

Title **Section 73 Flood Risk Technical Note**

Job Name Minety Solar Farm, Wiltshire

Job number 22-342

Date 23/05/2025

1 INTRODUCTION

- 1.1.1 This Technical Note has been prepared to assess proposed amendments to the prospective Minety Solar Farm. The original scheme was consented in April 2022 via application reference 20/03528/FUL and are proposed via a Section 73 (Town and Country Planning Act 1990) application.
- 1.1.2 The scheme has been the subject of the following flood risk-related planning documents:

Table 1-1 Planning Document Summary

Application Number	Flood Risk and Drainage Reporting	Status
20/03528/FUL	A Flood Risk Assessment (FRA) and Drainage Strategy (FRADS) produced by Clive Onions Ltd (v5, August 2020). An FRA addendum (v2, August 2020) responding to comments from the LLFA dated 1 st June 2020 and 5 th May 2020	Consented – April 2022
PL/2022/07101	Application to discharge conditions 4, 5 and 6 placed on 20/03528/FUL. Supported by a drainage Technical Note (ref 22-342-70-001-00)	Discharged – October 2022
PL/2024/05985	Application to vary conditions 4, 5 and 6 via a S73 application, including removal of a single battery storage compound in favour of isolated, dispersed units. Supported by a drainage Technical Note (ref 22-342-70-001-01)	Discharged – November 2024

2 PROPOSED AMENDMENTS

2.1.1 The amendments to the consented scheme that are considered by this note are summarised as follows:

- Increasing the hybrid inverter/battery compounds from 11 to 13 and amending the layout from a linear to square configuration.
- Increased size of one construction compound and relocation of another;
- Various adjustments to the access track including provision of additional turning heads to assist with construction phase;
- Removal of an existing concrete track and provision of additional panels in this location;
- Various micro adjustments to field panels and fence locations;
- Requirement to install a cable in a narrow strip of application site

2.1.2 In addition to the above, the Environment Agency has updated both its Flood Zone and Risk of Flooding from Surface Water (RoFSW) mapping, the impact of which is assessed in this document.

3 AMENDMENT ASSESSMENT

3.1 Number of Hybrid Inverter/Battery Compounds

3.1.1 The transition from a centralised Battery Energy Storage System to dispersed, isolated units and the resulting amendment to the drainage of these units was discussed in application PL/2024/05985.

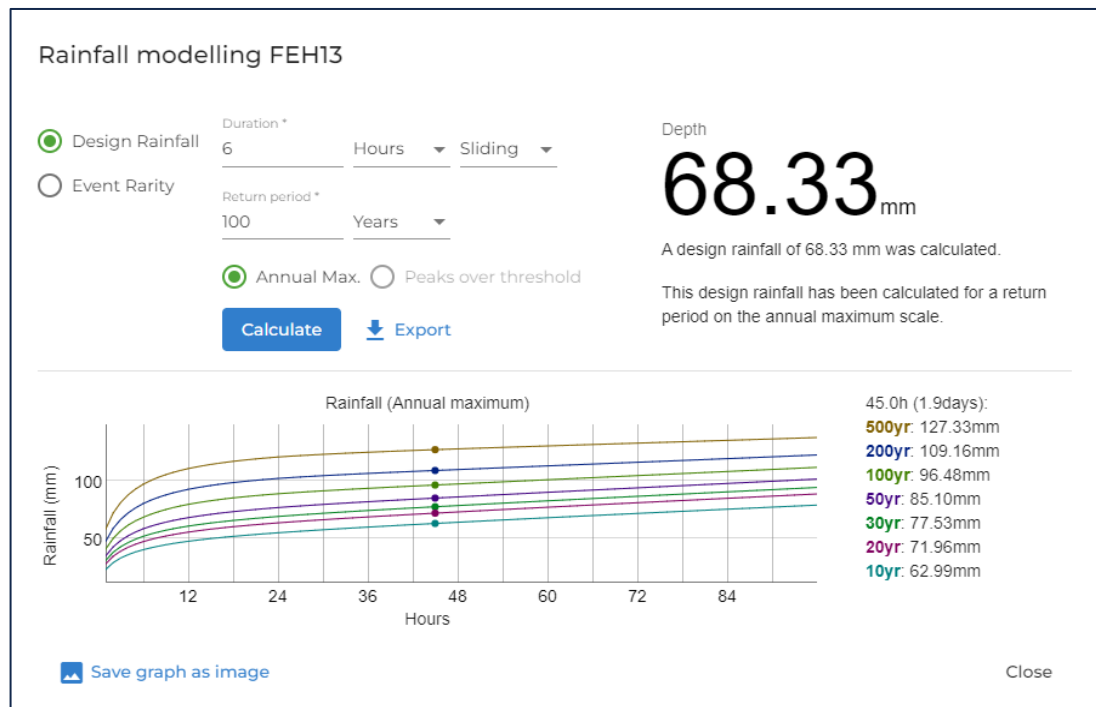
3.1.2 It was demonstrated that the hybrid units would encourage water to percolate to the ground locally, which would manage rain falling on them and not increase risk elsewhere. This approach was accepted by the LLFA and LPA under application PL/2024/05985. Consequently, the increase in the number of hybrid units from 11 to 13 would have no impact on the drainage of the site compared to the consented scheme.

3.1.3 However, the change of alignment of the hybrid units has also resulted in a change in footprint of some containers as well as that of the gravel base. The drainage implications of the revised area has been tested using the same methodology as previous assessments, repeated below for ease of reference.

Runoff Calculation

3.1.4 To calculate the likely volume of runoff generated from the hybrid unit gravel base areas during the 1 in 100 year, 6 hour storm, the Depth-Duration-Frequency model in the Flood Estimation Handbook (FEH) was used. The results of this calculation for the present day are provided in Figure 3-1.

Figure 3-1 Depth-Duration Curve Model Results



- 3.1.5 In accordance with the National Planning Policy Framework and previously agreed with the LLFA, an allowance for climate change must be applied to the design rainfall. The proposed site is estimated to have an anticipated lifetime of 40 years. The site lies within the Gloucestershire and the Vale Management Catchment. For a development with a 40-year lifetime, the central allowance for the 2070s epoch is applied. This translates to a 25% uplift in rainfall rates.
- 3.1.6 It should be noted that the Environment Agency climate change guidance has altered since completion of the FRA. Therefore, the use of a 25% uplift in this note is more precautionary than the 10% uplift generally applied by the FRA.
- 3.1.7 Using the results shown in Figure 3-1, the rainfall depth during a 1 in 100 year 6 hour duration event, inclusive of climate change commensurate with the lifetime of the development, is 85.41mm, or 0.09m.
- 3.1.8 The hybrid units would have a gravel base area of 235m². Relating this to a volume of rain falling on each gravel base equates to approximately 21.2m³ (0.09 x 30). This approach accounts for rain falling on the gravel bases themselves to ensure a precautionary approach.

Storage Requirement

- 3.1.9 The gravel base would have a base depth of 300mm and porosity of 0.3, this would equate to a capacity of approximately 23m³, more than the runoff generated during a 1 in 100 year, 6 hour storm.

3.1.10 The bases would be wrapped in a permeable geotextile to encourage percolation but prevent the entry of fines.

3.1.11 The base depth of 300mm is as per the designs consented (Table 1-1).

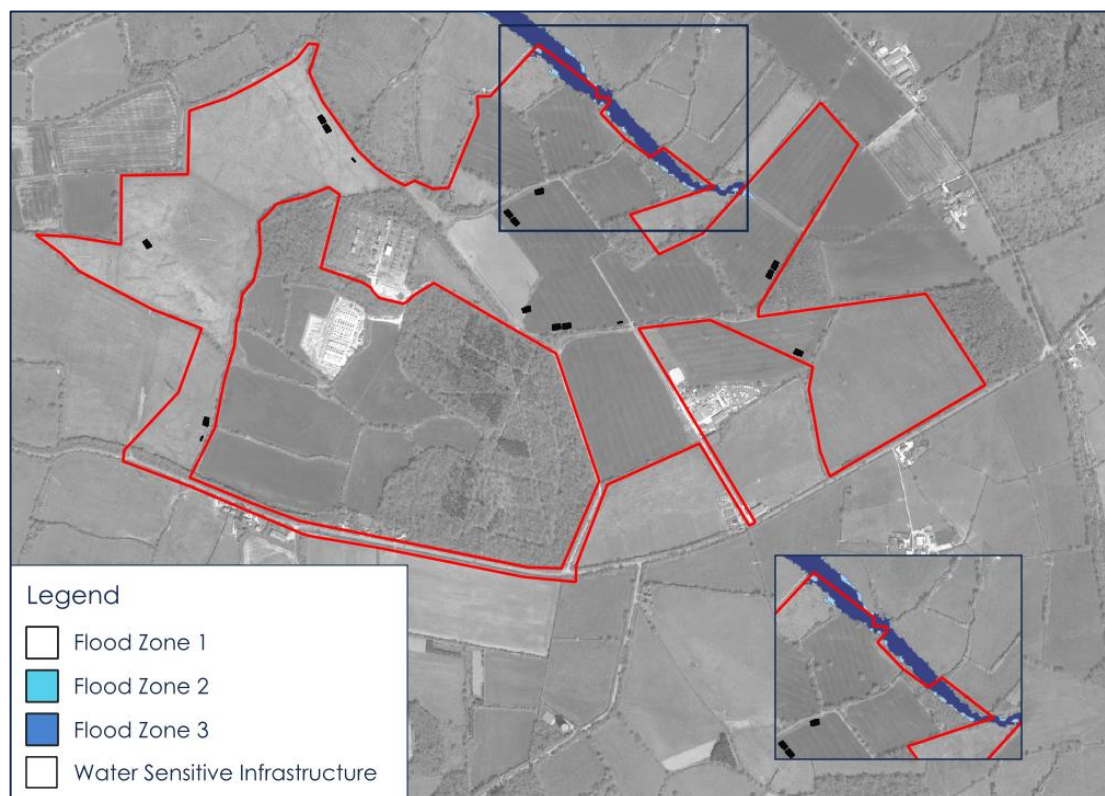
3.2 Flood Zones

3.2.1 Since the completion of the previous reporting, the Environment Agency's Flood Zone modelling has been updated.

3.2.2 The previous iteration showed the site to be entirely within Flood Zone 1 and therefore at Low risk of fluvial flooding.

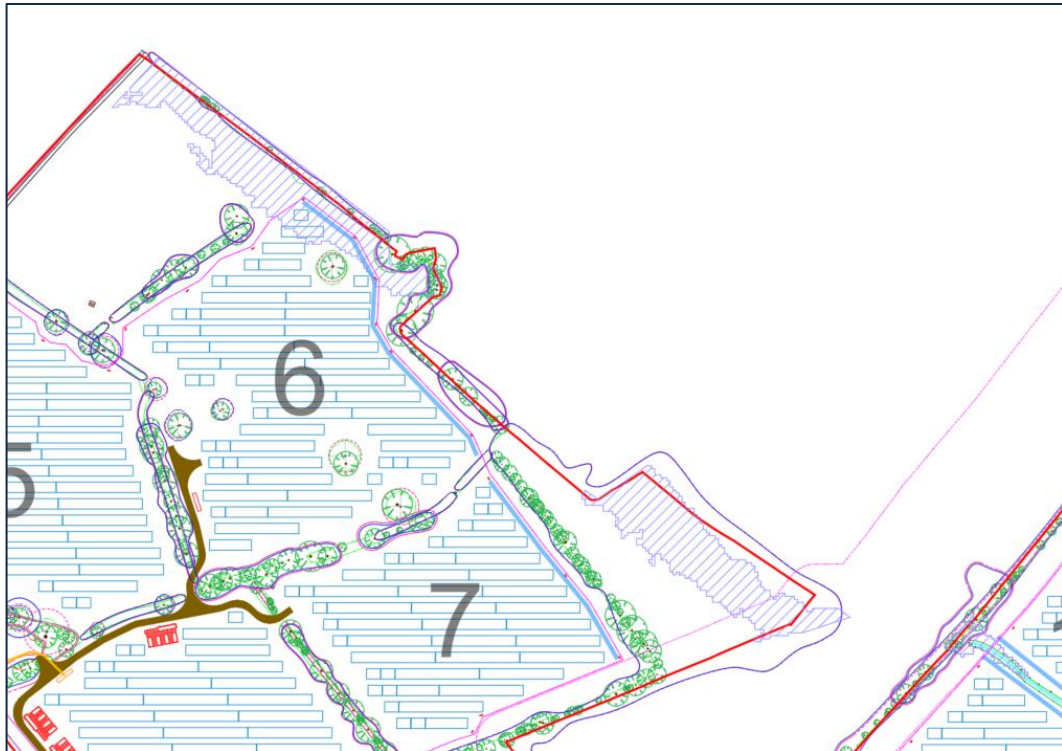
3.2.3 The 2025 release shows a very small part of the site to fall within Flood Zone 2 and 3, as shown in Figure 3-2.

Figure 3-2 Flood Zones



3.2.4 As shown in Figure 3-2, no water sensitive equipment is proposed in the flood zones. In addition, as shown in Figure 3-3, the extent of Flood Zone 2 only covers part of a proposed swale (proposed by the FRA and designed in Technical Note ref 22-342-70-001-00) and a few panels.

Figure 3-3 Proposals and Flood Zone 2 (shown in blue hatching)



- 3.2.5 The depth of flooding at this location would be expected to be very shallow, well below the lowest panel edge (800mm above the ground). Consequently, the flooding would not impact generation output, nor would the panels have a noticeable impact on the flow of flood water.
- 3.2.6 As a result, the new allocation of flood zones at the site would not change the overall conclusions of the FRA or subsequent reporting that the site would be safe from flooding. Therefore, no additional mitigation is proposed.
- 3.2.7 Furthermore, given the flood zone revision only results in very minor coverage of the consented scheme, it is deemed disproportionate for this to trigger the application of the Sequential Test.

3.3 Risk of Flooding from Surface Water

- 3.3.1 Risk of Flooding from Surface Water (RoFSW) dataset has been updated and now includes an allowance for climate change and provides the predicted surface water areas in depth bands. The previous RoFSW dataset 1 in 1,000 year event depth map is shown in Figure 3-4 with the 2025 iteration 0.2m depth band extents shown in Figure 3-5. This is the shallowest band of flooding and therefore shows the largest extents.

Figure 3-4 1 in 1,000 year Surface Water Depths

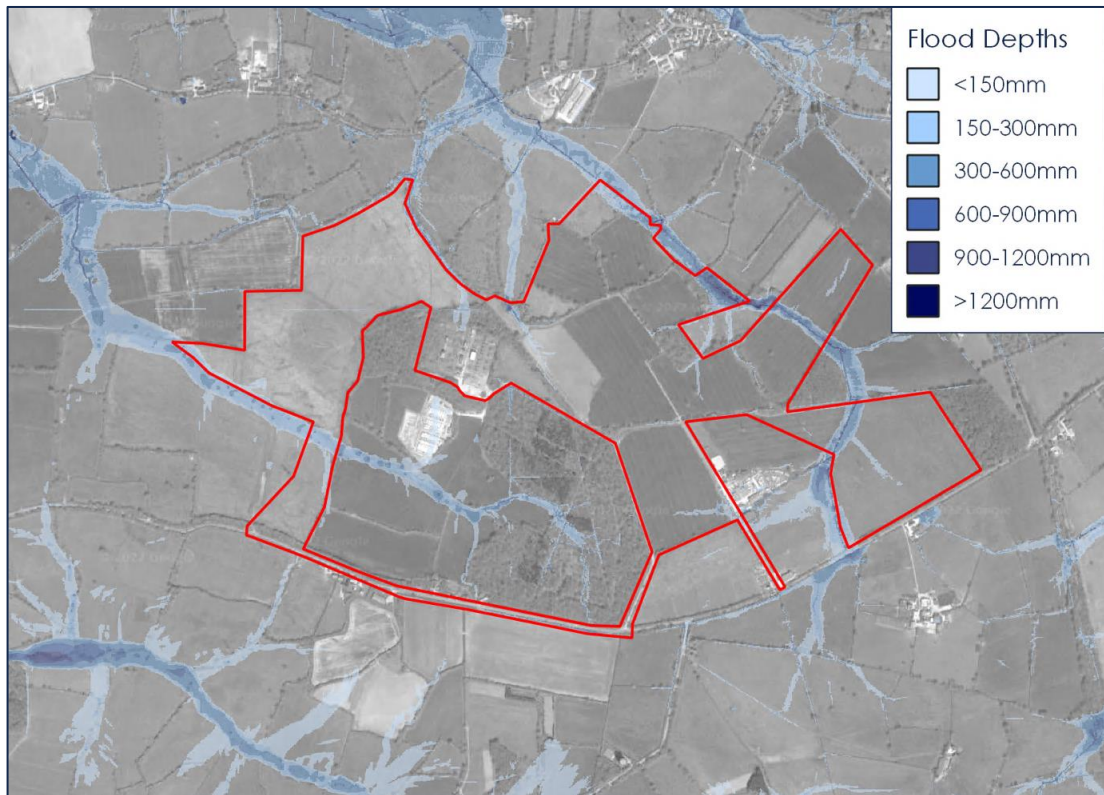
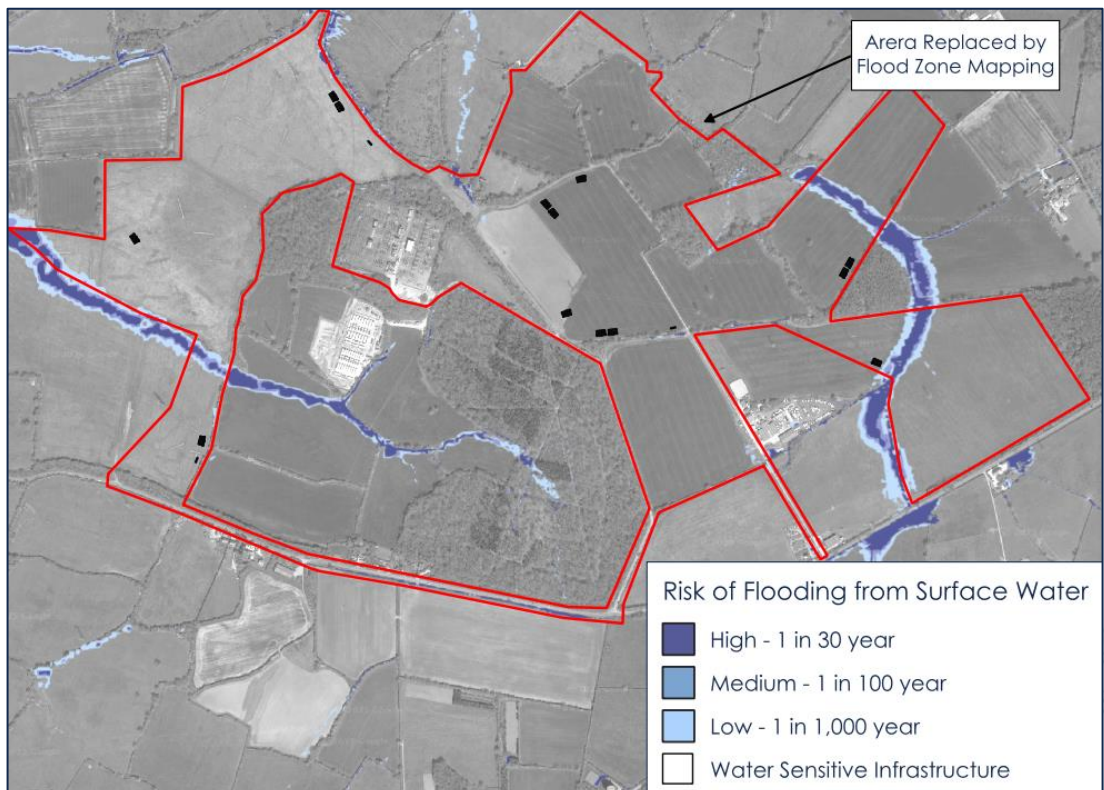


Figure 3-5 2025 RoFSW 0.2m Depth Band, with Climate Change



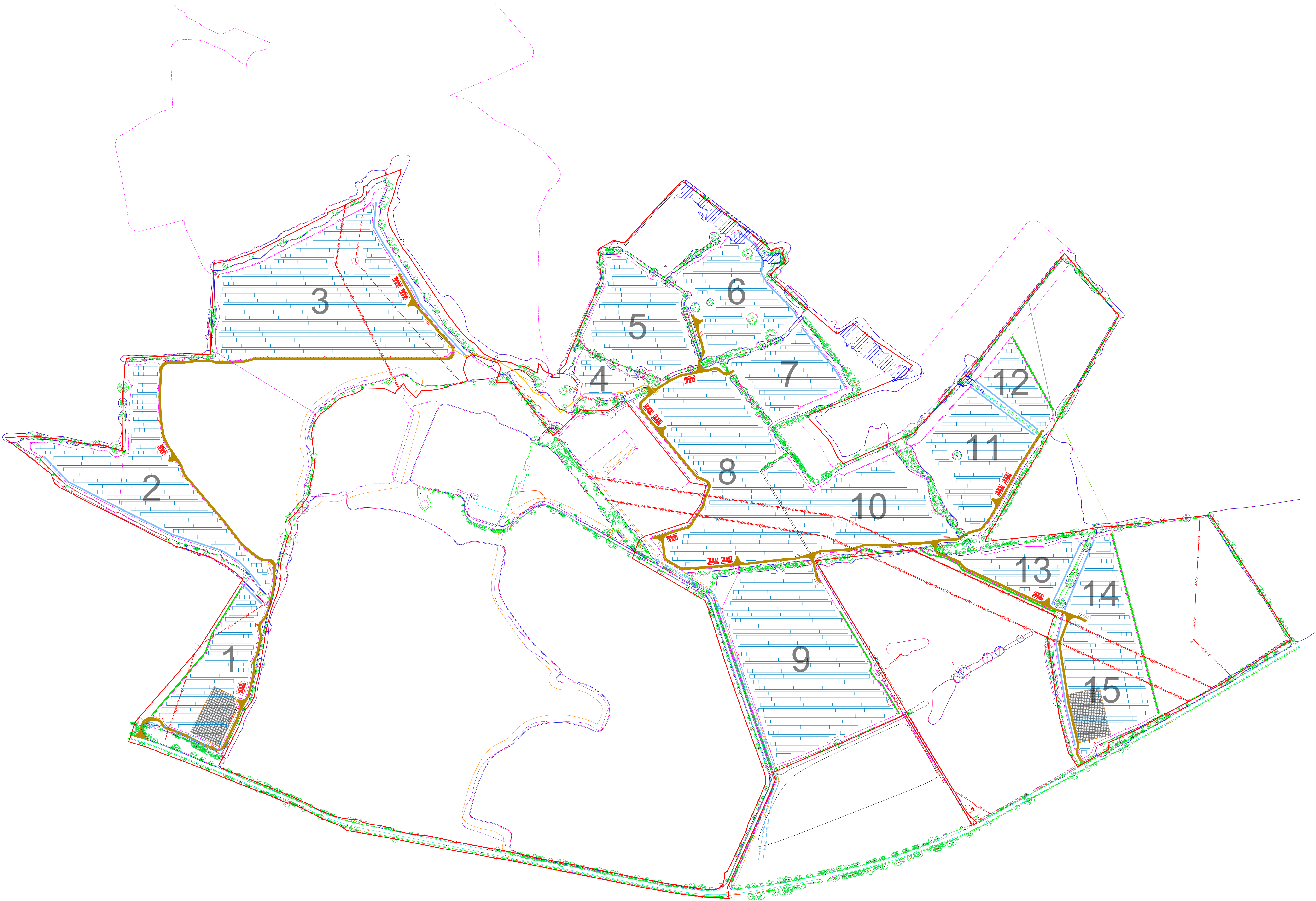
- 3.3.2 Figure 3-5 shows that the RoFSW mapping now has part missing given this has been reflected in the flood zone mapping described above.
- 3.3.3 As shown in Figure 3-5, the water-sensitive equipment such as hybrid BESS and inverter compounds, remain outside areas of mapped surface water risk.
- 3.3.4 Comparison of the above figures shows that the change in the RoFSW dataset does not change the flood extents significantly. Comparison with the latest layout shows that as with the consented scheme, only small areas panels to be in areas of risk where flooding would likely be well below the panel edges. As with flood zone mapping changes, this would not impact the generation capacity of the proposals.
- 3.3.5 Consequently, as with the flood zone mapping, the change to the RoFSW mapping does not alter the conclusions of the consented FRA or subsequent reporting such that no new mitigation is deemed necessary.

3.4 Other Changes

- 3.4.1 The other changes proposed are largely cosmetic from a flood risk and drainage perspective for the following reasons:
- Access tracks and temporary compounds have always been proposed as permeable. Consequently, relocating them or changing their footprint would result in negligible change to their rainfall response;
 - Replacing a concrete track with panels would result in a very minor and localised betterment in terms of rainfall response;
 - Micro-adjustments of panels would have negligible impacts;
 - All cables will be buried services so have negligible impact on runoff or flood flows post-installation. Where cables need to cross watercourses, this would be completed via Horizontal Directional Drilling, trellising or using methods that would minimise damage to the watercourse, to be confirmed by the Construction Environmental Management Plan.

Enclosures

Site Layout



SCALE A1 @ 1:3500
0m 70m 140m 210m 280m 350m

NOTES

- 1. All details are indicative only.
- 2. Dimensions are in metres unless stated otherwise.
- 3. Refer to HSE document "Avoiding danger from overhead power lines – Guidance Note GS6" to ensure safe operation of machinery in proximity to overhead power lines.

LEGEND

- Planning Red Line
- Road
- Solar panels
- Fence
- Hedges
- Trees
- Proposed Hedges
- Inverter Container
- Hybrid Inverter Container
- Spares Container Container
- Customer Switch Gear Container
- CCTV
- Access Gate
- Construction compound
- Drains
- River
- Bank
- Public Rights Of Way
- Permissive Path
- Swale
- Acoustic Fence
- National Grid BNG Area
- Internal 33kV Cable Route



DETAILS

TITLE	Minety Solar Farm – Full Topo & Satellite Basemap
LOCATION	Near SN16 9DX
DATE	15 October 2024
CONFIGURATION	Typical fixed design
REVISION	01