



TARMAC LIMITED

OLD QUARRINGTON QUARRY LANDFILL

AMENITY AND ACCIDENT RISK ASSESSMENT

OCTOBER 2021

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TARMAC LIMITED

**OLD QUARRINGTON QUARRY LANDFILL
APPLICATION FOR AN ENVIRONMENTAL PERMIT VARIATION**

AMENITY AND ACCIDENT RISK ASSESSMENT

OCTOBER 2021

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1 INTRODUCTION

- 1.1 Wardell Armstrong have been appointed by Tarmac Ltd. to prepare an Amenity and Accident Risk Assessment for a proposed extension to the permitted inert landfill at Old Quarrington Quarry Landfill.
- 1.2 The southern boundary of the site is formed of an escarpment and the boundary of Cold Knuckle Quarry. The permit boundary is to be extended to incorporate the escarpment, which is to be removed and replaced with imported inert waste.
- 1.3 This report identifies potential environmental hazards that may arise through site activities and the mitigation measures that will be implemented. The risk assessment follows a source-pathway-receptor approach as outlined in the Environment Agency H1 guidance.
- 1.4 Section 2 of this document provides details on the location of the site and the operations that are to be undertaken.
- 1.5 The risk assessment is provided in Section 3. This details the potential risks from site activities, who may be affected, the mitigation measures that are implemented and an overall calculation of possible risk.
- 1.6 Sensitive receptors that are present within 1km of the site are detailed in Section 4, in addition to the specific risks from site activities and how these will be mitigated.

2 SITE DETAILS

- 2.1 The site is located at Quarrington Hill, Durham, grid reference NZ 33140 37820. The site is bound to the north and east by fields, by the existing Cold Knuckle Quarry void and an escarpment to the south, and an area of grassland and trees to the west. A small road is located beyond the trees to the west, and a small road is also located to the east.
- 2.2 The limestone and sand within the escarpment to the south is to be removed and the resultant void will be filled with clean inert wastes.
- 2.3 The restoration profile is to remain the same as that which is currently approved and upon completion the landform is to be allowed to naturally establish Magnesian Limestone grassland.

3 RISK ASSESSMENT

- 3.1 The risk assessment is presented below. This assesses the risks that are posed to the identified receptors from the proposed activity.

Table 3.1: Amenity and Accident Risk Assessment						
Hazard	Receptor	Pathway	Risk Management Techniques	Probability of exposure	Consequence	Overall risk
Dust						
Dry waste and generation during tipping and vehicle movements	Site staff, local residents, sensitive receptors	Airborne	<p>Activities will adhere to the site-specific Dust Management Plan prepared in July 2020, attached as Appendix 1.</p> <p>On site speed limits will be strictly enforced to minimise dust generated by traffic movement on haul roads.</p> <p>A tractor and water bowser will be permanently available on site.</p> <p>In dry and dusty conditions, the site haul roads will be sprayed with water to suppress dust.</p> <p>Haul roads will be regularly graded to remove loose and dusty material from the surface.</p> <p>Tipped materials are generally cohesive (clays and subsoils), with higher moisture contents inhibiting dust generation.</p>	Low – the implementation of dust management techniques as per the Dust Management Plan will minimise the risk of dust being blown across or beyond the site boundary.	Fugitive emissions of dust can cause disturbance and potential respiratory issues to those both on and offsite.	Low
Noise						
Noise from site plant and incoming vehicles	Site staff, local residents, sensitive habitats	Audible	<p>A noise limit of 45dB is imposed at the nearest receptor (Quarrington Hill). This noise limit has been selected based on the most recent noise assessment undertaken in 2020. Modern plant will be used at the site with noise suppression features (e.g. silencers) utilised as appropriate.</p> <p>All plant will be maintained in accordance with manufacturer’s guidance, with particular attention paid to silencers and acoustic panels.</p> <p>On-site speed limits will be established and enforced. Rules will also be enforced regarding the securing of tailgates.</p>	Low – noise will be minimised and controlled by good practice and monitoring.	Disturbance to staff and local residents. Sustained noise can affect the psychological health of those nearby. Excessive noise can disturb nearby ecological receptors.	Low

Table 3.1: Amenity and Accident Risk Assessment						
Hazard	Receptor	Pathway	Risk Management Techniques	Probability of exposure	Consequence	Overall risk
			<p>Site roads will be subject to regular maintenance with attention to the prompt infilling of any pot-holes.</p> <p>Where vehicle reversing alarms are required, they should be designed to cause the lowest practical environmental impact. Preferably they should be directional broadband noise emitters or automatically adjusted to ambient noise levels.</p> <p>Noise complaints will be recorded and investigated in accordance with the environmental management system, and the Environment Agency will be informed if necessary.</p> <p>All corrective action will be documented.</p> <p>No complaints have been received to date.</p> <p>The Environment Agency confirmed on 17/08/21 that a noise management plan and noise impact assessment would not be required for this variation.</p>			
Mud						
Mud on site roads	Site staff, local residents	Tracked on vehicle wheels	<p>The site is equipped with hardcore haul roads and a wheel wash.</p> <p>Regular inspections will be made of site roads and the highway outside of the site entrance. If mud is detected, site staff will undertake cleaning using the water bowser. Roads will be maintained to minimise the generation of mud.</p> <p>Vehicles will be subject to visual inspection prior to exiting the site. If necessary, vehicles</p>	Low – management techniques will be implemented to prevent the generation and spread of mud.	Potential increase in the risk of road traffic accidents and annoyance to site staff and local residents.	Low

Table 3.1: Amenity and Accident Risk Assessment						
Hazard	Receptor	Pathway	Risk Management Techniques	Probability of exposure	Consequence	Overall risk
			will be cleaned to prevent mud being tracked onto the highway.			
Odour						
Odorous materials within waste	Site staff, local residents	Airborne	Inert wastes present a low risk of odour. Any odorous loads will be rejected and removed from site at the earliest possible opportunity. Inspections for odour will be made daily at the site boundary. If any noticeable odours are discovered, these will be investigated and where appropriate remedial action will be undertaken.	Very low – inert wastes have a low odour potential. Loads containing odorous material will be rejected from the site.	Disturbance to site staff and local residents if odour travels beyond the site boundary. Strong odours may cause staff / local residents to feel unwell.	Very low
General Risks						
Pests	Site staff	Airborne, surface	Inert wastes that are be accepted at the site are unlikely to attract pests. Daily inspections of the site will identify any potential infestations. A pest control contractor will be contacted if necessary, to remove the infestation. All wastes produced by site operatives will be stored in secure, enclosed receptacles, pending offsite disposal.	Very low – it is unlikely that site operations will attract pests. Inert wastes only will be accepted at the site.	Annoyance. Potential spread of disease.	Very Low
Litter	Site staff, local residents, sensitive receptors	Airborne, surface	Inert wastes only will be accepted at the site. Waste will be received in covered or enclosed vehicles. Wastes will be subject to visual observation when tipped. If non-conforming material is discovered in a load, it will be handpicked and stored in an enclosed receptacle awaiting removal from the site.	Very low - site management techniques will limit the potential for any litter to be generated on site and to migrate beyond the site boundary.	Litter can attract pests such as rats and flies. Complaints may occur if litter is blown beyond the site boundary.	Very Low

Table 3.1: Amenity and Accident Risk Assessment						
Hazard	Receptor	Pathway	Risk Management Techniques	Probability of exposure	Consequence	Overall risk
			Regular inspections of the site boundary will be undertaken to check for the presence of any litter originating from the site. Any wastes that are produced by site operatives will be stored in secure, enclosed receptacles pending removal from the site.			
Spills / leaks	Site staff, sensitive receptors	Surface, water	Fuel and other potentially harmful fluids for use in site plant will be stored in a sealed tank or container with secondary containment. Tanks storing fuel will be bunded, with the bund providing 110% of the capacity of the tank. Spill kits will be provided for use in the event of a spill or leak. Site plant will be subject to regular inspection and serviced in accordance with the manufacturer's recommendations.	Very low - fuel is stored in containers with secondary containment. Spill kits will be present on site.	Contact with harmful fluids can affect human health. Harmful fluids can cause pollution of groundwater and surface water, and impact upon local habitats and species if spills or leaks enter waterbodies or permeate the ground surface.	Very low
Operator Error	Site staff, local residents, sensitive receptors	Airborne, surface and / or water	Suitably qualified staff only will be authorised to operate plant and equipment onsite. An induction will be provided for contractors working at the site. The site is operated in accordance with an environmental management system.	Very low – staff will receive suitable training for their role. Contractors will be inducted by the Site Manager.	Operator error can result in damage to plant and equipment. This can result in a fire or cause harm to other staff. Spills can occur that affect surface water, groundwater, and soils, as detailed above.	Low
Plant or equipment failure	Site staff, local residents, sensitive receptors	Airborne, surface and / or water	Plant and equipment at the site will be inspected and maintained in accordance with the manufacturer's recommendations and legal requirements. Site plant will be equipped with handheld fire extinguishers.	Low – plant and equipment will be subject to regular maintenance, and repairs will be	Site activities may be disrupted. Fires or spillages may occur if plant is damaged. Damaged equipment	Low

Table 3.1: Amenity and Accident Risk Assessment						
Hazard	Receptor	Pathway	Risk Management Techniques	Probability of exposure	Consequence	Overall risk
			<p>If plant or equipment sustains damage or loses function, suitably qualified engineers will undertake repairs as soon as possible. Damaged plant will be taken out of use until repairs have been completed.</p> <p>If necessary, site operations may be halted to prevent pollution.</p>	undertaken at the earliest possible opportunity.	may also pose a health risk.	

4 SENSITIVE RECEPTORS

4.1 There are a number of nearby receptors that may be affected by potential pollution from the site. These are as follows.

Table 4:1: Sensitive Receptors		
Receptor	Distance from Site	Direction
Protected Sites		
Crow Trees Local Nature Reserve (LNR)	Adjacent	South
Quarrington Hill Grasslands Site of Special Scientific Interest (SSSI)	250m	South
Cassop Vale Site of Special Scientific Interest (SSSI)	350m	North
Cassop Vale National Nature Reserve (NNR)	350m	North
Little Wood Local Nature Reserve (LNR)	530m	South East
Water		
Pond	90m	South
Tursdale Beck	250m	South
Chapman Beck	400m	North East
Unnamed water drains	750m	South East
Pond	990m	East
Residential		
Quarrington Hill village	300m	South East
Properties along unnamed road	400m	West
Old Quarrington village	500m	West
Cassop	900m	East
Commercial		
Heather Lad Inn	140m	East
Holden's Decorative Gravel	300m	South
Half Moon Pub	310m	South
Quarrington Hill & District Social Club	440m	South
Schools		
Cassop Primary School	450m	East
Infrastructure		
Unnamed road	Adjacent	South
Church Street	130m	East
B6291 Road	350m	South East
B1278 Road	350m	South
Groundwater		
Site is located within a Source Protection Zone 3		

4.2 The two SSSIs are designated due to the species of plants are present at the sites, specifically magnesian limestone grasslands. The main risk to these sites relates to dust that may be generated by site activities. Dust emissions may affect plants via

smothering. This is also the case for the Local and National Nature Reserves that are located within close proximity to the site.

- 4.3 Any litter that is generated may trap wildlife that is present at the designated sites or cause them to choke if the litter is consumed. Noise may cause disturbance to local wildlife such as birds. Contaminated run-off may drain into groundwater or surface water and cause pollution. This may harm aquatic organisms. The site is located within a Source Protection Zone 3, meaning that groundwater is of a higher risk.
- 4.4 Local residents and users of local businesses may also be affected by emissions from the site. Excessive noise may impact upon psychological health if sustained. Particulates such as dust and smoke from any damaged plant may cause respiratory issues for local human populations if inhaled. Mud on the road may increase the risk of road traffic accidents, and the presence of litter can cause annoyance.
- 4.5 The facility has been designed to minimise potential impacts on nearby sensitive receptors and is currently operational without having an impact on the receptors identified in Table 3.1.
- 4.6 Stringent control measures employed on site will minimise the potential for excessive emissions.
- 4.7 As a result of these measures any significant impact on local habitats or the local populace will be prevented.

5 SUMMARY

- 5.1 This Amenity and Accident Risk Assessment found that there is a low risk to the environment from the proposed permit variation.
- 5.2 The management procedures that will be implemented ensure that the risks to the environment occurring from noise, dust, mud, litter and odour are kept to a minimum.
- 5.3 Suitably qualified staff only will be allowed to operate plant and machinery onsite, ensuring that chance of accidents or operator error are kept to a minimum.
- 5.4 Any potential contaminant risk will be prevented by the inert nature of the waste materials and strict adherence to waste acceptance procedures at the site.

APPENDIX 1

Dust Management Plan



TARMAC LIMITED

OLD QUARRINGTON QUARRY LANDFILL

DUST MANAGEMENT PLAN

JULY 2020

DATE ISSUED: July 2020
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TARMAC LIMITED
OLD QUARRINGTON QUARRY LANDFILL
DUST MANAGEMENT PLAN

JULY 2020

THIS DMP HAS BEEN AUTHORISED FOR CONTINUED USE AT OLD QUARRINGTON BY:

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1. INTRODUCTION

1.1 Introduction and background

1.1.1 The Air Quality Management Plan for Old Quarrington Quarry Landfill Site has been prepared by Wardell Armstrong on behalf of Tarmac Ltd. The plan describes the air quality management operations to be implemented at the facility to conform with the requirements of the PPC permit.

1.2 Site description

1.2.1 Old Quarrington Quarry Landfill is located near Bowburn in Co Durham (Grid Reference: NZ 329 378). The site location is shown on Drawing No: NT03724/001. The Landfill site currently comprises of both an active quarry and inert landfill facility. The quarry and landfill site is surrounded by agricultural land.

2. DUST AND FUGITIVE AIR EMISSIONS

2.1 Potential Impact of dust and fugitive air emissions

2.1.1 The risk of emissions of dusts, fibres or particulates causing adverse environmental impact and/or being harmful to human health is low, due to the inert nature of the waste. The principal emissions to air will be dust and the principal source for dust generation will be from plant operations on site.

2.1.2 Old Quarrington Quarry site is located on elevated land within an active quarry void. The nearest sensitive receptors (Heather Lad Public House) and residential properties at Church Street are located on the eastern boundary of the quarry boundary.

2.2 Sources of dust and fugitive emissions

2.2.1 The principal emission to air from the landfill facility will be dust. Dust generation will be caused primarily as a result of plant operations at the landfill site. The potential sources of dust and particulates arising from operations at the quarry include:

- Site preparatory works;
- On site vehicle movements associated with waste haulage;
- Tipping of waste from vehicles; and
- Restoration operations.

3. ABATEMENT OF DUST AND FUGITIVE AIR EMISSIONS

3.1 Control measures

3.1.1 General control measures for reducing dust emissions will be based on best management practice and will include the following:

- Orientation of the haul routes;
- A speed limit will be implemented to minimise disturbance on internal haul routes;
- An adequate water supply for dust suppression will be maintained at the site at all times;
- All vehicles leaving the site will pass over the rumble grid to remove dirt and debris;
- A tractor and water bowser with a will be employed, as and when necessary, to control dust arising from waste handling and disposal operations and on-site traffic movements;
- Install a met station to monitor wind direction and speed. Keep a site log book to record daily weather and site conditions; and
- Inherent moisture within the soils will reduce the amount of dust raised during restoration. However, when necessary, particularly dry soils and particulate matter will be sprayed with water prior to movement.

3.1.2 A water bowser will be available on site when necessary. In dry and dusty conditions, the primary site road and secondary site roads will be sprayed with water to suppress dust using the site's water bowser. Operational areas will be sprayed with water as necessary to suppress dust. The primary site road will be regularly swept to ensure that mud and dust deposits do not occur and vehicle speeds within the site will be limited to 15mph. The control measures will be employed to maintain a damp surface on haul roads, excavation areas and areas of waste deposition and spreading.

4. MONITORING OF DUST AND FUGITIVE AIR EMISSIONS

4.1 Monitoring location and frequency

4.1.1 Old Quarrington has operated without a requirement to dust monitoring and no adverse dust conditions have been experienced to date. A requirement for dust monitoring is not considered to be required at this time, however this does not negate its future requirement. It is considered that monitoring is commenced if complaints occur and / or at the specific request of the Local Authority. A recommended monitoring location is at the eastern boundary, at a location representative of the nearest human exposure. The emission limit for dust will be 200mg/m² per day.

Table 1: Emission limits of particulate matter into air			
Monitoring Point	Parameters	Emission Limit	Frequency
Eastern boundary, ideally at location representative of Church Street residents (subject to siting limitations)	Dust	200 mg/m ² per day	Monthly

4.2 Sampling Procedures

4.2.1 The monitoring of total dust deposition will be carried out using a Frisbee type deposit gauge. The deposit gauge consists of a lipped bowl with a central hollow tube, which connects the base of the bowl to a plastic collection bottle underneath. Dust particles, which settle in the bowl, are carried by rainwater through the central tube into the plastic bottle. The assembly is held in a metal container standing on a tripod, which is securely anchored to level ground with metal pegs. The bottle will be changed every calendar month and its contents analysed by an independent UKAS accredited laboratory.

4.3 Sampling Protocol: Frisbee Type Deposit Gauge

4.3.1 To ensure that all dust is transferred to the bottle from the collection bowl the following protocol will be used:

1. Remove the rainwater collection bottle and Frisbee top together from the tripod stand.
2. Seal the hole on the centre of the Frisbee top with the rubber bung provided.
3. Unscrew the Frisbee top from the bottle and pour a small quantity of water from the bottle into the Frisbee bowl.
4. Refit the Frisbee top to the bottle and swirl the water around the inside of the bowl to collect any residual dust.
5. Remove the bung and allow the water with the collected dust to drain into the sample collection bottle. This process may be aided with the use of a lightly bristled brush if required.
6. Unscrew the red cap to remove the Frisbee bowl from the rainwater collection bottle.
7. Place a plastic push fit stopper into the mouth of the sample collection bottle and secure the bottle with a screw top lid. Ensure that the bottle is marked with
 - a) *The site name*
 - b) *The gauge location.*
8. Fit a new sample bottle to the Frisbee collection bowl before replacing into the tripod stand to recommence sampling. Note the date.
9. Ensure that the sample details are recorded on the analysis request form prior to returning the samples for analysis. This should include all the details asked for on the form, together with any comments or requests for additional analysis to be carried out.

10. In circumstances where this is little or no rain observed in the rainwater collection bottle, omit steps 2 to 5 above. Wash the collected deposit into the collection bottle using deionised water from a wash bottle or spray gun. This process may be aided with the use of a lightly bristled brush if required. If this is the case, please note on the sample analysis request form. pH, volume and conductivity tests will not be carried out for samples taken in this way, or any sample where the collected rainwater volume is less than 0.1 litres.

4.3.2 All results will be held in a dedicated file and will be available to the Regulator.

5. REPORTING OF RESULTS

5.1 Reporting frequency and contents of report

5.1.1 Monitoring data would be submitted to the Regulator on a quarterly basis, with reports provided within 28 days, as necessary.

5.1.2 The report submitted to the Regulator will contain the following information as a minimum:

- Introduction;
- Aims and objectives;
- Sampling procedures and protocol;
- Details of the monitoring location, sampling method and analysis method;
- Summary of the results;
- Discussion and interpretation of the results;
- Conclusions;
- Recommendations (if applicable);
- Appendices containing raw data.

5.1.3 In the event that dust monitoring indicates that the emissions have exceeded 200 mg/m² per day the operations will be reviewed and amended to ensure that dust emissions are minimised or contained on site.

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