NEWPORT QUARRY RESTORATION

Environmental Permit Application

Environmental Risk Assessment

Prepared for: Ingrebourne Valley Limited
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CONTENTS

1.0 INTRODUCTION 3
1.1 The Site 3
1.1.1 Proposed Operations 3
2.0 SITE SETTING & RECEPTORS 4
2.1 Site Setting 4
2.1.1 Industrial/Commercial Premises 5
2.1.2 Residential Properties 5
2.1.3 Local Transport Network 5
2.1.4 Surface Water Features 6
2.1.5 Agricultural/Open Ground 6
2.1.6 Woodland 6
2.2 Geology 6
2.3 Hydrogeology 6
2.3.1 Aquifer Designations 6
2.3.2 Source Protection Zones 6
2.4 Hydrology 7
2.4.1 Groundwater Vulnerability 7
2.4.2 Flood Zone 7
2.5 Ecology 7
2.5.1 European/International Designated Sites 7
2.5.2 National/Locally Designated Sites 8
2.6 Cultural Heritage 8
2.7 Receptors 9
3.0 ENVIRONMENTAL RISK ASSESSMENT OVERVIEW AND APPROACH 11
4.0 CONCLUSION 26

DOCUMENT REFERENCES

TABLES

Table 1 Immediate Surrounding Land Uses..... 5
Table 2 Identified Receptors 9
Table 3 Odour Risk Assessment and Management Plan..... 13
Table 4 Noise Risk Assessment and Management Plan..... 15
Table 5 Fugitive Emissions Risk Assessment and Management Plan 17
Table 6 Accidents Risk Assessment and Management Plan 22

DRAWINGS

EP1 Site Location Plan

EP2 Environmental Permit Boundary

EP3 Environmental Site Setting

EA Habitats and Conservation screening assessment

EP4 – Site Layout and Waste

EP5 - Restoration

EP6 – Site Engineering

EP6a – Site Design – Office and Weighbridge Area

1.0 INTRODUCTION

Ingrebourne Valley Limited (IV) has instructed SLR Consulting Limited (SLR) to prepare a bespoke Environmental Permit (EP) application to authorise a waste soils and aggregates recycling process and the deposit of waste for recovery in the restoration of Newport Quarry, Chalk Farm Lane, Saffron Walden, Essex, hereafter referred to as 'the Site'.

The EP application seeks the use of approximately 500,000m^3 inert waste in the restoration of a chalk quarry to a calcareous grassland at the Site. The proposed restoration seeks to mimic the surrounding natural ground levels and will include a swale, infiltration pond and exposed areas of chalk rock face. Some areas of the quarry void have already been restored using on-Site overburden materials but will be re-restored and further infilled to achieve the final landform contours.

This Environmental Risk Assessment (ERA) is a simple assessment of the risks to the environment and human health from accidents, odour, noise and fugitive emissions that may be associated with waste operations at the facility.

This assessment has been completed in accordance with the Environment Agency (EA) Guidance Risk assessments for your environmental permit (2019)[1]. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage the risks.

EA guidance requires that all receptors that are near the Site and could reasonably be affected by the activities are identified and considered as part of the assessment.

For the purposes of this risk assessment, a 2km radius from the Site's EP boundary has been adopted in reviewing potentially sensitive receptors of ecological importance along with features such as Sites of cultural and natural heritage. A radius of 500m from the Site's Environmental Permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

1.1 The Site

The Site, which currently consists of an open quarry void, received planning permission from the Essex County Council on 23rd January 2020 for the proposed (Ref ESS/42/18/UTT).

1.1.1 Proposed Operations

Along with extraction of chalk reserves at the Site, it is proposed that a recycling facility is established and imported inert waste is processed through crushing and screening. The residual materials will be used to restore the Site back to as close to original ground levels and secondary aggregates will be sold back into the local marketplace.

The proposed restoration of the quarry is illustrated in the following drawings:

- **EP4 – Site Layout and Waste**
- **EP5 - Restoration**
- **EP6 – Site Engineering**
- **EP6a – Site Design – Office and Weighbridge Area**

[1] Environment Agency Guidance Risk Assessments for your environmental permit, October 2019

Key points regarding the proposed restoration are as follows.

- Restoration will be undertaken in four phases with restoration in a phase following mineral extraction in each phase.
- A geological and sidewall barrier will be constructed using indigenous low permeability clay overburden and suitable, low permeability imported waste materials from excavations where there is no suspicion of contamination. During construction, the geological barrier will be overseen and verified in accordance with a Construction Quality Assurance (CQA) Plan.
- Restoration will be undertaken in lifts using indigenous overburden material and residual and unrecyclable inert waste materials to achieve the restoration profile minus lower and upper calcareous soil layers.
- A lower soil layer of indigenous chalk fines will be laid at a thickness of approximately 0.3-0.5m.
- An upper calcareous soil layer will be laid at a thickness of approximately 0.25-0.3m. The upper calcareous soil layer will be manufactured on Site by blending very fine indigenous chalk with residual soil material to produce a chalky soil.
- The Site will be restored as close as possible to the Site's natural contours prior to chalk extraction at the quarry although the exact original profile is unknown.
- An infiltration area will be constructed in the north eastern corner of the Site. Once restored, a swale which divides the Site into an upper and lower catchment area will direct runoff from the upper catchment to the infiltration pond. The lower catchment area will drain to an existing low-lying grassland area which acts as a soakaway.
- Additional woodland and hedgerow planting is proposed along the northern boundary of the swale to mimic that visible on historic mapping records.
- It is estimated that approximately 500,000 m^3 of imported material is required to restore the Site.
- Assuming an average density of 1.8 t/m^3, the mass of imported inert waste materials will be approximately 900,000 tonnes.
- The proposed layout of the soil and aggregate recycling facility is shown on **EP6a – Site Design – Office and Weighbridge Area**

2.0 SITE SETTING & RECEPTORS

2.1 Site Setting

Centred on grid reference TL 52600 33200, the Site is located approximately 500m southeast of the village of Newport, Essex, and 5km south of the town of Saffron Walden. The immediate surrounding land use is predominantly agricultural, rural landscape supplemented with some small pockets of woodland and surface water features. There are a few scattered individual residential properties in the surrounding land and the village of Newport to the north. There are also some transport network links in the immediate surrounding land which include small tracks and residential roads as well as some larger access roads.

Surrounding land-use and receptors within 500m of the Site are identified on Drawing EP3 Environmental Site Setting. Immediate surrounding land uses are identified in Table 1 below.

Table 1 Immediate Surrounding Land Uses

Boundary	Description
North	Bounding the Site to the north lies a byway open to all traffic (BOAT), immediately beyond this lies agricultural and open ground .
East	Immediately adjacent to the east of the Site is predominantly open/rural/agricultural land.
South	The land bounding the Site to the south, and majority of land to the south of the Site consists of open agricultural/rural land.
West	Directly to the west of the Site boundary lies the West Anglia Main railway line, along with some pockets of woodland.

The wider surrounding land uses are described in further detail below:

2.1.1 Industrial/Commercial Premises

There are several industrial/commercial premises within a 500m radius of the Site boundary. The closest of these is Chalk Farm, approximately 225m to the north-west of the Site boundary. There are some other industrial/commercial properties within 500m of the Site boundary to the north and south of the Site, as well as to the west/north-west in the village of Newport.

Another industrial/commercial property in close proximity is . The Old Kiora, approximately 300m south from the Site boundary. This building is registered to 'Deep Clean Service' local business but is also likely to be a residential dwelling.

2.1.2 Residential Properties

There are several residential properties which lie within 500m of the Site boundary, primarily within the village of Newport to the west/north-west. The closest residential properties from the boundary of the Site are located on The Spinney and Bowker Close, on the outskirts of the village of Newport, 250m and 255m to the west. Some dwellings also lie along Debden Road to the north, around 425m from the Site boundary at the closest point.

2.1.3 Local Transport Network

Approximately 85m to the west of the Site lies the West Anglia Main railway line which runs from London to Cambridge. Immediately adjacent to the Site to the north lies a small track which allows access to all traffic running from west to east.

Just beyond the railway line, approximately 230m to the west lies the B1383 London Road which runs from north to south. There are also several smaller residential roads situated in Newport to the west/north-west from the Site, the closest of which being The Spinney, off the London Road, approximately 250m to the west of the Site boundary.

Beyond the London Road, around 480m to the west of the Site lies the M11, a main transport network in the area which runs from South Woodford to Girton. The M11 runs for around 1km within the 500m radius from the Site boundary.

There are several other small roads and tracks within a 500m radius to the north, south and east of the Site boundary.

2.1.4 Surface Water Features

There are a number of surface water features within 500m of the Site boundary, the closest of which is the River Cam which runs to the west of the Site, approximately 130m at the closest point from the Site boundary. The River Cam runs from north-south past the Site and is the main river flowing through Cambridge.

Along with this, there are a number of surface water drains within a 500m radius of the Site boundary. The closest of these lies approximately 225m north-west of the Site boundary

2.1.5 Agricultural/Open Ground

The Site is largely surrounded by agricultural fields and open ground, bounding the Site directly to the north, south and east. The expanses of land within a 500m radius from the Site boundary to the north, south and east predominantly consist of open ground and agricultural spaces. There are also some pockets of agricultural ground to the west of the Site, the closest of which is around 50m from the Site boundary.

2.1.6 Woodland

With the Site being located in a predominantly rural location, there are various parcels of woodland within 500m of the Site. The nearest area of woodland lies directly adjacent to the Site to the west is a Priority Habitat - Deciduous Woodland habitat. There are several other pockets of woodland to the south and west of the Site, including one area of Priority Habitat – Traditional Orchards, 390m to the west of the Site boundary.

2.2 Geology

A review of the British Geological Survey (BGS)[2] map, reveals that the Site is underlain by a bedrock of Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) – Chalk. This bedrock is indicative of a local environment previously dominated by warm chalk seas.

There are several superficial bedrock recorded to be underlying the Site area. For the majority of the Site area superficial deposits are unrecorded. The very south-eastern tip of the Site area records superficial deposits of Kesgrave Catchment Subgroup – sand and Gravel, indicative of an environment previously dominated by rivers. The access track area of the EP boundary is predominantly underlain by superficial deposits of Head – Clay, Silt, Sand and Gravel, indicative of a local environment previously dominated by subaerial slopes.

2.3 Hydrogeology

A detailed description of the hydrogeology of the area is presented in the Hydrogeological Risk Assessment in Section 6 of the application. The following summary is based on the information presented in that report.

2.3.1 Aquifer Designations

The bedrock deposits underlying the Site are classed as a Principal Aquifer on the Multi-Agency Information for the Countryside (MAGIC)[3] website.

There are multiple superficial deposits underlying the Site, but predominantly there are classed undifferentiated.

2.3.2 Source Protection Zones

The Site falls within an area classified as Zone III – Total Catchment according to the MAGIC website.

[2] British Geological Survey – Available: mapapps.bgs.ac.uk/geologyofbritain/home.html, accessed June 2020
[3] Multi-Agency Information for the Countryside – Available at: http://www.magic.gov.uk, accessed June 2020

2.4 Hydrology

2.4.1 Groundwater Vulnerability

The Groundwater Vulnerability layer on MAGIC map reveals that the Site lies within an area classified at Medium-High vulnerability, with Soluble Rock Risk.

2.4.2 Flood Zone

The Flood Map for Planning[4] confirms that the Site lies within a Flood Zone 1, which is defined as "land having a less than 1 in 1,000 annual probability of river or sea flooding".

2.5 Ecology

The MAGIC map website and an EA Habitats and Conservation screening assessment conducted for the Site, have both been accessed to determine the presence of any European or Internationally designated sites within a 2km radius from the Site's boundary.

2.5.1 European/International Designated Sites

Site of Special Scientific Interest (SSSI)

- Debden Water SSSI area lies within a 2km radius of the Site boundary, approximately 790m to the north from the Site boundary. The Debden Water SSSI is a small freshwater stream which supports a range of habitat types for which it is designated, including tall fen vegetation, unimproved neutral grassland, broad-leaved woodland and calcareous grassland.

Local Wildlife Sites (LWS)

There are nine LWS's located within 2km of the Site boundary.

- Kiora Pastures – located adjacent to the access road to the Site and comprises of two old grasslands containing important flora;
- Newport - Debden Road Protected Roadside Verge – located approximately 530m to the north of the Site boundary. Designated for the presence of wild liquorice (Astragalus glycyphyllos), which is in the Essex Red Data plant list;
- Paynsden Wood and Park – an area of woodland within woodland flora, located approximately 600m to the south-west of the Site boundary;
- Bushy Lays/Spring Close – located approximately 940m to the west of the Site boundary. Bushy Lays is not recorded as ancient woodland but provides an extension to a larger, ancient woodland of Spring Close;
- Wicken Water Marsh – comprises of a mixture of reed beds and wet woodland, located approximately 1.2km to the north-west of the Site boundary;
- Park Wood, Widdington – located approximately 1.5km to the east of the Site boundary, comprising of woodland and woodland flora;
- London Jock Wood – comprises of an ancient woodland and a thin strip of recent secondary wood, is located approximately 1.8km to the south-east of the Site boundary;

[4] Gov.uk, Flood Map for Planning, available at https://flood-map-for-planning.service.gov.uk/, accessed in June 2020

- Widdington - Waldegraves Protected Roadside Verges – located to the south-east approximately 1.85km from the Site boundary and has notable flora; and
- Horseley Wood/Cabbage Wood/Pig's Parlour – located approximately 1.9km to the east of the Ste, comprising of ancient woodland.

Other Receptors

A review of the EA Habitat and Conservation screening assessment completed for the Site and the MAGIC website confirmed that none of the following are situated within 2km of the Site:

- Ramsar Site;
- Special Area of Conservation; and
- Special Protection Area.

2.5.2 National/Locally Designated Sites

Ancient Woodland

There are numerous pockets of ancient woodland within a 2km radius from the Site boundary.

- The closest ancient woodland is Horseley Wood, an area of ancient replanted woodland. It is located around 980m to the east of the Site, at the closest point from the Site boundary and covers an area of 23.96hectares.
- Spring Close, an area of Ancient & Semi-Natural Woodland, is located approximately 1.05km to the south-west of the Site boundary. Spring Close covers an area of 9.35hectares.

Other Receptors

A review of the EA Habitat and Conservation screening assessment completed for the Site and the MAGIC website, confirmed that none of the following are situated within 2km of the Site:

- Area of Outstanding Natural Beauty (AONB);
- Local Nature Reserve;
- National Nature Reserve; and
- National Parks.

2.6 Cultural Heritage

Listed Buildings

There are numerous listed buildings within a 2km radius to the Site boundary, the majority of which lie to the north in the village of Newport and to the south-east in the village of Widdington.

- The closest Grade I listed building to the Site boundary is 'The Georgians', which lies around 700m to the north-west of the Site, on the outskirts of the village of Newport.
- The closest Grade II listed building is 'Granta' which lies around 530m from the north-western edge of the Site boundary, on the outskirts on the village of Newport.
- The closest Grade II* listed building is the 'Church of St Mary the Virgin', which lies around 1km from the north-western edge of the Site boundary, in the village of Newport.

Registered Parks and Gardens

There are two expanses of registered parks and gardens within a 2km radius of the Site boundary.

- Quendon Hall is a registered park and garden which lies around 1.01km to the south from the Site boundary at the closest point. The entire expanse of Quendon Hall lies within the 2km radius from the Site boundary and covers approximately 64 hectares.
- Shortgrove Hall is a registered park and garden close to the Site, and around half of the 169 hectares registered to Shortgrove Hall lies within a 2km radius from the Site boundary. The registered area lies around 1.3km to the north from the Site boundary at its closest point.

Scheduled Monuments

There are four scheduled monuments within a 2km radius of the Site boundary.

- St Helen's Chapel, Bonhunt is the closest scheduled monument to the Site, and lies around 1.33km from the Site boundary to the north-west. The monument area covers around 0.008 hectares.
- Prior's Hall moated site lies around 1.37km south-east from the Site boundary. The monument covers an area of 0.96 hectares.
- Widdington Hall moated site, scheduled monument lies around 1.77km from the Site boundary to the south-east. The monument site covers around 0.89 hectares.
- There is a scheduled monument of 'moated site 400m south-east of Shortgrove Hall' which lies approximately 1.85km from the Site boundary to the north. The monument site covers around 0.45 hectares in size.

Other Receptors

A review of MAGIC map confirmed that none of the following are situated within 2km of the Site:

- Registered Battlefields; and
- World Heritage Sites.

2.7 Receptors

Local Receptors within 500m of the Site are identified in Table 2, along with cultural and ecological receptors within 2km.

Table 2 Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (at nearest point) (m)
Local receptors within 500m of the Environmental Permit Boundary as shown on Drawing EP3 Environmental Site Setting			
Open Ground	Agricultural/Open Ground	North, South, East	Adjacent
Track	Local Transport Network	North	Adjacent
Deciduous Woodland	Woodland	West	Adjacent
Open Ground	Agricultural/Open Ground	West	50
West Anglia main railway	Local Transport Network	West	85
River Cam	Surface Water Features	West	130
Chalk Farm	Industrial/Commercial Premises	North-West	210
Drain	Surface Water Features	North-West	225
B1383 London Road	Local Transport Network	West	230

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (at nearest point) (m)
The Spinney	Residential Properties	West	250
Bowker Close	Residential Properties	West	255
The Old Kiora	Residential/Commercial Premises	South	300
Traditional Orchard	Woodland	West	390
Hillside House	Residential Properties	North	425
M11	Local Transport Network	West	480
Cultural and ecological receptors within 2km of the EP boundary as shown in Drawing EP4 Cultural and Natural Heritage			
Kiora Pastures	Local Wildlife Site	West	Adjacent
Granta	Listed Building	North-West	530
Newport - Debden Road Protected Roadside Verge	Local Wildlife Site	North	530
Paynsden Wood and Park	Local Wildlife Site	South-West	600
The Georgians	Listed Building	North-West	700
Debden Water	Site of Special Scientific Interest	North	800
Bushy Lays/Spring Close	Local Wildlife Site	West	940
Horseley Wood	Ancient Woodland	East	980
Church of St Mary the Virgin	Listed Building	North-West	1000
Quendon Hal	Registered Park and Garden	South	1010
Spring Close	Ancient Woodland	South-West	1050
Wicken Water Marsh	Local Wildlife Site	North-West	1200
Shortgrove Hall	Registered Park and Garden	North	1300
St Helen's Chapel, Bonhunt	Scheduled Monuments	North-West	1330
Prior's Hall	Scheduled Monuments	South-East	1370
Park Wood	Local Wildlife Site	East	1500
Widdington Hall	Scheduled Monuments	South-East	1770
London Jock Wood	Local Wildlife Site	South-East	1800
Moated site 400m south-east of Shortgrove Hall	Scheduled Monuments	North	1850
Widdington – Waldegraves Protected Roadside Verges	Local Wildlife Site	South-East	1850
Horseley Wood/Cabbage Wood/Pig's Parlour	Local Wildlife Site	East	1900

2.8 Windrose

Figure 2-1 shows average wind patterns between 2012-2016 as identified at the Stansted meteorological station, which is approximately 10km south of the Site. The most prominent wind direction is from south-west to north-east. Winds coming from the west and south are also fairly frequent, with wind form other directions being more infrequent.

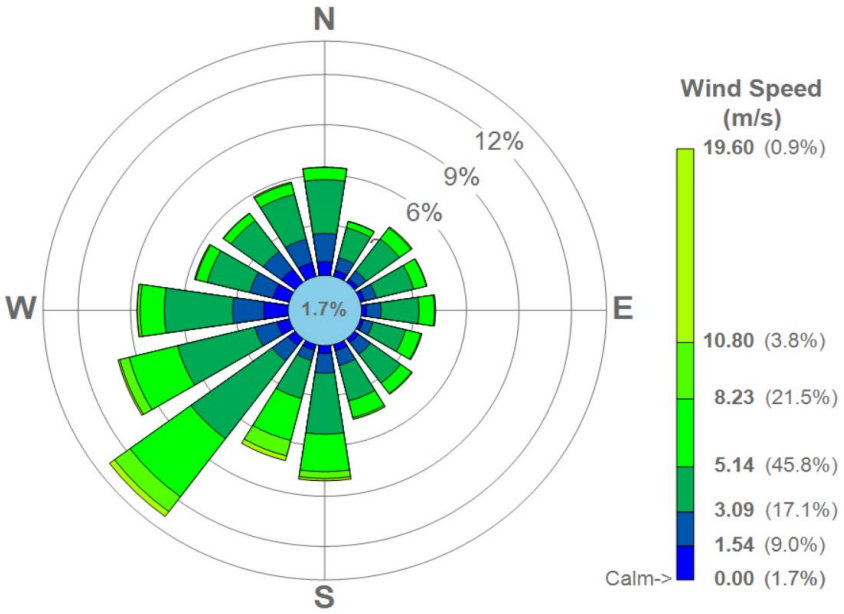

Figure 2-1
Wind Rose using 2012-2016 data from Stansted Meteorological Station

3.0 ENVIRONMENTAL RISK ASSESSMENT OVERVIEW AND APPROACH

This ERA complies with regulatory guidance 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're acceptable and can be screened out;

Step 5 State what you'll do to control risks if they're too high;

Step 6 Present your assessment as part of your permit application.

Step 1 is a screening step to identify the potential risks to the environment from the proposed development. The risk assessment must identify whether any of the following risks could occur and what the environmental impact could be:

- any discharge, for example sewage or trade effluent to surface or groundwater;
- accidents;
- odour (not for standalone water discharge and groundwater activities);
- noise and vibration (not for standalone water discharge and groundwater activities);
- uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests and pollutants that shouldn't be in the discharge;

- visible emissions, e.g. smoke or visible plumes.

Potential risk can be screened out by carrying out tests to check whether they're within acceptable limits or environmental standards. If they are, any further assessment of the pollutant is not necessary because the risk to the environment is insignificant. In addition, the EA guidance identifies risks from specific activities (Step 4), for which additional risk assessments must be complete depending on the activity your bespoke permit relates to and where substances are released or discharged into the environment. These include:

1) Risk assessment for installations, waste and mining waste operations and landfill Sites;

2) Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater; and

3) Risk assessment for intensive farming.

There will be no emissions to surface water or air resulting from the proposed development and neither will there be any Site waste arising or global warming potential. Therefore, only assessment of impacts on amenity, accidents, stability and groundwater are considered to be applicable for assessment in this instance. Amenity and accidents risks include the consideration of odour, noise and vibration, fugitive emissions (including dust, mud, litter and pests) and accidents in relation to the proposed development.

Step 2 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity.

Step 3 identifies the possible pathways from the sources to these receptors.

The following tables, 3-6, present the assessment (Step 4) in terms of hazards posed, receptors and pathways, along with management and residual risks for the following hazards:

- Odour;
- Noise and Vibrations;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.

Where appropriate, the assessment demonstrates how the risk of pollution or harm can be mitigated by measures to manage these risks (Step 5).

Table 3 Odour Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Probability of Exposure**	**Consequences**	**What is the overall risk**
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Recycling treatment facility Odour from the acceptance and treatment of waste. Odour from waste storage activity.	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The proposed waste types for acceptance and treatment on Site are all considered to be inert and non-putrescible or readily degradable. Therefore, the wastes for acceptance and treatment are not considered to be odorous. Strict waste acceptance procedures will be enforced on Site, to ensure that only permitted waste types are accepted and treated. Site operatives will conduct daily inspections of the perimeter to identify any unacceptable odours. Site operatives will also be encouraged to conduct informal inspections throughout the day and report any odours noticed. If any odours are identified the cause will be investigated. If the odours are found to be due to waste on Site, the loads will be isolated in a sealed container before removal off-Site to a suitably licenced treatment facility. Results of any investigations or inspections due to complaints will be recorded in the Site diary.	Low	Odour Nuisance and loss of amenity.	Low

			The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures found in the operating techniques.			
Deposit of Waste for Recovery Odour from deposit of waste.	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The proposed waste types for acceptance and treatment on Site are all considered to be inert and non-putrescible or readily degradable. Therefore, the wastes for acceptance and treatment are not considered to be odorous. Strict waste acceptance procedures will be followed to ensure that no unauthorised materials are deposited on Site. Site operatives will conduct daily inspections of the perimeter to identify any unacceptable odours. Site operatives will also be encouraged to conduct informal inspections throughout the day and report any odours noticed. If any odours are identified the cause will be investigated. If the odours are found to be due to waste deposited on Site, the loads will be isolated in a sealed container before removal off-Site to a suitably licenced treatment facility. Results of any investigations or inspections due to complaints will be recorded in the Site diary. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures found in the Operating Techniques.	Low	Odour Nuisance and loss of amenity.	Low

Table 4 Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Engine noise from vehicles entering/exiting the Site. Engine noise from on-Site machinery.	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The following measures will be employed to minimise emissions of noise as far as possible for the sensitive receptors identified in Table 2: • Any Site operations, including vehicles and Site machinery, will be restricted to working hours specified in the planning consent; • Speed limits will be implemented for vehicles on Site and traffic calming measures introduced to help to enforce these limits; • All plant machinery on Site will be operated and maintained to the manufacturer's specification, to reduce any unnecessary noise pollution. • On-Site machinery will be turned off when not in use • All visitors and haulage companies will be made aware of IVL's procedures for minimising noise on Site; • Site access and operational areas will be maintained and repaired to minimise	Low – intermittent and only in working hours.	Noise disturbance and loss of amenity.	Low

			emissions of noise from uneven and poor surfacing; • Plant machinery will be fitted with noise silencers if necessary; and • Alternative non-tonal reversing signals will be used on mobile plants. Daily auditory inspections will be carried out and in response to any complaints. A record of the inspection findings will be made in the Site diary. If any noise levels are deemed a nuisance, the cause will be investigated, and mitigation measures enforced. The Site Manager will be responsible for implementing risk management measures in accordance with Operational Techniques.			
Noise from receiving and depositing waste.	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The following measures will be employed to minimise emissions of noise as far as possible for the sensitive receptors identified in Table 2: Where appropriate and possible, drop heights of waste will be minimised to reduce noise. Daily auditory inspections will be carried out and in response to any complaints. A record of the inspection findings will be made in the Site diary. If any noise levels are deemed a nuisance, the cause will be investigated, and mitigation measures enforced. The Site Manager will be responsible for implementing risk management measures in accordance with Operational Techniques.	Low – only operational during working hours.	Noise disturbance and loss of amenity.	Low

Table 5 Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
To Air:						
Dust from vehicle movements.	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The following measures will be used to minimise mobilisation of dust from vehicle movements: • Road surfaces on Site will be maintained and regularly graded to maintain a smooth surface, which will manage and control dust; • Dampening down of active/operational areas using a water bowser and spray, as and when required; • Speed limits will be enforced to minimise the mobilisation of dust, and traffic calming measures installed to ensure speed limits are kept to; and • Roads will be inspected throughout the working day to ensure they are being kept to a high standard. Daily visual inspections will be conducted in response to any complaints. If dust is deemed a nuisance from any of	Medium.	Nuisance and harm to human health	Low

			these inspections, mitigation measures will be enforced to reduce any dust emissions. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
Dust from recycling/treatment of materials. Dust from emplacement of materials. Dust from waste/soil storage.	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The following measures will be used to prevent mobilisation of dust from the emplacement of materials: • Regular monitoring of weather forecasts; • A low ground pressure (LDP) dozer will be used to smooth out soil/reclamation materials to reduce dust emissions from them; • Temporarily stopping any deposition of dusty waste during strong wind conditions; • Use of water bowsers or sprays in dry conditions to dampen loads • Recycling and treatment operations only undertaken during 'calm' weather conditions and operations suspended during persistent high winds; and • Any existing perimeter environmental bunds which are aren't already, will be seeded with a suitable grass seed mix which will help to reduce displacement of soil particulates in windy conditions. Daily visual inspections will be conducted in response to any complaints. If dust is deemed a nuisance from any of these inspections, mitigation measures will be enforced to reduce any dust emissions.	Medium	Nuisance and harm to human health.	Low

			The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
To Water:						
Contaminated Site run off	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors. Groundwater.	Land	The following measures will be used to prevent contaminated Site run off: • Only uncontaminated, permitted inert materials will be accepted, treated and deposited on Site. Consequently, contaminated leachate and run-off will not be generated as all waste on Site will be inert; • Strict waste acceptance procedures will be enforced to ensure that no unauthorised materials are accepted on Site; • Vehicles will undergo preventative maintenance to prevent leaks of fuel or oil on Site; • Spill kits will be stored on Site containing appropriate absorbent materials to use in the event of a spillage; • No fuels or chemicals will be stored on Site. The Sites operational areas will be inspected daily for any signs of spillages or contaminated run The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.	Low	Contamination	Low

Pests						
Birds, pests and insects attracted to Site	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Land, Water and Air	No biodegradable or putrescible waste will be accepted on Site, and therefore is not expected to attract and birds, pests or vermin. Strict waste acceptance procedures will ensure that no unauthorised wastes are accepted. In the event that birds, pests and insects are identified at the Site appropriate remedial action will be taken. If necessary, a specialist pest control contractor will be employed to relocate the pests. Investigations will be conducted daily by Site personnel of the operational areas to identify birds, pests and insects. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.	Low	Nuisance, potential risk to health	Low
Mud/Litter						
Litter from waste	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	The waste types accepted on Site are unlikely to generate litter. Strict waste acceptance procedures will be followed to ensure that only authorised wastes are accepted on Site. The Site will benefit from good housekeeping procedures and all areas of the Site will be cleaning daily. The Site and its immediate surrounding will be inspected on a daily basis. If litter from waste is found, action will be taken to ensure the area remains free of significant accumulations of litter and debris.	Low	Nuisance from litter. Dangerous conditions on roads.	Low

			The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures in the Operating Techniques.			
Mud on roads	Local Road Network	Transferral of mud on vehicles wheels	Road surfaces and haul roads on Site will be maintained and cleaned on a daily basis and will benefit from good housekeeping, to minimise the transfer of mud on Site. A road brush will be used when necessary to sweep the main access road. Vehicles and plant machinery leaving the Site will be checked to ensure they are clear of loose waste. Vehicles leaving Site will also be cleaned using a wheel wash and checked to ensure their load is secure. In the event that mud, debris or waste arising from the Site is deposited outside the Site, the affected area will be cleaned immediately. The Site and its immediate surrounding will be inspected on a daily basis. If any mud is identified, then action will be taken to maintain the area free of significant accumulations of mud. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures in the Operating Techniques.	Medium	Nuisance from mud. Dangerous conditions on roads.	Low

Table 6 Accidents Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Leakage of fuel and oils from Site plant	Local surface water features including rivers, streams and drains. Groundwater.	Land	A diesel bowser will be stored in the 'bunded refuelling area'. Measures which will be in place to prevent and manage leaks from this tank are; • It will sit on top of a concrete slab to prevent any infiltration if there is a spillage or leak. • The bunded area will have the carrying capacity of 110% of the bowsers' maximum capacity. • The refuelling area will comprise a small concreted area designed to contain and direct any drainage to an oil and silt trap which discharges to a soakaway. • The refuelling tanks generally contain a maximum of 5,000 litres of diesel The following measures will be implemented to manage leaks from Site plant: • Mobile plants on Site will be monitored by Site personnel for quick identification of any leaks;	Low	Contamination of surroundings	Low

			• Spill kits will be provided on Site containing appropriate absorbent materials for use in the event of a leakage; • Vehicles and mobile plant machinery on Site will be subject to preventative maintenance in accordance with the manufacture's guidance, to prevent any leaks from machinery; and • The Site staff will undertake daily visual monitoring for evidence of spillage and leakage. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures outlined in the Operating Techniques.			
Fire	Sensitive receptors listed in Table 2 including residential, commercial, recreational, ecological and agricultural receptors. Site personnel.	Air and Land	The waste types authorised to be accepted on Site, are not such that will readily burn. In order to minimise the occurrence of fire, and ensure Site personnel are equipped to deal with any unlikely occurrences, the following measures will be implemented: • No burning of waste will take place on Site; • Smoking will not be permitted in the operational areas of the Site; • No flammable liquids will be stored on Site; and • Employees will receive training in fire assessment and identification, i.e. use of fire extinguishers and emergency procedures; Any fire on Site will be treated as an emergency, in the unlikely event of a fire, these actions will be taken;	Low	Harm to human health, harm to operations, pollution of surroundings.	Low

			• Notify the Fire & Rescue Service immediately and the EA as soon as practicable; • Isolate the burning area and attempt to extinguish the fire utilising the on-Site fire extinguishers, if it is safe to do so; • Prevent, if possible, contaminated Site drainage from entering unsurfaced ground; and • Evacuate the Site if the fire is not containable. The operational areas of the Site will be inspected daily for any signs of a fire. The plant inspection schedule will include checks of any electrical equipment on Site to ensure that any faults are identified and repaired. The results of all inspections will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures in the Operational Techniques.			
Flooding	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors. Site personnel.	Land	The Site lies within a Flood Zone 1, which is defined as "land having a less than 1 in 1,000 annual probability of river or sea flooding", and therefore has a very low probability of flooding. An evacuation plan will be implemented in the unlikely event of flooding. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures outlined in Operational Techniques.	Very low	Harm to human health, contamination of groundwater and surface water.	Negligible
Unauthorised waste receipt	Sensitive receptors	Air, Land and Water	Strict waste acceptance procedures will ensure only authorised inert materials will be accepted at the Site.	Low	Nuisance, Contamination	Low

	listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors. Site personnel.		These procedures include pre-acceptance checks i.e. visual inspections upon arrival, an approved suppliers list and basic characterisation. Any unauthorised waste will be rejected and placed in a quarantined stockpile area, before disposal off-Site to an approved facility. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures in the Operational Techniques.		and harm to human health.	
Security and Vandalism	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors. Site personnel.	Air, Land and Water	The Site will benefit from the following infrastructure to keep the Site secure, and prevent unauthorised access: • All visitor required to use a Sign in/Sign out book, to minimise risk of unauthorised visitors gaining access to the Site; • Secured using fencing, hedging and lockable gates to prevent any unauthorised access; • Security infrastructure inspected daily to identify deteriorations. In the event that damage is found, then actins will be taken to secure the access and temporary repairs made. Permanent repairs will then be made as soon as practically possible. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures in the Operational Techniques.	Low	Nuisance, Contamination and harm to human health.	Low

4.0 CONCLUSION

To conclude, it is considered that the operations on Site will not pose a significant risk of harm to sensitive receptors in the vicinity of the Site due to the strict waste acceptance procedures and management measures in place.

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