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08/01/2024

Dear Zenab Hearn,

Application Reference:	**23/03875/APP**
Location:	**Rookery Farm, Granborough, Buckinghamshire MK18 3NJ**
Proposal:	**Development of a battery energy storage system (BESS), connected directly to the national Grid with associated infrastructure including access, drainage and landscaping**

Buckinghamshire Council as the Lead Local Flood Authority (LLFA) has reviewed the information provided in the following documents:

- FRA and Conceptual Drainage Strategy (Doc. ref. HLEF853 Rev. 1, dated December 2023, prepared by RPS Group)
- EIA Chapter 4 – Hydrology and Flood Risk
- EIA Chapter 10 – Ground Conditions
- Planning Design and Access Statement

The LLFA **has no objection** to the proposed development **subject to the following planning condition listed below being placed on any planning approval.**

Flood Risk

Fluvial Flood Risk (Flood Map for Planning)
The flood map for planning (rivers and sea) indicates that there are areas of Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) associated with the watercourses located along the western and southern boundaries of the site, referred to as the East Claydon Brook and Granborough Brook respectively. It is noted that the majority of the built development associated with the proposed scheme is located within Flood Zone 1 (low risk)

The Claydon Brook are designated as IDB watercourses that fall under the remit of the Buckingham and River Ouzel IDB (Refer to Bedford Group IDB Area Map (arcgis.com)).

It is noted that the applicant has undertaken pre-application consultation with both the Environment Agency (EA) and IDB, and their respective responses are listed within Appendix A and C of the FRA.

Surface Water Flood Risk

The Risk of Flooding from Surface Water (RoFSW) provided by the Environment Agency shows that the majority of the site is located within an area defined as being at a 'very low risk' of surface water flooding. It is noted that the site is also partially located within areas of 'Low' to High' risk of surface water flooding. However, as shown on Figure 4 of the FRA, it is noted all key components of the proposed built development have been sequentially located outside areas of surface water and fluvial flood risk. An online version of this mapping data is available to view through the Environment Agency's Long term flood risk information mapping.

Groundwater Flood Risk

As noted within EIA Chapter 10 – Ground Conditions, the BGS mapping indicates that the bedrock geology across the majority of the Site is shown to consist of the Mudstone of the Weymouth Member according to the BGS 1:50,000 maps. The mapping indicates that Superficial deposits of Alluvium (Clay, Silt, Sand and Gravel) are anticipated to overlie the Weymouth Member along the line of the Claydon Brook.

The Groundwater Flood Map (Jeremy Benn Associates, 2016), shows the groundwater level in the area of the proposed development to be at no risk of the ground surface for a 1 in 100 year return period.

The Infiltration SuDS Map provided by the British Geological Survey 2016, indicates that the water table is anticipated greater than 5 metres below the ground surface, and therefore the risk of groundwater flooding is considered minor.

Surface water drainage

The proposed conceptual drainage strategy to manage surface water run off from the scheme is outlined within Section 8 of the FRA relies primarily on the use of attenuation basins with a restricted discharge rate limited to the QBAR greenfield rate. Other SuDS measures proposed within the drainage strategy as outlined within the FRA include the use of filter drains and permeable surfacing for car parking/hardstanding/internal access roads.

In terms of run off destination, it is noted that currently no soakage test results, or, site specific Ground Investigation data Investigation details are available. However, based on available information set out within EIA Chapter 10 – Ground Conditions, it is noted that the bedrock geology, shown to consist of Weymouth Group Mudstone deposits, has limited infiltration potential and is considered unlikely to be viable as a primary run off destination for the site (discharge to ground) Therefore, it is proposed to discharge run off from the proposed development to the Claydon Brook at QBAR greenfield rates.

As noted above, the receiving watercourse for surface water run off from the development is under the jurisdiction of the Bedfordshire and Ouzel IDB. Within their pre application response it is indicated that an allowable discharge rate of 4l/s per impermeable hectare of contributing drainage catchment has been stipulated for this development. Based on an impermeable area of 6.9ha, the maximum discharge rate to the Claydon Brook of 27.6l/s.

The QBAR greenfield discharge rate has been calculated using the ICoP IoH124 methodology, which is estimated as 23.6l/s based on an impermeable site area of 6.9ha.

Based on the above, it is noted that the proposed QBAR discharge rate of 23.6l/s is in accordance with the requirements of the IDB, and it can be confirmed, is considered acceptable by the LLFA.

Further to review of Section 8 of the FRA, the WinDES Source Control calculations and Conceptual Drainage Strategy Plan included within Appendix D and G of the FRA, it is noted that no allowance within the calculations has been included for the attenuation storage provided within the areas of lined permeable surfacing and the network of filter drain. The calculations submitted within the FRA indicate that the attenuation requirement for the development is circa 5,534cu.m for the 1 in 100 yr plus climate change event (+40%) event with discharge rates to the Claydon Brook restricted to greenfield QBAR rates for all events (23.6l/s).

It is noted that the location of the proposed attenuation basin as shown on the conceptual drainage strategy plan slightly encroaches into the flood zone that has been delineated on the plan. Also, based on review of the existing topographical levels it is noted that a bund of up to a maximum height of 0.5m will be required along the northern edge of the attenuation pond in order to achieve the top of bank level of 88.9mAOD cited on the plan.

Therefore, the pond location, it's size and configuration will need to be modified during the detailed design process to ensure that the attenuation pond is located wholly outside flood zone. However, taking into account the additional storage provided within SuDS features such as the filter drains/permeable surfacing, it is acknowledged that it should be readily achievable within the site redline boundary to provide the attenuation storage volumes required to ensure surface water run-off is appropriately managed, without increasing flood risk both to and from the development over the lifetime of the scheme.

Sections 8.29 to 8.32 of the FRA provide details of the water quality assessment undertaken in line with Simple Index Approach (SIA) set out within the CIRIA SuDS Manual (2015). Based on the assessment outlined within Table 9 of the FRA, the pollution mitigation index provided by the proposed inclusion of filter drains, a grit separator and the attenuation pond exceed the hazard indices assigned for the proposed development. Therefore the FRA concludes that sufficient pollution mitigation is provided to ensure that pollution risks to controlled ground and surface water will be appropriately managed. However, the LLFA would note that the use of grit separators are not considered to be a sustainable drainage feature, and therefore priority should be given to source control measures over the use of proprietary systems.

It is noted that due to the nature of the development there is a requirement to ensure appropriate fire prevention plans are in place. The FRA (sections 8.22 to 8.25) sets out preliminary details on the proposed fire-fighting run off containment measures that will be implemented within the design to minimise the risk of pollution to controlled ground and surface waters. The FRA states that it is proposed to include a series or lined swale or interceptor channels, located down gradient of the battery storage units, with means of isolation of potentially contaminated run off in the event of a fire provided through the inclusion of penstock valves etc... It is noted that the containment storage to be provided has been based on the fire fighting water supply volume required, estimated as 250cu.m.

Further to review of the submission details relating to the conceptual drainage strategy and calculations included within the FRA are considered sufficient to demonstrate that in principle it is feasible to appropriately manage surface run off from the site. However, I would request the following conditions be placed on the approval of the application, should this be granted by the LPA:

Condition 1

No works (other than demolition) shall begin until a surface water drainage scheme for the site, based on sustainable drainage principles and an assessment of the hydrological and hydro-geological context of the development, has been submitted to and approved in writing by the Local Planning Authority. The scheme shall subsequently be implemented in accordance with the approved details before the development is completed. The scheme shall also include:

- Assessment of SuDS components as outlined within the CIRIA SuDS Manual (C753) and provide justification for exclusion if necessary.
- Water quality assessment demonstrating that the total pollution mitigation index equals or exceeds the pollution hazard index; priority should be given to above ground SuDS components. This should include full details of the fire fighting run off containment measures to be integrated within the design, such as; location of penstock shut off valves and details of the lined swales/carrier drains to provide the required 250cu.m of containment storage;
- Full construction details of all SuDS and drainage components
- Detailed drainage layout with pipe numbers, gradients and pipe sizes complete, together with storage volumes of all SuDS components. The detailed layout should confirm that the proposed attenuation pond has been wholly located outside the fluvial flood zone;
- Calculations to demonstrate that the proposed drainage system can contain up to the 1 in 30 storm event without flooding. Any onsite flooding between the 1 in 30 and the 1 in 100 plus climate change storm event should be safely contained on site.
- Details of proposed overland flood flow routes in the event of system exceedance or failure, with demonstration that such flows can be appropriately managed on site without increasing flood risk to occupants, or to adjacent or downstream sites.

Reason

The reason for this pre-construction condition is to ensure that a sustainable drainage strategy has been agreed prior to construction in accordance with Paragraph 173 and 175 of the National Planning Policy Framework to ensure that there is a satisfactory solution to managing flood risk.

Condition 2

Prior to the occupation of the development a whole-life maintenance plan for the site must be submitted to and approved in writing by the Local Planning Authority. The plan shall set out how and when to maintain the full drainage system (e.g. a maintenance schedule for each drainage/SuDS component), with details of who is to be responsible for carrying out the maintenance. The plan shall also include as as-built drawings and photographic evidence of the drainage scheme carried out by a suitably qualified person. The plan shall subsequently be implemented in accordance with the approved details.

Reason

The reason for this prior occupation condition is to ensure that arrangements have been arranged and agreed for the long-term maintenance of the drainage system as required under Paragraph 169 of the NPPF.

Informatives –

Connecting to an ordinary watercourse designated as being under the remit of the IDB
Under the terms of the Land Drainage Act 1991 and the Floods and Water Management Act 2010, the prior consent of the Internal Drainage Board is required for any proposed works or structures in the watercourse. After planning permission has been granted by the LPA, the applicant must apply for Land Drainage Consent from the Internal Drainage Board, information and the application form can be found on their website.

Yours sincerely,

Jason Small
Senior Sustainable Drainage Officer
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For any upcoming planning applications the SuDS team offer a charged pre-application advice service, for more information and how to apply please see our website.