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1.0 SITE DETAILS	
Name of the applicant	Chadwich Lane Quarry Ltd
Activity address	Chadwich Lane Quarry Landfill Madeley Heath Bromsgrove Worcestershire DY9 9UX
National grid reference	The site is south-western fringe of Birmingham at National Grid reference SO 395448 276819 is the centre of the site and the site entrance is SO 396373 276818
Document reference and dates for Site Condition Report at permit application and surrender	Enviroarm Limited Ref: EL/CLQ/SCR/1.00/2022 Environmental Permit Application
Document references for site plans (including location and boundaries)	Enviroarm Limited Environmental Permit Application

Note:

In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:

- Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

If this information is not shown on the site plan required by Part A of the application form then you should submit the additional plan or plans with this site condition report.

2.0 Condition of the land at permit issue	
Environmental setting including: <ul style="list-style-type: none"> • geology • hydrogeology • surface waters 	<p style="text-align: center;"><u>GEOLOGY</u></p> <p>The greater part of the district is underlain by Triassic Strata belonging to the Sherwood Sandstone, Mercia Mudstone and Penarth Groups. Deposition took place under generally arid and semiarid conditions, in a low-latitude continental interior.</p> <p>Most of the strata are red as a result of the diagenetic alternation of iron oxide (haematite) of detrital ferromagnesian silicates and iron bearing clay minerals, and is summarised on Geological sketch plan and</p>

British Geological Maps contained in the Hydrogeological Report.

Sherwood Sandstone Group

The site lies within this group. The Sherwood Sandstone Group was formally introduced for the formations that comprise the arenaceous lower part of the Triassic succession throughout Britain. This sequence was subdivided into three formations renamed recently (Warrington et al 1980), which are the basis for this report. An additional formation, the Quartzite Breccia, which locally underlies the Kidderminster formation and is therefore included as follows:

SUBDIVISIONS OF THE SHERWOOD SANDSTONE

HULL 1869
Warrington 1980

Lower Keuper Sandstone
Bromsgrove Sandstone
Upper Mottled Sandstone
Wildmoor Sandstone
Bunter Pebble Beds
Kidderminster Formation

Quartzite Breccia

Deposition of the Sherwood Sandstone Group was controlled by palaeogeographical changes initiated during the Permian. A series of troughs and ridges were formed, orientated roughly north-south in response to east west tensional stresses in the region of the North Atlantic. One such trough was the Worcester Basin.

The down-warping of the Worcester Basin resulted in a river system bringing detritus from as far south as Brittany. The lower fluvial part of the Kidderminster Formation is restricted to the Basin area, while the Quartzite Breccia formed as a scree deposit on the eastern flank. This ridge was soon inundated by the upper part of the Kidderminster formation. The Sherwood Sandstone Group is about 700m thick in the west of the district.

Wildmoor Sandstone

The name Wildmoor Sandstone was introduced for beds formerly termed Upper

Mottled Sandstone. This formation consists predominantly of sandstone and provides the well-known moulding sands quarried around Wildmoor. The Wildmoor Sandstone is dominated by remarkably uniform, very weakly cemented, fine grained, silty, micaceous sandstone. The formation includes upward fining rhythms which commence with a medium to coarse grained or pebbly sandstone and pass upwards through cross-bedded, fine grained sandstones into plainer bedded fine-grained sandstones and mudstones. The Wildmoor Sandstone rests conformably upon the Kidderminster Formation from which it is distinguished by its fine grain and foxy red colouration.

Chester Formation

This name was introduced (Warrington et al, 1980) for the succession of sandstones with subordinate siltstones and mudstones is comparatively fossiliferous. There are three distinct lithologies formalised as the Burcot, Finstall and Sugarbrook members of the formation.

The formation comprises a sequence of upward fining sedimentary cycles. In the lower part of the formation they consist of coarse sandstones with a basal conglomerate or breccia bed. Grain size reduces upwards through the formation and siltstones and mudstones become more common.

The site exposure is that of the Burcot Member which are structureless red-brown sandstones and include only minor beds of siltstone and mudstone.

Structure

The site sits between two structural areas; the Worcester Basin and the Lickey Ridge. The Worcester Basin is a major Triassic basin, floored by Precambrian and Lower Palaeozoic rocks, its eastern end bounded by the Lickey End Fault, this is to the west of the site. The Lickey End Fault continues north west to join the Western Boundary Fault of the South Staffordshire Coalfield.

The site is bound on the east by the Longbridge fault which runs north south.

The strata dip south westerly where it and the

Lickey End Fault becomes the Inkberrow Fault, which continues down to the Haselor Hill Fault outside Evesham.

Superficial Deposits

Till and Glaciofluvial Deposits are located to the east of the site.

LOCAL GEOLOGY

The Chadwich Lane Quarry is located in sands of the Wildmoor Sandstone. The quarry consists of a uniform, brownish red sandstone. The sandstone is medium to coarse grained, micaceous and feldspathic. Cross bedding has been observed which suggests fluvial deposition.

The strata dips south easterly. The local strata dips at approximately 7°.

Man-made Subsurface Pathways

The following man made subsurface pathways have been identified;

- No field drains exist in any of the fields around the site.
- Mine workings do not occur in the area of the site with no underground saline or coal workings present.
- No services run through the proposed extraction area and landfill area.
- High pressure gas mains are not located near to the site.

The site is located on a bedrock Principal aquifer with rock deposits having high intergranular permeability, and providing a high level of water storage. They may support water supply and or river base flow on a strategic scale. Areas of secondary A aquifer (supporting water supplies (locally) are located up hydraulic gradient north east of the site and a Secondary B aquifer (predominantly lower permeability with limited storage and flow is located to the south west as the Mercia Mudstone Group.

HYDROGEOLOGY

The site is located within a Total Protection Zone (Zone 3). The nearest outer SPZ (SPZII) is located circa 1500m to the south of the permit boundary and the abstraction borehole is 1680metres from the site.

A shallow groundwater gradient of

	<p>0.0143m/m has been calculated from the available groundwater elevations, with the prevailing groundwater flow direction to the south. Groundwater elevations and interpolated potentiometric surface plots are presented on Drawing ESSD 11.</p> <p>BGS data for the Wildmoor borehole ranges from 5.037×10^{-7}m/s to 2.8×10^{-6}m/s, presented at Appendix ESSD1. It is noted that the 400-day travel time range would be approximately 1m/d or 1.15×10^{-5}m/s using a conservative assessment. Appendix ESSD 4 contains original packer tests carried out at Chadwich Lane which shows permeability values of 2.02×10^{-6}m/s to 8.8×10^{-6}m/s.</p> <p>The regional supplies come from the Sherwood Sandstone in the Trias. The water resources are administered by Severn Trent Water. In the Trias, the Chester Formation, and all sub units form a single aquifer, although it may contain aquicludes.</p> <p>Groundwater levels have been monitored on site since the initial installation of the boreholes and the results are presented in the HRA.</p> <p>The groundwater flow is south eastwards</p>
<p>Pollution history including:</p> <ul style="list-style-type: none"> • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures 	<p>The site has never been infilled</p> <p>See Landmark-Envirocheck Site Sensitivity Map and Report attached at Appendix A</p>
<p>Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)</p>	<p>See attached reports</p>
<p>Baseline soil and groundwater reference data</p>	
<p>Supporting information</p>	<ul style="list-style-type: none"> • Source information identifying environmental setting and pollution incidents, see ESSD • Historical Ordnance Survey plans • Site reconnaissance see ESSD • Historical investigation / assessment / remediation / verification reports, see ESSD

- Baseline soil and groundwater reference data- see ESSD

3.0 Permitted activities	
Permitted activities	Inert Landfill
Non-permitted activities undertaken	Quarrying Sand and Gravel;
Document references for: <ul style="list-style-type: none"> • plan showing activity layout; and • environmental risk assessment. 	ESSD Drawings ESSD1, ESSD2, ESSD 4 ESSD HRA LFGRA Risk Assessment

Note:

In Part B of the application form you must tell us about the activities that you will undertake at the site. You must also give us an environmental risk assessment. This risk assessment must be based on our guidance (*Environmental Risk Assessment - EPR H1*) or use an equivalent approach.

It is essential that you identify in your environmental risk assessment all the substances used and produced that could pollute the soil or groundwater if there were an accident, or if measures to protect land fail.

These include substances that would be classified as 'dangerous' under the Control of Major Accident Hazards (COMAH) regulations and also raw materials, fuels, intermediates, products, wastes and effluents.

If your submitted environmental risk assessment does not adequately address the risks to soil and groundwater we may need to request further information from you or even refuse your permit application.

4.0 Changes to the activity	
Have there been any changes to the activity boundary?	No
Have there been any changes to the permitted activities?	No
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	No
Checklist supporting information	<ul style="list-style-type: none"> Plan showing any changes to the boundary (where relevant) ESID 2 Description of the changes to the permitted activities (where relevant) N/A List of 'dangerous substances' used/produced by the permitted activities that were not identified in the Application Site Condition Report (where relevant) N/A

5.0 Measures taken to protect land	
Use records that you collected during the life of the permit to summarise whether pollution prevention measures worked. If you can't, you need to collect land and/or groundwater data to assess whether the land has deteriorated.	
Checklist supporting information	All phases to have constructed geological barrier built under part time CQA in accordance with CQA Plan

6.0 Pollution incidents that may have had an impact on land, and their remediation	
Summarise any pollution incidents that may have damaged the land. Describe how you investigated and remedied each one. If you can't, you need to collect land and /or groundwater reference data to assess whether the land has deteriorated while you've been there.	
Checklist supporting information	There are no records of pollution incidents that may have impacted on land as presented in the appendices Records of their investigation are included in report

7.0 Soil gas and water quality monitoring (where undertaken)		
Provide details of any soil gas and/or water monitoring you did. Include a summary of the findings. Say whether it shows that the land deteriorated as a result of the permitted activities. If it did, outline how you investigated and remedied this.		
Checklist supporting information	of	Description of groundwater monitoring is on Groundwater Management Plan

8.0 Decommissioning and removal of pollution risk		
Describe how the site was decommissioned. Demonstrate that all sources of pollution risk have been removed. Describe whether the decommissioning had any impact on the land. Outline how you investigated and remedied this.		
Checklist supporting information	of	Site closure plan is presented in the ESSD and covered under the Financial Provision for the landfill site for three years post closure monitoring for inert landfills

9.0 Reference data and remediation (where relevant)		
Currently Not Applicable		
Checklist supporting information	of	Land and/or groundwater data collected at application (see attached report)

10.0 Statement of site condition		
Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that:		
<ul style="list-style-type: none"> N/A at this stage 		

APPENDIX A:

SITE SENSITIVITY REPORT