

EXHIBIT C

Zion Landfill Odor Control and Monitoring Plan

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- Attachment A Odor Monitoring Locations
- Attachment B Odor Monitoring Form
- Attachment C Odor Complaint Response Form

1.0 INTRODUCTION

This odor control plan (Plan) was prepared to provide Zion Landfill (Site) personnel as a guide for addressing odors that may originate from the landfill facility. Odors originating from a landfill facility generally do not present a health risk, but objectionable odors can sometimes be considered a nuisance if exceeding an established threshold of measurable concentration for an extended duration. This plan will assist Zion Landfill personnel with:

- Monitoring the landfill and associated facility features for odors
- Identifying the source of objectionable odor(s)
- Responding to odor complaints
- Minimizing the potential for odor migration

2.0 POTENTIAL ODOR SOURCES

Potential sources at the Site that may generate odor include:

- Landfill gas (LFG) generated by decomposition of waste
- Daily waste handling and disposal, especially certain WWTP sludges
- Components of leachate and landfill gas collection systems (i.e., sumps, lift stations, tanks, vaults, forcemain air release valves, etc.)

Non-facility sources of odors in the vicinity of the Site may include:

- Surrounding agriculture and industrial land uses

3.0 ODOR MONITORING

3.1 General

Early detection of odors ensures that potential odor sources can be reviewed and appropriate actions to address odors are taken as quickly as possible. Site personnel will regularly monitor the perimeter of the landfill for the presence of odors utilizing olfactory senses and other methods outlined in this Plan. Monitoring will also take place as soon as practical after receipt of an odor complaint. Odor monitoring will primarily be the responsibility of the general manager and the operations manager, because of their overall knowledge of Site operations. Additional measures such as surface emission monitoring (SEM), as discussed in this Plan, will also be utilized to proactively identify areas of the landfill with insufficient gas collection.

3.2 Odor Monitoring Techniques and Equipment

The following odor monitoring techniques/equipment will be utilized as part of the odor monitoring program:

- Olfactory senses will be utilized to characterize the odor level and source (i.e., garbage, leachate, landfill gas (LFG), other).
- A handheld or portable field meter (Scentometer) will be used to measure the odor concentration based on the dilution to threshold (D/T) ratio as defined by equation No. (1). Readings will be taken per manufacturer recommendations and industry protocols.

$$/ = \text{—————} (1)$$

- A handheld or portable field meter (Jerome Series 600 Model or equivalent) will be used to monitor for Hydrogen Sulfide (H₂S) at levels as low as 5 parts per billion by volume (ppbv).
- A full meteorological station will be installed on the roof of the landfill office or equivalent location within the facility boundary. This station will measure wind speed and direction, temperature, humidity, and precipitation. A data logger will record and transmit these measurements to a centralized location.
- Permanent H₂S meters may be installed around the perimeter of the Site and will be designed for continuous monitoring and recording of low-level hydrogen sulfide concentrations (<5 ppbv). The monitors will be housed inside weatherproof enclosures and will provide continuous real time data. Please refer to **Section 3.5** for the landfill gas quality criteria for installation of the permanent H₂S meters.

3.3 On-Site Odor Monitoring

On-site odor monitoring using olfactory senses will occur once daily whenever the landfill is open and will be performed by site personnel. Any odors detected at the perimeter of the landfill will be characterized and documented in the facility's operating record along with any incorporated corrective actions.

At least once weekly, the landfill site personnel will perform on-site odor monitoring at locations shown on **Attachment A**. If an odor is detected at a sample location using olfactory senses, then field scentometer (D/T) and H₂S readings (if weather conditions are within manufacturer's recommended operational range) will be measured and recorded. Additional data as described in **Section 3.9** "Recordkeeping" will be collected and recorded. At least once per month, a third-party contractor will perform the weekly on-site odor monitoring.

3.4 Off-Site Odor Monitoring

At least once weekly, the landfill site personnel will perform off-site odor monitoring at locations shown on **Attachment A**. At each sample location, field scentometer (D/T), and H₂S concentrations (if weather conditions are within manufacturer's recommended operating range) will be measured and recorded. Additional data as described in **Section 3.9** "Recordkeeping" will be collected and recorded. At least once per month, a third-party contractor will perform the weekly off-site odor monitoring.

3.5 Continuous Perimeter H₂S Sampling

One of the primary sources of odors at landfill is H₂S in the landfill. As the H₂S concentration in landfill gas increase the potential for off-site odors increases. The concentration of H₂S is controlled by several factors including the types of waste the landfill accepts.

If the landfill gas H₂S concentration, measured at the flare inlet, is greater than 2,000 ppm for more than three consecutive months, the Site will submit to the City of Zion and Lake County a plan for permanent perimeter H₂S monitoring. This plan will be submitted within 20 business days

of receipt of the third monthly H₂S laboratory data. The instrumentation will be installed within 60 business days of approval by the City of Zion and Lake County.

The monitoring of H₂S at the centralized flare station or permitted centralized destruction unit shall be performed at the following frequency:

- Annual H₂S monitoring when H₂S concentrations are less than 1,000 ppm;
- Semi-annual monitoring when H₂S concentrations are between 1,001 ppm and 1,500 ppm;
- Quarterly monitoring when H₂S concentrations are between 1,501 ppm and 1,750 ppm; and
- Monthly monitoring when H₂S concentrations are greater than 1,750 ppm and the Site is not performing continuous perimeter H₂S Sampling.

3.6 Event Driven Monitoring

If the Site, City of Zion, Lake County, SWALCO or the IEPA receives an odor complaint believed to be caused by the Site, and the Site is timely notified of the complaint and location of complaint, landfill personnel and/or contractors will perform odor monitoring at the location of the odor complaint. Odor monitoring will include the elements required under **Section 3.4** "Off-Site Odor Monitoring". During landfill operating hours, event driven monitoring will be performed within 2 hours of receipt of an odor complaint in which a location was provided. If an odor complaint is received during non-operating landfill hours, the event driven monitoring will be performed at the reported location of the complaint during the next operating day. If multiple complaints are received from the same general area, odor monitoring within that general area will be performed rather than from each individual location.

3.7 Odor Monitoring Schedule

A summary of the different odor monitoring that will be performed at the facility is summarized in **Table 1**.

Table 1 Odor Monitoring Schedule			
	Olfactory	Scentometer (D/T)	H ₂ S Meter
On-site Monitoring - Daily	X		
On-site Monitoring Locations - Weekly (except during week 3 rd party conducts monthly monitoring)	X	X	X
Off-site Monitoring Locations - Weekly (except during week 3 rd party conducts monthly monitoring)	X	X	X
Third Party On-Site and Off-Site Locations - Monthly	X	X	X
Permanent Perimeter Locations (see Section 3.5)			X
Note: If H ₂ S monitoring cannot be completed due to weather conditions outside manufacturer's recommended operating range, documentation of those conditions will be recorded on an "Odor Monitoring Form" (see Attachment B).			

3.8 Confirmation Sampling Procedures

In the event of a field scentometer D/T reading of 4 or greater (a D/T level of 4, 5 or 6 is designated on the scentometer as a reading of <7), or an instantaneous or continuous H₂S reading of 15 ppb above background readings, the landfill will perform confirmation sampling procedures as outlined below:

- Review odor descriptor to typical odor descriptors related to landfills (i.e., rotten egg, leachate, fresh trash, etc.).
- Location of odor reading in relationship to landfill (i.e., upwind or downwind); and
- Confirmation sample taken between 30 and 60 minutes after the initial reading for both field scentometer and H₂S sampling.

If the odor is confirmed based on the procedures listed above (i.e., the follow-up D/T reading remains at 4 or greater, or H₂S reading remains greater than 15 ppb above background), the corrective actions to address the odor will be implemented as discussed in **Section 4.0**. All confirmed odors will be reported to the City of Zion and Lake County Health Department, Environmental Health within 24 hours.

3.9 Recordkeeping

During weekly monitoring, the location of all odor measurements, associated values and description of any detected odor will be recorded. The date, time, temperature, precipitation, humidity, barometric pressure, and wind speed and direction at the time of odor monitoring will also be recorded. Additional comments regarding odor description and characteristics and possible source of the detected odor may also be recorded. This information will be recorded on an "Odor Monitoring Form" (example in **Attachment B**). Similar information will be recorded for responses to odor complaints (i.e., event driven monitoring).

Access to review the continuous H₂S raw data will be transmitted to a central computer system and will be available to City of Zion or Lake County representatives during normal business hours. All odor monitoring data will be maintained in the Site's operating record and made available for review to the City of Zion or Lake County representatives with prior notice.

4.0 CONFIRMED ODOR CORRECTIVE ACTION RESPONSE

4.1 Short-term Corrective Actions

If site personnel confirm the Site is the source of an odor using the procedures set forth in **Section 3.8**, the Site will implement appropriate and necessary corrective actions. Corrective actions implemented and timing of the actions to address the odor will depend on the source of the odor and the time of day. Short-term corrective actions will be initiated within 24 hours of a confirmed odor event as defined by **Section 3.8**. Appropriate short-term odor control actions may include but are not limited to:

- Placement of additional cover materials
- Adjustments to the Site's gas system
- Evaluate and make repairs to cover penetrations (i.e., boots)
- Evaluate LFG pump repair or replacement
- Use of odor neutralizers

Additional descriptions of these corrective actions are presented in **Section 5.0**.

4.2 Long-term Corrective Actions

If the Site determines, using the confirmation sampling procedures set forth in **Section 3.8**, that the short-term corrective actions implemented under **Section 4.1**, did not remedy the confirmed odor event attributed to the landfill facility within 3 business days, the Site will initiate development of a long-term corrective action plan to address the confirmed odors by a combination of field investigation and review of gas monitoring data. Potential long-term corrective actions may include but are not limited to:

- Enhanced daily cover, intermediate cover, or the use of temporary geomembrane cover
- Additional temporary or permanent landfill gas collectors (vertical, horizontal, etc.)
- Upsizing, replacing, or regrading of landfill vacuum piping
- Upsizing, replacing, or installation of additional landfill gas blowers
- Installation, repair or replacement of pumps to dewater landfill gas collectors
- Revised waste acceptance and/or waste handling practices

Notification that the Site will be implementing long-term corrective actions will be submitted to the City of Zion and Lake County Health Department within 5 business days of the initial confirmed odor monitoring event as defined by **Section 3.8**. A conceptual long-term corrective action plan will be submitted to the City of Zion and Lake County Health Department within 15 business days of the initial confirmed odor event.

4.3 Corrective Action Recordkeeping

The Landfill will log corrective actions that were taken to address odors attributed to the Site that were confirmed per **Section 3.8**. The log will discuss what corrective actions were implemented, when they were implemented, the effectiveness of the corrective actions and if additional corrective actions are necessary. The corrective action log will be submitted to City of Zion and the Lake County Health Department on a monthly basis.

5.0 ODOR PREVENTION

Odor minimization and control is a priority at the Site. The following is a discussion of the efforts that will be made to prevent or minimize the occurrence of off-site odors which could result in odor detections equal to or greater than a D/T value of 4 on the scentometer scale and/or H₂S concentrations above 15 ppb of background levels as discussed in **Section 3.8**.

5.1 Covering of Waste

5.1.1 Daily Cover

Odors will be minimized by keeping the working face as small as practical and placing daily cover at the end of each working day. Site personnel will cover the working face with a minimum of 6 inches of daily cover soil or approved alternate daily cover materials at the end of each operating day. The Facility's Operating Plan will discuss how alternate daily cover materials that have the potential to generate odors (i.e. landscape waste, C&D materials, petroleum contaminated soils) will be managed to minimize odor generation.

Certain types of waste may have stronger odors than other waste. Acceptance of wastes known to have stronger odors will generally be limited to before 1:00 p.m. These wastes will be placed in the working face and immediately covered with other waste, daily cover soil, or alternate daily cover materials.

5.1.2 Intermediate Cover

Placement of intermediate cover and construction of the final cover system helps minimize landfill odors. Areas of the landfill not covered within 60 days of placement with additional waste or final cover shall have an intermediate cover of compacted clean soil with a minimum thickness of one foot applied to it. The intermediate cover shall be monitored and maintained until the area is filled over with additional waste, or final cover is applied. All cracks, rills, gullies and depressions shall be repaired to minimize infiltration, prevent standing water and reduce landfill gas seepage through the soil cover. To the extent possible, intermediate cover will be removed prior to placing additional waste to minimize leachate ponding in the waste mass.

5.1.3 Final Cover

The final cover consists of two feet of clay covered by a geomembrane with three feet of protective cover above the geomembrane. Final cover will be constructed during the construction season that follows a large contiguous area (5 acres or greater) receiving the final lift of waste, including sides slopes.

5.1.4 Supplemental Cover

Supplemental soil cover may be applied to areas with daily or intermediate cover determined to be sources of off-site odor. The use of temporary geomembrane cover over areas with intermediate cover may be utilized to address problem areas if supplemental soil cover is not effective as discussed in **Section 4.2** "Long-Term Corrective Actions".

The landfill expansion siting and IEPA permit applications shall include design and operating plans for addressing surface emissions and "fresh waste" odors from the proposed eastern waste slope adjacent to N. Kenosha Road.

5.2 Landfill Gas Management

5.2.1 Landfill Gas Extraction

The landfill gas collection and control system (GCCS) is an important tool necessary to reduce landfill gas odors and greenhouse gas emissions. The Site's gas collection system consists of horizontal and/or vertical gas wells installed as areas are filled. Landfill gas may also be extracted from leachate collection and cleanout pipes. Expansion of the system will occur as needed. The landfill's GCCS will be designed, operated, and maintained in accordance with the Site's GCCS Design Plan and applicable municipal solid waste landfill New Source Performance Standards (NSPS), Emission Guidelines (EG) and National Emission Standards for Hazardous Air Pollutants (NESHAP) regulatory requirements.

The Site will continue taking a proactive approach to gas collection by installing gas system infrastructure in new cells as the cell is being filled vs. waiting until final grades are reached. Additional horizontal or vertical gas wells will be installed if surface emissions monitoring (SEM), or odor monitoring, indicate the improvements are warranted.

5.2.2 Landfill Gas Extraction and Conveyance System Monitoring and Repair

Odor prevention is further enhanced by regular monitoring of the gas extraction system. The landfill gas extraction system is monitored monthly for vacuum (wellhead and system), and gas quality. Gas quality readings include percent methane, percent oxygen, percent carbon dioxide, balance gas, and temperature. The physical condition of the individual gas wellhead is also reviewed monthly.

Water levels within vertical landfill gas wells will be performed on an annual basis while the landfill is operational. Gas wells outside of final cover areas exhibiting less than 50% open screening available due to the accumulation of liquids will be monitored quarterly until 2 consecutive readings indicate greater than 50% open screening is available.

Site personnel will review wellfield monitoring data and, if excessive pressure drops impacting gas collection are noted, investigate potential causes and implement necessary and appropriate corrective actions.

In the event that repair or construction of the system is necessary, Site personnel will use isolation valves within the system to isolate the area where work is being conducted. This practice allows those areas of the landfill gas collection system where construction is not being performed to continue extracting landfill gas.

5.2.3. Landfill Gas Flares

The flare temperature is monitored with one or more thermocouples to confirm the presence of a flame whenever landfill gas is routed to the flare. In the event the flame goes out, or thermocouple temperature drops below programmed set points, the blowers shut down and the automated fail-safe valve closes to prevent free venting of landfill gas. The flare control system is also connected to an automatic dialer that notifies appropriate landfill personnel via phone and e-mail of any alarm issues. These notifications allow for staff to provide a prompt response to conditions in order to minimize the amount of time the flare is not running. The Site will maintain destruction capacity for 100% of the collected landfill gas flows.

5.2.4 Gas System Preventive Maintenance

Preventive maintenance of the gas system helps ensure that the gas system is always working properly. The main mechanical components of the landfill gas extraction system are the blowers, flares and 3rd party Landfill Gas to Energy (LFGTE) facility. Scheduled preventive maintenance is performed on the landfill owned components dedicated to the proper operation of the gas collection system. Major repairs or scheduled rebuilds are normally performed by an outside contractor. The landfill is not dependent on the operation of the LFGTE plant, as the capacity of the existing landfill blowers/flares exceeds the projected gas generation flows for the landfill.

The Site has backup blowers for both the open and enclosed flares. These have been purchased to avoid significant down time in the event of unexpected total failure of one of the blowers. Maintenance and repairs of the GCCS should be scheduled to ensure continuous operation of at least one flare to reduce back-up of landfill gas in the waste mass to reduce the potential gas malodors.

5.3 Odor Neutralizers or Masking Agents

Odor neutralizers or masking agents may be used to enhance odor control. Prior to the use of masking agents, approval will be obtained from the IEPA, if needed.

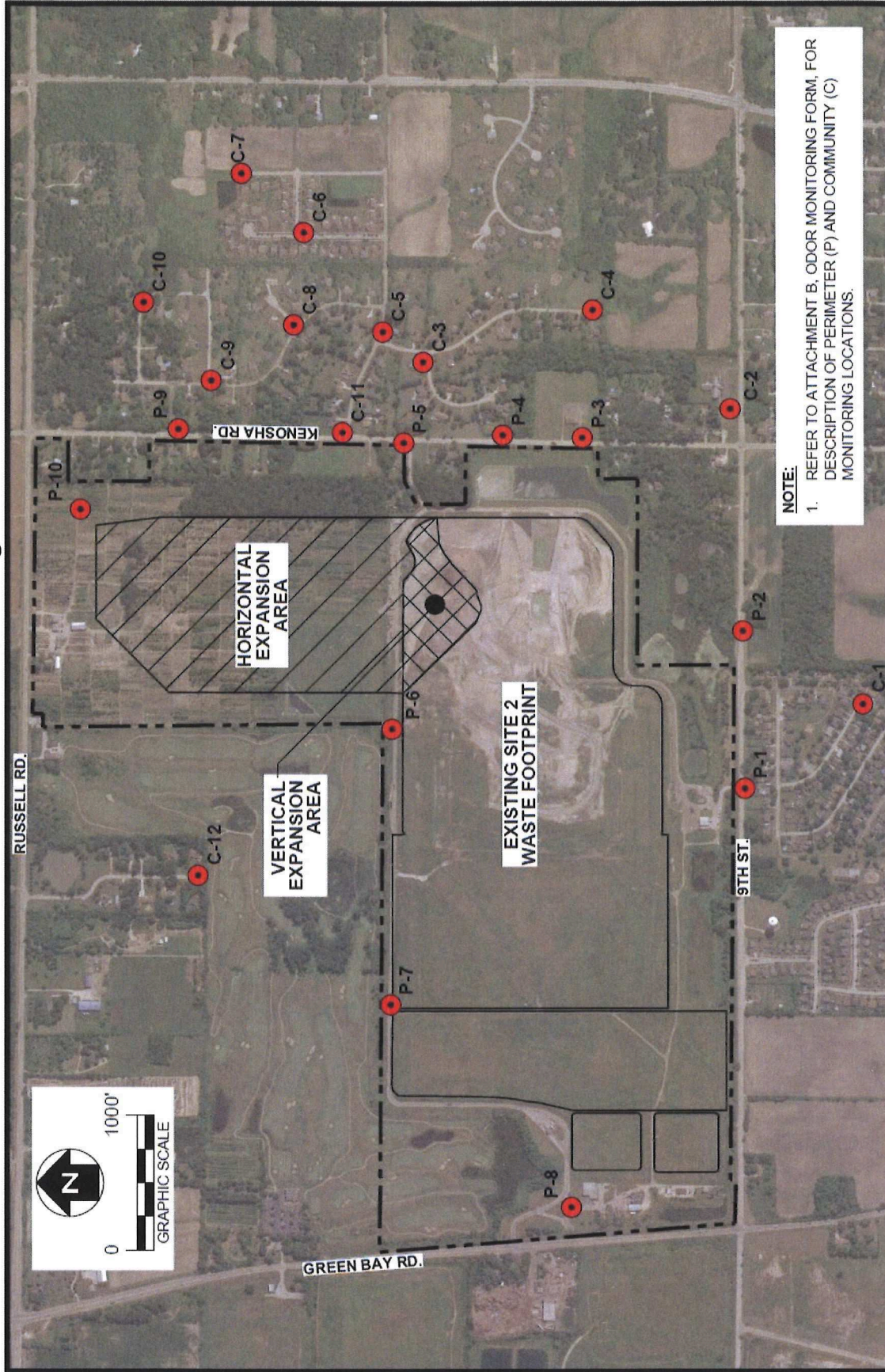
5.4 Surface Emission Monitoring (SEM)

A scan of the landfill surface will be performed in accordance with the Site's Illinois EPA CAAPP Permit and applicable NSPS, EG and NESHAP requirements to identify areas where landfill gas may be escaping through the surface. In the event that methane is detected above 500 ppmv (parts per million volume), prompt action (i.e., short-term corrective actions) will be taken in accordance with the Site's Illinois EPA CAAPP Permit and applicable NSPS, EG and NESHAP regulations to reduce the emissions below 500 ppmv. All safely traversable perimeter slopes will be included in the monitoring.

6.0 PROVISIONS FOR PLAN AMENDMENT

This odor control plan has been developed as a guide to identify, prevent and address potential odor issues at the Site. This plan will be amended as needed.

Attachment A - Odor Monitoring Locations



NOTE:
1. REFER TO ATTACHMENT B, ODOR MONITORING FORM, FOR DESCRIPTION OF PERIMETER (P) AND COMMUNITY (C) MONITORING LOCATIONS.

**ZION LANDFILL - SITE 2 NORTH EXPANSION
CITY OF ZION, ILLINOIS**

**ATTACHMENT A
ODOR MONITORING LOCATIONS**

Attachment B - Odor Monitoring Form

Date: _____ Inspector Name: _____ Temperature: _____
 Precipitation: _____ Humidity: _____ Barometric Pressure: _____ Wind Speed & Direction: _____

Location	Reading 1			Reading 2 <small>(if applicable per Section 3.8, Confirmation Sampling Procedures)</small>			Notes / Comments
	D/T Ratio	H ₂ S	Time	D/T Ratio	H ₂ S	Time	
P-1 South LF Entrance							
P-2 9 th St & Lorelei Dr							
P-3 N Kenosha Rd at Church Parking							
P-4 East LF Area							
P-5 N. Kenosha Rd & Forman Rd							
P-6 SE Corner of Golf Course							
P-7 NW Road Curve							
P-8 Office Parking Lot							
P-9 N. Kenosha Rd & Block Ln							
P-10 NE Corner of LF							
C-1 Lorelei Dr & Timothy St							
C-2 9 th St at Church Parking Lot							
C-3 Meadow Ct & Meadow Ln							
C-4 End of Meadow Ln							
C-5 5 th St & Meadow Ln							
C-6 Prairie Ridge Dr & 4 th St							
C-7 End of N Fossland Ave							
C-8 N Prairie Ave & Clearview Ct							
C-9 N Prairie Ave & 3 rd St							
C-10 W Oak Ln (NE Curve)							
C-11 N Kenosha Rd & 5 th St							
C-12 End of Oakcrest Ln							

(Continued on Next Page)

Attachment B - Odor Monitoring Form (cont'd.)

Date: _____ Inspector Name: _____

Corrective action* taken:

*Corrective action to be taken if 2 Scentometer readings in one location within 1 hour result in a D/T ratio > 4 or 2 H₂S readings in one location within 1 hour result in sustained concentrations > 15 ppb above background.

Attachment C - Odor Complaint Response Form

Log #:	
Complainant Information	
Name:	
Phone Number:	
Address:	
Complaint Details	
Date Complaint Received:	
Time Complaint Received:	
Date of Incident (if different):	
Time of Incident (if different):	
How Reported:	
Location:	
Level of Odor, Scale (1 to 4):	
Type of Odor (Gas / Garbage / Other):	
Temperature:	
Wind Speed & Direction:	
Precipitation:	
Skies:	
Barometric Pressure:	
Response:	

EXHIBIT D

Zion Landfill Noise Control Plan

The Facility will be operated in accordance with 35 Ill. Admin. Code Section 900. Machinery designated for operations at the landfill will be equipped with mufflers or other sound dissipative devices as required for compliance with 35 Ill. Admin. Code Sections 901.101 through 901.103 and Section 901.121.

Quieter back-up alarms shall be used on all Facility heavy equipment that backs up frequently (i.e., bulldozers, compactors, loaders and articulating dump trucks). Additionally, third party construction equipment that backs up frequently, and is scheduled to be on site for at least 60 days, will be equipped with quieter backup alarms. Quieter alarms, or similar backup devices that meet OSHA requirements (29 CFR Part 1926.602.a.9) may be selected from the list below, or from equivalent quieter alarms:

1. Manually adjustable backup alarms
 - a. Preco Model 45, 100 and 300 series
 - b. Ecco Model 500 and 600 series
2. Automatically adjustable backup alarms
 - a. Preco Model 100 series
 - b. Ecco Model 800 and 900 series
3. Community sensitive backup alarms
 - a. Brigade SMART bbs-tek;

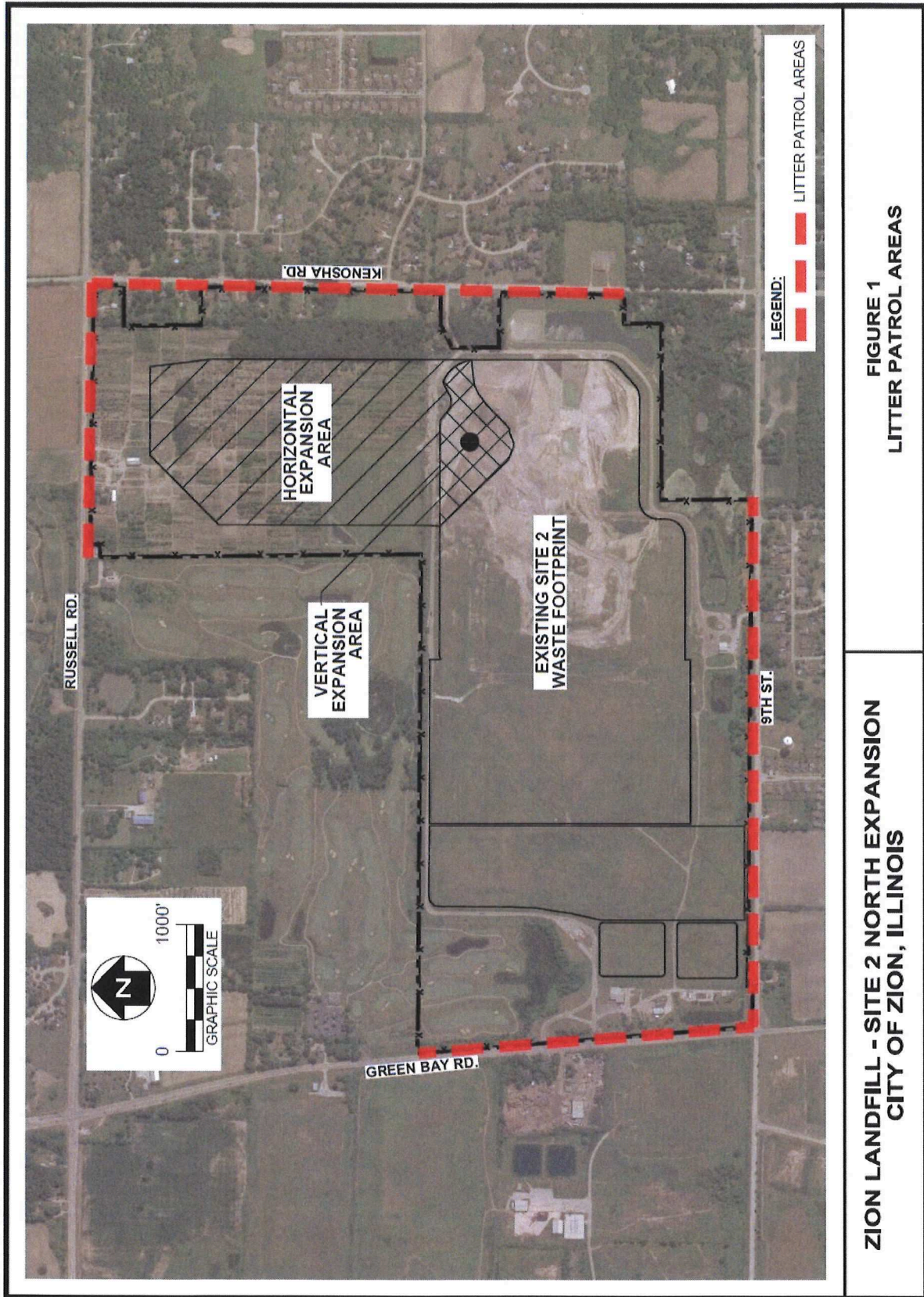
Earthen berms surrounding the facility will serve to dampen noise from the operational activities. The berms will be vegetated upon completion to increase the dampening effect of the berms. The landfill expansion footprint and screening berms have been designed in a way that allows for sustainability of a large portion of the tall trees located on the east side of the expansion. This tree line will also help dampen the noise from the facility. The screening berm locations as well as the stand of trees are shown on the Design Drawings in the Siting Application.

EXHIBIT E

Zion Landfill Litter Control Plan

A number of operating procedures will be employed at the Landfill to minimize and control litter. These procedures include:

- Incoming refuse vehicles will be required to be fully enclosed or to have covers or tarps to prevent waste from blowing out of the vehicles.
- The active fill area will be kept as small as possible (while allowing for safe operation), and will be covered at the end of each day with daily cover materials that will include soil, wood chips, synthetic covers, or other alternate daily cover materials as approved by the IEPA.
- The Landfill will use portable fences and a facility boundary fence to contain litter. Portable fences will be used to prevent blowing litter when fill operations are occurring above the natural ground line. Portable fencing will be placed downwind of the wind direction on each operating day when filling is occurring at the landfill's plateau. The length of the fencing will be long enough to accommodate changes in wind direction throughout the operating day.
- The Landfill will construct a perimeter litter fence, approximately 20-feet tall, from the north side of Foreman Drive, northward toward Russell Road. The initial section of this fence will be constructed prior to filling the first expansion cell. This section, as well as each subsequent section, will extend at least 200 feet north of the northern extent of the cell to be filled, except for the northernmost cell. The northernmost section of fence will end near the proposed north basin.
- Untarping of transfer trailers will not occur along the eastern perimeter road, located closest to North Kenosha Road.
- Loads known to be sources of material that becomes easily airborne will be scheduled during suitable weather conditions.
- The Facility will monitor an on-site wind gauge and will suspend waste acceptance when sustained wind speeds reach 40 miles per hour, over a 15-minute period. Operations may resume once wind speeds do not meet or exceed 40 miles per hour, continuously, for 15 minutes.
- Management will direct laborers to patrol the Facility, as well as surrounding property (see **Figure 1**), to collect any litter escaping from the active fill area, including litter caught by the portable and perimeter fencing. After high wind events, defined as events where weather conditions in combination with current filling operations, increases the likelihood of windblown litter escaping the Facility, the collection of any observed offsite litter will generally be prioritized over litter contained on-site by fencing. Focus areas will be determined from site management's inspections of the areas downwind of the facility during and following the high wind event. If litter is found outside of the Facility, laborers will be directed to collect litter from community areas extending beyond the patrol areas in **Figure 1**. The collected litter will be placed in plastic bags and transported to the active face for disposal.



**ZION LANDFILL - SITE 2 NORTH EXPANSION
CITY OF ZION, ILLINOIS**

**FIGURE 1
LITTER PATROL AREAS**

EXHIBIT F

Zion Landfill Wind Erosion / Fugitive Particulate Matter Emission Control Plan

Condition 1.a.i.A. of the Section 3 of the CAAPP permit for the Zion Landfill (Landfill or facility) issued on 6/24/2015 requires the site to “*follow good air pollution control practices to minimize fugitive particulate matter emissions...*” This Wind Erosion / Fugitive Particulate Matter Emission Control Plan (Plan) details the procedures used to accomplish and document compliance with this and subsequent permit conditions. Condition 3.1.a.ii.C requires that this Plan include:

(1) A map or diagram showing the location of all fugitive particulate matter emissions generating activities and/or where control measures are typically applied on a regular basis, including the location, identification, length, and width of roadways, and volume and nature of expected traffic or other activity.

Attachment 1 contains a map identifying the current and planned future asphalt paved surfaces, as well as typical vehicle types and quantities. The site will extend and maintain asphalt paved roads to primary access locations into the landfill footprint; these access locations will change over time as the Landfill is developed. Unpaved road lengths outside the landfill footprint will be minimized and generally limited to areas not utilized by vehicles delivering waste to the Facility; unpaved road lengths will vary with site conditions as landfill development progresses. The speed limit on unpaved sections of road will be 25 miles per hour.

(2) Description of the standard control measures including type of measure, frequency and, if applicable, application rates;

The primary control measure utilized is the proactive application of water spraying via a dedicated water truck on days when fugitive particulate matter is most likely to form based on recent and current climatic conditions. The site supplements these efforts with the deployment of a dedicated sweeper on asphalt paved surfaces. Hours of operation for each unit is tracked daily, with monthly summaries provided as shown in **Attachment 3**.

During construction and final cover construction events, the general contractor will employ dust control methods that include watering, re-grading and sweeping of roads to minimize fugitive dust formation.

Seeding will be applied on all landfill or stockpile slopes that will remain idle for at least one growing season in an effort to establish vegetative cover. The success of this effort will be monitored and supplemented as necessary to minimize dust emissions from these surfaces.

(3) Description of any secondary control measures that would be used based on circumstances (freezing temperatures, recent rain, dry weather, etc.) with identification of the circumstances in which they would be used and identify any triggers for implementation of additional control measures, e.g., presence of extended dust plumes following passage of vehicles, with description of those additional dust control measures.

Fugitive dust from facility haul roads is unlikely to occur on days when it is raining, or there is snow or frozen conditions. On these dates, the precipitation and/or frozen weather conditions would take the place of road watering.

(4) Description of corrective actions that will be implemented in the event of visible emissions across the property line and/or observation of areas affected by wind erosion and/or reentrainment. Such corrective action may include but is not limited to the application of a protective cover on landfill surfaces, the spraying of surfactant solution or water on a regular basis, or other equivalent treatment methods;

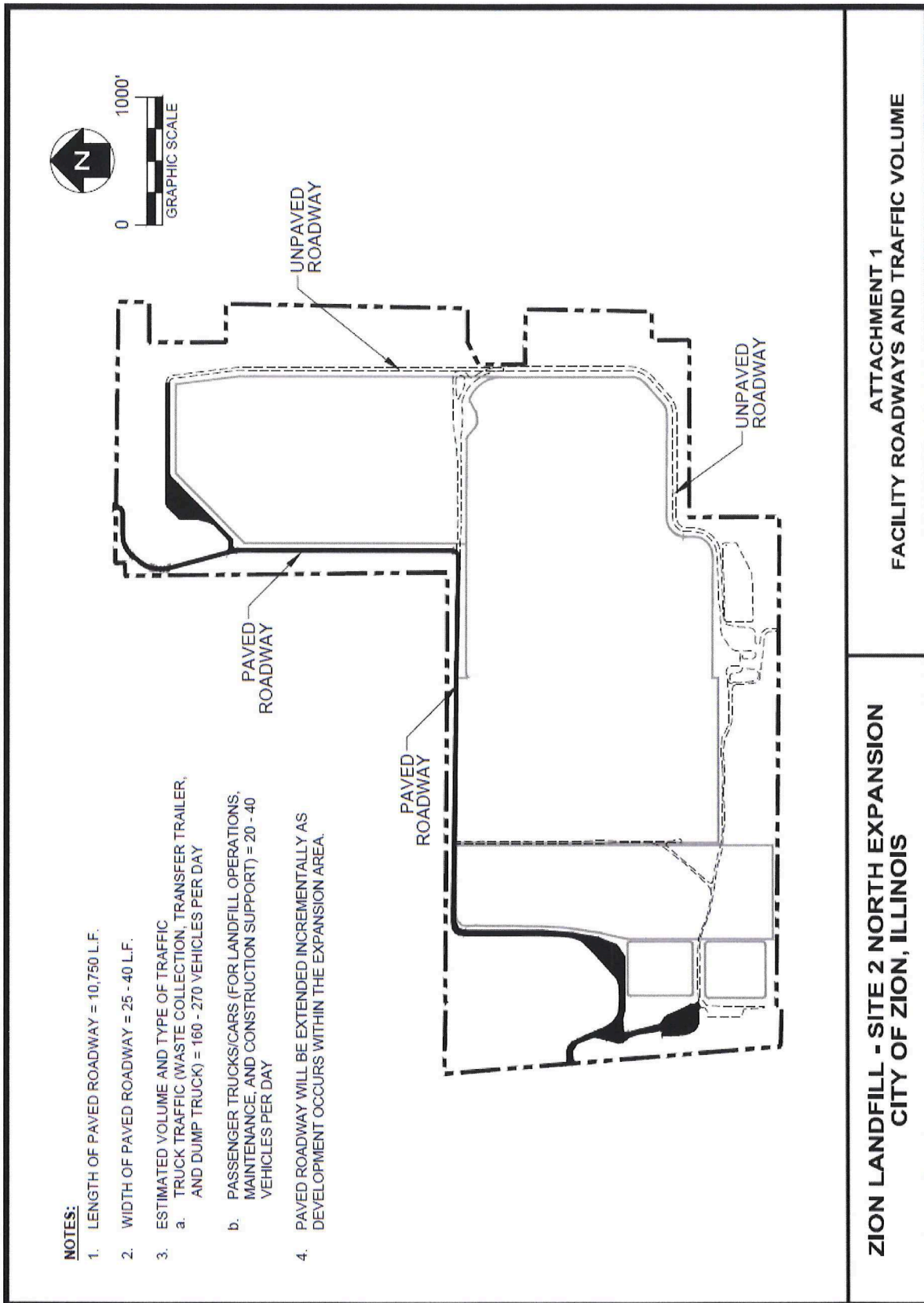
If a dust complaint is received and verified, or visible emissions are observed across the property line, either during required periodic inspections or regular daily observations, corrective action will be taken as soon as possible. Corrective actions may include, but are not limited to, spray application of water, use of chemical dust suppressants, operation of a street sweeper, changing traffic patterns, and cessation or modification of activities causing the emissions. All complaints will be added to the site's complaint log, and a representative from the Landfill will respond to the complainant within three business days.

(5) Assumptions and/or observations regarding the quantity and nature of vehicle traffic at the source as related to source operations.

Zion Landfill is an active municipal solid waste landfill. As such, the primary truck traffic at the facility will be comprised of refuse disposal vehicles. These range in size from civilian pick-up trucks, to front and rear end residential loaders, to transfer trailers. The facility also receives roll-off trucks and dump trucks. The number of trucks received in a day can vary from less than one hundred to several hundred.

The CAAPP permit requires that routine (quarterly) fugitive dust inspections be performed and documented. Fugitive dust inspections will normally be conducted on a monthly basis. Inspection frequency will be increased to weekly during weeks when cell construction and/or final cover construction activities are being conducted. The inspection form is included in **Attachment 2**. Records are maintained on site which will include safety data sheets (SDS) for any chemical dust suppressants. The chemical dust suppressant SDS will be made available for public review upon request from the public.

Additionally, the CAAPP permit requires that the site document the implementation of the dust control measures. Water Truck and Sweeper Vehicle hours are logged (See **Attachment 3**) and these records are maintained on site. The water truck generally dispenses up to 7,000 gallons per hour of operation. Any unusual incident requiring additional measures that cannot be controlled by these vehicles is documented as well.



Attachment 2 - Quarterly Inspection Form	
Zion Landfill	
Wind Erosion / Fugitive Particulate Matter Emission Control Plan	
Inspection Date and Time:	
Inspector Name (print):	Inspector Signature:
Weather Conditions:	

OBSERVED CONDITIONS			
Inspected Areas	No visible particulate matter emissions at nearest downwind property line	Visible particulate matter emissions at nearest downwind property line*	Area snow or ice covered, or recent precipitation sufficient to eliminate visible particulate matter emissions at nearest downwind property line
Main Haul Road to Scale House			
Parking Areas			
Landfill Roads			
Landfill Active Area			
Landfill Cover			
Landfill Construction Area			
Soil Stockpiles			
Asbestos Containing Waste Deposited Areas			

* NOTE: Take immediate corrective action to avoid particulate matter emissions. See Wind Erosion/ Fugitive Matter Emission Control Plan for additional information.

COMMENTS:

Attachment 3 - Dust Control Measure Log For the Year _____

(a) Month	(b) Sweeper Vehicle (hours)	(c) Water Truck (hours)	(d) Were there any extreme incidents or weather conditions requiring additional control measures? If, yes, identify dates and actions taken.
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			

NOTES:

- (a) This table should be updated on a quarterly basis, minimum.
- (b) The average speed of the sweeper vehicle is approximately 5 mph.
- (c) The water truck generally dispenses up to 7,000 gallons per hour of operation.
- (d) CAAPP permit Section 5.4.a.iv states, "If the fugitive particulate matter program fails to address or inadequately addresses an event that meets the characteristics of a wind erosion, reentrainment, or fugitive event but was not included in the program at the time the Permittee developed the plan, the Permittee shall revise the program within 45 days after the event to include detailed procedures for operating, monitoring, and maintaining the source during similar events and a program of corrective action for similar events."