



SUNNICA ENERGY FARM

EN010106

Volume 6

8.82 FRA clarification document in light of proposed Scheme changes

APFP Regulation 5(2)(e)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

Sunnica Energy Farm

8.82 FRA clarification document in light of proposed Scheme changes

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1. Introduction

- 1.1.1 AECOM has undertaken a Flood Risk Assessment (FRA, Version 01, [Ref: **AS-007 to AS-010**]) and a Flood Risk Assessment Addendum (FRA Addendum [REP4-040 and REP4-041]) on 21 January 2022 and at Deadline 4 on 16 December 2022 respectively, in support of the Development Consent Order (DCO) (the Application) for a solar farm with associated battery storage, identified as Sunnica Energy Farm (herein after referenced as the “Scheme”).
- 1.1.2 A revised Drainage Strategy was also submitted as Annex D to the FRA Addendum [REP4-041], taking into account statutory consultation responses and updates to National Planning Policy and Climate Change Guidance.
- 1.1.3 Following the submission of the FRA Addendum and Drainage Strategy at Deadline 4, four changes to the Application have been proposed, which comprise:
- **Change 1:** Removal of the Burwell National Grid Substation Extension Option 2 from the Scheme
 - **Change 2:** Removal of Sunnica West Site B.
 - **Change 3:** Inclusion of additional archaeological offset areas. There are two new archaeological offset areas being incorporated into the Scheme, the first at E05 to remove the crash crater and the second an area of concentrated archaeological features within W04
 - **Change 4:** Removal of Cable Route Access L and use of the Campus Access Road to HPUT’s premises, being one of the access options for the cable route corridor between what was West Site B and Burwell Substation. This removal follows on-going negotiations with HPUT and its tenants
- 1.1.4 Refer to the change application document, Proposed Changes to the Application [EN010106/APP/8.74], for further information.
- 1.1.5 Change 3 will have no material impact on flood risk and drainage as these areas were previously proposed for PV panel locations, with no increase in surface water runoff rates for area E05 or W04. The access track removal in Change 4 will have no impact on flood risk to the Scheme.
- 1.1.6 As a consequence, Change 3 and Change 4 are not discussed further in this report. This report focuses on Change 1 and Change 2, which both have a potential influence on the previous flood risk, and drainage, assessments for the Scheme. A revised drainage strategy [EN010106/APP/8.83] has been prepared to discuss the changed regarding drainage.
- 1.1.7 This clarification report should be read in conjunction with the FRA for the Scheme [AS-007 to AS-009] and the FRA Addendum [REP4-040].
- 1.1.8 In addition to the assessment of flood risk, the drainage strategy undertaken for the Scheme has also been reviewed to confirm the current strategy is still suitable taking into account the latest planning guidance, flood risk mapping and climate change updates. This has been submitted at Deadline 5 [EN010106/APP/8.83].

- 1.1.9 This report calls on the principal objectives of the FRA (Version 01, dated 21 January 2022) **[AS-007 to AS-009]** and associated planning policy already discussed within it, and also the planning updates and additional flood risk and drainage updates in the FRA Addendum (Version 00 dated 16 December 2022). **[REP4-040]**.

FRA Clarifications Objectives

- 1.1.10 The objective of this Clarifications report is to review Change 1 and Change 2 noted in 1.1.3 above, to re-assess the flood risk and drainage implication to the Scheme from these changes, and to confirm no material or adverse residual impact to the Scheme or elsewhere.

2. Change 1: Removal of Burwell Substation (Option 2)

Background

- 1.1.11 To facilitate the grid connection at Burwell, the Applicant needs to provide a substation or transformer capable of upgrading the voltage of the electricity generated by the Scheme to 400 kilovolts (kV). Following the acceptance of 'Option 3' into the Examination (i.e. 33kV to 400kV onsite substations), the Applicant has been continuing to work with National Grid to enable it to be confident that this can be taken forward as the sole option for connecting to the National Electricity Transmission System at Burwell.
- 1.1.12 In light of those discussions with National Grid and having taken advice on the terms of the Grid Connection Agreement securing its grid connection at Burwell, the Applicant is now in a position that it considers that this can be the case. As such, Option 2 in the Application (being a substation extension on third party land) can be discontinued, and Option 3 is being taken forward.
- 1.1.13 Option 3 involves locating a 33kV to 400kV transformer within the BESS/Substation area in W17 within Sunnica West A, with only Cable Route B between W17 and the existing Burwell substation. W17 is already proposed as BESS / Substation Infrastructure in the Scheme Description. Within Sunnica East Site A and B, areas E18 and E33 also propose to include 33kV to 400kV transformers; again these areas are already proposed as BESS / Substation locations so there is no change of use proposed.
- 1.1.14 There are no longer any permanent above ground installations proposed at the existing Burwell substation site.
- 1.1.15 As discussed in the initial FRA [AS-007 to AS-009] The areas W17, E18 and E33 are all within Flood Zone 1. Table 1 below presents the existing flood risk summary for W17, E18 and E33:

Table 1: Option 3 Flood Risk Summary

Flood Risk Source	Post Development Risk – Option 3	Comments
Fluvial	Low	Site is in Flood Zone 1 / No impact from sea level rise due to ground levels being significantly higher (circa 24m AOD, compared to 1-3m AOD at Burwell).
Tidal	None	Not in a tidal area
Pluvial (Surface Water)	Low	Surface water risk varies throughout the Order limits indicating areas which are susceptible to surface water flooding. However, flooding is localised and generally shallow (low risk).
Groundwater	Medium	Groundwater risk in E33 and W17 varies between 50% and 75% chance of emergence. E18 is at <25% risk of groundwater flooding.

		Further ground investigation, groundwater monitoring and infiltration testing is proposed to confirm groundwater levels.
Sewers	Low	There are no confirmed sewers in the vicinity of W17, E18 or E33.
Artificial Sources	Very Low	No artificial sources within W17, E18 or E33.

1.1.16 The following sections of the FRA (Version 01) **[AS-007]** are superseded or no longer applicable to the Scheme as a result of Change 1:

- Paragraph 1.7.1 (i) – which notes new substation at Burwell within Scheme proposals. The substation extension Option 2 is now removed from Burwell with no above ground built development proposed.
- Table 11: Flood Risk Assessment – Burwell National Grid Substation – this related to the permanent above ground built infrastructure for the substation extension; Option 3 is in Flood Zone 1 with low risk from all other sources of flooding with low fluvial flood risk and low surface water flood risk.
- Figure 14: Relating to Options 1 and 2 for the Burwell National Grid Substation Extension – There will now only a buried cable route into the existing substation, with no change to existing long term flood risk. Refer to revised Parameter Plans in Annex A for cable route to Burwell substation.
- Sections 4.1.23 to 4.1.41 inclusive – all sections relate to the Scheme’s flood risk assessment for the permanent above ground infrastructure proposed for Options 1 and 2 for the substation extension at Burwell. As no permanent above ground infrastructure will now be present, these sections are no longer applicable to the Scheme’s flood risk assessment.
- Section 6.1.2 and 6.2.2 – residual risks and mitigation; no longer applicable for Option 3.
- Section 7.1.3 – conclusion for sea level rise for finished floor levels – no longer applicable as cable routes will be buried.

1.1.17 The following sections of the FRA Addendum (Version 00) **[REP4-040]** are superseded or no longer applicable to the Scheme as a result of Change 1:

- Chapter 6 – This chapter relates to the fluvial modelling assessment for Burwell substation Option 2. As the BESS / Substation areas for Option 3 are all located in Flood Zone 1, and not within any fluvial model catchment, no additional modelling is required for areas W17, E18 and E33.
- Chapter 7 – This Chapter also relates to fluvial modelling and mitigation for Option 2. Option 3 areas are within Flood Zone 1 and not within the fluvial catchment modelling undertaken for Burwell. No further fluvial model assessment is required for areas W17, E18 and E33.

- Paragraphs 8.1.17 to 8.1.21 – relates to Option 2 modelling of the credible maximum scenario – no longer required as there will be no long term flood risk at Burwell substation as a result of the Option 3.
- Section 9.1.8 to 9.1.10 – summary of model assessment for Burwell Option 2. As noted, Option 3 is not within a fluvial model catchment and is in Flood Zone 1.

Flood Risk Assessment for Change 1

- 1.1.18 The FRA Addendum **[REP4-040]** further reviewed flood risk to Burwell substation Option 2, and this superseded the initial FRA findings. The FRA Addendum concluded that Burwell substation extension had a residual flood risk from a breach of Burwell Lode. The Environment Agency agreed to this assessment of flood risk and the proposed flood risk mitigation to raise finished floor levels by 850mm.
- 1.1.19 Option 3 proposes to use areas W17, E18 and E33 for all transformer infrastructure. All three areas have always been proposed for BESS and electrical substation infrastructure within the Scheme description. Locating the transformer infrastructure in these areas will result in no increase in the overall area of these areas (i.e. a minor reduction BESS units); therefore no increase in impermeable area to that as already assessed in the Drainage Strategy.
- 1.1.20 Areas W17, E18 and E33 are located within Flood Zone 1 with low risk of fluvial flooding. These areas were assessed within the overall Sunnica West A and Sunnica East A and B elements of the initial FRA and this assessment is still valid. The FRA Addendum further confirmed flood risk to the Sunnica West Site A and Sunnica East Site B through fluvial modelling, through consultation with the Environment Agency. Areas W17, E18 and E33 were not affected by the modelling.
- 1.1.21 The subsequent removal of Option 2 removes the long term flood risk associated with the Burwell substation Option 2 Site. Therefore, there is no change to the existing long term flood risk within Burwell substation. This approach is consistent with the agreed approach to long term flood risk for the cable routes, where there is no permanent above ground installation proposed.
- 1.1.22 As a result, flood risk mitigation is also no longer required at Burwell substation. Mitigation involved raising finished floor levels by 850mm to account for residual flood risk of a breach of Burwell Lode and also sea level rise, as set out in the FRA Addendum **[REP4-040]**.
- 1.1.23 Construction phase flood risk is dealt with within the CEMP (Requirement 14) and the Burwell substation Site is already included within the CEMP.
- 1.1.24 Table 2 below provides a summary of Option 2 and Option 3 in terms of change to flood risk relating to areas Burwell substation and areas W17, E18 and E33:

Table 2: Flood Risk Assessment Comparison: Option 2 and 3.

Flood Risk Source	Post Scheme Risk – Option 2	Post Scheme Risk – Option 3	Comments
Fluvial	Low (Residual) – Breach and sea level rise	Low	Option 3 located in Flood Zone 1. Sea Level rise not applicable to W17 as located at a significantly higher elevation to Option 2, (circa 20m AOD, compared to 1-3m AOD at Burwell).
Tidal	None	None	Not in a tidal area
Pluvial (Surface Water)	Low	Low	Surface water risk varies throughout the Order limits indicating areas which are susceptible to surface water flooding. However, flooding is localised and generally shallow (low risk).
Groundwater	Medium	Medium	Groundwater risk in E33 and W17 considered low with between 50 and 75% chance of groundwater flooding. E18 is at low risk (<25% chance of flooding).
Sewers	Low	Low	There are no confirmed sewers in the vicinity of the proposed Options
Artificial Sources	Very Low	Very Low	No other artificial sources affect these Option locations.

Sequential / Exception Test – Burwell Substation

- 1.1.25 The previous application of the Sequential and Exception Test for Burwell substation is no longer applicable for Option 3 (in particular, sections 4.3.5, 4.3.6 and 4.3.14 of the FRA Version 01).
- 1.1.26 Option 3 areas are located in Flood Zone 1 with low risk of flooding from all other sources of flood risk, except for groundwater flood risk, where the risk remains Medium in W17 and E33. Substation infrastructure will be raised a minimum of 300mm above ground level to account for residual risk from groundwater and surface water, in line with EA standing advice for developments, set out on the Gov.uk website.
- 1.1.27 Therefore, Option 3 is considered appropriate for the Sequential Test to be passed, with no requirement for the Exception Test to be applied to this Change.

3. Change 2: Removal of Sunnica West Site B

1.1.28 With the removal of Sunnica West B and Option 2 for Burwell substation, the revised total area of the Order limits has reduced from 1,113 ha to 1,059 ha.

1.1.29 The maximum developable areas are as follows:

- Sunnica East Site A – 115.0 ha
- Sunnica East Site B – 227.0 ha
- Sunnica West Site A – 256.0 ha
- Sunnica West Site B – 0 ha

1.1.30 The developable areas for Sunnica East Site A and B and Sunnica West Site A remain unchanged. With removal of Sunnica West B the total developable area has reduced from 621 ha to 598 ha, a reduction of 23 ha. The remaining areas (461ha) will be set aside for environmental and archaeological mitigation and cable routes.

1.1.31 The Drainage Strategy has been reviewed to take into account the reduced Scheme area and the SuDS proposals to ensure the outline strategy is still compliant. All SuDS proposals have been removed from the area of Sunnica West Site B as there is no proposed permeant above ground built development.

1.1.32 The revised Drainage Strategy is presented in a separate standalone report **[EN010106/APP/8.83]**.

Flood Risk Assessment

1.1.33 Removal of Sunnica West Site B has no negative impact on the findings of the initial FRA **[AS-007]** in terms of overall Scheme flood risk.

1.1.34 Flood risk will, in effect, be reduced in this area as only cable routes will pass through this area, between W17 and Burwell substation. Cable routes have been previously assessed as having no long term flood risk impact as there is no permanent above ground built infrastructure being placed, with all cabling installed below ground.

1.1.35 Surface water flood risk will remain as existing, with no long term flood risk impact.

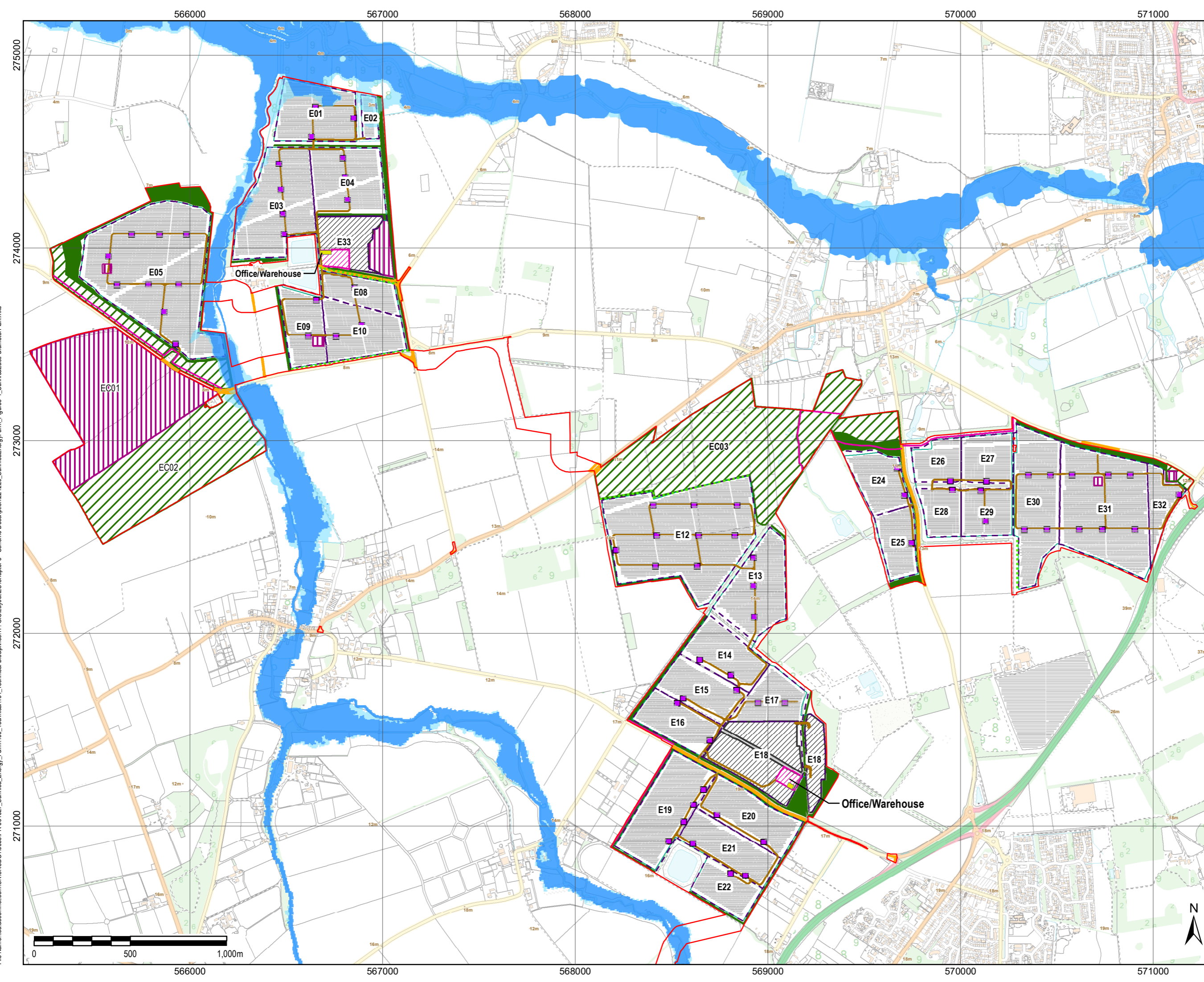
1.1.36 Construction phase flood risk and drainage is addressed within the CEMP (Requirement 14). Cable routes were already present in this area of the Scheme; therefore, the CEMP is already taking this into account, with no change required.

4. Conclusion

- 1.1.37 Change 3 and Change 4 have no material impact on flood risk and the drainage strategy for the Scheme.
- 1.1.38 Change 1 has been assessed with a positive change in post-Scheme flood risk, with specific comparison to Burwell substation Option 2, from a Residual fluvial flood risk from a breach of Burwell Lode to Low risk; Option 3, located in W17, E18 and E33 being within Flood Zone 1.
- 1.1.39 There is no impact of sea level rise on Option 3. Cable routes at Burwell will be buried with no long term flood risk impact (including sea level rise).
- 1.1.40 With regards the Sequential Test, Option 3 is in Flood Zone 1 and fully satisfies the test, with the Exception Test not required for Option 3; for areas W17, E18 and E33.
- 1.1.41 Change 2 reduces post scheme flood risk in the area of Sunnica West B, to no change from existing flood risk. Cable routes will still pass through but will be buried.
- 1.1.42 The conclusions drawn from the FRA **[AS-007]** and FRA Addendum **[REP4-040]**, and associated mitigation, for Sunnica West Site A and Sunnica East Sites A and B remain, following Change 1 and Change 2.
- 1.1.43 The Drainage Strategy demonstrates the Scheme SuDS strategy remains compliant.
- 1.1.44 No additional mitigation is required as a result of Change 1 or Change 2.

Annexes

Annex A – Revised Scheme Parameter Plans



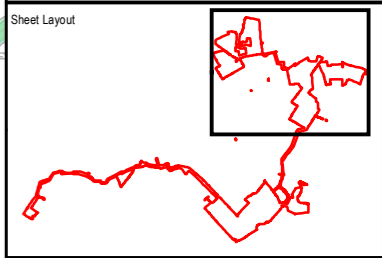
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- LEGEND**
- The Order Limits
 - BESS and Substation
 - Public Highway within Scheme
 - Illustrative Locations of Solar Stations
 - Developable Area
 - Boundary Fence
 - Compound Area (Permanent)
 - Potential Provision of Permissive Route
 - Proposed Road
 - Flood Zone 2
 - Flood Zone 3
- Green Infrastructure**
- Native Grassland Planting
 - Native Grassland Planting within Archaeological Mitigation Areas
 - Proposed Woodland (new planting or infilling of existing vegetation)
 - Proposed Hedgerow (new planting or infilling of existing vegetation)

Note: Developable fields previously referred to as E06, E07, E11 and E23 are no longer being developed with solar infrastructure and now form part of the mitigation strategy; however, the field numbering for the remaining developable fields has been retained for consistency.

Document Reference: EN010106/APP6.3
 APP6 Regulation: 5(2)(a)

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Drawing Title
**FIGURE 3-1
 SUNNICA EAST
 PARAMETER PLAN**

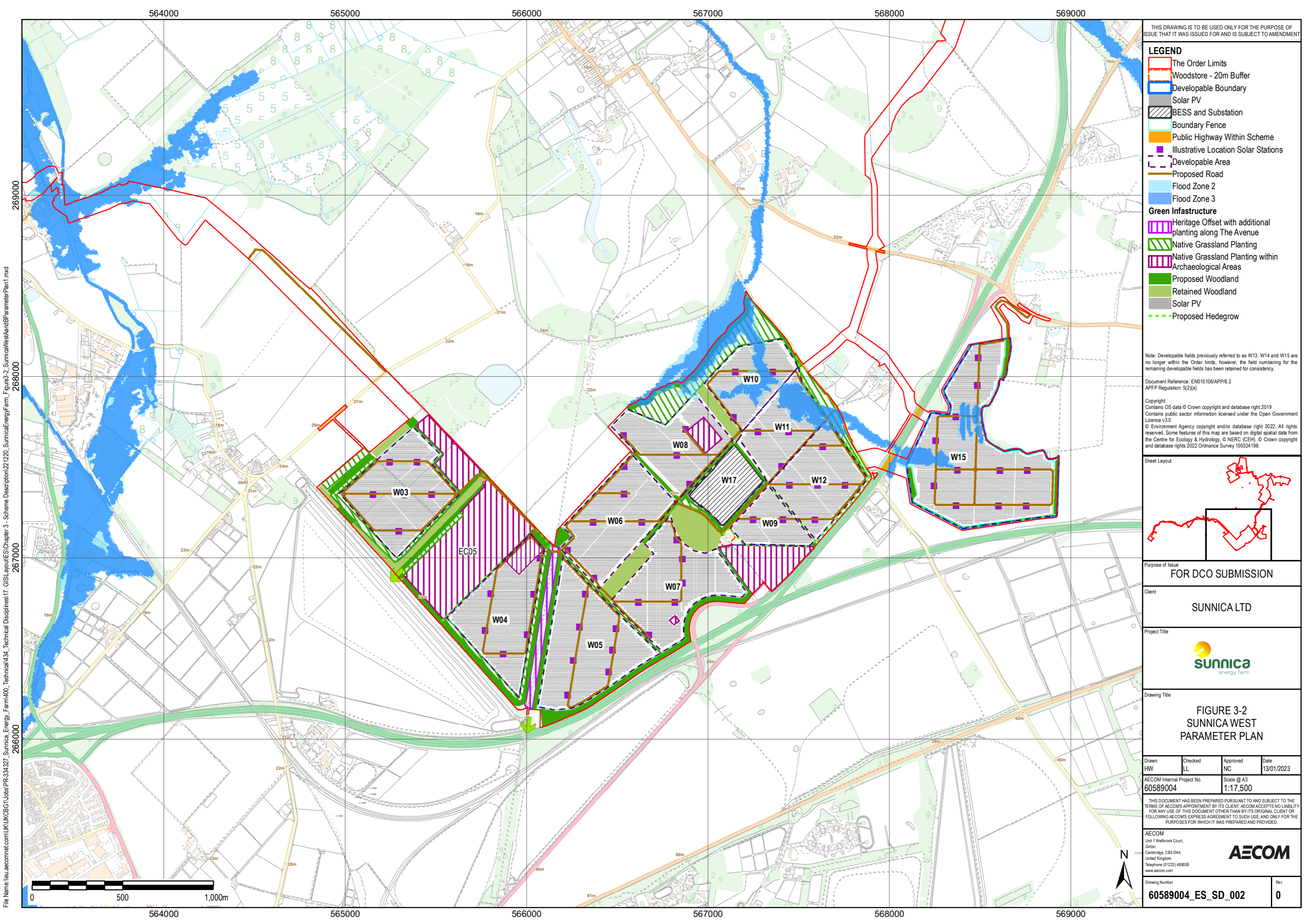
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LEGEND

- The Order Limits
- Woodstore - 20m Buffer
- Developable Boundary
- Solar PV
- BESS and Substation
- Boundary Fence
- Public Highway Within Scheme
- Illustrative Location Solar Stations
- Developable Area
- Proposed Road
- Flood Zone 2
- Flood Zone 3

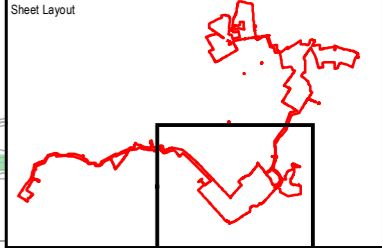
Green Infrastructure

- Heritage Offset with additional planting along The Avenue
- Native Grassland Planting
- Native Grassland Planting within Archaeological Areas
- Proposed Woodland
- Retained Woodland
- Solar PV
- Proposed Hedegrow

Note: Developable fields previously referred to as W13, W14 and W15 are no longer within the Order limits, however, the field numbering for the remaining developable fields has been retained for consistency.

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**FIGURE 3-2
SUNNICA WEST
PARAMETER PLAN**

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