



# Dust Management Plan

KERDIFFSTOWN LANDFILL REMEDIATION PROJECT



**rps**

**Wills Bros Ltd**  
CIVIL ENGINEERING CONTRACTORS

**Revision and Amendment Status Sheet**

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## Contents

1.0 INTRODUCTION .....	4
1.1 Objectives.....	4
1.2 Project Overview .....	4
1.3 Contract Overview.....	4
1.4 Document Review .....	5
2.0 CONTACT DETAILS .....	6
3.0 LIMITING CRITERIA .....	7
3.1 Dust Minimisation Requirements .....	7
4.0 DUST AND EMISSIONS SOURCES.....	8
4.1 Dust Sources.....	8
5.0 MANAGEMENT MEASURES .....	10
5.1 Introduction.....	10
5.2 Induction – Training and Awareness.....	10
5.3 Working Hours .....	10
5.4 Internal Reviews.....	11
5.5 Communication.....	11
6.0 Dust Management Measures.....	12
6.1 Introduction.....	12
6.1.1 Measures for Dust Management .....	12
7.0 Phasing of the works .....	15
7.1 Earthworks and placing of material .....	15
7.1.1 Mitigation Measures .....	15
7.2 Lining .....	16
7.3 Landfill Infrastructure Compound.....	17
7.3.1 Mitigation Measures .....	17
7.4 Water Sources .....	19
7.4.1 Existing Well .....	19
7.4.2 Groundwater – South Infiltration Tunnel.....	20
8.0 MONITORING, REPORTING AND RECORDING.....	22
8.1 KCC Dust Monitoring.....	22
8.2 Dust Deposition Monitoring.....	22
8.3 Visual Dust Monitoring.....	22
8.4 Dust Reporting and Recording .....	22
8.5 WBL Dust Monitors .....	23

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**

**Dust Management Plan**

**November - 2021**

8.5.1 Relocation of WBL Dust Monitors .....25

8.6 WBL Dust Monitoring .....26

9.0 COMPLAINTS .....27

10.0 RECORDS .....27

11.0 REFERENCES .....27

Appendix A – CONSTRUCTION DUST MANAGEMENT INDUCTION

Appendix B – DAILY LOG SHEET VISUAL ASSESSMENT

Appendix C – DUST MONITORING LOCATIONS

## **1.0 INTRODUCTION**

### **1.1 Objectives**

This Dust Management Plan has been prepared by Wills Bros Limited to ensure the Works are managed and executed to control dust emissions during the construction works.

The Dust Management Plan will be revised as required to confirm/update the details of construction provided within the document (e.g., actions and dust control measures).

The objectives of this Dust Management Plan are:

- To comply with construction standards for dust control.
- To minimise dust emissions during the construction phase.
- Apply best practice dust management measures.
- Prevent complaints from sensitive receivers.

### **1.2 Project Overview**

The Project involves the remediation of the Kerdiffstown Landfill site and development of the site as a multi-use public park. This is to be achieved by clearing and reprofiling the existing site, installing an engineered capping system, improving the management of landfill gas, leachate and surface water and the provision of landscaped and recreational areas. The site is approximately 30 hectares in size and is located at Kerdiffstown, Naas, Co. Kildare.

### **1.3 Contract Overview**

The Contract Overview (Scope of Work) for the Kerdiffstown Landfill Remediation Project includes the following:

- Reprofiling of waste mounds to ensure the capping system works effectively and to facilitate the use of the site as a public park;
- Preparation and placing of a regulation layer in areas to be capped
- Installation of a permanent capping system across all existing waste areas to prevent rainfall infiltration, to manage surface water runoff, to reduce the production of leachate and to capture landfill gas;
- Installation of new systems to manage and control leachate and landfill gas which will include the construction of a dedicated landfill infrastructure compound and landfill gas flares (where extracted landfill gas is burned off);

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**  
**Dust Management Plan**  
**November - 2021**

- Construction of a leachate pipeline from the site, which will cross under the Morell river and N7 into Johnstown Pumping Station;
- Construction of a foul/wastewater pipeline connecting the site with Johnstown Pumping Station. This pipeline will run parallel to the leachate pipeline and will carry foul/wastewater from the site office and changing room building;
- Installation of surface water drainage to manage water on, and draining from, the site including surface water ponds and a surface water outfall point to the Morell River;
- Decommissioning of existing services, in particular an underground storage tank approximately 20m<sup>3</sup> in capacity. There are also a large number of concrete structures (walls of former buildings) to be demolished;
- Processing of demolished concrete and other waste materials on site to produce engineering grade materials for re use on site;
- Development of a public park with multi-use sports pitches, car parking, a changing room building, children's playground and a network of paths across the site;
- Landscaping works across the site including grass seeding, planting of trees and shrubs, and ongoing maintenance period of the works.

#### **1.4 Document Review**

The Dust Management Plan will be regularly reviewed during the lifetime of this project and updated to reflect changing conditions on site. Changes will be made subject to review and monitoring of conditions on site, and the effectiveness of the mitigation measures implemented throughout the works. Any changes will be agreed with KCC and ER in advance through the normal communication channels.

## 2.0 CONTACT DETAILS

Wills Bros Limited site management team will be responsible for ensuring that this Dust Management Plan is correctly implemented on site.

Contact details for Wills Bros Limited and Kildare County Council are provided below.

<b>Contractor: Wills Bros Limited</b>			
Address	Wills Bros Limited Ballylahan Bridge Foxford Co. Mayo		
Telephone	094-9256221		
Contact	██████████ <b>Project Manager</b>	Mobile e-mail	██████████ ████████████████████
	██████████ <b>EHS Manager</b>	Mobile e-mail	██████████ ████████████████████
	██████████ <b>EHS Officer</b>	Mobile e-mail	██████████ ████████████████████

<b>Client: Kildare County Council</b>			
Address	Áras Chill Dara, Devoy Park, Naas, Co. Kildare, W9 X77F		
Contact	Ultan Downes <b>KCC Senior Executive Scientist</b>	Mobile e-mail	0879559494 <a href="mailto:udownes@kildarecoco.ie">udownes@kildarecoco.ie</a>
	James Mulligan <b>KCC Senior Executive Engineer</b>	Mobile e-mail	0863841655 <a href="mailto:jmulligan@kildarecoco.ie">jmulligan@kildarecoco.ie</a>

## 3.0 LIMITING CRITERIA

### 3.1 Dust Minimisation Requirements

The following requirements (in accordance with Appendix 1/9 1.5.5 of Volume A1 – Works Requirements and EPA Industrial Emissions Licence) relating to dust and minimising air quality impacts during the Works:

#### **Excerpt of Appendix 1/9 1.5.5 of Volume A1 – Works Requirements**

*“The contractor is required to ensure that dust deposition levels do not exceed 350 mg/m<sup>2</sup>/day in accordance with the requirements of the facility’s Industrial Emissions Licence P1063-01 and Appendix 1/75AR”*

#### **Excerpt of EPA Industrial Emissions Licence**

*4.6 Dust and Particulate Matter: Dust and particulate matters from the construction activity shall not give rise to deposition levels which exceed limit value*

*6.8 During remediation and construction works, the licensee shall take all reasonable steps, as set out in the EIAR or otherwise as necessary, to prevent or, where this is not possible, to minimise:*

- *Emissions into the local surface water and ground water environment*
- *Noise and vibration emissions; and,*
- *Dust Emissions*

*6.14.7 The reuse of storm water on site for the purpose of dust suppression and irrigation shall be limited to storm water which can be demonstrated to be uncontaminated. Note: Water to be tested prior to further use on site to prove its clean.*

*6.24 Dust Control: In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance, during the remediation phase.*

*6.28 Nuisance Monitoring: The licensee shall, on a daily basis, inspect the installation and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours. The licensee shall maintain a record of all nuisance inspections.*



## 4.0 DUST AND EMISSIONS SOURCES

### 4.1 Dust Sources

Air quality is a significant issue to be managed during the construction works. Particulate emissions (dust) have the greatest potential to affect off-site air quality during the construction works.

Emissions of particulate matter may give rise to suspended particulate and deposited particulate depending on their particle size.

Suspended particulate matter is dust or aerosol that stays suspended in the atmosphere for significant periods and includes:

- PM<sub>10</sub>: all particulate effectively less than 10 microns (µm) in diameter
- PM<sub>2.5</sub>: all particulate effectively less than 2.5 µm in diameter
- Total Suspended Particulates (TSP): total suspended particulate, generally less than 50 µm in diameter.

Within the range of suspended particulate, the group of particles which are sized 10 µm or less (PM10) has been associated with health effects including aggravation of existing respiratory and increased asthma incidents. However, more recent research indicates that it may be the PM2.5 fraction that has the greatest impact on human health. Particulate that are larger than 10 µm tend not to be able to penetrate the respiratory tract and do not appear to be significant with respect to potential health effects.

Deposited particulate matter is dust that, because of its aerodynamic diameter and density, rapidly falls from the air. In general terms, deposited particulate has a diameter of greater than about 20 µm.

Due to the size of the particulate matter, most of this material will not enter the body. Hence, the effects of deposited particulate are primarily nuisance and may only affect health via annoyance reactions and the like.

Particulate emissions are anticipated to be generated by activities including:

- Site Preparation
- Demolition Works
- Site Clearance
- Regrading and Re-profiling Works
- Excavations

## **Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**

### **Dust Management Plan**

**November - 2021**

- Earthworks
- Construction traffic on haul roads
- Material Transportations
- Finishing and Landscaping

The activities identified above will result in emissions typically referred to as 'fugitive' emissions. That is, they arise from open 'area' or 'volume' sources and are often intermittent.

The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with ambient conditions including rainfall, wind speed and wind direction. The potential for impact from dust also depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. Most of the dust would be deposited close to the potential source.

## 5.0 MANAGEMENT MEASURES

### 5.1 Introduction

This section describes a number of general mitigation measures which will be implemented by Wills Bros Limited to reduce the generation of dust during the Contract.

Table 5.1 summarises the activity, management measures and responsibility during the works.

<b>Activity</b>	<b>Management Measure</b>	<b>Responsibility</b>
Induction	Online inductions will be issued through electronic format to inductees, records will be retained on site. A copy will also be made available on site. A copy of the induction is shown in Appendix A.	<b>Wills Bros Limited</b>
Working Hours	Construction site working hours (refer to section 5.3)	<b>Wills Bros Limited</b>
Site Works	All reasonable and feasible dust source controls will be investigated	<b>Wills Bros Limited</b>
Monitoring	Carry out environmental dust monitoring and keep records	<b>Wills Bros Limited &amp; KCC</b>
Complaints	Should complaints be made regarding the effect of dust from the work, they will be treated by Wills Bros Ltd in a constructive manner.	<b>Wills Bros Limited &amp; KCC</b>

### 5.2 Induction – Training and Awareness

The site induction, health and safety and environment training programmes will reinforce with Wills Bros Limited employees and subcontractors the need for controlling environmental performance at each works location. Dust control and Management will be specifically addressed during the online induction, daily briefings and toolbox talks. All Wills Bros Limited employees will have responsibility for reducing dust generation from their work activities. A copy of the Construction Dust Control Induction is included as Appendix A to this Plan.

All site personnel working on site will be required to sign the environmental inductions document. This will be made available online through an online portal. In the event, that the online service is not accessible, a copy of the inductions will be made available on site and all site personnel will be required to sign this induction sheet. WBL will ensure that this induction sheet is to be read and signed by all site personnel.

### 5.3 Working Hours

Wills Bros Limited will comply with the working hours as set out in Appendix 1/13 programme of works, 3.b of Volume A1 – Works Requirements. WBL hours are from 08.00 to 18.00 Monday to Friday. Depending on the works during the project, WBL will work to the hours outlined in the contract as shown below on Monday to Friday.

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project  
Dust Management Plan  
November - 2021**

Day	Time
Monday to Friday	07.00 to 19.00
Saturdays	08:00 to 14:00
Sundays and Bank Holidays	No Work Permitted

Wills Bros shall gain prior written approval for any intended out of hours works in accordance with the Contract requirements.

Saturday work is not routine and needs to be:

- a) Coordinated with KCC and RPS
- b) Is on a 'need-must' basis.

#### 5.4 Internal Reviews

Review of work practices and on-site equipment to identify where practices can be improved shall be undertaken. This process will involve:

- Identifying the dust sources particular to the site.
- Random audits will be used to proactively anticipate dust issues and instigate a resolution process and to ensure that previously identified control measures continue to be implemented.

#### 5.5 Communication

Damien Ryan is our Public Liaison Officer who will work with Kildare County Council (KCC) representatives to proactively engage with the Local Community Liaison Group and Residents. It is our understanding that KCC has already fostered good relationships with local community representatives and resident's groups which will be continued throughout the remediation works by our Public Liaison Officer.

The nearby sensitive receptors including local residents, local community liaison groups and other stakeholders will be kept informed of the works and all communications are to be coordinated with KCC.

We see the appointment of a site based Public Liaison Officer and effective advance communications as critical in assisting in enabling an understanding and tolerance by the local community, nearby residents and key stakeholders such as Clean Air Naas group for the short term impacts such as dust emissions that will arise during the site remediation works.

Where adverse metrological conditions coincide with works phasing, WBL will take a proactive approach in conducting the works during these conditions. WBL will aim to reduce works when weather conditions are adverse and having the potential to raise an issue with the residents. Residents will be informed of a heightened risk of short-term dust nuisances if this arises.

## **6.0 Dust Management Measures**

### **6.1 Introduction**

Wills Bros Limited will work in accordance with the guidance provided in the National Guidelines for the prevention of Nosocomial Invasive Aspergillosis during construction/renovation activities (developed by a sub-committee of the Scientific Advisory Committee of the National Disease Surveillance Centre, 2002). We will ensure that the construction compound will be maintained in a clean condition at all times. This will prevent the situation in arising in which cleaning will result in higher dust concentration than required for the proper execution of the works. The storage areas will be oriented in a favourable manner with respect to the prevailing wind to minimise the effects of wind blow on release of dust and particulate. The timing and implementation of the dust controls will be dependent on the construction schedule, weather conditions and proximity to sensitive receptors. Wills Bros Limited will adhere to the contractual requirements to ensure compliance with the appropriate methods of construction, choice of plant and equipment.

#### **6.1.1 Measures for Dust Management**

Wills Bros Ltd will enforce the minimizing of dust emission throughout the phasing of the Remediation Phase work. The remediation Phase will be carried out in phases so that all of the works with significant potential for generating dust emission will not all occur simultaneously.

The management and mitigation measures for preventing dust generation during the remediation works to comply with Condition 6.8 of P1063-01. Wills Bros Limited will adopt a range of dust control and mitigation measures aimed at minimising fugitive dust emissions during the project construction phase. They will include the following:

- A wheel wash facility at the site entrance will be installed for mandatory use to minimise the transfer of any dust onto the local road network and also minimise the potential for dust build-up which could be blown across the site.
- Fixed and mobile water sprayers (tractor and bowser) will be used to control dust emissions from stockpiles, haul roads, hardstands, during concrete demolitions etc. in particular during dry or windy weather conditions. Where possible, we propose to utilise the collected and treated surface waters (i.e. not contaminated water) to provide a sustainable approach to dust control on the site.
- Stockpiles and storage locations will be strategically located away from sensitive receptors and orientated to minimise the potential wind-generated emissions caused from prevailing winds. Stockpiles will be managed to ensure that the profile and gradient of material will minimise wind whipping.
- Vehicle/plant speed restrictions will be strictly enforced on site to minimise rise of dust on haul roads.
- Efficient mass haul strategy and approach for each Zone to minimise construction traffic movements

## Wills Bros Ltd – Kerdiffstown Landfill Remediation Project

### Dust Management Plan

November - 2021

as much as possible during earthworks.

- Use of enclosed or covered vehicles or plant for haulage of potentially dusty materials or aggregate.
- Drop heights for material transfer activities such as unloading materials will be minimised.
- All construction staff and operatives will be made aware of the dust prevention measures on site through a site-specific environmental induction and further Toolbox Talks during the Project.
- Environmental risk assessments will be prepared for potential dust generating processes and activities e.g., earthworks, concrete wall demolitions etc.
- Ongoing daily monitoring and inspections by Environmental Officer to ensure that dust control measures are effective and logging of findings in daily log sheet for visual dust inspections.
- Dust deposition monitoring utilising Bergerhoff dust gauges at agreed locations along site boundary to ensure dust deposition levels do not exceed 350mg/m<sup>2</sup>/day in accordance with the requirements of P1063-01

Construction dust can be substantially mitigated through the implementation of good onsite practice and the adoption of commonly used techniques to prevent dust being generated and emitted. Dust will be minimised on site through the implementation of the following control measures developed in accordance the Works Requirements (specifically 1.5 of Volume A1 – Works Requirements).

- A mobile bowser used during dry periods, to dampen internal site access roads.
- When required, material stockpiles to be kept moist using the mobile bowser or other suitable means, particularly during dry periods.
- Programme operations to allow for the covering of completed elements with permanent works, for example:
  - Progressive top soiling and grass seeding of complete landfill embankments.
  - Progressive placing of road formation material on exposed formations.
  - Grass seeding of permanent soil stockpiles.
- Reduce dust emissions by use of wheelwash system and road cleaning measures

Other best practice dust management measures to be implemented during works:

- All materials with the potential to lead to dust emissions will be covered during transport where required.
- Wash down of dirty equipment, such as excavators and dump trucks will be undertaken as required, to avoid excessive build-up of dirt and mud.
- Water suppression or dust extraction devices will be fitted where possible to construction equipment that has the potential to generate dust.

## **Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**

### **Dust Management Plan**

**November - 2021**

- Surfaces that are being excavated or cleared will be dampened prior to clearing or excavation where there is potential for excessive dust to be created.
- All material stockpiles with the potential to generate dust will be sealed, covered or dampened as necessary to minimise the potential for creation of dust.
- On-site vehicle speeds on unhardened roads and surface will be limited to less than 15 kp/h.
- Drop heights for material transfer activities such as unloading materials will be minimised.
- Wheel wash facility will be installed for all HGVs exiting the site. This will ensure that the undercarriages all vehicles leaving the site will be clean. It will be a requirement for all vehicles leaving the site to use the wheel wash.
- The existing wheelwash on site is now used for LGVs and staff vehicles. A power washer is supplied and along with appropriate drainage. This measure will help mitigate dust generated off the vehicles.
- The covering of the reprofiled waste body with the regulation layer 1R will help to minimise the dust generated on site throughout the works.
- During dry and windy weather extra vigilance will be required to ensure dust is not carried beyond the extents of the site. A visual inspection and the use of the tractor and bowser will help to suppress the dust generated.

## 7.0 Phasing of the works

### 7.1 Earthworks and placing of material

Earthworks and reprofiling commenced in January 2021. Earthworks and reprofiling are a major aspect to the works and will be taking place for most of the project. These earthworks will be monitored closely as they have a likely potential to generate dust. The earthworks and reprofiling began in Zone 1A and Zone 1 and this extended out to the other zones as the project progresses.

As earthworks progressed during the spring and summer of 2021, the cut/fill operations began to get underway and more areas to be opened up in Zone 2B, 3 and 4, further monitoring was required to ensure dust generation was minimised. In June 2021, as earthworks and the bulk of muck shifting has been completed, there are still a number of remaining minor cut/fill areas to be completed.

As the summer months tend to be drier, this could lead to the potential for dust generated on site. The following measures outlined below will be critical to keeping the dust levels low and WBL will ensure they implemented during the works.

As the cut/fill operation nears completion, the placing of regulation layers will be ongoing. The placing of 1R will involve a number of plant and could lead to potential dust generated on site. The plant involved included will be excavators, dumper, a dozer and a roller.

Once the liner is in place, the placing of subsoil will be undertaken. This again will involve a number of plant including excavators, dumpers and a dozer. This work activity will be monitored closely in the event of dust generated.

The placing of topsoil will also consist of a number of plant similar to those placing the subsoil. The hauling and placing of placing of material will be monitored daily to ensure dust level are kept to a minimum.

These earthworks will be ongoing well into 2022. Therefore, WBL are very conscious of the potential dust generation from these works especially when the site dries out during an extended dry spell. It will be imperative that the number of plant in the works area will be kept to a minimum and all measures taken to minimise dust levels.

#### 7.1.1 Mitigation Measures

WBL will ensure the following mitigation measures are enforced through the course of these works;

- Minimal exposure will be practiced during excavation works will take place and this be closely monitored



## **Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**

### **Dust Management Plan**

**November - 2021**

by site personnel.

- Vehicle/plant will be restricted to a 15kph speed limit on site to ensure the minimization of dust on haul routes.
- WBL will ensure that vehicles/plant for haulage of potentially dusty materials or aggregate will be enclosed or covered.
- Any stockpiles or storage material during these works will be located away from the sensitive receptors and oriented to minimise the potential wider generated emissions causing by prevailing winds.
- For any plant or vehicles leaving site to access the public road L2005, it will be mandatory to use the wheel wash facility which will minimise the potential for dust build-up.
- Tractor and bowser to dampen/wetting down of areas where plant is operating.
- Tractor and bower to spray water on any areas of the site that are creating dust plumes.

### **7.2 Lining**

As the lining of the site progresses during the winter of 2021, this works activity has the potential to reduce dust generated on the site. The crew part of this operation will be briefed on the importance of dust management and all the mitigation measures that have being mentioned in this document. Also, the minimising of plant and the speed limit of 15km/h will be strictly adhered too.

There are four KCC dust monitors in the proximity of the works area in Zone 1 as highlighted below in Figure 7-1.

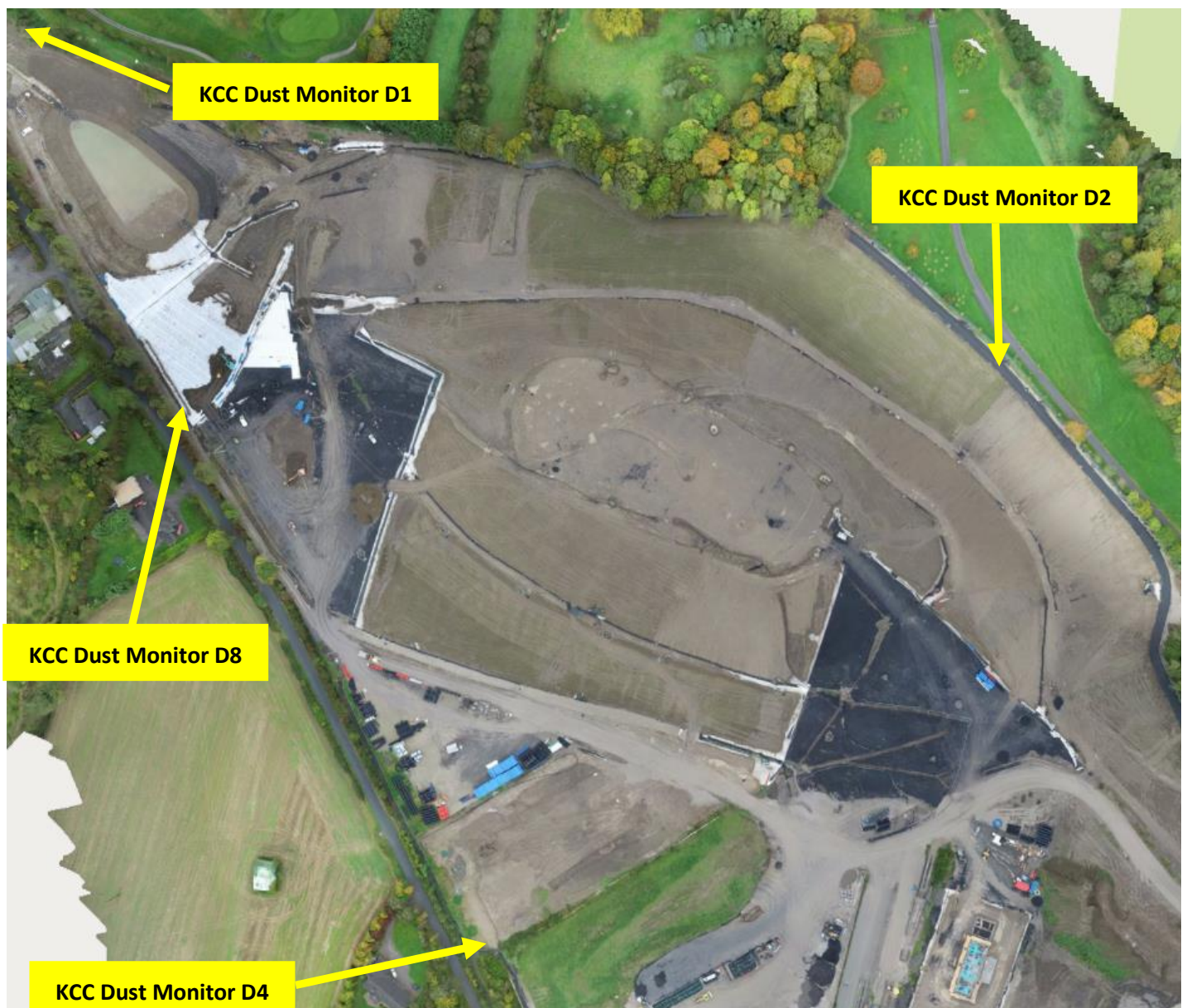


Figure 7-1 Drone image of lining works in Zone 1

### 7.3 Landfill Infrastructure Compound

Works commenced on the Landfill Infrastructural Compound in January 2021 and due to be completed near the end of the year. Figure 7-2 below shows the location of the Landfill Infrastructure Compound. As works in this area are consisting of site clearance, earthworks, building works, drainage etc. There is a possibility of dust generated during these works. WBL will ensure that necessary measures will be put in place to reduce the minimisation of dust.

#### 7.3.1 Mitigation Measures

WBL will adopt measures in this works zone to minimise the potential for dust generation. As previously mentioned in this document, the following measures will apply;

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**  
**Dust Management Plan**  
**November - 2021**

- Minimal exposure will be practiced during excavation works will take place and this be closely monitored by site personnel.
- Vehicle/plant will be restricted to a 15kph speed limit on site to ensure the minimization of dust around the leachate compound.
- WBL will ensure that vehicles/plant for haulage of potentially dusty materials or aggregate will be enclosed or covered.
- Any stockpiles or storage material during these works will be located away from the sensitive receptors and oriented to minimise the potential wider generated emissions causing by prevailing winds.
- For any plant or vehicles leaving site to access the public road L2005, it will be mandatory to use the wheel wash facility which will minimise the potential for dust build-up. Any plant leaving the Landfill Infrastructural Compound will be required to go back up to Zone 2A to use the wheelwash.



*Figure 7-2 Landfill Infrastructural Compound*

#### 7.4 Water Sources

As of June 2021, WBL were utilising the surface water lagoon as shown below in Figure 7-4. Ongoing monitoring of the water quality in the lagoon shall be undertaken, and should there be a deterioration, alternative renewable water sources shall be investigated. The water from the lagoon is used for dust suppression on site and this is critical in minimising dust generated throughout the works.

The surface water lagoon is now infilled, however measures to enable a continued draw down of water via means of a standpipe shall be utilised. Figure 7-3 below shows the standpipe installed with means of access to allow sampling and abstraction when required.



*Figure 7-3 Standpipe installed at existing surface water lagoon location*

##### 7.4.1 Existing Well

One of the options is the use of an existing well on site, this well and concrete water tank is shown below in Figure 7-4. A pump has now been fitted and this is a viable source of water to be used on site for dust suppression. The water is pumped to the stormwater concrete tank near the well and this location is accessible for the tractor and bowser to refill.



Figure 7-4 Water Sources on site

#### 7.4.2 Groundwater – South Infiltration Tunnel

WBL are exploring another option to abstract water from the south infiltration tunnel in Zone 2B. During the excavation of the drainage works in this area, groundwater was present and needed to be pumped to allow the drainage excavation works to continue. As shown in Figure 7-5 below, the location of the manholes along the drainage run are highlighted below. The location of the access track would allow the tractor with the bowser sufficient access to pump the water.

A sump is to be placed in the bottom of one of the manholes. The tractor attached with bowser can be refilled by pumping the water from this area. This water is considered clean and would be very much appropriate for the dust suppression activities around the site.



Figure 7-5 Groundwater - South Infiltration tunnel

## **8.0 MONITORING, REPORTING AND RECORDING**

### **8.1 KCC Dust Monitoring**

Dust monitoring has been undertaken routinely since June 2014, using Bergerhoff dust deposition gauges erected at eight sampling locations to 2016 and at nine sampling locations since 2016. Sampling locations are positioned in and around the site. These gauges are exposed to the ambient air for 28 days before being collected and sent to an accredited laboratory for analysis. This analysis is carried out twice per year with results showing that the site is not currently a source of nuisance from dust emissions.

As identified in 1.5.6 of Volume A1 – Works Requirements, the dust deposition levels at the site boundary shall not exceed 350 mg/m<sup>2</sup>/day over any 30 consecutive days. All dust exceedances during the works will be brought to the attention of WBL Site Manager and site personnel immediately. Wills Bros Limited will determine appropriate remedial action to reduce dust levels promptly. Additional dust monitoring points if required may be set up at the perimeter of the working area.

### **8.2 Dust Deposition Monitoring**

A dust deposition monitoring programme will be implemented at the site boundaries for the duration of the Remediation Phase in order to verify the continued compliance with relevant standards and limits.

Continual exceedances of the dust deposition levels during works on site will be treated as an environmental incident and corrected in accordance with our EOP 5 - Corrective & Preventative Actions.

KCC are responsible for the sampling in relation to the dust monitoring. WBL will receive these results from KCC once made available.

The dust monitoring locations are shown in the drawing in Appendix C. WBL will ensure that these locations will be protected during the duration of the works.

### **8.3 Visual Dust Monitoring**

Visual dust levels will be noted daily at works locations and Wills Bros Limited will take measures immediately if dust is noted emanating from the Works. Wills Bros Limited will utilise the Daily Log Sheet for Visual Dust Inspections as appended to this Plan (Appendix B).

### **8.4 Dust Reporting and Recording**

All dust monitoring reports and inspections will be maintained and made available for review at all times.

Visual dust inspection records will be made available for inspection by the Employer's Representative or any

## Wills Bros Ltd – Kerdiffstown Landfill Remediation Project

### Dust Management Plan

November - 2021

other authorised personnel at all reasonable times. All records required to be kept will be in a legible form, must be kept at the site and produced to any authorised person on request.

#### 8.5 WBL Dust Monitors

WBL installed a total of three dust monitors around the site in April 2021. These dust monitors are strategically located around the site cognisant of the works activities and the downwind of the working face. These monitors can be relocated on a weekly basis depending on conditions on the site and if wind direction changes. The monitor simultaneously measures TSP, PM10, PM2.5 and PM1 particles with a resolution of 0.1 µg/m3.

This action to install two extra dust monitors around the site is to ensure that WBL can monitor dust levels daily when works are ongoing.

Figure 8-1 below shows the dust monitor initially installed on the palisade fencing along the boundary of Zone 2A in February 2021. The dust monitor was located beside the existing jar (D4) used for the Bergerhoff method currently carried out by KCC. The dust monitor remained in place until the demolition works were complete in Zone 2A.



Figure 8-1 Dust Monitor - Zone 2A



**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**  
**Dust Management Plan**  
**November - 2021**

When demolition works were complete in Zone 2A, the monitor was moved to a location in Zone 1 beside the KCC dust monitor D2. As earthworks are underway in Zone 1 and demolition works on Zone 2B and 4, this was the preferred location of the dust monitor during these activities. Figure 8-2 below shows the location of the dust monitor near KCC dust monitor D2.



*Figure 8-2 WBL Dust Monitor beside KCC dust monitor D2*

Figure 8-3 below shows a sample of the real-time air quality data monitoring on site. This link is available to view at any time and is updated every 15 minutes.

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**

**Dust Management Plan**

**November - 2021**



Figure 8-3 Real-Time Air Quality Data Monitoring

Table 8-1 below shows the air quality standard for dust deposition, PM<sub>10</sub> and PM<sub>2.5</sub>. Although the licence limit value is 350mg/m<sup>2</sup>/day, the dust monitor we have installed measures PM<sub>10</sub> and PM<sub>2.5</sub>. The value of 50µg/m<sup>3</sup> shall not be exceeded more than 35 times/year. This figure will be monitored daily throughout the works and if the values are shown to be high, corrective action will be taken to ensure the dust limits are not exceeded.

Table 8-1 Air Quality Standards for Dust Deposition, PM<sub>10</sub> and PM<sub>2.5</sub>

Pollutant	Standard	Limit Type	Value
Dust Deposition (Non – Hazardous Dust)	TA-Luft as interpreted by DOEHLG (2004)	Average daily dust deposition at the boundary of the site	350 mg/(m <sup>2</sup> *day)
PM <sub>10</sub>	EU Directive 2008/50/EC	24-Hour limit for the protection of human health – not to be exceeded more than 35 times/year	50 µg/m <sup>3</sup>
		Annual limit for protection of human health	40 µg/m <sup>3</sup>
PM <sub>2.5</sub>	EU Directive 2008/50/EC	Annual limit value for protection of human health	25 µg/m <sup>3</sup>

**8.5.1 Relocation of WBL Dust Monitors**

The three dust monitors are to be located near the locations of the existing KCC dust monitors in April 2021. These monitors will be strategically placed and relocated, as necessary. WBL will inform KCC and RPS of the location of the dust monitors on site.

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project  
Dust Management Plan  
November - 2021**

There was an exceedance of the dust limit reported by KCC in May 2021 at dust monitor D7. WBL relocated the dust monitor to this location beside KCC dust monitor D7 to carry out monitoring of this area. This would ensure the area was closely monitored. An assessment is to be carried out daily by the WBL Environmental Engineer to ensure the dust levels are not exceeding the limits. Figure 8-5 below shows the WBL dust monitor in place and Figure 8-4 below shows the proximity to the KCC dust monitor D7.



*Figure 8-4 KCC dust monitor D7(Foreground) and WBL dust monitor (background)*



*Figure 8-5 WBL dust monitor*

### **8.6 WBL Dust Monitoring**

Dust monitoring will take place daily and a log will be kept. Within the log, the following will be recorded. Work activity in the area and dust suppression activity being undertaken at the time. WBL Environmental Engineer will closely monitor the levels of dust recorded on the real time air quality monitoring data online. If there is a rise or significant increase in dust levels, this area will be monitored immediately. An assessment of the works activities and surroundings areas will be made. Corrective action will be taken if high dust levels are recorded to ensure compliance of the dust limits.

## **9.0 COMPLAINTS**

Where there are complaints, albeit from an external source or from the ER/KCC, relating for to any dust management issue, they will be treated by Wills Bros Ltd in a constructive and cooperative manner. The specific procedures will include (but not be limited to):

- Inspection of the location from which the complaint originated.
- Comparison of the measured levels with limiting criteria.
- Identification of engineering control or management procedure (if appropriate) to be adopted to reduce the levels at the complainant location

Each complaint will be thoroughly investigated, and appropriate remedial action carried out promptly. WBL will notify the ER and KCC of any complaints.

Where corrective measures have been taken, the complainant will be updated by Wills Bros Limited of the corrective action implemented.

## **10.0 RECORDS**

All records and documents associated with monitoring of the Works will be retained by Wills Bros Limited. On completion of the Works, Wills Bros Limited will issue all this information to the Employer and Employer's Representative in electronic format.

Information retained will include:

- All monitoring data collected, including data files, and calculations used in processing the data
- Maintenance schedules and records for the maintenance of the instrumentation and the monitoring system including calibration certificates.
- Records of systems checks and testing, and commissioning carried out.

## **11.0 REFERENCES**

- Volume A Works Requirements, Book A1 Part 1 Specification
- Contract Drawing: DG0109-01 & DG0109-02
- P1063-01 Industrial Emissions Licence
- BRE Control of Dust from Construction and Demolition Activities

# **APPENDIX A**

## **CONSTRUCTION DUST MANAGEMENT INDUCTION**

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**

**Dust Management Plan**

November - 2021

**Dust and Air Quality Induction**

Dust can cause nuisance and health risks at very high concentrations

- **Avoid nuisance:** Dust can settle on neighbours' properties and give rise to local dispute.
- **Avoid health problems:** Dust may cause eye irritation, respiratory difficulties or make existing respiratory ailments such as asthma worse.

**DO**

- ✓ Keep surfaces swept and damp down with water at regular intervals
- ✓ Minimise drop heights into haulage vehicles
- ✓ Ensure cutting and grinding operations are adequately wetted
- ✓ Position stockpiles away from residential areas or watercourses
- ✓ Clean up or damp down any spillage of dry dusty materials
- ✓ Notify the Project Manager or EHS Officer if work activities are causing poor air quality

**DONT**

- ✗ Don't ignore complaints and these should be immediately notified to the WBL Site Manager

# **APPENDIX B**

## **DAILY LOG SHEET FOR VISUAL ASSESSMENT**

## Dust Monitoring Record

WB.IMS.IP041.FM016



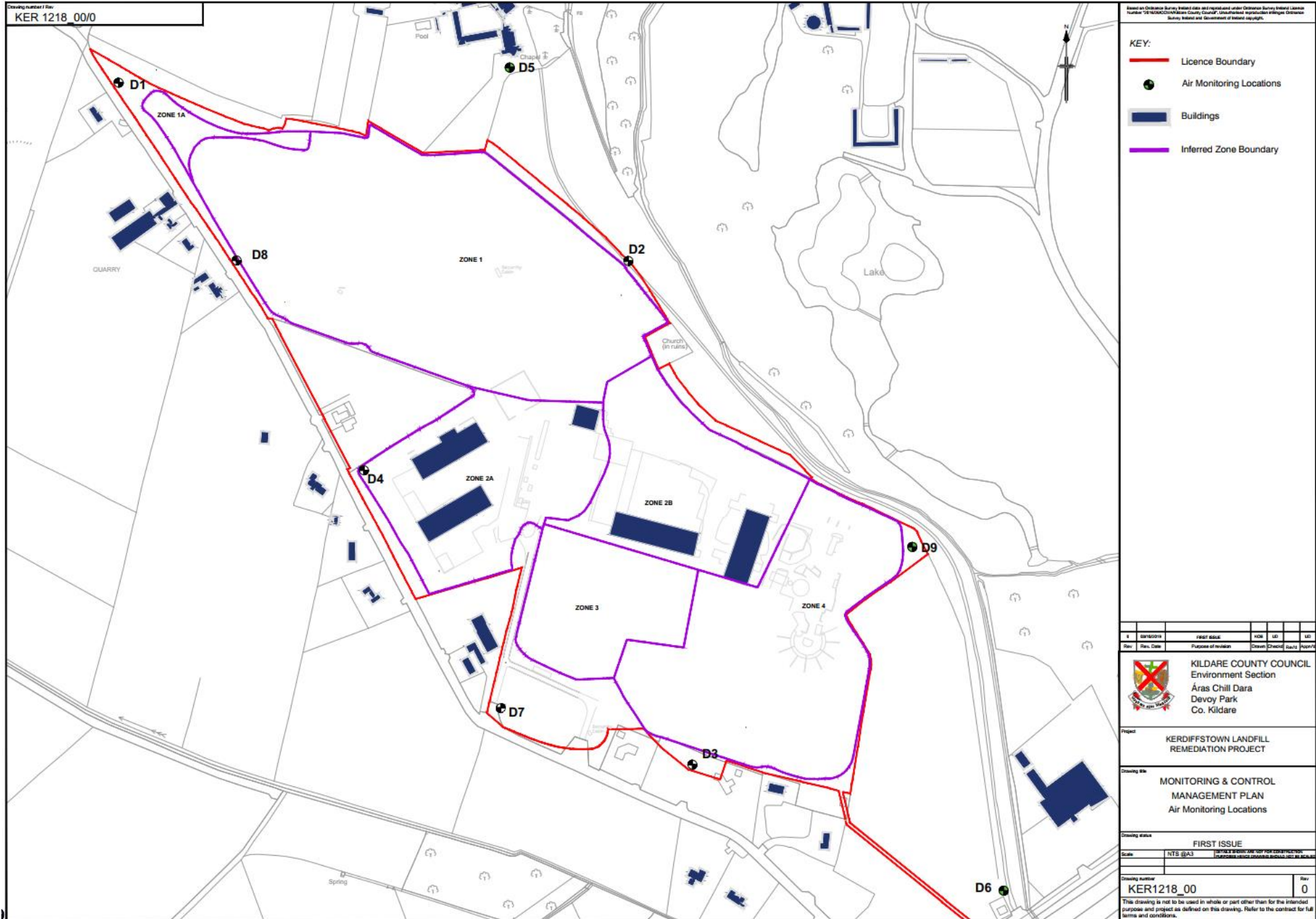
<b>PROJECT TITLE</b>				<b>PROJECT NUMBER</b>			
<b>SAMPLE TESTING LABORATORY</b>							
<b>REASON FOR MONITORING</b>				<b>MONITORING PARAMETERS</b>			
<b>MONITORING BY:</b>				<b>EQUIPMENT USED</b>			
<b>LOCATION</b>	<b>PHOTO</b>	<b>SAMPLE REFERENCE</b>	<b>START DATE</b>	<b>END DATE</b>	<b>DURATION (DAYS)</b>		
<b>PHOTOS / SKETCHES (IF USEFUL FOR REFERENCE).</b>							



# **APPENDIX C**

## **DUST MONITORING LOCATIONS**

**Wills Bros Ltd – Kerdiffstown Landfill Remediation Project**  
**Dust Management Plan**  
**November - 2021**



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- KEY:**
- Licence Boundary
  - Air Monitoring Locations
  - Buildings
  - Inferred Zone Boundary

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Appr'd
1	08/10/2019	FIRST ISSUE			

 **KILDARE COUNTY COUNCIL**  
 Environment Section  
 Áras Chill Dara  
 Devoy Park  
 Co. Kildare

Project: **KERDIFFSTOWN LANDFILL REMEDIATION PROJECT**

Drawing title: **MONITORING & CONTROL MANAGEMENT PLAN  
 Air Monitoring Locations**

Drawing status: **FIRST ISSUE**  
 Scale: **NTS @A3**

Drawing number: **KER1218\_00** Rev: **0**  
 This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.