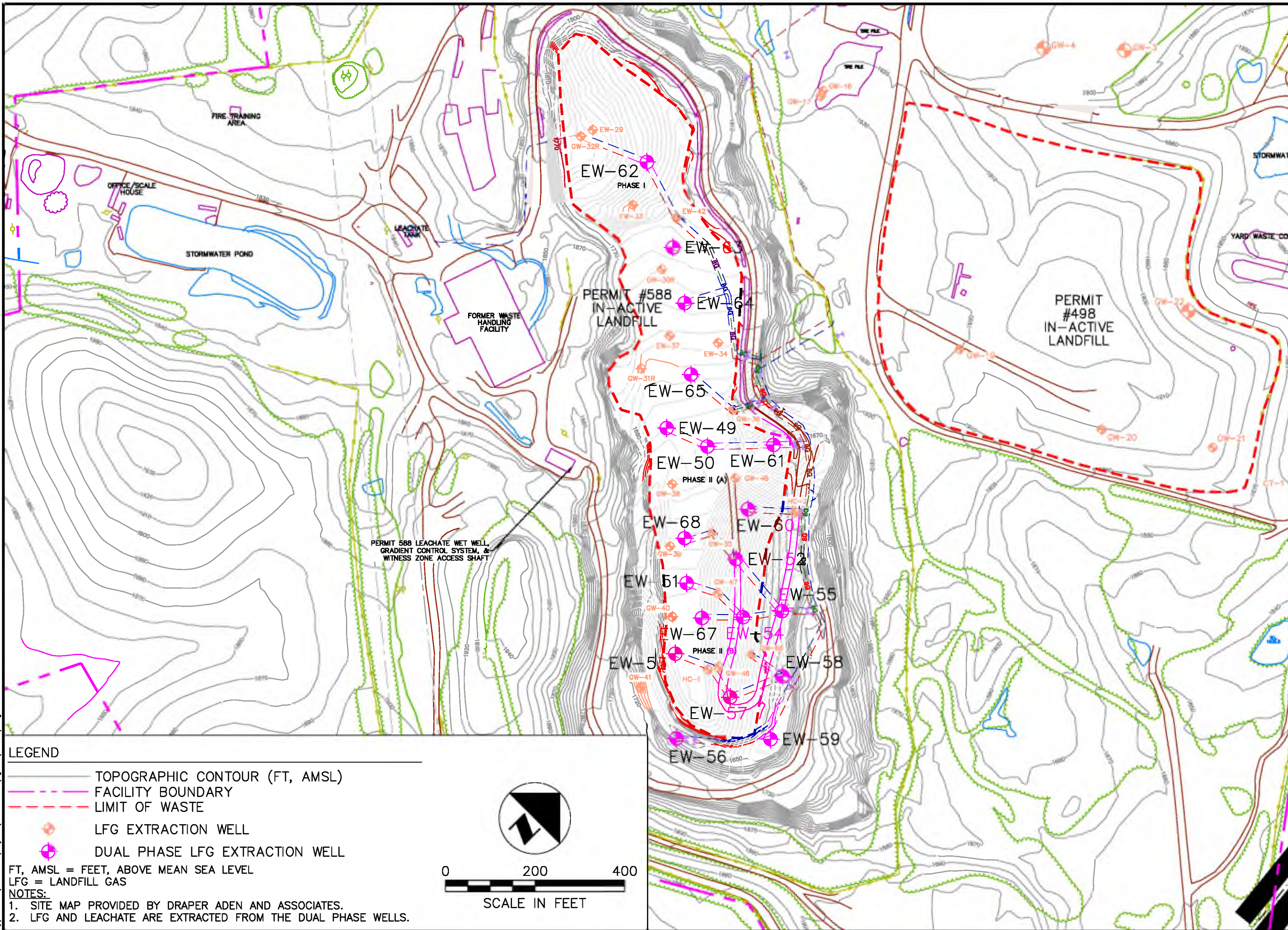
BRISTOL INTEGRATED SOLID WASTE
MANAGEMENT FACILITY
BRISTOL, VIRGINIA
SOLID WASTE PERMIT #588

LEGEND
--- LIMIT OF WASTE
--- COUNTY PROPERTY BOUNDARY

SOURCE: BRISTOL TN, VA, USGS 7.5-MIN TOPOGRAPHIC QUADRANGLE 2019

SCS ENGINEERS

FIGURE 1 - TOPOGRAPHIC QUADRANGLE MAP



- LEGEND**
- TOPOGRAPHIC CONTOUR (FT, AMSL)
 - - - FACILITY BOUNDARY
 - - - LIMIT OF WASTE
 - LFG EXTRACTION WELL
 - ⊕ DUAL PHASE LFG EXTRACTION WELL

FT, AMSL = FEET, ABOVE MEAN SEA LEVEL
 LFG = LANDFILL GAS

- NOTES:**
1. SITE MAP PROVIDED BY DRAPER ADEN AND ASSOCIATES.
 2. LFG AND LEACHATE ARE EXTRACTED FROM THE DUAL PHASE WELLS.



| NO. | REVISION | DATE |
|-----|----------|------|
| | | |
| | | |
| | | |

| | |
|---------------|---------------------------------|
| SHEET TITLE | SITE MAP |
| PROJECT TITLE | LANDFILL GAS EXTRACTION NETWORK |

CLIENT

CITY OF BRISTOL
 SANITARY LANDFILLS
 BRISTOL, VA
 SOLID WASTE PERMIT #588 & 498

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 11280 ROGER BACON DRIVE - RESTON, VA 20190
 PH. (703) 471-8160 FAX. (703) 471-9878

| | |
|-------------|----------|
| CADD FILE: | SITE MAP |
| DATE: | 10/27/22 |
| SCALE: | AS SHOWN |
| DRAWING NO. | 1 of 1 |

\\win-1601\winchester\Projects\02218208.07\Figures\Site Map.dwg

Appendix A

Dual Phase LFG-EW Pump Cycle Count Log
Daily Field Log
Dual Phase LFG-EW Liquid Level Measurement Log
Laboratory Analytical/Bottle Kit Request Sheet
Dual Phase LFG-EW Sample Collection Log
Sample Label
Custody Seal
Chain-of-Custody Form

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Pump Cycle Count Log

| Date | Personnel Initials | EW-49 | EW-50 | EW-51 | EW-52 |
|------|--------------------|-------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
 Dual Phase LFG-EW Pump Cycle Count Log

| Date | Personnel Initials | EW-53 | EW-54 | EW-55 | EW-56 |
|------|--------------------|-------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Pump Cycle Count Log

| Date | Personnel Initials | EW-57 | EW-58 | EW-59 | EW-60 |
|------|--------------------|-------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Pump Cycle Count Log

| Date | Personnel Initials | EW-61 | EW-62 | EW-63 | EW-64 |
|------|--------------------|-------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Pump Cycle Count Log

| Date | Personnel Initials | EW-65 | EW-67 | EW-68 |
|------|--------------------|-------|-------|-------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Sample

Log Checked By: _____

DAILY FIELD LOG

Site Name:

Project Manager:

Field Personnel:

Date:

Vehicle:

Miles Billed:

Travel Time:

Weather:

Labor

Hours

Equipment

Materials

Work Completed:

SAMPLE

Prepared By:

Review By:

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

| Location ID | | EW-49 | EW-50 | EW-51 | EW-52 |
|------------------------|--------------------|----------------------|-------|-------|-------|
| Well Casing Depth (ft) | | 100 | 93 | 105 | 103 |
| Pump Depth (ft) | | 90 | 83 | 95 | 93 |
| Date | Personnel Initials | Depth to Liquid (ft) | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

| Location ID | | EW-53 | EW-54 | EW-55 | EW-56 |
|------------------------|--------------------|----------------------|-------|-------|-------|
| Well Casing Depth (ft) | | 38 | 85 | 90 | 58 |
| Pump Depth (ft) | | --- | 75 | 90 | 58 |
| Date | Personnel Initials | Depth to Liquid (ft) | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

| Location ID | | EW-57 | EW-58 | EW-59 | EW-60 |
|------------------------|--------------------|----------------------|-------|-------|-------|
| Well Casing Depth (ft) | | 100 | 92 | 74 | 98 |
| Pump Depth (ft) | | 90 | 82 | 64 | 88 |
| Date | Personnel Initials | Depth to Liquid (ft) | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

| Location ID | | EW-61 | EW-62 | EW-63 | EW-64 |
|------------------------|--------------------|----------------------|-------|-------|-------|
| Well Casing Depth (ft) | | 102 | 83 | 64 | 123 |
| Pump Depth (ft) | | 92 | 80 | 64 | 113 |
| Date | Personnel Initials | Depth to Liquid (ft) | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sample

Log Checked By: _____

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

| Location ID | | EW-65 | EW-67 | EW-68 |
|------------------------|--------------------|----------------------|-------|-------|
| Well Casing Depth (ft) | | 44 | 104 | 78 |
| Pump Depth (ft) | | 50 | 100 | 68 |
| Date | Personnel Initials | Depth to Liquid (ft) | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Sample

Log Checked By: _____

Laboratory Analytical/Bottle Kit Request Sheet

| Location IDs | | Laboratory Parameters |
|--------------|-------|---|
| EW-49 | EW-59 | Ammonia |
| EW-50 | EW-60 | Chemical Oxygen Demand |
| EW-51 | EW-61 | Biological Oxygen Demand |
| EW-52 | EW-62 | Total Kjeldahl Nitrogen |
| EW-53 | EW-63 | Semi-Volatile Organic Compound: Anthracene |
| EW-54 | EW-64 | Total Metals: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Manganese, Selenium, Silver, and Zinc |
| EW-55 | EW-65 | Total Recoverable Phenolics |
| EW-56 | EW-67 | Toxicity Testing for Nitrification |
| EW-57 | EW-68 | Volatile Fatty Acids: Acetic Acid, Butyric Acid, Lactic Acid, Propionic Acid, and Pyruvic Acid |
| EW-58 | | Volatile Organic Compounds: Acetone, Benzene, Ethyl benzene, Methyl ethyl ketone, Tetrahydrofuran, Toluene, and Total Xylenes |

| Quality Control Sample | Laboratory Parameters |
|------------------------|---|
| Trip Blank | Volatile Organic Compounds: Acetone, Benzene, Ethyl benzene, Methyl ethyl ketone, Tetrahydrofuran, Toluene, and Total Xylenes |

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Sample Collection Log

| Location ID | Sample Date | Sample Time | Temperature (°C) | pH (s.u.) | Specific Conductance (uS/cm) | Dissolved Oxygen (mg/L) | ORP (mV) | Turbidity (NTU) | Observations |
|-------------|-------------|-------------|------------------|-----------|------------------------------|-------------------------|----------|-----------------|--------------|
| EW-49 | | | | | | | | | |
| EW-50 | | | | | | | | | |
| EW-51 | | | | | | | | | |
| EW-52 | | | | | | | | | |
| EW-53 | | | | | | | | | |
| EW-54 | | | | | | | | | |
| EW-55 | | | | | | | | | |
| EW-56 | | | | | | | | | |
| EW-57 | | | | | | | | | |
| EW-58 | | | | | | | | | |
| EW-59 | | | | | | | | | |
| EW-60 | | | | | | | | | |
| EW-61 | | | | | | | | | |
| EW-62 | | | | | | | | | |
| EW-63 | | | | | | | | | |
| EW-64 | | | | | | | | | |
| EW-65 | | | | | | | | | |
| EW-67 | | | | | | | | | |
| EW-68 | | | | | | | | | |

Sample

Sampler: _____

Samples Shipped By: _____

Log Checked By: _____

Laboratory: _____

SAMPLE LABEL



P.O. Box 1160
Beaver, WV 25813
800-255-3950 • 304-255-3900


Quality Environmental Containers

PROJECT NAME

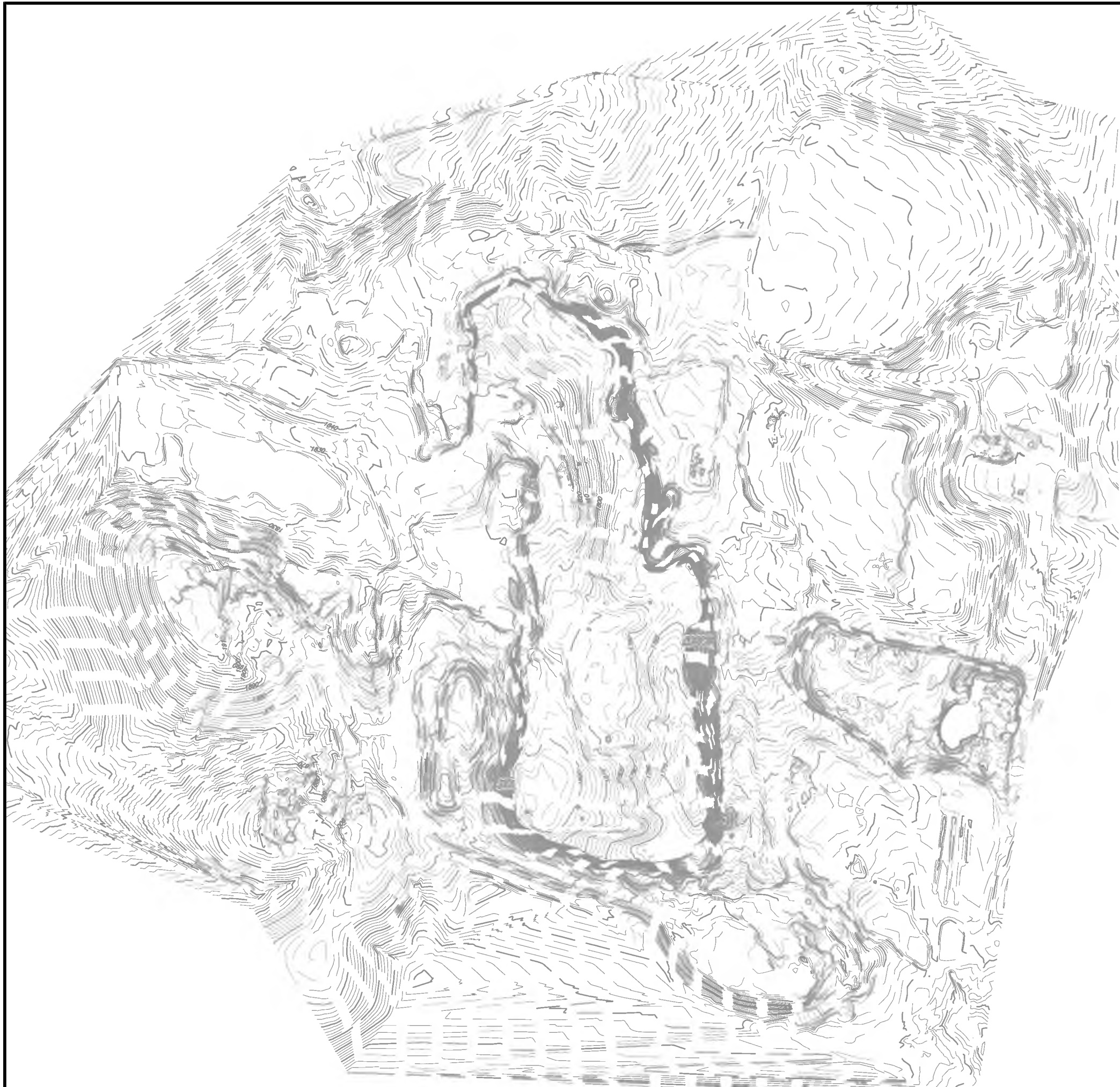
| | |
|---------------------------|---|
| SAMPLE ID | SAMPLE DATE |
| SAMPLED BY | SAMPLE TIME |
| PRESERVATIVE | <input type="checkbox"/> GRAB <input type="checkbox"/> COMPOSITE |
| ANALYSIS REQUESTED | |

CUSTODY SEAL

| | |
|---------------------|--------|
| CUSTODY SEAL | SAMPLE |
| DATE _____ | |
| SIGNATURE _____ | |



Appendix E
Monthly Topography Analysis

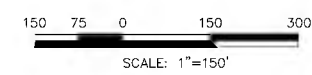


LEGEND

- MAJOR CONTOURS (EVERY 10')
- MINOR CONTOURS (EVERY 2')

NOTES:

1. GRADES SHOWN AS DASHED CONTOUR LINES REPRESENT THE TOPOGRAPHY CAPTURED ON OCTOBER 7, 2022 BY NV5 (FORMERLY QUANTUM SPATIAL).
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE SOUTH ZONE NAD-83 (2011)
4. THE VERTICAL DATUM IS BASED UPON NAVD-88



| | | |
|---|--|---|
| SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 50 SOUTH MAIN STREET, SUITE 200 PH. (609) 664-4000 SCSENGINEERS.COM | | DWR BY: SCB CWR BY: C.J.W. APP BY: C.J.W. |
| PROJ. NO. SRB CADD FILE: | | DATE: 11/10/2022 |
| SCALE: 1" = 100' | | DRAWING NO. 1 of 4 |
| CLIENT CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201 | | SHEET TITLE OCTOBER 2022 SITE TOPOGRAPHY |
| PROJECT TITLE MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588 | | NO. REVISION DATE |

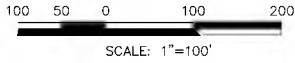


LEGEND

- MAJOR CONTOURS (EVERY 10')
- MINOR CONTOURS (EVERY 2')

NOTES:

1. GRADES SHOWN AS DASHED CONTOUR LINES REPRESENT THE TOPOGRAPHY CAPTURED ON OCTOBER 7, 2022 BY NV5 (FORMERLY QUANTUM SPATIAL).
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE SOUTH ZONE NAD-83 (2011)
4. THE VERTICAL DATUM IS BASED UPON NAVD-88



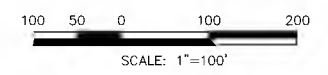
| | | | |
|--|----------|---|--|
| SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CIVIL AND ENVIRONMENTAL ENGINEERS 55 SOUTH MAIN STREET, SUITE 200, NJ 08055 PH. (609) 664-4000 · SCSENGINEERS.COM | | DWR BY: SCB CDR BY: CJW APP BY: CJW | |
| | | PROJ. NO. SRB O/A RW BY: CJW APP BY: CJW | |
| CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201 | | CLIENT CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201 | |
| SHEET TITLE OCTOBER 2022 SITE TOPOGRAPHY | | PROJECT TITLE MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588 | |
| NO. | REVISION | DATE | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| CADD FILE: | | DATE: | |
| 11/10/2022 | | SCALE: | |
| 1" = 100' | | DRAWING NO. | |
| 2 | | of 4 | |



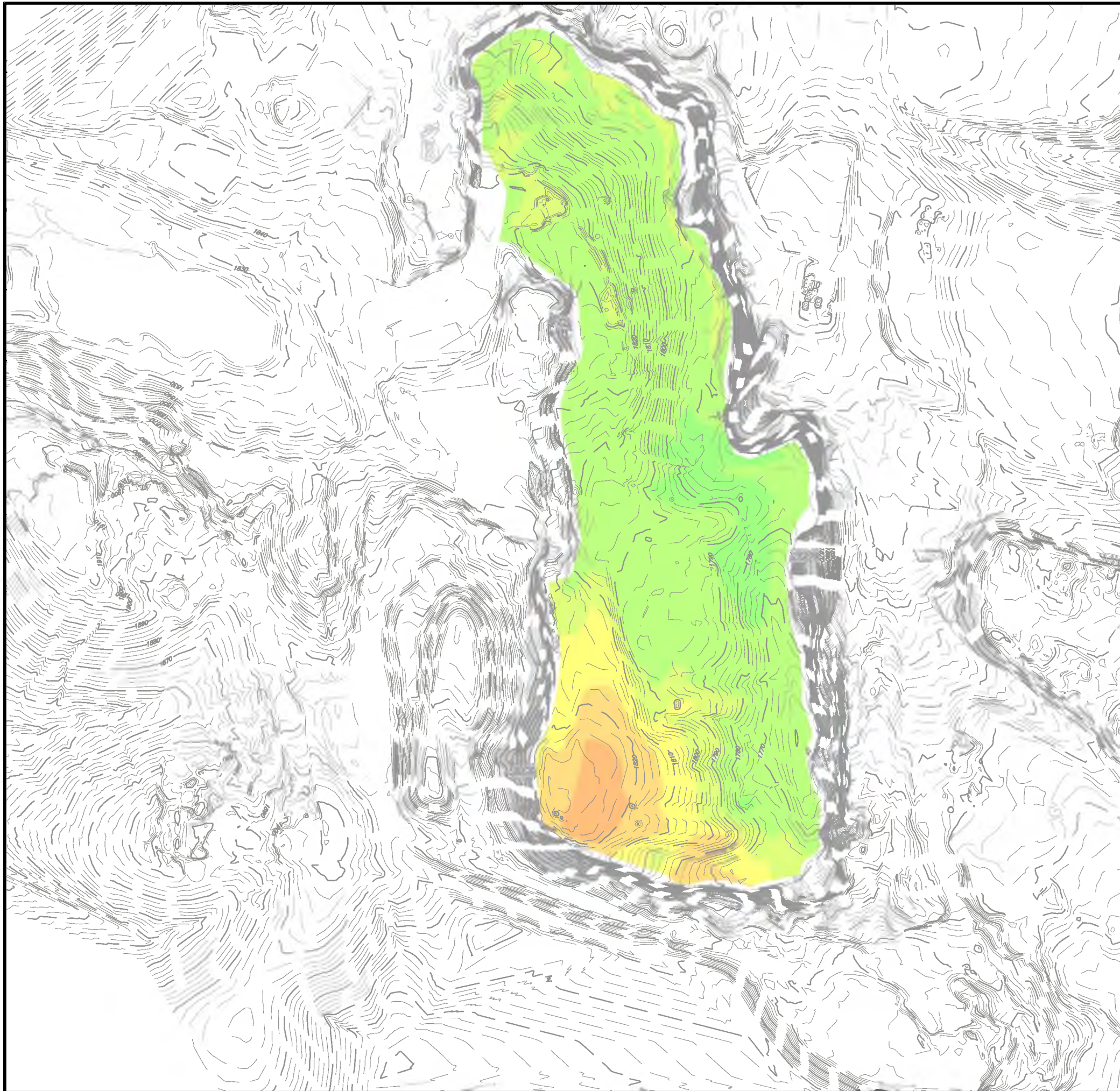
LEGEND
 — MAJOR CONTOURS (EVERY 10')
 - - - MINOR CONTOURS (EVERY 2')

NOTES:

1. GRADES SHOWN AS CONTOUR LINES ONLY WITHIN THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY CAPTURED ON JUNE 15, 2021 AS PROVIDED BY DRAPER ADEN ASSOCIATES.
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE SOUTH ZONE NAD-83 (2011)
4. THE VERTICAL DATUM IS BASED UPON NAVD-88



| | | | |
|--|----------|--|--|
| SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CIVIL ENGINEERS, INC. 50 SOUTH MAIN STREET, 2ND FLOOR, NJ 08035 PH. (609) 654-4000 · SCSENGINEERS.COM | | PROJ. NO. _____ DES. BY: SRB APP. BY: C.J.W. | |
| | | DWR. BY: SRB CHK. BY: C.J.W. | |
| CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201 | | CLIENT | |
| JUNE 2021 LANDFILL TOPOGRAPHY | | SHEET TITLE | |
| MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588 | | PROJECT TITLE | |
| NO. | REVISION | DATE | |
| < | | | |
| < | | | |
| < | | | |
| < | | | |
| < | | | |
| CADD FILE: | | DATE: | |
| SCALE: | | 11/10/2022 | |
| DRAWING NO. | | 1" = 100' | |
| of | | 4 | |



| Elevations Table | | | |
|------------------|-------------------|-------------------|--------------|
| Number | Minimum Elevation | Maximum Elevation | Color |
| 1 | -20.000 | -10.000 | Green |
| 2 | -10.000 | 0.000 | Light Green |
| 3 | 0.000 | 10.000 | Yellow |
| 4 | 10.000 | 20.000 | Light Orange |
| 5 | 20.000 | 30.000 | Orange |
| 6 | 30.000 | 40.000 | Dark Orange |

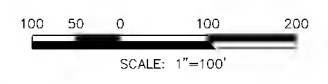
Volume
 Base Surface LF 210615
 Comparison Surface TOPO - OCT 2022

Cut Volume 102074.96 Cu. Yd.
 Fill Volume 120703.02 Cu. Yd.
 Net Fill 18628.06 Cu. Yd.

NOTES:

1. THE ELEVATION CHANGES ARE CALCULATED BETWEEN THE AERIAL TOPOGRAPHY DATA COLLECTED ON JUNE 15, 2021 BY DRAPER ADEN ASSOCIATES AND THE AERIAL TOPOGRAPHY DATA COLLECTED ON OCTOBER 7, 2022 BY NV5 (FORMERLY QUANTUM SPACIAL). POSITIVE VALUE (+) INDICATES FILL AND NEGATIVE VALUES (-) INDICATE CUT (SETTLEMENT). VALUES ARE ROUNDED TO THE NEAREST FOOT.
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE SOUTH ZONE NAD-83 (2011)
4. THE VERTICAL DATUM IS BASED UPON NAVD-88

LEGEND
 — MAJOR CONTOURS (EVERY 10')
 - - - MINOR CONTOURS (EVERY 2')



| | |
|--|---|
| DATE | |
| | |
| REVISION | |
| | |
| NO. | |
| SHEET TITLE | AIRSPACE VOLUME CHANGE |
| PROJECT TITLE | MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588 |
| CLIENT | CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201 |
| SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT LANDSCAPE ARCHITECTS AND ENGINEERS 50 SOUTH MAIN STREET, SUITE 200 PH. (609) 664-1000 SCSENGINEERS.COM | DWR BY: SRB |
| | D/A RW BY: CJW |
| PROJ. NO. 02218208.05 | DATE: 11/10/2022 |
| SCALE: 1"=100' | DRAWING NO. 4 of 4 |

Midlothian, VA

PROJECT: City Bristol, LF Engineering, ISWMF, VA 02218208.05 DATE: 11/10/2022

SUBJECT: Monthly Reports SWP# 588, 498, & 221 TRANSMITTAL ID: 00002

PURPOSE: For your review and comment VIA: Info Exchange

FROM

| NAME | COMPANY | EMAIL | PHONE |
|----------------------------------|---------------|--------------------------|-----------------|
| Charles Warren Midlothian, VA | SCS Engineers | CWarren@scsengineers.com | +1-804-486-1903 |

TO

| NAME | COMPANY | EMAIL | PHONE |
|---|--|-----------------------------------|-------|
| Jonathan Chapman 355-A Deadmore Street Abingdon VA 24210 United States | Virginia Department of Environmental Quality | Jonathan.chapman@deq.virginia.gov | |

REMARKS: Jonathan,

The Monthly Reports of the Solid Waste Permit #588, 498, and 221 landfills can be downloaded using the links below. Let us know if you have questions about the contents of these reports.

Regards,
Charles

Charles J. Warren, PE¹
Project Manager
SCS Engineers
15521 Midlothian Turnpike, Suite 305
Midlothian, VA 23113 USA
804-486-1903 (W)
cwarren@scsengineers.com

Driven by Client Success
www.scsengineers.com

¹ Registered in VA

Transmittal

DATE: 11/10/2022
TRANSMITTAL ID: 00002

DESCRIPTION OF CONTENTS

| QTY | DATED | TITLE | NOTES |
|-----|------------|---|-------|
| 1 | 11/10/2022 | October Compliance Report - SWP 588.pdf | |
| 1 | 11/10/2022 | October Compliance Report - SWP 498.pdf | |
| 1 | 11/10/2022 | October Compliance Report - SWP 221.pdf | |

COPIES:

Bob Dick (SCS Engineers)
Brandon King (SCS Engineers)
Charles Warren (SCS Engineers)
Crystal Bazyk (Virginia Department of Environmental Quality)
Jacob Chandler (Bristol, VA, City of)
Jeffery Hurst (Virginia Department of Environmental Quality)
Jennifer Robb (SCS Engineers)
Tom Lock (SCS Field Services)
Stacy Bowers (Virginia Department of Environmental Quality)
Randall Eads (City of Bristol)
Michael Martin (Bristol, VA, City of)
Joey Lamie (City of Bristol)
Robert Gardner (SCS Engineers)