25 August 2025

Mynydd Maen Wind Farm

Request for further information: Peatland Resource (SLR)

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Contents

1 Introduction

1.1 Overview

1.1.1 The following response is provided in relation to consultation responses received from the Soil, Peatland & Agricultural Land Use Planning Unit (LQAS)[1] and Natural Resources Wales (NRW)[2] in relation to the proposed Mynydd Maen Wind Farm (DNS Application 3276725[3]).

1.2 Author

1.2.1 Dr. Chris Marshall is a Principal Consultant at SLR and has over 10 years of experience in peatland condition and restoration monitoring and assessment including peer reviewed scientific papers, policy documents, governmental reports and membership of scientific and technical advisory groups.

1.2.2 Chris has recent experience of undertaking peat assessments on condition and peat management in Scotland, England and Wales with recent project work and stakeholder consultation with NatureScot on peat matters.

1.2.3 Alan Huntridge is a Technical Director at SLR and has over 18 years' experience within the land quality sector managing and undertaking peat survey and assessment (Peat Stability Risk Assessment and Soil and Peat Management Plans) for EIA and planning submissions.

1.3 Stakeholder Concerns

1.3.1 The understanding of the stakeholder concerns following review of the consultation responses[1,2] indicate that these relate to concerns with how the step-wise approach has been implemented, with further concerns identified in relation to limitations on site specific hydrological and hydrogeological data within the peat deposits and how the hydrological conditions and relationship between the Proposed Development infrastructure and these deposits is unknown.

1.3.2 The review of the consultation responses[1,2] also indicates concerns on how the Proposed Development will impact the hydrology of the peat deposits and result in impacts associated with loss of peat soils and peat habitat within the area of the Proposed Development.

[1] Soil, Peatland & Agricultural Land Use Planning Unit. Developments of National Significance (Procedure) (Wales) Order 2016 - Proposed Mynydd Maen Wind Farm – DNS/3276725. Ref DNS/3276725. 20th May 2025.

[2] National Resources Wales. Land at Mynydd Maen, between Newbridge and Cwmbran. Ref CAS-278930-C8N5. 19th May 2025

[3] https://planningcasework.service.gov.wales/case/CAS-01313-C6S0N8

2 NRW

2.1.1 This response addresses the comments detailed in the Peat, Hydrology and Hydrogeology Section of the NRW response[2] in p44-48.

2.2 Paragraph 44 – Ground Investigation

Request for further information

2.2.1 Paragraph 44 of the NRW response[2] states;

'We note that whilst some site investigations were performed at four of the turbine locations, the purpose of these were to assess coal-mining related hazards without a focus of groundwater conditions that may support local peat deposits. Furthermore, the four investigation points were not completed as monitoring wells which results in limited groundwater level data to inform the design of the scheme. It is noted that peat deposits are present within close proximity to a number of the proposed turbine locations (T1, T7 and T13) and the relationship between these and groundwater is still unknown.'

RES response

2.2.2 There is significant evidence within the Environmental Statement[4] which provides empirical data on groundwater level observations within the soil and peat soil. The relevant information on groundwater, soils and peat soils from the ES[4] is detailed below.

2.2.3 Investigations undertaken to confirm ground conditions as part of the Coal Mining Risk Assessment (CMRA)[5] involved completion of four trial pits and four boreholes.

2.2.4 All eight investigation locations did not record any evidence to support a continuous water body within the underlying shallow superficial deposits, soil or peat soil deposits. The only observation of groundwater was a water seepage recorded within borehole T3 at 0.6 m below ground level (BGL).

2.2.5 The Soil and Peat Management Plan[6] provides further intrusive investigation data in the form of hand pit logs (HP01- HP22) and photographs at 22 locations at and within areas of proposed infrastructure. The hand pits did not record any groundwater observations associated or indications of continuous groundwater within the shallow superficial deposits and soils despite the majority of locations being excavated during early spring, a period where groundwater levels would be expected to be highest.

2.2.6 It is acknowledged that no groundwater level monitoring instrumentation was installed during the ground investigations and hand pitting exercise and further monitoring of groundwater levels and review of hydrological conditions in relation to peatland hydrology has been undertaken and is detailed in a separate report included within this submission. . The results of the water level

[4] Mynydd Maen Wind Farm Environmental Statement (ES). **https://www.mynyddmaen-windfarm.co.uk/planning-application/**

[5] **mynyddmaen-windfarm.co.uk/media/2644962/technical-appendix-92-coal-mining-risk-assessment.pdf**

[6] **https://www.mynyddmaen-windfarm.co.uk/media/2644963/technical-appendix-93-soil-and-peat-management-plan.pdf**

monitoring are consistent with the groundwater observations from the intrusive investigations detailed above and provided in the SPMP[6] and CMRA[5].

2.2.7 Further assessment of the hydrogeology would be undertaken during the Proposed Ground Investigation (GI) to support detailed design of the Proposed Development.

2.3 Paragraph 44 – Excavated Soils

Request for further information

2.3.1 Paragraph 44 of the NRW response[2] states

'Technical appendix 9.3 (Soil and Peat Management Plan) estimates 26,870m3 of peat or peaty soils will be excavated as a result of the development. Those excavated soils including peat are proposed to be re-used in the construction process.'

RES response

2.3.2 The volume of excavated soils calculated within the SPMP[6] is based on organic soils with darker peaty soil horizons underlain by a thin horizon of softer silts, clays, and sand as proven by hand pitting at infrastructure locations. Given the soil profiles, the soils present largely represent very acid loamy upland soils with a wet peaty surface which is typical of dry heath environments rather than peatlands. These excavated soils should not be considered as all comprising of peat and peaty soils as peat depth surveying does overestimate peat probe depths as indicated in Section 3.7.1.1 of the SPMP[6] when softer mineral soils are present within the base of the soil profile. The re-use of these soils is considered appropriate within the Proposed Development. If peat soils are encountered during the construction of the Proposed Development then these would be re-used in accordance with currently available best practice guidance[7] and in accordance with the re-use and mitigation proposals detailed in the SPMP[6].

2.4 Paragraph 47 – Step-wise

Request for further information

2.4.1 Paragraph 47 of the NRW response[2] states;

'In summary, based on the mapping within the application, peat soils will be excavated or hydrologically affected by the development infrastructure. The applicant has not proposed any further design changes since the pre-application stage or justified why the proposal is not avoiding peat completely. The decision maker will need to follow the step-wise approach set out in national planning policy (PPW 6.4.16) when considering this proposal and the overall planning balance.'

RES response

2.4.2 The siting and design of the Proposed Development is entirely appropriate and consistent with the step-wise[8] approach described in the revision to Chapter 6 of Planning Policy Wales (PPW), in respect of

[7] https://www.nature.scot/doc/good-practice-during-wind-farm-construction

[8] https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf

peat and soil resources. A summary of how the step-wise approach has been implemented in relation to soils and peat soils is provided below.

Step 1 - Avoid

2.4.3 In relation to avoidance of peat within the design and location of the Proposed Development the step-wise approach has been implemented as detailed below.

2.4.4 Initial siting based on review of the Peatlands of Wales Map recorded a very localised area of peat with evidence score 4 within the area of T12 and an area mapped as evidence score 1 within the area of T11 and T12 and within the area of T8. The Peatlands of Wales Map uses an evidence based score system which combines 14 national data sources to divide Wales into 50m resolution cells assigning an evidence score from 0-10. Scores greater than 2 are considered by the authors of the guidance document to be sufficient evidence of peatland and are included within the Peatlands of Wales mapping.

2.4.5 Cells with a score of 1 are excluded from the map due to the low confidence and evidence of peat within the cell. Cells with an Evidence Score of 1 indicate that only 1 of a potential 14 indicators indicate the presence of peat in a cell. Further to this the three evidence sources which allow for a score of 1 namely; the National Soil Map (NATMAP), BGS Superficial Geology mapping and Phase 1 upland habitat surveys were considered to be less accurate than other data sources and so were only considered useful when 'peat presence is further corroborated by another data source' due to the low resolution of the data which could 'both underestimate or overestimate the extent of peat'. A score of 1 also indicates that evidence of peat is either absent or contradicted by at least two other data sources considered using the Peatlands of Wales Map.

2.4.6 It is therefore unreasonable to expect the applicant to utilise a lower level of confidence and evidence quality than that considered acceptable for inclusion by the authors of the Peatland of Wales Map to meet the peat avoidance threshold.

2.4.7 Peat probing and exploratory investigations alongside the Peatland of Wales Map appears to be the most appropriate means of 'avoidance' of peat soils on the Proposed Development with the avoidance demonstrated by the various design iterations to avoid peat soils where possible or where avoidance is not possible due to other environmental and/ or technical constraints siting of infrastructure on the thinnest peat soils.

2.4.8 Desk based review of information provided by the British Geological Survey (BGS) indicates no mapped peat deposits at and within the area of the Proposed Development.

2.4.9 Natural Resources Wales (NRW) defines peat soils as those with >0.4m of organic matter within the upper 0.8m of the soil profile, or more than 0.3m if directly overlying rock. The Soil Survey of England and Wales defines peat soils as soil profiles containing >0.4m of peat. Based on the recorded soil logs detailed within the SPMP[6] which recorded typically a soil profile grading from mineral soils into peat soils, the peat soils depth for avoidance has been defined as >0.4m within the Proposed Development.

2.4.10 Detailed peat probing was then undertaken to map out areas of potential peat deposits to support numerous design iterations to avoid peat within the Proposed Development. The peat probing was also supplemented by further intrusive investigation and hand pitting to visually inspect the soil and hydrological conditions within areas of proposed infrastructure. Figure 3.1 within the SPMP[6] details the results of the peat surveys and investigations.

2.4.11 The location and results of the peat surveys and investigations are shown on Figure 3.1 in the SPMP[6] and indicate the site comprises thin soil deposits blanketing the steeper slopes and much of the

gentler slopes with localised and hydrologically isolated areas of peat and peat soils within the plateaus with small, localised areas of thicker peat soils.

2.4.12 The desk based review and results of extensive site survey works were used to implement the step-wise approach and avoid areas of hydrologically isolated peat and peaty soils >0.4m within the Proposed Development where feasible when considering other technical and environmental constraints.

Step 2 - Minimize

2.4.13 As detailed in the SPMP[6] it is proposed that all excavated soils will be safeguarded and re-used on-site.

2.4.14 These actions demonstrate the step-wise approach has been adopted in relation to the avoidance and minimization of impacts to peat soils.

2.4.15 Further details on how the step-wise approach has been implemented in relation to peatland habitats is provided in *2025-08-25 – Ecology and Habitat Response.*

2.5 Paragraph 48 – Peatland Habitats

Request for further information

2.5.1 Paragraph 48 of the NRW response[2] states;

'We advise that from an ecological perspective, it is not possible to properly recreate peat habitats once the peat profile has been lost or excavated. In view of the specific past environmental conditions and the time taken for peat and peatland ecosystems to develop, we advise that mitigation measures such as reuse of peat soils is generally not considered a suitable response to ensure the biodiversity value is maintained.'

RES response

2.5.2 By adoption of the step-wise approach as detailed above peat and peat soils and peatland habitats have been avoided where technically feasible within the Proposed Development. As detailed wihtin the SPMP[6] the excavated soils will be re-used within the Proposed Development of which a majority comprise mineral soils and organic rich soils <0.4m which currently support non peatland habitats such as dry heath and acid grassland.

3 LQAS

3.1 Section 2 - Step-Wise Approach

Request for further information

The Department is concerned that the proposed application site, if approved, would involve the loss of peatland habitat and peat soil ("peat" or "peatland") contrary to Chapter 6 of Planning Policy Wales

(PPW) 12. The application has not addressed, as the first principle, avoidance (PPW 6.4.15 1a) in the site selection process regarding avoiding peat and irreplaceable habitats.

RES response

3.1.1 The siting and design of the Proposed Development is entirely appropriate and consistent with the step-wise[9] approach described in the revision to Chapter 6 of Planning Policy Wales (PPW), in respect of peat and soil resources.

3.1.2 In relation to avoidance of peat within the design and location of the Proposed Development the step-wise approach has been implemented as detailed below.

3.1.3 Initial siting based on review of the Peatlands of Wales Map recorded a very localised area of peat with evidence score 4 within the area of T12 and an area mapped as evidence score 1 within the area of T11 and T12 and within the area of T8. The Peatlands of Wales Map uses an evidence based score system which combines 14 national data sources to divide Wales into 50m resolution cells assigning an evidence score from 0-10. Scores greater than 2 are considered by the authors of the guidance document to be sufficient evidence of peatland and are included within the Peatlands of Wales mapping.

3.1.4 Cells with a score of 1 are excluded from the map due to the low confidence and evidence of peat within the cell. Cells with an Evidence Score of 1 indicate that only 1 of a potential 14 indicators indicate the presence of peat in a cell. Further to this the three evidence sources which allow for a score of 1 namely; the National Soil Map (NATMAP), BGS Superficial Geology mapping and Phase 1 upland habitat surveys were considered to be less accurate than other data sources and so were only considered useful when 'peat presence is further corroborated by another data source' due to the low resolution of the data which could 'both underestimate or overestimate the extent of peat'. A score of 1 also indicates that evidence of peat is either absent or contradicted by at least two other data sources considered using the Peatlands of Wales Map.

3.1.5 It is therefore unreasonable to expect the applicant to utilise a lower level of confidence and evidence quality than that considered acceptable for inclusion by the authors of the Peatland of Wales Map to meet the peat avoidance threshold.

3.1.6 Peat probing and exploratory investigations alongside the Peatland of Wales Map appears to be the most appropriate means of 'avoidance' of peat soils on the Proposed Development with the avoidance demonstrated by the various design iterations to avoid peat soils where possible or where avoidance is not possible due to other environmental and/ or technical constraints siting of infrastructure on the thinnest peat soils.

3.1.7 Desk based review of information provided by the British Geological Survey (BGS) indicates no mapped peat deposits at and within the area of the Proposed Development.

3.1.8 Detailed peat probing was then undertaken to map out areas of potential peat deposits to support numerous design iterations to avoid peat within the Proposed Development. The peat probing was also supplemented by further intrusive investigation and hand pitting to visually inspect the soil and

hydrological conditions within areas of proposed infrastructure. Figure 3.1 within the SPMP[6] details the results of the peat surveys and investigations.

3.1.9 Natural Resources Wales (NRW) defines peat soils as those with >0.4m of organic matter within the upper 0.8m of the soil profile, or more than 0.3m if directly overlying rock. The Soil Survey of England and Wales defines peat soils as soil profiles containing >0.4m of peat. Based on the recorded soil logs detailed within the SPMP[6] which recorded typically superficial deposits beneath the soils then peat soils depth has been defined as >0.4m within the Proposed Development.

3.1.10 The location and results of the peat surveys and investigations are shown on Figure 3.1 in the SPMP[6] and indicate the site comprises thin soil deposits blanketing the steeper slopes and much of the gentler slopes with localised and hydrologically isolated areas of peat and peat soils within the plateaus with small, localised areas of thicker peat soils.

3.1.11 The desk based review and results of extensive site survey works were used to implement the step-wise approach and avoid areas of hydrologically isolated peat and peaty soils >0.4m within the Proposed Development where feasible when considering other technical and environmental constraints. As detailed in the SPMP[6] it is proposed that all excavated soils will be safeguarded and re-used on-site.

3.1.12 These actions demonstrate the step-wise approach has been adopted in relation to the avoidance and minimization of impacts to peat soils.

3.2 Section 2 – Ecosystem

Request for further information

'*The Applicant has not considered in the assessment that peatlands function as an ecosystem, and arbitrary depth thresholds (>0.4m) do not consider shallow peaty soils that are integral to the hydrological functioning of wider peat bodies. The application must therefore also consider any transitioning shallow peaty soils (<0.4m) that are integral to the hydrological functioning of wider peat bodies, either on site or adjoining.*'

RES response

3.2.1 The use of definitions of peat are based on the best practice guidance developed by NRW and adopted by LQAS, given shallow peat soils in general operate at lower carbon accumulation rates and whose hydrology is often characterised by extended periods of time with water tables below the mineral peat interface, this definition is likely to reflect a proxy for peatland function. This is supported by the low apparent accumulation rates of much of the organic soils on the site.

3.2.2 Given the limited extent and hydrologically isolated nature of the few peat bodies **identified on-site** it is likely that they represent the infilling of the post glacial landscape and are by definition defined by a hyperlocalised catchment namely the depression in which the peat body sits. Scale is important because the scale of catchment determines the vulnerability and resilience of the peatland. Small catchments relating to small landscape units will be highly dependent on precipitation to sustain

associated peatlands. Whereas large-scale units and associated catchments will be capable of buffering peatlands through periods of variable climate (Winter, 2000).

3.3 Section 2 - Infrastructure Siting

Request for further information

'From reviewing the figures noted above, and wider peat impacts from infrastructure siting locations, it is therefore unclear how peat impacts have been avoided in the application as presented to address PPW para 6.5.15, 1a and 1b. The application will have an adverse impact on the environment through destruction and fragmentation of peat habitats, and further degradation of the hydrological peatland ecosystem – this is contrary to Policy 17 of Future Wales.'

RES response

3.3.1 As previously stated, the peat bodies affected by development represent the infilling of small depressions in the landscape with a hyper localised hydrology and wetland vegetation has largely been replaced by dry heath and acid grassland indicating active peatland accumulation has ceased in these features through natural succession and the impacts of land management practices such as grazing. There is also little evidence that the peat retains hydrological functionality with both dipwells and hand pitting showing little evidence of groundwater within the peat profile. The Proposed Development is not likely to have significant impacts on peat hydrology and these can be mitigated by design with careful design as outlined by Rigare.

3.4 Section 3 - Re-use of soils

Request for further information

'The Soil and Peat Management Plan discusses re-use of peat for different infrastructure elements including landscaping turbine bases, crane pads and access track verge dressing. The Department does not consider the proposals to excavate 'in situ' peat and re-use for landscaping and dressing of infrastructure is sustainable or feasible. The peat would not be hydrologically connected to a functioning peat body, which will result in drying, erosion and oxidation of the peat soils resulting in a total loss over a short period of time.'

RES response

3.4.1 Examination of the numerous hand pits shows that peat at all infrastructure locations is comprised of a soil profile grading from loamy sands into organic rich soils with a peaty surface therefore it is likely that probe depths across the site are conservative e.g. shallower than probe depths alone imply.

3.4.2 The hand pits and GI works also support the definition of peat on the site of 0.4m. Natural Resources Wales (NRW) defines peat soils as those with >0.4m of organic matter within the upper 0.8m of the soil profile, or more than 0.3m if directly overlying rock. The Soil Survey of England and Wales defines peat soils as soil profiles containing >0.4m of peat. Based on the recorded soil logs detailed within the SPMP[6] which recorded typically superficial deposits beneath the soils then peat soils depth has been defined as >0.4m within the Proposed Development.

3.4.3 Much of the 'peat' referred to by LQAS is actually a combination of shallow organic rich soils and mineral soils and these would be the soils used for dressing rather than peat. The habitats these would be integrated into would not be peatland habitat but dry heath and would represent similar soil depths to those present adjacent to the infrastructure. Verging of infrastructure is required to minimise visual

impacts and integrate the edges of infrastructure with the surrounding habitat and landscape, if not present the edges of roads would be bare and have a much greater impact on adjacent habitats than dressed. If local soils were not used that would require the import of soils from offsite to achieve this which is likely to increase impacts due to transport and damage to any donor site.

3.4.4 All soils will be safeguarded and re-used on-site and the relatively limited amounts of peat excavated would be used appropriately for borrow pit restoration as highlighted within the SPMP[6] and highlighted by LQAS.