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SHELLINGFORD QUARRY LANDFILL ENVIRONMENTAL RISK ASSESSMENT TO SUPPORT ENVIRONMENTAL PERMIT VARIATION APPLICATION EPR/BP3095EU/V004

For

MULTI-AGG LIMITED

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SHELLINGFORD QUARRY LANDFILL ENVIRONMENTAL RISK ASSESSMENT TO SUPPORT ENVIRONMENTAL PERMIT VARIATION APPLICATION EPR/BP3095EU/V004

1. INTRODUCTION

Shellingford Quarry Landfill (the site) currently operates under Environmental Permitting Regulations (EPR) Permit EPR/BP3095EU which provides for the landfilling with imported inert waste of the quarry excavation in accordance with extant Planning Permissions STA/SHE/8554/12-CM (MW.0020/11) and STA/SHE/8554/11-CM (MW.0021/11). The site is operated by Multi-Agg Limited (Multi-Agg).

Planning Permission P18/V2610/CM (MW.0104/18) has been approved to allow extraction of sand and limestone from a western extension to Shellingford Quarry and to restore the excavation to original ground levels using imported inert waste material and indigenous soils.

An EPR Permit application is being submitted to vary the existing EPR Permit EPR/BP3095EU to add a deposit for recovery activity to accommodate infilling within the adjacent western quarry excavation area with imported inert waste.

This report presents an Environmental Risk Assessment (ERA) and has been prepared to support the EPR Permit application to vary the existing EPR Permit to accommodate infilling with imported inert waste in the western quarry extension area.

This ERA provides an assessment of the risks to the environment and human health from emissions that may be associated with the deposit for recovery activity in the western extension area of the site.

The objective of the assessment is to identify any significant risks, to demonstrate that the risk of environmental impact or harm is acceptably low and to identity mitigation measures which will need to be implemented in order to manage the risks at acceptable levels.

2. PROPOSED DEVELOPMENT

The EPR Permit application is to vary the existing EPR Permit EPR/BP3095EU to add a deposit for recovery activity to accommodate infilling within the adjacent western quarry excavation area with imported inert waste. The inert fill capacity associated with the deposit for recovery activity is *c.* 1.60Mm^3 which equates to a tonnage of *c.* 2.88Mt (using a conversion factor of 1.8t/m^3).

The additional deposit for recovery activity associated with the Permit variation will be limited to the western quarry excavation area that is adjacent to the inert landfilling area covered by the existing EPR Permit. This means the current Permit boundary will need to be extended to the west and south to allow for the additional deposit for recovery activity.

3. SITE SETTING

3.1 Site Location

The application site is located at Shellingford Quarry, Stanford Road, Stanford in the Vale, Faringdon, Oxfordshire, SN7 8HE (National Grid Reference SU 32700 93600).

Shellingford Quarry is located to the north of the White Horse Business Park between the villages of Shellingford *c.* 0.25km to the west and Stanford in the Vale *c.* 0.50km to the east. The town of Faringdon is located *c.* 3.0km to the west of the quarry

Original ground levels within the western quarry extension area range from *c.* 90mAOD in the north to *c.* 74mAOD in the south, north of the Holywell Brook (also known as the Hollywell Brook).

The quarry is excavated in Upper Jurassic strata belonging to the Corralian Group and comprising principally the Highworth Grit Member (sand) and underlying Highworth Limestone Member (limestone) of the Kingston Formation.

Drawing No. SHELLQMA2508-1 shows the site location.

Drawing No. SHELLQMA2508-2 shows the EPR Permit variation application area within the context of the existing EPR Permit area, highlighting where the deposit for recovery activity in the western extension area will take place.

Drawing No. SHELLQMA2508-3 is the site plan which shows the total extent of the varied EPR Permit area being applied for.

Drawing No. SHELLQMA2508-7 illustrates the phasing of the excavation and infilling of the western quarry extension, approved by Planning Permission P18/V2610/CM (MW.0104/18).

Access to the site is currently from the A417 (Faringdon Road) and will remain unchanged.

3.2 Geological Setting

The geological setting of the site has been determined based on a review of published information, site investigation information and observations made in the existing quarry excavation.

Strata represented in the existing quarry and the western quarry extension area belong to the Stanford Formation and the underlying Kingston Formation which form part of the Corallian Group (Upper Jurassic).

More specifically, the strata comprise:

- Calne Member (Stanford Formation) – rubbly oolitic and clayey limestones (0.0m to *c.* 1.5m thick locally); overlying
- Highworth Grit Member (Kingston Formation) – fine and medium grained sands, rippled and cross bedded with thin limestone bands and clay lenses, increasingly silty to the base (*c.* 2.0m to *c.* 11m thick locally); overlying
- Highworth Clay Member (Kingston Formation) – grey sandy and silty clay, often thin or absent (0.0m to c. 3m thick locally); overlying
- Highworth Limestone Member (Kingston Formation) – oolitic and bioclastic limestones with thin sandy clay bands, becoming a sandy limestone to the base (*c.* 2.5m to c. 10m thick locally); overlying
- Lower Calcareous Grit Formation (Corallian Group) – silty and clayey fine to medium sands (*c.* 5.5m to *c.* 10m thick locally – not worked); overlying
- Oxford Clay Formation (Ancholme Group) – clay (greater than 30m thick – not worked).

The strata within and near the site generally dip to the south and southeast at variable gradients of between *c.* 1v : 40h (vertical : horizontal) and *c.* 1v : 100h. However, variations in strata dip and dip direction occur as a result of lateral variations in strata character and thickness.

Consistent with the requirements of the extant Planning Permissions the quarry is not currently, and will not be, excavated below the base of the Highworth Limestone Member *i.e.* no excavation into the underlying Lower Calcareous Grit Formation.

3.3 Hydrogeological Setting

Groundwater is present in the Highworth Limestone Member and the underlying Lower Calcareous Grit Formation (Corallian Group) and the existing quarry is dewatered to allow mineral excavation, AGB construction and restoration infilling to be undertaken in dry conditions. The quarry, including the western quarry excavation area, will continue to be operated in the same manner.

Groundwater flow is to the south and southeast and discharge into the Holywell Brook, located *c.* 200m west and *c.* 100m south of the western extension area, is inferred. A more detailed description of the hydrogeological setting is provided in the Hydrogeological Risk Assessment (HRA) report (GWP Report No. 250716) which accompanies the EPR Permit variation application (Appendix Hiv)).

3.3.1 Aquifer Designations

The Corallian Group strata which underlies the site and the surrounding area is classified by the Environment Agency (EA) as a 'Secondary A' aquifer, defined as *"permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of baseflow to rivers"*.

The site is not located in a designated superficial aquifer (is unproductive).

3.3.2 Source Protection Zones (SPZs)

The site is not located within a groundwater source protection zone.

3.4 Hydrological Setting

The site is located within the catchment area of the Holywell Brook (a tributary of the River Ock) which flows in a southerly direction along the eastern side of Shellingford village (*c.* 200m west of the western extension area) and then in an easterly direction (*c.* 100m south of the current site and western extension area) towards its confluence with the River Ock near Manor Farm *c.* 1.1km southeast of the site.

The Frogmore Brook is located *c.* 750m northeast of the site at its closest approach and flows in a southeasterly direction where it meets the River Ock *c.* 1.6km east of the site.

There are a number of surface waterbodies located within and surrounding the existing quarry area.

Within the existing quarry site there are a series of settlement lagoons used for clarification of mineral processing wash water. A small lagoon is located on the southern boundary of the site from which water from the existing quarry is discharged to the Holywell Brook under an extant discharge consent (NPSWQD002821).

The closest waterbody to the site is located in the western part of the restored Shellingford Crossroads Quarry *c.* 70m to the north of the existing quarry and *c.* 260m to the northeast of the western extension area. The waterbody is not groundwater fed and Google Earth aerial images show that the waterbody has largely dried out since 2012.

A pond is located *c.* 300m south of the site, within the footprint of the White Horse Business Park. A pond is also located 400m south of the site and another pond is situated *c.* 650m south of the site along the northern edge of the Holywell Brook.

Two attenuation ponds associated with the new housing development built at River Meadow (off Faringdon Road/Ware Road) are situated 240m and 370m to the southeast of the site, respectively.

A spring issue is located immediately north of Shellingford village, which appears to contribute to, but not to be the sole source of, flow in the Holywell Brook.

1 No. licenced surface water abstraction is located *c.* 830m to the west of the site.

The site is located within fluvial flood risk Flood Zone 1 (annual exceedance probability for river flooding is equal to or less than 0.1% (*i.e.* less than 1 in 1000 years)) and mostly within a very low pluvial flood risk zone.

3.5 Wind Rose

A wind rose for Fairford, the nearest available reporting station to the site, is presented in Figure 1. The Fairford station is located *c.* 18km to the west-northwest of the site. The predominant wind direction is from the southwest (national prevailing wind direction).

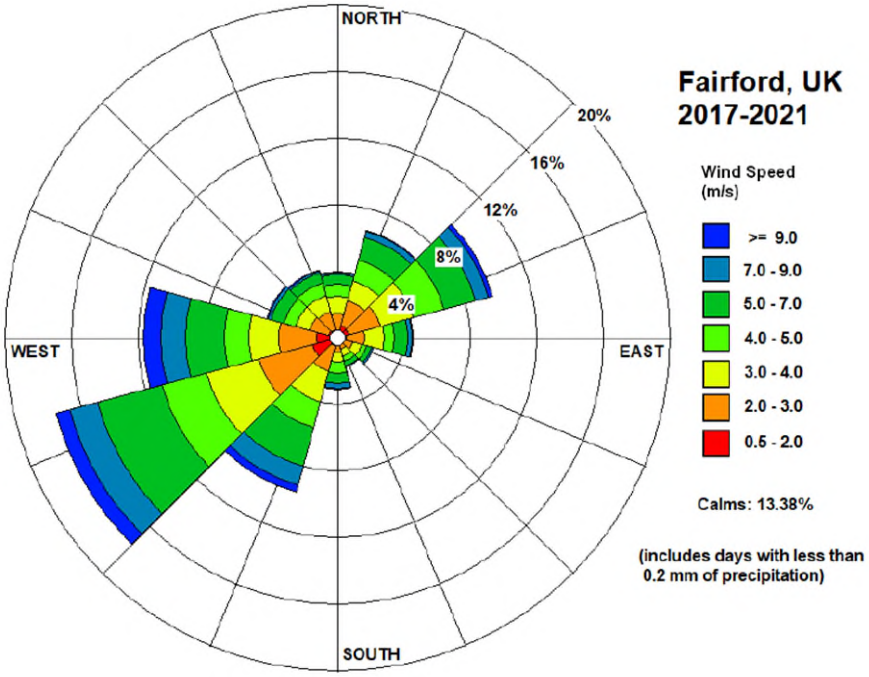

Figure 1 – Average wind rose, Fairford 2017 – 2021

4. ENVIRONMENTAL RISK ASSESSMENT

4.1 Overview of Methodology

This ERA presents an assessment of the environmental risks posed by the deposit for recovery activity within the western extension area.

The ERA has been completed in accordance with the EA Technical Guidance *'Risk Assessments for your Environmental Permit'* .

The objective of the assessment is to identify any significant risks, to demonstrate that the risk of environmental impact or harm is acceptably low and to identity mitigation measures which will need to be implemented in order to manage the risks at acceptable levels.

The ERA follows the steps under the *'How to do a risk assessment'* section of the EA guidance, as follows:

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

4.2 Consideration of Risks

Step 1 considers 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 should not be in the discharge;
- visible emissions, *e.g.* smoke or visible plumes;
- release of bioaerosols, for example from shredding, screening and turning, or from stack or open point source release such as a biofilter.

In addition, the EA guidance identifies risks from specific activities for which additional risk assessments must be completed depending on the activity being carried out and where substances are released or discharged into the environment.

Additional risk assessments have been prepared and submitted by GWP comprising:

- Hydrogeological Risk Assessment (GWP Report No. 250716 v.01);
- Landfill Gas Risk Assessment (GWP Report No. 250213 v.01);
- Stability Risk Assessment (GWP Report No. 250313 v.01).

Potential risks can be screened out if they are not relevant for the site or by carrying out tests to check whether they are 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.

4.3 Receptors

Step 2 of the risk assessment methodology outlined in Section 4.1 considers the receptors that could be at risk from the deposit for recovery activity within the western extension area at the site.

The following distances from the proposed increased Environmental Permit application boundary have been used to identify potential receptors:

- 1km radius – European ecological important sites including RAMSAR sites, Special Areas of Conservation, Local Wildlife Sites and Special Protection Areas;
- 1km radius – potentially sensitive receptors of ecological importance and sites of cultural and natural heritage. These include National Nature Reserves, Local Nature Reserves, Sites of Special Scientific Interest and Scheduled Monuments;
- 500m radius – all other potentially sensitive receptors *e.g.* residential, commercial, industrial, agricultural and surface water receptors.

4.4 Receptors – General Risk Assessment

Receptors for which a general risk assessment schedule has been completed are listed in Table 1.

The general risk assessment schedule is provided in Appendix 1. Steps 3, 4 and 5 of the risk assessment methodology outlined in Section 4.1 are covered in the general risk assessment schedule.

Table 1 – Receptors (general risk assessment)

Receptor name	Receptor type	Receptor direction from site	Approximate distance from application boundary
Land use receptors within 500m of the application boundary (Drawing No. SHELLQMA2508-4)			
Church Farm	Industrial/Commercial	West	Adjacent
White Horse Business Park (various businesses)	Industrial/Commercial	South/East	5m (east)
Stanford Waste Recycling Centre	Industrial/Commercial	North	30m

Foxtail Garage	Industrial/Commercial	Southeast	350m
J Godfrey & Son Funeral Services	Industrial/Commercial	Southeast	390m
Timpson Engineering	Industrial/Commercial	Southeast	370m
The Light Car Company	Industrial/Commercial	Southeast	300m
Shellingford Sewage Treatment Works	Industrial/Commercial	West	290m
St. Faith's Church	Religious building	West	230m
Shellingford Church of England Voluntary Aided Primary School	Educational	West	230m
Busy Bees at Shellingford Nursery	Educational	West	280m
Quarry Cottage	Residential property	Northwest	150m
Laburnum Cottage	Residential property	North	220m
Properties within Shellingford village	Residential properties	West	250m (closest)
Properties within Stanford in the Vale	Residential properties	East	220m (closest)
New properties built at River Meadow (off Faringdon Road/Ware Road)	Residential properties	Southeast	100m
A417	Local Transport Network	North	Adjacent
B4508	Local Transport Network	North	160m
Stanford in the Vale road network	Local Transport Network	East	270m (closest)
Ware Road	Local Transport Network	South	150m
Church Street/Dogkennel Lane	Local Transport Network	West	270m
Holywell Brook	Surface water feature	South/West	100m (South), 200m (West)
Waterbody at Shellingford Crossroads Quarry	Surface water feature	North	70m
Settlement lagoon/balancing pond system	Surface water feature	On-site	-
Ponds and drain within Fishpond Copse	Surface water feature	West	260m

Drain adjacent to A417	Surface water feature	East	Adjacent
Pond	Surface water feature	South	300m
Pond	Surface water feature	South	400m
Pond	Surface water feature	South	650m
Pond associated with new properties built at River Meadow	Surface water feature	Southeast	240m
Pond associated with new properties built at River Meadow	Surface water feature	Southeast	370m
Agricultural land	Open ground	Patches North, South, East and West	Adjacent
Stanford in the Vale Football Club and park	Open ground/Public space	East	280m
Allotment	Allotment	East	390m
Cultural and heritage receptors within 1km of the application boundary (Drawing No. SHELLQMA2508-5)			
Monument to Alicia Clayton approximately 3 metres south of chancel of Church of St. Faith	Listed building	West	250m (closest)
Shellingford	Historical Conservation Area	West	200m
Stanford in the Vale	Historical Conservation Area	East	740m
Hatford	Historical Conservation Area	Northeast	940m

4.5 Receptors – Bespoke Risk Assessment

A Nature and Heritage Conservation Screening Report (referenced EPR/BP3095EU/P002, dated 17th June 2025) for the site has been provided by the EA following the submission of a pre-application advice request. The report provides details of nature and heritage conservation sites, protected species and habitats and other identified features which are potential receptors. The Nature and Heritage Conservation Screening Report is provided in Appendix 2.

Receptors identified by screening undertaken by the EA and GWP, for which a bespoke risk assessment schedule has been completed, are listed in Table 2.

A 'Code 2' is listed under protected species within the Nature and Heritage Conservation Screening Report provided by the EA. Although the EA cannot provide details for the 'Code 2' protected species, a review of the Department for Environment, Food & Rural Affairs (Defra) Multi-Agency Geographic Information for the Countryside (MAGIC) map shows there to be a Great Crested Newt Class Survey Licence Return in the same location as the coded protected species entry on the map provided within the screening report. The Great Crested Newt Class Survey Licence Return point and 'Code 2' protected species area is located *c.* 340m to the southeast of the site, within the centre of the newly built River Meadow housing estate, situated between the existing extent of Stanford in the Vale village and the White Horse Business Park. It is considered that there will be no increased risk posed to the protected species record by the development. This is because:

- There will be a significant distance between the additional site activity and the protected species record. The variation to current permitted activities being applied for involves the deposit for recovery activity in the western extension area of the site, therefore the existing permitted inert landfill will be between the western extension area and the protected species record; and
- The protected species record is within the centre of the new River Meadow housing estate and so it is likely that the development at Shellingford Quarry will pose less disturbance than the construction and presence of the new housing estate. The presence of the new properties may mean the protected species record is no longer applicable.

The bespoke risk assessment schedule is provided in Appendix 3. Steps 3, 4 and 5 of the risk assessment methodology outlined in Section 4.1 are covered in the bespoke risk assessment schedule.

Table 2 – Receptors (bespoke risk assessment)

Receptor name	Receptor type	Receptor direction from site	Approximate distance from site boundary
Statutory and habitat receptors within 1km of the application boundary (Drawing No. SHELLQMA2508-6)			
Priority Habitat Inventory – Deciduous Woodland	Protected Woodland	South	Adjacent (closest)
Priority Habitat Inventory – Traditional Orchards	Protected Woodland	East	750m (closest)
Ancient and Semi-Natural Woodland	Protected Woodland	West	215m (closest)
Chaslins Copse	Local Wildlife Site	West	600m
Shellingford Crossroads Quarry	Site of Special Scientific Interest	North	175m
Great Crested Newts (Class Survey Licence Return) – Code 2 from EA Screening Report	Protected species	Southeast	340m

4.6 Searches for Other Designated Sites

Further searches completed by GWP have confirmed that none of the following designations are located within 1km of the site:

- Special Areas of Conservation;
- Special Protection Areas;
- National Nature Reserves;
- Local Nature Reserves;
- Areas of Outstanding Natural Beauty;
- Ramsar sites;
- National Trust Properties;
- Registered Parks and Gardens;

- World Heritage Sites;
- Registered Battlefields.

5. SUMMARY AND CONCLUSIONS

This Environmental Risk Assessment report presents an assessment of the environmental risks posed by the variation to the existing EPR Permit to accommodate the infilling with imported inert waste in the western quarry extension area as a deposit for recovery activity at the Shellingford Quarry site.

The Environmental Risk Assessment has been completed in accordance with the EA Technical Guidance *'Risk Assessments for your Environmental Permit'* .

The objective of the assessment is to identify any significant risks, to demonstrate that the risk of environmental impact or harm is acceptably low and to identity mitigation measures which will need to be implemented in order to manage the risks.

Based on the findings of this Environmental Risk Assessment and other risk assessment reports which have been prepared and submitted with the Environmental Permit application, it is considered that the Permit variation involving the deposit for recovery activity to accommodate infilling within the adjacent western quarry excavation area with imported inert waste at the Shellingford Quarry site to achieve the approved restoration landform will not have a significant detrimental impact on the environment.

GWP CONSULTANTS
OCTOBER 2025

APPENDIX 1

General risk assessment schedule

APPENDIX 2

Environment Agency Nature and Heritage Conservation Screening Report

APPENDIX 3

Bespoke risk assessment schedule