

Twyford Embankment Waste Recovery Permit Application

Application Reference EPR/LB3404MV/A001

Environmental Risk Assessment

On behalf of EKFB JV

JER9490
Environmental Risk
Assessment
2
1
11 September 2025

Quality Management

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Contents

Application Reference EPR/LB3404MV/A001 1

Environmental Risk Assessment..... 1

1 INTRODUCTION 1

2 SITE DETAILS..... 2

2.1 Site Setting 2

3 ENVIRONMENTAL RISK ASSESSMENT 5

4 CONCLUSION 38

REFERENCES..... 39

APPENDIX B NATURE AND HERITAGE CONSERVATION SCREENING REPORT 42

APPENDIX C TOC ANALYSIS OF WASTE FROM FINMERE QUARRY 43

Tables

Table 2-1: Protected Species..... 2

Appendices

- Appendix A Receptor Plans
- Appendix B Nature and Heritage Conservation Screening Report
- Appendix C TOC Analysis of Waste from Finmere Quarry

1 INTRODUCTION

- 1.1.1 This Environmental Risk Assessment (ERA) has been carried out in support of an application for a bespoke Waste Recovery Permit at Portway Road, Twyford, Buckinghamshire, MK18 4EB.
- 1.1.2 The scope of the ERA considers risks associated with the operation of the permitted activity and demonstrates that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.
- 1.1.3 The Environment Agency's '*Risk Assessments for your environmental permit*'¹ covers a range of environmental risks. Those aspects relevant to the operation of the proposed facility are covered within the following sections:
- Amenity and accidents
- 1.1.4 There are no point source emissions to water or air from the proposed activity.
- 1.1.5 This document provides the relevant risk assessments covering the above aspects.

¹ Environment Agency, Risk assessments for your environmental permit, <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>

2 SITE DETAILS

2.1 Site Setting

- 2.1.1 The site is located off Portway Road, Twyford. The centre of the site is at approximate grid reference SP 67282 26395. The site address is:
Portway Road,
Twyford,
Buckinghamshire,
MK18 4EB
- 2.1.2 The site location plan is included in Appendix A to this report.
- 2.1.3 The site lies approximately 500m east of the village of Twyford. It is immediately surrounded by fields that are associated with agricultural uses. There are a number of farms, cottages and other residential and commercial properties located within 500m of the development as identified in Table 2-1.

Table 2-1: Residential and Commercial Receptors

ID	Receptor Name	Receptor Type	Receptor Sensitivity	Distance from site (approx.)
1	Property North of Portway Farm	Residential	High	20 m south
2	Portway Farm	Commercial	Low	100 m south
3	Portway Farm	Residential	High	290 m south
4	Portway Cottages	Residential	High	320 m south
5	Portway Road (approx. 10-15 properties)	Residential	High	350 m south/south-west
6	Three Bridge Mill	Residential	High	430 m north
7	Seven Stars Cottage	Residential	High	430 m north-east
8	Three Bridge Mill Industrial Park	Commercial	Medium	470 m north

- 2.1.4 The earliest historical maps date back to 1880, when the site appears to be entirely used as farmland. In 1900 the Grand Central Railway is shown cutting through the southern tip of the site and, from 1982, a sewage treatment works is shown immediately to the west of the site. Otherwise, the site appears to have remained as farmland.
- 2.1.5 The EA nature and heritage conservation screening report (EPR/HP3524SS/P001) indicates that there is a single protected species within the screening distance of 500 m of the site, as shown in Table 2-2 below:

Table 2-2: Protected Species

Protected Species	Screening Distance (m)
Bullhead Cottus Gobio	Up to 500 m

- 2.1.6 Although not noted on the EA Habitats Screening Report there is a single non-fish protected species *European Water Vole – Arvicola amphibius* and Code 2 non-fish protected species within 500m of the site.
- 2.1.7 The Nature and Heritage Conservation Screening Report also confirms that there are no Sites of Special Scientific Interest (SSSI), Special Protections Areas (SPAs), Special Areas of

Conservations (SACs) or Ramsar sites within 2km of the site. A copy of the report is included in Appendix B to this report.

2.1.8 The following habitat designations lie within a 500 m screening distance:

Table 2-3: Habitat Designations

Habitat Designation	Distance from site
Deciduous woodland	154m SE
Deciduous woodland	156m SE
Deciduous woodland	244m SE

- 2.1.9 The closest designated environmental receptor indicated by the Groundsure Report (reference: GS-8TS-SSR-FCP-MAQ) purchased for the site is a designated ancient woodland 1,306 m to the north of the site.
- 2.1.10 The bedrock geology of the site comprises firm to stiff clays of Oxford Clay Formation (typically 4.5 to 8.0m thick) across the entire site. River Terrace Deposits were not recorded on site from previous investigations, although it was recorded off site 175 m to the north-west.
- 2.1.11 The aquifer status of the superficial deposits underlying the northwest section of the site is described as “Secondary A Aquifer”. These are 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 classified as minor aquifers.
- 2.1.12 The bedrock aquifer on site is designated as unproductive which are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
- 2.1.13 There are no identified Groundwater Source Protection Zones (GSPZ) within a 500m radius of the site.
- 2.1.14 Two water courses are recorded within the vicinity of the site; an unnamed tributary of Padbury Brook located 200m northwest of the site, and Portway Stream located 200m southeast. Both watercourses are considered to be receptors, however they are also proposed to be partially diverted by the HS2 scheme, with culverts beneath the Twyford embankment, and will therefore be lined. HS2 constructed catchment ponds are located within the vicinity of the site, with the nearest located 85m west.
- 2.1.15 EA flood risk mapping² indicate that the site is located in flood zone 1, an area with a low probability of flooding.
- 2.1.16 The Padbury Brook in proximity to the site is of medium and high risk of river flooding. The Groundsure Report indicates no record of historical flood events within 250m of the site. The highest risk of on-site flooding is given as a 1 in 30-year event leading to 0.1m to 0.3m depth of floodwater.
- 2.1.17 The DEFRA data services platform³ has been reviewed for historic landfills and it has been confirmed that there is an area comprising three adjacent historic areas of landfill to the SSE of the site, albeit at nearly 1km from the site and therefore these are not considered within this assessment.

² [Select an address - Check your long term flood risk - GOV.UK \(check-long-term-flood-risk.service.gov.uk\)](https://selectanaddress.gov.uk/check-your-long-term-flood-risk)

³ <https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricLandfill&Mode=spatial>

2.1.18 The relevant receptors are shown on the Receptor Plans included in Appendix A to this report.

3 ENVIRONMENTAL RISK ASSESSMENT

- 3.1.1 As stated in section 1.1.3 this ERA has been produced in line with EA ERA guidance.
- 3.1.2 This guidance states that “If you are applying for a bespoke permit but most of your activities are covered by standard rules, you only need to do a risk assessment for the activities or risks that are not covered by the generic risk assessment for those standard rules.”
- 3.1.3 The standard rules risk assessment for Standard Rules SR2015 No.39, Use of waste in a deposit for recovery operation (Construction, reclamation, restoration or improvement of land other than by mobile plant) has several parameters which must be met in order for a Standard Rules (SR) permit to be applicable. These are shown below:
- *Parameter 1 - Permitted activities - The storage and recovery of waste (R5, R10, R13).*
 - *Parameter 2 - Permitted wastes - Inert wastes and specified non-hazardous wastes as listed in the table of wastes.*
 - *Parameter 3 - Maximum quantity of waste shall be limited to 60,000 cubic metres or less.*
 - *Parameter 4 - The activities shall not be carried out within 500m of a European Site (candidate or Special Area of Conservation, proposed or Special Protection Area or Ramsar site) or a Site of Special Scientific Interest (SSSI); 50 metres of a site that has species or habitats protected under the Biodiversity Action Plan that the Environment Agency considers at risk to this activity, 250m of the presence of the great crested newts where it is linked to the breeding ponds of the newts by good habitat or 50 metres of a National Nature Reserve (NNR), Local Nature Reserves(LNR), Local Wildlife Site (LWS), Ancient woodland or Scheduled Ancient Monument.*
 - *Parameter 5 - The activities must not be carried out within groundwater Source Protection Zones 1 and 2 or if a source protection zone has not been defined then not within 250 metres of any well, spring or borehole used for the supply of water for human consumption. This includes private water supplies.*
 - *Parameter 6 - No point source discharges to controlled waters or groundwater.*
 - *Parameter 7 - The activities must not be carried out within 10 metres of any watercourse.*
 - *Parameter 8 - No waste may be deposited into a water body or sub-water table.*
 - *Parameter 9 - The activities shall not be carried out on historic, closed or operational landfills.*
 - *Parameter 10 - Activities must not be carried out in an air quality management area for PM10.*
- 3.1.4 Aside from Parameter 2 all parameters are met by this waste recovery operation. The waste to be recovered within the landscape and visual bund at Twyford Embankment have been excavated from the Finmere Quarry historic landfill site and will be physically screened/ treated prior to the proposed use. As dug, the waste would have been classified as 17 05 04, which does not have an exclusion for fines. However, as the waste is subject to mechanical treatment off site it is categorised as a Chapter 19 code (19 12 12).
- 3.1.5 Within the SR permit waste code 19 12 12 is restricted to crushed bricks, tiles, concrete and ceramics and excludes the presence of fines (of which an element will be included within this operation). Therefore, a bespoke permit is required.
- 3.1.6 This ERA provides an assessment of risks to environmental amenity and from accidents that could arise from operation of the facility and uses the following approach for identifying and assessing the risks in six steps:

-
- Step 1: Identify and consider risks for your site, and the sources of the risks,
 - Step 2: Identify the receptors (people, animals, property and anything else that could be affected by the hazard) at risk from your site,
 - Step 3: Identify the possible pathways from the sources of the risks to the receptors,
 - Step 4: Assess risks relevant to your specific activity and check they are acceptable and can be screened out,
 - Step 5: State what you will do to control risks if they are too high,
 - Step 6: Present your assessment as part of your permit application.

3.1.7 The risk assessment is based on the generic risk assessment set out in SR2015 No39 with changes and additions made to reflect the bespoke permit activity.

Table 3-1: Modified version of the Generic risk assessment for standard rules set number SR2015 No39

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
Residential and commercial properties identified in Table 2-1.	Releases of particulate matter (dust).	Harm to human health - respiratory irritation and illness.	Air transport then inhalation.	Medium	Medium	Medium	The activities may produce dust from movement of vehicles and tipping operations especially in dry and also windy weather. Waste to be accepted at the site may include fines from the mechanical treatment of the waste. Therefore, there is potentially a slight increased risk	Activities are not permitted within a specified air quality management area (AQMA) for particulate matter of 10 microns or less (PM ₁₀). Activities shall be managed and operated in accordance with the submitted Dust and Emissions Management which includes specified management measures and	Very Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							of dust emissions from this operation. Whilst there is a potential slight increase in risk the probability remains medium as only a small proportion of waste accepted at the site will consist of fine materials and this will be mixed within larger fractions of the waste. The probability of exposure and	additional measures where required. Please refer to the DEMP for further details	

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							consequence will remain unchanged and therefore the overall risk will not change. In addition the duration of the waste deposit activity is short (circa 1 month) and no waste will be transported along public highways, all transfers will be using internal roads which are at greater distance from human receptors		

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							than public highways.		
Residential and commercial properties identified in Table 2-1.	Releases of particulate matter (dust).	Nuisance - dust on cars, clothing etc.	Air transport then deposition.	Medium	Low	Medium	The activities may produce dust from movement of vehicles and tipping operations especially in dry and also windy weather. Waste to be accepted at the site may include fines from the mechanical treatment of the waste. Therefore, there is potentially a slight	Activities shall be managed and operated in accordance with the submitted Dust and Emissions Management which includes specified management measures and additional measures where required. Please refer to the DEMP for further details.	Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							increased risk of dust emissions from this operation. Whilst there is a potential slight increase in risk the probability remains medium as only a small proportion of waste accepted at the site will consist of fine materials and this will be mixed within larger fractions of the waste. The probability of		

Data and information		Judgement				Magnitude and mitigation of risk			
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What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							exposure and consequence will remain unchanged and therefore the overall risk will not change. In addition the expected duration of the waste deposit activity is short (expected to be circa 1 month) and no waste will be transported along public highways, all transfers will be using internal roads.		

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
Residential and commercial properties identified in Table 2-1.	Litter.	Nuisance, loss of amenity and harm to animal health.	Air transport then deposition.	Low	Low	Very low	Waste types if compliant with the waste acceptance criteria should have a low risk of litter from contraries in the waste. Activities are limited in duration (expected to be circa 1 month) minimising the opportunity for waste accumulation over time. No waste is stockpiled within the	Waste acceptance procedures will control the waste imported to the site and stipulate how non-conforming loads will be identified and dealt with. Quarantined waste will be placed in a covered skip. Waste transferred to site is immediately deposited and will be compacted.	Very low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							permitted area it is deposited and compacted. Dust emissions from depositing the waste will be at a relatively low height.		
Residential and commercial properties identified in Table 2-1.	Mud and waste on road.	Nuisance, loss of amenity, road traffic accidents.	Tracked on tyres of vehicles entering and leaving the site and from loads which are not properly contained.	Very Low	Medium	Low	Waste types are typically ones that will produce mud especially during wet weather. No waste deliveries will transfer material on public highways.	The management system will contain procedures to monitor and minimise the risk of mud and waste being tracked out onto the highway. This may include wheel-	Very Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							A wheel wash is provided and tractors with a mobile water bowser are available, albeit these are shared with the wider scheme.	cleaning facilities where appropriate. All vehicles will have adequate containment such as sheeting to prevent waste spillage. See DEMP.	
Residential and commercial properties identified in Table 2-1.	Odour	Nuisance, loss of amenity.	Air transport.	Very low	Very low	Very low	Permitted waste types are have a low organic content therefore, should not be odorous. No odours were recorded during the mechanical	The management system should contain procedures to prevent non-permitted wastes being deposited at site and to deal with rogue loads if they do occur.	Very Low

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What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							processing of the waste.	There is a dormant Rule that can be utilised if odour should be a problem.	
Residential and commercial properties identified in Table 2-1.	Noise and vibration.	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Medium	Medium	Medium	Local residents often sensitive to noise and vibration but there is low potential for exposure and limited duration of waste transfer activities (expected to be circa 1 month).	Noise and vibration will be minimised by subjecting plant and machinery to routine maintenance. A noise and vibration management plan will be prepared and implemented if required.	Low

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Residential and commercial properties identified in Table 2-1.	Scavenging animals and scavenging birds.	Harm to human health from waste carried off site and faeces. Nuisance and loss of amenity.	Air transport and over land.	Low	Low	Very low	Wastes are limited to mainly wastes that are not normally attractive to animals and birds. Testing of the waste from Finmere supports a low organic content (0.1-3.7% TOC).	Risk limited by permitted waste types and good onsite management practices detailed in management system for non-conforming wastes.	Very low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
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Residential and commercial properties identified in Table 2-1.	Pests (e.g.) flies.	Harm to human health. Nuisance, loss of amenity.	Air transport and overland.	Low	Medium	Medium	Wastes are limited to mainly wastes that are not normally likely to encourage pest infestations. Testing of the waste from Finnere supports a low organic content (0.1-3.7% TOC).	Risk limited by permitted waste types and good onsite management practices detailed in management system for non-conforming wastes.	Very Low

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Residential and commercial properties identified in Table 2-1 and Unnamed tributary to Padbury Brook, Portway Stream, HS2 catchment ponds . Protected species identified in paragraph 2.1.5 and Table 2-2	Flooding of site.	If waste contaminated water is washed off site it may contaminate buildings, gardens, watercourses and natural habitats.	Flood waters.	Low	Medium	Medium	Permitted waste types are mainly inert so any waste washed off site will add to the local post-flood clean-up workload rather than the hazard. However, they may cause increased siltation and need for dredging in water courses. Increased suspended solids. A higher	Activities are not permitted within 10 metres of a watercourse or to be deposited sub-water table. The written management system should identify and minimise risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances. Mitigation to	Low

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							proportion of dusty waste accepted at the site may increase its mobility during flooding. The waste may also be slower to be deposited and therefore, travel further in flood waters. The probability of the risk remains low as the site is located in flood zone 1 which is an area with a low chance of flooding.	prevent fines being transported from the site during flooding include the following: shallow gradients to landscape bunds to slow down the floodwater and allow time for dust to be deposited. Deposited waste will be levelled and compacted on the same day. No waste will be stored on site within temporary stockpiles.	

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Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							The magnitude of the risk remains medium. The magnitude of the risk remains medium.	Furthermore, weather will be monitored as part of the EMS so flooding events can be predicted and managed prior to the event.	

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Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
Residential and commercial properties identified in Table 2-1 and /or livestock gaining unauthorised access to the waste operation.	All on-site hazards, wastes, machinery and vehicles.	Bodily injury.	Direct physical contact.	Low	High	Medium	Permitted waste types are non-hazardous/inert therefore only a low risk from the actual waste. However, there could be void spaces that people could fall into, and wastes have a higher risk in wet conditions where deep mud could form. However the waste recovery activity is limited to only 10% of the	The written management system will identify and minimise risks from unauthorised access. Site security measures will be identified to prevent such access. The system will also describe how any polluting liquids or materials will be stored safely. The site is secured to restrict unauthorised access.	Very Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							bund, meaning limited amounts of waste are used and waste will be exposed for a only a limited duration (expected to be circa 1 month).		
Residential and commercial properties identified in Table 2-1 and unamed tributary to Padbury Brook, Portway Stream, HS2	Arson and/or vandalism causing the release of polluting materials to air (smoke or fumes) and firewater or spillage of polluting liquids to	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/ vandals. Pollution of	Air transport of smoke. Spillages and contaminated firewater by direct run-off from and via surface water drains and ditches.	Low	Medium	Low	Permitted waste types are have a very low-risk of combustion. Site machinery and fuels and oils are more of a risk, but quantities of flammable material held	The written management system should identify and minimise risks from unauthorised access and site security measures identified to prevent such access. The system should	Very Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
catchment ponds Protected species identified in paragraph 2.1.5 and Table 2-2	water or land.	water or land.					on site will typically be low.	also describe how any polluting liquids or materials will be stored safely. The site is secured to restrict unauthorised access. Site vehicles will be subject to regular maintenance and will carry fire extinguishers of the appropriate type.	

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
Unnamed tributary to Padbury Brook, Portway Stream, HS2 catchment ponds Protected species identified in paragraph 2.1.5 and Table 2-2	Accidental fire causing release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters. Pollution of water or land.	Air transport of smoke. Spillages and contaminated firewater by direct run-off from and via surface water drains and ditches.	Low	Medium	Low	Permitted waste types are inert so very low-risk of combustion. Site machinery and fuels and oils are more of a risk, but quantities of flammable material held on site will typically be low.	The written management system will identify and minimise risks from unauthorised access and site security measures identified to prevent such access. The system will also describe how any polluting liquids or materials will be stored safely. Site vehicles will be subject to regular maintenance	Very low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
								and will carry fire extinguishers of the appropriate type.	
Local human population and local environment.	Build up and emissions of gas from old waste deposits on the permitted site	Respiratory irritation, illness and nuisance to local population. Risk of explosion and injury to staff and local population.	Gas migrating laterally through waste deposit and building up in certain areas.	Low	High	Medium	There are no old waste deposits at the site. As shown in Drawing 3, Appendix A to this report, there are no records of former landfill sites within 2 km of the Twyford	The waste to be deposited will not give rise to build-up of gas	Low

Data and information		Judgement				Magnitude and mitigation of risk			
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What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							Embankment site. The Wastes to be deposited have allow organic content. The source waste from Finmere Quarry has TOC content in the range of 0.1-3.7% which is unlikely to generate gas.		
Unnamed tributary to Padbury Brook, Portway Stream, HS2 catchment ponds	Spillage of liquids, including oil.	Acute effects: fish and invertebrate mortality.	Direct run-off from site across ground surface, via surface water drains, ditches etc.	Low	Medium	Medium	Potential for spillage from any fuel and oil storage for machinery or directly from machinery operating on the site is	The written management system will identify and minimise risks. The system will describe how machinery/pla	Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							limited to the volume in the vehicle tank.	nt will be maintained to prevent liquids from leaking. Records of maintenance will be maintained	
Unnamed tributary to Padbury Brook, Portway Stream, HS2 catchment ponds	Leachate from waste and contaminated rainwater run-off from waste e.g. suspended solids.	If waste contaminated water is washed off site it may contaminate watercourses and natural habitats leading to chronic effects: and deterioration of water quality.	Surface waters, leachate from infiltration through the waste	Low	Low	Low	Permitted waste types are non-hazardous. The fine material within the wastes has the potential for greater mobilisation by rainfall giving rise to increased suspended solids and	Activity is not within 10m of a watercourse. Point source discharges of contaminated water to controlled waters are not permitted. Risk limited by waste acceptance rules and limits to permitted	Low

Data and information		Judgement				Magnitude and mitigation of risk			
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What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							subsequent increased risk of siltation. The CSM however has demonstrated the absence of a viable pathway between the treated waste and surface run-off. Although there is limited leachate testing, the post-remediation treated waste will be suitable for Zone 2B and Zone 3.	waste types. Mitigation to prevent fines/suspended solids being transport from the site during flooding include the following: The shallow bund gradient is designed to slow the flow of floodwater and allow time for suspended solids to be deposited, Waste will be deposited in situ and will be levelled and compacted on the same day.	

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
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								No waste will be stored on site within temporary stockpiles, The agreed reuse criteria is based on conservative Consim modelling [1], which models the leaching of a continuous source (in this instance, the source being the treated waste) and migration to surface water receptors, and adopting the agreed reuse criteria	

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
								demonstrates that there is not a need for further remedial measures when considering surface water receptors due to the absence of a potential pollution linkage	

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
Groundwater	Leachate from waste and contaminated rainwater run-off from waste e.g. Suspended solids.	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole.	Transport through soil/groundwater then extraction at borehole.	Medium	Medium	Medium	Permitted waste type is non-hazardous. Any waste should not contain hazardous substances or non-hazardous pollutants in quantities that pose a risk to groundwater. The treated waste has been screened against the more conservative Zone 2B screening criteria which is protective of	The site is not within source protection zones 1 or 2. There are no British Geological Survey borehole records within 250m of the site. Strict waste acceptance procedures will be implemented at the site and are submitted with this application. The potential impacts to groundwater from the treated waste are	Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment)
							groundwaters at >4m bgl. Groundwater within the RTD >175m from the site was encountered at >5m bgl.	considered very low given the proposals (engineering design and mitigation) and the underlying unproductive strata (>4m of OXC+ALV), i.e. absence of a viable pathway to controlled waters	

Data and information		Judgement				Magnitude and mitigation of risk			
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Protected species, Bullhead Cottus Gobio, European water voles and Code 2 non-fish protected species, three deciduous woodlands	Dust, noise, contaminated run-off leachate etc.	Harm to protected sites through contamination, smothering, disturbance etc.	Any	Low	Medium	Medium	Emissions to air may cause harm to and deterioration of nature conservation sites. Vehicles moving on and around site causing disturbance through noise. Potential for run-off and siltation of habitats etc. Waste to be accepted at the site includes fines from the mechanical treatment.	Activities will be managed and operated in accordance with a management system that includes measures to prevent and reduce risk of dust being produced. Visual assessments will be carried out to protect local amenity and, where dust is observed, action will be taken, including damping	Low

Data and information		Judgement				Magnitude and mitigation of risk			
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
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							Therefore, there is an increased risk of dust emissions from this operation. However, the likelihood remains low as there are no SSSIs, SACs, SPAs or RAMSAR sites within 2km of the site. Neither are there any ancient woodland or deciduous woodland within 50m. The closest deciduous woodland is 154m	down deposited waste, to prevent or minimise dust from leaving the site boundaries. Rules can be invoked to require a particulate management plan. Additional management at the site will include the increased monitoring for dust emissions especially during dry	

Data and information		Judgement				Magnitude and mitigation of risk			
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							southeast of the site. There are no NNRs, LNRs or LWSs within 50m of the site. There are no scheduled ancient monuments within 250m of the site. The magnitude of the risk remains medium.	periods. If waste is found to be dry/dusty and posing a higher risk of dust emissions, it will be dampened. A bowser and hose will be available on site. Waste will be placed directly into the landform, levelled and compacted on the same day. Once it is in-situ within the embankment it is not expected to generate dust.	

4 CONCLUSION

- 4.1.1 This ERA has been undertaken following EA guidance and has considered the risks from the operations at the site for odour, noise, fugitive emissions and the potential for accidents and incidents.
- 4.1.2 The assessment concludes that, with the measures detailed above, the risk from the operations ranges from very low to low and, therefore, is not likely to be significant.

REFERENCES

1. Environment Agency, Risk assessments for your environmental permit - <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>
2. DEFRA Flood Risk Maps [Select an address - Check your long term flood risk - GOV.UK \(check-long-term-flood-risk.service.gov.uk\)](#)
3. DEFRA Data Services Platform <https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricLandfill&Mode=satial>
4. Geology of Britain Viewer - [BGS Geology Viewer \(BETA\)](#)

Appendices

Appendix A

Receptor Plans

Appendix B

Nature and Heritage Conservation Screening Report

Appendix C

TOC Analysis of Waste from Finmere Quarry