



Habitats Risk Assessment

Gelliargwelt Farm Quarry



Report produced for Bryn Aggregates Limited

Provided by Walker Resource Management Ltd (WRM)

Document Title	Habitats Risk Assessment
Revision	v1.0
Date	17/03/2023
Document Reference	Bryn_Aggregates-4
Project Reference	1193/F05
Author	Beth Watson
Reviewer	Martin Ropka



Version No.	Date	Description of change
0.1	10/03/2023	First draft
0.2	14/03/2023	Internal review
0.3	16/03/2023	Client review
1.0	17/03/2023	First issue

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1.0 INTRODUCTION

Walker Resource Management Limited (hereon referred to as WRM) are acting consultants for Bryn Aggregates Limited (hereon referred to as Bryn Aggregates) who have commissioned WRM to produce a Habitats Risk Assessment in line with operational activities associated with quarrying activity. Bryn Aggregates are seeking a Part B Environmental Permit for the crushing and grading and dust washing processes at the quarry at Gelliargwellt Farm, Gelligaer, Hengoed, as detailed in the Non-Technical Summary (Bryn Aggregates-0 Non-Technical Summary).

Section 2.0 presents a summary of the nearby ecological receptors and the table in Section 3.2 presents the potential linkages from source, pathway and receptor, and provides an assessment of the prevailing risk to listed habitats following the proposed risk management strategy.

This Habitats Assessment has been produced in accordance with the guidance '*Risk assessments for specific activities: environmental permits*'.

2.0 ECOLOGICAL RECEPTOR ASSESSMENT

The following section provides a comprehensive description of the ecological receptors nearest to the site.

2.1 Environmental Designations

The screening distances for the different types of environmental designations included within this assessment are set out below, with details of each presented in the subsequent sections of the document.

- Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or Ramsar sites within 10km of the installation;
- Site of Importance for Nature Conservation (SINC) within 1km of the installation;
- Sites of Special Scientific Interest (SSSIs) within 2 km of the installation; and,
- National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within 2km of the location of the installation.

2.1.1 *Nelson Bog (SSSI)*

Nelson Bog is located approximately 500 metres southwest of the Bryn Aggregates site is one of ten designated SSSI within the Caerphilly County Borough Council. Nelson Bog is a valley mire covering 27.7 hectares and receives relatively base-poor waters from the underlying Coal Measure rocks and adjoining wet pastures associated with marginal hill farming activities typical of the South Wales Coalfield. The major interest of the site is in the range and diversity of mire communities to be found. This extended poor fen, through mesotrophic grasslands to be areas of alder carr and upland sessile oak and hazel woodland. Nelson Bog is a named SSSI due to its conservational value, it is a very rich ornithological site with over 90 species to date.

2.1.2 *Aberbargoed Grasslands (SAC)*

There is one Special Area of Conservation within Caerphilly County Borough Council - Aberbargoed Grasslands, which covers 40 hectares and is located approximately 4km North-East of site. The SAC was designated because it contains Marsh Fritillary Butterfly and Purple moor-grass meadows which are both rare or threatened species within a European context.

Marsh Fritillary Butterfly *Euphydryas* (*Eurpdryas*, *Hypodryas*) *aurinia* frequents damp meadows and, more rarely, chalk grassland, where its larvae feed on devil's bit scabious *Succisa pratensis*. It has declined and is now extinct, from the eastern half of its former range in the UK and has shown a similar decline throughout Europe.

The area supports purple moor-grass meadows *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*). These are wet meadows containing a species-rich mixture of grasses, sedges, herbs and mosses. These meadows are usually traditionally maintained by grazing.

2.1.3 *Waun Rydd (SINC)*

The SINC is located adjacent to the site boundary to the North-East. Waun Rydd's primary features include a degraded marshy grassland (/bog), which still retains at least 12 marshy grassland indicator species. The area is also made up of semi-improved acid grassland and scrub. Waun Rydd SINC was subject to a detailed botanical survey in the summer of 2019. The

aim of the survey was to establish the condition and extent of the vegetation communities present to inform a Section 106 agreement for future management of the SINC, and to provide a baseline for future vegetation monitoring within the SINC.

The survey concluded that the SINC contains several habitats that meet the mid-Valleys SINC selection criteria. The remainder of the SINC has been extensively modified, either through agricultural improvement, grazing or burning and does not currently meet the SINC criteria, but acts as supporting habitat to the more valuable central area by providing a buffer from the surrounding intensive land management and maintaining habitat connectivity to the wider landscape.

2.1.4 Land South of Gelligaer Infants School (SINC)

The land located approximately 580m north-east of site, near Gelligaer Infants School has been identified as a SINC, which covers 4.12 hectares. The area hosts several important habitats, including a marshy grassland with at least 12 indicator species. Also, a semi-improved acid grassland with at least 7 indicator species. There is also the presence of Marsh Fritillary and significant numbers of Small Pearl-bordered Fritillary Butterflies. Secondary features include mature hedgerows with moderately diverse ground flora.

2.1.5 Tredomen Tip Ponds (SINC)

The Tredomen Tip Ponds are sited 765m south of the operation and cover an area of 10 hectares. Within this area are various natural features, such as a semi-natural wet woodland, ponds with semi-natural wetland vegetation, acid grassland with at least 7 indicator species and grassland with a high density of large ant hills. The secondary features are also important to consider, which includes scrub, bracken and population of Great Crested Newts.

2.1.6 Pottery Road Slopes (SINC)

Situated at the East of Gelligaer and 775m north-east of Bryn Aggregates is Pottery Road Slopes, identified as a SINC and covers approximately 10 hectares. The area is rich in marshy grassland and flush vegetation with at least 12 indicator species. There is also neutral grassland with at least 8 indicator species, as well as a broad-leaved woodland with an assemblage of semi-natural indicators. Secondary features include a stream and hedgerows.

2.1.7 Coed Penallta and Railway Line (SINC)

The SINC covers an area of 24.4 hectares and is located 890m south of the operation. It has been classified as a SINC due to its species rich marshy grassland with at least 12 indicator species. Also, its acid grassland with at least 7 indicator species, wet woodland, presence of Marsh Fritillary Butterfly and continuous sections of disused railway line supporting semi-natural vegetation. There are also many important secondary features to note, such as broad-leaved woodland (former ancient woodland), bracken, rock outcrops, ponds, scrub, and semi-improved grassland.

2.1.8 Wern Woodland, Nelson (SINC)

A semi-natural wet woodland is located 995m south-west of the site and has been classified as a SINC. The Wern Woodland covers 11.56 hectares and also hosts secondary features such as semi-improved neutral grassland, scrub and standing water.

2.1.9 Coed Gelliau'r-Gwellt (SINC)

Coed Gelliau'r-Gwellt is located 700m North-West of site and the ancient woodland covers 5.7 acres. The area features a collection of semi-natural indicator species. The ecology also features marshy grassland with at least 12 indicator species, such as the Marsh Fritillary Butterfly. Coed Gelliau'r-Gwellt also features semi-improved neutral/ acid grassland and scrub.

2.1.10 Llancaiach-fawr (SINC)

An ancient (semi natural) woodland covering 3.8 acres is located at Llancaiach-fawr, approximately 1.54km west of Bryn Quarry. The area also hosts semi-improved neutral grassland with at least 8 indicator species. Some of the area's secondary features include Scrub and a stream.

3.0 HABITATS ASSESSMENT

Table 1 – Details of the Operator

Operator	Bryn Aggregates Limited
Operational Site	Bryn Aggregates Ltd Gelliargwellt Farm, Gelligaer, Hengoed, CF82 8FY
Assessment Date	14/03/2023
Completed by	Beth Watson
	WRM
Approved by	Jen Price (Bryn Aggregates)

3.1 Assessment Process

The guidance Risk Assessments for your Environmental Permit gives a five-step process for assessing the site activity and the risk to local amenity to successfully produce an Environmental Risk Assessment:

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're acceptable and can be screened out.
5. State what you'll do to control risks if they're too high.

This risk assessment will identify people or parts of the environment that could be harmed by the activity and carry out risk assessments for these potential sources. Assessment of potential accidents at the facility and the consequential effects on sensitive receptors have been accounted for in a separate Environmental Management Plan (Bryn Aggregates-3 – Environmental Risk Assessment).

3.2 Habitat Risk Assessment

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
Emissions from soil stripping, soil storage and reinstatement activity - dust	Aerial dispersion	Nelson Bog SSSI and multiple SINC's.	High	Med	Med	High levels of airborne and wind-blown dust emissions can arise from soil stripping, storage and reinstatement, although these are generally short term, transient operations.	<ul style="list-style-type: none"> Air emission monitoring completed at four points throughout the day, Monday-Saturday. Dust monitors operating 24/7 which alarms when the limits are breached and is actioned appropriately. Routine checks of plant and machinery and staff training on dust suppression techniques. Plant and machinery shall be serviced and maintained in line with manufacturers recommendations. The site uses a Mist Cannon to suppress dust levels that has a maximum ground coverage of 20,000m³ from its location. Soil storage bunds shall be stabilised by appropriate seeding and maintenance. Emissions shall be minimised through the soil being transported by dump truck for storage in screening bunds or used directly for restoration. Emissions shall be controlled by minimising working the soil in very dry, windy conditions and reducing drop heights at material transfer points. Wetting of haul roads and working area with water tankers as required or hourly in very dry conditions. 	Low
Emissions from overburden removal, storage,	Aerial dispersion	Nelson Bog SSSI and	High	Med	Med	Risks of dust emissions shall vary depending on the nature of materials handled:	<ul style="list-style-type: none"> As above, dust emissions can be controlled using a Mist Cannon. 	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
and reinstatement activity - dust		multiple SINC.s.				<ul style="list-style-type: none"> Low risk from freshly excavated subsoil. High risk of wind blow from dry, unconsolidated materials. Wind conditions 	<ul style="list-style-type: none"> Dust monitors operating 24/7 which alarms when the limits are breached and is actioned appropriately. Drop heights shall be minimised at material transfer points, during loading and tipping. Wetting of haul roads and working area with water tankers as required or hourly in very dry conditions. Weather conditions shall be monitored daily and operations shall be managed with dust suppression when the wind conditions would result in dust being transported towards the off-site receptors. Plant and machinery shall be serviced and maintained in line with manufacturers recommendations. Greening of long term stockpiles 	
Emissions from overburden storage activity - dust	Aerial dispersion	Nelson Bog SSSI and multiple SINC.s.	High	Med	Med	<p>Risks of dust emissions shall vary depending on the nature of materials handled:</p> <ul style="list-style-type: none"> Low risk from freshly excavated subsoil. High risk of wind blow from dry, unconsolidated materials. Wind conditions 	<ul style="list-style-type: none"> Stockpiles shall be managed to maintain a smooth profile to minimise spreading of loose materials and encouraged to be disturbed as little as possible to encourage the formation of a surface crust. Stockpiles shall be wetted down to reduce the risk of wind-blow from exposed surfaces. Dust monitors operating 24/7 which alarms when the limits are breached and is actioned appropriately. Temporary greening of storage pile of soil to stop wind blow and water erosion. Weather conditions shall be monitored daily and operations shall be managed with dust suppression when the wind conditions would result in dust being transported towards the off-site receptors. 	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
Emissions from blasting - dust	Aerial dispersion	Nelson Bog SSSI and multiple SINC.s.	High	Med	Med	High levels of airborne and wind-blown dust emissions can arise from blasting although it only occurs approximately once a month and is a generally short term, transient operations.	<ul style="list-style-type: none"> The rock face is wetted prior to and during blasting via a tractor and tanker. Blast holes packed with 10mm stone rather than dust. Additional control measures (such as the use of a mist-cannon) will be considered to reduce emissions when blasting. 	Low
Emissions from mineral extraction and handling – dust	Aerial dispersion	Nelson Bog SSSI and multiple SINC.s.	Med	Med	Med	Low risk of airborne dust propagation emissions from mineral extraction by hydraulic excavator, but dust could be blown over the site boundary towards the off-site receptors.	<ul style="list-style-type: none"> As above, dust emissions can be controlled using a Mist Cannon. Weather conditions shall be monitored daily and operations shall be managed with dust suppression when the wind conditions would result in dust being transported towards the off-site receptors. Dust monitors operating 24/7 which alarms when the limits are breached and is actioned appropriately. Plant and machinery shall be serviced and maintained in line with manufacturers recommendations. 	Low
Emissions from mineral processing, such as crushing, grading and screening – dust.	Aerial dispersion	Nelson Bog SSSI and multiple SINC.s.	Med	Med	Med	Medium risk of dust emissions from the different grades of stone being produced on site.	<ul style="list-style-type: none"> Daily weather monitoring - extra care taken to minimise emissions during dry, windy conditions. Dust suppression system on the crushing and screening plant. Mist cannon in use during mineral processing operations. Drop heights (e.g. crusher front end) shall be minimised. 	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							<ul style="list-style-type: none"> Dust monitors operating 24/7 which alarms when the limits are breached and is actioned appropriately. Some of the conveyor machinery have covers to contain the dust particles. Similarly, machine shoots have dust protection skirts. Plant and machinery shall be regularly inspected and serviced to ensure they are working correctly and dust suppression mechanisms are adequate. 	
Emissions from dust washing plant – dust.	Aerial dispersion	Nelson Bog SSSI and multiple SINC.s.	Low	Med	Med	Medium risk of dust emissions from dropping of material through the machines movement through the machine. As water is involved in washing material this will reduce dust emissions.	<ul style="list-style-type: none"> Molson washing line specifically designed for material washing activity. Drop heights shall be minimised. Clean water from settlement pond recirculated through the plant. Dust monitors operating 24/7 which alarms when the limits are breached and is actioned appropriately. Plant and machinery shall be regularly inspected and serviced to ensure they are working correctly and dust suppression mechanisms are adequate. 	Low
Emissions from site traffic - dust	Aerial dispersion	Nelson Bog SSSI and multiple SINC.s.	High	High	Med	Medium risk of dust emissions from transport on unpaved roads.	<ul style="list-style-type: none"> Mobile plant with upward or sideways exhausts should be used and haulage shall keep to designated haul routes. Vehicles leaving the site shall be sheeted and checked for loose deposits before leaving. Spillage procedure in place to ensure any spillages are cleared up efficiently. Water tanker used to dampen down roads around the site in dry weather. 	Medium

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							<ul style="list-style-type: none"> All vehicles must use the wheel wash to ensure no transfer of dust and mud onto the roads offsite. Site speed limit in minimise dust emissions. Roads shall be regularly inspected and kept in good repair. A road sweeper shall be available to ensure that any dust from the site on to the access roads is kept to a minimum. 	
Water pollution	Surface runoff	Nearby water streams, such as the Nelson Bog SSSI	Med	Med	Med	Water is collected in sumps and treated within settlement lagoons to reduce levels of contamination, before being discharged via a pipe to adjacent stream.	<ul style="list-style-type: none"> Settlement lagoons ensure particles settle out before water is discharged. Surface water and groundwater monitoring completed every month by accredited laboratory, which involves groundwater sampling from each monitoring borehole by a suitably trained member of laboratory staff. Samples are sent to an accredited laboratory. Results from the surface water and groundwater monitoring shall be recorded into a database and reviewed against existing baseline monitoring data and compliance levels. Where results have changed or exceeded the baseline conditions and compliance levels, the number and frequency of monitoring rounds will be re-evaluated in consultation with NRW and the necessary corrective action agreed. During the sampling visit the monitoring boreholes are inspected visually and any defects are recorded. Practical maintenance is carried out at the time of the routine monitoring. 	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
P = Possibility C = Consequence M = Magnitude								



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