



# ARCUS

## **FLOOD RISK ASSESSMENT ADDENDUM**

### **SOAY SOLAR FARM AND GREENER GRID PARK**

#### **STATKRAFT UK LTD**

**JULY 2022**

Prepared By:  
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## **1 INTRODUCTION**

Arcus Consultancy Services Limited (Arcus) produced a Flood Risk Assessment (FRA) on behalf of Statkraft UK LTD in November 2021 as part of the planning application (the Application) (Planning Reference: 21/04505/STPLF) for a proposed Solar Farm and Greener Grid Park (the Development) at Thornton, near York, East Riding of Yorkshire (the Site), approximately centred on National Grid Reference SE 76204 46514.

The Original FRA (dated November 2021) was submitted as part of the Application in December 2021, following which the layout and technical details of the Development have been amended to incorporate minor design changes.

Due to design minor design changes associated with the Development, Arcus have been appointed to produce a FRA Addendum to assess the flood risk at the Site in relation to the updated layout (July 2022) and conclusions alongside the Original FRA.

This FRA Addendum is to be read in conjunction with the Original FRA.

## **2 UPDATED FLOOD RISK ASSESSMENT**

The extents and nature of the Development will not significantly differ from the plans assessed within the Original FRA and the design changes do not result in any significant change in flood risk vulnerability. Therefore, the conclusions and outcomes of the Original FRA are still applicable.

The summary table of the Original FRA (Table 3) has been updated and included in Table 1 below to outline the flood risk for each associated form of flooding and justification for the risk category using professional judgement and experience of assessing similar types of scenarios.

The 'comment' column has been updated from that presented in Table 3 of the Original FRA in relation to tidal, groundwater, reservoir and canals and artificial watercourse flooding sources however, the 'potential risk' remains unchanged from the Original FRA.

**Table 1: Flood Risk Summary**

<b>Flooding Source</b>	<b>Potential Risk</b>	<b>Comment</b>
Pluvial (Surface Water)	Negligible	EA pluvial depths outside of existing land drain channels are limited to 0.3 m during the 1:100-year event. 2D pluvial simulation shows no increase in pluvial depths relative to the pre-Development scenario. Surface water management methods will be implemented in order to limit the residual runoff associated with the Development, as detailed in Section 3. Acknowledging the unmanned nature and raised PV lines designed, pluvial flood risk is Negligible.
Fluvial (River)	Negligible	The Development is located in FZ 1, an area described as "low probability" categorised as being the lowest flood risk and comprises land assessed as having a less than 1:1,000-year annual probability of river or sea flooding in any year.
Tidal	Negligible	There are no tidally influenced watercourses within the vicinity of the Site and the Site is at an elevation of c. 9 m AOD or more. The Development is located within FZ 1.
Groundwater	Low	Grounds at an on-site borehole comprise clays up to depths of 6 m with groundwater at depths of 11 m. The SFRA groundwater map highlights the Site is highly susceptibility to groundwater flooding (>75 %). PV arrays are to be driven into the ground by circa 1 to 1.5 m and are unlikely to interact with, displace or develop surface pathways for groundwater beyond the baseline scenario. The infrastructure associated with the Development will still be able to operate in the event of groundwater flooding.
Reservoirs	Negligible	The EA Flood Risk from Reservoirs Map shows that the Site is not located in an area modelled to be at risk of flooding from reservoirs.
Canals and Artificial Watercourses.	Negligible	The Site and intercepting land are shown to be at greater elevations than the Pocklington Navigation Canal and is not considered to be inundated during the unlikely event of breach or overtopping of the canal.

### 3 FLOOD RISK ELSEWHERE

The risk of the Development flooding from all sources is Negligible to Low and therefore there will not be an increase in flood risk elsewhere associated with the Development.

The surface water runoff from the Development is the most significant form of any potential flood risk offsite.

As outlined in the Original FRA, the solar elements of the Development will not contribute to a substantial increase in hardstanding areas and will utilise land management techniques based on Rural Sustainable Drainage Systems (RSuDS<sup>1</sup>) to manage surface water runoff associated with the solar elements of the Development.

The infrastructure associated with the Greener Grid Park to the south-east of the Site will be served by a Sustainable Drainage Systems (SuDS) network designed in accordance with the SuDS Manual<sup>2</sup>. The SuDS network will comprise ponds with flow restriction devices installed on the outfalls to attenuate and discharge surface water at the IDB approved rate of 1.4 l/s/ha without surcharge during a 1:100 (+40 % CC) year pluvial event.

The implementation of the SuDS and RSuDS measures, detailed in the Original Drainage Impact Assessment<sup>3</sup> (November 2021) (DIA) and DIA Addendum<sup>4</sup>, will prevent an increase in surface water runoff rates and thus, flood risk elsewhere.

### 4 SEQUENTIAL AND EXCEPTION TEST

#### 4.1 Sequential Test

The Development is located within FZ 1 and satisfies the criteria of the National Planning Policy Framework (NPPF) Sequential Test<sup>5</sup>.

#### 4.2 Exception Test

The Planning Practice Guidance (PPG)<sup>6</sup> to the NPPF states that the two criteria set out in the Exception Test should be applied to developments. The two criteria are listed below:

1. It must be demonstrated that the Development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment; and
2. A site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Acknowledging the primary function of the Development is to produce green energy for the export to the national grid and that the Development is located within FZ 1, the Development, Original FRA and this FRA Addendum satisfy the requirements of the Exception Test.

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<sup>1</sup> EA (2012) Rural Sustainable Drainage Systems [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/291508/scho0612buwh-e.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/291508/scho0612buwh-e.pdf) (Accessed 05/07/22)

<sup>2</sup> CIRIA (2015) SuDS Manual C753 [Online] Available at: [https://www.susdrain.org/resources/SuDS\\_Manual.html](https://www.susdrain.org/resources/SuDS_Manual.html) (Accessed 05/07/22)

<sup>3</sup> Arcus Consultancy Services Ltd, Drainage Impact Assessment, Soay Solar Farm and Greener Grid Park (November 2021)

<sup>4</sup> Arcus Consultancy Services Ltd, Drainage Impact Assessment Addendum, Soay Solar Farm and Greener Grid Park (July 2022)

<sup>5</sup> UK Government (2017) Flood Risk Assessment: the Sequential Test for Applicants [Online] Available at: <https://www.gov.uk/guidance/flood-risk-assessment-the-sequential-test-for-applicants> (Accessed 05/07/22)

<sup>6</sup> UK Government (2021) Planning Practice Guidance [Online] Available at: <https://www.gov.uk/government/collections/planning-practice-guidance> (Accessed 05/07/22)

## **5 CONCLUSIONS**

The layout of the Development presented in the Application has been updated to incorporate minor design changes which do not result in any significant change in flood risk vulnerability.

The risk of flooding from all sources as a result of the Development is Negligible to Low as per the Original FRA submitted with the Application.

RSuDS and SuDS measures are to be incorporated which will prevent any significant increase in surface water runoff rates.