

Proposed Solar Power Station on Land West of Boxted, Suffolk

Landscape & Visual Review

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GLEM VALLEY

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Note: appendices are available as separate documents

Appendix CT-1: Hereford and Worcester FRS response to BESS application

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Appendix CT-5: Notes from local residents on landscape value

Appendix CT-6: VPs and View Routes Plan

Appendix CT-7: SGV Visual Baseline Study: VP Locations (Map 1)

1 Introduction

1.1 Background

- 1.1.1 I am an independent chartered landscape architect specialising in landscape planning, with extensive experience in renewable energy developments. My relevant experience is set out below.
- 1.1.2 In September 2023, I was commissioned by a group of local residents (Save Glem Valley (SGV)), to carry out a review of landscape and visual matters in relation to a planning application (ref DC/23/05127) submitted to Babergh and Mid Suffolk District Councils (BMSDC / the Council) for what is described by the Applicant (RES Ltd) as the '*construction of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains*'.
- 1.1.3 The findings would be written up in a report and submitted to BMSDC as part of the community's response to the Application.
- 1.1.4 The main aim of my review was to determine whether the Applicant's submissions:
- identify and address the key issues;
 - provide sufficient information to ensure that informed judgements about effects can be made, and on which decision-makers can confidently rely; and
 - are likely to comply with the requirements of relevant planning policy and guidance.
- 1.1.5 In order to inform my review, I carried out an assessment of landscape and visual effects, following published guidance including the Landscape Institute (LI)'s *Guidance for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3)*. This was based on the information available and, where missing, on my own experience.
- 1.1.6 The first stage of the process involved gaining an understanding of the background to and nature of the proposals, and undertaking a preliminary review of the information submitted with the Application. This was followed by a desktop study of the existing baseline situation, and then visits to the site and surrounding areas, in order to verify and augment the findings. I also spoke to people from the local communities, contacted various bodies / organisations for clarification of certain matters, and collaborated closely with other experts who had been commissioned by local residents to review planning matters, ecology / biodiversity, and heritage, *inter alia*.
- 1.1.7 From these exercises, I gained a good understanding of the relevant issues, the landscape and visual receptors most likely to be affected by the proposals, and the nature, scale, and levels of the effects likely to arise. I then carried out a more in-depth review¹ and analysis of the Applicant's submission, and finally, compared the results of my own assessment with the Applicant's. This report sets out the findings.
- 1.1.8 In summary, I **agree** with some of the Applicant's findings and conclusions, but **disagree** with others, and have **several issues of concern**.
- 1.1.9 For example, I **agree** with the Applicant's Landscape and Visual Appraisal (LVA) that the landscapes within which the site lies are 'valued' landscapes in the context of National Planning Policy Framework (NPPF) para. 180 a)². I also agree with the LVA's conclusion that the proposed development would

¹ The review was based on the LI's Technical Guidance Note 1/20 (10 Jan 2020) *Reviewing Landscape and Visual Impact Assessments (LVIA's) and Landscape and Visual Appraisals (LVAs)*, and my own experience in such work.

² Note that since the Application was submitted, the NPPF has been revised (the July 2023 version was replaced in December 2023). December 2023 para. 180 replaces July 2023 para. 174, although there are no changes to the wording of the policy.

give rise to **Major Negative** effects on the landscape character of the site and its immediate surrounds, which are 'valued' landscapes, and **Major Negative** effects on certain 'valued' views.

1.1.10 However, and very importantly, **the reported findings are not reflected in the LVA's final conclusion**, which conveys a very different impression. It states, *'The proposed development has been designed in a manner which aims to be sympathetic to local character and has appropriate regard to its surrounding landscape setting. It also recognises the site's intrinsic character and that of the wider landscape whilst seeking to maintain local character... the development can be accommodated without undue harm to landscape and visual amenity'*.

1.1.11 **I fundamentally disagree with this assertion.**

1.1.12 My review also concluded that whilst the LVA used published guidance, the report did not always interpret it correctly, and contains errors, omissions, contradictions, and flawed assumptions. Also, the LVA did not consider the cause and nature of several of the effects likely to arise – a problem which occurs throughout the Applicant's submission.

1.1.13 As a result, not only have levels of effects on the wider landscapes and other views been underestimated, but so have levels of effects on Green Infrastructure (GI), heritage / historic landscape character, biodiversity, recreational resources, highway safety, soil, water and air quality, and human health and well-being.

1.1.14 My assessment concluded that as a whole, the Applicant's submission:

- a) **does not** identify or address many of the key issues;
- b) **does not** provide sufficient information to ensure that informed judgements about effects can be made, and on which decision-makers can confidently rely; and
- c) **would not** comply with the requirements of relevant planning policy and guidance.

1.2 Relevant Experience

1.2.1 I am a Chartered Member of the Landscape Institute (CMLI), a Fellow of the Royal Society of Arts (FRSA), and a Member of the International Association for Landscape Ecology (MIALE). I specialise in landscape, environmental and colour assessment; landscape planning; landscape history; masterplanning; and design. I work in the UK and overseas, and have done so for over 40 years. I am also a Design Council Expert, and an author.

1.2.2 I have been instrumental in the promotion of the landscape-led and iterative approach to development which has now been adopted by the LI, LPAs, and other bodies. I was a contributor to GLVIA1, and a reviewer of GLVIA3. I am a member of LI and Natural England working groups tasked with assessing the future of local landscape designations; updating current landscape and visual assessment guidance; producing technical guidance and information notes; and responding to consultations by government / other bodies (eg recently, revisions to National Policy Statements and the NPPF; the LI's Technical Guidance Note 02/21 *Assessing landscape value outside national designations*; the Government's *25 Year Environment Plan*; and the Agriculture Bill).

1.2.3 I have been responsible for the planning, design, co-ordination, management and implementation of many high-profile developments in the UK and overseas, working with architects such as Richard Rogers and Norman Foster. I have been involved with a wide range of development types, including residential, commercial, industrial, agricultural, recreational, historical and ecological; in the last three years, I have also been involved with many renewable energy (wind / solar) proposals in the UK, some of which are Nationally Significant Infrastructure Projects (NSIPs) currently undergoing examination.

1.2.4 I am regularly called as an expert witness for hearings and planning inquiries, giving evidence on behalf of appellants, defendants, and Rule 6 parties. I advise bodies responsible for National Parks / National Landscapes, and LPAs, producing guidance documents (I am currently advising a local

National Landscape partnership on solar development guidance), carrying out character, sensitivity, capacity and effects assessments, and reviewing planning applications. I also provide LVIA training for LPA and National Landscape officers, landscape practitioners and others.

- 1.2.5 Today, much of my work is in neighbourhood planning, helping communities develop a more in-depth and informed understanding of landscape and its value. In 2020, I was invited to speak about 'valued landscapes' at the Planning Inspectorate's Annual Training Event.

2 Key Issues Overview

2.1 Introduction

- 2.1.1 As there are so many different issues involved, for ease of reference, the first part of this section lists and summarises the general issues which relate to the Application as a whole. Where relevant, the issues are explained in more detail in Section 3.
- 2.1.2 The second part lists and summarises the issues which are of most relevance to the assessment of the landscape and visual effects that would, or are likely to, arise from the proposed development (these are expanded upon in Section 4). Other issues (or topics) are dealt with separately in the sections which follow (although there is often overlap between them).

2.2 General Issues

1) **Screening**

Due to the potential for it to give rise to significant environmental effects, solar development of the type and scale proposed falls within the category of Schedule 2 development under the Environmental Impact Assessment (EIA) Regulations, being described therein as '3. Energy (a) Industrial installations for the production of electricity, steam and hot water'. Having considered the information provided by the Applicant, BMSDC concluded that no 'significant' adverse environmental effects would arise, and therefore, an EIA was not required. However, the Applicant's LVA concluded – and I agree – that the proposed development would give rise to Major Negative effects on landscape character and visual amenity. Had this been the subject of EIA, that level would be categorised as 'significant'. My own assessment also concluded that there would be very high / potentially 'significant' levels of other environmental effects. See Section 3.2, and effects sections.

2) **Application Form**

Some of the responses given in the Application form are factually incorrect. See Section 3.3.

3) **Application Site Boundary**

For the majority of its length, the red line boundary follows existing field boundaries; however, the western section of the northern boundary is drawn along an arbitrary line, through an open field, resulting in disruption of traditional / historical landscape patterns. See effects sections. There is also a question about whether other land should have been included within the red line, in order to facilitate the required emergency access – see Section 3.4.

4) **Proposed Development**

The Applicant's submission does not adequately describe a) what is proposed, and b) the nature of the effects likely to arise. This means that effects arising from some of the proposed scheme elements have not been assessed, and / or, levels of adverse effects have been underestimated. See Section 3.5.

5) **Battery Energy Storage System**

The Application includes a battery energy storage system (BESS). Whilst the risk of an accident occurring may not be 'significant', the fact that there is a risk is important, because in the event of an accident or incident which results in the batteries catching fire / igniting / exploding,

there is the potential for significant widespread adverse effects on environmental and human health. See Section 3.6.

6) Temporary vs permanent

The Applicant describes and assesses the 40-year operational lifespan of the proposed development as 'temporary', whereas a) some scheme elements such as the substation may be permanent ie they may remain after the solar power station is decommissioned, and b) it is widely acknowledged that even developments proposed for much shorter periods of time should be assessed on the worst-case scenario basis of permanence. See Section 3.7.

7) Best and Most Versatile Land

The Applicant has not provided the required 'compelling evidence' to justify the 'necessary' use of so much Best and Most Versatile agricultural land for industrial purposes. See Section 3.8.

2.3 Applicant's LVA

1) Agreement / Disagreement: Overview

- a) The assessments **agree** that i) the landscapes within which the site lies are 'valued' in the context of NPPF para. 180 a); ii) the proposed development would give rise to Major Negative effects on the landscape character of the site and its immediate surrounds; and iii) the proposed development would give rise to Major Negative effects on certain views.
- b) There is, however, however, **disagreement** about other matters, and several issues of concern. For example, my review concluded that whilst the LVA used published guidance, the report did not always interpret it correctly, and contains errors, omissions, contradictions, and flawed assumptions. Also, the LVA did not consider the cause and nature of several of the effects likely to arise (a problem which occurs throughout the Applicant's submission).
- c) As a result, levels of effects on the wider landscapes, and certain views, have been underestimated – see other landscape-related issues below.

2) Study area boundary / Zone of Theoretical Visibility

The LVA's visual effects assessment was based on 3.5m high solar panels. However, some scheme elements would be much taller than this. Therefore, the extent of intervisibility between the site and the wider landscapes has been underestimated: a) levels of adverse visual effects within the 3km study area are likely to be higher than assumed; and b) adverse visual effects would extend further than assumed. See Section 4.2.

3) Landscape and visual sensitivity

The assessments **agree** that levels of landscape sensitivity are High, and that some visual receptors are also of High sensitivity. However, there is **disagreement** about other visual receptors' levels of sensitivity. See Section 4.3.

4) Mitigation and enhancement

It would not be possible to mitigate the majority of the adverse effects arising. The proposed development would not deliver any landscape or visual benefits or enhancements, and some of the proposed mitigating measures would give rise to adverse effects on both character and views. See Section 4.4.

5) Double-counting Mitigation As Enhancement

Because the LVA has erroneously assumed that landscape / visual mitigating measures can be double-counted as landscape / visual enhancements, it has overestimated levels of beneficial effects, and underestimated levels of adverse effects. See Section 4.5.

6) Adverse Effects of Proposed Mitigation Measures

Some of the proposed mitigating measures would disrupt the characteristic field pattern, and introduce uncharacteristic landscape features. See Section 4.6.

7) Reliance on Vegetation to Screen Views

The LVA over-relies on existing and proposed vegetation to screen views, which is another factor in the underestimation of levels of adverse visual effects. See Section 4.7.

2.4 Other Landscape-related Issues

1) Construction and decommissioning effects

Very limited information about the cause and nature of the effects likely to arise during construction and decommissioning were provided. My own assessment concluded that a) levels of many of the adverse landscape and visual effects could be extremely and unacceptably high, and b) some could be truly permanent. See Section 5.

2) Soils

The proposed development would give rise to adverse effects on soils which were not considered in the Applicant's studies, which have implications for landscape character, visual amenity, and biodiversity. Furthermore, there are problems with the proposals to establish species-rich wildflower meadow / pasture, and to graze sheep. See Section 6.

3) Effects on landscape character during operation

The assessments **agree** that due to the industrial nature and scale of the proposed development, and the highly sensitive landscape context within which it would be placed, the proposed development would give rise to Major Negative effects on the character of the site and its immediate surrounds, which are 'valued' landscapes. However, as noted above, there is disagreement about other matters: in particular, levels of effects on the wider landscapes have been underestimated – see Section 7.

4) Effects on views / visual amenity during operation

The assessments **agree** that as a result of the Major Negative effects on the 'valued' landscapes, there would also be Major Negative effects on certain 'valued' views. However, there is disagreement about levels of visual effects at some of the viewpoints, which my assessment concluded would be higher than reported due to flaws in the LVA process. See Section 8.

5) Effects on other amenity during operation

The proposed development would give rise to high levels of adverse effects on residential, social and recreational amenity. See Section 9.

6) Glint and glare

The Applicant's glint and glare study has considerably underestimated levels of adverse effects arising from glint and glare. It is based on flawed methods and assumptions, and the findings cannot be relied upon. See Section 10.

7) Security fencing

The proposed deer-proof fencing may not be adequate for security purposes. Solar crime is now a well-known phenomenon which is causing concern to solar developers, insurers, the Police, and LPAs. Suffolk Constabulary's response to the Application states, '*it would be preferred if such fencing met an attack rating equivalent to Security Rated (SR2) that can withstand at least 3 minutes of constant attack*'; however, these types of fences are highly industrialising, and give rise to adverse effects on landscape character and visual amenity. They can also have adverse implications for wildlife. See Section 11.

3 General Issues

3.1 Introduction

3.1.1 This section sets out the general issues which relate to the Application as a whole, augmenting the summaries provided in the previous section.

3.2 Screening

3.2.1 Para. 1.9 of the Applicant's Planning Statement explains that '*An EIA Screening Request was made under Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, to determine whether the proposals comprise an EIA development and whether an Environmental Statement is required. This submission was made in December 2022 (Reference DC/22/06236). The Screening Decision from Babergh and Mid Suffolk Councils outlined their opinion that an EIA Submission was not required (dated 21st December 2022)*'.

3.2.2 Whilst the Council concluded that '*the visual impact of the proposal is likely to be substantial*', it also decided that this would not be '*likely to result in significant environmental effects that warrant EIA*', and that visual effects could '*be appropriately and adequately achieved by means of the type of submission documents and consideration of a non-EIA application development process*'.

3.2.3 The LVA concluded that **effects on certain views during construction and at Year 1 would be Major Adverse**, and effects on other views would be **between Major and Major to Moderate Negative throughout the 40-year operational period** (see Table 2 - Summary of Visual Effects).

3.2.4 Most importantly, if the scheme had been the subject of an EIA – as in my opinion, it should have been – then '**Major**' and '**between Major and Major to Moderate Negative**' effects would **certainly be categorised as 'significant'** (as confirmed in LVAs carried out by the Applicant's landscape consultants: in fact, many practitioners state that a Moderate level '*can also be considered significant in some instances*').

3.2.5 In addition, the Applicant's LVA concluded that the proposed development would give rise to **Major Negative effects on the character of the site and its immediate surrounds throughout the 40-year operational period** (see Table 1 - Summary of Landscape Effects).

3.2.6 The Council's screening opinion letter also concluded that '*there is no indication that traffic effects would be significant in EIA terms*'; however, at the pre-application advice stage (November 2022), Suffolk County Council (SCC)'s Highways Department's consultation response stated that '**the impact during the construction phase would be significant**' (my emphasis).

3.2.7 As well as potentially 'significant' adverse effects on character and views, and highways, my own assessment concluded that there would be very high levels of adverse effects on social amenity, and potentially, on heritage and biodiversity, some of which may also be categorised as 'significant' in an EIA.

3.2.8 In my opinion, had the Council fully understood the nature and extent of the adverse effects likely to arise, and the severe implications of those which could potentially arise, they almost certainly would have asked for an EIA to be carried out.

3.2.9 Para. 1.10 of the Planning Statement goes on to say that '*For completeness, following the design iterations after the initial pre-application discussions, a further screening request was made in October 2023 (Reference DC/23/04690). At the point of submission, no response had been received by the Applicant. However, it is acknowledged that the validation process of this Application will require a screening exercise*'.

- 3.2.10 What Para. 1.10 does not explain is that the reason for the further screening request was due to the Applicant's belated decision to include BESS in the scheme.
- 3.2.11 The further screening request letter is dated the 4th of October 2023. It states, '*This request concerns a **minor** change to the proposed project description to include hybrid battery energy storage units at each inverter location... It is our view therefore that the characteristics of any impacts from the proposed solar development would not justify the submission of an EIA in terms of the generation of significant effects*' (my emphasis).
- 3.2.12 The Council's response was provided in a letter dated the 3rd of November 2023. Their opinion was that '*This additional infrastructure is not considered to significantly impact the screening opinion of the site, considering the character of the development... The risk of accidents arising from the technology and the operation of the development is not considered to be significant*'.
- 3.2.13 The Council did not reconsult about the proposed amendment.
- 3.2.14 The addition of the BESS may be relatively 'minor' in terms of the amount of new development added to the scheme (albeit the BESS would be housed in a total of twelve units which are the size of shipping containers, thus increasing levels of visual effects), and the risk of an accident occurring may not be 'significant'. However, the fact that there is a risk is important, because in the event of an accident or incident which results in the batteries catching fire / igniting / exploding, **there is the potential for significant and widespread adverse effects on environmental and human health**. This is explained further in Section 3.6 below.

3.3 Application Form

- 3.3.1 Some of the responses given on the Application form are factually incorrect.
- i) In response to the question *Is your proposal within 20 metres of a watercourse (e.g. river, stream or beck)?*, the Applicant answers **No**. However, the eastern section of the site's northern boundary is just **18m from the River Glem**. Also, a small watercourse which is a tributary of the River Glem crosses the site – see Section 3.5.
 - ii) The Applicant also answers **No** to the question *Does this proposal involve the carrying out of industrial or commercial activities and processes?* However, as explained above, solar power stations are categorised as Schedule 2 development under the EIA Regulations, being '**Industrial installations** for the production of electricity, steam and hot water' (my emphasis), and presumably, this is a 'commercial' activity / process?
 - iii) In addition, the Applicant answers **No** to the question *Does the proposal involve the use or storage of Hazardous Substances?* However, **the proposal involves the storage of lithium-ion batteries**. Firstly, lithium is toxic, as are the other metals they contain, such as cobalt, nickel, and manganese. For transportation purposes, the UN categorises all lithium batteries as Class 9 — miscellaneous dangerous substances and articles. Secondly, if the batteries ignite / catch fire, they release clouds / plumes of highly toxic gases. See Section 3.5.

3.4 Application Site Boundary

- 3.4.1 For the majority of its length, the red line boundary follows existing field boundaries; however, the western section of the northern boundary is drawn along an arbitrary line, through an open field. This would result in the disruption of traditional / historical landscape patterns (see effects sections).
- 3.4.2 There is also a question about whether other land should have been included within the red line, in order to facilitate the required emergency access – see Section 3.5.

3.5 Proposed Development

- 3.5.1 The Application is for the 'Construction of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains'.
- 3.5.2 The energy export capacity is stated as being 20 Megawatts (MW).
- 3.5.3 According to the Application form, the site area is c. 43.7 hectares (ha), although different site areas are given elsewhere (para. 1.4 of the Flood Risk Assessment and Surface Water Drainage Strategy (FRA) states that '*The site is approximately 58.3ha in area*'; the further screening opinion request letter said the area was 46.6ha).
- 3.5.4 As an aside, the proposed development is described throughout as a solar 'farm'. In my opinion, the common use of the term '**farm**' to describe solar power stations is disingenuous, as **the use is not agricultural**. As noted previously, solar power stations are categorised as Schedule 2 development under the EIA Regulations, being '**Industrial installations** for the production of electricity, steam and hot water' (my emphasis).
- 3.5.5 Also, the development is described, and effects assessed as, 'temporary'. This matter is dealt with in Section 3.7.
- 3.5.6 My main concern is that the Applicant's submission does not adequately describe a) what is proposed, and b) the nature of the effects likely to arise. This means that effects arising from some of the proposed scheme elements have not been assessed, and / or, levels of adverse effects have been underestimated (explained further in the effects sections below). Thus, in my opinion, **the Applicant's assessments of effects cannot be relied upon**.
- 3.5.7 One example of this is the height of some of the scheme elements. At para. 3.8, the DAS states that '*All of the plant buildings on site will be at or below single storey level (i.e. approximately at or below 3m in height)*', and the visual effects assessment was based on 3.5m high solar panels. However:
- i) Due to the risk of surface water flooding, in some areas, the panels may have to be (up to 300-600mm?) higher than 3.5m – see FRA para. 5.11.
 - ii) The substation buildings would be c. 4.2m high, and within the complex there would be a 5.2m high pole-mounted satellite dish, and floodlights / CCTV cameras on columns.
 - iii) Para. 2.2 of the Planning Statement explains that the electricity would be exported to the existing overhead line to the distribution networks via a Point of Connection (PoC)³ mast. I was not able to find any information about the precise location of the mast, nor its height, nor its design, so **clarification of this is required**. However, it is likely that the POC mast would be the same height as the wooden telegraph pole to which it would connect, which I estimate to be c. 9m tall.
- 3.5.8 Regarding the choice of this site for this development, the matter is dealt with in detail elsewhere in SGV's response, but from a landscape and visual perspective alone, it is surprising that the land was considered suitable. The effects that would arise are explained in the following sections, but in summary, even without the benefit of a technical assessment it is evident that **the industrial nature and scale of what is proposed would be entirely inappropriate within, and in conflict with, the prevailing character of these landscapes, which are ancient, deeply rural, highly tranquil, and very beautiful**.
- 3.5.9 It is also surprising that preference was given to land which is a) in productive arable use, and partly categorised as Best and Most Versatile (see Section 3.8); b) quite steeply-sloping (c. 1:8 in parts); c) on north / north east-facing slopes; and d) partially-shaded by mature vegetation (see efficiency in Section 3.8).

³ <https://www.bpienergy.com/products/poc-mast>

- 3.5.10 Para. 2.10.19 of National Policy Statement (NPS)⁴ EN-3 notes that '*Irradiance will be a key consideration for the applicant in identifying a potential site as the amount of electricity generated on site is directly affected by irradiance levels. Irradiance of a site will in turn be affected by surrounding topography, with **an uncovered or exposed site of good elevation and favourable south-facing aspect more likely to increase year-round irradiance levels. This in turn affects the carbon emission savings and the commercial viability of the site***' (my emphasis).
- 3.5.11 Para. 2.10.62 of EN-3 explains that '*In terms of design and layout, applicants may favour a south-facing arrangement of panels to maximise output although other orientations may be chosen. For example, an east-west layout, whilst likely to result in reduced output compared to south-facing panels on a panel-by-panel basis, may allow for a greater density of panels to compensate and therefore for generation to be spread more evenly throughout the day*'.

Site access

- 3.5.12 The route which construction traffic would take to get to the site from the principal highway network is described in Section 5, along with the likely effects. In summary, there are several constraints to HGVs using this part of the construction route (and there may be a requirement for very large vehicles), which could not get to the site without a) causing damage to / loss of landscape features, and damage to structures such as bridges and walls, and / or b) requiring highway / other works to accommodate construction vehicles. There is also likely to be conflict between construction traffic and people who use the roads for other purposes.
- 3.5.13 Regarding access into the site, DAS para. 4.1 states that '*Construction access will be provided from Braggons Hill in the location of the existing agricultural access, to be upgraded and widened at the entrance to accommodate two-way traffic*'. The same access would be used during operation and decommissioning.
- 3.5.14 Although limited information / detail is provided, and in the LVA, landscape and visual effects at this point were not specifically assessed (or at least, were not reported), it appears that the proposed site access would require the loss of high-value mature vegetation, and the introduction of long lengths (up to 30m for visibility splays?) of tarmac / other hard surfacing; concrete kerbs; metal gates and fencing; warning signs; CCTV; and other urbanising / industrialising elements, into what is currently a very beautiful, tranquil and historically important area (see effects sections).
- 3.5.15 Incidentally, I note that FRA para. 5.31 states that '*Access to the proposed solar farm will be via Home Farm Cottages, off Braggon's Hill to the south of the site*'; however, I assume this is an error, probably unchanged from the pre-application stage when for some reason, the red line site boundary did indeed extend up the lane to Home Farm Cottages.

Emergency Access

- 3.5.16 Para. 4.5 of the Design & Access Statement says that '*During the operational phase of the Proposed Development, an alternative site access for emergency use has been discussed with the Local Authority, and as such will be taken via Moorhouse Farm*'.
- 3.5.17 I was unable to ascertain a) the reason for the requirement for an alternative emergency access, and b) its location. **This requires clarification:** a) it should be included within the red line boundary, along with the required section of the Moorhouse Farm access road; b) details should be provided, with any loss of vegetation noted; and c) effects should be assessed.

⁴ 1st ref NPS The NPSs for the delivery of major energy infrastructure were published in 2011, and are a material consideration in the determination of planning proposals for renewable energy. The NPSs recognise that large-scale energy-generating projects will inevitably have adverse effects, particularly where sited in rural areas. In November 2023, draft updates to the Overarching National Policy Statement for Energy (EN-1) and the National Policy Statement for Renewable Energy Infrastructure (EN-3) were published. In January 2024, EN-3 came into force. **Both the existing and proposed NPSs state that the NPSs can be a material consideration in decision-making on applications that both exceed or sit under the thresholds for nationally-significant projects.** |

- 3.5.18 Also, clarification should be provided about how the use of the access road / access point would be restricted to emergency-only, since the existing access road is unlikely to be suitable for 'abnormal' construction / operational purposes.

Other project matters

- 3.5.19 Other project matters which are of relevance to the assessment of landscape, visual and other effects include the following (further information is provided in the effects sections where relevant):
- i) The perimeter of the site is c. 4km in length. The length of the proposed security fencing would be slightly less (c. 3.5 lin km), as in certain places there would be a buffer zone between the fence and the site boundary.
 - ii) As well as the solar arrays and the substations, scattered throughout the site at six different locations on level concrete foundations, there would be a total of 6 no. inverter units (each inverter being c. 3m wide x 5m long x 3m high); 12 no. BESS units (modified shipping containers, each 12.1m long x 2.4m wide x 2.9m high, two per station); and 24 no. DC converter cabinets (c. 1.2m wide x 1.8m long x 2.3m high, four per station).
 - iii) No mention is made of storage containers for maintenance / other equipment, although these are also usually required.
 - iv) DAS para. 3.31 states that *'the inverters are housed in prefabricated metal containers, finished in either a grey or white colour'*. The battery storage containers would also be white or grey. White / pale grey features would be highly visible (due to the contrast drawing the eye): instead, the finish should be dark (ideally, grey, brown or blue – green is surprisingly difficult to integrate into landscapes).
 - v) Due to the sloping nature of the site, extensive engineering works would be required to achieve the flat platforms needed for the substation complex and the above units / containers. Very limited information is provided about this: **the LPA should ask the Applicant to submit detailed drawings.**
 - vi) The substation complex is c. 37m long x 30m wide (1110m²). The hardstanding area required for each of the six unit stations is c. 27m long x 22.5m wide (total 3645m²).
 - vii) Internal access tracks would be *'4m wide and made of gravel over a crushed rock capping'* with a 250mm wide shoulder on either side (the typical track section also includes an adjacent drainage swale). The total length of the internal access tracks is c. 1835m, so the total area of surfacing would be c. 8250m².
 - viii) **The total amount of hardstanding / hard surfacing across the site would be c. 1.3ha.**
 - ix) In addition to the engineering works and hardstanding / surfacing, FRA paras. 7.16 - 18 explain that *'It is proposed to manage surface water runoff from the proposed impermeable areas on site (as detailed above) with a series of gravel trenches. For each of the individual inverters and battery storage areas... a 66m long infiltration trench is proposed to wrap around the proposed infrastructure... An infiltration trench width of 1.1m and depth of 1.0m is required to manage surface water runoff from the storage areas... It is also proposed to locate an infiltration trench just outside the substation footprint... a gravel trench 101.8m long, 2.2m wide and 1.6m deep is required'*.
 - x) LVA para. 6.17 states, *'Located to the south of the River Glem in the valley bottom to the north, there are no tributaries, watercourses or drainage features within the site and therefore there would be no effects on watercourses or drainage features as a result of the proposed development'* (my emphases). However, **that statement is factually incorrect** (and an example of the lack of cross-referencing between topics which is evident throughout the submission).

- xi) Para. 2.8 of the FRA confirms that '*There are several Ordinary Watercourses flowing through the site. These are generally field boundary ditches assumed to assist with the drainage of the existing agricultural fields*'. The locations of the watercourses are shown on FRA Figure 2.2.
- xii) However, **the FRA does not appear to include the watercourse running through the northern part of the site which is a tributary of the Glem River.**
- xiii) Although I did not visit this area as it is private land, the watercourse appears to rise at the south-western end of Dripping Pan Wood⁵, flowing through it in an open channel but 'disappearing' at the Wood's north-western end. Although it is underground, the contours indicate that from the Wood, the watercourse flows north-eastwards through the middle of Field 1 (the Applicant's field-numbering system is shown on Figure 3: Field Numbers), and discharges into the River Glem at a point halfway along the Moorhouse Farm access road (under which it may be culverted).
- xiv) The line of the watercourse can be seen on FRA Figure 5.2, which shows the indicative surface water flows across the site. In fact, all water flowing through / over the land ends up in the Glem.
- xv) At para. 2.14, the FRA explains that '*The hydrogeology aquifer classification defines most of the site as a 'highly productive aquifer', with the southwestern corner being defined as a 'moderately productive aquifer*'.'
- xvi) The majority of the site is within Flood Zone 1, with a small part in Flood Zone 2, at the north-easternmost corner, where Zone 2 crosses the access road to Moorhouse Farm. Although the Application states that no development is proposed within the Zone 2 part of the site, it appears that the proposed emergency access would use the access road to the Farm.
- xvii) The northern edge of the access road forms the boundary between Flood Zones 2 and 3, with Zone 3 along the length of the Glem River valley. The majority of the section of Tittle Hall Lane which runs between the B1066 and the eastern end of the Moorhouse Farm access road is in Zone 3 – see construction route in Section 5.
- xviii) FRA para 5.24 states that '*A series of land drains are located beneath the site*'.'
- xix) Rather worryingly, FRA paras. 7.8 – 9 explain that '***infiltration testing on site has not been conducted***, [therefore] *the proposed drainage strategy is based on an **estimated** infiltration rate... If infiltration testing is complete during detailed design, the proposed drainage strategy should be updated to reflect the calculated infiltration rates on site or indeed, to **direct surface water runoff to a surface water body** or sewer network **should infiltration prove unviable on site**' (my emphases). Evidently, the landscape, visual and other effects of such works have not been assessed.*
- xx) Currently, the proposal is to manage surface water runoff from the hardstanding areas through an infiltration-based Sustainable Drainage System (SuDS), comprising the infiltration trenches described above.
- xxi) What does not appear to have been considered in the FRA or elsewhere is that all the watercourses run into the River Glem immediately upstream of Boxted, and the valley around Boxted is already prone to regular flooding. If there is an increase in run-off at times of heavy rain, such that drainage becomes overwhelmed, it could result in damage to buildings in Boxted (including Grade-II listed Boxted Hall and local residents). **This matter requires further assessment.**

⁵ Not categorised as ASNW, but despite it evidently having been replanted in the past, the Ecological Assessment found several ancient woodland indicators there. It is also a designated County Wildlife Site (CWS).

- xxii) Elsewhere, paras. 6.12 and 6.14 of the FRA explain that *'It is also recommended that following installation of the panels, the site is chisel-ploughed or similarly cultivated and seeded with native meadow grass and wildflowers. Chisel-ploughing will reduce soil compaction on the site and promote seed growth; it has been proven to significantly increase infiltration rates thereby reducing runoff rates from the site... Additionally, longer meadow type grasses and wildflower vegetation provide high levels of natural attenuation which will serve to reduce the risks of erosion and limit surface water flows across the site'*.
- xxiii) In fact, the proposal is indeed to establish a sward of *native meadow grass and wildflowers*, as confirmed variously in the DAS (*'Species rich grassland is proposed on the land beneath and surrounding the panels'*); the Planning Statement (the proposal includes *'sheep grazing on species-rich neutral grassland'*); the Ecological Assessment (*'The following biodiversity enhancements are integral to the proposal: ... Planting of native, species rich grass and flower mixes'*).
- xxiv) The LVA report does not appear to mention the proposed grass sward at all, although the Landscape Masterplan (drawing no. P21-2960_EN_004) shows the proposed grass / wildflower seed mixtures. These matters are discussed in Section 6 (Soils).
- xxv) Figure 4 Infrastructure Layout shows that a crossing over an existing ditch would have to be 'upgraded', and two new ditch crossings would have to be created. I could find no other reference to these. **Clarification of this should be provided:** what is the nature of the works? Have environmental effects been assessed? Would the crossings remain in place post-operation?
- 3.5.20 Where relevant, scheme elements and activities, and the nature of the effects arising, are described in more detail in the following sections.

Public consultation

- 3.5.21 Finally, a note about public consultation.
- 3.5.22 DAS para. 3.2 states that *'An important factor in finalising the proposals has been consultation with the community and local stakeholders'*. Para. 3.8 of the Applicant's Statement of Community Involvement (SCI) states, *'the Applicant recognises that local people can make a valuable contribution to the proposals by offering their local knowledge and raising issues that may not have been considered by the project team, in many cases resulting in a stronger proposal'*.
- 3.5.23 I entirely agree that consultation with local communities is not only important, but also potentially very valuable. Indeed, this is confirmed in GLVIA3, at paras. 3.42 – 45: *'Consultation is an important part of the LVIA process... It can be a valuable tool... can highlight local interests and values which may otherwise be overlooked... can also make a real contribution to scheme design... Well-organised and timely public consultation... can bring benefits to a project, including an improved understanding of what is proposed and access to environmental information that might otherwise not have been available to the assessment. This can be of benefit to LVIA in providing better understanding of the landscape and local attitudes to it... will improve the quality of the information...'*.
- 3.5.24 However, according to local residents, **very little meaningful or productive public consultation has taken place.**
- 3.5.25 On the 30th of December 2022, the Applicant circulated a 'flyer' / 'newsletter' to local residents, which briefly described the proposals. Most did not receive this, or were not aware of it, until early January.
- 3.5.26 The Applicant stated that a public exhibition would be held on the 11th of January 2023, just a few days later, which is very short notice. Exhibition boards were set up, but according to some who attended, instead of questions being directly answered by the Applicant's representatives, people were asked to fill in a questionnaire and make comments there. Whilst the SCI report sets out the

questions and comments, and provides responses, there appears to be more emphasis on the principle of solar development generally, and very little at all about site-specific matters that might have informed the Applicant's effects assessments, and design, and proposed mitigation / enhancement measures.

- 3.5.27 Local residents were only notified that BESS would be added to the scheme in October 2023, immediately before the Application was submitted. Thus, there was no opportunity for the community to comment on this aspect of the scheme, which is of particular concern given the potential risks (see next section). In fact, no meaningful consultation or engagement at all was carried out after the public exhibition held, at short notice, in January.
- 3.5.28 In November 2023, soon after the Application was submitted, the Applicant issued another 'newsletter'. This version explained that as part of the consultation process, the local community had been asked *'for feedback and ideas on priority projects and aims in their area, which may be able to be supported as part of the proposal. Suggestions to date include essential funding for Boxted Church, Boxted Green improvements and a community orchard'*.
- 3.5.29 I could not find any reference to or details of these suggested projects in the SCI / other submitted documents, and as far as I could ascertain, they have not been included in the Application. It is not clear how the Applicant proposes for them to *'be supported as part of the proposal'* at this stage in the process. Also, my understanding is that these projects were not suggested by local residents, and that *'essential funding for Boxted Church'* is likely to be of more benefit to the Applicant than the local community, since the Applicant owns the Church. It is not known where the 'community' orchard would be located, but apparently, that could also be on the Applicant's land. **This matter requires clarification.**

3.6 Battery Energy Storage System

- 3.6.1 The proposed development includes a BESS. A total of 12 no. BESS units would be required: these would be scattered throughout the site at six different locations (two per station), alongside inverter units and DC converter cabinets, and would be housed in modified shipping containers, each 12.1m wide x 2.4m wide x 2.9m high, either white or grey.
- 3.6.2 The purpose of BESS is to store surplus / excess solar power that would otherwise be wasted.
- 3.6.3 Usually, lithium-ion solar batteries are used for this purpose, being a rechargeable energy storage solution which can be paired with the solar energy system to store surplus power (lithium-ion batteries are commonly used in rechargeable electronic devices such as mobile phones, and in electric vehicles (EVs)). As mentioned above, lithium is toxic, as are the other metals they contain, such as cobalt, nickel, and manganese.
- 3.6.4 Lithium-ion batteries can be extremely dangerous. Sometimes, they short-circuit, resulting in fire. They are also prone to 'thermal runaway', which means that if the internal circuitry is compromised, an increase in internal temperature can occur. At a certain temperature, the battery cells begin to vent hot gasses, in turn increasing the temperature in neighbouring cells. Ultimately, this will lead to ignition, and fire. Even a relatively small incident can lead to an uncontrollable fire. As such, large quantities of batteries pose a significant safety risk, which is why lithium batteries are considered hazardous materials / dangerous goods, and must be handled, stored and transported accordingly (for transportation purposes, the UN categorises all lithium batteries as Class 9 — miscellaneous dangerous substances and articles).
- 3.6.5 It is now well-known⁶ that **lithium-ion battery incidents which occur at scale can be**

⁶ See for example *Safety of Grid Scale Lithium-ion Battery Energy Storage Systems* (5th June 2021) by Eurlng Dr Edmund Fordham MA PhD CPhys CEng FInstP, Fellow of the Institute of Physics; Dr Wade Allison MA DPhil Professor of Physics, Fellow of Keble College, Oxford University; and Professor Sir David Melville CBE FInstP Professor of Physics, former Vice-Chancellor, University of Kent

- catastrophic**, resulting in the combustion of nearby structures, explosion, and the release of highly toxic clouds / plumes containing gases such as Hydrogen Fluoride (HF) and highly inflammable gases including Hydrogen (H₂), Methane (CH₄), Ethylene (C₂H₄) and Carbon Monoxide (CO). These in turn may cause further explosions or fires upon ignition. The chemical energy then released can be up to twenty times the stored electrochemical energy.
- 3.6.6 In fact, BESS thermal runaway events are not 'fires' in the traditional sense of the word, but self-sustaining chemical reactions that have gone out of control. They pose a unique threat to firefighters: because the fires are chemically-driven, requiring no external oxygen, they cannot be extinguished by traditional methods. Vast amounts of water are needed over many days due to the risk of reignition. The water used to extinguish a fire inevitably becomes contaminated with toxic chemicals (such as highly corrosive hydrofluoric acid, and copper oxide), which may drain into surrounding areas / watercourses.
- 3.6.7 Such incidents are therefore highly likely to cause **widespread, major damage to health, life, property and the environment**.
- 3.6.8 In recognition of the above problems and risks, in November 2022, the National Fire Chiefs Council (NFCC) published *Grid Scale Battery Energy Storage System planning – Guidance for FRS* [Fire and Rescue Services]⁷. The guidance is '*based on trying to help reduce the risk as far as reasonably practicable, whilst recognising that ultimate responsibility for the safe design and running of these facilities rests with the operator*'.
- 3.6.9 Indeed, DEFRA is planning to bring BESS into the environmental permitting regime, and there is a Bill, which has had its first reading in the House of Commons⁸, to *make local fire services statutory consultees for industrial lithium-ion battery storage planning permission applications; to make provision about the granting of environmental permits for industrial lithium-ion battery storage; and for connected purposes*.
- 3.6.10 In a letter dated the 18th of September 2023, Rachel Maclean MP wrote to a parish councillor in Worcestershire, who had expressed concern about an application for BESS, as follows:
- 'I've listened and acted on [residents'] concerns, delivering strengthened planning guidance and conditions to ensure public safety.*
- 'I can confirm that regulations for industrial lithium-ion batteries will be updated to more properly take into account potential fire hazards. These facilities will now require an industrial installations permit.*
- 'Planning guidance has also been strengthened and it now encourages battery storage developers to engage with local fire and rescue and local planning authorities to refer to the guidance published by the National Fire Chiefs Council'.*
- 3.6.11 In response to an application which included BESS (W/23/00270/FUL, response dated 31st July 2023, see Appendix CT-1), Hereford and Worcester Fire and Rescue (HWFR) Service referred to the NFCC guidance.
- 3.6.12 They stated (my emphases throughout) that '*If we were to let [a fire] burn, **there would be a significant impact on the surrounding communities which would all be significantly impacted from the vapour / smoke plume for at least 24-48 hours, and therefore recommend that the Planning Authority consider this potential impact***'.
- 3.6.13 As a result, '*a comprehensive risk management process must be undertaken by operators to identify hazards and risks specific to the facility and develop, implement, maintain and review risk controls*'. This should include '**impact on surrounding communities, buildings, and infrastructure**'. Also,

⁷ <https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf>

⁸ <https://bills.parliament.uk/bills/3336>

'water run-off and potential impact on the environment, along with mitigation measures, should be considered and detailed'.

- 3.6.14 In addition, ***'the Environment Agency and Severn Trent may need to consider the impact of run-off in to local water courses'***.
- 3.6.15 Regarding the Application which is the subject of this review, DAS paras. 3.45 – 46 acknowledge, and briefly summarise, *'the fire risk associated with Lithium-ion battery technology'*, and set out the proposed (*'significant'*) risk control measures. However, in my opinion, **the measures are insufficient**, and do not comply with the NFCC *Guidance for FRS* referred to above (and which is not mentioned in the DAS / elsewhere as far as I can see).
- 3.6.16 I question the statement in the first bullet point at para. 3.46, which states that *'Battery technology must pass an industry test standard (U L9540A) which ensures there is no likelihood of explosion'* (my emphasis).
- 3.6.17 I note that *'The goal of UL 9540A testing is to better understand what happens when a battery goes into thermal runaway'*⁹. In fact, the UL 9540A Test Method only **reduces** the likelihood of explosion: *'The UL 9540A Test Method, the ANSI/CAN/UL Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, helps identify potential hazards and vulnerabilities in energy storage systems, enabling manufacturers to make necessary design modifications to improve safety and reduce risks'*¹⁰ (my emphasis).
- 3.6.18 Also, the proposed fire suppression systems may not kick in due to the nature of the ignition, as happened at a 20MW solar site in Liverpool in 2020; at the same site, the 24/7 remote monitoring missed the incident – the FRS was alerted by local residents. In addition, fire ratings and fire management plans are useful, but the main problems are dealing with the effects of explosion, especially emission of toxic gases and pollution of water / soil.
- 3.6.19 The response to the Application from Suffolk FRS (letter dated 20th November 2023) explains many of the above issues, and sets out project-specific comments and concerns. For example, the response states that in order to establish whether the risks have been satisfactorily mitigated, **the Applicant will have to provide additional material**. For example, **an assessment should be carried out of 'Environmental impact' which 'should include the prevention of ground contamination, water course pollution, and the release of toxic gases'**.
- 3.6.20 Another important point to note is that as far as I am aware, currently, lithium-ion battery units of the type that are likely to be used at the Application site have a lifetime of about eight years. Therefore, **the 12 no. units proposed at the Application site would need replacing up to five times during the 40-year operational period**. Each container weighs around 19 tons. Thus the proposed development would generate around 22,800 tons of heavy-duty industrial waste, including 5,000 tons of toxic lithium chemicals.

3.7 Temporary vs Permanent

- 3.7.1 The Applicant describes and assesses the 40-year operational lifespan of the proposed development as 'temporary' (eg DAS para. 1.3: *'Planning Permission is sought for a temporary period of 40 years from the date of first exportation of electricity from the Site'*).

⁹ <https://blog.fluenceenergy.com/battery-energy-storage-product-fire-safety-testing>

¹⁰ <https://www.swri.org/industry/battery-testing-research/ul-9540a-testing-battery-energy-storage-systems>

- 3.7.2 However, firstly, a Distribution Network Operator¹¹ (DNO) substation is proposed within the site: this would connect the electricity generated by the solar power station to the National Grid (NG), via connection cables and a POC mast.
- 3.7.3 The infrastructure is owned and maintained by the DNO. However, it is not clear whether the substation would be a truly permanent fixture in that it would remain in place at the end of the 40-year operational period – as is the case at many other solar developments. Therefore, **clarification is required about whether the proposed DNO substation complex and associated cabling, access and other elements¹² would be removed during the decommissioning phase.** If not, then **effects should be reassessed on that basis.**
- 3.7.4 Secondly, whether or not the proposed substation would be truly permanent, the 40-year timespan of the solar power station would **certainly be permanent in terms of some people's life expectancies.** Indeed, this has been recognised by decision-makers for some time.
- 3.7.5 In 2015, an appeal decision letter (DL) was issued relating to a proposed solar development (APP/M2270/A/14/2226557) which would have had a lifespan of twenty-five years. The appeal was recovered for the Secretary of State (SoS)'s determination. The SoS agreed with the Inspector's analysis and conclusions, and with his recommendation.
- 3.7.6 Para. 24 of the DL states that the SoS *'disagrees... that the temporary nature of the proposal is relevant insofar as the effects of the scheme, both positive and negative, would endure for a limited period. The Secretary of State takes the view that 25 years is a considerable period of time and the reversibility of the proposal is not a matter he has taken into account in his consideration of whether the scheme should go ahead'* (my emphases).
- 3.7.7 Similarly, a 2016 solar appeal (APP/B9506/W/15/3006387) relating to a scheme with a lifespan of thirty years was recovered for the SoS's determination. The Inspector recommended that the appeal be allowed, but the SoS disagreed with the Inspector's recommendation, and dismissed the appeal.
- 3.7.8 Para. 18 of the DL states, *'The Secretary of State takes the view that 30 years is a considerable period of time and the reversibility of the proposal is not a matter to which he has given any weight. He considers that a period of 30 years would not be perceived by those who frequent the area as being temporary and that the harmful effect on the landscape would prevail for far too long'* (my emphases).
- 3.7.9 In a more recent DL relating to a solar development appeal (APP/M1005/W/22/3299953), at para. 60, the Inspector said, *'I consider that 40 years is a very significant period in people's lives during which the development would seriously detract from landscape character and visual amenity'* (my emphasis). The appeal was dismissed.
- 3.7.10 It should also be noted that in **case law**, even a marquee erected for a period of eight months, and the presence of polytunnels in the landscape for nine months, were deemed to be permanent.
- 3.7.11 Many experts now agree that applications for solar power stations *should* be assessed as 'permanent', as that represents the 'worst-case scenario' which should be adopted as best practice. It appears that solar developers are increasingly aware of this. A recent example from an ES for a proposed solar development (NSIP) with which I am involved states, *'The operational life of the*

¹¹ DNOs are licensed companies that own, control and operate the electricity distribution network. The National Grid runs the transmission network (in England and Wales), and owns large substations (where 275kV and 400kV overhead power lines or underground cables are switched and where electricity is transformed for distribution to surrounding areas – they also own the associated pylons); smaller substations (and pylons) are owned and maintained by the local distribution networks (there are six DNOs in England). Normally, DNO substations are designed and built by Independent Connection Providers (IPCs) on behalf of the DNO, to their specification.

¹² *National Grid Electricity Distribution 132kV Outdoor Metered Connections – Guidance For Substation Designers Version 10* (May 2022) states, *'At locations where WPD will have a separate substation area (typically a fenced off compound for 33kV, 66kV and 132kV substations) we will require the Freehold or long term Leasehold of the site (including control room/switchroom buildings), along with suitable access rights for vehicles and equipment to the site from the adjoining land'*.

*Proposed Development is not proposed to be specified in the DCO and **the Applicant is not seeking a time limited consent**. The EIA has been carried out on the basis that the Proposed Development is **permanent**, to ensure a **worst-case assessment** of likely significant effects'* (my emphases).

- 3.7.12 In addition to the above, the land would be taken out of agricultural use, and would be developed for industrial use. DAS para. 3.24 states that '*At end of the 40-year period the land is not considered 'Brownfield' or Previously Developed Land*'; however, I am not aware of any reasons why it would not be categorised as Previously Developed Land (PDL). Thus, there may be no barrier to future applications for either continuation of the current use, or the establishment of a different form of development on the land. Even if not categorised as PDL, the principle of development on the site would have been established. Presumably, in future, this would make it easier to obtain a further 'temporary' permission (permission for solar development does not expire, unlike other temporary developments such as mineral extraction) for solar or other industrial use.
- 3.7.13 For that reason, and given the emphasis placed by the Applicant on the importance of the land being restored to its current agricultural use and condition post-operation, it may be advisable to impose a condition that **requires** the restoration of the land after 40 years of the 'temporary' use (but excluding the DNO substation and associated elements if they are truly permanent).
- 3.7.14 The condition might also state that if the solar arrays (as a whole, not individual panels) reach the end of their productive lifetime within the 40-year period (the lifespan of ground-mounted solar panels typically ranges from 25 to 30 years), they should not be replaced. That is because it would be highly unsustainable, and almost certainly unviable, to install new arrays for just 10 – 15 years. Indeed, viability is an important matter¹³, although I do not know whether the Applicant has produced a viability report.

3.8 Best and Most Versatile Land

- 3.8.1 At the 7th bullet point at para. 5.20, the Planning Statement advises that '*the site comprises 17.8% Grade 2, 28.9% Grade 3a and 53.3% Grade 3b*' agricultural land.
- 3.8.2 In other words, **almost half the site is categorised as Best and Most Versatile (BMV) land**.
- 3.8.3 BMV land is of high quality, in terms of agricultural production. It is also a 'finite national resource': cumulatively, the removal of relatively small parcels of BMV land which is in high value / specialist crop production can have a material impact on national production. Food security is currently a global concern, so assessing the type of agricultural activity on the site, and its contribution to food security, is important.
- 3.8.4 There are government policies and legislation for development proposals that affect agricultural land and soils. They aim to protect BMV land '*from significant, inappropriate or unsustainable development proposals*', and '*all soils by managing them in a sustainable way*'. NPPF para. 180 states that '*policies and decisions should contribute to and enhance the natural and local environment by a) protecting and enhancing [inter alia] soils*'. Natural England states that '*Planning policies and decisions should take account of the economic and other benefits of the best and most versatile agricultural land*'¹⁴.
- 3.8.5 An important point to note is that according to Table 2 of the Applicant's Agricultural Land Classification (ALC) report, the 'development area' would result in the loss of a total of 21ha of BMV land. Section 1.3 of the Town and Country Planning (Development Management Procedure (England) Order) (DMPO) 2015 states that '**Planning authorities must consult Natural England on all non-**

¹³ <https://cornerstonebarristers.com/wp-content/uploads/2023/10/CO3452023-and-CO3482023-Watton-and-Cameron-v-Cornwall-approved-final-judgment.pdf>

¹⁴ Natural England *Guide to assessing development proposals on agricultural land* (updated 5 February 2021): <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land>

agricultural applications that result in the loss of more than 20 hectares (ha) of BMV land if the land is not included in a development plan... This is required by schedule 4(y) of the Order'. The Council did not consult Natural England about this matter.

- 3.8.6 Of course, whilst LPAs have to consider the agricultural productivity impacts of developments, **it is up to the applicant to demonstrate that use of BMV land is appropriate.**
- 3.8.7 In fact, any proposal for a solar power station involving BMV land **must be justified by the most compelling evidence**¹⁵.
- 3.8.8 The WMS referred to in the footnote below is linked to updated National Planning Policy Guidance (NPPG).
- 3.8.9 NPPG para: 013 Ref ID: 5-013-20150327 Rev date: 27 March 2015 states that the LPA should be 'encouraging the **effective use of land by focussing large scale solar farms on previously developed and non agricultural land, provided that it is not of high environmental value**' (my emphases). See also efficiency below.
- 3.8.10 The NPPG also states that factors the decision-maker will need to consider include: 'where a proposal involves greenfield land, whether (i) **the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays**' (my emphasis).
- 3.8.11 Footnote 62 to NPPF para. 181 states that 'Where significant development of agricultural land is **demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality**' (my emphasis).
- 3.8.12 In my opinion, the Applicant has not demonstrated that use of BMV land is either appropriate or necessary, which in my opinion, it is not; nor has compelling evidence for its use been provided.
- 3.8.13 Furthermore, the Applicant assumes that the conversion of the land from arable use to solar would be beneficial to the soil in particular, whereas the evidence indicates that it would in fact be detrimental.
- 3.8.14 The 7th bullet point at para. 5.20 of the Planning Statement says that '*The Proposed Development is specifically designed to be **dual purpose, enabling continued agricultural use, in the form of sheep grazing on species-rich neutral grassland, and renewable generation. It should be noted that the project is fully reversible and does not result in any long-term loss of agricultural land. The site can be reinstated back to its current state following the operational period. Furthermore, where a solar farm is installed on land which has been previously farmed, it enables the ground underneath to recover, while providing income for the farming business. This means solar farms help to regenerate soil quality, and so are helping to ensure the continued availability of high-quality agricultural acreage for future generations***' (my emphases).
- 3.8.15 I disagree with several of the points made in the above paragraph, which I have highlighted. The reasons are set out below (in some cases, they are summarised, and explained further in the following sections):

¹⁵ Refer to the extant Written Ministerial Statement (WMS) dated the 25th of March 2015 relating to the unjustified use of agricultural land. *Inter alia*, it states, 'The National Planning Policy Framework includes strong protections for the natural and historic environment and is quite clear that local councils when considering development proposals should take into account the economic and other benefits of the best and most versatile agricultural land. Yet, some local communities have genuine concerns that when it comes to solar farms insufficient weight has been given to these protections and the benefits of high quality agricultural land. As the solar strategy noted, public acceptability for solar energy is being eroded by the public response to large-scale solar farms which have sometimes been sited insensitively': <https://questions-statements.parliament.uk/written-statements/detail/2015-03-25/HCWS488>

1) **Dual purpose, enabling continued agricultural use**

- i) The proposal is to take the land out of agricultural use, and replace it with industrial use, for around 42 years.
- ii) This is confirmed in the Applicant's submission, and the assessments have been carried out on that basis. For example, para. 3.11 of the Planning Statement explains that following operation, 'the site [would be] **returned to its original form, in this instance: agricultural land**'; para. 6.11 of the FRA states that 'The proposals will result in **the cessation of agricultural activities at the site** which will in turn, result in a variety of beneficial effects which will serve to **reduce soil compaction** and runoff rates from the site' (my emphases).
- iii) Whilst it may be argued that some form of agriculture might continue alongside the industrial use, in reality, that is highly unlikely (see for example sheep-grazing below).
- iv) The *cessation of agricultural activities at the site* certainly would not automatically result in a *variety of beneficial effects* – indeed, soil compaction is likely to be a significant long-term problem – see Section 6.
- v) The proposed change of use from agricultural to industrial means that the land would not be fulfilling its optimum use, which is for growing high-value crops (see efficiency below).

2) **Sheep-grazing**

- i) The majority of applications for solar developments in the UK state that sheep would – or could – graze underneath the panels. In fact, there are very few examples of solar sites at which sheep-grazing is practiced. That is because **grazing sheep within solar array areas is not only highly impractical, but unwise**. See Section 6.

3) **Species-rich neutral grassland**

- i) Very few solar developers recognise or address the fundamental problem associated with establishing species-rich grassland on arable land, which relates to soil fertility. See Section 6.

4) **The project is fully reversible / the site can be reinstated back to its current state following the operational period**

- i) A DNO substation complex and a c. 4.5m wide access track is proposed within the site, which may be permanent: if so, these parts of the site would **not** be reinstated back to their current state after 40 years, and this would result in a **permanent loss of BMV** land.
- ii) Regarding reversibility, notwithstanding the above and additional points below, as mentioned previously, appeal decision letters note that **the reversibility of the proposal is not a matter [the SoS] has taken into account** in his consideration of whether the scheme should go ahead' / '**the reversibility of the proposal is not a matter to which [the SoS] has given any weight**' (my emphases).
- iii) The evidence is clear that **irreversible damage** can be caused to soils during both the construction and operation of solar developments – see point 6) below.

5) **Where a solar farm is installed on land which has been previously farmed, it enables the ground underneath to recover**

- i) Of course, where hardstanding, hard surfaces eg access tracks, cable / other trenches, pile-driven parts, and engineered profiles / bunds / swales are proposed, the soils would not 'recover'. Within the site, there would be at least 1.3ha of hardstanding / hard surfacing alone.

- ii) Although not shown on the plans, it is clear that the cable trenching works would require the removal of large amounts of valuable topsoil, and its replacement with inferior material, which would reduce soil fertility.
- iii) The concept of soil recovery, or 'resting', has been practiced for millennia: in summary, it involves cessation of intensive / depletory agricultural activities for a period of time, and either allowing plants to establish naturally, or sowing / planting a cover crop such as a grass ley or legumes, which helps the soil replenish its depleted resources.
- iv) Importantly, **the benefits of resting are only temporary**, and do not increase exponentially: recent studies show that the optimum resting period is around three years¹⁶. 'Resting' specifically relates to cultivated land which would be re-cultivated following the 'resting' period (as is the case here), as opposed to 'restoring' land to its pre-cultivated state (also 'rewilding'). In principle, the long-term ecological benefits of 'restoration' are greater than those of 'resting'. See item 6).

6) Solar farms help to regenerate soil quality, and so are helping to ensure the continued availability of high-quality agricultural acreage for future generations

- i) As noted above, the benefits of 'resting' intensively-cultivated land are only temporary.
- ii) Furthermore, it has been demonstrated that the most effective method of improving and maintaining good soil health (physical, chemical, and biological) for food production is through regular and diverse crop rotation interspersed with resting, as opposed to semi-permanent leys and / or grazing.
- iii) In this case, of course, during construction, the soil would have suffered significant damage, and therefore would take far longer to 'recover' than the baseline agricultural soil would.
- iv) The evidence also indicates that soil health is more likely to **deteriorate**. According to a recent (March 2023) report by ADAS for the Welsh Government called *The impact of solar photovoltaic (PV) sites on agricultural soils and land quality*¹⁷, construction works 'can negatively impact the flexibility of agricultural land, **potentially lowering quality and ALC grade**' (my emphasis).
- v) Indeed, the damage caused to soils during construction, operation and decommissioning can be irreversible – or at least, may take decades to recover from – see Section 6.

Efficiency

- 3.8.16 In terms of **efficiency**, the evidence shows that ground-mounted solar power plants **do not make efficient use of productive farmland**.
- 3.8.17 According to a report published in late 2021 by CPRE¹⁸, '*by comparison with off-shore wind, solar farms are hugely inefficient... In terms of efficiency rating i.e. the amount of power exported to the grid, solar's rating is between 11 and 15%, whereas for off-shore wind the figure is 50%+' [up to 78%] (my emphases). CPRE's studies also indicate that over half of the UK's energy needs could be met by rooftop solar.*
- 3.8.18 Solar's inefficiency is also highlighted in the November 2023 version of draft NPS EN-1; for example, para. 3.3.22 states: '*it is recognised that ensuring affordable system reliability, today and in the future, means wind and solar need to be complemented with technologies which supply electricity, or reduce demand, when the wind is not blowing, or the sun does not shine*'.

¹⁶ See for example <https://www.low-impact-farming.info/sites/default/files/2020-05/rotations-and-their-impact-on-soil-health-2019-ffc-merfield.pdf>

¹⁷ <https://www.gov.wales/impact-solar-photovoltaic-sites-agricultural-soils-and-land-quality-summary>

¹⁸ <https://www.cpreherts.org.uk/wp-content/uploads/sites/30/2021/10/The-Problem-with-Solar-Farms.pdf>

- 3.8.19 Para. 2.10.55 of NPS EN-3 states, *'The installed generating capacity of a solar farm will decline over time in correlation with the reduction in panel array efficiency'*. After 30 – 40 years, solar panels work at around 60% of their original capacity.
- 3.8.20 In this case, **the site is on north-facing slopes, which reduces efficiency even further.**
- 3.8.21 Regarding energy storage such as BESS, draft NPS EN-1 para. 3.3.28 states, *'Whilst important in providing balancing services, many of the storage facilities currently being deployed provide storage over a period of hours but **cannot cost effectively cover prolonged periods of low output from wind and solar**'* (my emphasis).
- 3.8.22 Furthermore, as mentioned previously, currently, lithium-ion battery units of the type likely to be used for this development **only have a lifetime of about eight years**, so would need replacing several times during the operational period.
- 3.8.23 In summary, **the Applicant has not demonstrated that use of BMV land is either appropriate or necessary, nor has compelling evidence for its use been provided.**

4 Applicant's LVA

4.1 Introduction

- 4.1.1 This section explains the matters which are of most relevance to the assessment of the landscape and visual effects likely to arise from the proposed development, with specific reference to the Applicant's LVA. The effects themselves are dealt with in more detail in the sections which follow, along with the other landscape-related issues / topics.
- 4.1.2 As explained previously, the assessments **agree** that i) the landscapes within which the site lies are 'valued' in the context of NPPF para. 180 a); ii) the proposed development would give rise to Major Negative effects on the landscape character of the site and its immediate surrounds; and iii) the proposed development would give rise to Major Negative effects on certain views.
- 4.1.3 There is, however, **disagreement** about other matters, mainly involving the LVA's methods and processes. My review concluded that whilst the LVA used published guidance, the report contains errors, omissions, contradictions, and flawed assumptions (examples are provided below). Also, the LVA did not consider the cause and nature of several of the effects likely to arise (see Sections 5 and 7). As a result, levels of effects on i) the wider landscapes, and ii) certain views, have been underestimated.

4.2 Study Area Boundary / Zone of Theoretical Visibility

- 4.2.1 The study area boundary for the LVA's visual effects assessment was set at 3km from the site: see drawing no. P21-2950_02 Rev B, which shows the Zone of Theoretical Visibility (ZTV) of 3.5m high solar panels.
- 4.2.2 Unfortunately, the LVA did not factor in that a) in some areas, the panels may have to be (up to 300-600mm?) higher, due to the risk of surface water flooding, and b) there are taller scheme elements, including c. 4.2m high substation buildings, a 5.2m high pole-mounted satellite dish, floodlights / CCTV cameras on columns, and a POC mast which could be c. 9m tall.
- 4.2.3 Thus, the extent of intervisibility between the site and the wider landscapes has been underestimated: a) levels of adverse visual effects within the 3km study area are likely to be **higher than assumed**; and b) adverse visual effects would extend **further than assumed**.
- 4.2.4 Furthermore, the ZTV factors in screening from both built form and large areas of mature vegetation such as woodlands. However, as explained in Section 4.7 below, these days it is not considered safe to rely on vegetation to screen views, due to there being no guarantee that it would remain in place in future.

4.3 Landscape and Visual Sensitivity

- 4.3.1 In the LVIA / LVA process, judgements about levels of landscape and visual receptor sensitivity are dealt with separately, but both are the result of combining levels of landscape or visual susceptibility to change with levels of landscape or visual value. So, for example, Moderate susceptibility to change plus Moderate value should equal Moderate (or Medium) landscape sensitivity (professional judgement must also be applied, and the overall results compared and tested).
- 4.3.2 Where relevant to the assessment of this proposal, these matters are explained in detail in Sections 7 and 8. However, as they are integral to subsequent judgements about levels of overall landscape and visual effects, it is important to ensure that the processes followed and criteria used are correct, and

robust: if the receptor sensitivity level is set too low, then levels of overall effects will be under-reported.

- 4.3.3 In fact, I **agree** with the LVA's conclusion that the overall level of sensitivity of the site and its contextual landscapes is **High** (on the basis of the LVA's five-point scale ranging from Very Low to Very High – see LVA Appendix 1: landscapes of Very High sensitivity are usually, but not always, nationally-designated).
- 4.3.4 I also **agree** that the level of sensitivity of visual receptors travelling along local footpaths is **High**. The LVA's criteria for High sensitivity visual receptors include '*users of long distance or recreational trails and other sign posted walks; users of public rights of way and minor roads which appear to be used for recreational activities or the specific enjoyment of the landscape*'.
- 4.3.5 However, I do **not agree** that the level of sensitivity of visual receptors in private properties is High: in my own assessments, the level is **Very High**. That is because at para. 6.33, GLVIA3 sets out a list of 'visual receptors most susceptible to change', and first on the list are 'residents at home'.
- 4.3.6 Also, I **disagree** that the *highest* level of sensitivity of visual receptors using local roads is Medium.
- 4.3.7 The LVA's criteria for Medium sensitivity visual receptors include '*Users of public rights of way and minor roads which do not appear to be used primarily for recreational activities or the specific enjoyment of the landscape*'.
- 4.3.8 However, several of the LVA's viewpoints / view routes are along minor roads which clearly **are** '*used primarily for recreational activities or the specific enjoyment of the landscape*', and therefore, visual receptors are of **High** sensitivity.
- 4.3.9 Firstly, the LVA categorises *users of long distance or recreational trails and other sign posted walks* as High sensitivity receptors: sometimes, sections of such trails and walks are along roads (for example, here, the Stour Valley Path long-distance trail runs along a short section of the B1066 – see Section 5), but receptor sensitivity does not drop along the road sections.
- 4.3.10 Secondly, here, even the B1066 is lightly-trafficked, whilst lanes such as Tittle Hall Lane, and the ones which run east - west on the north side of the Glem River valley – for example, between Hartest and Somerton – carry very little vehicular traffic at all.
- 4.3.11 Thirdly, due to the lack of traffic, many people – local and visitors alike – treat the lanes as if they were footpaths / bridleways / BOATs, travelling along them on foot, bicycle and horseback '*for recreational activities [and] the specific enjoyment of the landscape*'.
- 4.3.12 Another very important point to note is that people travelling in cars should not automatically be categorised as being of lower sensitivity than people on foot / bicycle / horseback: some may be passengers who are unable to walk along the lanes due to illness or disability, for example, but for whom the experience of being out and about in their highly-valued and very beautiful local landscapes makes a highly important contribution to their mental and physical health and well-being, and quality of life. These are **High** sensitivity receptors.
- 4.3.13 As explained above and in the effects sections below, the result of underestimating levels of landscape and visual receptor sensitivity is that levels of overall effects are also underestimated.

4.4 Mitigation and Enhancement

- 4.4.1 LVA para. 5.10 sets out the mitigation measures proposed to reduce levels of effects on landscape character:

Landscape mitigation proposals include:

- *Offsetting from the existing field boundaries and hedgerow to avoid impact on the root protection areas. A generous buffer has been incorporated to allow for maintenance.*

- *Hedgerow along the southern boundary of the site to be infilled wherever necessary with proposed native hedgerow species to ensure dense coverage along boundary length. Hedgerow to be managed to a minimum of 4m height.*
- *Extensive planting of native hedgerow trees across the site to reflect existing landscape features and strengthen historical field boundaries.*
- *Creation of new woodland blocks throughout the northern edges of the site to reflect existing landscape character; selected standard trees to be scattered throughout the proposed woodland mixes to add height and structure at implementation.*

4.4.2 The measures which are proposed to reduce levels of effects on views comprise predominantly screen planting. They are shown on the Landscape Masterplan, and described in LVA Section 7. They include:

- existing hedgerows managed to heights of between 3.6m and 7m;
- additional hedgerow planting including along site boundary adjacent to lane;
- hedgerows to be infilled including along southern boundary;
- new hedgerow trees planted;
- new blocks of woodland planted.

4.4.3 **The proposed development would not deliver any landscape or visual benefits or enhancements.**

4.4.4 In fact, the **only** reference to 'enhancement' in the LVA (which NPPF para. 180 a) states is a **requirement in a 'valued' landscape**) are as follows:

- i) the quoted text from Policy CR04 – Special Landscape Areas, within which the site lies, and within which enhancement is also a requirement;
- ii) the assumption that the scheme would '*enhance important landscape features*', when in fact, the 'enhancement' is proposed as visual mitigation, and therefore cannot be counted as landscape or visual enhancement – see benefits and double-counting in the next section.
- iii) the statement that the scheme would '*enhance local biodiversity*' (note that this is strongly disputed: see *Ecology Statement on Behalf of Save Glem Valley*, which is to be submitted as part of SGV's response to the Application).

4.4.5 Furthermore, **some of the proposed mitigating measures would give rise to adverse effects on both character and views**, as explained in Section 4.7.

4.4.6 In addition, as noted above and explained in Section 4.8, the LVA places a great deal of reliance on both existing and proposed vegetation to screen views, which is not considered to be good practice.

4.5 Double-counting Mitigation As Enhancement

4.5.1 The LVA has **erroneously double-counted mitigating measures as scheme benefits / enhancements**.

4.5.2 For example, the third bullet point at para. 2.6 states that the 'recognised' LVA process involves '**[Developing] mitigation proposals / measures iteratively throughout the development process in order to avoid, reduce and ameliorate potential adverse landscape impacts and to maximise the beneficial landscape impacts of the development**' (my emphases). Para. 2.7 makes the same assumption about visual effects.

4.5.3 Throughout the LVA, planting proposed to screen views is also counted as having beneficial effects on both character and views. For example, LVA para. 7.83 states that '*as a result of the proposed*

*introduction of new areas of woodland at the northern site boundary, these reinforce the strong woodland characteristic within the local Glem Valley, **both mitigating the visual effects** of the development **and strengthening this characteristic** and offering biodiversity benefits in conjunction with other aspects of the landscape proposals associated with the site. In some instances, **the [visual] effects at Year 7 become beneficial and will continue to increase these benefits over the life of the development** and in perpetuity' (my emphases).*

- 4.5.4 These are **incorrect assumptions**, which have **major implications for judgements made about levels of landscape and visual effects**.
- 4.5.5 Unfortunately, it is a common error in landscape and visual assessments, as GLVIA3 notes (see below).
- 4.5.6 The definitions of mitigation and enhancement (and compensation), and the differences between them, are set out in GLVIA3 paras. 4.21 – 23.
- 4.5.7 In summary, mitigation measures are specifically required to avoid / reduce levels of effects; therefore, **they cannot be double-counted as benefits / enhancements**. For example, planting that is required to screen views is visual mitigation, not landscape enhancement; however, depending on the situation, the screen planting could be counted as an ecological enhancement, which appears to be the case here.
- 4.5.8 Enhancements are proposals that are not required to mitigate adverse effects, so they can be counted as scheme benefits. GLVIA3 para. 3.39 explains that enhancement '*means any proposals that seek to improve the landscape and / or visual amenity of the proposed development site and its wider setting beyond its baseline condition*'.
- 4.5.9 GLVIA3 para. 3.39 also explains that enhancement '*is often referred to **incorrectly** as an outcome of proposed mitigation measures*' (my emphasis) – as is the case here.
- 4.5.10 Clearly, double-counting mitigation measures as enhancements **has implications for judgements about levels of effects**, since real enhancements / scheme benefits could potentially outweigh levels of harm.
- 4.5.11 This is discussed further in the effects sections where relevant, but in fact, inadvertently, LVA para. 2.10 explains precisely what the problem is: '*Both beneficial and adverse effects are identified in the assessment and reported as appropriate. **Where effects are described as 'neutral' this is where beneficial effects are deemed to balance the adverse effects.** The adverse and beneficial effects are communicated in each case so that the judgement is clear*' (my emphasis).
- 4.5.12 But, as emphasised above:
- i) A view **cannot** be enhanced through landscape / visual mitigation measures.
 - ii) If mitigating measures are proposed to reduce levels of adverse effects on character, they cannot then be double-counted as visual enhancements / benefits.
 - iii) Levels of adverse effects on landscape character **cannot** be reduced by screening views. Screening only reduces levels of adverse effects on views. **Development / change affects character even if there are no public or private viewpoints from which the development / change is visible.**
 - iv) Landscape character **cannot be enhanced** by screen planting.
- 4.5.13 In summary, because the LVA has erroneously assumed that landscape / visual mitigating measures can be double-counted as landscape / visual enhancements, it has **overestimated levels of beneficial effects, and underestimated levels of adverse effects**, as explained in more detail in the effects sections below.

4.6 Adverse Effects of Proposed Mitigation Measures

- 4.6.1 The site comprises open, agricultural fields bounded by native hedges. For some reason, the western section of the Application site's northern boundary has been drawn along an arbitrary line through Field 3. A belt of woodland is proposed along that part of the boundary, in order to screen views from the north.
- 4.6.2 This would result in **disruption of the characteristic historical field pattern**, and the **introduction of a feature which is uncharacteristic in this part of the site**.
- 4.6.3 In addition, a small triangular block of woodland is proposed in the north-western corner of Field 4, and another woodland belt along the northern boundary of Field 2. Again, these would be uncharacteristic additions in this location.
- 4.6.4 Furthermore, the proposed woodland and hedgerow planting mixtures contain **species which are uncharacteristic / inappropriate in the local area**.
- 4.6.5 Species which should be **omitted** from the mixes are Walnut (*Juglans regia*); Rowan (*Sorbus aucuparia*); and Sycamore (*Acer pseudoplatanus*) (Sycamore is extremely invasive and dominant: its introduction here would be a disaster).
- 4.6.6 Species which should be included in the woodland mix are Small-leaved Lime (*Tilia cordata*), and Yew (*Taxus baccata*). Woodland edge and hedgerow species should include Crab Apple (*Malus sylvestris*) (as standards in hedges, and allowed to escape); Elder (*Sambucus nigra*); and Dog Rose (*Rosa canina*).
- 4.6.7 Should planning permission be granted, advice on species (and their procurement and future management) should be sought from the local / county Ecologist, the local Wildlife Trust, and other experts.

4.7 Reliance on Vegetation to Screen Views

- 4.7.1 The LVA places a great deal of reliance on existing and / or proposed vegetation to screen and / or filter views of the proposed development, and thus avoid / reduce high levels of adverse visual effects.
- 4.7.2 However, it is very important to note that these days, **many practitioners including myself do not consider it best practice to rely on vegetation to screen views in the longer term**, since there is no guarantee that it will remain in place (or in the case of new planting, establish at all).
- 4.7.3 There are many reasons for this, including: soil type; temperature / climate change; water and nutrient availability; competition; maintenance and management regimes / quality of care; deliberate removal (authorised, for example forestry plantations, or unauthorised); accident; erosion, decline and death from intensive landuse / pollution / pests / diseases (**Ash dieback is prevalent in this area, and Ash is a key existing screening element in this case, both on and off the site**); inappropriate species selection for situation / wrong planting specification / inadequate soil preparation.
- 4.7.4 Notwithstanding the above, it is still necessary to factor existing vegetation in to visual assessments, but it is important to note the **nature** of the vegetation - for example, is it a large block of ancient woodland with an assumed high degree of permanence (subject of course to the above factors), or a dense coniferous forestry plantation which is mature and ready for felling, or a thin, overgrown hedge which may be cut back at any time?
- 4.7.5 My assessment concluded that as a result of this over-reliance on vegetation for mitigation, **the LVA has underestimated levels of adverse visual effects**.

- 4.7.6 The LVA states that 'selected standard'-sized trees (usually supplied at 3 – 3.5m tall) would be included in the proposed woodland planting mixes. The Landscape Masterplan states that they would be planted at 25 – 35m centres – that is very far apart, and would barely register visually for a long time.
- 4.7.7 I could not find any information about the size of the other plants that would be planted, but it is likely to be whip-sized plants. Whips are usually supplied at 30-45cm, 45-60cm, or 60-90cm tall. 45-60cm whips are recommended for large scale planting schemes, as they tend to establish more successfully than larger-sized plants.
- 4.7.8 As explained above, successful plant establishment is subject to numerous factors. Also, where height is required for screening purposes, for example in the new woodland blocks, it must be borne in mind that it would take many years for the trees to form an effective screen in the summer months, and even when mature, they would only filter winter views (longer-lived species have an average annual growth rate of 30cm).
- 4.7.9 In addition, the larger standard trees would be planted so far apart that they would contribute very little to screening even in the much longer term.
- 4.7.10 The Landscape Masterplan drawing states: '*Existing hedgerows H18 and H23 to be managed to heights between 4m and 7m (see Barton Hyett Associates' Tree Survey Plan drawing (BHA_4890_01) for reference)*', and the LVA was carried out on the assumption that the screening would have become effective by Year 7 of operation. However, **this objective is unlikely to be achievable.**
- 4.7.11 Firstly, if planted at 60cm tall, and **not managed** (see below), with an average growth-rate of 30cm, **the hedges would only be c. 2.7m tall at Year 7 of operation.** At an NSIP in Norfolk, the Examiner concluded that proposals for visual mitigation involving planting similar to that proposed here could not be expected to effectively screen views for around **20 years** (and that was based on the assumption that it would establish well and be properly managed).
- 4.7.12 Secondly, it is good practice to cut newly-planted hedges back regularly during the first few years to promote health, future growth and biodiversity, so they would take even longer to reach the required heights. In the meantime, **visual effects would remain at their highest levels.**
- 4.7.13 Finally, and very importantly, **not all views could be fully or even partially screened:** for example, at elevated viewpoints where the land below is seen more in plan-form, and at low-lying viewpoints where the site is seen on rising land beyond, **visual effects would remain at their highest levels for the 40-year duration of the operation** – see Section 8.

5 Construction & Decommissioning Effects

5.1 Cause and Nature of Effects

- 5.1.1 The LVA and other submitted documents provide limited information about the cause and nature of the construction and decommissioning effects likely to arise from the proposed development.
- 5.1.2 My own assessment concluded that a) levels of many of the adverse construction / decommissioning effects would be unacceptably high, and b) some could be truly permanent.
- 5.1.3 The construction and decommissioning effects likely to arise / their causes are explained in more detail below, but a summary is provided here:
- i. Temporary features during construction / decommissioning phases (respectively, six months and one year allowed for each) including compound/s.
 - ii. Extensive engineering works.
 - iii. Construction / decommissioning route along narrow lanes with several significant constraints.
 - iv. Some of the direct effects arising from construction and other traffic using the proposed construction route (for example loss of / damage to verges, hedges and trees, and damage to structures such as bridges and walls) could be truly permanent (ie they may endure beyond the 40-year operational period).
 - v. During decommissioning and / or interim maintenance / panel / BESS unit replacement / repair works, if / where vegetation along the construction route had recovered, and / or features / structures had been repaired, similar damage / loss would occur again.
 - vi. Modern, highly industrialising features and activities inserted into / occurring within deeply rural, tranquil landscapes displaying very high levels of scenic quality and time depth, with no existing reference within the area to the type of development proposed.
 - vii. Change in landscape / historic landscape character from traditional rural / agricultural to intensive, modern industrial.
 - viii. Direct / indirect loss of / damage to existing landscape elements, features and landcover: many found on and around the site are good representations of both the national and local landscapes' key characteristics. Some features are of high heritage and ecological value.
 - ix. Changes to / loss of landscape function and contribution to landscape character made by site.
 - x. Changes in aesthetic / perceptual qualities of the landscape: disturbance / activity / movement / noise (vehicular, mechanical and human), odour, clutter and paraphernalia associated with activities on site, lighting, bright colours, glint / glare from reflective surfaces.
 - xi. Pollution of soil, air and / or water - residues and emissions, odour and dust (also nuisances).
 - xii. Adverse effects on soil structure and microbiology, potentially permanent.
 - xiii. Loss of wildlife.
 - xiv. Changes to / loss of views resulting from the above.
 - xv. Adverse effects of noise (see below), light, pollution, traffic etc. on people's residential and social amenity, mental / physical health and well-being, and quality of life.

Noise

- 5.1.4 **Noise during construction of solar developments is a particular problem** that would certainly adversely affect the qualities and experiences of these rural and highly tranquil landscapes.
- 5.1.5 I have visited solar developments under construction, and have experienced the noise.
- 5.1.6 At a solar development under construction at Bishampton, near Pershore (20/02071/FUL), which I visited, local residents have been complaining about the very high and almost incessant noise levels (sometimes for 12 hours a day, seven days a week), the main problem being the sound of **piling**, which is **clearly audible to receptors c. 3km away**, and intolerable to those living in the vicinity of the works.
- 5.1.7 I was also sent recordings of the piling works, from points where residential / recreational receptors close by were experiencing them (these can be made available if required, along with other videos which show solar farms under construction; or see the examples in the footnote¹⁹).
- 5.1.8 Interestingly, I have been reviewing a proposal for a solar development in the same planning authority as Bishampton. Soon after the application was submitted, the Regulatory Services / Environmental Health department responded to say that they had no concerns about noise. However, local residents sent the respondent the Bishampton recordings (which also included noise emanating from inverters during operation – these can also be made available).
- 5.1.9 As a result, the respondent withdrew their response, and their comments on the planning portal now read, *'I see that my original comments are on the portal and I have received further correspondence. I would be grateful if the original comments can be removed and replaced with the below. Complaints have been received by WRS relating to the installation of the panels at Bishampton and therefore we are requesting further details to justify the installation techniques as best practicable means and consideration against a very low background level'*.

5.2 Duration

- 5.2.1 According to para. 3.3 of the Planning Statement, *'Construction of the development is anticipated to take 6 months'*.
- 5.2.2 In my opinion, **the estimated six-month construction period is over-optimistic**.
- 5.2.3 Because it is a relatively new industry in the UK, it is now becoming clear that solar construction is not always as straightforward as first assumed.
- 5.2.4 A good example is at the Bishampton solar development mentioned above. It is similar in size to the Application scheme: the Bishampton site is c. 36.4ha, generating c. 30MW, the Application site is c. 43.7ha, and would generate c. 20MW (another indication of the proposed development's inefficiency compared to other schemes, due no doubt to its location on north-facing slopes, resulting in excessive land-take).
- 5.2.5 At Bishampton, the construction period was stated as being three months. Construction began in August 2022, and at the time of writing (January 2024), the works are still ongoing, **18 months** after construction commenced, ie **six times longer than expected**.
- 5.2.6 Not only are the works not complete, they are also now the subject of **enforcement**. Piling noise (see above) is one of the main problems – it can be heard c. 3km away.

¹⁹ [Tonker 830 | Piling Rig | In Action | England | UK - YouTube](#); [The Making of Brynwhilach Solar Farm - YouTube](#); [Construction of a Solar Project - YouTube](#); and [The Construction of West Solent Solar Farm, Iley Lane - YouTube](#)

5.3 Access

5.3.1 As mentioned above, despite the Council's EIA screening opinion being that '*there is no indication that traffic effects would be significant in EIA terms*', at the pre-application advice stage, SCC's Highways Department's consultation response stated that '**the impact during the construction phase would be significant**, and details of the anticipated construction traffic movements, routes and all access points should be detailed within a Transport Statement or similar document' (my emphasis).

5.3.2 A Transport Statement has not been produced for the Application: the proposed access arrangements are briefly described in Section 4 of the DAS, and a Construction Traffic Management Plan (CTMP) has been submitted.

5.3.3 SCC Highways' response to the Application is dated the 24th of November 2023. It states (with my emphases) that:

'... there are several comments that should be addressed before highway related planning conditions can be recommended.

*'The forecast construction traffic movements do not include any earthworks. **This could be significant** so without this information, **it is not possible to fully assess whether the proposed access arrangements and mitigation are adequate**. Please advise on the likelihood of a significant volume of earthworks related HGV traffic movements.*

*'We are awaiting confirmation from SCC Bridges team that **the bridge on Braggon's Hill can structurally accommodate HGV traffic of the proposed type and volume**.*

*'The submitted Construction Traffic Management Plan (CTMP), whilst generally acceptable, includes suggested **mitigation measures for traffic on Braggon's Hill**. This would need to be confirmed prior to commencement of works so these measures will need to be subject to a separate planning condition or revised CTMP'.*

Construction route

5.3.4 The LVA does not appear to have considered effects arising along the proposed construction route.

5.3.5 My own assessment concluded that certain effects could be **Major Negative**.

5.3.6 The proposed construction route is shown on CTMP Plate 3.1, and at a larger scale, in CTMP Appendix F. I have also marked the route onto the landscape baseline plan in Appendix CT-2, as the 1:25,000 OS base make it easier to analyse the landscapes and settlements through which the route would pass.

5.3.7 CTMP paras. 3.15 – 17 explain that '*Construction traffic is proposed to route to the site from the A134, which is designated as a strategic lorry route on the SCC RLRNP. At the junction with the A1092 High Street, vehicles will turn onto the A1092 and proceed southwest through Long Melford for circa 2km. Construction traffic will then turn right onto the B1066, and will proceed north for circa 5km towards Boxted. Traffic will then turn left onto Braggon's Hill before turning right into the site access. Vehicles exiting the site will utilising the inverse of the construction route described above, turning left from the proposed site access onto Braggon's Hill, towards the B1066*'.

5.3.8 Incidentally, the CTMP uses the name Braggon's Hill for the entire section of the single-track lane (the CTMP states that at its narrowest point, the lane's carriageway is c. 3.2m wide; speed limit is unrestricted (60mph)) which runs between Fern Hill (north of Glemsford) and its junction with the B1066 at Boxted. However, according to local residents, the north-eastern end of the lane is called Tittle Hall Lane. The proposed access to the site would be off Tittle Hall Lane, c. 500m south west of the B1066 junction.

- 5.3.9 CTMP para. 3.18 states that 'HGVs in the construction process will only access the site via the designated construction route identified in this CTMP. Drivers will be informed of the route prior to departing for the site and will be advised not to use Sat-Nav'. How this would be enforced / monitored is not explained.
- 5.3.10 Indeed, it seems unlikely that all HGVs would access the site from the A134, which is c. 5.8km east of the site: if arriving from the west – for example the A14 / M11 / A11 around Cambridge – the shortest (by some 30km) and quickest route would be cross-country, via the A4107 and A1092.
- 5.3.11 The comments in this section assume that the construction route would be as proposed.
- 5.3.12 CTMP paras. 4.4 – 4.5 explain that 'The maximum sized construction-related vehicle is anticipated to be an articulated vehicle that is 16.5m in length and 2.55m in width, however smaller HGVs, rigid trucks and LGVs will be used where possible. It has been demonstrated as above that an 18.55m articulated HGV can safely enter and egress the proposed site as per Appendix F, which is more onerous than the 16.5m articulated vehicle'.
- 5.3.13 However, para. 4.18 states that 'Abnormal Indivisible Load vehicles under the Special Types General Order (STGO)) may also be required for delivery of larger components. Should the need for a STGO vehicle(s) be identified during the development of the final delivery solution, the route will be fully assessed, and suitable measures implemented e.g. the use of escort vehicles, as required by law'.
- 5.3.14 In my opinion, **prior to determination**, the Council should establish whether the development can be constructed without the use of Abnormal Indivisible Loads (AILs), or, if AILs / other abnormally-large vehicles are required, whether they could be accommodated without any loss of / damage to roadside vegetation / other landscape / built features / structures, and without road widening, adjustments to the highway arrangement and / or street furniture, strengthening of bridges, or other highway works.

Photograph from Western Power Distribution's 'Guide to the production of legal plans' showing substation plant on HGV



All vehicle carrying electricity transformer



5.3.15 In fact, there are several constraints to 'ordinary' HGVs using the construction route, let alone ALLs. The results of my own assessment are set out below: note that they were informed by, and should be read in conjunction with, SGV's *Construction Route Appraisal* in Appendix CT-3.

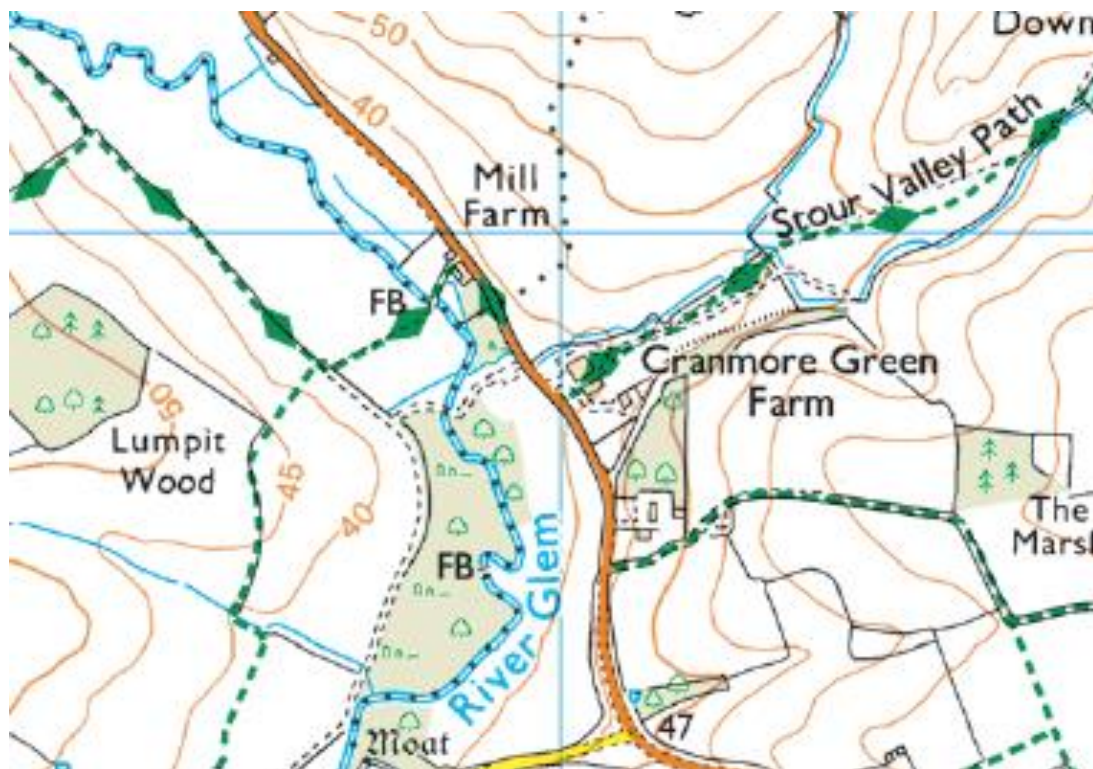
- i) The A134 is clearly capable of accommodating large vehicles. The first c. 2.5km of the southern section of the B1066, south of Stanstead village, appears to be capable of carrying HGVs, being quite open, albeit not wide, and there are a couple of Grade II listed roadside buildings, a few blind bends, and risk of damage to grass verges and overhanging trees (some of which are good mature oak). The landscapes through which the B1066 passes are also **deeply rural and tranquil**.

B1066 south of Stanstead (image ©2024 Google)



- ii) An important constraint along this section is that **part of it is the route of the Stour Valley Path long-distance trail**, as shown on the OS map extract below. These are categorised in the Applicant's LVA as High sensitivity receptors, who could potentially experience **high levels of adverse effects** (in terms of safety, and on views / experiential qualities).

Stour Valley Path along B1066



- iii) The B1066 runs through the southern end of Stanstead, which has medieval origins (or may be earlier – there is much evidence of Iron Age and Roman settlements in the surrounding area), passing one Grade II* and six Grade II listed roadside buildings. As far as I could ascertain, no assessment of the effects on these or other buildings along the construction route has been carried out. **Proximity to the road and vibration may be particular concerns for older properties.**

Grade II listed building along B1066 at Stanstead, looking north west (image ©2024 Google)*



- iv) Also, there are several residential properties along the road in Stanstead, and at least one bus stop, and although there are pavements in some sections, in others there are none, or they narrow to accommodate buildings. Thus, **highway safety could be an issue here.**
- v) Just north of Stanstead, the road narrows as it rises to a blind bend. Tree branches hang low over the road at this point, which could be **damaged by tall vehicles / high loads.**

B1066 north of Stanstead, looking north west (image ©2024 Google)



- vi) After opening up somewhat (albeit with grass verges, and dense, mature vegetation along the east side of the road, both of which are potentially at risk of damage), c. 600m north of Stanstead (by road), the road rises and narrows again, with another blind bend. The photograph below shows the constraint, and the damage caused to the embanked grass verges as a result.

Damage to verges along B1066 north of Stanstead (image ©2024 Google)



- vii) The above photograph shows this part of the road as sunken, indicating its likely antiquity.
- viii) Between the above point and the B1066's junction with Tittle Hall Lane at Boxted, the constraints are public footpaths / bridleways accessed off the road; a few blind bends and summits; grass verges; mature roadside hedges; overhanging trees; and just before the junction, two Grade II listed buildings.
- ix) **This part of the B1066 is well-used for recreational purposes by visitors and the local community alike.**
- x) At the junction of the B1066 and Tittle Hall Lane, there is a small, grassed 'village green', with a decorative 'Boxted' sign, a community noticeboard, and a metal bench.

Eastern end of Tittle Hall Lane at junction with B1066, looking west



- xi) The Applicant's swept path analysis drawings seem to suggest that 18.55m-long articulated vehicles travelling to and from the site could negotiate this turn without the need for any highway works; however, the drawings do not show the existing situation in detail, so it is not possible to know whether any existing vegetation / features would have to be removed / adjusted. Also, AILs may not be able to negotiate the turn without intervention. **This requires clarification.**
- xii) Another matter of concern is that just west of the junction of the B1066 and Tittle Hall Lane, there is a blind corner. As large / slow vehicles turn into or out of Tittle Hall Lane, there is a risk of collision with vehicles approaching from the Hartest direction.
- xiii) Beyond this point, to the south, as the above photo shows, **trees hang low over the road**. It is almost certain that these would have to be lift-pruned in order to accommodate large vehicles. The landscape / visual / ecological effects of this were not assessed by the Applicant, but they would certainly be adverse.
- xiv) **The narrow bridge over the River Glem is clearly a major constraint in terms of width, and perhaps load-bearing capacity as well.** As noted above, SCC's Bridges team has yet to confirm that the bridge can structurally accommodate HGV traffic of the proposed type and volume. It is important to establish whether AILs could cross the bridge without grounding as well.

Bridge over River Glem, eastern end of Tittle Hall Lane looking north east



Bridge over River Glem, eastern end of Tittle Hall Lane looking south west (image ©2024 Google)



- xv) Beyond the bridge is the access road to Grade II listed Moorhouse Farm. Grade II listed Water Hall lies opposite the access road.
- xvi) Emergency access is proposed at an unspecified point along the access road – see Section 3.5.
- xvii) **The majority of the section of Tittle Hall Lane which runs between the B1066 and the eastern end of the Moorhouse Farm access road is in Flood Zone 3.**

Access road off Tittle Hall Lane leading to Moorhouse Farm (image ©2024 Google)



- xviii) From the eastern end of the access road, there are clear views of the north-eastern part of the site, which is seen rising to form the skyline.

View of site from eastern end of access road, looking south west (image ©2024 Google)



- xix) In the view looking due west from the Moorhouse Farm access road, I estimate that around a quarter of the site would be visible.
- xx) From the junction with the Moorhouse Farm access road, the construction route would continue south-westwards along Tittle Hall Lane to the proposed access point, a distance of c. 370m.

- xxi) This section of the lane is very narrow, bound by grassed hedgebanks, mature hedges, and several mature trees (including oak) with overhanging branches. It rises steadily to the access point, with a blind bend along the way.

Tittle Hall Lane, north east of proposed access point, looking south west



Tittle Hall Lane, north east of proposed access point, looking north east



- xxii) The western side of Tittle Hall Lane is delineated by a very high value historical landscape feature, in the form of a deep, wide, medieval deer park boundary ditch – explained further below.

- xxiii) A public footpath runs beside the lane, within adjacent fields; however, the lane itself is well-used by walkers (along with runners, cyclists, equestrians), and a few motorists.
- xxiv) The public footpath leads to the Grade I listed, (mainly) 15th century Church of the Holy Trinity (occasionally erroneously called All Saints, including in Historic England's listing entry), which lies c. 400m south of the proposed site access point. Grade II* listed Boxted Hall lies a similar distance to the south east. Three Grade II listed buildings are associated with the Church and Hall.
- xxv) The proposed access point would be where the lane turns south-eastwards (see next section).

Proposed access to site off Tittle Hall Lane, looking south west (image ©2024 Google)



Proposed access to site off Tittle Hall Lane, looking north west (image ©2024 Google)



View from proposed access to site off Tittle Hall Lane, looking south



- xxvi) The track leading south west from the access point is a physical continuation of Tittle Hall Lane, now a Byway Open to All Traffic (BOAT). At its western end, the BOAT becomes a public footpath, joining the wider network. Historically, the track was probably a local east – west route between Boxted and other small settlements to the west. Today, it is **a popular recreational route, passing through beautiful open countryside, and offering fine views.**
- xxvii) From the access point, for a distance of c. 400m, the track runs adjacent to what would be Field 6 of the proposed solar power station. As the trackway is ancient, it is sunken, with grassed banks topped by c. 1.5m tall hedges.
- 5.3.16 Importantly, the landscapes through which the proposed construction route would pass have long and widely been recognised as an excellent recreational resource due to their scenic beauty, tranquillity, and other highly valuable qualities.
- 5.3.17 A publication which is a good example of this is called *Cycling Through a Masterpiece – Hartest and Glemsford* (Dedham Vale AONB, 2022). It is one of a series of guidebooks for cycling in the Stour Valley area. The guide explains that *'The network of quiet roads, sunken lanes, well-surfaced tracks and cycle paths mean it's easy and accessible to explore this beauty by bicycle. This leaflet will signpost you to cycle routes and services (including bike sales, repairs and organised cycle break and tour providers) in and around the Stour Valley, and help inspire you to get out and discover this special landscape on two wheels'*.
- 5.3.18 This particular route is circular, taking cyclists along the lanes which run (in an anti-clockwise direction from the north) between Hartest (the suggested start / finish point), Stanstead, Glemsford, Boxted, Somerton, and back to Hartest. The longer route option between Glemsford and Boxted is along Braggon's Hill and Tittle Hall Lane, passing **adjacent to the site along the way.**
- 5.3.19 In summary, use of the proposed construction route would result in a wide range of adverse effects, including on social amenity; landscape character, especially historic landscape character, and aesthetic and perceptual aspects such as tranquillity; heritage assets; biodiversity; and views / visual amenity. In winter months, construction vehicles are likely to be travelling / working during hours of darkness / low light levels, thus introducing bright light (vehicular / security) into an area valued for its dark night skies. There is also the potential for significant conflict with highways users, with concerns about safety.
- 5.3.20 **The assessments agree** that the landscapes through which the construction route would pass are 'valued' landscapes, and that their level of sensitivity should be categorised as **High** (in accordance with the LVA's criteria).
- 5.3.21 Also in accordance with the LVIA's criteria, overall, I would categorise the worst-case level of the magnitude of change resulting from the use of the proposed construction route as **High Adverse.**
- 5.3.22 The LVA confirms that the combination of a High sensitivity receptor and a High magnitude of change results in a **Major Negative level of effect.**
- 5.3.23 Also, it must be borne in mind that lithium-ion battery units of the type likely to be used at the Application site have a lifetime of about eight years. Therefore, the twelve units proposed would need replacing up to five times during the 40-year operational period. In addition, solar panels are unlikely to last for 40 years (I believe the current estimate is 25 – 30 years, but that does not include incidental failure / damage / theft), so they would need to be replaced from time to time.
- 5.3.24 It is very likely that if damaged / lost features along the construction route had recovered / been restored / replaced, **the damage / loss (and other adverse effects) would occur again throughout the operational phase.**

Site access

5.3.25 The LVA did not specifically assess landscape effects arising from the works required to construct the proposed access; however, it did conclude that overall, the on-site construction works would give rise to a **Major Negative** level of effect on the character of the site and its immediate surrounds.

5.3.26 **I agree with this conclusion.**

5.3.27 The LVA does not appear to have assessed effects on views at the access point specifically (it is along a view route with several points from which the developed site would be visible). My own assessment concluded (using the LVA's criteria, and for the reasons set out below) that the visual receptors are of **High** sensitivity, and the level of magnitude of change would be **Very High**, resulting in a **Major Negative** level of visual effect.

Proposed point of access to site



5.3.28 Of particular concern is the urbanisation of this deeply rural and very beautiful spot that would occur through the loss of high-value mature vegetation, and the introduction of long lengths of tarmac / other hard surfacing; concrete kerbs; metal gates and fencing; warning signs; lighting; CCTV; and so on (see Applicant's / other plans, for example *Swept Path Analysis of a 18.55m Articulated Vehicle* (drawing no. P21-2950-SK02 (Draft)), *Proposed Site Access Arrangement* (drawing no. P21-2950 SK01 (Draft)), and SCC's standard *Industrial and Farm Access Layout* (drawing no. DM04 Rev B)).

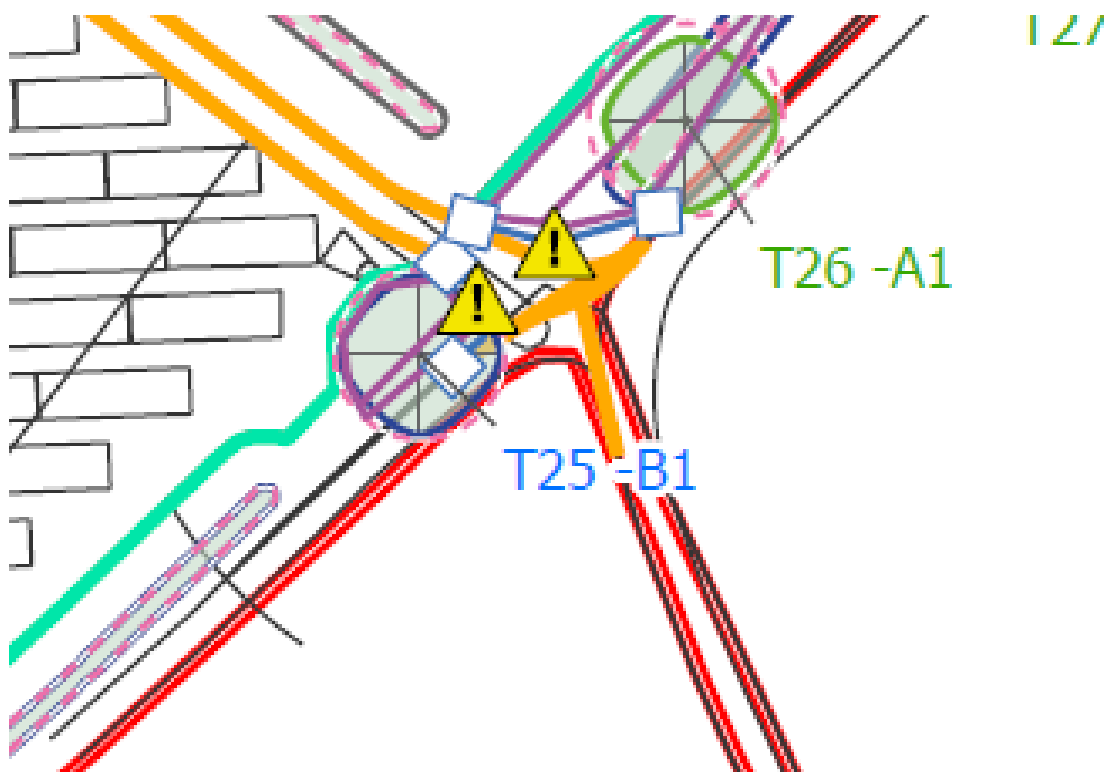
5.3.29 There would also be high levels of activity / disturbance / noise / lighting for long periods of time (see Duration section above).

5.3.30 In addition, there would be **localised, high levels of adverse effects on highway safety (there is high potential for conflict between PRow / road users and construction traffic) and social amenity, and potentially, on heritage assets and biodiversity.**

5.3.31 Insufficient detailed information about the design of the proposed access point has been provided for conclusive judgements to be made about the nature and levels of effects likely to arise. However, the following require clarification / assessment:

- i) A small watercourse – flowing well at the time of the surveys – runs in a ditch along the site’s eastern boundary / the west side of Tittle Hall Lane, discharging into the River Glem near the bridge just south of Boxted village. It probably rises at the crest of the hill to the west, in the vicinity of Lownage Wood. Where it runs underneath the existing (and proposed) access point, it is culverted. The proposed works would have to accommodate this constraint, and robust mitigation measures to prevent adverse effects (including on water quality) would need to be put in place.
- ii) As noted previously, the ditch is deep and wide, and is almost certainly a medieval deer park boundary ditch associated with Boxted Hall. This is a very high value historical landscape feature – see Section 7 – and is potentially a constraint.
- iii) An Anglian Water Authority (AWA) water main (the ‘AWA Rede Area Hartest and Boxted pipeline’) runs along Braggon’s Hill / Tittle Hall Lane, and appears to be very close to the proposed access: this could be a constraint in terms of risk of damage during the works, for example through heavy vehicles crossing the main, and excavation.
- iv) On the west side of the access point, there is a good, mature tree. In the Applicant’s Arboricultural Impact Assessment (AIA), the tree (T25) is identified as a Category B1 *hedgerow oak of pollard form*. On the east side, the western end of the mature roadside hedgerow extends a few metres beyond T26, which is categorised as a Category A1 *mature and prominent oak*.
- v) AIA para. 6.5 states that ‘**No tree or hedgerow removal will be required at the site access**’ (my emphasis). However, it recommends protection measures, in the form of fencing around the trees’ root protection areas (RPAs), and signs – see extract from AIA plan below.

Extract from AIA Tree Retention and Removal Plan



- vi) My own assessment concluded that given SCC's / others' requirements for the construction of such accesses, **the works would be within the RPA of T25, potentially causing lasting damage / loss, and would entail the removal of the end of the hedge.**
- vii) There is a manhole cover in the grass verge between the lane and the western end of the hedge. I understand that this gives access to a **private water supply to Moorhouse Farm**. If that is the case, then **any effects on the water supply need to be assessed.**

5.4 Construction Effects: Site

- 5.4.1 At para. 6.37, the LVA concludes that in terms of construction effects, *'The proposals would introduce a notable feature into an area of arable fields within a wider agricultural landscape which would change the physical and perceptual attributes of the site itself. Therefore, it is predicted that the proposed development would give rise to a high magnitude of change upon the character of the site area and immediate surrounds during construction and at Year 7, which would result in a **Major Adverse** level of effect'* (my emphasis).
- 5.4.2 **I agree with this conclusion.**
- 5.4.3 However, the LVA provides very little analysis or explanation of the cause or nature of the effects. A summary is provided in Section 5.1 above, with more project-specific information provided below.
- 5.4.4 As previously explained, it is very important to understand the likely effects, as if the Application was approved, some of the problems may need to be resolved through scheme design adjustments / mitigation / planning conditions / S106 agreements. It is also possible that some of the adverse effects could not be mitigated, and could result in permanent damage to / loss of valuable features.
- 5.4.5 Throughout the construction phase there would be disturbance, activity, movement, noise (vehicular, mechanical and human), dust, odour, clutter and paraphernalia associated with the various activities, lighting, bright colours, and glint / glare from reflective surfaces (the latter are explained in Section 10).
- 5.4.6 Over time, the scheme elements would be installed: access tracks, cabling, hardstanding, security fencing, signage, CCTV and lighting, solar panels, substations, BESS units, inverter units, transformers, cabins, cabinets, relay / control / metering rooms and storage units, along with the necessary engineering and earthworks.
- 5.4.7 As the construction works progressed, the site's very positive and highly valuable aesthetic and perceptual qualities would be eroded / completely lost, especially tranquillity. What is currently a deeply rural, historic landscape would rapidly become industrialised, alien and ugly.
- 5.4.8 The experience of travelling along the public rights of way (PRsoW) and lanes on the periphery of / in the vicinity of the site in particular would be completely altered during construction, and in places, there is **high potential for conflict between PRow / road users and construction traffic.**
- 5.4.9 Given the large scale of the project, the change in character and views / experiences would also be experienced by people using routes further afield.
- 5.4.10 The local PRow / road network evidently makes a highly important contribution to people's mental and physical health and well-being, and to their quality of life, which the construction activities are likely to adversely affect to varying degrees.
- 5.4.11 People in residential properties would also be adversely affected.
- 5.4.12 There would almost certainly be displacement of wildlife: local residents state that the site and surrounding area support *"incredibly diverse wildlife – kites, buzzards, owls, wild deer, hares are all common and we have also seen rarer creatures including otters, egrets and badgers"*. Others report

seeing badgers, foxes, dormice, hedgehogs, stoats, weasels, bats, skylarks, egrets, Egyptian geese, barn, tawny and little owls, and great crested newts.

- 5.4.13 Other concerns relate to **the effects of the solar construction works on the quality of soil and water**. Effects on both are relevant to effects on character and views. The site is on the slopes of the River Glem – and almost adjacent at one point – therefore all runoff from the site would eventually reach the river. The Glem forms a highly important and strategic green / blue infrastructure corridor, with very good biodiversity.
- 5.4.14 In a letter from Gwent Wildlife Trust and Friends of the Gwent Levels, to Julie James, Minister for Climate Change dated the 14th of October 2022 (see Appendix CT-4), the authors set out the devastating adverse effects which arose during and / or soon after the construction of a solar development, especially on soil and water (the effects on water quality are especially relevant to the proposed development, as watercourses cross / bound parts of the Application site).
- 5.4.15 According to the Trust, levels of one waterborne pollutant arising from the constructed solar development '*were over 14 times higher than pre-construction*'; very high levels of total petroleum hydrocarbons which adversely affect aquatic fauna '*were recorded inside the solar farm site, at 230 µg / litre, compared with a pre-construction level on the site of less than 10 µg / litre*'; and '*Nitrite as N and Nitrite as NO₂, were recorded at very much higher levels postconstruction compared with pre-construction*'.
- 5.4.16 Effects on soils during construction are explained in Section 6 below, but here it is relevant to note that para 5.24 of the FRA states that '*A series of land drains are located beneath the site*'. These could be a constraint to some of the works on the site.
- 5.4.17 In terms of effects of construction on views and visual amenity, the LVA concludes that the highest level of visual effect that would be experienced would be **Major Adverse**.
- 5.4.18 I **agree** that would be the highest level, but **disagree** with the LVA's assumption that this level would only be experienced by receptors at one viewpoint (categorised as private, along the access road to Moorhouse Farm). In fact, my assessment concluded that levels would be higher than reported in the LVA for many of the private and public visual receptors identified.
- 5.4.19 The difference is mainly in judgements made about levels of magnitude of change arising from the works: in my opinion – no doubt due to not having sufficient detailed information and subsequent erroneous assumptions – the LVA has underestimated the levels of effects.

5.5 Decommissioning Effects

- 5.5.1 According to para. 3.3 of the Planning Statement, '*Decommissioning is anticipated to take 12 months*'.
- 5.5.2 It is not clear why decommissioning would take twice as long as construction, and **this should be clarified**, especially as para. 3.11 states that '*Compared to other power generation technologies, solar parks can be easily and economically decommissioned and removed from the site at the end of their life (40 years) with the site returned to its original form, in this instance: agricultural land*'.
- 5.5.3 DAS para. 3.25 states that '*Upon decommission [sic] of the Proposed Development, the land will be **rested for the use of future generations***' (my emphasis), although I assume the emboldened part is an error.
- 5.5.4 Para. 3.12 of the Planning Statement summarises the decommissioning activities as follows:
- *Removal of PV panels with them taken away for recycling.*
 - *Removal of PV support. With no supporting concrete foundations, these can easily be mechanically abstracted from the ground.*

- *Removal of inverters and battery storage units with cranes. The prefabricated concrete slab upon which they are supported can be lifted or broken up and removed.*
 - *Removal of cable and ancillary structures.*
 - *Removal of fencing and any ancillary associate equipment.*
- 5.5.5 It also explains that the access points and routes used for construction would be used for decommissioning (para. 5.19).
- 5.5.6 As mentioned previously, it is possible that the DNO substation (along with associated access and infrastructure) would remain in place permanently, ie post-decommissioning. The fact that the removal of the substation is not mentioned in the above list may confirm that it is indeed proposed as a permanent feature. If that is the case, also as mentioned previously, **the effects of it being a permanent feature in the landscape have not been assessed.**
- 5.5.7 The CTMP does not assess decommissioning effects, despite the Council's pre-application advice response at CTMP Appendix B stating that *'the impact of traffic associated with the construction **and decommissioning** phases are likely be significant, such that a Construction Management Plan will likely be required'* (my emphasis).
- 5.5.8 The Ecological Assessment doesn't mention, or appear to assess, decommissioning effects, despite the pre-application advice being that i) *'The scheme will also need to consider the **de-commissioning ecological impacts** of the proposals, as Solar Farms have a relatively short lifespan. Therefore, we recommend that further information must be included within submitted planning documentation to address this matter'*; and ii) *'The application must detail proposals for biodiversity net gain and enhancement measures, in accordance with the NPPF, including **provision for decommissioning and reinstatement of the site**'* (my emphases).
- 5.5.9 The LVA does not appear to consider decommissioning activities / effects either, simply stating (at para. 5.3) that the development *'will be decommissioned, the equipment will be removed and the land restored to its original condition with landscape mitigation retained on site'*.
- 5.5.10 A very good source of information about the effects of decommissioning on soils specifically can be found in the previously-mentioned ADAS / Welsh Government report *The impact of solar photovoltaic (PV) sites on agricultural soils and land quality* – see the following section.
- 5.5.11 In summary, in my experience, it is likely that the decommissioning works would involve broadly similar processes / activities to those required for the construction works, therefore levels of effects would be similar to those experienced during construction, ie **Major Negative**, but at the higher end of the scale due to the duration being twice as long.

6 Soils

- 6.1 As explained in previous sections, the evidence demonstrates that solar development can and does cause considerable damage to soils, for example through compaction, disturbance and turbation (the mixing of soils / sediments) during construction and decommissioning, and increased runoff and pollution during construction, operation and decommissioning. The damage can also be **permanent**.
- 6.2 The Institute of Environmental Management and Assessment (IEMA – now Chartered) guide *A New Perspective on Land and Soil in Environmental Impact Assessment* (February 2022) defines soil impacts for EIA purposes as '*permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading)*...' (Table 3, page 49). It also notes that this can include '**effects from temporary developments**', which it explains '**can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils**' (my emphases).
- 6.3 According to the European Union's September 2020 report (on page 9), *Potential impacts of solar, geothermal and ocean energy on habitats and species protected under the birds and habitats directives*, '*Habitats transformed into solar farms will suffer from a wide range of impacts such as reduced vegetative cover, compaction of soil, reduced infiltration, increased runoff, decreased soil activity, decreased soil organic matter, and impaired water quality* (New Jersey Department of Environmental Protection, 2017)' (my emphasis).
- 6.4 The ADAS / Welsh Government soils report mentioned above describes in detail the adverse effects on soil which can and do arise during the construction (and decommissioning) of solar sites, stating that construction works '*can negatively impact the flexibility of agricultural land, potentially lowering quality and ALC grade*' (my emphasis).
- 6.5 However, and very importantly, the report also points out that '*There have been few studies of solar PV sites which have a focus on the impacts on agricultural land and soils. This is largely because solar PV sites are recent developments but also because in the early years sites were located on brownfield land or poorer quality agricultural land. The importance of achieving successful restoration of solar PV sites has increased in significance as the number, size and operational time frame of solar PV sites on BMV agricultural land has increased*'²⁰.
- 6.6 In one of its responses (March 2023) to a proposed solar development (Mallard Pass, NSIP, PINS ref EN010127, ID No: 20036230), Natural England explains that regarding solar development generally, '*there could be a disbenefit to the soil resource due to unknowns as a result of the solar development infrastructure. It is currently unclear as to what impact the solar panels may have on the soil properties such as carbon storage, structure and biodiversity. For example, as a result of changes in shading; temperature changes; preferential flow pathways; micro-climate; and vegetation growth caused by the panels. Therefore, it is unknown what the overall impact of a temporary solar development will have on soil health*' (my emphases).
- 6.7 Adverse effects on soils are very likely to result in adverse effects on biodiversity, landscape character, and views / visual amenity.
- 6.8 Also, some experts now believe that the electromagnetic radiation which emanates from solar installations can give rise to adverse effects on soils / associated ecology / microbiology.

Compaction / disturbance / turbation

- 6.9 One of the main causes of soil damage / degradation is compaction, which farmers and land managers know reduces soil health / quality, and therefore try to avoid, or mitigate.

²⁰ The Wheal Jane solar power station in Cornwall was the first to be granted planning permission in the UK. The proposal was to generate 1.55MW on a 3.88ha site. The site became operational in summer 2011.

- 6.10 As the ADAS / Welsh Government report explains, *'The impact of soil compaction is well documented (Batey, 2009) and crop growth, yield and quality may be adversely affected. There are also wider environmental implications relating to water and air quality'*.
- 6.11 The report goes on to explain that *'the main cause of compaction is the compressive forces applied to the soil from the wheels or tracks of machinery. Hakansson (1985) found that an axle load of 10 tonnes increased soil bulk density to a depth of 50 cm. Compaction may be very persistent in the subsoil and **possibly permanent** (Hakansson et al 1988). Where there is 'industrial compaction' the depth of compaction can extend to depths of 1m (Spoor, 2006) and **may persist for up to 30 years** (Batey, 2009)' (my emphases).*
- 6.12 During decommissioning of solar developments specifically, the report explains that *'Access roads and tracks may require reinforcing to be of a standard suitable for heavy machinery. Trafficking will again occur across the site on and off the site tracks as panels, frames and inverter cabins and substations are removed... which can result in soil compaction... **The extraction of the piles is likely to be more problematical than the initial installation...**' (my emphasis).*
- 6.13 Natural England (and other organisations) recommend that *'in order to minimise the potential detrimental impact of construction activities on the soil resource, it should be ensured that **the grass sward is fully established** (ie no bare ground), prior to the installation of the panels and associated infrastructure'* (my emphasis). Unfortunately:
- i) The presence of a grass / other thick sward on the soil surface does not protect against compaction (however, it can help to protect against the adverse effects of superficial soil disturbance and turbation (and runoff – see below)).
 - ii) If the sward being established was the proposed operational species-rich mixture, it would not establish successfully on the arable soil – see below.
 - iii) Even if a temporary grass ley was established prior to construction, it would take at least two growing seasons to develop a sward dense enough to withstand at least some of the construction damage.
 - iv) Even if a temporary grass ley was established, and the soil fertility problems were resolved, once the panels and other infrastructure were in place it would be impractical, and perhaps impossible, to replace the ley with a species-rich mixture, as this would involve removal and resowing, or over-sowing, or plug-planting, either mechanically, or by hand, over a very large area, which would be covered by panels.
- 6.14 The nature of the soil is also an important factor in the way in which it will be affected during construction / other works, and by changes in use.
- 6.15 Here, the majority of the site comprises 'Lime-rich loamy and clayey soils' with 'slightly impeded drainage'. The northern edge of the site comprises 'Freely draining slightly acid loamy soils'. According to Section 4.1 of the Applicant's *Agricultural Land Classification* report, *'The topsoil textures noted across the site were predominantly clay over clay subsoils'*.
- 6.16 Evidently, carrying out construction activities on arable / ploughed land which is characterised by such soils is very likely to give rise to **high levels of adverse effects on soil structure and microbiology**.
- 6.17 The following photographs show the effects of agricultural vehicles travelling across arable land of a similar nature to that of the site, and a dried-out area of soil in the same field.

Photographs of soil damage in arable field





- 6.18 Generally, on heavier, less freely-draining soils, it is more difficult to avoid compaction, but turbation is a problem on most soil types.
- 6.19 Turbation can occur during many construction activities, such as tracking and turning of vehicles; and engineering works / excavations for access tracks, structures, foundations, infiltration basins, and trenches for cables and drains which are backfilled with foreign material – all of which would be required in this case. For example, DAS paras. 3.35 – 36 explain that '*cablings will run from the inverter stations to the project substation*', and that '*... electrical cabling from each array will be concealed through shallow trenches linking the modules to the inverter substations and then to the main substation. The cable trench... will be backfilled with fine sands and excavated materials to the original ground level*'.

Soil pollution

- 6.20 There is always a risk of pollution incidents happening during all types of construction (and decommissioning) works, which may be localised or widespread, temporary or permanent. It is important that all the possible risks are identified, and robust measures are put in place to avoid such incidents happening in the first place, and / or to reduce the likely levels of adverse effects.
- 6.21 The ADAS / Welsh Government report states that during construction, pollution incidents can result in longer-term detriment to soils. However, one of the problems of this being a relatively new industry in the UK – at least, at this scale – is that to date, very little monitoring of effects has taken place; also, it is likely to be many years before certain effects are experienced / realised.
- 6.22 Some monitoring has been carried out at the quite recently-constructed solar development on the Gwent Levels, mentioned above. Much of the area comprises a series of SSSIs. The letter from Gwent Wildlife Trust and Friends of the Gwent Levels sets out the devastating adverse effects on the SSSI's waters and soils (and associated flora and fauna) which not only occurred during construction, but are continuing during operation.
- 6.23 In terms of the effects of pollution on soils in particular, according to the letter:

- a) *Levels of several waterborne pollutants arising from the constructed solar farm have risen hugely since construction. For example, [regarding] levels of suspended solids (silt) inside the development site... the levels of this damaging pollutant produced by the solar farm were over 14 times higher than pre-construction.*
 - b) *Very high levels of total petroleum hydrocarbons TPHCWG (a very damaging pollutant adversely affecting the aquatic invertebrate and plant citation interest of the SSSI) were recorded inside the solar farm site, at 230 µg / litre, compared with a pre-construction level on the site of less than 10 µg / litre.*
 - c) *Even these very high levels of pollutants caused by the solar farm may be underestimates, because other pollutants, for example Nitrite as N and Nitrite as NO₂, were recorded at very much higher levels postconstruction compared with pre-construction.*
- 6.24 During operation, it may be assumed that solar power stations pose a low level of pollution risk; however, there is evidence that the chemicals used in panel-cleaning products also contribute to soil and water pollution. Also, whilst levels may be lower than during arable cultivation (unless organic), there may have to be widespread use of herbicides, and pesticides (eg endectocides which are used on sheep²¹).
- 6.25 See also the significant pollution risks posed by BESS in Section 3.6.

Soil erosion

- 6.26 During construction and decommissioning works, bare soil on sloping ground can quickly erode away due to surface water runoff, and potentially, be lost, ending up where it is not wanted, for example in other fields, watercourses, and on roads. The risks can and should be anticipated, and robust prevention / mitigation measures put in place to ensure that the soil is preserved.
- 6.27 As explained in Section 3 above, currently, the proposal is to manage surface water runoff from the hardstanding areas through infiltration-based SuDS, comprising backfilled trenches. *'It is also recommended that following installation of the panels, the site is chisel-ploughed or similarly cultivated and seeded with native meadow grass and wildflowers'*, but see soil fertility below.
- 6.28 During operation, there will be runoff from the solar panels. The effects of the runoff depend greatly upon the nature of the landcover under and in between the arrays: if a good, dense sward exists when the panels are erected, and it remains in place, then soil erosion is less likely than if the soil was bare.
- 6.29 Section 2.2.4 of the ADAS / Welsh Government report explains (and illustrates, at Figure 6) that *'There is likely to be some instances of run-off from the solar panels, which could result in the compaction of soils at the base of the panels (Choi et al, 2020). Over time rivulets can form along the trailing edge of the panel with potential risk of soil erosion creating rills and gullies across the site. The sand bed could act as a drain, especially on heavy textured soils, leading to drainage discharges or wet patches at the down slope end of each trench'*.
- 6.30 At the Gwent Levels solar site, the monitors found that ***'The ground appears compacted and the panels have large areas of bare earth under and around them, with brambles starting to take over the area'*** (my emphasis).
- 6.31 Also, see the photos overleaf (evidence from appeal ref APP/D3315/A/13/2203242), showing how rain falling off the lower edges of the panels onto bare soil forms rivulets and increases runoff.

²¹ Some chemicals such as endectocides (drugs effective against both endoparasites and ectoparasites) are environmentally toxic. Ivermectin, for example, has become notorious because of lethal and sublethal effects on beneficial coprophagic *Coleoptera* (eg dung beetles) and other invertebrates, disrupting biodiversity and ecosystem services. See eg <https://bit.ly/iverimpact>



Kinetic compaction & rivulets forming



Soil fertility

- 6.32 As explained in Section 3.8 above, the damage caused to soils during construction, operation and decommissioning of solar developments can be irreversible – or at least, may take decades to recover from. According to the ADAS / Welsh Government report, construction works *'can negatively impact the flexibility of agricultural land, **potentially lowering quality and ALC grade**'* (my emphasis).
- 6.33 This section briefly explains the problems associated with the Applicant's proposal to replace the existing arable crops with species-rich wildflower meadow / traditional sheep-grazed pasture, which is proposed as both landscape / visual mitigation, and ecological enhancement.
- 6.34 Currently, the site is in agricultural use, with high-yielding arable crops: around half of the site is categorised as BMV land.

- 6.35 The Landscape Masterplan shows that within the fenced solar array areas, the proposal is to sow a 'grass / wildflower seed mix' (*'grazing mixture - species-rich grassland suitable for site's ground conditions to be agreed'*).
- 6.36 Outside the fenced areas, two different mixes are proposed: i) 'grass / wildflower seed mix: Emorsgate Hedgerow Mixture EH1 or similar approved suitable for *site's ground conditions to be agreed'*; and ii) 'grass / wildflower seed mix: Emorsgate Woodland mixture EW1 or similar approved suitable for *site's ground conditions to be agreed'*.
- 6.37 However:
- i) BMV land is characterised by **high fertility / nutrient-rich soils**.
 - ii) In order to establish successfully, **wildflower meadows and species-rich grassland require low fertility / nutrient-poor soils**.
 - iii) The Applicant does not explain how this would be achieved. Would the topsoil be stripped and stored, or sold?
 - iv) Even if the fertility of the soils was reduced, it would take many, many years for a good, species-rich sward to develop, and that assumes a great deal of careful maintenance and management.
 - v) Furthermore, **it is now recognised that successful establishment of species-rich wildflower meadow does not occur under / around solar arrays**. This is mainly due to shading, runoff, and form of use / management (if not grazed by sheep, herbicides are customarily used).
 - vi) For example, ecological consultants working on the proposed Mallard Pass solar development mentioned previously are **not proposing species-rich wildflower meadow / pasture within the solar array areas**, as they recognised the problems of establishment. Instead, a standard six-species grass ley is proposed. The mixtures proposed to be sown on the Application site contain many more species, increasing biodiversity.
 - vii) After 40 years, the Applicant proposes that the land would be '*fully returned to sole agricultural use*', ie high-yielding arable crops on BMV land, with high-quality, productive soil.
 - viii) The Applicant does not explain how this would be achieved either. Would the stripped topsoil be returned, or would new topsoil be imported?
 - ix) The ecological effects of removing the grass / wildflower sward and returning to intensive cultivation have not been assessed.

Sheep-grazing

- 6.38 The Planning Statement states that the proposed development includes '*sheep grazing on species-rich neutral grassland*'.
- 6.39 However, evidence indicates that in practice, **grazing sheep within solar developments is not only highly impractical, but unwise**.
- 6.40 Most solar developers / promoters show photographs of sheep grazing in solar array areas. Interestingly, the vast majority are stock images which are available online, and most are from the same sites. One of the sites is in Eastern Europe (Kosovo? The stock photo shows goats as well as sheep), and I am advised that another belongs to a UK solar developer / operator and is on their farm, although I do not know if sheep are still being grazed there.
- 6.41 There appear to be very few if any solar developments in England where *currently*, sheep are being grazed. At a recent solar appeal hearing that I attended, when the Inspector asked for examples, the appellant mentioned a site in Essex (Outwood), but videos on YouTube from 2023 show no evidence of sheep at that site.

- 6.42 Many solar site operators simply use herbicides (and fertilisers), even though the ecological assessments in particular may have assumed that sheep would be grazed, and therefore, damaging chemicals would not be used (although they may not have been aware of the use of environmentally-toxic chemicals on sheep, such as endectocides²²).
- 6.43 At the same hearing, a local resident spoke, who is a life-long, expert sheep farmer. He said that in his opinion, it would not only be extremely difficult, but also **cruel** to keep sheep in solar array areas.
- 6.44 The farmer explained that the reason is mainly because sheep need to be kept in open spaces, where the shepherd can easily observe and monitor the flock. Daily inspections are critical for good animal husbandry, so that animals which are injured / lame / ill can be isolated from the herd and treated quickly (sheep are particularly prone to getting cast and dying if not righted within hours).
- 6.45 However, within the confines of solar arrays, due to the configuration of the panels, all but near-distance views are completely blocked.

Eye-level view within solar array in UK (sourced online, photographer / location unknown)



- 6.46 Also, the farmer said that it would be very difficult for sheepdogs to round up / separate sheep in that situation (other farmers said that the use of quad bikes would be virtually impossible).
- 6.47 In addition, he explained that due to the amount of shading from the panels, a healthy sward does not develop; thus, the grass does not provide the necessary amount of sugar and other nutrition that the sheep require for fattening-up. A poor sward can also adversely affect sheep's health.
- 6.48 A 2016 study at the operational Westmill solar site in the UK²³ found that *panels reduce temperatures beneath them in summer by up to 5.2°C, and the ground under them is also dryer. It also found that both species diversity and biomass were lower under panels, attributed to differences in micro-climate and vegetation management. Under the panels there were significantly fewer species, dominated by*

²² Endectocides are drugs often administered to sheep, which are effective against both endoparasites and ectoparasites, but they are environmentally toxic. Ivermectin, for example, has become notorious because of lethal and sublethal effects on beneficial coprophagic *Coleoptera* (eg dung beetles) and other invertebrates, disrupting biodiversity and ecosystem services. See eg <https://bit.ly/iverimpact>.

²³ A. Armstrong, N. J. Ostle, and J. Whitaker (2016) *Solar park microclimate and vegetation management effects on grassland carbon cycling*. Environ. Res. Lett. 11 074016

grasses, with only one broadleaved flowering plant present, being yarrow (Achillea millefolium), which is both shade-and drought-tolerant'.

- 6.49 As noted above, at the Gwent Levels solar site, the monitors found that *'The ground appears compacted and the panels have large areas of bare earth under and around them, with brambles starting to take over the area'.*

Grassland management at solar site in UK (sourced online, photographer / location unknown)



Weeds, left unmanaged, could become a problem for the panels

- 6.50 Furthermore, I have been advised that at one operational site, *"a large array had to be **completely recabled** after sheep were given access"*.
- 6.51 For the above reasons, in my opinion, it is not safe to assume that the Application site would be grazed by sheep (presumably that could not be the subject of a planning condition). The Applicant's assessments were based on this assumption, so some of the findings and proposed management prescriptions may need to be adjusted if it is accepted that sheep would not graze the land.

7 Operational Effects: Landscape Character

7.1 Operational Effects on Character of Site and Immediate Surrounds

- 7.1.1 The assessments **agree** that **the landscapes within which the site lies are 'valued' landscapes in the context of the NPPF**.
- 7.1.2 At para. 6.38, the LVA states that *'The site and its wider landscape are located within an area currently identified as a Special Landscape Area (SLA)... [and] the site and its wider landscape is currently considered to be a valued landscape as described at paragraph 174 [a)] of the NPPF by virtue of this local designation'* (note that para. 174 was replaced by para. 180 in the December 2023 version of the NPPF).
- 7.1.3 However, the SLA designation is the only reason given in the LVA for this being a 'valued' landscape.
- 7.1.4 Firstly, LVA para. 6.25 explains that *'The landscape within the SLA forms a small part of the Stour Valley Project Area and which can best be seen at Figure 1 of Appendix 8'*, but the assessment does not appear to have factored in any of the information relating to the Project / the Project Area – see below.
- 7.1.5 Secondly, whilst the reason for the High value judgement is undisputable, GLVIA3 para. 5.45 states that *'The value of the landscape receptors will to some degree reflect landscape designations and the level of importance which they signify, although **there should not be over-reliance on designations as the sole indicator of value**'* (my emphasis). Para. 5.25 explains that *'It is necessary to **understand the reasons for the designation** and to **examine how the criteria relate to the particular area in question***, in other words, one has to 'go beneath the blanket' of the designation to establish exactly which high-value features and qualities are present, and thus relevant to the effects assessments.
- 7.1.6 Indeed, this is confirmed in para. 9 of the LVA's method in LVA Appendix 1, along with reference to the Landscape Institute's Technical Guidance Note (TGN) 02/21 *Assessing the Value of Landscapes Outside National Designations*, which I also use in my value assessments. Yet none of the recommended survey and analysis appear to have been carried out, nor reasoned justifications provided. My own assessment found that the site and its contextual landscapes displayed many high-value natural and cultural attributes, as noted in the previous sections and below.
- 7.1.7 The reasons why this has been judged to be a 'valued' landscape are set out in the Stour Valley Project Area report.
- 7.1.8 In summary, the Stour Valley Project comprises a study carried out in 2019 - 20 and published in March 2020, by Alison Farmer Associates, for the Dedham Vale National Landscape (previously AONB). The study comprised a *'value landscape assessment of the Additional Project Areas (APAs) associated with the Dedham Vale and the Suffolk Coast & Heaths Areas of Outstanding Natural Beauty (AONB), which lie beyond these designation boundaries'*.
- 7.1.9 The report *'sets out the findings of the assessment for the Dedham Vale APA (referred to in this document as the Stour Valley Project Area - SVPA), and its key settlements... The Additional Project Area is clearly embedded within the Dedham Vale Management Plan and the work of the AONB Countryside Management Service which regularly works within the area, beyond the boundary of the existing AONB'*.
- 7.1.10 The project stems from *'early pressure on the former Countryside Commission by Local Authorities in the 1970's to consider a wider area for AONB designation. The Countryside Commission, in response to this, set up a "potential AONB" project in 1978. This project was considerably widened in 1981 and eventually became the basis for a project covering an area along the whole of the Stour Valley, upstream of the AONB'*.

7.1.11 Arguably (and a factor which has been acknowledged in appeal decisions relating to potentially 'valued' landscapes), **the fact that these landscapes are candidate National Landscapes raises their level of value**, although I have not assumed that in my own value judgements.

7.1.12 Regarding the specific and characteristic landscape features and qualities of value in this area, Section 5.3 of the Stour Valley Project Area report provides a very useful, and evocative, description (with my emphases):

*'The special qualities of the Stour Valley landscape lie not in dramatic scenery or arresting views but rather in its **gentleness, subtleness and quiet tranquillity** – the overlapping lines of vegetation on the valley floor and interlocking areas of woodland on valley slopes adding structure to the gentle convex slopes that define the valley systems.*

*'The settlements also reflect similar qualities being predominately **small in scale**, nestled into the gentle folds of the landscape such that they **recede in views (save for their churches)**. Their **intact vernacular and form and built landmark features enhance the agricultural scene**.*

*'The Stour Valley has always been a working landscape, **the production of crops and the utilisation of the river are essential to its qualities**. Many parts of the Stour Valley reflect **a combination of quintessential English lowland landscape and built form which rivals that of the existing AONB...***

*'**Conserving and enhancing the special qualities articulated in this report is a key aspiration of the Dedham Vale and Stour Valley AONB Management Plan**. This assessment has revealed that ... **much of the Stour Valley has a weight of evidence to demonstrate it is a valued landscape in terms of para 170a of the NPPF...**'*

7.1.13 The site and its contextual landscapes display many of the valuable features and qualities set out in the Stour Valley Project Area report. In particular, **they are of very high historical landscape value**.

Historic landscapes

7.1.14 The landscapes of the site and immediately surrounding area are of **high historic value**.

7.1.15 In fact, the landscapes of the site and immediately surrounding areas have been in use for millennia – probably since the Later Mesolithic period (c. 8000 – 6000 years ago), and certainly since the Neolithic (c. 6000 – 4500 years ago), as evidenced in the Suffolk Historic Environment Record (HER).

7.1.16 The HER map extract overleaf shows the scatter of prehistoric (pre-Roman) finds on and in the vicinity of the site, which include Neolithic flint (possible fabrication site) and other artefacts on an extensive area of land south of Boxted Hall, between Braggon's Farm and the Glem River.

Extract from HER showing prehistoric find locations around Boxted



- 7.1.17 In fact, in post-glacial times, this would have been an ideal place to settle, due to the presence of fresh water (springs and rivers); sheltered valleys; good outlook from higher surrounding land; and large mammals which were hunted for food.
- 7.1.18 The Applicant's *Heritage Statement* describes the numerous prehistoric archaeological features and deposits which are known to exist within the site boundary, including features indicative of Bronze Age settlement (boundaries, ring-ditches, enclosures and field systems). The clusters of features cover relatively large areas, and some of the individual features are large (one enclosure measures 80m by 70m).
- 7.1.19 It explains that Roman finds in the area suggest continuation of settlement through the Iron Age and beyond. It is likely that Boxted evolved slowly during the Anglo-Saxon / early medieval period (c. 410 – 1066 CE). The *Heritage Statement* notes that 'Boxted was recorded as a settlement during the Domesday Survey of 1086, in the hundred of Babergh. It had a recorded population of 25 households at this time. The site was historically located within the parish of Boxted and most likely formed part of the agricultural hinterland to this settlement during the medieval period'.
- 7.1.20 The period of human history which probably had the greatest influence on the landscapes of this part of the Glem valley as we perceive and experience them today is the later medieval (c. early 1300s – 1485).
- 7.1.21 The *Heritage Assessment* report produced by Dr Richard Hoggett, which was commissioned by SGV, and will be submitted as part of the group's response to the Application, emphasises the importance of the historical connections between the cluster of high-status medieval buildings south of Boxted, along the south side of the River Glem: Boxted Hall (16th century, but the existing building replaced an earlier house which was the home of the Poley family from the 14th century), Church of the Holy Trinity (mainly 15th century), and Moorhouse Farm (late 15th century, constructed as a park / hunting lodge for Boxted Hall within the Hall's deer park – see below).
- 7.1.22 Of particular importance are the landscapes which were / still are directly associated with these buildings, and which form their historical / present day context and setting.

7.1.23 Dr Hoggett's report explains:

'It is clear that the agricultural landscape of the proposed development area preserves its late medieval character and has strong historical associations with the surrounding historical institutions, particularly Boxted Hall and Moorhouse Farm, and that these connections are still evident and can be clearly read in the present-day landscape..'

'Later historical mapping and aerial photographs indicate that, barring the loss of some internal field boundaries to create larger plots, the agricultural landscape character of the proposed development area has remained largely unchanged for several centuries (Heritage Statement, paras 5.34-41). This conclusion is also captured in the Suffolk Historic Landscape Characterisation (HLC) assessment, which identifies that the fields within the eastern half of the proposed development site, between Moorhouse Farm and Boxted Hall, represent the pre-18th-century of irregular co-axial fields. Likewise, the Suffolk HLC identifies the fields within the western half of the proposed development area as the result of the pre-18th-century enclosure of a more random arrangement of fields (Heritage Statement, para. 5.42).'

7.1.24 The report goes on to say that:

'Of crucial importance to the significance of the church is its spatial and historical relationship with the medieval manorial centre at Boxted Hall. As a consequence, in addition to its own Grade I-listed status, the church also has very strong group value as part of a high-status, medieval, manorial landscape. As is discussed further below, this incorporates the Grade II-listed Boxted Hall, its associated Grade II-listed outbuildings, and the parkland within which they and the church are set, as well as the area of the former deer park to the west, which includes the former hunting lodge at Moorhouse Farm. Although not all of these landscape elements are intervisible, they are interconnected and the proposed development site forms an important part of their collective setting, occupying as it does most of the land between these features'.*

7.1.25 Although not noted in the Applicant's *Heritage Statement*, Dr Hoggett's *Heritage Assessment* report confirms what my own study had concluded, ie that the deep, wide ditch which forms the site's eastern boundary, along the west side of Tittle Hall Lane, is almost certainly a medieval deer park boundary associated with Boxted Hall.

7.1.26 Dr Hoggett explains that:

'The full extent of the park would have been enclosed with a substantial bank and a ditch, topped with a pale, to prevent the deer escaping from the park. While many of these boundary ditches have since been filled in, it is possible that some of the features identified in the Applicant's geophysical survey may relate to the extent of the former park, and this needs to be tested as part of the required archaeological trial-trench evaluation discussed in the previous section.

*'At least one stretch of the former park boundary apparently does still survive flanking the western side of Braggon's Hill as it rises south-westwards from Water Hall. Unfortunately, this ditch is obscured by the red site outline on all of the topographical Lidar images reproduced by the Applicant in Appendix 8 of their *Heritage Statement*, but can clearly be seen in Figure 8.*

'This ditch is unusually wide and deep for a roadside drainage ditch and is lined with several veteran trees, suggesting that it is a boundary of some considerable importance and age. The dimensions of the ditch are consistent with a deer-park boundary, which given the leaping ability of deer needed to be very large'.

Probable medieval deer park boundary ditch forming site's eastern boundary



7.1.27 The effects of the proposed development on historic landscape character and features are considered below.

Cultural Associations

7.1.28 A notable cultural value factor of the site's contextual landscapes is that this part of Suffolk is known as 'Constable country': the internationally-renowned landscape painter John Constable was born around 30km from Boxted, and the landscapes inspired some of the most famous of his works. Many of his paintings feature the River Stour, which flows south of Glemsford, and into which the River Glem discharges.

7.1.29 Also, nationally-renowned printmaker and painter Michael Carlo was born in Glemsford, and has lived and worked in Boxted for over 40 years. According to Suffolk Artists' website²⁴, *'The surrounding landscape has formed his work since then and his screen-prints, which document the changing local landscape, first established his reputation'*. Michael Carlo's website²⁵ explains that *'my immediate surroundings have informed all of my work. For the last 20 years a small copse on the top of a hill seen from the top of my garden across a small valley has been my subject matter'*.

7.1.30 The copse in question is Lownage Wood, which is adjacent to the site (Fields 5 and 6), on the crest of the hill to the west, the north side of which slopes down to the River Glem. **One of Carlo's images of Lownage Wood is displayed in the Tate Gallery.** The following images of Carlo's works featuring the Wood are in chronological order, with the most recent (unfinished when photographed) first. They are very good examples of the site's high aesthetic and perceptual qualities, as well as its inherent character. All works © Michael Carlo, and photos © Alastair Campbell.

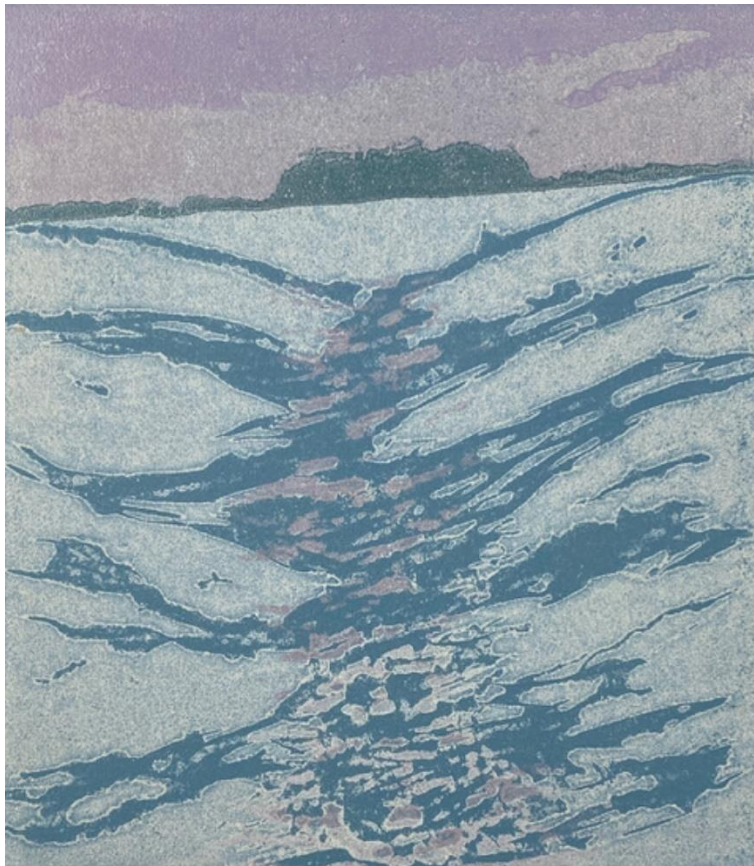
²⁴ <https://suffolkartists.co.uk/index.cgi?choice=painter&pid=903>

²⁵ <https://michaelcarlo.uk/2010s/>

Distant Wood (oil, 2024)



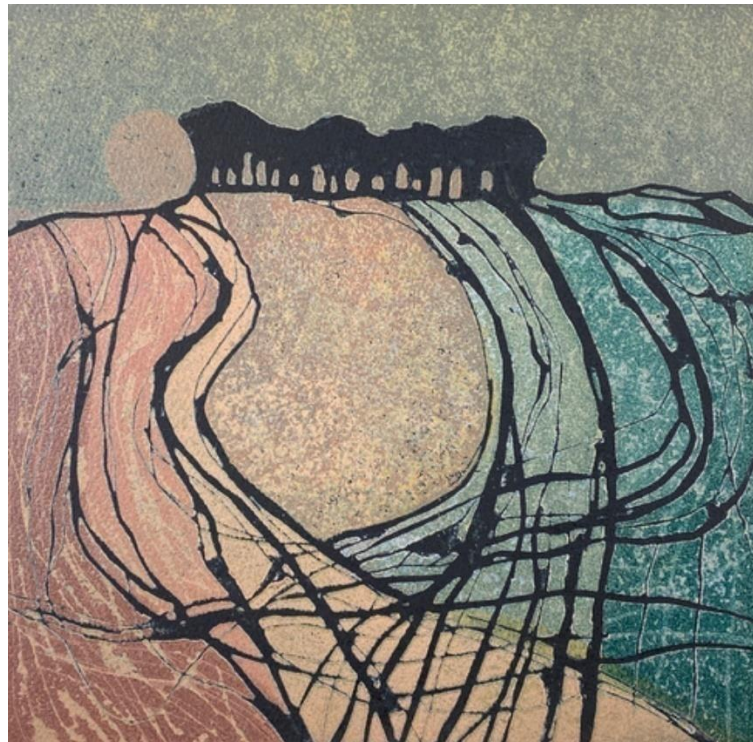
Earth 143 (woodcut, 2022)



Earth 89 (woodcut, 2015)



Earth 81 (woodcut, 2012)



Storm Across the Valley (ink wash and pen, 1998)



Storm Fields 1 (etching, 1995)



- 7.1.31 An interview with Carlo is included in the notes provided by local residents – see below. He explains, *"it was a terrific image, this wood. It changed constantly every morning. It was different. And the relationship of the wood to the sky seemed to connect. There was often a cloud right above the wood. Or the light was hitting the wood, or the colour of the wood. It was just... subtle, but rather beautiful. And I started to draw it, the wood. I could go into my studio, and I knew that I was going to do a drawing with the wood on the top. Or at the bottom sometimes, putting a lot of sky in. Now it's 2023, I'm still doing it, still drawing the same wood. So, I've included that wood in every single image that I've created since then. That's oil painting, prints, etchings, watercolours. 25 years. It must be about 1500 images in total. There's even one in the Tate Gallery in London. I've got a print in the Tate, and it's that very subject: the wood on the hill opposite in Boxted. So it's very important to me".*
- 7.1.32 Other local artists include Rui Paes, and Rachel Wood.

Natural landscape value / biodiversity

- 7.1.33 Biodiversity is an important factor in landscape and visual assessments, especially as different habitats have different characteristics and features which contribute to a landscape's character. Loss or erosion of habitats can lead to adverse effects on landscape character and visual amenity. Changes to landscape features, elements and landcover can also result in changes to these habitats and the species of flora and fauna they support.
- 7.1.34 Biodiversity is also a factor in making landscape value judgements. GLVIA3 notes that *'... the presence of features of wildlife... can add to the value of the landscape as well as having value in their own right.'*
- 7.1.35 In its guidance document A Handbook on Environmental Impact Assessment (4th edition 2013), Scottish Natural Heritage (SNH) explains that *'...all landscapes, everywhere, are important as [inter alia] ...an environment for plants and animals, the condition of which directly affects biodiversity conservation.'*
- 7.1.36 The baseline information which needs to be gathered and considered in landscape assessments is set out in LCA guidance; the list includes 'literature on wildlife' such as relevant NCA profiles, Biodiversity Action Plans, management plans, and habitat and other surveys.
- 7.1.37 Specialist ecological surveys / assessments are beyond the scope of landscape assessment, and in this case have been undertaken by ecologists appointed by the Applicant (see *Ecological Assessment*). However, an SGV member – not a qualified ecologist, but BSc (Hons Biology) – reviewed the *Ecological Assessment* and undertook their own study. They concluded that the *Ecological Assessment* was flawed, and did not identify certain species / factors which are of high biodiversity value. The SGV member's report will be submitted as part of SGV's response to the Application. See also effects below.

Community value

- 7.1.38 It is also very clear that the landscape, visual, amenity, and other resources provided by the site and surrounding areas are highly valued by the community as well as artists and visitors.
- 7.1.39 During my assessment, I asked local residents to write a few notes about the landscape and visual features and qualities that were important to them, and the notes were compiled into a single document, which I have included at Appendix CT-5. The notes were very useful for my baseline studies and effects assessments, as they contain detailed information about recreation, ecology and heritage, along with evocative statements describing the landscape's aesthetic and perceptual qualities, and mentions of resultant health and economic benefits. One said that the landscape, *"Brings pleasure and mental wellbeing to the surrounding community and visitors to the area who use it for walking, running, cycling, horse riding and wildlife/bird watching. Small businesses also benefit from the visitors"*.

7.1.40 The assessments **agree** that due to the industrial nature and scale of the proposed development, and the highly valuable and sensitive landscape context within which it would be placed, **the proposed development would give rise to Major Negative effects on the character of the site and its immediate surrounds, which are 'valued' landscapes, and on associated 'valued' views.**

7.1.41 At para. 6.37, the LVA concludes that *'The proposals would introduce a notable feature into an area of arable fields within a wider agricultural landscape which would change the physical and perceptual attributes of the site itself. Therefore, it is predicted that the proposed development would give rise to a high magnitude of change upon the character of the site area and immediate surrounds during construction and at Year 7, which would result in a Major Adverse level of effect'*.

7.1.42 In fact, in terms of scale, the development would be a very notable feature indeed. The site area is c. 43.7ha. I measured around the perimeter of the settlement of Hartest, including gardens, and public and private open spaces both within and on the edges of the village. The area is c. 20.7ha: in other words, **the site could easily accommodate two villages the size of Hartest.** See image below showing still from drone footage of the site, which is highlighted.

Still from drone footage of site



7.1.43 In the light of the above conclusion, ie that the proposed development would give rise to Major Negative effects on landscape character, I therefore find it odd – indeed, rather misleading – that at para. 8.12, the LVA contradicts its own judgment, stating that *'The proposed development has been designed in a manner which aims to be **sympathetic to local character** and has **appropriate regard to its surrounding landscape setting**. It also **recognises the site's intrinsic character and that of the wider landscape** whilst **seeking to maintain local character**'* (my emphases) – which it **clearly has not been**. Para. 8.14 goes on to say, *'the development can be accommodated without undue harm to landscape and visual amenity'*. Evidently, **that is not the case.**

7.1.44 The scheme would deliver no landscape (nor visual) benefits or enhancements. In fact, as noted above, the only relevant reference to 'enhancement' in the LVA is in terms of the assumption that the scheme would *'enhance important landscape features'*, when in fact, the 'enhancement' is proposed as landscape / visual mitigation, and therefore cannot be counted as landscape / visual enhancement.

7.1.45 Notwithstanding the above agreed matters, there are a few points of disagreement, which as explained previously (see Section 4), are mainly about the LVA process: whilst the LVA used the published guidance, the report contains errors, omissions, contradictions, and flawed assumptions. As a result, levels of effects on the wider landscapes (and certain views), have been underestimated.

- 7.1.46 Also, **the LVA provides very little analysis or explanation of the cause or nature of the effects** (see nature of construction effects in Section 5.1, and operational effects below). The same is true of other parts of the Applicant's submission, as explained both previously and in the following sections. However, it is very important to understand the likely effects, as if the Application was approved, some of the problems may need to be resolved through scheme design adjustments / mitigation / planning conditions / S106 agreements. It is also possible that some of the adverse effects could not be mitigated, and could result in permanent damage to / loss of valuable features.
- 7.1.47 Understanding the cause and nature of effects can also help developers, planning authority officers and others ensure that they are fully considered in future proposals.
- 7.1.48 Below is a summary of what would cause the effects, and the nature of the effects:
- i) Industrialising / urbanising features and activities would be introduced into **deeply rural** landscapes displaying **high levels of scenic qualities, tranquillity and time depth**, and which currently contain **no developments of, or even similar to, the type proposed**.
 - ii) This would result in a **permanent change in landscape / historic landscape character** from **agricultural / rural / tranquil**, to **modern / intensive / industrial / urbanised**. Dr Hoggett's Heritage Assessment concluded that '*The fundamental change of landscape character of the site from its existing agricultural character to that of an industrialised energy-producing landscape will have a **significant negative impact** upon the site itself and its surroundings*' (my emphasis).
 - iii) The site's **contribution to local / wider landscape character would be lost / damaged**.
 - iv) There would be **adverse changes to / loss of the site's landscape functions**²⁶, which as well as character, include contributions to: ecosystem services; green infrastructure (GI); natural / cultural heritage; visual and social amenity; and the everyday lives of the local community, including maintaining / enhancing people's mental and physical health and well-being, and quality of life. Regarding effects on ecosystem services, GI and the natural environment / biodiversity, see the letter from Gwent Wildlife Trust and Friends of the Gwent Levels in Appendix CT-4, and SGV's *Ecological Assessment*.
 - v) There would also be associated **negative changes in the landscape's positive aesthetic / perceptual qualities, especially tranquillity** (see below), arising from the industrialising nature of the proposals. For example, the landscape pattern of the wider landscape would be disrupted; there would be bright / contrasting colours, and glint / glare from the solar panels' and other reflective surfaces. Although levels of some effects would normally be lower during operation than construction, there would still be regular activities on site, with disturbance / activity / movement / noise (human and mechanical), clutter and paraphernalia, lighting and so on.
 - vi) There would be **locally-significant loss of vegetation**.
 - vii) The site's historical landscape patterns would be disrupted by **the proposed creation of new field boundaries on arbitrary lines**.
 - viii) **Glint and glare** would give rise to high levels of adverse landscape and visual effects.
 - ix) It is likely that panels / other equipment would need to be replaced from time to time, meaning that **construction effects would be experienced again during the operational phase**.
 - x) There would be **substantial adverse changes to / loss of views and visual / social amenity** resulting from the above – see Sections 8 and 9.
 - xi) **Tranquillity** is a relevant consideration here, because parts of the local area benefit from this landscape quality.

²⁶ For more information about landscape functions, see the Landscape Institute's TGN 02/21 *Assessing landscape value outside national designations*.

- a) Tranquillity is defined in the glossary of GLVIA3 as '*a state of calm and quietude associated with peace, considered to be a significant asset of landscape*'.
- b) Tranquillity is often assumed to be synonymous with 'lack of sound'; however, in landscape and visual assessment, that is not the case. 'Tranquil areas' should not be confused with 'quiet areas', which are defined by the European Environmental Noise Directive (END; 2002/49/EC) as '*those areas delimited by national authorities that are undisturbed by noise from traffic, industry or recreational activities*'.
- c) In Wales, the definition of tranquillity that has been adopted by both Welsh Government (Welsh Government 2012) and Natural Resources Wales (NRW 2016a) is '*An untroubled state, which is peaceful, calm and free from unwanted disturbances. This can refer to a state of mind or a particular environment. Tranquillity can be measured in terms of the absence of unwanted intrusions, or by a balancing of positive and negative factors. These include **the presence of nature, feeling safe, visually pleasing surroundings and a relaxing atmosphere** (my emphasis)*'.
- d) The LI's technical information note (TIN) 01/2017 on the subject²⁷ (revised March 2017) was '*prepared for the purposes of providing an overview of what is understood by the term 'tranquillity' within the landscape profession and to inform any future discussions and actions on the topic*'. The TIN – which was not referenced in the Applicant's LVA – explains that '*There are clear links between landscape and tranquillity... the interpretation of tranquillity is often linked to an **association or engagement with the natural environment** and it is this interpretation that places the term within the realms of landscape related study and research*' (my emphasis).
- e) The TIN goes on to say that '*tranquillity cannot readily be defined as an environmental characteristic or quality as it is a state of mind that is being described and thus human perceptions as well as factual evidence must be considered in any studies relating to the term. Tranquillity is, in effect, an umbrella term used to refer to **the effect of a range of environmental factors on our senses and our perception of a place** (my emphasis)*'.
- f) Natural England lists 'relative tranquillity' as one of six factors that contribute to natural beauty.
- g) A 2001 survey commissioned by Defra cited tranquillity as **the most commonly-mentioned reason why people visit the countryside**.
- h) Tranquillity is an important factor in why people visit certain places, and why they choose to live and / or work in them.
- i) One of the most commonly-reported benefits of tranquillity is its **ability to enhance a positive peaceful, state of mind: generally considered to contribute to enhancing people's quality of life**.
- j) Thus, even during the operational phase, when the site would not be as active / noisy as it would be during construction / decommissioning, **there is no doubt that the proposed development would give rise to high levels of adverse effects on tranquillity**.

7.1.49 Also, as explained in Section 4, the LVA **erroneously** assumed that:

- a) it is possible to mitigate the adverse effects of replacing green field land with industrial built form;
- b) the DNO substation would not be permanent, which it may be;
- c) screen planting reduces levels of effects on character;

²⁷ <https://landscapepstorage01.blob.core.windows.net/www-landscapeinstitute-org/2017/02/Tranquillity-An-Overview-1-DH.pdf>

- d) mitigation measures can be double-counted as benefits / enhancements; and
- e) levels of adverse effects are reduced by enhancements.

7.1.50 In addition, **adverse effects on character and views would be caused by the proposed mitigating measures, some of which are uncharacteristic / inappropriate** (see Section 4.6).

7.1.51 Furthermore, the replacement of arable fields with species-rich flower meadow / pasture is counted as landscape / visual mitigation, and ecological enhancement; however, as explained in Section 6, the significant problems associated with establishing species-rich meadow / pasture on arable land do not appear to have been considered.

7.2 Operational Effects on Wider Landscape Character

7.2.1 As noted previously, whilst the assessments agree that the proposed development would give rise to **Major Negative** effects on the character of the site and its immediate surrounds – albeit the LVA provided limited information about the nature and cause of the effects – there is disagreement about the level of effect on the wider landscapes.

7.2.2 The Joint Babergh and Mid Suffolk District Council Landscape Guidance (2014) categorises the majority of the site as being the Undulating Ancient Farmlands Landscape Character Type (LCT) 23 (the locations of the LCTs in the study area are shown on LVA drawing no. P21-2950_03 Rev A).

7.2.3 The guidance notes, and my assessment agrees, that these landscapes have retained the integrity of their historic character, and on the whole, over time, development has been effectively managed. The LCT is also **rare**, occurring only once in the district. The landscapes are characterised by open undulating farmland of ancient enclosure, with irregular field patterns delineated by large, established hedges, interspersed with blocks of ancient woodland.

7.2.4 The first of the series of photographs below is from the front cover of the Applicant's Heritage Statement, showing the view looking north from within the site. Not only is it a good illustration of the LCT, it also **clearly demonstrates how alien and inappropriate industrial development would be in these landscapes**.

Typical Undulating Ancient Farmlands LCT, near Boxted





- 7.2.5 The artist Michael Carlo's works (see previous section) capture the Undulating Ancient Farmlands character perfectly.
- 7.2.6 It is agreed that the site and its contextual landscapes are highly typical, and good representations of, the host LCT.
- 7.2.7 The Objectives for the LCT are '*To **maintain and enhance the landscape and the settlement pattern, ensuring the sense of separation between settlements is maintained***'; '*To **reinforce and enhance the rural, quiet ambience of the area***'; and '*To safeguard the ancient woodland and hedges.*'
- 7.2.8 LVA para. 6.25 states that '*The susceptibility of this part of the Undulating Ancient Farmland character type is considered to be **medium***' (on a five-point scale ranging from Very Low to Very High). I disagree: my own assessment concluded that the level was **High**. Unfortunately, the LVA does not set out the criteria that have been applied in reaching this conclusion (GLVIA3 para. 5.43 emphasises that the basis for judgements must be '[made] *clear, and linked back to evidence from the baseline study*').
- 7.2.9 One of the most important susceptibility criteria is whether or not there are any existing developments which are similar to that proposed within the contextual / receiving landscapes. In this case, there are not. Indeed, this is confirmed at LVA para. 6.30, which states that the proposal would introduce '*a solar development where no such similar development is present within the local landscape*'.
- 7.2.10 Indeed, the fact that BMSDC did not require a cumulative effects assessment to be carried out by the Applicant confirms the lack of similar development in the study area.
- 7.2.11 I **agree** with the LVA's judgements about the wider landscape's level of landscape value (**High**, mainly due to the SLA designation and confirmation of 'valued' landscape status in the Stour Valley Project study), and overall landscape sensitivity (also **High**).
- 7.2.12 LVA para. 6.31 concludes that **for the duration of the 40-year operation**, the development would result in '*a Moderate to Major/Moderate Adverse level of effect*' on the Undulating Ancient Farmland LCT. However, the LVA concludes that the effects would only be experienced within '*those limited parts of the wider character area from which [the development] would be visible*'. **The assumption that effects on character are related to visibility is incorrect:** as GLVIA3 makes clear throughout, effects on character and views must be assessed separately, especially because effects on character can occur even if there would be no views of the change. If landscape and visual effects are conflated, then levels of effects on character are assumed to be lower than they would actually be.
- 7.2.13 Furthermore, the LVA assumes that beyond the site's immediate surrounds, where effects would be Major Negative, the level of effect would immediately reduce to Moderate to Major / Moderate Adverse. In fact, levels of effects on character decrease gradually with distance, to the point where there is no interinfluence. It is important to note that there may be high levels of interinfluence / association between landscapes / features which are not related to visibility, but to physical / cultural aspects / qualities. Levels of visual effects also decrease gradually with distance, until there is no intervisibility.
- 7.2.14 Therefore, instead of being 'Moderate to Major / Moderate Adverse', the level of effect on the Undulating Ancient Farmland LCT beyond the site's immediate surrounds would be **Moderate to Major Adverse** (usually considered to be above the significance threshold in EIAs), and that level would decrease gradually with distance from the site.
- 7.2.15 Small parts of the site, at its north-western and north-eastern edges, lie within the Rolling Valley Farmlands LCT, which in this area, covers the landscapes on the upper slopes of the Glem River valley and tributaries. The lower valley slopes and valley floor are categorised as the Valley Meadowlands LCT – the north-eastern tip of the site is adjacent to this LCT.
- 7.2.16 At para. 6.34, the LVA concludes that beyond the site and its immediate surrounds, levels of effects on the Rolling Valley Farmlands LCT would be **between Moderate and Minor Adverse** at

construction and Year 1. Although not clear, this may be due to the limited amount of the LCT with which there is interinfluence; however, within the areas where there is interinfluence, inevitably (due partly to the same factors which apply to the Undulating Ancient Farmland LCT), levels of effects would be higher - **Moderate to Major Adverse**.

- 7.2.17 At para. 6.35, the LVA concludes that by Year 7 of operation, due to the proposed woodland planting, not only would levels of adverse effects on the Rolling Valley Farmlands LCT have reduced, they would have become **beneficial**: *'At Year 7 the young woodland would be in early establishment and would bring about a very low magnitude of change, but one which becomes **Minor beneficial, and would continue to increase its beneficial effect over the lifetime of the Proposed Development and in perpetuity**'*.
- 7.2.18 The above statement is another example of the LVA assuming that planting which is proposed to screen views i) reduces levels of effects on character – **it does not**; and ii) can be double-counted as a landscape enhancement – **it cannot**.
- 7.2.19 In fact, as mentioned above, the proposed mitigation measure would in itself give rise to adverse landscape and visual effects, being an inappropriate and uncharacteristic feature in this landscape.
- 7.2.20 Another reason why landscape and visual effects would be higher than reported is that the development is assumed to be temporary (for example, the last bullet point at LVA para. 5.4 states that *'The operational lifetime of the proposed development is 40 years and, being reversible on decommissioning, is therefore considered to be a temporary project'*).
- 7.2.21 However, as explained in Section 3.7, i) it is possible that the DNO substation and access may be permanent; ii) 40 years would be permanent for many of the affected people, in terms of their life expectancies; and iii) many experts agree that applications for solar power stations *should* be assessed as 'permanent', as that represents the 'worst-case scenario' which should be adopted as best practice.

8 Operational Effects: Views / Visual Amenity

8.1 Introduction

- 8.1.1 During operation, adverse visual effects would be caused by the adverse changes to landscape character that would occur as a result of the proposed development, as described in previous sections.
- 8.1.2 It is agreed that levels of effects on the character of the site and its immediate surrounds would be Major Negative, mainly due to this being a 'valued' landscape. Thus, it is logical to assume that where near-distance clear full or partial views of the developed site are available, levels of visual effects on 'valued' views are also likely to be Major Negative.
- 8.1.3 Also, as with character, levels of visual effects reduce gradually with distance, subject to intervening screening elements; therefore, logically, beyond the site's immediate surrounds, levels of visual effects would be between Major and Moderate Negative, reducing to No Effect at varying points.
- 8.1.4 Of course, much depends on factors such as distance; angle and elevation of view; the amount of development that would be visible; what it would look like; and the nature of any existing and proposed screening.
- 8.1.5 The visual effects are explained in detail below, but in summary, the LVA did indeed conclude that during the operational phase, the highest level of visual effect would be **Major Negative**.
- 8.1.6 I **agree** that would be the highest level. If this had been EIA development, that level would be categorised as '**significant**'.
- 8.1.7 However, I **disagree** with the LVA's assumption that this level would only be experienced by receptors at one viewpoint (VP1, categorised as private, along the access road to Moorhouse Farm), and only during Years 1 – 6: after that, the LVA predicts that effects would reduce to Moderate Negative (or 'Adverse') – see effects on residential receptors below. In fact, my assessment concluded that levels would be higher than reported in the LVA for many of the private and public visual receptors identified, and would almost certainly not reduce after six years.
- 8.1.8 The differences between the assessments' conclusions are mainly due to differences of opinion about a) visual receptor sensitivity (see Section 4.3 and the visual effects section below where relevant), and b) the levels of magnitude of change resulting from the works, in particular whether the change is harmful or beneficial (see Section 4.5 and the visual effects section below where relevant).
- 8.1.9 The LVA considers effects on views a) between Years 1 and 6 of operation, ie before the proposed screen planting had become effective; and b) between Years 7 and 40 of operation, on the assumption that by Year 7, the proposed screen planting would have become effective.
- 8.1.10 The problems with the latter assumption in particular are explained in Section 4, but in summary:
- i) It is highly unlikely that effective screening would be achieved within seven years of planting at some VPs: twenty years is more realistic.
 - ii) Views from other VPs would not be screened at any point during the operational period due to elevation.
 - iii) Some of the proposed mitigating measures would in themselves give rise to adverse effects on views.
 - iv) The LVA places a great deal of reliance on both existing and proposed vegetation to screen views, which is not considered to be good practice for many reasons.

- 8.1.11 Also, as noted previously, it is not clear whether the proposed DNO substation would be a truly permanent fixture in that it would remain in place at the end of the 40-year operational period. Therefore, clarification is required about whether the complex, associated cabling, and access off Tittle Hall Lane / across the site, would be removed during the decommissioning phase. If not, then **visual (and other) effects should be reassessed on that basis.**
- 8.1.12 Furthermore, **the LVA did not consider the visual effects of glint and glare, which is a major omission.** Evidently, the LVA was not cross-referenced with the Applicant's glint and glare study: the first bullet point of LVA para. 5.4 states that *'the solar panels will have a non-reflective surface, which will increase the proportion of radiation absorbed, removing the risk of unwanted reflection and glare'*: **that is an erroneous assumption.** See comments about photomontages below, and Section 10.

8.2 Operational Visual Effects Overview

- 8.2.1 A total of 15 no. VPs were selected for assessment in the LVA, although I understand that the choice of locations was not discussed with the Council. The VPs' locations are shown on the LVA's *ZTV With Viewpoint Locations* plan (drawing no. P21-2950_02 Rev B). Some of the views were the subject of photomontages – see below).
- 8.2.2 All the VPs are at publicly-accessible locations, but some are also intended to be representative of private views from residential properties in the vicinity of the VP.
- 8.2.3 LVA para. 2.15 states that *'No access was possible to private properties and therefore, assumptions have been made regarding the view from private properties'*: nearby 'representative' VP locations were selected instead. However, the assessors could easily have asked residents whether they could check views from the properties, which I often do when carrying out commercial assessments, and almost always do when acting for local communities. Many are very glad that effects on their visual amenity have been properly assessed.
- 8.2.4 Otherwise, it is usually possible to gain a good idea of both visual receptors and the likely degree of visibility they would have of the site by combining analysis of the ZTV plan with standing on the site and looking out. However, this does not factor in the height of scheme elements, so the visibility of the developed site would be more extensive.
- 8.2.5 Whilst the LVA's visual baseline study is quite comprehensive, unfortunately, the ZTV plan does not give a true indication of the extent of the places from which visual effects would be experienced. That is because:
- i) The VP locations are shown at single points, whereas the LVA intends the VPs to be representative of both other VPs in the vicinity of that point, and view routes. The latter sometimes run between two or more VPs (one is c. 2.2km long – see recreational receptors below), and along them, views are experienced sequentially.
 - ii) There are other VPs and view routes from which there would be clear views of the developed site.
 - iii) The ZTV does not factor in the visibility of scheme elements above 3.5m high – some could be c. 9m tall, therefore visible at locations from which lower scheme elements may not be visible, and potentially, breaking the skyline.
- 8.2.6 My own assessments were carried out with the assistance of members of SGV and people from the local communities. I asked them to do research and fieldwork to help inform / augment the baseline studies and effects assessments, under my professional guidance. I often do this, not just because it helps to keep costs down, but also, in my experience, local people usually know far more about their own backyards than anyone else, and are a mine of information. Furthermore, involvement in the studies helps engender a sense of responsibility and a deeper understanding of and respect for

landscape and its value (see public consultation in Section 3.5 above).

- 8.2.7 The residents used OS and other maps for their studies, including the draft landscape and visual baseline plans I had already prepared. The information they gathered during desktop and on-the-ground studies, in accordance with my brief, included:
- Key visitor attractions, recreational / community facilities, schools, shops, places of work etc.
 - Important recreational / daily commute connections between the site and the wider area.
 - Routes (along roads, BOATs, bridleways, public / permissive footpaths) typically / frequently used by the local community and visitors, i) in cars, ii) on bicycles, iii) on horseback, iv) on foot and v) by bus.
 - Public and residential VPs.
 - Highways constraints along the proposed construction route.
- 8.2.8 I used the 1:25,000 OS map of the study area as the base for all the baseline study information. For the visual assessment, I used a clean map base, but during the study, the plan was cross-referenced with the landscape baseline plan in Appendix CT-2, which shows the natural, cultural and social features in the area, many of which are of relevance to views and effects upon them.
- 8.2.9 The plan in Appendix CT- 6 is my working draft. The areas highlighted in orange coincide with where the LVA ZTV plan shows there would be theoretical intervisibility with 3.5m high scheme elements, and where there are potentially public and / or private VPs / view routes within those areas (this makes planning and carrying out the on-the-ground assessments much easier).
- 8.2.10 The LVA's VPs and view routes were marked on the plan, along with other VPs and view routes from which the undeveloped site was found to be visible, or it was considered likely / possible that the developed site could be visible.
- 8.2.11 The residents began with this information, and when their own studies were complete, produced a more comprehensive plan showing the additional VPs and view routes they had identified: see Appendix CT-7. The plan forms part of SGV's submission, and is accompanied by photographs from the VPs and routes.
- 8.2.12 These plans give a **much more realistic indication of the likely spread of visual effects.**
- 8.2.13 Most importantly, it must be noted that **these are only locations from which the existing site is currently visible:** evidently, **the extent of visibility would be far greater with the scheme elements in place** (it would also be greater without the benefit of intervening screening vegetation, some of which is thin / impermanent).
- 8.2.14 Analysis of the VP and view route location plans shows that due mainly to topography (and subject to localised variations), but also existing woodland which appears to have a relatively high degree of permanence (although see reliance on vegetation to screen views in Section 4.7), **the developed site would be most visually dominant at close quarters (up to c. 500m from the boundary), and highly prominent in views up to c. 2km away.**
- 8.2.15 The developed site would certainly be visible, and potentially prominent, at VPs at least c. 3km away, but levels of effects would reduce gradually with distance, or suddenly where 'solid' screening was present.
- 8.2.16 The topography of the River Glem valley, and the associated hills and valleys beyond, is such that many of the VPs and view routes lie north of the site; also the landscapes north of the river are slightly more accessible than to the south, with several lanes / tracks running through them, and associated scattered settlement, so there are more VPs and view routes.
- 8.2.17 In fact, views of the developed site would be available in a broad arc from north west (furthest point near Hawkedon, c. 2.5km from the site) to east (furthest point along lanes, footpaths and bridleways

- north east of Hartest, c. 2.5km from the site. Also, from the ridge running south west from Gifford's and Dales Farms, dropping into the River Glem valley just east of Boxted, c. 750m from the site).
- 8.2.18 As well as those mentioned above, within the ZTV there are other settlements scattered across the hills and slopes to the north from which the developed site would certainly be visible to varying degrees: the village of Somerton; various small hamlets / clusters of residential properties; isolated residential properties; and farmsteads. These are linked by narrow, lightly-trafficked lanes, publicly-accessible trackways, and footpaths / bridleways / restricted byways.
- 8.2.19 The south-facing valley slopes and hills are directly opposite the site, which is on the north-facing slopes. The highest point of the site is c. 90m AOD, and the highest points of the hills and slopes opposite from which there are views are at a similar elevation – mainly between c. 100m and 80m AOD.
- 8.2.20 Most importantly, at these locations, **levels of visual effects would be particularly high because the full east - west extent of the c. 1.25km long site would be visible.**
- 8.2.21 The ZTV shows that there would also be intervisibility between 3.5m high scheme elements on the site and visual receptors at VPs to the south east, and to the south: the highest hills are around 70m – 80m AOD. However, there is very limited intervisibility along the valley of a tributary of the River Glem, which flows south of the site, from west to east.
- 8.2.22 The main settlement in these sectors is Glemsford, which lies c. 2km to the south. The ZTV shows that 3.5m high scheme elements would only be visible from the north-western outskirts of the settlement, and from a point on the east side of the village (in the vicinity of the Grade I listed Church of St Mary), **but taller scheme elements are likely to be visible from other parts of the village as well.**
- 8.2.23 The land west and north west of Glemsford is elevated, and is crossed by several public footpaths and lanes from which **the full east - west extent of the c. 1.25km long site would be visible.**
- 8.2.24 The only LVA VP in the south east and south sectors over 500m from the site is VP15.
- 8.2.25 To the south west of the site, within the River Glem tributary valley mentioned above, visibility of 3.5m high scheme elements on the site would be limited, but potentially, the elements would be visible from the more elevated VPs and view routes, at distances of c. 2.5 – 3km from the site.
- 8.2.26 **Taller scheme elements are likely to be visible from other longer-distance VPs and view routes in this sector.**
- 8.2.27 Closer to the site, on the northern side of the tributary valley, the land is elevated, with a high point of c. 92m AOD along the lane between Fishers (a Grade II* listed building of c. 15th century origins, c. 750m from the site), and Trickett's Hall (c. 900m from the site).
- 8.2.28 The only LVA VP in the south west sector is VP5, which is just east of Fishers, and representative of views from that building and others in the vicinity. VP5 is near the western end of the continuous view route, which begins at VP1 (on Tittle Hall Lane, at the eastern end of the access road to Moorhouse Farm), runs along the lane and the BOAT adjacent to the site (VP2), then along the public footpath at the western end of the BOAT (VP4) which leads to Fishers (VP5).
- 8.2.29 **The total distance of this view route is c. 2.2km.**
- 8.2.30 GLVIA3 para. 6.39 states that '*Judging the magnitude of the visual effects identified needs to take account of... the nature of the view of the proposed development, in terms of **the relative amount of time over which it will be experienced***' (my emphasis).
- 8.2.31 And of course, even if 3.5m high scheme elements would not be visible along parts of the route / from residential properties, whether screened by existing or proposed vegetation, **the taller scheme elements are likely to be.**

- 8.2.32 The ZTV shows that the crest of a hill lying just west of the site would screen what appear to be all public and residential views of 3.5m high scheme elements, in an arc from south west to north west, ie between Fishers, and the southern outskirts of Hawkedon. The elements would be visible from a section of the Bury to Clare Walk long-distance trail south east of Hawkedon.
- 8.2.33 **Taller scheme elements are likely to be visible from other VPs and view routes in this sector.**
- 8.2.34 Finally, the LVA has not considered **sequential visual effects** along other view routes, which is recommended in GLVIA3 (for example para. 6.27 4th bullet point, which states that an issue for consideration in the assessment is '*whether the view is stationary or transient or one of a sequence of views, as from a footpath or moving vehicle*').
- 8.2.35 Many people from the local community and visitors use the network of PRsoW and lanes to walk / cycle / ride / drive in loops, or make return journeys along the same route, some short, some long. Thus, in a single journey, **people may see the developed site several times at different locations**. In addition, some people may also see the developed site from their properties, therefore the visual effects would be experienced almost continuously.

8.3 Operational Visual Effects Assessment

- 8.3.1 As noted above, fifteen VPs were selected for assessment in the LVA. All the VPs are at publicly-accessible locations, and are intended to be representative of views from public VPs in the vicinity. Many of the VPs are also intended to be representative of views along PRsoW / lanes between them. Some are also intended to be representative of private views from residential properties in the vicinity.
- 8.3.2 The LVA groups the visual receptors into three categories: i) residential; ii) recreational; and iii) road-users. For ease of reference, I have used the same headings.
- 8.3.3 A summary of the LVA's visual assessment results is provided in LVA Table 2, but whilst the table describes the receptor / their location, it does not give the relevant VP number for the location, so I have added that information in the following sections where relevant.
- 8.3.4 Also note that in some cases, visual effects on residential receptors are described in more detail in Section 10, which deals with the effects of glint and glare, for example Water Hall.

Residential receptors visual effects

- 8.3.5 The LVA assessed private views from nineteen locations: some VPs are at isolated properties, others are representative of VPs at small clusters of properties / hamlets, and the larger villages.
- 8.3.6 Some of the views from private VP locations are intended to be represented by views from nearby numbered public VPs (VPs 1, 4, 5, 6, 7, 10 and 11), but the locations of the properties are not shown on the LVA plans (I marked them onto my own plans).
- 8.3.7 As explained above, the LVA assessors did not check views from private properties / land, but it is usually possible to estimate what levels of effects are likely to be by other means, for example finding nearby locations at which the view is very similar; looking out from the site (but factoring in eye-level being lower than proposed scheme elements); or by drawing long sections by hand / digitally (or using a combination of all these and other methods).
- 8.3.8 Also as explained above, the LVA concluded that during the operational phase, the highest level of visual effect at a private VP would be **Major Negative** (the highest level on the scale, which would be categorised as 'significant if this was EIA development).
- 8.3.9 This was the only VP at which Major Negative effects were predicted. However, this level would only be experienced during Years 1 – 6: after that, the LVA predicts that effects would reduce to **Moderate Negative**.

8.3.10 The receptors at this VP are people using the access road to Moorhouse Farm, off Tittle Hall Lane. The representative VP is VP1, at the eastern end of the access road.

8.3.11 I **agree** that Major Negative effects would be experienced during Years 1 – 6, but **disagree** that from Year 7 onwards, and until Year 40, the level would reduce to Moderate Negative. My assessment concluded that the level would **remain Major Negative for the duration of the operation**, for the following reasons (explained in detail above, summarised here):

- i) The LVA categorises residential receptors as being of High sensitivity, whereas the level should be Very High. That automatically increases the level of effect to between Moderate and Major Negative.
- ii) It is highly unlikely that the proposed screen planting would become effective by Year 7: Major Negative effects would be experienced until an effective screen was formed, which would be many years.
- iii) If the planting did eventually grow tall enough to screen views, the result would be the total loss of a fine open view, resulting in a Major Negative effect. This effect is illustrated in the LVA's photomontage for VP1 at Year 7. This should be compared with the photomontages of a) the existing view, and b) the view at Years 1 – 6.
- iv) The planting is uncharacteristic, and in itself would give rise to adverse visual effects, thus increasing levels of adverse effects as opposed to reducing them.
- v) The LVA's assessment is based on 3.5m high elements, but taller scheme elements are likely to be even more highly visible.

Moorhouse Farm access road looking west from Tittle Hall Lane



Access road looking east from south of farmhouse



Access road looking south west towards Field 1



8.3.12 Moorhouse Farm itself (property and gardens) is adjacent to (west of) Field 1, and c. 180m north east of Field 4.

8.3.13 The LVA concludes that *'there is some potential for views from the south facing aspects of the property and its surrounding curtilage'*. It estimates that between Years 1 and 6, levels of effects would be **Moderate Negative, reducing to Moderate / Minor Negative between Years 7 and 40**.

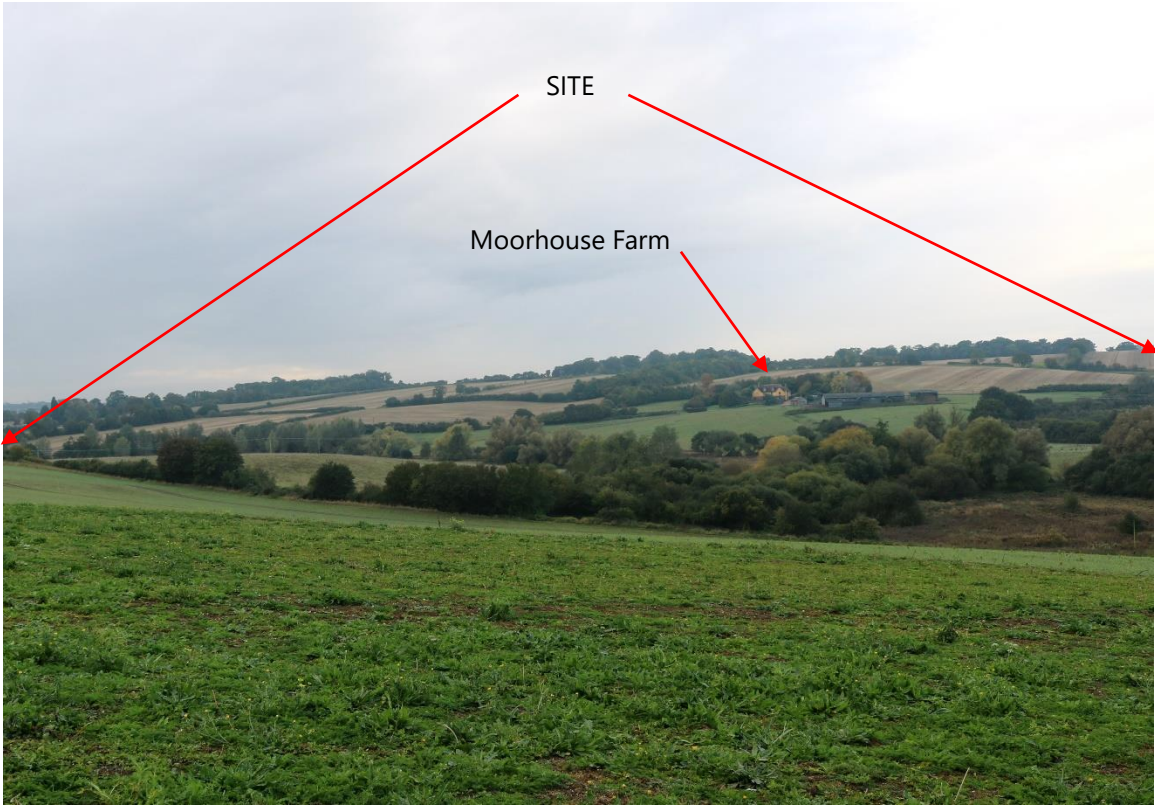
8.3.14 I did visit the property, and agree with the LVA that currently, mature vegetation in the gardens screens or filters certain views of the site. However, the same factors outlined above for VP1 apply to this VP. Also:

- i) The site is clearly visible from several aspects of the property, not just south-facing. It is also visible from both ground level, and upper floors (see photos below).
- ii) The site (predominantly Fields 1, 2, 3 and 4) is clearly visible from the edges of the garden, and from open parts of the garden's interior where there are no trees.
- iii) It may eventually be possible to eventually screen – or at least, filter – views of the developed site from ground-level, but even if possible, the result would be the total loss of a fine open view, resulting in a Major Negative effect.
- iv) It would not be possible to screen views of the site from the upper floors of the house, unless trees in the garden eventually grew taller than the house, in which case, again, the result would be the loss of the view.
- v) The LVA assumes that the existing screening vegetation in the gardens (and beyond) would remain in place for the duration of the operation, but of course it may not, in which case, there is no doubt that effects would be Major Negative.

Moorhouse Farm from Tittle Hall Lane (Fields 1 and 2 in foreground)



Farm in wider landscape context, from valley mid-slopes to north, looking south



View from upper floor of house looking south east over Fields 1 and 2



View from garden looking south west towards Field 4



8.3.15 The next-highest level of effect that the LVA predicts would be experienced by residential receptors is **Moderate Negative**.

8.3.16 The affected properties, which are quite scattered, lie north of Boxted on the south-facing River Glem valley mid-slopes, opposite the site, between c. 400 and 800m from the site's north-eastern boundary, on both sides of the B1066. The views from these properties are represented by LVA VPs 7 and 10, and a photomontage of the developed view was provided for each.

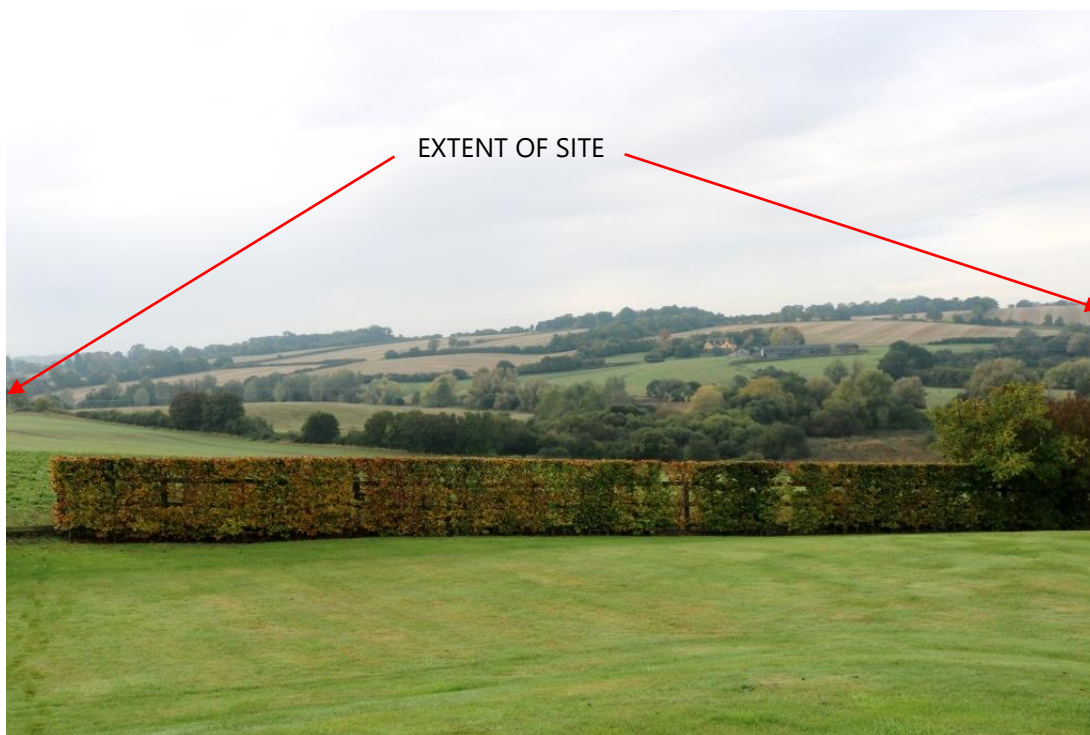
View from proposed site access point looking north towards south-facing River Glem valley slopes



8.3.17 The same or similar factors outlined above for VP1 apply to these VPs as well. The most important points to emphasise in this case are:

- i) The LVA categorises residential receptors as being of High sensitivity, whereas the level should be Very High. That automatically increases the level of effect to between Moderate and Major Negative.
- ii) According to the LVA, at properties in the vicinity of VP7, which are at around 50 - 60m AOD, the Moderate Negative effect would be experienced for the duration of the operation. Presumably, that is because the elevation of the VP in relation to the sloping site which faces it means that screen planting would not be effective.
- iii) However, at VP10, which is at a higher elevation than VP7 (c. 70 – 80m AOD), and further away, for reasons which are not explained, the LVA predicts that from Year 7, and for the duration of the operation, the Moderate Negative effect would **reduce to between Moderate and Minor Negative**, which makes no sense.
- iv) The Moderate Negative level of effect is based on the assumption that from Year 7 onwards, the level of magnitude of change in views from the property would be between Medium and Low. The criteria for Low are simply '*Some change in the view that is not prominent but visible to some visual receptors*'; and for Medium, '*Some change in the view that is clearly notable in the view and forms an easily identifiable component in the view*'. In my opinion, having visited the area, and some of the properties, between Medium and High is more appropriate, High being '*A major change in the view that is highly prominent and has a strong influence on the overall view*'.
- v) Note that from the north, **the full c. 1.25km-long east – west extent of the developed site would be visible**, and due to topography, **it would occupy a large proportion of the view**: see photograph below.

View looking south from property near LVA VP10



- vi) Indeed, the LVA's assessment of effects on recreational receptors at VP10 / the associated view route along the public footpath which runs adjacent to the northern edge of a small cluster of properties on the slope (Miller's Cottage, Mill House, The Old Steam Mill) concluded that levels

would be **between Major and Moderate Negative effects for the duration of the operation.**

vii) Thus, at the residential VPs, the level would also **remain between Major and Moderate Negative for the duration of the operation.**

8.3.18 At other residential VPs, the LVA predicts that between Years 1 and 6 of operation, levels of effects would range from between Moderate and Minor Negative, to No Effect; and between Years 7 and 40, from between Moderate and Minor Negative, to Minor Positive (or 'Beneficial').

8.3.19 However:

- i) As the properties were not visited by the LVA assessors, the results are only estimates.
- ii) Because the sensitivity of receptors was under-reported, levels of effects were underestimated: **all would automatically be one level higher.**
- iii) In the majority of cases, particularly at lower-lying VPs beyond the site's immediate surrounds where Minor Negative / No Effects are predicted, the judgements rely on existing vegetation to screen views. In reality, the chances of the vegetation remaining in place for 40 years cannot be guaranteed, for the reasons set out in Section 4.
- iv) The LVA was only based on 3.5m high scheme elements: the visual effects of the taller scheme elements would extend further, and could also increase levels of effects at some of the assessed VPs.
- v) The LVA's justification for the Minor Positive effect (which it predicts would be experienced by residential receptors at Somerton Hall and Eaton Cottages), is *'the establishment of the proposed woodland mix planting along the northern site boundary which reinforces the wooded character within the lower valley landscape and which forms part of views'*.
- vi) In fact, **there would not be any visual benefit:**
 - a) The woodland is proposed as mitigation in the form of screen planting, and therefore cannot be double-counted as an enhancement.
 - b) The proposed mitigation would give rise to adverse visual effects, as it would be uncharacteristic and inappropriate in these landscapes.
- vii) Furthermore, despite a visual benefit being reported at these residential VPs, I note that at VP6, which is representative of views from the properties but on the adjacent public footpath, so very close-by, the level of effect between Years 7 and 40 is predicted to be **between Moderate and Minor Negative**, not beneficial / positive. The reason for the difference is not made clear in the LVA.

Recreational receptors visual effects

8.3.20 The High level of sensitivity of these receptors is agreed.

8.3.21 The LVA concludes that none of the recreational receptors would experience visual effects higher than **between Major and Major to Moderate Negative** (which would be categorised as 'significant if this was EIA development). This level would only be experienced between Years 1 and 6, before screen planting had become effective, at which point it would drop to **between Major and Moderate Negative** (still 'significant' if EIA).

8.3.22 The locations at which this level of effects would be experienced are at and in the vicinity of VPs 1, 2 and 4, and along / in the vicinity of the view route between them, which begins at VP1 (on Tittle Hall Lane, at the eastern end of the access road to Moorhouse Farm), and runs along the lane and the BOAT adjacent to the site (VP2 is along this section) to VP4 at the western end of the BOAT.

8.3.23 **The total distance of this view route is c. 1.3km.**

- 8.3.24 Broadly, I **agree** with the LVA's conclusions about levels of effects on these receptors, although a) I do not agree that the reduction in levels would occur within 7 years, it would take far longer; b) too much reliance is placed on existing and proposed vegetation to screen; and c) in some cases it may not be possible to screen at all.
- 8.3.25 However, as mentioned in Section 5.3, the LVA did not assess visual effects at the proposed access point to the site, which is on the view route, off Tittle Hall Lane. My own assessment concluded (using the LVA's criteria, and for the reasons set out in Section 5.3) that the visual receptors are of **High** sensitivity, and the level of magnitude of change would be **Very High** ('A change in the view that has a dominating or overbearing influence on the overall view'), resulting in a **Major Negative** level of visual effect that would last for the duration of the operation.
- 8.3.26 Also, as noted above, if the proposed DNO substation was permanent, then the Major Negative effect at the access, which would remain in place, would be permanent.
- 8.3.27 The LVA concluded, and I **agree**, that recreational receptors would experience **between Major and Moderate Negative effects for the duration of the operation** at / in the vicinity of VPs and view routes (public footpaths / bridleways / restricted byways / lanes) on the south-facing River Glem valley slopes, opposite the site; and in and around Hartest, to the north east of the site.
- 8.3.28 LVA VP10 is representative of views along / in the vicinity of Hartest Footpath 10, perhaps as far as the western edges of Hartest. VP12 is representative of views along / in the vicinity of Hartest Footpath 15, near Hartest Hill. Presumably, VP12 is also intended to be representative of views from routes along public footpaths and lanes through / around Hartest village; however, for some reason, despite the Major to Moderate Negative effects that would be experienced along the routes, the LVA predicts that all the residential receptors in Hartest would only experience **Minor Negative** effects for the duration of the operation, which is **highly unlikely to be the case**. The photograph overleaf shows views of the site from Hartest.
- 8.3.29 Hartest is a Conservation Area, with the Grade I listed Church of All Souls, and numerous Grade II listed buildings. The topography is varied, with small valleys and undulating hills, but the majority of the settlement and its outskirts are at the same elevation as the site – between c. 50 and 90m AOD. Due to this, along with proximity, in most cases, the site occupies a large proportion of the view.

View from Hartest Wood community woodland²⁸, looking south west towards eastern side of site. Distance of VP from southern end of site (on skyline) c. 2.7km, and from northern end, c. 1.9km - zoom lens shot.



- 8.3.30 Regarding visual effects on recreational receptors travelling along other recreational routes (excluding roads / lanes – see below), my assessment concluded that it was very likely that in all cases, levels of effects between Years 7 and 40 would be at least one level higher than reported in the LVA (ie between Major to Moderate Negative, and Minor Negative, as opposed to Moderate Negative, and No Effect).
- 8.3.31 The reasons for this conclusion are the same as / very similar to those for conclusions about other VPs, ie:
- i) It would not be possible to screen views at elevated VPs.
 - ii) At lower levels, it is highly unlikely that the proposed screen planting would become effective by Year 7: the highest level of effect would be experienced until an effective screen was formed, which would be many years.
 - iii) If the planting did eventually grow tall enough to screen views, the result would be the total loss of a fine open view, resulting in a Major Negative effect.
 - iv) The planting is uncharacteristic, and in itself would give rise to adverse visual effects, thus increasing levels of adverse effects as opposed to reducing them.
 - vi) The LVA's assessment is based on 3.5m high elements, but taller scheme elements are likely to be even more highly and widely visible.
 - vii) The LVA assumes that existing screening vegetation would remain in place for the duration of the operation, but of course, it may not.

²⁸ This is one of The Woodland Trust's 'Woods on Your Doorstep' woodlands created to commemorate the Millennium. It was planted with mixed broadleaf trees by local villagers and school children and features a central sculpture called *The Gift*. Source: <https://www.woodlandtrust.org.uk/visiting-woods/woods/hartest-wood/>

Road user receptors visual effects

- 8.3.32 According to the LVA, the highest level of operational visual effect along a public road would be **Moderate Negative**.
- 8.3.33 The Moderate Negative effects are predicted to arise at three locations:
- i) Along Tittle Hall Lane (Braggon's Hill in the LVA), between LVA VPs 1 and 3.
 - ii) Along the lane between Somerton, Somerton Hall, and west of Boxted (close to junction with B1066).
 - iii) Along the B1066, between Hartest, Boxted and Stanstead.
- 8.3.34 This level would be experienced for the duration of the operation, due to the elevation of the VPs and lack of intervening screening.
- 8.3.35 I **disagree** that the highest level of effect would be Moderate Negative.
- 8.3.36 The main problem is that the LVA categorises the sensitivity of all road users as **Medium**.
- 8.3.37 However, as explained in Section 4.3, **people travelling in cars should not automatically be categorised as being of lower sensitivity than people on foot / bicycle / horseback**: some may be passengers who are unable to walk along the lanes due to illness or disability, for example, but for whom the experience of being out and about in their highly-valued and very beautiful local landscapes makes a highly important contribution to their mental and physical health and well-being, and quality of life. **These are High sensitivity receptors**.
- 8.3.38 Also, even the B1066 is lightly-trafficked, whilst lanes such as Tittle Hall Lane, and the ones which run east - west on the north side of the Glem River valley – for example, between Hartest and Somerton – carry very little vehicular traffic at all. Thus, many people – from the local community, and visitors – treat the lanes as if they were footpaths / bridleways / BOATs, travelling along them on foot, bicycle and horseback '*for recreational activities [and] the specific enjoyment of the landscape*'. **These are also High sensitivity receptors**.
- 8.3.39 Therefore, the combination of a Medium level of magnitude of change with a High sensitivity receptor should result in a **Major to Moderate Negative** level of visual effect, that would be experienced for the duration of the operation. For some receptors, the level of magnitude of change could be Medium to High, but overall, in my opinion, the level would still be **Major to Moderate Negative**.

In summary:

- i) Levels of visual effects on residential receptors would be higher than predicted, mainly due to the LVA having underestimated the level of receptor sensitivity.
- ii) Levels of visual effects on many recreational receptors would be higher than predicted in the LVA, due to factors not having been taken into account such as elevation, taller scheme elements, and loss of view.
- iii) Levels of effects on road users would be higher than predicted as the LVA has not factored in their use by High sensitivity receptors.

Photomontages

- 8.3.40 The LVA includes a series of photomontages for views at VPs 1, 2, 7, 10, 11, 12 and 13. They show the existing view, view at Year 6, and view between Years 7 and 40.
- 8.3.41 The photomontages are helpful in understanding the likely visual effects; however, in my opinion, **they do not accurately reflect the reality of the future situation**, a) because they do not include the taller scheme elements; and b) they do not show the correct colour and texture of the panels

as they would appear under 'normal' weather / light conditions – the image is too flat and 'dull', and does not account for the effects of glint and glare.

8.3.42 Below are a) one of the Applicant's LVA's photomontages; b) an example of the difference between i) a photomontage with similar problems produced by an appellant, and ii) a CGI from a viewpoint in close proximity produced by an expert with experience of solar development; and c) an example of a CGI aerial view produced by the same expert.

Applicant's LVA photomontage at VP13 (Year 1)



Appellant's photomontage of a developed view at Year 0



Alternative photomontage of the developed view at Year 0



Example of CGI of proposed solar development, aerial view



9 Operational Effects: Other Amenity

- 9.1 The previous section describes effects on views and visual amenity. However, there are other forms of amenity, such as residential, social and recreational, which require consideration in the planning process and assessments of landscape, visual, and other effects. **Effects on amenity is an important matter in this case**, where all forms are likely to be adversely affected to varying degrees.
- 9.2 *'When planning permission is rejected on the grounds of loss of amenity, it means the proposed development will harm the amenity of another property, through the noise, overlooking, overshadowing, smells, light pollution, loss of daylight, loss of privacy, dust, vibration or late night activities. The planning authorities **must** support sustainable development. For this reason, **when a proposed development poses a risk of loss of amenity of any type, the application is likely to be rejected**' (my emphases)²⁹.*
- 9.3 A dictionary definition of 'amenity' generally, which is helpful in the context of planning / assessment, is *'The quality or character of an area and elements that contribute to the overall enjoyment of an area'*.
- 9.4 Visual amenity is defined in GLVIA3 as *'the overall pleasantness of the views [people] enjoy of their surroundings'*.
- 9.5 At para. 7.6, the Applicant's LVA correctly states that *'whilst there may arise a high degree of change to the views of residents, it is well established that in planning terms, there is no right to a view'*. In fact, 'no right to a view' is a principle in English law, that was first recorded in 1610. However, **planning policy can and does protect certain views**. Also, importantly, a component of residential amenity is Residential Visual Amenity – see below.
- 9.6 Residential amenity is not defined in law, but can be defined as *'Elements that are particularly relevant to the living conditions of a dwelling'*.
- 9.7 *'Residential amenity has a significant and valuable impact on the way in which people use their homes. The health and well-being of residents is often directly related to the level of residential amenity occupants can enjoy. It is a duty of the planning system to support sustainable development. Sustainable development incorporates a social role which seeks to secure well-designed, strong, vibrant and healthy communities'*³⁰.
- 9.8 Indeed, *'There comes a point when, **by virtue of the proximity, size and scale of a given development, a residential property would be rendered so unattractive a place to live that planning permission should be refused**. The test of what would be unacceptably unattractive should be an objective test'*.³¹
- 9.9 Residential Visual Amenity means: *'the overall quality, experience and nature of views and outlook available to occupants of residential properties, including views from gardens and domestic curtilage'*³². Residential Visual Amenity Assessments (RVAAs) are 'objective tests', often carried out alongside LVIA's / LVAs.
- 9.10 Glint and glare effects are dealt with in Section 10, but of relevance here is that para. 6.1 of the (informal) glint and glare guidance used by the Applicant states that *'Local residents are a key stakeholder within the local environment when proposing a solar PV development. This is because*

²⁹ www.nortontaylorunn.co.uk/faq-items/what-is-amenity-in-planning-terms

³⁰ Technical Advice Note: Assessing Residential Amenity June 2016 South Gloucestershire Council

³¹ Burnthouse Farm Windfarm, SoS Decision (APP/D0515/A/10/2123739) 6th July 2011

³² Landscape Institute Residential Visual Amenity Assessment (RVAA) TGN 2/19 15 March 2019

*residents will be living in close proximity to the solar PV development whilst also potentially having views of the solar panels for its lifetime. **Where a view of the solar panel exists, a solar reflection may be possible which may impact upon residential amenity**' (my emphases).*

- 9.11 Of course, in RVAs / LVAs / LVAs, the visual assessment is technically restricted to effects on views, and many character assessments only deal with effects on the landscape's physical features. Thus, the effects on human beings which arise from loss of privacy, overlooking, overshadowing, loss of daylight, lighting, late-night / early-morning activities, movement, disturbance, disruption, noise, vibration, odours, dust, flooding, pollution, and a general awareness of what is going on, are almost always overlooked.
- 9.12 However, as GLVIA3 explains, LVAs / LVAs should include an assessment of effects on the **experiential** qualities of the landscape, and their perceptual and aesthetic aspects. In other words, how landscapes are perceived, and experienced.
- 9.13 LVIA / LVA rarely consider that some human receptors may be blind / partially-sighted. Also, importantly, GLVIA3 Box 5.1 explains that 'scenic quality' *'is a term used to describe landscapes that appeal primarily to the senses (primarily, but not wholly the visual senses)'*.
- 9.14 As noted above, effects on the health, well-being and quality of life of residents in their homes / gardens is an important consideration in planning and assessment, but so is the health, well-being and quality of life of people who use the landscapes beyond their homes as a valuable resource for **recreational and social amenity**.
- 9.15 Health, well-being and quality of life are integral to 'landscape', as well as to assessments of landscape and visual effects.
- 9.16 GLVIA3 Figure 1 shows examples of LVIA 'discussion areas', which under the heading 'human beings', includes **social impacts**.
- 9.17 Furthermore, the importance of the above issues is made abundantly clear in the LI's policy on public health³³, and associated position statement *Public Health and Landscape: creating healthy places*.
- 9.18 The policy states, **'We want public health professionals, planners and landscape architects to promote and act upon the idea that high quality landscape increases wellbeing'**.
- 9.19 Both the policy and the position statement are derived from the European Landscape Convention (ELC), which states (my emphases):
- 'Signatories acknowledge that **the landscape is an important part of the quality of life for people everywhere: in urban areas and in the countryside, in degraded areas as well as in areas of high quality, in areas recognised as being of outstanding beauty as well as everyday areas** and that **the landscape is a key element of individual and social well-being.***
- 'The landscape also bears within it a system of **social values**, which sometimes have to be highlighted through awareness-raising activities. **The landscape's social values are tied to its importance for quality of life, health, and to its contribution to the creation of local cultures. Landscape identification, characterisation and assessment underlie landscape quality objectives. This is why such assessment should be done with the interested parties and population concerned, and not just with specialists in landscape appraisal and operations.***
- 9.20 **NPPF para. 191**³⁴ requires decisions to a) *'... avoid noise giving rise to significant adverse impacts on **health and the quality of life**; [and] b) identify and protect tranquil areas which have remained*

³³ <https://www.landscapeinstitute.org/policy/health/>

³⁴ December 2023 version used throughout

*relatively undisturbed by noise and are **prized for their recreational and amenity value** for this reason'* (my emphases).

9.21 Other references to 'amenity' and well-being in the NPPF (with my emphases) include:

- '*protect **local amenity** or **the well-being of the area**' (para. 53 b), re Article 4 direction);*
- '*developments should create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users*' (para. 135 f));
- '**Amenity value**' of land (para. 181);
- '*Open space... can act as a **visual amenity**' (Annex 2: Glossary).*

9.22 **The LVA does not specifically consider effects on recreational / social amenity.**

9.23 My own studies found that the local PRoW network (footpaths, bridleways, BOATs and restricted byways), along with lanes / roads, is well-used by people from the local community and visitors alike for recreational purposes, whether walking, running, cycling, riding, or driving. The scenic and other positive qualities of these landscapes are a very important part of that experience.

Cyclist on lane near Boxted



9.24 The PRoW / road network is also used by the local community for essential purposes. For example, some people walk / cycle along Tittle Hall Lane and the B1066 through Boxted to get to bus stops; to visit the pub in Hartest; to go to school (there is a pre-school facility and a primary school in Hartest); to church (in Boxted and Hartest); and to visit friends and relatives. The nearest shops and services are in Glemsford, and most people travel there and back via Tittle Hall Lane / Braggon's Hill. Also, many people from Glemsford send their children to the schools in Hartest, and use the Tittle Hall Lane / Braggon's Hill route.

9.25 Evidently, as a resource, the landscapes make a great contribution to people's mental and physical health and well-being, and to their quality of life, which the proposed development would adversely affect to varying degrees, during both construction and operation.

- 9.26 The landscapes are also very important to the local economy. As well as hostelrys, there are a few bed-and-breakfast / Airbnb establishments and campsites in Boxted, Hartest and Somerton. These small businesses attract visitors due to their very beautiful locations and the associated experiences, described variously (online) as *"very rural and set in idyllic countryside surrounded by fields of wheat and barley. Great walks. Beautiful sunsets... a great place to unwind in peaceful surroundings... an abundance of foot paths and wild life all around the property... Rambling walks through the gorgeous Suffolk countryside, delicious food in local restaurants, charming country pubs in neighbouring, picturesque villages or browsing through antique shops in Long Melford or Clare... [ironically, the latter is from Boxted Hall's website]... really wonderful views across the valleys... uninterrupted far reaching views of this wonderful Constable countryside..."*.
- 9.27 The proposed development would adversely affect all of the above in some way, whether due to the disruption and very high levels of adverse visual and other effects that would arise during construction, or the long-term adverse visual and other operational effects. In particular, there is likely to be **conflict between users of PRsoW / lanes along the construction route and in the vicinity of the site and the construction works.**

10 Glint and Glare

Overview of glint and glare effects

- 10.1 Glint and glare are sometimes grouped under the term 'solar reflection', which is what causes them. Glint is a momentary flash caused when sunlight hits a smooth, glassy surface such as water, or a solar panel. Glare is diffused light caused by the reflection of the sky on such surfaces; it is less intense than glint, but the effect may be experienced continuously for long periods throughout the day.
- 10.2 Interestingly, according to a study called *Understanding Emerging Impacts and Requirements Related to Utility-Scale Solar Development* (September 2016) by Argonne National Laboratory³⁵, the glint and glare arising from solar panels is '**of unusual intensity and unique appearance**' (my emphasis).
- 10.3 Both phenomena are unpleasant / cause visual discomfort when viewed from relatively long distances, and are highly disturbing / disorientating when experienced at close quarters, especially when experienced regularly / for long periods of time. The effects can negatively affect the quality of people's lives, and their well-being. Furthermore, in very close proximity, there is the potential for eye-damage (see below).
- 10.4 The images below show examples of 1) glint, and 2) glare, arising from solar panels.

1) Glint



³⁵ <https://publications.anl.gov/anlpubs/2016/10/130700.pdf>

2) Glare



- 10.5 Glint and glare can give rise to very high levels of adverse effects on visual and other amenity, and landscape character – see below. They are also known to at best distract, and at worst, cause brief loss of vision - also known as flash-blindness - in motorists and other road-users, train drivers, and pilots, which can cause serious road, rail and air accidents.
- 10.6 According to the *Understanding Emerging Impacts and Requirements Related to Utility-Scale Solar Development* study, 'the health and safety impacts of glare from solar facilities have been documented extensively', and cites several references.
- 10.7 On page 18, the study explains that '**Ocular damage from glare viewed at very short distances is possible**' (my emphasis), although it goes on to say that this is '*primarily a concern for workers because public access to facilities is controlled*'. However, in this case, there are several PRsoW, roads, and a few residential properties on the boundary of, and close to, the site – see project-specific effects below.

Applicant's glint and glare study

- 10.8 A Solar Photovoltaic Glint and Glare Study was submitted with this Application, which was carried out by a consultancy called Pager Power. The study's findings are discussed in the project-specific effects section below, but in summary, it concluded (with my emphases, and brief comments which are augmented below) that:
- i) For road users, 'A review of the 1km assessment area has identified local roads only, the main one (B1066) identified by the light blue line in Figure 4 below. There are no roads that meet the assessment criteria and therefore no roads have taken forward for technical modelling' (para. 4.1.2).
 - a) The study only considers the effects of glint and glare along roads which are within 1km of the site, whereas effects are likely to extend much further than that.
 - b) It only considers *major national, national, and regional roads* not local B and C-class / unclassified roads and lanes / BOATs. The lane along which receptors are most likely to experience the highest levels of glint and glare effects is Tittle Hall Lane, along the site's eastern boundary.

- c) It only considers roads from which there is 'a potential view of the panels'; however, **judgements about potential visibility factor in existing screening vegetation which may not remain in place in future.**
- ii) For residential receptors, '**No impacts** are predicted on the assessed dwellings, because there is significant screening in the form of intervening terrain and existing vegetation, and/or proposed vegetation planting such that views of reflecting panels are not expected to be possible in practice' (para. 5.24).
- a) The 1km study area boundary is also applied to residential receptors, but again, effects are likely to extent much further than that.
- b) It only considers properties from which there is 'a potential view of the panels'; however, again, judgements about potential visibility factor in existing screening vegetation which may not remain in place in future.
- iii) For aviation receptors, '*No significant impacts are predicted, and further assessment is not recommended for any of the above aerodromes*' (Section 6.7).
- 10.9 I cannot comment on effects on aviation receptors, but assume the findings are correct. However, my own assessment concluded that **there is the potential for glint and glare arising from the proposed development to give rise to high levels of adverse effects on views, and landscape character** (the effects of glint and glare on character were not assessed in the glint and glare study, nor in the LVA, despite this being a highly relevant factor).
- 10.10 It must be noted that currently, **there is no formal guidance for carrying out glint and glare assessments**, only high-level guidelines from the Civil Aviation Authority (CAA) (the USA's Federal Aviation Administration (FAA) also has guidance on the assessment of effects of solar developments near aerodromes). However, most experts in the field seem to use the informal guidance published by Pager Power, the company which carried out the Applicant's glint and glare study (*Independent Solar Photovoltaic & Building Development – Glint & Glare Guidance*, currently 4th Edition (September 2022), Pager Power³⁶).
- 10.11 Indeed, Pager Power appears to carry out glint and glare assessments for the majority of the solar developments proposed in the UK.
- 10.12 On page 6, the informal guidance states that '*Glint and glare can significantly affect nearby receptors under particular conditions. The key receptors with respect to glint and glare are residents in surrounding dwellings, road users, train infrastructure (including train drivers), and aviation infrastructure (including pilots and air traffic controllers)*'.
- 10.13 Para. 6.1 states, '*Local residents are a key stakeholder within the local environment when proposing a solar PV development. This is because residents will be living in close proximity to the solar PV development whilst also potentially having views of the solar panels for its lifetime. Where a view of the solar panel exists, a solar reflection may be possible which may impact upon residential amenity*' (see Section 9).
- 10.14 In the informal guidance, the recommended distances from the site for receptor assessment are given as follows:
- Dwellings and national / major roads: 1km
 - Train drivers: 500m
 - Pilots / air traffic controllers: 30km.
- 10.15 **No distances for users of PRsoW and minor roads are provided, and effects on these receptors are not assessed** - see project-specific effects below.

³⁶ <https://www.pagerpower.com/wp-content/uploads/2022/09/Solar-Photovoltaic-Glint-and-Glare-Guidance-Fourth-Edition.pdf>

- 10.16 With regard to the 1km study area for receptors in dwellings in particular, in my opinion, it is **not only arbitrary, but also highly unsatisfactory**. Furthermore, neither the informal guidance nor the Applicant's glint and glare study justify the reason for it being limited to 1km.
- 10.17 Section 4.1 of the Applicant's glint and glare study simply explains that '*There is no formal guidance with regard to the maximum distance at which glint and glare should be assessed. From a technical perspective, **there is no maximum distance for potential reflections**. The significance of a reflection, however, decreases with distance because the proportion of an observer's field of vision that is taken up by the reflecting area diminishes as the separation distance increases. Terrain and shielding by vegetation are also more likely to obstruct an observer's view at longer distances. The above parameters and extensive experience over a significant number of glint and glare assessments undertaken show that **consideration of receptors within 1km of panel areas is appropriate for glint and glare effects on roads and dwellings**' (my emphases).*
- 10.18 It is also very important to note that **the 1km boundary does not factor in i) the size of the proposed development, nor ii) the elevation of the viewpoint**.
- 10.19 As part of my research into this matter, I spoke to a few experts in glint and glare assessment in the USA and Australia. I was advised by one that "**the size of the solar farm has a direct effect on the glare impact**. We use different study boundaries based on the size of the array (e.g., 500 m for small rooftop arrays, 2 km for small utility, 3-5 km for large utility), rather than a fixed limit for any size" (my emphasis). This confirms my opinion that 'size matters'.
- 10.20 The informal guidance also notes – and my experience confirms – that depending on factors such as topography, and angle and elevation of the target and viewpoint, the adverse effects of glint and glare at public and private viewpoints can be experienced over long distances (note pilots are potentially affected at distances of up to **30km** from sites).
- 10.21 The informal guidance does not appear to state whether elevation and angle of view should be considered in the assessments, but that is a highly relevant factor. North Somerset Council's revised Solar Voltaic Arrays Supplementary Planning Document (SPD) states that '*Particular consideration should be given to the glint and glare impact on properties that are **higher up a slope** than the solar development, as **the angles involved mean that these are most likely to experience any glint and glare effects created**' (my emphases).*
- 10.22 The photograph overleaf shows glare arising from the roofs of two recently-built, modestly-sized houses: unfortunately, the roof tiles used were not matte. The houses are c. 3km from the viewpoint (which is elevated).

Glare from rooftops



- 10.23 A study called *Visibility and Visual Characteristics of the Ivanpah Solar Electric Generating System Power Tower Facility* (March 2015), by Argonne National Laboratory³⁷, assessed the visual effects of glint and glare arising from a large-scale complex comprising three 12m tall receiver towers, and multiple heliostats: 'Each heliostat consists of two mirrors that are 7.2 ft (2.1 m) wide by 10.5 ft (3.2 m) high, mounted on pylons inserted directly into the ground' – a little taller than the solar panels proposed here. I note that in Appendix B of the Applicant's glint and glare study, on page 45, it is stated that 'A specular reflection [those made by most solar panels] has **a reflection characteristic similar to that of a mirror**' (my emphasis).
- 10.24 The *Visibility and Visual Characteristics study* Abstract states that 'Glare from individual heliostats was frequently visible, and often brighter than the reflected light from the receivers. **Heliostat glare caused discomfort for one or more viewers at distances up to 20 mi [miles]** [c. 32km]' (my emphasis).
- 10.25 The image overleaf is extracted from a presentation called *Understanding and Mitigating Visual Glare Impacts and Hazards from Solar Energy Systems* Clifford K. Ho, Sandia National Laboratories, Concentrating Solar Technologies Dept., Albuquerque, New Mexico, which is from a viewpoint between 4 – 5 miles (6.5 and 8km) from the reflective elements (albeit the glint and glare characteristics of these technologies are different from those of solar arrays).

³⁷ https://blmwyomingvisual.anl.gov/docs/IvanpahVisibilityReport_Final.pdf

Looking north, 8:35 AM (PDT), March 23, 2015, ~4 - 5 miles away



- 10.26 Para. 3.2 of the Applicant's glint and glare study states that '*Published guidance shows that the intensity of solar reflections from solar panels are equal to or less than those from water*'. This seems to suggest that water is not particularly reflective; however, still water bodies especially are extremely reflective.
- 10.27 The informal guidance notes (para. 1.11) that '*The reflective properties of solar PV panels vary from different manufacturers. Whilst solar panels vary in their reflectivity with some claiming 'anti-glare' properties, **no solar panel absorbs 100% of the incoming light. Therefore, any solar PV panel has the potential to produce a solar reflection.** The relative absorptive properties of a solar panel should be considered on a case-by-case basis*' (my emphasis).

Project-specific effects

- 10.28 The 6th bullet point at para. 6.2 of the informal glint and glare guidance explains that '*In general, the geometry of the relationship between typical ground mounted solar panels and the movement of the Sun in the northern hemisphere means that dwellings due east and west of the panels are most likely to view a solar reflection for south facing arrays panels*'.
- 10.29 Note that in this case, the panels on the Application site would be north-facing, but that would not affect the fact that receptors to the west and east would be most affected.
- 10.30 As explained above, the glint and glare study did not assess effects on road-users because there are no *major national, national, and regional roads* within 1km of the site. This is problematic, because not only do people regularly drive along the local roads and lanes – those of most relevance here being the B1066 and Tittle Hall Lane, east of the site – they also walk, ride and cycle.
- 10.31 Given the proximity of road users to the site along Tittle Hall Lane in particular, and the fact that the existing screening vegetation cannot be guaranteed to remain in place (nor proposed screening to become effective), the receptors could experience **very high levels of adverse visual effects**.
- 10.32 Another matter of great concern is that **the Applicant's glint and glare study did not assess effects on people travelling along PRsoW and minor roads / lanes, including those adjacent to the site.**

- 10.33 As a matter of fact, on page 38 (paragraph numbering would have been helpful), the study refers to the draft NPS EN-3, although the reference is to the March 2023 draft version, as the study was carried out before the November 2023 draft version was published (the November 2023 version came into force unchanged in January 2024).
- 10.34 The study states that '*The [March 2023] EN-3 does not state which receptors should be considered as part of a quantitative glint and glare assessment. Based on Pager Power's extensive project experience, typical receptors include residential dwellings, road users, aviation infrastructure, and railway infrastructure*'. **That is incorrect:** draft EN-3 para. 3.10.149 stated that '*the potential impact of glint and glare on nearby homes, **motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths)***' (my emphasis) should be assessed.
- 10.35 Note that the above includes i) **all** motorists, not just those using '*major national, national, and regional roads*', and ii) PRsoW, along which receptors would be walking / riding / cycling. Ironically, that paragraph was included in the glint and glare study, but for some reason, in the context of '*mitigation strategies*'.
- 10.36 In the now-adopted January 2024 version of EN-3, **the wording is exactly the same**, but the paragraph number is 2.10.158.
- 10.37 Of course, had the study included receptors using PRsoW and the local roads / lanes, it would no doubt have assumed – as it has with residential receptors – that existing vegetation that currently screens views would remain in place for the duration of the operation, which of course, is highly unlikely. As noted in the visual effects assessment section above, even if proposed screening eventually became effective for some receptors (which would take many years and cannot be guaranteed), it would not be effective for all receptors due to the elevation of the viewpoint.
- 10.38 Also as mentioned above, according to the *Understanding Emerging Impacts and Requirements Related to Utility-Scale Solar Development* study, '**Ocular damage from glare viewed at very short distances is possible**' (my emphasis), although it goes on to say that this is '*primarily a concern for workers because public access to facilities is controlled*'. However, in this case, some people would be walking adjacent / very close to the arrays. Evidently, **for these and other near-distance receptors, the adverse glint and glare effects could be devastating.**
- 10.39 Varying levels of adverse effects would be experienced by people using footpaths / bridleways further away from the site.
- 10.40 Within the 1km study area boundary, the glint and glare study identified thirty-five residential receptors which theoretically, '*have a potential view of the panels*'. Their locations are shown on the study's Figure 5 *Assessed dwelling receptor locations*. Some locations comprise more than one dwelling, but the effects were assessed as being the same for each.
- 10.41 Interestingly, the study's Figure 7 shows that residential receptors 1 – 7, which lie due west of the site, could potentially have views of the developed site and thus experience glint and glare effects (although No Impact was predicted due to a combination of terrain and existing screening vegetation). However, evidently, **the study and the LVA were not cross-referenced, and are contradictory:** LVA's ZTV indicated that there was **no** theoretical visibility of the developed site to the west in these locations (I did not visit the VPs). **This needs to be clarified, and if necessary, visual effects reassessed** (the same applies to similar problems mentioned below).
- 10.42 Receptors 8 – 11 are properties lying between c. 600 and 900m south west of the site. They include **Grade II* listed Fishers.**
- 10.43 **The glint and glare study does not mention heritage assets, and does not consider effects upon them;** nor do glint and glare effects appear to have been factored in to the heritage assessment.
- 10.44 Ironically, they are mentioned in the informal glint and glare guidance, albeit only in the context of an extract from UK Planning Practice Guidance, 2015 Renewable and low carbon energy - *What are*

- the particular planning considerations that relate to large scale ground-mounted solar photovoltaic Farms? The advice states, 'As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, **a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset**' (my emphasis).*
- 10.45 Furthermore, page 19 of the *Understanding Emerging Impacts and Requirements Related to Utility-Scale Solar Development* study report explains that '*with solar facility glare, there can be effects on... **historic sites***' (my emphasis).
- 10.46 The glint and glare study concludes that '*All reflecting panels are expected to be **significantly screened by intervening vegetation and terrain***' (my emphasis), therefore, there would be **No Impact** from glint and glare on residential receptors. However, this **contradicts the LVA's conclusion** that at these locations (which are in the vicinity of representative LVA VP5), the developed site **would** be visible, albeit adverse effects would be Minor (but note that due to the LVA having under-reported the level of receptor sensitivity – which the glint and glare study does not factor in – the level of visual effect would be **Moderate Negative**).
- 10.47 The study concluded that glint and glare would not affect receptors 12 – 16, which lie to the south / south east, as at these locations, '*Solar reflections are not geometrically possible*'.
- 10.48 Receptor 17 appears to be the **Grade I listed Church of the Holy Trinity**, in the grounds of Boxted Hall. The study concludes that '*All reflecting panels are expected to be significantly screened by intervening vegetation and terrain*'. In fact, the LVA's ZTV shows that the panels would theoretically be visible from the church, therefore **terrain does not screen**, and that even with existing screening, at the representative VP (LVA VP3), the developed site **would** be visible, and visual effects would be **Moderate Negative** (but note that is based on a Medium level of receptor sensitivity, when it should be High – see Section 8 – and therefore **Major to Moderate Negative**).
- 10.49 Receptors 18 – 23 lie east of the site. They include **Grade II* listed Boxted Hall** and properties clustered around the Hall, including some which are Grade II listed.
- 10.50 The study concludes that '*All reflecting panels are expected to be significantly screened by intervening vegetation and terrain, and proposed vegetation planting as per the landscape plan in section 2.2*', and **No Impact** is predicted.
- 10.51 However, again, the LVA's ZTV shows that apart from the stables at Boxted Hall, theoretically all these receptors would have views of the panels, so **terrain does not screen**.
- 10.52 I did not visit the properties, and presumably, nor did the LVA assessors; however, the LVA predicts that the developed site **would** be visible, with '*a moderate/minor [adverse] effect for these residents during construction and Year 1, reducing to minor by year 7*'.
- 10.53 Importantly, this judgement assumes that i) existing screening would remain in place for the duration of the operation, and ii) the planting which is proposed to screen the views would establish well enough to be effective. Both assumptions are unsafe. Also, note that judgements are based on a Medium level of receptor sensitivity, when it should be High, therefore the level would be **Major to Moderate Negative**.
- 10.54 Receptors 24 – 34 lie north east of the site, in / just outside of Boxted. Most are on the north side of the B1066, a couple are on the south side, and one is on the east side of Tittle Hall Lane, opposite the access road to Moorhouse Farm – see below. Receptor 35 is Moorhouse Farm, which lies north of the site.
- 10.55 The study concludes that at residential property receptors 30, and 32 – 35, '*Solar reflections are not geometrically possible*', so there would be **No Impact**.

- 10.56 It concludes that at residential property receptors 25 – 29, and 31, *'All reflecting panels are expected to be significantly screened by intervening vegetation and terrain, and proposed vegetation planting as per the landscape plan in section 2.2'*.
- 10.57 However, the LVA concludes that the developed site **would** be visible from properties in Boxted, with *'a moderate/minor [adverse] effect for these residents during construction and Year 1, reducing to minor by year 7'*. Again, this judgement assumes that existing screening would remain in place for the duration of the operation, and that the planting which is proposed to screen the views would establish well enough to be effective, and both assumptions are unsafe. Also, note that judgements are based on a High level of receptor sensitivity, when it should be Very High, therefore the level would be up to **Major to Moderate Negative** from Year 1.
- 10.58 In my opinion, the residential receptor most likely to experience the highest levels of effects of glint and glare is (what I assume to be) receptor no. 24, **Grade II listed Water Hall**, which lies just c. 30m from the eastern boundary of Field 2, along Tittle Hall Lane. Most concerning, the existing intervening screening vegetation simply comprises predominantly a mature ornamental Laurel hedge along the property's roadside boundary, which could be cut back at any time (or may not live much longer).
- 10.59 The proposed screening would be as described in Section 8 at VP1, ie a new block of woodland would be planted at the north-eastern end of Field 2. As noted in Section 8, i) it is highly unlikely that effective screening would be achieved within seven years of planting at this point; ii) in itself, the proposed mitigation would give rise to adverse visual effects, being uncharacteristic and inappropriate; and iii) if it became effective, it would result in the loss the view, giving rise to Major Negative visual effects.
- 10.60 Furthermore, if it grew, the proposed woodland would only screen westward views from the property, whereas there are highly likely to be views of the developed site as it rises to the south west, which it may not be possible to screen.
- 10.61 In fact, the glint and glare study assumes that glint and glare effects would only be experienced by people inside their properties, on the ground floor³⁸, and looking out from the windows of principal rooms which directly face the site³⁹.
- 10.62 However, these days, it is widely accepted that many people use upstairs spaces for living and working: the LI's RVAA guidance explains that RVAA considers the *'extent to which development / landscape changes would be visible from the property (or parts of) having regard to **views from principal rooms, the domestic curtilage (i.e. garden) and the private access route**'* (my emphasis).
- 10.63 Regarding glint and glare effects on residential receptors further than 1km from the site, as explained above, i) the study's 1km study area boundary is arbitrary, and ii) as explained above, experts agree that the size of the proposed development, and the elevation of the view, need to be factored into judgements about levels of effects, which the Applicant's study failed to do.
- 10.64 Of particular concern are glint and glare effects on not only residential, but also public VPs over 1km from the site, which lie in a clockwise arc from north east to south east of the site. The LVA's ZTV plan shows the properties and routes in this sector which theoretically would have views of the developed site, and Section 8 above sets out the likely levels of visual effects that would be experienced.
- 10.65 Importantly, **glint and glare effects could also be experienced sequentially.**

³⁸ The study only considers *'whether visibility is likely from all storeys... where reflections are predicted to be experienced for more than three months per year and/or for more than 60 minutes on any given day'*; otherwise, *'the ground floor is typically considered the main living space and has a greater significance with respect to residential amenity'*.

³⁹ Section 5.2.1 of the study explains that a number of relevant factors are used *'to determine the impact significance and mitigation requirement'* of the assessment: one of these factors is *'Whether the dwelling appears to have windows facing the reflecting area – factors that restrict potential views of a reflecting area reduce the level of impact'*.

- 10.66 Finally, **neither the glint and glare assessment, nor the LVA, considered the effects of glint and glare on landscape character.**
- 10.67 Again, ironically, the informal glint and glare guidance refers to guidance which recommends exactly that. Para. 3.3 of the informal guidance states that '*The guidance for 'Renewable and low carbon energy'⁴⁰ dictates the following with respect to glint and glare... Particular factors a local planning authority will need to consider include: ... the effect **on landscape** of glint and glare (see guidance on landscape assessment)*' (my emphasis).
- 10.68 Page 19 of the *Understanding Emerging Impacts and Requirements Related to Utility-Scale Solar Development* study explains that '*with solar facility glare, there can be effects on the aesthetic experiences of persons in the surrounding area, including recreation areas, historic sites and trails, scenic byways, communities and residential areas, and other visually sensitive areas*'. It is known that wildlife can also be adversely affected⁴¹.
- 10.69 Effectively, glint and glare would be yet another aspect of the high level of industrialisation to which the proposed development would give rise, but in itself, it would adversely affect the i) visual, historical, aesthetic and perceptual qualities which are highly important factors in this being categorised as a 'valued' landscape, and ii) people's health and well-being, and the quality of their lives.

⁴⁰ <https://www.gov.uk/guidance/renewable-and-low-carbon-energy>

⁴¹ See for example Natural England's study *Evidence review of the impact of solar farms on birds, bats and general ecology 2016 (NEER012)*: <https://publications.naturalengland.org.uk/publication/6384664523046912>. However, it must be noted that since then, more evidence has become available.

11 Security Fencing

- 11.1 The Application includes security fencing.
- 11.2 Around the proposed DNO substation, the Applicant states that the fencing would comprise a 2.4m high wire mesh fence. In the table at para. 3.4 of the DAS, under the heading Fencing Strategy, Item 5 explains that *'In order to mitigate against the visual impact of the proposed fencing strategy, it was determined that palisade fencing as proposed for security purposes for the substation compound was too visually intrusive within this setting. As such a weld mesh fence detail has been proposed which is more transparent within the landscape'*.
- 11.3 However, **it is not clear whether this type of fencing would be acceptable to the DNO, and this needs to be clarified**, as the typical fencing would indeed be *too visually intrusive within this setting*.
- 11.4 See for example National Grid Electricity Distribution's publication *132kV Outdoor Metered Connections - Guidance For Substation Designers* (Version 10), which also applies to smaller installations: under the heading *Typical Substation Compound and Fencing Specification*, the fourth bullet point on page 31 states, *'Install (min. 2.4m high) galvanised steel security palisade fence and gates to BS 1722 Part 12, enhanced to Western Power Distribution specification document EE SPEC 20 (copy available upon request)*'*. Normally, the fencing would be similar to that shown in the photograph below.

Typical substation complex fencing



- 11.5 In terms of the rest of the site, DAS para. 3.37 states that *'The solar farm would be set within agricultural stock proof wire fencing up to 2.4m in height with wooden supporting posts placed at intervals as detailed on the submitted Perimeter Deer Fence (Figure 10 – Drawing Number 04806-RES-SEC-DR-PT-002 Rev 1). The deer fencing would follow the outer field boundaries containing the solar panels'*.

- 11.6 Para. 3.38 goes on to say that *'In addition to fencing, it is proposed that 3.5m high pole mounted CCTV security cameras as detailed on the submitted CCTV Typical Details (Figure 11 – Drawing Reference 04806-RES-SEC-DR-PT-003 Rev 1) would be positioned at intervals along the inside edge of the fencing (between the fence and the arrays), to capture activity within and along the fence line.'*
- 11.7 Para. 3.39 explains that *'The 2.4m high perimeter fencing and pole-mounted CCTV system serves an important purpose in protecting the valuable equipment within the application site'*.
- 11.8 It is usually necessary to allow the continued use of the site by larger mammals such as badgers, foxes and hares (but not deer), in order to mitigate adverse ecological effects. Para. 3.38 explains that *'Small mammal access points will be prescribed at various locations along any fencing to allow the passage of wildlife across the site'*.
- 11.9 Normally, either a) once erected, mammal gates are created in the fence at strategic locations by cutting holes in the wire netting and installing a purpose-designed flap / gate; and / or b) a continuous 20 – 30cm gap is left underneath the fence. The Applicant's Figure 9 Typical Security Fence Detail shows a mammal gate.
- 11.10 The security fencing would remain in place for the lifetime of the scheme, albeit probably with repair / replacement at times, as required.
- 11.11 The Applicant's LVA was carried out based on the above assumption, as was my own.
- 11.12 However, in my experience, **it is highly likely that the fencing would have to be far more robust than post-and-wire in order to deter thieves and satisfy insurance requirements.**
- 11.13 Currently, the matter of deer-proof vs high-security fencing at solar development sites is the subject of much debate, especially at inquiries and NSIP hearings. Therefore, I have carried out a great deal of independent research in order to inform my evidence, speaking to and / or communicating with a wide variety of organisations and individuals, from Police crime commissioners, Design Out Crime Officers (DOCOs) and the National Rural Crime Network (NRCN), to planning officers, developers, consultants, contractors, landowners / managers, insurance companies, and people who have been affected by solar developments, especially in relation to matters such as solar fencing and crime, during both construction and operation.
- 11.14 I have also read several documents produced by, and letters / consultation responses to solar development applications from, DOCOs, and have communicated with / spoken to some of them, about the issues faced by the Police due to solar crime (Suffolk Constabulary's response to the Application is mentioned below).
- 11.15 The crimes are apparently mainly solar panel theft (the deer-proof wire fencing is easy and quick to cut, with no specialist tools required – *"As useful as a chocolate fireguard"*, according to one DOCO), but also cable theft (for the copper), and occasionally, just wanton vandalism – some people try to break as many panels as they can by throwing stones at them. It is much more predominant in rural areas, as the activity often goes unnoticed, or the Police's reaction to the automatic security alert takes a while, giving thieves more time to take what they want / vandals to cause damage.
- 11.16 In recent responses to planning applications for solar development (and at least one appeal), DOCOs have said that the use of deer-proof fencing should be avoided, and have recommended the use of high-security fencing to a **minimum** of LPS 1175 level 3⁴² 4³.

⁴² See for example Nottinghamshire Police's response to 22/02241/FUL, and West Mercia Police's response to APP/C3240/W/22/3308481

⁴³ LPS 1175 Level / Security Rating (SR) 3 is for 'low commercial risk', and can withstand up to 5 minutes' attack; Level / SR4 is for 'medium commercial risk', with 10 minutes' maximum attack time; and Level / SR5 is also 10 minutes but 'based on a high commercial and mission-critical risk'. The Police argue that because solar crime is now highly organised, the higher levels should be used. It is a known fact that solar developments with deer-proof fencing are seen as 'easy targets'. Some criminal gangs monitor planning applications, and find out when construction and operation are due to start on site (apparently, in some cases, workers are

- 11.17 This matter goes back some time. In an email dated 9th December 2022, the Northumbria Police DOCO commented on a solar development proposed in Northumberland (application ref. 22/03978/FUL) as follows (my emphases):

*'Northumbria Police support the drive toward renewable energy sources but nationally there has been an increase in serious attacks directed at solar arrays, only last week there were three attacks on sites in four days in Nottinghamshire and Cambridgeshire, and in the former a security guard on a solar farm under construction was violently attacked. The National Infrastructure Crime Reduction Partnership (NICRP) and Opal, the national taskforce set up to combat Serious Organised Acquisitive Crime called on solar farm operators to review their security arrangements^[44], so **it is worrying that this application doesn't consider the crime risks.***

*'We have considered the risk profile of a number of solar arrays planned for the Northumbria Police Area and have determined that remote sites should be protected by perimeter security fencing specified to **LPS 1175 issue 8.1 D15 fencing** [explained further in the DOCO's email, but see below].*

'The rationale for this, particularly important for remoter sites, is that a standard fence may deter the casual more opportunistic criminal, but not an organised attacker, and detection by remote CCTV or Perimeter Intrusion Detection Systems might inform a monitoring station that an attack is in progress, but a response still has to travel to the site, so we need to delay an attack as long as possible'.

- 11.18 I was not familiar with the 'D-15' security fencing specified by the DOCO, and couldn't find much information about it online, so called a few security fencing manufacturers and suppliers, who told me that this type of fence was not yet manufactured or supplied in the UK. When I mentioned this to the DOCO, he said he was aware, but in his opinion, that level of security was necessary for solar developments, and therefore eventually, demand would be created (in fact, in subsequent responses, the DOCO has reduced the requirement to LPS 1175 issue 8.1:D10).
- 11.19 However, I did discover that the number in the D-rating (10, 15 etc) relates to the number of minutes it would take someone to cut through the fence (with the right equipment). Therefore, if necessary, one could achieve the D15 security rating by putting a D10 and a D5 fence together (ie with the D10 as outer defence, and the D5 as inner).
- 11.20 In February 2023, a document called *Theft From Solar Farms* was published. It was written by Crime Intelligence, and Opal, the latter being the organisation mentioned in the DOCO's response above ie the 'Police unit for the United Kingdom developing intelligence to disrupt organised networks involved in acquisitive crime in partnership with the public / private sector'⁴⁵. A company called DeterTech was responsible for the production of the document⁴⁶.
- 11.21 The report explains that *'In recent years, solar cable has been the item that has been targeted most frequently, and in the last year the rate of cable thefts has shown an increase of 48% from 2021 to 2022 (though remains lower than the reported rate in 2020.) However, **thefts of solar panels have quadrupled from 2021 to 2022.** This increase in the last year has been driven in particular by the Worcestershire area, which has been heavily targeted by panel thieves. Given the context of the cost of living crisis, projected copper prices (which drives the rate of cable thefts) and an ambition of the*

bussed in from cities, many of them being from Eastern Europe, which apparently, is where many panels and cables end up. The increase in this form of crime is thought to be due mainly to a) limited availability of such equipment in that part of the world due to the Russian invasion of Ukraine, and b) Brexit, which has made it harder to track such things). Thieves will sometimes strike when the construction plant and materials have been delivered to site, then wait for a while, go in again during construction, wait until operational, and go in once more. Another problem experienced by DOCOs is that vandals compete by throwing stones / bricks at the panels to see how many they can break, often pulling or cutting down the deer-proof fence if too tall to throw objects over.

⁴⁴ See for example <https://www.nicrp.org/news/2023/2/solar-farm-crime/>

⁴⁵ <https://nbcc.police.uk/business-support/urban-dictionary/opal>

⁴⁶ DeterTech market the Smartwater 'traceable liquid' marking system, which is applied to equipment at risk of theft and which, according to their website, 'provides a legally irrefutable way to deter crime, identify assets and prosecute criminals'. See <https://detertech.com/>

UK government to potentially triple solar capacity by 2030, it is highly likely that thefts from solar farms will become increasingly frequent. It is therefore imperative that our understanding of crime on solar farms improves' (my emphases).

- 11.22 It is interesting to note, however, that the report does not recommend – nor even mention – the use of high-security fencing, despite it being the most obvious solution to the problems (amongst other things, the report recommends '*regular (daily if possible) walks of the perimeter fence line to identify holes cut that could be a precursor to an upcoming theft*'. Where there are several kilometres' length of fencing on a site, as is the case here, that would surely be highly impractical).
- 11.23 In their response to an Examiner's question about the report at a recent NSIP solar development hearing, the appellant noted that '*DeterTech are a security consultancy business*' which '*will have an interest in the provision of security services*'.
- 11.24 Indeed, that is considered (for example, by DOCOs I have spoken to) to be one of the reasons why the report doesn't recommend high-security fencing. Another reason is likely to be the solar industry balking at the very large difference in cost between deer-proof and high-security fencing: on average, deer-proof fencing is c. £15 per linear metre supplied and installed, whereas 'moderate-level' LPS 1175 Level 3 fencing (as opposed to the D10 / D15 fences recommended by several DOCOs) is c. £300 per linear metre supplied and installed.
- 11.25 Suffolk Constabulary's DOCO's response to this Application is a good source of reference for these matters (and the use of CCTV – see below), as it provides updates on the situations reported above, as well as commenting on the specifics of the proposed development. The DOCO's comments include the following, along with my own notes:
- i) '*A number of solar farms employ roving security vehicle patrols to monitor their sites and this is strongly recommended*' (author's emphasis). However, this would introduce light into the dark skies landscape – a fact acknowledged by the DOCO – see below.
 - ii) '*Drainage ditches are strongly recommended around the majority of the perimeter of the site to make it harder for a vehicle to be able to access any areas onto the property*' (author's emphasis). However, the effects of such works would have to be assessed, as they could adversely affect biodiversity, character, views, and hydrology.
 - iii) '*Fencing should meet BS1722 standards and there are government security standards for such establishments which should meet SEAP (Security Equipment Approval Panel) class 1-3, preferably at least class 2... it would be preferred if such fencing met an attack rating equivalent to Security Rated (SR2) that can withstand at least 3 minutes of constant attack*' (author's emphasis). These types of fences are highly industrialising – see examples in photographs below.
 - iv) '*The entrance gate design is a concern and a more robust entry system is requested to delay an offender accessing the area*'. This would increase levels of adverse visual effects at the proposed access point into the site.
 - v) '*It is noted that the battery storage areas will be secured in ISO style containers. The perimeter security around these areas needs to be strong and reinforced with perimeter detection systems. One such police approved system is the Perimeter Intruder Detection system (PIDs), which is an armoured rapid deployment structure that provides twenty-four-hour monitoring from an alarm receiving centre that on detecting movement records images of what is occurring, along with 4,000 high efficiency white light illuminators that enhance the control centre's view of the images they are seeing and can communicate in real time with an offender*' (my emphases). This would also introduce light into the dark skies landscape.
 - vi) Regarding dark skies, the DOCO explains: '*This is a dark skies area, however, it is noted that infrared security lighting will be in place for the main battery storage compound area. The police appreciate lighting can be an emotive issue in locations like these and lighting in such an isolated*

*area can assist an offender. Whilst the police would recommend lighting to a minimum, **there needs to be sufficient lighting for these types of areas to enhance the quality of the CCTV images to see if offenders can be identified.** Similarly, it is strongly recommended that there is **good lighting around the entrance** to again enhance CCTV imagery. All lighting should meet BS5489:2020 lighting standards see*

<https://www.theilp.org.uk/documents/crime/lightingagainstcrime.pdf> (my emphases).

11.26 The *Theft From Solar Farms* report, and Police DOCOs, recommend extensive use of CCTV cameras. The Suffolk Constabulary's DOCO's response to this Application explains that 'CCTV *must be monitored 24/7*'. However, according to DOCOs I have spoken to, in some cases, monitored CCTV cameras end up being switched off due to the high running costs.

11.27 In addition to the above, I also discovered that **some of the insurance companies which cover solar developments are now stating that they will not accept stock-proof fencing any more.** One of the larger commercial insurers, Marsh Commercial⁴⁷, now has the following on its forms for solar development insurance applications (with my emphasis):

Security

• Ground Mount - Fencing in place of at least 1.8 m to 2m in height: Yes / No

Type of fence installed? (**Note stock fence is not adequate**).

Security Standard BS EN 1722?

11.28 Recently, a colleague spoke to a 'leading renewable energy insurance broker', and in an email, which I was forwarded later, said they were told that "*unless a new insurer is willing to risk deer fencing so as to gain market share, the trend now is for a deer fencing solar site to be refused insurance, or to be hit with an excess such as £100,000 if the deer fencing is breached by criminals. Instead of deer fencing, **most insurers now request the security fencing the DOCO recommends because of the increasing crime risk. The bigger and more 'porous' the site, the bigger the risk, she said***" (my emphasis).

11.29 My colleague then spoke to a different insurance company, and in an email said, "*He confirmed that **there are a decreasing number of companies who are willing to insure sites and no one will be allowed to just use deer fencing**- even a small domestic site with a few ground mounted panels. They will need secure locked gates with bollards that sink into the ground. 24/7/365 CCTV monitoring... He was telling me about a theft from a site he dealt with where the whole infrastructure was found in the Ukraine*" (my emphasis).

11.30 I also spoke to several solar insurance companies, and finally, to the British Insurance Brokers Association (BIBA).

11.31 In summary, the current situation appears to be that BIBA and many of their members are aware of the solar crime and security fencing problems, and there are moves in the industry to address them. However, their opinion is that progress is likely to be fairly slow. In the meantime, some insurance companies would almost certainly continue to insure solar developments with deer-proof security fencing, although for how long is uncertain. My inquiries suggest that the smaller companies currently would, but the larger ones either would not, or may not.

11.32 **This is a very important matter**, not least because certainly, in terms of levels of landscape and visual effects, there is a **significant difference between deer-proof fencing and high-security fencing**, as shown in the following photographs. For example, as well as the industrialising / urbanising nature of the high-security fences, and their lack of transparency, they are also higher (the height of the proposed timber post and wire netting fencing would be 2m, whereas the minimum height of D10 fences is 2.8m).

⁴⁷ <https://www.marshcommercial.co.uk/for-business/renewable-energy-insurance/solar-panel-and-projects>

11.33 Regarding transparency, some DOCOs (for example, Suffolk Constabulary) recommend that *'where appropriate, security fencing systems are transparent to facilitate observation from outside the site'*⁴⁸.

11.34 However, Suffolk Constabulary's response to this Application states (at para. 1.11):

'Surveillance of and over the site from the surrounding area, can help to deter potential offenders who may fear that their presence on the site will be reported to the police, however, it is noted this is a reasonably isolated location.

'It is noted that deer fencing will be incorporated around the site, this type of structure provides minimal security, weld mesh that meets LPS1175 or STS202 and manufactured and installed to BS1722 standard would be preferred, however, it is acknowledged that this type of fencing is predominantly preferred for these types of developments.

'As a compromise defensive vegetation such as hawthorn and blackthorn should be planted at the earliest opportunity and cared for to give the best chances of becoming a realistic boundary treatment as soon as possible to provide a further stronger deterrent to reinforce the fence line and make it harder for an offender to attack this perimeter area'.

11.35 The problem is that **planting along fencelines would not allow the required transparency.**

Deer-proof post-and-wire fencing at solar site in Worcestershire



⁴⁸ Planning application ref DC/21/00060

Example of LPS 1175 level 3 security fencing from catalogue



Examples of D10 – D15 security fencing from catalogues





Example of SEAP Class 2 fence from catalogue



11.36 In my opinion, there is no doubt that **if this type of security fencing was installed, it would give rise to very high levels of landscape and visual effects, which could not be satisfactorily mitigated.**

11.37 As mentioned above, both the LVA and my own assessment assessed the effects arising from deer-proof timber post and wire, not high-security fencing (apart from around the DNO substation). However, below are computer-generated images (CGIs) which were produced for a group opposing a proposed solar development in Worcestershire. The images show the proposed development with the recommended LPS 1175 Level 3 fencing in place (the images show the situation during Year 1 of operation, before mitigating measures such as planting had become effective).

CGIs of fenced public footpath corridors at proposed solar development





- 11.38 Another very important and relevant point to note is that whilst high-security fencing is recommended by the Police, it **may present a problem to the Fire and Rescue Service**. As explained in Section 3.6, with BESS, there is a risk of ignition / explosion / fire / thermal runaway. Fire crews can get through deer-proof fencing very quickly; however, that is not the case with high-security fencing, and **a delay in entry could be disastrous**.
- 11.39 In addition, the change from deer-proof to high-security fencing would have **adverse implications for wildlife**.
- 11.40 As noted above, in order to allow the continued passage through the site of larger mammals, '*Small mammal access points will be prescribed at various locations along any fencing to allow the passage of wildlife across the site*'.
- 11.41 However, according to the manufacturers, suppliers and contractors I contacted, a) the security fences are concreted in and cannot have gaps at the bottom; and b) not only would it be **very difficult, time-consuming and costly to create mammal passes in the high-security fences**, it also would almost certainly **render the security rating invalid**.
- 11.42 Furthermore, in several places, **the proposed fencing would have to cross hedges and watercourses** – see Landscape Masterplan. Deer-proof fencing is quite flexible, in that at hedgerow crossings, to avoid removal of vegetation, a gap in the wire netting can be cut out to accommodate the hedge, or a section omitted, and watercourses can easily be 'bridged' by the fence without damage by using a wider span between upright posts. High-security fence panels are not flexible: they cannot be cut, and require excavation for concrete foundations.
- 11.43 Evidently, this work would adversely affect many ecological receptors, and the soil. Also, all the concrete would have to be removed during decommissioning.
- 11.44 Finally, another concern is that should planning permission for the proposed development be granted, it would be approved on the basis of deer-proof fencing; however, potentially, an application could be made to change the specification to high-security fencing at a later stage, and the planning case officers / others may not be aware of the implications.

- 11.45 This has already happened in the case of at least one scheme. In 2022, at a BESS development approved by BMSDC and under construction (DC/19/01601), an application was made to BMSDC for 'a Non Material Amendment relating to DC/19/01601 - to amend the fence type from deer fence to V-mesh' (DC/22/05018).
- 11.46 The reason for the upgrade was 'to increase security on site and protect the equipment', and it was handled as a **non-material change** under delegated officer powers. According to local residents, no consultation was carried out. Unfortunately, it was only when the fencing was erected that it was realised that the V-mesh fence resulted in higher levels of adverse landscape and visual effects (see photograph of installed fence below). However, **the type of fencing used has a lower security rating than is recommended by the Police for solar developments**. It would also be useful to know if mammal passes were required, and if so, whether / how they were created in the high-security fence.

LLPS 17 fencing at BESS site



- 11.47 I raised this specific matter at a solar appeal inquiry last year, and as a result, the parties drew up a condition to deal with the eventuality of a change in specification post-approval. The draft condition is currently worded as follows:
- 'Notwithstanding any details submitted, no development (excluding demolition, tree protection works, groundworks/investigations) shall take place until details (including layout, materials, colour and finish) of [inter alia] fencing, boundary treatments and gates... shall have been submitted to and approved in writing by the Local Planning Authority... **The details submitted shall be accompanied by an assessment of landscape, visual and ecological effects**' (my emphasis).*
- 11.48 The emboldened part of the above draft condition is essential due to the very high levels of landscape, visual and other effects arising from high-security fencing.

12 Conclusions

- 12.1 The Applicant's assessments conclude that the proposed development could be constructed, operated, and decommissioned, without giving rise to unacceptable levels of adverse environmental effects. Furthermore, they conclude that it would result in landscape enhancement.
- 12.2 DAS para. 5.1 states, *'It is considered that due to the appearance of the scheme and the natural screening afforded to the site alongside the landscape and ecological enhancements proposed, the development proposals will not have an unacceptable adverse effect on the visual amenity value of the wider countryside'*.
- 12.3 At para. 8.5, the Planning Statement concludes that *'this proposal, on balance falls well within the scope of acceptability'* due in part to *'the relatively benign impacts associated with the development'*.
- 12.4 In its conclusions, at para. 8.12, the LVA states that *'The proposed development has been designed in a manner which aims to be sympathetic to local character and has appropriate regard to its surrounding landscape setting. It also recognises the site's intrinsic character and that of the wider landscape whilst seeking to maintain local character'*. Para. 8.14 goes on to say, *'the development can be accommodated without undue harm to landscape and visual amenity'*.
- 12.5 However, the above LVA statements do not align with the LVA's reported findings.
- 12.6 What the LVA actually concluded – and I agree – is that the proposed development would give rise to Major Negative effects on the landscape character of the site and its immediate surrounds, which are 'valued' landscapes, and Major Negative effects on certain 'valued' views.
- 12.7 In other words, the industrial nature and scale of what is proposed would be entirely inappropriate within, and in conflict with, the prevailing character of these landscapes, which are ancient, deeply rural, highly tranquil, and very beautiful.
- 12.8 In addition, my own assessment concluded that the LVA had underestimated levels of effects on wider landscape character, and on other views. It also concluded that the proposed development would result in unacceptably high levels of adverse effects on heritage / historic landscape character, biodiversity, recreational resources, highway safety, soil, water and air quality, GI, and human health and well-being.
- 12.9 National policy advises that renewable energy projects should be located where effects are, or can be made, acceptable. Here, levels of adverse effects cannot be reduced through mitigation.
- 12.10 Furthermore, despite claims that the scheme would deliver landscape and visual enhancements / benefits, it would not: the LVA's enhancements are in fact proposed as landscape and / or visual mitigation, and therefore cannot be counted as landscape / visual enhancement.
- 12.11 Most importantly, NPPF para. 180 a) states that enhancement is a requirement in a 'valued' landscape. Thus, the proposed development would not comply with this requirement – nor those set out in many other relevant landscape-related national and local planning policies.
- 12.12 Another point to note is that if it is found that there is a high probability that the adverse residual effects arising from non-EIA development being categorised as 'significant', as is the case here, it may trigger the requirement for EIA.
- 12.13 It is clear that not only would the landscape and visual effects arising from this proposal be categorised as 'significant' adverse if this had been the subject of EIA (which in my opinion, it should have been, although the information provided at the screening stage was also inadequate / flawed), but also the scheme could potentially give rise to 'significant' adverse effects on several other environmental and human receptors.

Future Solar Policy and Strategy

- 12.14 These days, solar development is the subject of much political (and scientific) debate and discussion, which I follow with interest, and am occasionally directly involved with.
- 12.15 The current Government's stance on, and approach to, solar development is certainly changing, albeit mainly in terms of where it should be located.
- 12.16 Whilst almost everyone agrees that solar may have an important part to play in helping to resolve some of the UK's energy problems, it is also now agreed by many that due to the multitude of adverse effects to which it can give rise, especially within rural landscapes and the communities they support (and also, due to the rise of international organised crime), and the fact that it is demonstrably not an efficient use of the land, solar development in rural areas is far less acceptable in principle than first assumed.
- 12.17 Increasing numbers of people, and organisations – including the current Government – are now firmly of the opinion that **the best place for solar development is on rooftops first, and then brownfield land (where of low ecological value), not greenfield land**⁴⁹.
- 12.18 Perhaps surprisingly, as it was as long ago as 2015 and yet has taken a long time to be factored in to policy / strategy, Mr Eric Pickles, who was then the SoS for Communities and Local Government, set out in a Written Ministerial Statement⁵⁰ an update for the House 'on further steps we are taking to streamline the planning system, protect the environment, support economic growth and assist locally-led decision-making'.
- 12.19 Under the heading *Solar energy: protecting the local and global environment*, Mr Pickles said as follows:
- 'Meeting our energy goals should not be used to justify the wrong development in the wrong location and this includes the unnecessary use of high-quality agricultural land. Protecting the global environment is not an excuse to trash the local environment.'***
- 'When we published our new planning guidance in support of the Framework, we set out the particular factors relating to large scale ground mounted solar photovoltaic farms that a local council will need to consider. These include making effective use of previously developed land and, where a proposal involves agricultural land, being quite clear this is necessary and that poorer quality land is to be used in preference to land of a higher quality'*** (my emphases).
- 12.20 The European Union's September 2020 report referred to above states (on page 17) that '*Ideally, solar parks are sited in the vicinity of already altered natural habitats by infrastructures (paved roads, railways, etc.) or buildings (urbanized areas)... [and / or] low biodiversity value brownfields or other types of degraded land with low biodiversity values'*.
- 12.21 Now, the current (December 2023) version of the NPPF contains a new policy, at para. 164, which states that '*In determining planning applications, local planning authorities should give significant weight to the need to support energy efficiency and low carbon heating improvements to existing*

⁴⁹ In October 2023, at the Conservative Party conference, Energy Security and Net Zero Secretary Claire Coutinho announced that the Government 'will' be taking steps to encourage businesses to install more solar panels on their rooftops by removing bureaucratic hurdles. The objective of this initiative is to **reduce the presence of solar technology in rural areas by shifting it to industrial rooftops, warehouses, car parks and factories**. The announcement aligns with the recommendations of the Government-commissioned report, *Mission Zero: Independent Review of Net Zero*, which advocates for a 'rooftop revolution' to help the UK achieve its net zero emissions target by 2050. One of the key aims is to '*unlock underutilised commercial property while reducing land usage impacts of large-scale solar farms'* (my emphases. Source: <https://eibi.co.uk/news/government-plans-to-ease-restrictions-on-businesses-wanting-to-install-rooftop-solar/>). This led to the inclusion of a new NPPF policy (para. 164) in the December 2023 version of the NPPF specifically relating to the 'significant' weight that should be given by LPAs to applications for rooftop solar panels being installed on existing buildings.

⁵⁰ <https://questions-statements.parliament.uk/written-statements/detail/2015-03-25/HCWS488#:~:text=Meeting%20our%20energy%20goals%20should,to%20trash%20the%20local%20environment.>

buildings, both domestic and non-domestic (including through installation of heat pumps and solar panels where these do not already benefit from permitted development rights)...'

- 12.22 Having listened to a recent Westminster debate on the subject, and read various statements and reports, I have concluded that the reason for the Government's *volte face* is due to the number of solar developments which have been granted consent and are now being built out.
- 12.23 Far from them being benign installations which sit quietly in place for several years while sheep graze in wildflower meadows underneath the panels, as we have been led to believe, the evidence now shows that solar developments in rural locations are in fact much more likely to be highly disruptive and environmentally damaging.
- 12.24 And, there is still so much we don't know about the effects, especially where the science is in its infancy – BESS, and electromagnetic radiation, are good examples.
- 12.25 In fact, as noted previously, solar development in the UK is a relatively recent phenomenon, especially on a large scale. Due mainly to the length of time it takes the larger proposals in particular to pass through the planning system, few large-scale schemes have been constructed.
- 12.26 As a result, many of the adverse effects which do arise are not anticipated – either due to the applicants' assessments not providing sufficient information / analysis, and the LPAs / other decision-makers not having the necessary experience / expertise to recognise that it is insufficient; or, to the construction process taking far longer than envisaged, not only because the baseline / assessment information was not sufficient, but also because the industry lacks the experience.
- 12.27 A good example is the Bishampton solar development which is currently under construction. As mentioned above, the construction period was stated as being three months; however, due to unforeseen delays, it is not scheduled to be completed until early this year (2024) – **18 months** after construction commenced, ie **six times longer than expected**.
- 12.28 In fact, I have been sent summaries of informal conversations which local residents have had with the contractors. For example:
- "I had a lovely chat with the security guard yesterday, he's from Newcastle. He told me a lot about the site:*
- All workers flown in from Romania and housed in Birmingham. Workers trained on the job as majority of them are farmers/fruit pickers paid minimum wage.*
- A lot of theft of copper wire, they use drones to scout the area. Panels from China. Site will be unmanned but with CCTV cameras. He said that the companies that oversee the footage tend to turn them off a lot as weather conditions continually set their alarms off.*
- He said that the fence is useless as they keep cutting it. Site now requires 4 security guards and 2 dogs at night. It is well known in the industry that Worcestershire has the most sites either constructed or in the planning process than anywhere else because the councils always say yes.*
- Wildlife has gone!"*
- 12.29 Another local resident told me that panel theft is a regular occurrence at the site, and that "*as soon as the new ones are delivered, they're stolen again*"⁵¹.
- 12.30 It is interesting to note that **the majority of the MPs now calling for solar development to be restricted to rooftops and brownfield land are in areas where solar schemes are under construction or operational.**

⁵¹ <https://www.birminghammail.co.uk/news/midlands-news/warning-evesham-police-recover-hundreds-26043383>

12.31 As part of CPRE's 'rooftop solar' campaign⁵², there is now a list of MPs who have signed up to become 'Parliamentary solar rooftop champions'⁵³. A few months ago, there were twelve; at the time of writing (late February 2024), there were thirty-seven.

Summary

12.32 In my opinion, there is no doubt that the Application scheme is the '*wrong development in the wrong location*', as opposed to being the 'the right development in the right place', as planning policy requires.

12.33 Indeed, in my experience, this is one of the least suitable sites for solar development that I have come across. That is mainly due to the receiving landscapes being ancient, deeply rural, highly tranquil, and very beautiful, and agreed to be 'valued' for these and other reasons, which include the fact that the site is on a north-facing slope, and is BMV land, whereas the proposed development is highly industrial in nature and scale.

12.34 It is also very large in scale: the site could easily accommodate two villages the size of Hartest.

12.35 National planning policy advises that renewable energy projects should be located where impacts are, or can be made, acceptable. In this case, the levels of adverse landscape, visual and other effects arising from the scheme would be very high (and in some cases are categorised as 'significant'), and levels could **not** be reduced to acceptable levels through mitigation.

12.36 Not only would levels of landscape and visual effects be Major Negative, but also, contrary to the claims in the Applicant's submission, there would be no beneficial landscape or visual effects at all.

12.37 Indeed, it appears that any scheme benefits claimed by the Applicant, such as economic, would be heavily outweighed by the social and environmental harm that the scheme would cause.

Carly Tinkler BA CMLI FRSA MIALE February 2024

⁵² <https://www.cpre.org.uk/what-we-care-about/climate-change-and-energy/renewable-energy/our-rooftop-solar-campaign/>

⁵³ <https://takeaction.cpre.org.uk/page/128562/petition/1?ea.tracking.id=2023-rooftop-solar-champion>

Appendices

Please note that all Appendices are available as separate documents

Appendix CT-1

Hereford and Worcester FRS response to BESS application

Appendix CT-2

Landscape Baseline Plan

Appendix CT-3

SGV's Construction Route Appraisal

Appendix CT-4

Letter from Gwent Wildlife Trust & Friends of the Gwent Levels

Appendix CT-5

Notes from local residents on landscape value

Appendix CT-6

VPs and View Routes Plan

Appendix CT-7

SGV Visual Baseline Study: VP Locations (Map 1)