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Sheery Atkins
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Your Ref:	SEP DEP DS and FRA Update	My Ref:	FW2023_0203
Date:	20 March 2023	Tel No.:	0344 800 8020
		Email:	llfa@norfolk.gov.uk

Dear Ms Atkins,

Sheringham and Dudgeon Windfarm Extensions – Review of the updated Draft Flood Risk Assessment and Drainage Strategy

Thank you for your consultation on the above site, received on 8 March 2023. We have reviewed the application as submitted and wish to make the following comments.

Flood Risk at Matlaske Road Technical Note Rev A March 2023 Doc Ref: 14.33

The LLFA have reviewed the report and are satisfied with the information provided. The stat consultee team see that there are water management issues that should be addressed in the future however for the purposes of this application there appears to be a higher flood risk to the properties from the lack of maintenance than the cable installation. At present, the lack on maintenance has resulted in constricting the flow to result in a much drier ditch downstream where the cable is proposed to be installed. It is recommended that as this has not been previously discussed with the LLFA, we recommend a discussion occurs to identify whether further involvement is needed from our water management team.

Addendum to the Flood Risk Assessment (Rev A) March 2023 Doc Ref: 14.31

The LLFA have reviewed this addendum. The updates included are based upon the LLFA's responses and advice given to the applicant previously. The LLFA is satisfied with the information presented in the Addendum and has no further comments on this document at this time.

Addendum to the Hydraulic Modelling Report (Rev A) March 2023 Doc Ref: 14.34

The LLFA has reviewed the hydrology and the associated catchment area. In addition we have also reviewed the updated RF catchment. The report has not yet confirmed whether the FEH catchment has been checked against the DTM to confirm whether this is representative of the topography. The LLFA requests the applicant confirms this.

The LLFA has reviewed the hydrology section and notes the BFIHOST and SPRHOST indicate permeable ground conditions are expected. However, the GI indicates that ground surface is not as permeable as the subsurface. The LLFA notes that in the method statement for the hydraulic model that sensitivity testing would be undertaken, however none has been presented. The LLFA requests sight of the sensitivity testing to ensure that the impact of the uncertainty in the ground conditions can be assessed within the hydraulic model.

The LLFA notes that in section 106 of the report the applicant has provided an initial culvert size of 25m wide by 2.2m high. This is followed by a statement that the actual culvert size would be refined during the design process to ensure the conclusions of the modelling process remain valid. The LLFA requests confirmation of whether there is sufficient space to achieve the vertical alignment above the existing ground levels as no level information was observed in the report to determine whether the height was achievable within the access road vertical alignment and the existing topography.

In section 10.2.1 the report indicates that a 7.5 hour storm duration was used across the whole catchment. However, it is not confirmed whether this was the critical storm or not. The LLFA requires clarification on whether this was the critical storm or not?

Outline Operational Drainage Strategy (Revision B) Tracked Change Version March 2023 Doc Ref: 9.20.1

In section 22 of this Outline Drainage Strategy, the applicant states "It has been assumed 50% of the substation access road and platform surface area is impermeable and will accumulate water during the storm event." The LLFA query whether the proposed compaction of the platform will be greater than the existing agricultural land use. Should the platform base be of a greater compaction this would increase the impermeablity of the platform surface which would lead to a greater amount of surface water runoff occurring. The LLFA require further consideration of the impermeable area of the platform to be considered that accounts for the compaction of the platform base while justification of 50% impermeable area for the platform and access road.

How likely is it that the full depth of the geocelluar tank sides will be in use all the time? The BRE365 does state that the internal area of the soakaway is to 50% effective depth and excludes the base. At present it appear that the full depth of the storage tanks has been applied. Therefore, the LLFA consider this current approach inappropriate as the majority of the time the upper area of the tank is unlikely to have water against it to infiltrate. Therefore, the LLFA require that applicant update their surface water drainage calculations to reflect the 50% side area.

The LLFA notes the option 1 calculations for the 1% plus 45% for Climate change event are shown to flood in the 360, 480, 600, 720, 960 and 1440 storms. This indicates that at present the attenuation capacity is undersized and would lead to a volumed volume of between 32.5m3 to 165.7m3 leaving the system on the platform. Therefore, the LLFA would consider this an increase in flood risk.

A second set of untitled calculations where the full sides and the base area are used for infiltration are shown not to flood. In this scenario, a factor of safety of 2 is applied. As

there is a clear departure from the BRE365 guidance for this scenario, the factor of safety needs to be applied in accordance with the advice given in the SuDS Manual in chapter 25 and Table 25.2. As the area of the platform is clearly over 1000m2 and the site would be considered critical infrastructure, the LLFA would expect at least a factor of safety of 10 to be applied unless it can be shown there is suitable mitigation in place to lower the impact of flooding to the infrastructure onsite. At which point the LLFA would accept a factor of safety of 5.

The LLFA will need an impermeable areas drawing to support the descriptions provided in the Drainage Strategy report and appendices. As yet, this has not been provided.

ES Appendix 18.2 - Annex 18.2.1: Onshore Substation Drainage Study (Revision B) Tracked Change Version March 2023 Doc Ref: 6.3.18.2.1.1

The LLFA has reviewed the report, which will need appropriate updates to be made once the applicant has made requested amendments to the drainage design and flood risk assessment documents.

The LLFA notes that while the solution is an infiltration solution, the solution is not able to deliver on all four pillars of SuDS. Therefore, could not be considered as a SuDS system.

Further guidance on the information required by the LLFA from applicants can be found at https://www.norfolk.gov.uk/rubbish-recycling-and-planning/flood-and-water-management/information-for-developers.

Yours sincerely,

Sarah

Sarah Luff
Strategic Flood Risk Planning Officer

Lead Local Flood Authority