

Caulmert Limited

Engineering, Environmental & Planning
Consultancy Services

Pwllfawatkins Landfill Site

FCC Waste Services (UK) Limited

Environmental Permit Variation Application

Amenity & Accidents Risk Assessment

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Amenity & Accidents Risk Assessment

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4962-CAU-XX-XX-DR-V-1801 Sensitive Receptors Plan

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1.0 INTRODUCTION

1.1 Overview

- 1.1.1 FCC Waste Services (UK) Limited propose to submit an Environmental Permit Variation Application to vary the existing Permit ref. EPR/BU8819IV to include waste recovery activities (R5) for the revised restoration scheme at Pwllfawatkin Landfill Site, near Swansea. The waste recovery operation will utilise waste materials to complete the revised restoration scheme profile of the site, in accordance with planning consent ref. P2021/1277 and will be undertaken in phases. The aim is to complete the revised restored landform by October 2023, and to undertake restoration of the site surface into grassland and woodland habitats in the two years following.
- 1.1.2 This report is an Amenity and Accidents Risk Assessment (ARA) for the proposed waste recovery operation. FCC Waste Services (UK) Limited ('the client') have appointed Caulmert Limited to prepare this report as part of the wider environmental permit variation application for the proposed activities at the site. This report is an assessment of the potential impact the activities associated with the waste recovery activities on site could have on local sensitive receptors.
- 1.1.3 This risk assessment has been compiled in accordance with the current GOV.UK guidance on 'Risk assessments for your environmental permit' (last updated 31st August 2022).

2.0 SITE BACKGROUND

2.1 Site Location

- 2.1.1 Pwllfawatkin Landfill Site is located approximately 5km north of Pontardawe, Swansea, at National Grid Reference SN 269817, 208799 and postcode SA8 4RX. The site is operated by FCC Waste Services (UK) Limited, regulated under Environmental Permit ref. EPR/BU8819IV.
- 2.1.2 The site is situated within the Upper Clydach Valley amongst predominantly agricultural land and woodland and is approximately 350m to the west of Pontardawe Road (A474). The Upper Clydach River runs along the eastern boundary of the site and Bryn Mawr, a summit standing at 351m above sea level, is located 500m to the west.
- 2.1.3 The site location is shown in Figure 1 below. There are very few residential properties situated within close proximity to the site, with the nearest, Nant y Gafalau, located approximately 240m to the west, and three residential properties on the eastern side of the A474 located approximately 340m to the east of the site boundary.

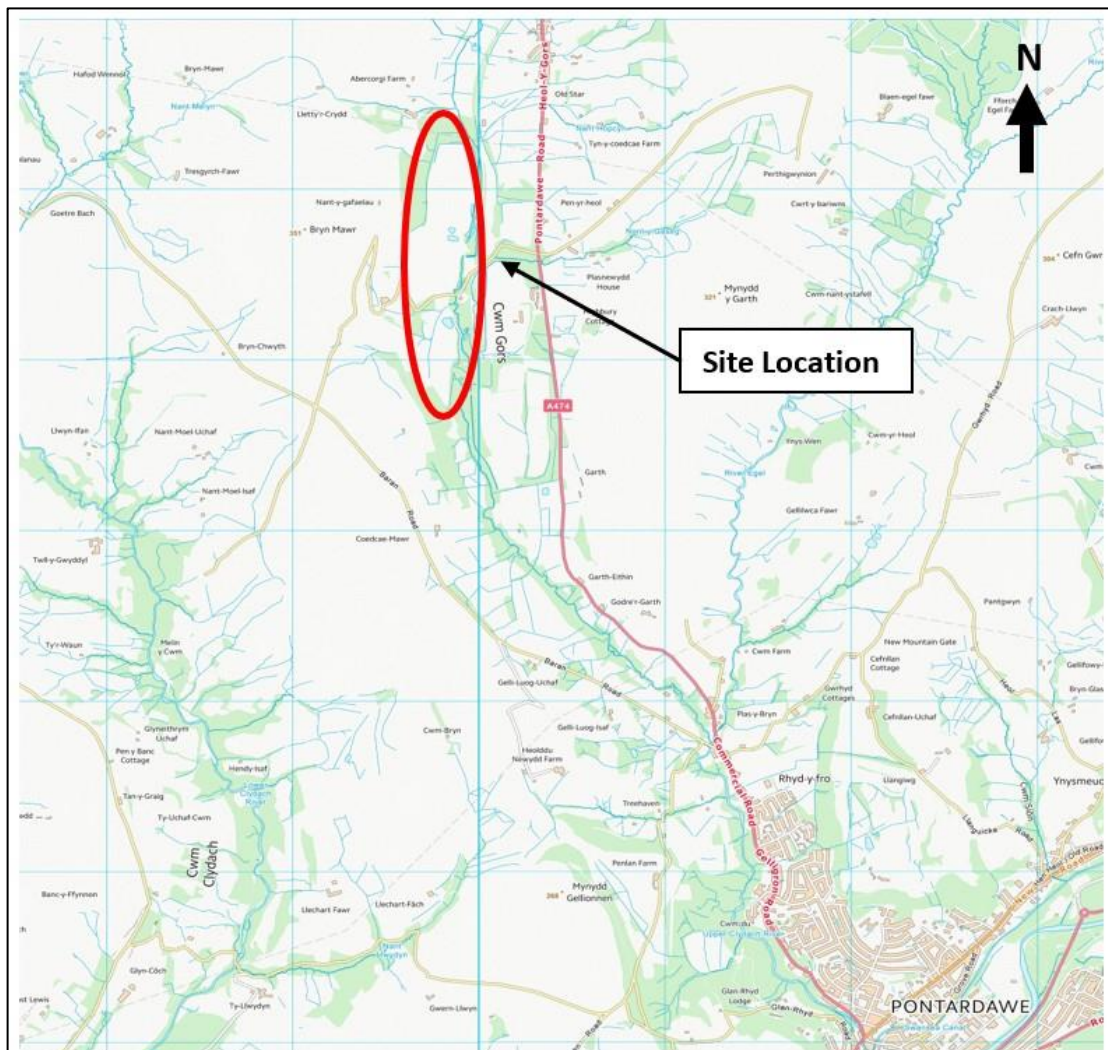


Figure 1 – Site Location

2.2 Site Setting

- 2.2.1 Pwllfawtkin Landfill Site as a whole is composed of 3 former coal spoil tips of the former Abernant Colliery, which is the majority of the operator's landholding at the site. Two of these tips, 891 and 890 are located to the north of Baran Road, and the third tip, Tip 871, is located to the south of Baran Road. Of these, Tip 890 is still accepting non-hazardous waste, and Tip 871, where necessary, is used as a source of engineering material for Tip 890. Tip 891 has been restored for some time now.
- 2.2.2 Tip 890 is the active landfill area for non-hazardous waste at the site. The permit for the site also includes directly associated activities including the burning of landfill gas from the site for electricity generation and landfill gas flaring. The active landfill site is currently divided into Phases 1-4 which, in turn, are divided into numerous sub-cells, for example the cells within Phase 1 are Cell 1A, 1B Lower, 1B Upper, 1C, 2A, 2B Lower, 3A, 3B Lower, 3B Upper and Cell 4.

2.3 Proposed Operations

- 2.3.1 The Operator wishes to include waste recovery activities (R5) in the permit to use suitable waste materials to complete the revised restoration profile of Tip 890 in line with their planning consent ref. P2021/1277. In addition to using suitable waste types already listed in the environmental permit for the site ref. EPR/BU8819IV, it is proposed to add two additional waste codes 19 12 09 (non-hazardous minerals) and 19 02 06 (non-hazardous sludges) for use in the waste recovery operation as part of this permit variation. The full list of waste types proposed to be used in the restoration activities is presented in Table 4 of the Waste Recovery Plan (WRP) document ref. 4962-CAU-XX-XX-RP-V-0303, included within this application.
- 2.3.2 The previous planning consent allowed for five containment cells to be constructed across Tip 890, however under the revised restoration scheme, the operator will reduce the number of cells to four and include a sidewall extension to Cell 4 instead. The footprint of Cell 5 will instead be graded to tie into surrounding levels with remaining in situ materials and soils.
- 2.3.3 The revised restoration scheme (ref. P2021/1277), when compared to the previously consented scheme (ref. P2002/1016) will incorporate the following:
- Revised restoration contours (covering a reduced area than previously consented) to complete the restoration of Tip 890 by constructing a sidewall extension to the operational Cell 4 and not developing the previously consented Cell 5;
 - Localised re-profiling of Cells 3 and 4 (the cap will temporarily be stripped back with non-hazardous waste deposited to achieve consented levels, to account for settlement that has occurred with shortfalls of up to 2m in places);
 - A reduction in void space from that previously consented;
 - An amended surface water management scheme to account for the revised restoration profile (the current scheme relies on a gravity drainage system and ditch collection system, feeding attenuation and settlement ponds before discharge to the Upper Clydach River. The area of land to be drained is not increasing and so surface water management will not alter significantly from the current scheme);

- An amended phasing scheme; and,
- An amended scheme of landscaping.

2.3.4 The proposed restoration profile enables a domed shaped profile meeting the minimum requirements for slope gradients on landfills and allows surface water to be naturally shed off the capping system under gravity into the surrounding surface water ditches, as opposed to an alternative flatter profile which was considered and rejected. The modified profile will facilitate the safe early closure of Tip 890 of the landfill and will provide a continued disposal resource for the local area in the meantime, eventually restoring the site to a beneficial after-use, with enhanced landscaping and biodiversity.

2.3.5 The aim is to complete the final restoration profile by October 2023 and to undertake the restoration of the site surface into woodland, grassland and scrubland habitats in the two years following.

3.0 SENSITIVE RECEPTORS

3.1 Overview

- 3.1.1 A search of sensitive receptors within a 1km radius of the activity boundary at Tip 890 of Pwllfawatkin Landfill Site was conducted using the DEFRA Magic Maps¹ website and other publicly available information sources, and the receptors are identified below in Table 1, and shown on attached drawing ref. 4962-CAU-XX-XX-DR-V-1801.
- 3.1.2 The site is situated amongst predominantly agricultural land and woodland and is approximately 350m to the west of Pontardawe Road (A474). The Upper Clydach River runs along the eastern boundary of the site and Bryn Mawr, a summit standing at 351m above sea level, is located 500m to the west.
- 3.1.3 Access to the landfill site is off the A474 to the west of the site along an unnamed road. The A474 runs north to south and connects Pontardawe and the more urbanised Swansea Valley to the south, and the more rural Ammanford in Carmarthenshire to the north.
- 3.1.4 There are very few residential properties situated within close proximity to the site, with the nearest, Nant y Gafaelau, located approximately 240m to the west, and three residential properties on the eastern side of the A474 located approximately 340m to the east of the site boundary. The area of Tip 890 is located immediately to the north of Baran Road, in the central portion of the site.
- 3.1.5 The underlying bedrock geology of the site comprises predominantly of mudstone, siltstone and sandstone of the Lynfi Member and sandstone of the Rhondda Member, both formed in the Carboniferous Period, interbedded with coal seams. The superficial deposits that lie on top of the bedrock consist largely of clay, silt, sands and gravels from Glacial Till and Alluvium deposits.
- 3.1.6 The bedrock below the site is classed as a Secondary A Aquifer, defined by Defra as 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classed as minor aquifers'. There are no Source Protection Zones (SPZs) within 2km of the site.
- 3.1.7 There are no Sites of Special Scientific Interest (SSSIs) within 1km of the site. The closest is Haffod Wennol Grasslands SSSI is located 1.7km to the northwest of the site.
- 3.1.8 Except for the SSSI mentioned above, there are no designated or sensitive habitats within 2km of the site, including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar (wetland) sites, Local Nature Reserves (LNR), Ancient Woodlands, National Nature Reserves (NNR), Areas of Outstanding Natural Beauty (AONBs), Scheduled Monuments, Listed Buildings or other Protected Habitats or Species.

¹ DEFRA Magic Maps website, 2022: <https://magic.defra.gov.uk/MagicMap.aspx>

3.2 Identified Receptors

3.2.1 A review of nearby sensitive receptors within 1km of the area of Tip 890 are shown on drawing ref. 4962-CAU-XX-XX-DR-V-1801 and summarised in Table 1 below:

Table 1 – Sensitive Receptors within 1km of the site

Receptor	Receptor Type	Distance & Direction
Bedrock – Secondary A Aquifer	Groundwater	0m below site
Field drains	Surface Water	<10m SE, 125m NW
Minor Road (site access)	Public Road	<10m E
Broadleaved Deciduous Woodland	Habitat	20m W, 50m SE, 125m E, 200m N
Upper Clydach River	Surface Water	40m E
Agricultural Land	Agricultural	165m E, 390m N,
Baran Road	Public Road	180m SE
Nant-y-Gafaelau	Residential	240m W
Pontardawe Road (A474)	Public Road	350m E
Unnamed Road	Public Road	350m N
Three Residential Properties	Residential	360m E
Nant Melyn Stream	Surface Water	380m N
Old Star	Residential	500m NE
Abercorgi Farm	Residential	555m NW
Plasnewydd House	Residential	555m ESE
Abernant Centre for Enterprise	Commercial	570m SE
Cwym Gors residential area	Residential	600m NE
Tyn-y-coedcae Farm	Residential	620m NE
Highbury Cottage	Residential	630m SE
Pen-yr-heol	Residential	740m E
Nant Hopcyn	Residential	750m NE
Letty'r-Crydd	Residential	830m NW

3.2.2 The site is located within a PM10 Air Quality Management Area (AQMA) only. The site is not located within any other AQMAs.

3.2.3 The site is in an area at Very Low Risk of Flooding from Rivers and the Sea, and only Low Risk of flooding from Surface Water and Small Watercourses.

3.3 Meteorological Setting

3.3.1 Fugitive emissions of dust, litter, odour, visible plumes, mud, debris and noise from the site are likely to be affected by local weather conditions, in particular by wind direction and rainfall.

3.3.2 Wind statistics observed from Neath weather station (located approximately 12 km southeast from site) is considered to be representative of the typical weather conditions of the site. A review of the data recorded daily between 2012 and 2022 on the Windfinder.com website indicates that the most dominant wind direction is from the south-southwest, as shown below in Figure 2:

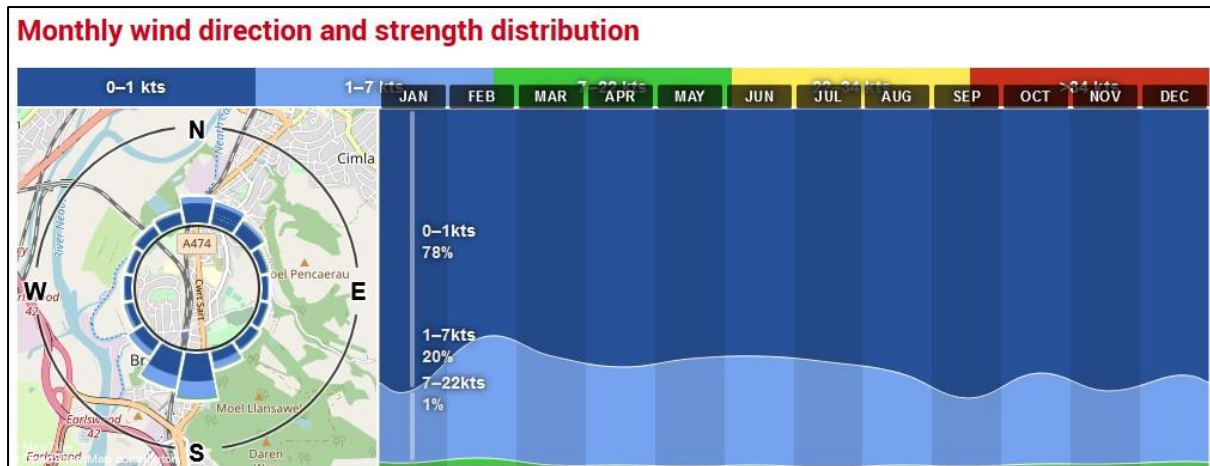


Figure 2 – Neath weather station – average annual wind direction & strength 2012-2022

3.3.3 A review of the sensitive receptors in Table 1 indicates that prevailing wind conditions for most of the year are likely to be towards Cwym Gors residential area, woodland and agricultural land to the north of the site. However, the closest residential property is located over 500m to the northeast of the site and unlikely to be affected by emissions from the site.

4.0 RISK ASSESSMENTS

4.1 Overview

4.1.1 Risk assessment tables have been completed for odour, noise and vibration, fugitive emissions (dust, litter, mud and debris, pests, surface water run-off), visible plumes, release of bioaerosols and accidents in line with the GOV.UK guidance on 'Risk assessments for your environmental permit' (updated 31st August 2022).

4.2 Assessments for the Proposed Operations

4.2.1 Possible hazards as a result of operations at the site that require risk assessment include:

- Sources of Odour (Table 2);
- Sources of Noise and Vibration (Table 3);
- Fugitive emissions (dust, litter, mud and debris, pests, surface water run-off) (Table 4);
- Visible emissions (smoke or visible plumes) (Table 5);
- Release of Bioaerosols (biofilter point source releases) (Table 6);
- Accidents (leaks and spillages, and fire) (Table 7).

4.2.2 The hazards identified above may have the potential to escape beyond the site boundary and cause an amenity nuisance to sensitive receptors or harm the environment and human health. For each possible hazard, an assessment of the risk that it poses to potential sensitive receptors has been carried out, taking into account the control measures that will be in place.

4.2.3 The following Tables 2 to 7 give further detail on each hazard source, pathway and sensitive receptor, the risk management measures to be implemented, probability of exposure, consequences of exposure and an overall risk rating from Low (little or no risk) to High (high risk) once all risk management measures have been taken into account.

Table 2 – Odour Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Control Measures	Probability of Exposure	Consequence of Exposure	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do you wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains?
ODOUR						
Odours from imported wastes (delivery / stockpiles / transfer).	Human population in local farms & residences downwind (Old Star & Cwym Gors, residences). Workers at nearby businesses in Abernant Enterprise workshops. Users of public and domestic roads and	Through air.	Due to the nature of the waste types to be accepted at the site, they are very unlikely to generate odours. Waste acceptance procedures at the site will prevent odorous wastes being accepted – only wastes types listed in the permit will be accepted which are inherently not odorous, nor unlikely to contain biodegradable or putrescible materials that could release odours. Daily site inspections will include checks to assess that odours from site operations are not excessive beyond the site boundary. In the unlikely event any non-conforming wastes are discovered in a waste load after checking and depositing at the site, the following will be done: • The load will either be immediately reloaded onto the delivery vehicle and rejected from site;	Unlikely – nearest residences downwind are over 500m to northeast. Waste accepted unlikely to be source of odour. Odour is transient in nature which means any odour will dissipate with distance and wind movement outside.	Amenity nuisance/disturbance to local people.	Low Risk – if control measures implemented.

	footpaths nearby.		<ul style="list-style-type: none">• Or the load will be temporarily stored in a quarantine holding area. The quarantine area will be outside and well ventilated. The quarantined waste will be removed from site as soon as possible.			
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Table 3 - Noise and Vibration Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Control Measures	Probability of Exposure	Consequence of Exposure	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do you wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains?
NOISE & VIBRATION						
Noise and vibration from movement of vehicles and plant as part of restoration activities.	Human population in local farms and residences (closest to site is Nant-y-Gafaelau 240m west). Users of public and domestic roads and footpaths nearby. Disturbance to wildlife in	Through air and ground.	Noise and vibration from vehicles and plant on site delivering, offloading and transferring materials around site will only occur within normal operational hours. There will be no changes to the background noises already experienced at the landfill site due to ongoing operations. Daily site inspections will include checks to assess that noise and vibration from site operations are not excessive beyond the site boundary. Drop heights when unloading and moving materials will be minimised to reduce the potential for generating noise and vibration emissions. Delivery drivers will be informed of these requirements upon entering site. Site vehicle engines will be turned off when idle and excessive revving will be discouraged.	Unlikely – operations at the site will not generate noise and vibration emissions above that already being experienced from existing operations at the site, during the same operational hours.	Amenity nuisance / disturbance to local people, residents workers in nearby commercial premises, users of local footpaths. Disturbance of wildlife in local habitats.	Low Risk – if control measures implemented.

	<p>surrounding habitats.</p>		<p>Vehicles will be fitted with silencers and no reversing beepers shall be fixed to or used on any vehicle operating on site, except white noise type reversing alarms.</p> <p>Site speed limits will be enforced to reduce noise from vehicles.</p> <p>Site surfacing and roads will be maintained, and potholes will be filled and inspected to ensure the road surfaces are kept in good condition to reduce noise and vibration from the rolling and shaking of the vehicle upon impact with the potholes.</p> <p>Plant and machinery will be serviced regularly and maintained in accordance with manufacturer’s specifications in order to ensure noises potentially caused by damaged or poorly maintained equipment are kept to a minimum i.e. engines running smoothly, moving parts kept lubricated to reduce rattling or rubbing sounds etc.</p> <p>All site vehicles will be maintained in accordance with manufacturers recommendations and where possible fitted with silencers or use of broadband type noise reverse alarms (non-beeper type).</p>			
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Table 4 - Fugitive Emissions Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Control Measures	Probability of Exposure	Consequence of Exposure	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do you wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains?
DUST						
Dust from delivery of waste materials to site.	Human population in nearby residential premises – closest to site is Nant-y-Gafaelau 240m west, closest residences to site that are downwind are 500m to northeast. Workers in nearby commercial and industrial premises. Users of local public roads.	Through air and via site vehicle tyres onto public roads.	Waste vehicles will arrive at site with covered loads to prevent potential dust emissions. Excessively dusty waste loads will be rejected. Any non-conforming extremely dusty loads discovered after unloading at the site will be wetted immediately to reduce dust emissions and reloaded onto the delivery vehicle. If this is not possible the waste will be stockpiled and wetted or covered in a quarantine area, ready for removal from site as soon as possible. Daily site inspections by trained site staff to detect dusty conditions or dust-inducing weather conditions (dry, warm or windy). Site roads will be assessed for potential to cause dust emissions and if needed site roads will be wetted using clean water as appropriate or cleaned by a road sweeper.	Unlikely - due to strict waste acceptance procedures. Residential receptors that are downwind are located over 500m to northeast. Closest residential receptor to site is 240m to the west but is not often downwind.	Amenity nuisance to local people – residents, users of public roads and footpaths and workers at nearby businesses. Damage to flora and fauna (particularly dust coating leaves) in local habitats.	Low Risk – if control measures implemented.

	Local habitats and wildlife.		<p>Site vehicles will use the wheel wash facility upon leaving the site to prevent waste debris or dust-causing deposits from building up on public roads adjoining the site.</p> <p>Any accidental spillages of waste on the site roads will be cleaned up immediately or temporarily dampened down / covered if particularly dry, prior to clean up.</p> <p>Site traffic will adhere to low site speed limits to reduce kick-up of dust.</p> <p>Drop heights are to be minimised when loading and unloading materials.</p> <p>There are no additional vehicle movements proposed as part of the variation.</p> <p>A Dust Management Plan is included as part of this permit application as document ref. 4962-CAU-XX-XX-RP-V-0306.</p>			
<p>Dust from restoration activities – plant and vehicles moving wastes, soils and overburden around site.</p> <p>Dust from windblown action across stockpiles.</p>	<p>Human population in local farms and residences, particularly downwind.</p> <p>Users of public and domestic roads and footpaths nearby.</p>	Through air.	<p>Visual dust monitoring will be carried out as part of the daily site inspections and staff will notify site management immediately if dust emissions are detected.</p> <p>Drop heights are to be minimised when loading and unloading materials.</p> <p>Weather conditions should be taken into consideration throughout the day by site management to ensure precautions are taken to prevent dust</p>	<p>Moderately likely – vehicles moving across unsurfaced areas of site may produce dust. Closest residence, Nant-y-Gafaelau located 240m to</p>	<p>Amenity nuisance – to local people, dust on cars, clothing, buildings.</p> <p>Smothering of nearby flora and fauna wildlife.</p>	<p>Low Risk – if control measures implemented.</p>

	Smothering of nearby flora and fauna wildlife.		<p>emissions, particularly in dry, warm and windy weather i.e. dust suppression sprays and wetting haul roads, particularly if unsurfaced roads, and wetting or covering stockpiles.</p> <p>Speed limits shall be enforced around the site on haul roads to reduce kick-up of dust by vehicles, particularly on unsurfaced roads / areas.</p> <p>Good housekeeping and cleaning regimes should be undertaken, paying particular attention to site surfacing and haul roads to minimise build up mud, sediment and debris that could generate dust if disturbed.</p> <p>Stock piling and moving materials around site should be undertaken in such a manner as to minimise wind-borne dust emissions e.g. stored or moved in sheltered areas and with consideration for wind direction, and dry surfaces wetted prior to disturbing if dust likely to be generated.</p> <p>A Dust Management Plan is included as part of this permit application as document ref. 4962-CAU-XX-XX-RP-V-0306.</p>	the west, is not often downwind of the site. Residential receptors downwind are located over 500m to northeast and considered at a sufficient distance away from site to not be significantly affected by dust emissions.		
MUD/LITTER						
Mud and debris tracked off-site onto public highway by waste delivery vehicles.	Users of public roads nearby.	Via delivery vehicle tyres onto public roads.	Daily site inspections by trained site staff to assess site roads potential to mud and debris emissions and if needed site roads will be cleaned by a road sweeper.	Moderately likely – potential for mud and debris to be tracked from	Amenity nuisance to local people – users of public roads.	Low Risk – if control measures implemented.

			<p>Site vehicles will use the wheel wash facility upon leaving the site to prevent waste debris or mud deposits from leaving the site and accumulating on public roads adjoining the site.</p> <p>Drivers of vehicles entering the site will be trained in checking their vehicle for build-up of mud and debris and to take measures to reduce this.</p> <p>A road sweeper will be employed to clean adjacent public roads around site if this is identified as a problem.</p> <p>Any accidental spillages of waste on the site roads will be cleaned up immediately or temporarily fenced off prior to clean up to prevent site vehicles tracking debris off-site.</p>	<p>unsurfaced area on site onto surfaced haul road and off-site onto public roads. However, vehicles leaving site and external roads will be monitored and cleaned.</p>		
<p>Litter from wastes delivered to site.</p>	<p>Workers and visitors to site</p> <p>Nearby residential receptors.</p>	<p>Windblown or tracked around off-site via site vehicle tyres onto roads.</p>	<p>Strict waste acceptance procedures at site will prevent non-conforming wastes entering site, and they will be rejected if discovered. The nature of waste types means they will be very unlikely to contain litter.</p> <p>Any accidental spillages of waste on the site roads will be cleaned up immediately or temporarily fenced off prior to clean up to prevent site vehicles tracking litter around site or wind blowing it.</p> <p>Trained site staff will conduct daily inspections of site, including roads and boundary fences to assess any litter problems.</p>	<p>Unlikely – strict waste acceptance procedures will ensure only permitted waste types are accepted which are inherently litter-free.</p>	<p>Amenity nuisance to local people – users of public roads and footpaths and workers at nearby businesses.</p> <p>Pollution of local sensitive habitats.</p>	<p>Low Risk – if control measures implemented.</p>

			If litter is detected, litter picking will be carried out, priority given to any litter outside permit boundary and the incident reported to the site manager.			
PESTS						
Rodents / pests / flies / scavenging birds	<p>Human population in local farms and residences.</p> <p>Users of public and domestic roads and footpaths nearby.</p> <p>Workers in nearby commercial and industrial premises.</p> <p>Local habitats and wildlife.</p>	Over ground, by air and via watercourses.	<p>Due to the nature of the waste materials to be used, they will not be contaminated or contain putrescible or biodegradable fractions, therefore pests will be unlikely to be attracted.</p> <p>Strict waste acceptance procedures at the site will ensure that non-conforming wastes will be rejected at the weighbridge and not be accepted at site.</p> <p>Daily site inspections by trained site staff or third-party pest controller will monitor for the presence of rats/pests on site and good housekeeping with regular sweeping and clearing of waste areas is encouraged.</p> <p>Actions in the event of rodents/pests being detected at the site: The incident must be reported to the site manager, a record must be made of the incident and the actions taken, waste acceptance and storage procedures should be reviewed and a specialist pest control contractor will visit site regularly and on an ad hoc basis to manage or prevent reinfestation.</p>	Unlikely - due to the nature of the waste to be used.	General nuisance and health risk from rats being vectors for human pathogens (e.g. Weil's Disease).	Low Risk – if control measures implemented.

CONTAMINATED RUN-OFF						
<p>Contaminated run-off from site surfacing directly into surface water.</p>	<p>Surface water courses – Upper Clydach River 40m east of site.</p> <p>Field drains/issues in adjacent fields.</p> <p>Nant Melyn stream 380m north of site.</p>	<p>Site surface water drainage system.</p>	<p>Surface water run-off from untreated site surfaces during restoration operations will flow into the existing surface water collection ditches and settlement lagoons on site to allow suspended solids to settle out prior to discharge from site via culverts.</p> <p>Strict waste acceptance procedures at the site will ensure that non-conforming wastes will be rejected and not be accepted at site.</p> <p>Trained site staff will conduct daily inspections of site which will include inspecting drains for blockages and checking drainage system and) working correctly. Any flooding or drain blockages will be reported to site management.</p> <p>(Accidental spillages are dealt with below).</p>	<p>Unlikely - due to surface water run-off from site surfaces directed into existing settlement lagoons, preventing entrained solids leaving site into local watercourses.</p>	<p>Pollution risk of suspended solids and contaminants leaving site surfaces and entering natural watercourses or sensitive habitats.</p>	<p>Low Risk – if control measures implemented.</p>
<p>Contaminated run-off percolating down through ground</p>	<p>Groundwater and local surface waters – groundwater below site within Secondary A Aquifer (bedrock).</p>	<p>Through site surface/ground</p>	<p>Any surface water collecting at the surface will be directed to existing surface water ditches and settlement lagoons on site. The nature of the wastes to be accepted at the site under this variation will have negligible leaching potential, therefore a negligible risk of impact to groundwater.</p> <p>Strict waste acceptance procedures at the site will ensure that non-conforming wastes will be rejected and not be accepted at site. This will</p>	<p>Unlikely - surface water run-off from site surfaces directed into existing settlement lagoons and ditches.</p>	<p>Pollution risk of contaminants leaving site surfaces and entering groundwater.</p>	<p>Low Risk – if control measures implemented.</p>

			<p>ensure only permitted materials are used.</p> <p>Trained site staff will conduct daily inspections of site which will include inspecting drains for blockages and checking drainage system are working correctly. Any flooding or drain blockages will be reported to site management.</p> <p>(Accidental spillages are dealt with below).</p>			
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Table 5 - Visible Emissions Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Control Measures	Probability of Exposure	Consequence of Exposure	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do you wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains?
VISIBLE PLUMES						
<p>Potential visible plumes from dust generated by restoration activities.</p> <p>Dust plumes from vehicle movements on site roads and from movement of waste materials.</p>	<p>Local human population. Users of local public roads. Workers in nearby commercial and industrial premises. Local sensitive habitats.</p>	<p>Through air.</p>	<p>There is the potential for dust plumes to be generated by the movement of site traffic on haul roads and the transfer across site of soils , particularly on dry, warm and windy days.</p> <p>All activities on site will be monitored by site staff to identify weather conditions likely to cause dust plumes and to take preventative measures, which include dust suppression (wetting site surfaces, stockpiles, haul roads, waste loads) and enforcing site speed limits and reducing drop heights of materials.</p> <p>A Dust Management Plan is included as part of this permit application, document ref. 4962-CAU-XX-XX-RP-V-0306.</p>	<p>Moderately likely - if site traffic busy, particularly in dry, warm and windy conditions.</p>	<p>Dust on buildings and loss of visibility on roads.</p> <p>Smothering of flora and fauna wildlife.</p> <p>Suspended loads settling into watercourses from dust plumes.</p>	<p>Low Risk – if control measures implemented.</p>

Table 6 - Release of Bioaerosols Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Control Measures	Probability of Exposure	Consequence of Exposure	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do you wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains?
BIOAEROSOLS						
Bioaerosols from waste materials.	N/A	N/A	Not applicable - bioaerosols are not considered a risk as part of the proposed restoration operations. Strict waste acceptance procedures will ensure only permitted waste types will be accepted at site. Bioaerosols are not considered further in this risk assessment.	N/A	N/A	N/A

Table 7 – Accidents Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Control Measures	Probability of Exposure	Consequence of Exposure	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do you wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains?
ACCIDENTAL SPILLAGES						
Spillage or leak of fuel or other hazardous liquids from delivery vehicles and plant on site.	Underlying ground, groundwater, and surface water.	Through site surface / ground or over land.	<p>Fuels and oils associated with vehicles delivering waste materials to site, vehicles moving around site and stationary plant could potentially leak or spill fuel or oils during use.</p> <p>Vehicles and plant regularly serviced and maintained to manufacturers specifications to ensure no leaks or spillages.</p> <p>All plant, vehicles and machinery will be inspected regularly for leaks.</p> <p>Refuelling will be undertaken in a designated refuelling area provided with impermeable surfacing.</p> <p>Pollution incident response plans (as part of company management</p>	<p>Unlikely - very unlikely that any accidental spills or leaks of fuels/oils (small in size) would reach water courses or groundwater.</p>	<p>Pollution to ground below site, groundwaters and potentially surface waters. May affect wildlife and habitats linked to surface water.</p>	<p>Low Risk – if control measures implemented.</p>

			<p>system) will be followed and spill kits available on site should there be any leaks or spillages – incident recorded in the site diary and any spill kits replaced.</p> <p>Regular inspections to check for integrity of site surfacing and correct storage of any hazardous liquids e.g. fuel for mobile plant.</p> <p>All staff involved in waste handling will be inducted in the emergency procedures regarding the handling of spills.</p> <p>No direct source of hazardous liquids from waste materials.</p> <p>All plant and machinery used on site will be subject to a Planned Preventative Maintenance system as per company policy, to ensure leaks and spills of fuel/oils is minimised and prevented at the outset.</p>			
Spillages of hazardous substances stored on site – fuels and oils for mobile plant	Underlying ground, groundwater and surface waters.	Through ground or over land.	<p>Oil storage tanks shall be sited on impervious bases surrounded by oil tight bund walls, capable of containing 110% of the tank’s volume.</p> <p>An emergency spill plan should be followed in the event of a spillage</p>	Unlikely - that any accidental spills or leaks of fuels/oils would reach water courses or groundwater, as storage tanks fully banded.	Pollution to ground below and nearby surface waters	Low Risk – if control measures implemented.

			<p>or leak and staff should be fully inducted in the correct procedures. Spill kits on site should there be any leaks or spillages – incident recorded in the site diary and any spill kits are replaced</p> <p>Regular inspections to check for integrity of site surfacing and correct storage of any hazardous liquids e.g. fuel for mobile plant.</p>			
FLOODING						
<p>Flooding</p>	<p>Surface water – Upper Clydach River, Nant Melyn stream, connected field drains.</p>	<p>Over land run-off.</p>	<p>Site is located in a ‘very low risk’ flood risk area from rivers and the Sea. This means that each year this area has a chance of flooding of less than 0.1%.</p> <p>Waste materials to be accepted at site not likely to pollute water if caught in flood waters, as they will not be contaminated and have negligible leaching potential.</p>	<p>Unlikely - not in a flood risk area.</p>	<p>Contamination of local watercourses – Upper Clydach River.</p>	<p>Low Risk – if control measures implemented.</p>
FIRE/VANDALISM						
<p>Fire of vehicles, plant and buildings (site offices etc.) on site (waste materials not combustible)</p>	<p>Surface water (Upper Clydach River) in receipt of fire water.</p> <p>Humans working on landfill site.</p>	<p>Air transport of smoke, ash and vapours.</p>	<p>Fires could occur as a result of arson, self-combustion or from sources of ignition – likely vehicles, plant or temporary buildings.</p> <p>Restoration materials to be used are inherently not likely to burn.</p>	<p>Unlikely – all plant regularly maintained and checked. All site staff trained in dealing with fire emergencies.</p>	<p>Pollution to ground below site, groundwaters and potentially surface waters by fire water run-off.</p> <p>Smoke, ash and pollutants in air</p>	<p>Low Risk – if control measures implemented.</p>

	<p>Nearby residential receptors – closest is Nant-y-Gafaelau 240m west.</p>		<p>Daily site inspections of storage areas and plant to identify any signs of smoking or smouldering.</p> <p>Site security with fencing and locked gates out of hours will prevent fires caused by arson or vandalism.</p> <p>There will be a No Smoking policy on site.</p> <p>Waste Acceptance at the weighbridge will ensure that hot loads, smouldering, or smoking loads of waste are not accepted.</p> <p>Actions in the event of fire call fire service on 999.</p> <p>Where it is safe to do so, site staff will use on-site firefighting equipment to extinguish fires.</p> <p>Where possible and safe, combustible materials will be isolated from the fire.</p> <p>Where a fire may have been caused by electricity or is close to electrical equipment, electricity to that area will be switched off and isolated.</p> <p>Clear directions will be given to the fire service and a member of staff will wait at the entrance to the site</p>		<p>could cause health risks, visibility issues and nuisance to local human population – users of roads and footpaths and workers in nearby business premises and also workers on site.</p>	
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			<p>to direct the service to the site on arrival, to ensure that the speediest fire-fighting service is provided.</p> <p>Members of the public and site staff will be evacuated and prevented from entering the site until the incident is dealt with.</p> <p>The emergency procedure will include incident reporting. As part of the environmental management system, incidents will be reviewed by management on a regular basis to identify whether lessons can be learnt and procedures improved to better prepare for and prevent fires in future.</p> <p>Resulting fire waters will be controlled and prevented from entering nearby surface water bodies and disposed of off-site as appropriate.</p>			
Vandalism	<p>Workers on site, local human population – workers on surrounding business premises.</p> <p>Local sensitive habitats, surface water courses.</p>	<p>Depending on what is vandalised – by air, through ground or over ground.</p>	<p>If vandalism to site security, site infrastructure, buildings or vehicles occurs, site management will be informed and emergency procedures as stated in the Environmental Management System will be followed, including reporting vandalism to Police and reviewing situation to improve site security.</p>	<p>Unlikely - all visitors to site are logged and accounted for. Any trespassers found are to be escorted off-site.</p>	<p>Depending on which part of site is vandalised, possible risks of various uncontrolled emissions reaching sensitive receptors such as local human population, users of roads and footpaths and workers in local</p>	<p>Low Risk – if control measures implemented.</p>

			<p>Any potential emissions from site will be dealt with in accordance to the above risk assessments (Tables 2 to 6) to prevent contact with sensitive receptors.</p> <p>Trained site staff will conduct daily site inspections to detect vandalism or vulnerable areas of site likely to be targeted.</p> <p>No unauthorised access to site allowed and all visitors required to sign in and out at weighbridge / site office. All site visitors to be accompanied by a competent member of staff and any trespassers will be escorted off-site once identified.</p>		<p>premises and also on site.</p>	
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5.0 CONCLUSION

5.1 Risk Assessment Tables – Overall Risk

5.1.1 The risk assessments above enable identification of appropriate mitigation measures to control the amenity and accident risks from the proposed activities. All identified risk mitigation measures will be incorporated within the Environmental Management System (EMS) for the site.

5.2 Report Conclusions

5.2.1 This Amenity and Accident Risk Assessment report indicates that provided the identified risk mitigation measures (as identified above in Tables 2 to 7) are implemented, the risk of nuisance or pollution from odour, noise and vibration, fugitive emissions, bioaerosols, visible plumes and accidents is low.

5.2.2 Overall, the proposed restoration operations will be carried out within the existing site permit boundary which is already an active landfill site and operations will be undertaken within normal operating hours. The closest residential receptor is 240m to the west, however the predominant wind direction is from the south-southwest towards the north-northeast and the nearest downwind residential receptors are over 500m to the northeast, meaning they are unlikely to be affected by potential emissions from the site.

5.3 Further Information

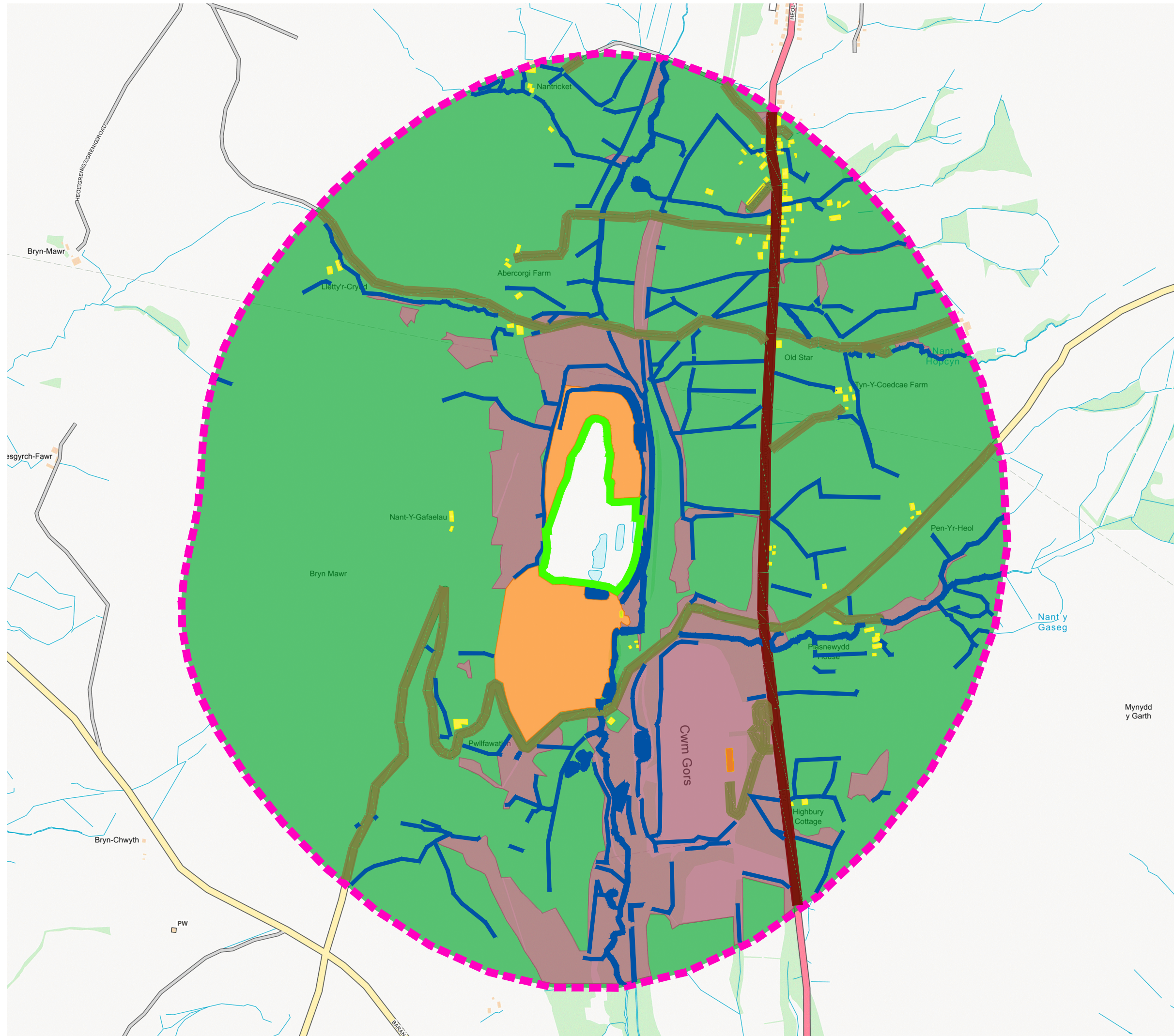
5.3.1 A review of dust emission risks and control measures for the proposed operations are also covered in the separate Dust Management Plan document ref. 4962-CAU-XX-XX-RP-V-0306, included with this application.

6.0 REFERENCES

- Environment Agency and DEFRA (1st February 2016) – ‘Risk assessments for your environmental permit’, from GOV.UK website: <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit> (last updated 31st August 2022).



DRAWINGS

4962-CAU-XX-XX-DR-V-1801 Sensitive Receptor Plan



LEGEND

- ACITIVITY BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- INDUSTRIAL
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- AGRICULTURAL
- EDUCATIONAL

P01	ISSUED FOR INFORMATION	DA	SB	SB	28.04.22
REV	MODIFICATIONS	BY	RE	AP	DATE
PURPOSE OF ISSUE				STATUS	
FOR INFORMATION				S2	
CLIENT:					
					
PROJECT:					
PWLLFAWKIN LANDFILL PERMITTING					
TITLE:					
SENSITIVE RECEPTORS PLAN					
DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY		
DA	DA	SB	SB		
DATE	SCALE @ A3	JOB REF:	REVISION		
20.04.22	1:10000	4962	P01		
DRAWING NUMBER					
4962-CAU-XX-XX-DR-V-1801					
					

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