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10/03/2022

Dear Sir/Madam,

BWRIAD / PROPOSAL: 30MW SOLRAR FARM

LLEOLIAD / LOCATION: BRETTON HALL, CHESTER ROAD, FLINTSHIRE

Thank you for consulting Cyfoeth Naturiol Cymru / Natural Resources Wales about the above, which we received on 28/01/2022.

We have concerns with the application as proposed because inadequate information has been provided. To overcome these concerns, you should provide further information in your planning application regarding flood risk and groundwater protection. If this information is not provided, we may object to the planning application when formally consulted by the planning authority. Further details are provided below.

We also advise that based on the information submitted to date, we would ask the planning authority to include a condition regarding protected sites on any planning permission granted. The document identified below (protected species section) should also be included in the approved plans and documents condition on the decision notice. Without the inclusion of this condition and document by the planning authority we would be likely to object to the planning application.

Flood Risk

The site lies in Zone C1 as defined by the Development Advice Map (DAM) referred to in Technical Advice Note (TAN) 15: Development & Flood Risk (2004), and the Flood Map for Planning (FMfP) identifies the application site to be at risk of flooding and falls partially into the TAN15 Defended Zone, Flood Zone 2 and Flood Zone 3 outlines.

The development proposal is for a solar farm which extends across the border into England. Fields 1, 2, 3 and 4 are located in Wales.

A detailed Flood Consequences Assessment (FCA) has been submitted in support of the application (ECUS, v2.0, October 2021). The primary source of flood risk is fluvial flood risk

from Balderton Brook. The FCA has derived a flood level of 4.70 m for the 'design event' which is the 1% Annual Exceedance Probability (AEP) event with an allowance for climate change. It is not clear how this flood level has been derived as the FCA states that an adjustment for climate change allowances has been added to the 1% AEP flood level. It is not clear how the adjustment value of 0.24 m has been derived and further explanation of the approach taken should be provided within the report. The Balderton Brook modelling study referred to in the FCA contains model runs for the 1% AEP event with an allowance for climate change, and it is these runs that should be used to derive design flood levels. However, in this instance, the design flood level of 4.70 m AOD calculated within the FCA is slightly higher than the flood level from the Balderton Brook study for the 1% AEP event with an allowance for climate change, so the approach taken in the FCA provides a conservative approach. Table 3 of the FCA presents an overview of the maximum expected flood depths at each field (F) location. It is evident that the site is at significant risk of flooding from fluvial sources, with flood depths in excess of a metre (and up to 1.29 m) expected at F1, F2, F3 and F4. For tidal flood risk, we are satisfied that the FCA shows that the site would remain flood free when considering a breach in the River Dee defences for the 0.5% AEP event with an allowance for climate change.

In order to mitigate fluvial flood risk, the FCA proposes to set the edges of all solar panels 300 mm above modelled flood levels (a minimum level of 5.0 m AOD). As flood depths vary across the respective fields, solar panels with different frame designs and installation heights will be used across the site. Table 5 provides an overview of the most onerous frame design clearance that will be needed for each field and demonstrates that at least 300 mm clearance would be provided above the flood levels at each location. Drawing 082-200-R07 provides typical details for the various frame designs and states that all solar panel edges must be set at a minimum of 5.0 m AOD, which is in accordance with the mitigation measures outlined in the FCA. In respect to other water sensitive infrastructure, such as batteries, substations, switch room and classroom, the FCA states that all elements will be set to a level of 5.0 m AOD, providing 300 mm freeboard above the design flood level. The design drawings submitted with the application all show finished floor levels to be set at 5.0 m AOD.

We note that the FCA states that some parking areas would be provided in association with the classroom, but it does not comment on the flood risk posed to the parking areas and whether any mitigation is needed for this element of the proposal. The FCA needs to be updated to include this as we would expect any parking areas to be designed to be flood free in the 1% AEP event with an allowance for climate change.

In respect to flood risk elsewhere, in accordance with the requirements of Section A1.12 of TAN15, it must be demonstrated that the proposal would have no adverse impact on flood risk elsewhere. The FCA states that all solar panels and most of the water sensitive infrastructure would be raised on an open frame structure, which would allow floodwaters to flow freely beneath the structures. Again, this is reflected on the design drawings. However, for the battery storage and switch rooms this is not possible, and these would need to be built on a solid raised platform which would lead to some displacement of floodwaters. The FCA presents some volumetric calculations, stating that approximately 96 m³ of floodwaters would be displaced as a result of these platforms. The FCA states that when comparing this to the volume of floodplain across the wider site, such displacement would have a 'negligible'

impact on flood risk elsewhere. Given the nature and scale of the proposal, it is unlikely that the two platforms would have a significant impact on flood risk elsewhere.

However, we do have some concerns in relation to the topsoil bund proposed in Field 1. Drawing 082-023 indicates the bund would have an area of 1,402 m² and would be 1.5 m high. The bund would be located within the 0.1% AEP event flood extent and given its size could have an impact on flood risk elsewhere. We advise that the topsoil is stored outside of the floodplain to avoid displacement of floodwaters, and that this is clearly shown on the submitted plans. If this cannot be achieved, we would expect the FCA to assess the potential impacts storing material within the floodplain could have on flood risk elsewhere.

The FCA presents the flood risk posed to the site in the 0.1% AEP event in Table 3, both in relation to flood depths and velocities. This shows that flood depths across the site would exceed the tolerable conditions flood depths and velocities as outlined in Table A1.15. As it is for the determining authority to determine whether the risks and consequences of flooding can be managed in accordance with TAN15, we will be recommending that they seek the advice of other professional advisors on matters such as emergency plans, procedures and measures to address structural damage that may result from flooding. Please note, we do not normally comment on or grant the adequacy of flood emergency response plans and procedures accompanying development proposals, as we do not carry out these roles during a flood. Our involvement during a flood emergency would be limited to delivering flood warnings to occupants/users.

To summarise the above, we advise that an updated FCA should be provided, which assesses the flood risk posed to the parking area (and recommends suitable mitigation measures if required) and an assessment of the impacts of the soil bund on flood risk elsewhere needs to be undertaken (unless this bund can be moved outside of the 0.1% AEP event flood outline).

Operational/maintenance comments

Based on the site location plan, it appears that the works have the potential to impact our ability to undertake maintenance (under our permissive powers) of some main rivers. We note there could be a potential cable route alongside the right bank of Mold Junction Drain (a main river) downstream of Saltney Ferry Road, where the cable connects to the substation. We advise further information should be provided for this including design drawings showing the route of the cable, depth of the cable and confirmation that our ability to carry out maintenance using a tracked excavator would not be compromised.

There also appears to be a service crossing just upstream of the site access, which would cross Bretton Drain. Further details should be provided in respect to the nature of the crossing, proposed method of installing the crossing and the proposed depth of the cable, beneath the bed and either side of the banks. There is an exemption that covers installing a service crossing below the bed of a main river, and the associated [technical guidance](#) contains some design conditions for any crossings which should be adhered to if possible.

We note that the solar panels would be close to both Boundary Drain and Smallholdings. We advise that an 8-metre access strip is provided to allow access to the riparian owner to carry out maintenance or remove blockages along the watercourses.

We also note that the proposal involves a number of new access crossings (culverts) but none of these appear to be located on main rivers. For any new structures on ordinary watercourses, we advise that the Lead Local Flood Authority (LLFA) is contacted to advise on design requirements.

We therefore have concerns in respect to potential impacts on our ability to undertake maintenance activities and advise information relating to the proposed cabling adjacent to Mold Junction Drain and the proposed service crossing at Bretton Drain should be provided.

Flood Risk Activity Permit (FRAP)

The works area is within proximity to several main rivers, including Smallholdings, Boundary Drain, Bretton Drain and Mold Junction Drain. A bespoke Flood Risk Activity Permit (FRAP) (Environmental Permitting Regulations England & Wales, 2016) may be required for any works in, over, under or near a main river or within a flood plain. This would include any excavations within 8 m of a main river, any new cable crossings or access crossings.

Surface water drainage

We note the FCA includes a section relating to surface water drainage. We advise that you liaise with the SuDS Approving Body regarding the proposed surface water drainage arrangements. We do not provide advice in this regard.

Groundwater Protection

As stated in our EIA Scoping advice (dated 18/12/2020, our reference CAS-130535-S7V2), the site is within a Source Protection Zone, however the principal aquifer is at depth and is normally covered by a significant thickness of low permeability superficial deposits, till and tidal flat deposits (Secondary undifferentiated aquifer).

However, there are two elements of our EIA Scoping advice that has not been addressed in the submitted ES. Further details should be provided as part of any planning application with respect to the following:

Fluid filled cables

As advised in our EIA Scoping advice, confirmation should be provided as to whether or not the cables will be fluid filled. If they are to be fluid filled, then the ES should state at what depth the cable will be in relation to the shallowest seasonal groundwater depth. This is in line with Environment Agency [groundwater protection statement](#) C5. This is particularly important as we note the Geophysical Survey Report (Magnitude Surveys, June 2021) has identified shallow groundwater in the superficial deposits.

Piling

The Preliminary Contamination Risk Assessment refers to piling however there is no detail of the actual piling proposed. Any planning application should provide details of the piled foundation design and depth in order for the determining authority to determine whether planning conditions are needed to protect the deeper aquifer, which is designated as a SPZ and is therefore considered sensitive. As stated in our EIA Scoping advice, in practice, if the right piling solution is chosen the piles will self-seal as they penetrate the low permeability deposits.

Protected Sites

River Dee and Bala Lake Special Area of Conservation (SAC) / Site of Special Scientific Interest (SSSI)

We consider that the proposal has the potential to have adverse effects on the River Dee and Bala Lake SSSI/SAC. At its closest point, cable installation works would be undertaken within 200m of the SAC/SSSI.

Section 8.9.1 (Chapter 8) of the ES states that a “*detailed Construction Environmental Management Plan (CEMP) will be required to detail the mitigation measures required to protect the watercourses within and adjacent to the site from construction site run-off, siltation and other pollution. The document will also include plans for Pollution Prevention, Drainage and Site Waste Management*”.

We agree that a detailed CEMP should be prepared, and that it should be secured as a condition of any planning consent. We would recommend that a detailed CEMP is submitted as part of any planning application in order to avoid the need to attach a condition.

Based on the application as proposed, we would advise the determining authority that the following condition should be secured in the planning consent to be certain that there will be no adverse effects on the SAC/SSSI.

Condition

No development shall commence until a CEMP has been submitted to and approved in writing by the determining authority. The CEMP should include:

- Construction methods: details of materials, how waste generated will be managed;
- General Site Management: details of the construction programme including timetable, details of site clearance; details of site construction drainage, containments areas, appropriately sized buffer zones between storage areas (of spoil, oils, fuels, concrete mixing and washing areas) and any watercourse or surface drain.
- Biodiversity Management: details of tree and hedgerow protection; invasive species management; species and habitats protection, avoidance and mitigation measures.
- Soil Management: details of topsoil strip, storage and amelioration for re-use.

- CEMP Masterplan: details of the extent and phasing of development; location of landscape and environmental resources; design proposals and objectives for integration and mitigation measures.
- Resource Management: details of fuel and chemical storage and containment; details of waste generation and its management; details of water consumption, wastewater and energy use
- Pollution Prevention: demonstrate how relevant Guidelines for Pollution Prevention (including GPP 1 and GPP5) and best practice will be implemented, including details of emergency spill procedures and incident response plan.
- Details of the persons and bodies responsible for activities associated with the CEMP and emergency contact details
- Ecological clerk of works to ensure construction compliance with approved plans and environmental regulations.

The CEMP shall be implemented as approved during the site preparation and construction phases of the development.

Justification: A CEMP should be submitted to ensure necessary management measures are agreed prior to commencement of development and implemented for the protection of the environment during construction.

The determining authority will need to undertake a Habitats Regulations Assessment under Regulation 63 of the Conservation of Habitats and Species Regulations 2017. Should they conclude that the proposed development is likely to have a significant effect on a European site, we would be able to assist with that assessment in our role as a Statutory Nature Conservation Body under the above Regulations.

Dee Estuary Special Protection Area (SPA) / Ramsar Site / SSSI

Based on the application as submitted, we would advise the determining authority that the proposal is not likely to have a significant effect on the Dee Estuary SPA/SSSI/Ramsar site.

Our advice may change should modifications be made to the proposed development prior to the determination of the application. If there are any changes to the proposed development which may affect the consideration of potential environmental impacts, please consult us again before you determine the application.

Protected Species

In our EIA Scoping advice, we stated that the ES should assess impacts on bats, great crested newts (GCN), otters and water voles. Bats, otters and GCNs are European Protected Species (EPS) protected under the Conservation of Habitats and Species Regulations 2017 (as amended). Water voles are fully protected under the Wildlife and Countryside Act 1981 (as amended).

Although otters, water voles and GCNs were not recorded using the site, as stated in section 8.9.2 of the ES, the presence of these species cannot be ruled out. In relation to bats,

although no bat roosts are likely to be present on site, bats are likely to be using hedgerows and trees along the boundaries of the site for foraging and/or commuting.

The ES specifies appropriate mitigation measures which we advise must be implemented to demonstrate that the proposal would not be likely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.

We would advise the determining authority that the ES report (ES Volume 1, Mabbett, January 2022) must be included in the 'approved list of plans / documents' condition within the decision notice should consent for the project be granted.

Other Matters

Our comments above only relate specifically to matters included on our checklist, *Development Planning Advisory Service: Consultation Topics* (September 2018), which is published on our [website](#). We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests.

We advise the applicant that, in addition to planning permission, it is their responsibility to ensure they secure all other permits/consents/licences relevant to their development. Please refer to our [website](#) for further details.

If you have any queries on the above, please do not hesitate to contact us.

Yn gywir / Yours faithfully

Bryn Griffiths

Uwch-gynghorydd - Cynllunio Datblygu / Senior Advisor - Development Planning
Cyfoeth Naturiol Cymru / Natural Resources Wales