Project Name: New Hall Solar Farm

Report Name: Response to LLFA Holding Objection

Author: Lucy Ginn

Approved by: Luke Johnson

Date: 21/02/2024

Project Number: P22-2205

Introduction

This document provides a response to the holding objection received from Wakefield Council as Lead Local Flood Authority to the proposed New Hall Solar Farm (application number: 23/01113/FUL). The holding objection and was received in November 2023 from the Wakefield Council Drainage team. The LLFA's comments are enclosed at the end of this document.

This document has been split into sections identified as the key concerns raised by the LLFA within their holding objection.

Impact on Downstream Runoff

The LLFA has raised concerns about the impact of the proposed development on downstream runoff rates in the absence of any attenuation on site.

It is considered that the only parts of the proposed development that may increase surface water runoff from the site, albeit marginally, are the proposed transformers and spares container on site.

It is proposed to locate the transformers on a 300mm bed of permeable material that extends at least 300mm beyond the transformer footprint. Although the proposed spares container will not be located on a permeable base, it will include a 300mm wide strip of permeable material running around the edge. This permeable material will help manage surface water runoff from the proposed transformers, allowing runoff to infiltrate into the permeable material and subsequently, into the ground below, mimicking the existing drainage regime on site. It is also noted that the proposed transformers and spares container are isolated and small in nature. Both the proposed transformers (4no) and spare parts container (1no) are approximately 17.5m^2 each in area, totally approximately 87.5m^2 of across the approximately 54.5ha site. The impact of the transformers and spare parts container is therefore expected to be minimal, and the proposed permeable material will be sufficient to ensure runoff rates downstream do not increase.

It is also noted that the above approach of utilising permeable materials has also been proposed for "Woolley Solar Farm" (another Boom Developments Ltd project in the area). Wakefield Council provided comments on the Wooley Solar Farm application (application number: 23/02397/FUL) and had no objection to the scheme (LLFA comments for this site are enclosed at the end of this document). The LLFA state that they are "satisfied that the development will be safe of its lifetime and not increase flood risk elsewhere".

Based on the above, it is considered that the use of permeable materials to manage surface water runoff from the proposed transformers and spares container is appropriate to ensure downstream runoff rates and associated flood risk do not increase.

Impact of Proposed Solar Panels on Surface Water Runoff

The LLFA have raised concerns about the impact of the proposed solar panels on the volume and concentration of overland flows and how this may impact neighbouring area of land and requests that

mitigation measures are implemented to reduce the impact of channelise flows and promote infiltration of water into the ground.

In response to these concerns, we would like to direct the LLFA to the proposed Landscape Masterplan enclosed at the end of this document. The Landscape Masterplan highlights that below proposed solar panels, a "neutral grassland" will be planted. Land below the panels will not be left as bare ground. Cook and McCuen's 2013 report on the "Hydrologic Response of Solar Farms" states that "with well-maintained grass underneath the panels, the solar panels themselves do not have much effect on total volumes of the runoff". It is therefore considered that the proposed landscaping on site will offer sufficient mitigation measures against the potential for concentrated flow paths between rows of solar panels and to ensure the potential for infiltration on stie is maintained.

It is also noted that the Landscape Strategy details the provision of a "tussocky grassland with wildflowers" surrounding block of solar arrays. These proposals will help capture any surface water runoff at the downslope end of blocks of solar arrays.

We would also once again like to refer the LLFA to the Woolley Solar Farm application (application number: 23/02397/FUL). LLFA comments on this application (enclosed at the end of this report) do not raise any concerns about surface water runoff patterns below solar panels assuming the site is "permanently vegetated with grassland located beneath the solar panels and between rows of solar panels". The same approach will apply to the New Hall Solar Farm site. In line with the Wooley Solar Farm application, we would like to request a condition for the provision of an Operation and Maintenance Manual to ensure vegetation on site is suitably maintained.

In response to the LLFA comment about increased risk of channelised flow should there not be gaps between solar panels, it is noted that a gap of approximately 2m between rows of solar panels is proposed on site.

Summary

Based on the above, we would request that the LLFA review the additional information provided and remove the holding objection. We would welcome your earliest consideration of this additional information.

Enclosures

Wakefield Council Comments – New Hall Solar Farm

Wakefield Council Comments - Wooley Solar Farm

Landscape Masterplan

Wakefield Council Comments – New Hall Solar Farm

Consultee Comments for Planning Application 23/01113/FUL

Application Summary

Application Number: 23/01113/FUL
Address: New Hall Farm New Hall Lane Overton Wakefield WF4 4RP
Proposal: Installation of renewable energy generating station comprising ground-mounted photovoltaic solar arrays together with substation, transformer stations, site accesses, internal access tracks, security measures, access gates, other ancillary infrastructure and landscaping and biodiversity enhancements
Case Officer: Chris Kenyon

Consultee Details

Name: Wakefield Council Drainage
Address: Wakefield One, Burton Street, Wakefield WF1 2EB
Email: Not Available
On Behalf Of: Drainage Section (WMDC)

Comments

The Lead Local Flood Authority (LLFA) raises a holding objection to this application as the applicant has not demonstrated that the flood risk to the development has been adequately considered and mitigated to prevent increased flood risk on and off site.

The applicant must demonstrate there is no increase in downstream runoff, and if there is an increase, this must be attenuated. As no attenuation is proposed and the applicant maintains the development will not increase runoff, compelling evidence must be submitted for the proposals to be acceptable.

The submitted Flood Risk Assessment & Surface Water Drainage Strategy (Dated 09/06/23) considers that surface water flows will migrate into the ground either where it falls or at the low point within the parcel. It is anticipated that some of the runoff will infiltrate, however if the grass cover of a solar farm is not maintained (it can deteriorate either because of a lack of sunlight or maintenance vehicle traffic), the runoff characteristics can change significantly with both runoff rates and volumes increasing by significant amounts.

The kinetic energy of the flow that drains from the panels can create channelised flows at the base of the panels which can erode the soil and allow a greater volume to enter watercourses or flow to adjacent areas at a greater rate than would otherwise occur in greenfield conditions. If no gap is proposed between the panels, then the concentration of water flow will increase, and the risk of erosion will be greater.

Mitigation measures are required to reduce the impact of channelised flows and promote the

infiltration of water into the ground. This may include siting solar arrays along ground contours such that water flow between rows is dispersed evenly beneath them or incorporating maintained vegetative strips between the solar arrays and buffer strips to manage additional surface runoff. The applicant may refer to Hydrologic response of solar farm Lauren M. Cook (2013) as a source of information regarding surface water drainage and design suggestions.

Kind Regards,
Robert Prescott
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31/10/23

Wakefield Council Comments – Wooley Solar Farm

Consultee Comments for Planning Application 23/02397/FUL

Application Summary

Application Number: 23/02397/FUL
Address: Land At 430178, 412891 (Field 1); 431408, 412579 (Field 2); And 431717, 412263 (Field 3) Land At Haigh Lane And Land At Woolley Edge Lane Wakefield
Proposal: Construction of a renewable led energy generating station comprising ground-mounted photovoltaic solar arrays together with substation, transformer stations, grid connection infrastructure, grid cable route, site accesses, access gates, internal access tracks, security measures, storage compound, other ancillary infrastructure and landscaping and biodiversity enhancements
Case Officer: Mr Neil Bearcroft

Consultee Details

Name: Wakefield Council Drainage
Address: Wakefield One, Burton Street, Wakefield WF1 2EB
Email: Not Available
On Behalf Of: Drainage Section (WMDC)

Comments

The Lead Local Flood Authority has no objection to this application in principle.

The majority of the site is at very low risk from pluvial surface water flooding and the entire development is in Flood Zone 1 indicating a low risk of fluvial flooding. The site is divided into two areas: A and B. The majority of Area A has a very low risk of pluvial surface water flooding with a few small areas that are up to high risk. All of Area B is at low risk or very low risk of pluvial surface water flooding.

The Lead Local Flood Authority (LLFA) is satisfied that it has been demonstrated that the development will be safe of its lifetime and not increase flood risk elsewhere. The development should be built in accordance with the Flood Risk Assessment and Drainage Strategy, Revised Final Issue, 14th December 2023.

The site is required to be permanently vegetated with grassland located beneath the solar panels and between the rows of panels. The vegetation is required to control runoff and achieve greenfield rates in accordance with Cook and McCuen (2013).

I would therefore recommend that the following condition is attached to any permission:

Development shall not commence until a maintenance and management plan has been submitted to and approved in writing by the Local Planning Authority. The plan shall detail who is responsible

for the future maintenance of the vegetated areas and how this is to be guaranteed for the lifetime of the development. The approved maintenance and management scheme shall be implemented throughout the lifetime of the development.

Reason: To mitigate additional flood risk over the lifetime of the development in accordance with D25 of the Councils Local Development Framework Development Policies.

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01/02/2024

Landscape Masterplan

Landscapevisual
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2
3
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Legend:

- Existing notable tree groups within or bordering the site
- Existing hedgerows restored or repaired
- Proposed hedgerows
- Hedgerow trees added to new or existing hedgerows
- Proposed neutral grassland
- Proposed tussocky grassland with wildflowers
- Low intensity grazed meadow
- Game bird seed mix

Other features:

- Public rights of way
- Proposed access tracks and hardstanding

0 250 Meters

Revision	Date	Notes
A	02/05/23	Amendments to reflect new layout.
B	15/05/23	Amendments to ecologist comment.
C	25/05/23	Amendments to red line boundary.

Project: **New Hall Solar Farm**

Title: Landscape and Ecology Enhancement Plan

Date: December 2022

Ref: **Technical Appendix 6.7**

Scale: 1:2500 @ A1

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