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British Lichen Society

Carmarthenshire County Council

By webpage <https://carmarthenshire.my.site.com/en/s/planning-application/a0bQv000003DJeDIAW/pl08455?tabset-8dc7b=3>

21st December 2024

Dear Sir or Madam,

Nant Y Bai Forest, Rhandirmwyn, Carmarthenshire: Proposed Development of a Recreational Bike Park, Including the Erection of Associated Facilities and Parking (Planning Application Number: PL/08455)

The British Lichen Society (BLS) objects to the application for a Proposed Development of a Recreational Bike Park, Including the Erection of Associated Facilities and Parking at Nant Y Bai Forest, Rhandirmwyn, Carmarthenshire.

Having reviewed the information submitted with the planning application, the BLS has become concerned about the potential for the development proposals to have significant negative impacts on the Nationally important lichen assemblages that form part of the notified features of the SSSI included within the application site. They have therefore commissioned EPR to undertake a review of the application. This review is attached to this letter.

About The British Lichen Society:

The British Lichen Society <https://www.britishlichensociety.org.uk> was formed in 1958 and has the following aims:

- to promote and advance the teaching and study of lichens;
- to encourage and actively support the conservation of lichens and their habitats;
- to raise public awareness of the beauty of lichens and of their importance as indicators of the health of our environment.

The Society is one of the leading societies studying lichens worldwide and produces a journal of international standing, The Lichenologist.

The BLS Conservation Committee oversees the BLS role to support the conservation of lichens and their habitats. The Committee consists of members with a wide range expertise in a range of ecological fields including researchers at academic institutions, botanic gardens, ecological fieldworkers, ecological consultants and advisory staff of conservation organisations and wildlife trusts.

Yours sincerely, Neil A Sanderson

A handwritten signature in black ink that reads "Neil A Sanderson". The signature is written in a cursive, slightly slanted style.

Conservation Officer, British Lichen Society

(Email conservationofficer@britishlichensociety.org.uk & Phone 07765 648149)

The society is a Charitable Incorporated Organization (number 1194213)

Nant Y Bai Forest, Rhandirmwyn, Carmarthenshire: Proposed Development of a Recreational Bike Park, Including the Erection of Associated Facilities and Parking

Technical Review of Potential Ecological Impacts on the Lichen Interest of Mwyngloddfa Nantymwyn Site of Special Scientific Interest (SSSI)

1. INTRODUCTION

Introduction and Context

- 1.1 Ecological Planning & Research Ltd (EPR) were commissioned by the British Lichen Society (BLS) to review proposals by Nant Y Bai Ltd, to develop land at Nant Y Bai Forest, Rhan, submitted to Carmarthenshire County Council (CCC) on 25 October 2024 (Planning Application Number: PL/08455) on behalf of Nant Y Bai Ltd.
- 1.2 The Application Site, located to the north of the village of Rhandirmwyn in Carmarthenshire, encompasses part of the Mwyngloddfa Nantymwyn Site of Special Scientific Interest (SSSI). The site was notified as a SSSI on March 2014
- 1.3 Having reviewed the information submitted with the planning application, the BLS has become concerned about the potential for the development proposals to have significant negative impacts on the Nationally important lichen assemblages and the metallophyte habitat that form part of the notified features of the SSSI. They have therefore commissioned EPR to undertake a review of the proposed development and its potential ecological impacts on the lichen interest in the SSSI.

Relevant Legislation and Planning Policy

- 1.4 Broadly, the Planning Statement (Geraint John Planning, 2024) that accompanies the planning application does not examine the specifics of how legislation and planning policy pertaining to nature conservation and SSSI protection in particular interacts with the development proposals – instead only making general or broad references to the intent or aspirations of such legislation and policy, in contrast to the more detailed analysis of the economic benefits of the scheme. To remedy this, key extracts of the principal articles of legislation and policy are provided below.
- 1.5 The Planning Statement submitted with the application also entirely fails to discuss the implications of Planning Policy Wales Technical Advice Note (TAN) 5 *Nature Conservation and Planning* (September 2009), and extracts of this are provided below.

Legislation

Wildlife and Countryside Act 1981(as amended)

- 1.6 The Wildlife and Countryside Act 1981 (as amended, including by the Countryside and Rights of Way Act 2000) is the primary legal basis for the designations of SSSIs in Wales. SSSIs are designated to protect the best examples areas in the United Kingdom for species and habitats of nature conservation importance, as well as geology or physical geographic features.

The Environment (Wales) Act 2016

- 1.7 Section 6 of the Environment (Wales) Act 2016 places an ‘enhanced biodiversity and resilience of ecosystems duty’, which requires all public authorities, when carrying out their functions in Wales, to seek to “maintain and enhance biodiversity” where it is within the proper exercise of their functions. In doing so, public authorities must also seek to “promote the resilience of ecosystems”. These duties apply when Local Planning Authorities (LPAs) such as Carmarthenshire County Council are deciding how to determine applications for planning permission.

National Planning Policy

Planning Policy Wales (PPW) 12th Edition (February 2024)

- 1.8 Paragraph 6.4.3 of PPW states:

*“The planning system has a key role to play in helping to reverse the decline in biodiversity and increase the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to **both protect against loss and to secure enhancement**.....*

- 1.9 Development plan strategies, policies and development proposals **must** consider the need to:

- *support the maintenance and enhancement of biodiversity and the resilience of ecosystems;*
- *ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats, including the most recent targets set out in the 2022 UN Global Biodiversity Framework;*
- *ensure statutorily and non-statutorily designated sites and habitats are properly protected and managed and their role at the heart of resilient ecological networks is safeguarded;*
- *safeguard protected species and species of principal importance and existing biodiversity assets from direct, indirect or cumulative adverse impacts that affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water, air and soil, including peat; and*
- *secure the maintenance and enhancement of ecosystem resilience and resilient ecological networks by improving diversity, extent, condition, and connectivity.”*

[Our emphasis]

1.10 Paragraph 6.4.4 of PPW Wales states:

*“...All reasonable steps must be taken to maintain and enhance biodiversity and promote the resilience of ecosystems and these should be balanced with the wider economic and social needs of business and local communities. **Where adverse effects on biodiversity and ecosystem resilience cannot be avoided, minimised or mitigated/restored, and as a last resort compensated for, it will be necessary to refuse planning permission.**”*

[Our Emphasis]

1.11 *Planning Policy Wales Technical Advice Note (TAN) 5: Nature Conservation and Planning*
Section 5 of TAN 5 entitled ‘Development Affecting Designated Sites and Habitats’ is of greatest relevance to the proposals in relation to the concerns of the BLS. Key extracts of TAN 5 are given below:

1.12 Paragraph 5.1.6 states:

“Local planning authorities, along with other public bodies, have a duty to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of the features by reason of which SSSIs are of special scientific interest. Furthermore, local planning authorities must give notice to CCW [NB: Now NRW] before undertaking or permitting any operations likely to damage any of the interest features of a SSSI, whether or not the operations would take place on land within the SSSI. Failure to comply with the notification requirements and other requirements of sections 28H and 28I of the Wildlife and Countryside Act 1981 is an offence...”

1.13 Paragraph 5.2.6 states:

“Local planning authorities must have regard to the relative weight to be attached to the international and nationally designated sites. On the advice of CCW [Now NRW], the Welsh Ministers will normally call in, for their own determination, planning applications that are likely to have a significant effect on Sites of Special Scientific Interest (SSSI)”

1.14 Paragraph 5.4.2 states:

“The Wildlife and Countryside Act 1981, as amended by section 75 of, and Schedule 9 to, the Countryside and Rights of Way Act 2000, imposes an important new duty on public bodies where they are exercising statutory functions which are likely to affect the special features of SSSIs. Section 28G(2) requires them to take reasonable steps, consistent with the proper exercise of these functions, to further the conservation and enhancement of the features for which the site is of special scientific interest. Public bodies specifically include local authorities, and the duty applies wherever they are exercising their functions, including when they have the power to take action, and applies at every stage from the formulation of plans to the carrying out of operations and the making of decisions”.

1.15 Finally, paragraphs 5.4.3 and 5.4.4 state:

“.....Local planning authorities are section 28G authorities and as such have specific duties and responsibilities in respect of SSSIs. These are described below.

The Assembly Government expects all section 28G authorities, including local planning authorities, to:

- ***apply strict tests when carrying out functions within or affecting SSSIs, to ensure that they avoid, or at least minimise, adverse effects.....”***

[Our emphasis]

1.16 Paragraphs 5.4.6 *et seq.* of TAN 5 also sets out the process that a local planning authority must follow when minded to grant permission or authorisation for an operation that is likely to damage the special features of a SSSI.

Future Wales: the National Plan 2040

1.17 Policy 9 ‘Resilient Ecological Networks and Green Infrastructure’ of the National Plan 2040, states:

“To ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure, the Welsh Government will work with key partners to:

- ***identify areas which should be safeguarded and created as ecological networks for their importance for adaptation to climate change, for habitat protection, restoration or creation, to protect species, or which provide key ecosystems services, to ensure they are not unduly compromised by future development;***

*Planning authorities should include these areas and/or opportunities in their development plan strategies and policies in order to promote and safeguard the functions and opportunities they provide. In all cases, action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), **the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals** through innovative, nature-based approaches to site planning and the design of the built environment.’*

[Our emphasis]

1.18 Paragraph 6.4.11 of PPW states:

“Planning authorities must follow a step- wise approach to maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for. Enhancement must be secured by delivering a biodiversity benefit primarily on site or immediately adjacent to the site, over and above that required to mitigate or compensate for any negative impact.”

[Our emphasis]

1.19 In, relation to the above paragraph 6.4.15 of PPW continues by explaining:

“1a) The first priority for planning authorities is to avoid damage to biodiversity in its widest sense (i.e. the variety of species and habitats and their abundance) and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites (including alternative siting and design options) that would result in less harm, no harm or benefit have been fully considered

1b) Proposals in statutory designated sites are, as a matter of principle, unacceptable and therefore must be excluded from site searches undertaken by developers. This principle also extends to those sites containing protected species and habitats which are irreplaceable and must be safeguarded. Such sites form the heart of resilient ecological networks and their role and the ecosystem services they provide must be protected, maintained and enhanced and safeguarded from development. **It will be wholly exceptional for development to be justifiable in such instances.**

2. When all locational, siting and design options for avoiding damage to biodiversity have been exhausted, applicants, in discussion with planning authorities, must seek to minimise the initial impact on biodiversity and ecosystems by:

- maintaining the largest possible area of existing habitat supporting biodiversity and functioning ecosystems, particularly Section 7 habitats and species where present, by minimising development size and appropriate orientation on site, paying due regard to the potential for continued long term maintenance and management of retained areas to benefit biodiversity;
- ensuring that retained habitats continue to be well connected to adjacent habitats to provide connectivity for key species and ensuring that the favourable conservation status of local species populations is maintained;
- retaining existing features, develop a management plan for their future care (e.g., trees, hedgerows, species rich grasslands, heath, wetlands, ponds and freshwater habitats) and use appropriate buffers to protect these from construction and operational impacts; and
- using proven innovative/creative solutions (where required) to minimise damage and maintain existing biodiversity features and ecosystems in tandem with robust monitoring and rectification strategies.

3a) Where, after measures to minimise impact, biodiversity and ecosystems could still be damaged, or lost through residual impacts, the proposed development should mitigate that damage. Mitigation measures must be put in place to limit the negative effects of a development.

3b) Effective mitigation or restoration measures should be incorporated into the design proposal following the consideration of steps one and two above. Mitigation or restoration measures must be designed to address the specific negative effects by repairing damaged habitats and disturbed species. They should seek to restore in excess of like for like, accounting for disturbance and time lags for the recovery of habitat and species, and in every case, mitigation or restoration measures should seek to build ecosystem resilience within the site and where possible the wider

area. In some circumstances, where like for like mitigation measures are not possible, particularly in respect of restoration measures, it may be necessary to consider on site compensation measures in the first instance. In designing mitigation measures where uncertainty exists, applicants should follow the precautionary principle and assume a significant effect. Off-site compensation measures (as set out in step four below) should be considered as a last resort.

4. When all the steps above have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes further on-site/immediately proximate, as a last resort off-site compensation for unavoidable damage must be provided. This must be of significant magnitude to fully compensate for any loss. In the absence of a planned approach, compensation measures must be guided by place-based evidence and the onus is on applicants to address the following:

a. Off-site compensation should normally take the form of habitat restoration, or habitat creation, or the provision of long-term management agreements to enhance existing habitats and deliver a net benefit for biodiversity. It should also be informed by a full ecological assessment to establish a formal baseline before habitat creation or restoration starts and secured far enough in advance before the loss of biodiversity on site.

b. The Green Infrastructure Assessment should be used to identify suitable locations for securing off-site compensation. Where possible, a landscape-scale approach, focusing on promoting wider ecosystem resilience, should help guide locations for compensation. The Green Infrastructure Assessment should provide a spatial guide to opportunities already identified for securing a net benefit for biodiversity. Using the assessment will help determine whether locations for habitat compensation should be placed close to the development site, or whether new habitat or additional management located further away from the site would best support biodiversity and ecosystem resilience at a wider scale.

c. Where compensation for specific species is being sought, the focus should be on maintaining or enhancing the population of the species within its natural range. This approach might also identify locations for providing species-specific compensation further away from the site. Where they exist, Spatial Species Action Plans should be used to help identify suitable locations.

d. Any proposed compensation should be place based, take account of the Section 6 Duty (Biodiversity and Resilience of Ecosystems Duty), the DECCA framework and appropriate ecological advice from the local authority Ecologist, NRW or a suitably qualified ecologist.

5. Each stage of the step-wise approach must be accompanied by a long-term management plan of agreed and appropriate avoidance, minimisation, mitigation/restoration and compensation measures alongside the agreed enhancement measures. The management plan should set out the immediate and on-going management of the site, future monitoring arrangements for all secured measures and it should clearly identify the funding mechanisms in place to meet the management plan objectives. The management plan must set out how a net benefit

for biodiversity will be achieved within as short a time as possible and be locally responsive and relevant to local circumstances.

6. Finally, where the adverse effect on biodiversity and ecosystem resilience clearly outweighs other material considerations, the development should be refused.

[Our emphasis]

1.20 Paragraphs 6.4.19 *et seq* then address the treatment of designated sites specifically, stating:

“International, national and local designations are governed by different statutory and non-statutory requirements. Further guidance, particularly in relation to the National Site Network, is contained in TAN 5: Nature Conservation and Planning. Whilst the process of designation may differ, all designated sites must be able to continue to protect the biodiversity and features for which they were designated and contribute to the resilience of ecosystems at the appropriate scale. This ability should not be compromised by inappropriate development or other activity.”

1.21 Paragraph 6.4.20 states:

“Statutorily designated sites must be protected from damage and deterioration, with their important features conserved and enhanced by appropriate management. The contribution of the designated site to wider resilient ecological networks should be recognised and captured as part of a strategic approach to planning policy and decision making. The links between planning and wider management activity for the restoration and recovery of nature should be made. Complementary, and joint, action between all sectors and beyond the boundaries of the designated sites themselves is necessary to improve extent, connectivity and adaptability and address the nature emergency.”

1.22 Paragraphs 6.4.25 to 6.4.27 state:

Development in a SSSI which is not necessary for the management of the site must be avoided. This is a matter of principle to ensure that these sites can continue to fulfil their role at the heart of resilient ecological networks. What may be necessary for the management of a site will need to be considered on a case by case basis but it is likely to be limited to activities needed to meet its conservation objectives, including restoration and nature recovery, as well as site management infrastructure, natural flood management and other appropriate nature based solutions. There may be desirable interventions in SSSIs relating to public access, active travel, educational projects and other minor development necessary to secure its role as a living landscape. This may include agricultural development, such as new barns, slurry stores required to reduce pollution, barn conversions to support tourism or other alterations or extensions to existing houses or buildings on existing employment sites where effects on the features for which a site has been designated can be considered to be acceptable.

There is a presumption against all other forms of development in a SSSI as a matter of principle and this presumption should be appropriately reflected in development plans and development management decisions. There is also a presumption against development not within a SSSI but likely to damage a SSSI. In such cases, proposals

must be carefully assessed to ensure that effects on those nature conservation interests which the designation is intended to protect are clearly understood and development should be refused where there are adverse impacts on the features for which a site has been designated. International and national responsibilities and obligations for conservation should be fully met, and, consistent with the objectives of the designation, statutorily designated sites should be protected from damage and deterioration, with their important features conserved and enhanced and the capacity for restoration demonstrated by and through appropriate management.

In wholly exceptional circumstances and only where development is considered to be appropriate and is not likely to damage a SSSI and there is broad and clear agreement for mitigation and enhancement as part of a development plan should development be proposed. This means that development will be considered unacceptable in the absence of an agreed position in a development plan which indicates that it is acceptable in terms of its effect on the notified features of a SSSI.

Extant Local Planning Policy

Carmarthenshire Local Development Plan 2006-2021 (December 2014)

1.23 Policy EQ4 'Biodiversity' of the Carmarthenshire Local Development Plan states:

"Proposals for development which have an adverse impact on priority species, habitats and features of recognised principal importance to the conservation of biodiversity and nature conservation, (namely those protected by Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006 and UK and Local BAP habitats and species and other than sites and species protected under European or UK legislation) will not be permitted, except where it can be demonstrated that:

- a. The impacts can be satisfactorily mitigated, acceptably minimised or appropriately managed to include net enhancements;*
- b. There are exceptional circumstances where the reasons for the development or land use change clearly outweighs the need to safeguard the biodiversity and nature conservation interests of the site and where alternative habitat provision can be made in order to maintain and enhance local biodiversity.*

Emerging Local Policy

2nd Draft Deposit Revised Carmarthenshire Local Development Plan 2018-2033

1.24 Strategic Policy SP 14 'Maintaining and Enhancing the Natural Environment' states:

"Development proposals must protect and enhance the County's natural environment.

Proposals must reflect the role that natural environment aspects and features and an ecologically connected environment have in protecting and enhancing biodiversity, defining the landscape, contributing to Well-being and the principles of the Sustainable Management of Natural Resources.

All development proposals must be considered in accordance with National Policy and legislative requirements where a proposal for development would result in a significant adverse effect on designated sites, including European sites, SSSIs, and priority habitats and species.

Any development proposal should contribute towards the overall aim of the South West Wales Area Statement (NRW, 2020) in building resilience of our ecosystems and enhancing the benefits they provide. **Development that would result in unacceptable adverse environmental effects or that does not result in enhancement of biodiversity will not be permitted.**

Development must not cause any significant loss of habitats or populations of species (locally and/or nationally) and must provide net benefits for biodiversity. Where biodiversity enhancement is not proposed as part of a proposal for development, significant weight will be given to its absence, and unless other significant material considerations indicate otherwise it will be necessary to refuse permission

[Our emphasis]

- 1.25 The text of Policy NE2 'Biodiversity' is, for some reason, not detailed in the main body of the Planning Statement, but states:

“Development proposals must maintain and enhance biodiversity in accordance with Section 6 of the Environment (Wales) Act 2016.

Proposals will not be permitted where they would result in an adverse impact on priority species and habitats, and features of recognised importance to the conservation of biodiversity, except where it can be demonstrated that:

All adverse impacts are addressed in accordance with the mitigation hierarchy;

*Where this is not feasible, ensure **sufficient compensatory measures are put in place which address all potential adverse impact upon biodiversity resulting from the proposals;** and*

*In exceptional circumstances, where the reasons for the development and/or land use change **clearly outweighs** the need to safeguard the biodiversity and nature conservation interests of the site.*

Development proposals must not cause any significant loss of habitats or populations of species, locally or nationally, and must provide net benefits for biodiversity.”

[Our emphasis]

2. IMPORTANCE OF THE LICHEN HABITAT AND ASSEMBLAGE AT MYWYNGLODDFA NANTYMWYN SSSI

Overview

- 2.1 There are lichens and lichen habitat of high conservation interest in the abandoned mine works in Mwyngloddfa Nantymwyn SSSI.
- 2.2 Of particular importance are the lichens that live on the ground or soil (terricolous lichens) and those that live on rocks (saxicolous lichens).
- 2.3 The ground, soil and rocks in the abandoned mining areas are rich in metals, which leads to the development of a distinctive habitat of open grassland, bare ground, rocks and soils.
- 2.4 The open ground of the rocks, gravels, and soils is a complex habitat that has taken time and stability to establish. A key feature of this habitat is firm soil surface – a ‘crust’ – that is an important habitat for terricolous lichens. The development of this soil crust is dependent on both biological activities (such as algal and bacterial growth) and physical processes (such as leaching, settling, and so on) and which can take considerable time to develop. Nantymwyn was abandoned in the 1930s – c.90 years ago – but there were likely to have been unused locations within the whole of the mining area that would have been abandoned before then.
- 2.5 Stones and rocks within the mining area will have weathered over time leading to the development of a range of niches for saxicolous lichens to colonise. These niches on rocks can be very specific and will include humidity, exposure to sun/shade, exposure to wind, rate of drainage off the rock and so on.
- 2.6 The following sections examine the importance of the Mwyngloddfa Nantymwyn SSSI first for the habitats present and then the lichen and associated microfungi in those habitats.
- 2.7 The habitats of the old mining area with the lichen interest is classified under several different categories and these are listed below with their conservation importance.

Habitats

European Habitat of Conservation Interest: Calaminarian Grassland

- 2.8 The mine works support a habitat of conservation interest in Europe. This habitat is known as Calaminarian grasslands of the *Violetalia calaminariae* (Habitats Directive Annex 1 Code 6130). The mine works area is a good example of this important habitat but has not been selected as one of the representative examples of it in Britain for the purposes of designation at the International level (as a ‘Special Area of Conservation’ – SAC).

Metallophyte habitat and associated lichens of National Importance: Mwyngloddfa Nantymwyn SSSI

- 2.9 The SSSI was selected as a site of National importance for geological and biological reasons. With respect to the lichens and their habitat, the SSSI citation lists the following (additional information on the species present is given below under the Species section):

“Abundant mine spoil of varying sizes supports a diverse range of lichens and lichenicolous fungi (fungi that parasitise lichens). These include at least 32 species

that are either restricted to meta-rich substrates (obligate metallophytes) or grow most often on metal-rich substrates (facultative metallophytes)."

- 2.10 The significance of lichens in mine sites in Wales has been reviewed by Natural Resources Wales - see NRW Evidence Report No. 369 (Bosanquet SDS 2022), and the assessment carried out concluded that:

"The orefields of mid and north Wales are among the most important in Britain for lichens that have evolved to grow on rock with levels of metals such as copper, lead and zinc which are toxic to most plants and fungi."

- 2.11 The quality of the lichen habitat in a metalliferous site such as this here in the SSSI is assessed with reference to a Metalliferous Habitat Index (MHI) species list. This list is given in the Joint Nature Conservation Committee (JNCC) Guidelines for Selection: Chapter 13 Metalliferous sites, with sites that support more than 10 species on this list being eligible for notification as a SSSI for its lichen interest.

- 2.12 Survey data given in the Evidence Report (Bosanquet SDS 2022) shows that the Mwyngloddfa Nantymwyn SSSI has 19 MHI species recorded to date. This is a high number of such species, and it makes this SSSI the 6th highest quality in Wales for its mine site lichens. [Note that the 2023 survey work has added another MHI indicator species to the list for this Site raising the total number to 20 – see para. 2.19 below].

Habitat of Principal Importance in Wales: the Section 7 Habitat Mine site community (Metallophytes).

- 2.13 The 'Mine site community (Metallophytes)' is listed under Section 7 of the Environment Act (Wales) 2016. The habitat is described under Section 7 as:

"Once Wales probably supported a significant assemblage of lichens associated with natural outcrops of heavy metal-rich rock. Due to the destruction of these outcrops by our mining activities the survival of metallophyte lichens are now almost entirely dependant upon the conservation of old mine sites.

Two special types of lichens are almost completely confined to these sites in Wales:-

- 1. Obligat metallophytes. Those lichens that appear, in some way, to require heavy metals and only occur on heavy metal-rich substrates.*
- 2. Facultative metallophytes. Those lichens which can tolerate heavy metals, but can be found elsewhere in sites, without such heavy metals. Most of these species are probably poor competitors but can survive extreme conditions. In Wales, they are mostly confined to metal-rich sites but also occur, for example, on exposed peat on the summit ridges of high mountains."*

- 2.14 A list of species indicative of the quality of the Mine site Mine site community (Metallophytes) is listed in Section 7 and any threatened site supporting more than three of these species should be subject to a detailed assessment.

- 2.15 To date, fifteen species from the Section 7 list have been recorded from the Mwyngloddfa Nantymwyn SSSI indicating that it is a very high-quality example of the Section 7 Mine site community (Metallophytes) habitat.

Species

Mwyngloddfa Nantymwyn SSSI

- 2.16 The SSSI citation lists some of the species present on the Site as:
- “... these include at least 32 species that are either restricted to meta-rich substrates (obligate metallophytes) or grow most often on metal-rich substrates (facultative metallophytes). Especially prominent are extensive greyish-white patches of the coral-like Stereocaulon condensatum, Stereocaulon dactylophyllum and Stereocaulon glareosum, as well as the smaller, rock-dwelling Stereocaulon nanodes and Stereocaulon pileatum, and the rusty-red Rhizocarpon oederi. Smaller species include the obligate metallophyte Gyalidea subscutellaris, the largest known population of the Welsh endemic Gyalideopsis crenulata, and at least three members of the genus Vezdaea”*
- 2.17 The Bryophyte and Lichen Survey (Sutton, M., December 2023) submitted with the planning application stated the following (based on his desk examination):
- “Lichen survey has been carried out, most recently in 2012, and NRW hold survey information. There are records of at least 31 notable species on the mine, which is known as the second-most important site for metallophyte lichens in Wales. Five of these lichens are also nationally rare, twelve are nationally scarce, one is listed as “vulnerable to extinction” on the British Lichen Red List and one is a Welsh endemic with only five locations known worldwide and all of these in Wales.”*
- 2.18 The two sources of information above indicate that the old workings of the Nantymwyd SSSI have populations of lichens that are of conservation importance, including:
- 5 Nationally Rare species;
 - 12 Nationally Scarce species
 - One with a Threat status of Vulnerable
 - One is a species only known from Wales in Britain (and one of only five known populations in the world) where it has its largest population in this SSSI.
- 2.19 The field work in December 2023 whilst not specifically dedicated to surveying for individual species, did add the following species of conservation interest to the SSSI:
- “Placynthiella hyporhoda. A significant facultative terricolous metallophyte, new for Carmarthenshire and only the 3rd Welsh vice-county for it. On metal-polluted 'soil' on metalliferous heath over spoil at SN78780.44671. “*
- 2.20 This latter addition to the species list for the SSSI indicates that the full extent of the lichen assemblage within the Mwyngloddfa Nantymwyn SSSI is not yet known, and therefore an understanding of its conservation importance at the National and International level is not yet fully complete.
- 2.21 What is certain, is that the SSSI supports a nationally important assemblage of lichen species, with some individual species also being of National importance in their own right.

3. VULNERABILITY OF THE LICHEN ASSEMBLAGE AT MYWYNGODDFA NANTYMWYN SSSI

Vulnerability of terricolous and saxicolous lichens and their habitat

- 3.1 The lichens of the metallophyte habitat in the SSSI occur on the ground (terricolous) and on rocks (saxicolous) – lichens in both these habitats are sensitive to a range of different types of disturbance that change the physical and biological make up of their individual habitat requirements.

Terricolous lichens

- 3.2 Terricolous lichens grow on the ground mostly on firm soil crusts that are stabilised with rock fragments, plant roots, other organic matter (including bacteria, algae, fungi). Other processes contribute to the creation of the stable surface including soil chemistry and products resulting from chemical reactions. All these processes can take considerable time to create the soil conditions stable enough for lichens to colonise. The nature of this firm surface will vary across a site according to environmental conditions such as hydrology, humidity, heat/col, sun/shade, competition from other species, and, in the case of this SSSI, the presence of metal ions.
- 3.3 The ground conditions, in particular the stable soil crust, that supports terricolous lichens is very sensitive to disturbance. These ground conditions can be damaged or destroyed by vehicles driving over them, trampling, and changing environmental conditions for example through changes in hydrology that could cause soils to dry out and become liable to breaking apart.
- 3.4 In addition to habitat changes that can lead to the loss of lichens, individual lichens are also sensitive to being crushed and so are vulnerable to excessive trampling and particularly vulnerable to being driven over by vehicles.

Saxicolous lichens

- 3.5 Saxicolous lichens grow on rocks that range in size from rock fragments fixed into the ground, pebbles, cobbles, boulders through to exposures of *in situ* rock exposures. Which species grow is dependent, in part, on the specific environmental conditions associated with the saxicolous habitat, which include, amongst others, the following:
- the geological type of the stone and rock;
 - the abundance and type of metals ions;
 - the weathering of the rock surface;
 - hydrological conditions, which will include how dry or wet the conditions are around the pebbles, boulders, rock faces are, and how quickly or slowly the surface drains following rain;
 - humidity;
 - air quality; and
 - the amount of light.
- 3.6 Saxicolous lichens require stable conditions to establish and thrive. Some species have very specific environmental requirements whilst others can live in a broader range of environmental conditions. All are sensitive to changes in the environmental conditions around their saxicolous

substrate though the sensitivity varies according to species and the particular change in the environment. Changes can occur through conditions around the habitat – a loss of light from surrounding vegetation - or because the stone or boulder has moved (naturally or by humans) to a new position.

- 3.7 Lichens can be fragile structures and vulnerable to physical damage such as trampling. The *Stereocaulon vesuvianum* var. *nodulosum* shown in the photograph on page 8 in the Bryophyte and Lichen Survey Report (Sutton, 2023) would be damaged even by a very limited amount of trampling and killed with higher levels of trampling. The same would apply to all the *Stereocaulon* species including *S. glareosum*, which this SSSI has the only known population in Carmarthenshire and also the Carmarthen & Dinefwr Area of Search.

Summary of Vulnerabilities

- 3.8 Terricolous and saxicolous lichens are sensitive to changes in the environmental conditions that make up their habitats and thus vulnerable to damage and death depending on the sensitivity of the lichen and the nature and scale of the changes. The following list gives examples of what these lichens are vulnerable to (the list is not exhaustive):

- Terricolous lichens are vulnerable to the loss of habitat from the breaking up of stabilised soils and associated ground;
- Stones and boulders are vulnerable to habitat changes if their position is changed;
- Lichens in both habitats are vulnerable to changes in the hydrological conditions of their habitat. These changes range from soils becoming wetter or drier, waterlogged, droughted. Water could pool for longer on rocks or drain more quickly.
- Lichens in both habitats are vulnerable to changes in exposure to light and shade;
- Lichens in both habitats are vulnerable to changes in humidity which can affect their capacity to photosynthesize;
- Lichens in both habitats are vulnerable to an increase in dust/mud covering lichen surfaces.
- Lichens in terricolous habitats (both shrubby and crustose species) are sensitive to being crushed and vulnerable to being damaged or killed. Shrubby species on saxicolous habitats are sensitive to being crushed and vulnerable to being damaged or even killed.

Lichens in the SSSI

Lichen Habitat in the SSSI

- 3.9 The terricolous and saxicolous habitats in the Mwyngloddfa Nantymwyn SSSI provide a diverse range of small-scale environmental conditions for the various lichens species to live. This range of conditions need time, decades, often much longer, to develop. To give an idea of timescale, the mine was closed in c. 1930 but there will likely be areas that had been abandoned long before then.
- 3.10 These conditions, and the associated lichen distribution, are not fixed but will vary in place and time within the SSSI. During the time needed for these conditions to develop and evolve over the SSSI, it is critical for terricolous and saxicolous lichens that they remain in the open and not

overgrown by taller plants. The toxic soils of the metal mine are crucial in inhibiting the growth of vascular plant vegetation and allowing the time for the lichen habitats to develop.

- 3.11 This habitat complexity across the SSSI as a whole provides the space for lichens to colonise, adapt and move around according to their ecological needs and changing conditions. It is a dynamic system.

The Lichen Survey

Habitats

- 3.12 The Bryophyte and Lichen Survey (Sutton, 2023) maps the SSSI with four lichens habitats:
- 3.13 ‘*Suitable*’ - “areas dominated by suitable/good MHI habitat where MHI species were recorded”
- 3.14 ‘*Some suitable*’ - “areas becoming dominated by open/short stands of vascular plants but with some suitable/good MHI habitat where MHI species were recorded – sometimes this might be just along small paths etc or may be larger open areas”
- 3.15 ‘*Not suitable*’ “areas with **little**/no suitable/good MHI habitat where MHI species were not recorded”. Even though the habitat has this label, it appears that there is at least some metallophyte habitat present. Furthermore, Sutton (2023) does not describe whether the ‘Not Suitable’ areas are recorded in this category because:
- Either there is no metallophyte substrate there, and thus a habitat that would never support a metallophyte habitat and associated species, or
 - Or the metallophyte substrate is present but is temporarily unsuitable for the metallophyte communities to develop because of, for example, higher plants covering the rocks and ground.
- 3.16 The distinction is important as the latter would be considered as metallophyte habitat but in poor condition; any permanent loss of habitat here would be a loss of metallophyte habitat.

Species

- 3.17 No information is provided in the Bryophyte and Lichen Survey (Sutton, 2023) on the distribution of individual lichen species of conservation interest in the SSSI (for example those listed in the SSSI citation at a minimum but other species of conservation interest).
- 3.18 It is therefore not possible to state with any level of confidence what the proposed scheme will have on any of the populations of known species of conservation interest (see paras. 2.15 to 2.20, especially para 2.16) as well as species yet to be found (see para. 2.19).
- 3.19 No effort seems to have been made to map and present information on the Welsh endemic species *Gyalideopsis crenulata* and how that might be affected by the proposed scheme.

The Changes and Impacts Associated with the Trails

3.20 The Planning Statement states the following regarding some of the features on the trails:

“Proposed Use of Site

4.12 As forementioned, the proposal seeks to provide a bike park for mountain bikes and ebikes along with associated facilities – similar to that which currently exists at Bike Park Wales.

4.13 This includes a number of downhill trails of varying degrees of difficulty to cater for all riding abilities which are depicted on the trail plan extract below:

4.14 These trails will incorporate a range of features including berms, drop-offs and rollers to create variety and an enjoyable riding experience for visitors to encourage repeat visits. Plans and examples of these are provided to accompany this submission but also extracted below for reference:…[see Planning Statement pp. 15 to 16 and associated trail design drawings as submitted]”

Area of Trails in the SSSI

3.21 No measurements of the length of trails in the SSSI or the trail widths are given in Planning Statement. The British Lichen Society (BLS) would welcome information on the lengths, widths, and total area of the trails proposed to go through the SSSI to assess potential impacts.

3.22 In the absence of such information, the BLS has looked at the trail plans submitted in the Planning Statement and estimate that the total length of trails in the SSSI to be in the region of two kilometres. For the purposes of this Note, a figure of 2km of trails in the SSSI will be used but it is only an estimate in the absence of more specific information.

3.23 In the absence of specific information on trail widths through the SSSI, the BLS is, for the purposes of this Note, drawing on information in the Preliminary Ecological Appraisal (Sutton, 2023) Section 4.1 Scheme Details where it describes the scheme as: ‘*series of new bike trails would be created, each around 2m wide*’ (see page 16 of the Preliminary Ecological Appraisal). An average width of two metres is assumed for the trails but, as with the length, this is only an estimate in the absence of other detailed information. Further clarification on this would be welcome.

Construction of the Trails

3.24 An interpretation of the construction of the trails is sub-divided into the construction of the primary trail itself and the addition of ‘technical trail features’. By primary trail, we mean the trail without any of the more complex technical trail features such as berms, double rollers, and drop-offs.

The primary trail

3.25 Three technical drawings submitted with the Planning Statement describe how the primary trail will be constructed:

- Overtip Construction (Drawing Reference OT-NyB-TF03) - to be used, probably, where the side slope is 15% or less;
- Bench Cut (Drawing Reference OT-NyB-TF01) to be used, probably, where the trail has to cross side slopes of 15% or more).

- Grade Reversal (Drawing Reference OT-NyB-TF06) showing how trail will be constructed to control water.

3.26 No information could be found in the Planning Statement as to where each of these types of construction will be needed in the SSSI and an associated construction method. In the absence of such information, the British Lichen Society makes the follow estimates/assumptions of changes and impacts.

Overtip Construction

3.27 If all the trails in the SSSI were constructed with the Overtip method, it would require the excavation to a depth of 150mm along the trail, the removal of the existing substrate and then its replacement with 'mineral soil that would have to be compacted into a profile that would shed water off the trail.

3.28 In this scenario, 600 cubic metres of material would be excavated and replaced with a 'mineral soil'. With an estimate of 2km of trails, 4,000m² of SSSI habitat would be destroyed and this would be a permanent loss of habitat from the SSSI.

3.29 No construction methods are presented. Machinery would be needed to excavate the trail, transport infill material, remove toxic metallophyte spoil, compact the infill etc. These activities are likely to extend beyond the 2m wide trail corridor and lead to the destruction or long-term damage of habitat beyond the edges of the trail itself.

Bench Cutting

3.30 Bench Cutting will be used where the transverse slope is too great for the Overtip construction. In this scenario, the trail itself will be created by cutting down to 'high quality mineral sub-soil' – see Technical Drawing in Planning Application. A batter – a slope cut to an appropriate angle of repose - would be excavated on the upslope side of the trail. The width of this batter will depend on the steepness of the slope. The material excavated from the trail route itself and that scraped off to create the batter will be cast downslope of the trail.

3.31 This construction will lead to the permanent destruction of SSSI habitat along the trail itself and from the area of batter. Significant damage, probably permanent, to habitat above the batter where the back slope will be '*neatly blended into the original slope*'. Further damage will occur to SSSI habitat, including metallophyte habitat, downslope where all the excavated material will be dumped – see Technical Drawing in Planning Application.

Grade Reversals and Water Management

3.32 Grade reversals will probably have to be built where trails descend continuously. The reason for this is that on a continuous slope water would follow the trail and build up volume and speed presumably leading to enhanced erosion on or adjacent to the trail. To prevent this, Grade Reversal constructions would funnel water off the trail a specific locations – see Technical Drawing in Planning Application. These features will lead to the permanent loss of habitat along the trail itself (as discussed above), construction damage adjacent to the trail, and significant changes to the local hydrology of the SSSI habitat where the Grade Reversals are built.

Other Water Management Features

3.33 Little information is available on hydrological conditions in the SSSI and how the trails will affect them. Existing water features are a notified element of the SSSI (see SSSI citation). It is likely that water control features will have to be constructed to protect the trails from erosion and

damage (it is assumed that water must drain across the slopes of the SSSI). No detailed information has been provided about water management in the SSSI for the trails other than the Grade Reversal plans. Other water control features may be needed including culverts, grips, catchment and settlement pits etc may be needed. The Grade Reversals, and any other constructed water control features, will lead to changes in areas of the SSSI beyond the actual trail routes.

Technical Trail Features

- 3.34 Technical Trail Features such berms, double rollers, drop-offs and so on will require the importation of materials, which will not be suitable for metallophyte lichens), and construction with machinery. Technical Trail Features could be up to 2.5m high and in places will be considerably wider than the trail itself. Drop-offs may need excavation and importation of specific rock types.
- 3.35 In addition to the loss of habitat under the Features, the area needed to build these Features will lead to areas of permanent loss of habitat (e.g. destruction of stable soil crust, displacement of saxicolous habitat) and/or long-term damage to terricolous and saxicolous species in whatever the construction zone will be for each feature. Note that the construction zone will include access routes for machinery, movement/stockpiling of materials, operational zone for machinery etc.
- 3.36 The number, size, and types of Technical Trail Features to be built in the SSSI has not been provided in the Planning Application. Additional information on the location, size, materials, and construction methods for these features would be welcome so as to quantify their impacts to the SSSI.
- 3.37 Until such information is available, the construction of Technical Trail Features will lead to the permanent loss of SSSI habitat both on the 2m wide trail route (see above paras 3.27 to 3.29) and from under the footprint of the Technical Feature itself on either side of the trail. The construction activities and the importation of materials to build the features would also add to the long-term, possibly permanent, damage to lichen habitat and a reduction in lichen populations. All this would add to the significant negative impact to the SSSI in addition to the 2km of trails.

Operation of Trails

- 3.38 Little information is provided on the activities associated with the operational phase of this development. This BLS cannot carry out an impact assessment in this document but an estimation of the types of activities in the SSSI that will change condition in there that could lead to significant impacts include:
- Access to the trails and associated infrastructure for maintenance (it seems likely that machinery for maintenance would not use the bike trails themselves so as not to damage the compacted trail soil and its profile for shedding water) would damage/destroy lichen habitats and species;
 - Ongoing impacts from changes to the hydrology of the Site will alter lichen habitats for example drying soils out making them vulnerable to the crust disintegrating and consequent loss of lichens;

- Damage to habitats and species from the encroachment of informal trails into the SSSI – i.e. routes other than those formally constructed could develop in desirable locations in the SSSI;
- Trampling through use of SSSI off the trails for walking/access to desirable locations, etc) – depending on the intensity of use, this would lead to damage to soil crusts, damage to individual lichens (e.g. the *Stereocaulon* species);
- Dust/mud spread by bicycles/machinery beyond the trail corridors/access routes onto adjacent terricolous and saxicolous habitat; and
- Erosion of imported materials on the trail and/or from the Trail and the Technical Trail Features leading to the partial to full covering/burial of saxicolous and/or terricolous lichens.

3.39 The above list is not exhaustive. It does, however, highlight that potentially significant impacts to terricolous and saxicolous habitats could occur in the SSSI beyond those lost in the construction phase of this proposed development. No assessment of any substance has been presented for this stage of the proposed development.

Summary of Changes to the SSSI and Impacts to Lichens

3.40 This Section of the Note has had to be compiled with the limited information available in the Planning Statement and associated Technical Drawings, Preliminary Ecological Assessment (Sutton, 2023) and the Bryophyte and Lichen Survey (Sutton, 2023).

3.41 The BLS has had to make estimates and assumptions to try and understand the likely scale of impacts of the proposed development on the SSSI and its lichen features of interest. Any clarification in the area of SSSI needed to build and maintain the bike trails would be welcome.

3.42 The Technical Drawings in the Planning Application show that the construction of the Trails and the associated Technical Trail Features will lead to the destruction and permanent loss of thousands of square metres of SSSI habitat (metallophyte and other associated habitats) through the excavation and replacement of the existing SSSI existing habitat. The potential area lost is a significant area of the SSSI. The loss of area will also likely include reductions in the populations of lichens of conservation interest, and a reduction in the area of habitat that lichens of conservation interest can colonise in future.

3.43 In addition to the above, the construction footprint needed to build the trails (according to the Overtip and Bench Cut methods and those needed for the Technical Trail Features) will add to the significant negative impacts to the SSSI habitats and lichen species, the impacts ranging from permanent loss to long-term damage (for example the soil crusts being driven over, lichen species driven over, stones and boulders moved from existing locations etc).

3.44 Other aspects of the proposed development such as whatever the water control/management systems needed to protect the trails from water erosion/damage are likely to have long-term cumulative negative impacts which will result from altering the existing hydrological conditions on the Site - . There appears to be no information in the Planning Application to assess in detail the impacts associated with hydrology.

3.45 The Operational Phase of the Bike Park will have ongoing impacts to the lichens in the SSSI. None of this element has been assessed in the Planning Statement but activities such as

access for maintenance, increases in footfall off the trails, off trail cycling, water management, etc need to be described and assessed.

3.46 In conclusion, the construction and operation of the trails (according to the information submitted) will have a permanent significant negative impact on the SSSI. This will include:

- permanent loss of a significant area of SSSI metallophyte habitat
- damage and reduction of populations of SSSI terricolous and saxicolous lichens,
- permanent reduction in area of SSSI habitat for future colonisation by terricolous and saxicolous lichens – a reduction in the resilience of the SSSI;
- potential long-term damage to lichen habitat from construction and operation of water management.
- Additional permanent loss and/or damage could arise from the Operational phase of the bike park.

3.47 Some of the potential damage cannot be quantified and assessed. For example, no information was collected on the presence, distribution, and population sizes of lichens of conservation interest in the SSSI, including those listed on the SSSI citation. It may be, for example, that the one or more of the trail routes, the water management, construction access, operational activities leads to the permanent loss of one or more lichen species of conservation interest from the SSSI.

3.48 The predicted impacts to the SSSI are permanent, significant, and negative.

REVIEW OF THE ECOLOGICAL IMPACT ASSESSMENT (ECIA) OF THE PROPOSED DEVELOPMENT

Methodological Observations: Lack of an Ecological Impact Assessment

- 3.49 The industry standard guidelines for Ecological Impact Assessment (EclA) are the *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Marine*, published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) (referred to hereafter as 'The EclA Guidelines' for brevity).
- 3.50 The current version of the EclA guidelines is Version 1.4, which were last updated in September 2024, so the version that would have been extant at the time the planning application documents were produced would have been Version 1.3, which was produced in April 2022. It should also be noted that **the CIEEM EclA Guidelines are also the methodological approach to EclA that is formally endorsed by Natural Resources Wales (NRW).**
- 3.51 In the first instance, it is noted that the planning application has not been accompanied by anything that is either entitled or which resembles a formal EclA. Instead, there are two ecological documents, as follows:
- A 'Preliminary Ecological Appraisal' (PEA) report, produced by Wyndrush Wild (September, 24 June 2023); and
 - A Bryophyte and Lichen Survey produced by Wyndrush Wild (December 2023), which contains bryophyte survey data from Sutton, M and lichen survey data from Chambers, S.
- 3.52 In relation to the PEA Report, it should be noted that the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, Second Edition, December 2017) state the following at paragraph 1.5:
- "The results of a PEA can be presented in a Preliminary Ecological Appraisal Report (PEAR). The primary audience for a PEAR is the client or developer and relevant members of the project team, such as the architect, planning consultant, and landscape architect. It is normally produced to inform a developer (or other client), and their design team, about the key ecological constraints and opportunities associated with a project, possible mitigation requirements and any detailed further surveys required to inform an Ecological Impact Assessment (EclA). **Under normal circumstances it is not appropriate to submit a PEAR in support of a planning application because the scope of a PEAR is unlikely to fully meet planning authority requirements in respect of biodiversity policy and implications for protected species**".*
- [Our emphasis]
- 3.53 Given the forgoing, it is the case that the planning application has not been accompanied by any ecological document or report that meets the guidelines for an Ecological Impact Assessment that should have been carried out to inform the determination of the application by Carmarthenshire County Council.

Technical Observations: The Extent to which the Submitted Documents Nonetheless Fulfil the Requirements of an EclA

3.54 The key tasks that form the scope of an EclA and the subsequent report are summarised in Box 4 (pages 12-13) of the EclA Guidelines and are detailed in the chapters of the EclA Guidelines that then follow.

Defining the Zone of Influence, Establishing the Ecological Baseline and Evaluating the Importance of Ecological Features

3.55 The ecology documents that have been submitted with the planning application go some way to establishing the ecological baseline of the application site and surrounding area, and identifying important ecological features (Chapters 3 and 4 of the EclA Guidelines), but even in this respect there is no attempt made to properly define the 'Zone of Influence' of the development proposals – defines as “...*the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities.*” (paragraph 2.20 of the EclA Guidelines).

3.56 The CIEEM EclA Guidelines work on the basis that important ecological features (IEFs) are evaluated and assigned an importance level on the basis of a geographic frame of reference, as follows (omitting coastal and riverine categories as these do not apply):

- International or European
- National
- Regional
- Metropolitan, County, vice-county or other local authority-wide area
- Local
- Less than Local (sometimes referred to as 'Zone of Influence importance only')

3.57 Although none of the ecology documents submitted with the planning application formally evaluate the importance of either the lichen assemblage or of the populations of any individual species within that assemblage, the PEA Report does make passing reference to the lichen flora as a whole being of National importance (although the Bryophyte and Lichen Survey Report somewhat peculiarly does not), and it can be taken that the SSSI designation is implicit recognition that at least the lichen assemblage as a whole is of National level importance. A more definitive summary of the importance of the lichen flora (both the assemblage as a whole and populations of individual importance species) is provided above in **Section 2** of this consultation response.

Assessing Impacts and the Significance of Effects on Important Ecological Features

- 3.58 Beyond establishing the baseline as per the above, the ecology reports submitted with the application make no meaningful attempt at carrying out a formal EclA. The approach recommended by CIEEM (see Chapter 5 of the EclA Guidelines) requires an ecologist to *inter alia*:
- Identify and characterise impacts and their effects (characterisation includes identifying where impacts are; positive or negative, their extent, magnitude, duration, frequency, timing, and reversibility)
 - Incorporate measures to avoid and mitigate negative impacts and effects
 - Assess the significance of residual effects after mitigation
 - Identify appropriate compensation measures to offset significant residual effects
 - Identify opportunities for ecological enhancement
- 3.59 None of the above steps has been attempted in any meaningful way by the two ecology documents submitted with the planning application.
- 3.60 The PEA Report was clearly written prior to the development proposals being finalised and therefore does not present an assessment of the actual impacts of the scheme or the significance of their effects. The PEA Report states (for example) that the “*The provisional trail routes within the SSSI should be carefully assessed (in conjunction with NRW)...*” and that the development proposal “*would have potentially significant impacts on the lichen assemblage*”. It therefore identifies the possibility for impacts to occur, but neither characterises them nor assesses the potential significance of the effects that might result upon the lichen assemblage.
- 3.61 Neither the PEA Report nor the Bryophyte Report attempts to characterise the impacts that might occur in the absence of mitigation. For example, it is likely that there will be direct destruction of lichen habitat and individual lichens both during the construction phase (through track and feature formation and related plant, vehicle and construction operative movements) and operational phase (through erosion of the ground surface from bikes and from visitor footfall), as well as other impacts such as the generation of dust and modifications to the hydrological regime caused by the creation of microtopography and amendments to drainage pathways. Littering and eutrophication may also lead to significant effects.
- 3.62 The EclA Guidelines require that the significance of effects on important ecological features that result from impacts, particularly after mitigation (i.e. residual effects), are evaluated on the same geographic frame of reference used to evaluate the importance of ecological features (so, for example, after mitigation, a negative effect on a feature of National importance may be reduced to only being of Regional or Local significance, if it does not undermine the conservation status of the entire feature).
- 3.63 Neither of the ecology documents submitted with the planning application attempt to determine the significance of effects (either residual or otherwise) or indeed quantify them in any objective way.

The Approach to Mitigation and Compensation

- 3.64 Section 4 of the Bryophyte and Lichen Report provides a cursory description of how the proposed bike trails were revised following discussions with NRW to ‘reduce’ the significance

of impacts, but it is clear from the information presented that even the revised trails still pass through important lichen-rich areas of the SSSI (see also paras. 3.15 and 3.16).

- 3.65 The assessed significance of the impacts both before and after mitigation is not stated or objectively quantified or evaluated in any way, so the benefit of the trail revision cannot be independently assessed or validated (either by third parties or by Carmarthenshire Council as the competent authority determining the planning application).
- 3.66 Notwithstanding the above, it is clear from the text in Section 4 that the trail revisions are not anticipated by the authors to fully address any significant negative effects, as statements such as *“The section across the metalliferous habitat has been micro-sited to **minimise** impact”* demonstrate that residual impacts are predicted, and statements such as *“The trail here could be hand-dug to further minimise impacts.”*, in addition to being entirely noncommittal on whether the envisaged mitigation will actually be implemented, also imply the expectation of the authors that significant effects will not be fully addressed.
- 3.67 Further to there being no objective evaluation of the significance of any residual negative effects on the lichen assemblage of the SSSI, there is no attempt at providing any robust or quantified mitigation, or indeed even to commit to any such mitigation.
- 3.68 In addition to statements in Section 4 of the Bryophyte and Lichen Report that state that mitigation ‘could’ be implemented, the whole of Section 5 of the Bryophyte and Lichen Report is entitled *‘**Potential** Mitigation Actions for Lichens and Bryophytes’*, which does not impart any confidence that the measures outlined would be implemented, (even if there were any evidence offered that the measures would work, which there is not), and provides no basis for Carmarthenshire Council to secure any such measures through planning condition or obligation. Section 5 of the report is also caveated with noncommittal and uncertain language – e.g. *“There may be scope create reasonably large new areas of suitable habitat...”* and that material for doing this *“...may be particularly suitable, and could potentially tie in with pollution-control aims.”*
- 3.69 There can be no confidence whatsoever placed in an approach to mitigation that is unquantified, un-evaluated and not even the subject of any firm commitment at all to being implemented.
- 3.70 Further to this however, the approach outlined in Section 5 of the Bryophyte and Lichen report relies upon improving the management of and carrying out interventions in the remainder of the SSSI not affected by development, either by removing trees or creating new areas of large grade spoil material, to create new lichen habitat to compensate for habitat that is lost or damaged by the development proposals.
- 3.71 In addition to the report indicating uncertainty that it is even possible to do this, it should be noted that:
- Creating a new important ecological feature to replace a feature lost or damaged by development is compensation, not mitigation, and therefore is considered as a ‘last resort’ in the ‘mitigation hierarchy’ that is enshrined both in Local and National Planning policy and in the EclA Guidelines, and should only therefore be used once all impact avoidance and mitigation options have been exhausted and only in cases where the damage to the original important ecological feature is clearly outweighed by the need for the development; and

- The owners and occupiers of SSSIs are already subject to certain legal obligations under the Wildlife and Countryside Act 1981 (as amended) not to undertake certain activities that may damage a SSSI without consent from NRW, and to manage their SSSI in a way that avoids harm to the special features for which the SSSI was designated. In Wales, this is typically captured in a 'Management Statement' produced for each SSSI that is produced by NRW.

3.72 In relation to the obligations of SSSI owners and occupiers, The Mwyngloddfa Nantymwyn SSSI Management Statement 'Your Special Site and It's Future' produced by the Countryside Council for Wales (CCW – the predecessor to NRW), states:

"Integrity of spoil tips

*Crucial to the special interest, both geological and biological, are the spoil tips that are variously distributed throughout the site. A key conservation objective, therefore, is to **maintain the current quantities and locations of spoil on the site and to minimize the removal** of any material except for the purpose of bona fide research. **Removal of spoil for use as aggregate or for track construction should not be undertaken. Similarly, the spoil tips should not be driven over or have material dumped on them.***

Changes in agricultural practice

*Current agricultural practices, namely afforestation, in areas surrounding the spoil tips, have little or no effect upon the feature of geological interest. However, certain changes in agricultural practice, specifically afforestation of the spoil tips themselves, could result in their concealment, and such activities should be avoided in these areas. Afforestation also has the potential to adversely affect some of the lichens and mosses, either from changes caused to the soil or substrate or to the micro-climate. **Some natural colonization by conifers has already taken place in some areas and this should not be allowed to continue unchecked. Changes to the drainage pattern could also have undesirable consequences, e.g. by allowing the removal by rainwater of toxic metals from the site.***

[Our emphasis]

3.73 It follows from the above that the owners of the Mwyngloddfa Nantymwyn SSSI are already required to manage the SSSI in way that prevents any deterioration of the lichen assemblage. Offering to improve hitherto unfavourable management of the site in order to compensate for the destruction of part of the SSSI interest features is not therefore genuine compensation.

3.74 As indicated in the tentative and noncommittal language used by the authors of the Bryophyte and Lichen Report, the methods set out in Section 5 of that report, to create compensatory lichen habitat, are highly uncertain and in our view subject to a high risk of failure. The important lichen species that form the key components of the assemblage supported by the SSSI require a very specific and narrow range of biophysical conditions to survive, including substrate chemistry, hydrology, slope, topography, management and aspect. That their requirements are exacting is evidenced by their rarity and the limited number of locations both Nationally and within the SSSI where they occur. There can only be very limited confidence that new habitat creation for these species would be successful.

4. SUMMARY AND IMPLICATIONS UNDER RELEVANT NATURE CONSERVATION RELATED LEGISLATION AND PLANNING POLICY

Summary

Section 1: Legislation and Policy

4.1 Section 1 of this report sets out the Legislation and Planning context relevant to the proposals to develop part of the Mwyngloddfa Nantymwyn SSSI.

Legislation

4.2 Relevant legislation referred to for this Note:

- Wildlife & Countryside Act 1981 as amended; and
- The Environment (Wales) Act 2016

Policy and Guidance

4.3 Planning Policy and Guidance referred to are:

- Planning Policy Wales (PPW) 12th Edition (February 2024)
- Planning Policy Wales Technical Advice Note (TAN) 5: Nature Conservation and Planning
- Future Wales: the National Plan 2040
- Carmarthenshire Local Development Plan 2006-2021 (December 2014); and
- 2nd Draft Deposit Revised Carmarthenshire Local Development Plan 2018-2033

Section 2: Importance of the lichen habitat and assemblage at Mwyngloddfa Nantymwyn SSSI

4.4 Section 2 of this Note characterises the importance of the Mwyngloddfa Nantymwyn SSSI for lichens. The SSSI covers an old mining works and has metal-rich spoil and ground. The Site citation describes the presence of metallophyte habitat and an assemblage of lichens dependent on that metallophyte substrate and habitat.

4.5 On data collected on behalf of other organisations, this SSSI is considered to be the 6th richest mine site for lichens in Wales. This mine site is in one of the orefields that make Wales amongst the most important in Britain for metallophyte lichens.

4.6 This data also provides information on the species assemblage being of National Importance for its metallophyte lichen species; for the presence of species rare and threatened in Wales (including the only known site for an endemic lichen: *Gyalideopsis crenulata*); and for the restricted distribution in Carmarthenshire for many these species.

4.7 Section 2 describes that the SSSI supports an example of a habitat of European conservation interest - Calaminarian Grassland.

4.8 The habitats in the SSSI are a high-quality example of a Section 7 'habitat of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales'.

4.9 The survey data presented in the Lichen and Bryophyte survey provides some information on the distribution of habitats in the SSSI though nothing on the distribution and population sizes

of the known species of conservation interest. The limited lichen field work carried out found species of conservation importance new to the Site indicating that the biodiversity of the site is not yet fully understood.

Section 3 - Vulnerability of the lichen assemblage at Mwyngloddfa Nantymwyn SSSI

- 4.10 Section 3 has two main parts; the first provides an overview of the sensitivity of the lichen habitat and species in the SSSI and examples of the activities to which they are vulnerable. The second part looks at examples of the activities of the proposed development, in both the construction and operational phases, and how they are associated with the vulnerability of the terricolous and saxicolous lichens.
- 4.11 Terricolous lichens are particularly dependent on stable ground conditions – soil crusts – that take considerable time to form. These crusts are bound together by, for example, small biological features, the settlement/compaction of soil particles and, possibly, the outputs of soil chemical reactions. These stabilised soil structures are fragile and easily damaged by even relatively light disturbance. The lichens dependent on these soils are vulnerable; once the crust is damaged or destroyed, the lichens lose their substrate and decline or die.
- 4.12 Saxicolous lichens colonise and grow in specific habitats that are to do with structures on their substrate (weathered surface, chemistry, rock structure etc) in combination with external conditions such as hydrology, sun etc. The lichens are sensitive to changes in their habitat and are vulnerable to the substrate being moved so that is in different environmental conditions.
- 4.13 Lichens on both terricolous and saxicolous habitat are sensitive to changes in hydrology, humidity, light/shade, air quality, and dust and/or mud being deposited on their surfaces. Individual lichens in these habitats are sensitive to being crushed and vulnerable to being eradicated from areas with high footfall or vehicle access.
- 4.14 The Planning Application appears to have little readily accessible and detailed information about the length of the trails through the SSSI and the width of those trails. Beyond the Technical Drawings, there appears to be no information regarding which of the trail construction techniques will be used where in the SSSI and there is no information on which and how many of the Technical Trail Features will be used in the SSSI. No information was available on the hydrological conditions in the SSSI and how they might change under the proposed scheme.
- 4.15 No detailed construction methods or protocols sufficient to make accurate predictions regarding ecological impacts were seen in the Planning Statement.
- 4.16 In the absence of detailed information, the British Lichen Society has estimated the possible extent of the changes to the SSSI from constructing and operating the trails, technical trail features, maintenance, water control, potential off trail access etc to be a significant negative impact on the SSSI.
- 4.17 Included in the significant negative impacts are the permanent loss of a significant area of SSSI metallophyte terricolous and saxicolous habitat, reduction in lichen populations; loss of habitat for future colonisation (loss of SSSI resilience). Impacts to individual lichen species of conservation interest cannot be assessed as no data on these were collected
- 4.18 There are also likely to be significant areas of long-term damage from construction, maintenance access, hydrological and other environmental changes, potential off trail cycling/walking in the SSSI.

Section 4 - Review of the Ecological Impact Assessment (ECIA) of the proposed development

- 4.19 This Section highlights that there is a lack of a formal Ecological Impact Assessment with this Planning Application even though there is an industry standard approach - the CIEEM EcIA Guidelines (see Section 4 above - that has been formally endorsed by Natural Resources Wales (NRW)).
- 4.20 The planning application has not been accompanied by any ecological document or report that meets the guidelines for an Ecological Impact Assessment that should have been carried out to inform the determination of the application by Carmarthenshire County Council.

Implications under relevant nature conservation related legislation and planning policy

Wildlife & Countryside Act 1981 as amended

Conservation Status

- 4.21 The impacts outlined in Section 3 are likely to undermine the Conservation Status of the SSSI – currently the 6th most important Site in Wales for metallophyte lichens and one of the most important in Britain - for both its metallophyte habitat and for the associated assemblage of species.

Unassessed Impacts of Potential Significance

- 4.22 Individual species of conservation interest could be damaged, potentially significantly, but no survey work was carried out in order to assess this potential impact. Species in the latter category include, for example, the Welsh endemic species *Gyalidiopsis crenulata* (at its most significant population in Wales) and *Stereocaulon glareosum*, categorised as Vulnerable to extinction in Wales and at its only location in Carmarthenshire.

The Environment (Wales) Act 2016

- 4.23 The proposed development will likely lead to the permanent loss of a significant area of Section 7 habitat and substantial long-term damage to other areas of habitat.

Planning Policy Wales (PPW) 12th Edition (February 2024)

- 4.24 The proposed scheme will result in significant permanent damage to an important SSSI in Wales. The mitigation and compensation proposals such as they are (see Section 4) are inadequate and unquantified. Some of the compensation proposals are those that are already required to be carried out by the owners of the SSSI and are thus not genuine compensation. The approach adopted will not address the likely impacts of the proposed development and thus there will likely be a permanent significant negative impact on a Nationally important site.
- 4.25 This situation is addressed in PPW Paragraph 6.4.4 (see para 1.10 above) that includes: **“Where adverse effects on biodiversity and ecosystem resilience cannot be avoided, minimised or mitigated/restored, and as a last resort compensated for, it will be necessary to refuse planning permission.”**
- 4.26 The impacts from the permanent destruction of part of the SSSI, the likely significant long-term damage to the SSSI, the unassessed potential ongoing damages from the operation of the Site, and the uninvestigated impacts to the species distributions and populations are contrary to the

aims of PPW as set out in its paragraph 6.4.15 (see paragraph 1.19 above) - "Proposals in statutory designated sites are, as a matter of principle, unacceptable" and "It will be wholly exceptional for development to be justifiable in such circumstances".

- 4.27 The proposed development is not 'exceptional', and its potential benefits do not outweigh the impacts to a Site of National Importance.

Planning Policy Wales Technical Advice Note (TAN) 5: Nature Conservation and Planning

- 4.28 Para 1.15 above shows TAN 5 requires that strict tests need to be applied regarding their (28G authorities) functions within or affecting SSSI's.

- 4.29 The applicant has not submitted a proper Ecological Impact Assessment (EclA) even when there is industry standard guidance that has been formally endorsed by Natural Resources Wales (NRW). A formal EclA based on industry standard is the appropriate and expected level of documentation required for the strict tests regarding a decision taker's functions with respect to SSSIs; the appropriate level of information is not available to meet TAN5 requirements.

Future Wales: the National Plan 2040

- 4.30 Section 1.17 highlights the requirements of the National Plan 2040. The application appears to provide no information with respect to biodiversity for the Future Wales National Plan.

Carmarthenshire Local Development Plan 2006-2021 (December 2014)

- 4.31 The proposed development will have a significant adverse impact on a high-quality example of priority habitat. The proposed mitigation and compensation approach (see Section 4) is inadequate and will not address the likely impacts. The scheme does not present an exceptional development and thus does not outweigh the need to safeguard the nature conservation interests of the nationally important Site.

2nd Draft Deposit Revised Carmarthenshire Local Development Plan 2018-2033

- 4.32 The proposed scheme will not meet the aims set out in the emerging local strategy on the grounds set out in paragraph 1.24 above.

Conclusions

- 4.33 For the reasons set out above and through Sections 1 to 4, we consider that the proposals in their current form do not comply with the requirements of Planning Policy Wales, Future Wales: the National Plan, the Carmarthenshire Local Plan (retained) and the emerging Local Development Plan.

- 4.34 The scheme will result in the permanent loss of part of the SSSI metallophyte habitat, reductions in the populations of metallophyte species, and possibly the loss of individual species. In addition to the permanent loss of habitat, the construction of the scheme will also lead to damage, possibly also destruction, of SSSI features within the access and construction footprint. Ongoing and unquantified impacts to the SSSI may occur from water management systems (including, potentially, altering the natural hydrological conditions of the Site) and a range of operational activities including access for track maintenance.

- 4.35 The proposed scheme will potentially have a permanent negative impact to one of the best mine site habitats in Wales and one of the best in Britain.

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