Proposed Solar Development on Land Between Hawksworth and Thoroton

Town and Country Planning Act 1990
Appeal under Section 78

by

By Renewable Energy Systems (RES) Ltd, against the decision of Rushcliffe Borough Council (as local planning authority) to refuse planning permission for the installation of renewable energy generating solar farm comprising ground-mounted photovoltaic solar arrays, together with substation, inverter stations, security measures, site access, internal access tracks and other ancillary infrastructure, including landscaping and biodiversity enhancements

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Proof of Evidence: Landscape & Visual

Prepared by

Carly Tinkler BA CMLI FRSA MIALE

on behalf of

Hawksworth and Thoroton Action Group (HTAG)
(Rule 6(6) Party)

Date of proof of evidence: 14th May 2024

Planning Inspectorate Reference: APP/P3040/W/23/3330045

Planning Application Ref: 22/02241/FUL

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Endorsement

The evidence which I have prepared and provide for this appeal (reference APP/P3040/W/23/3330045) is true, and the opinions expressed are my own professional opinions.

This evidence has been prepared and is given in accordance with the guidance of my professional institution (The Landscape Institute). I will abide by the Institute's Code of Practice.

I understand my duty to the Inquiry, and have complied, and will continue to comply, with that duty.

Carly Tinkler BA CMLI FRSA MIALE 14th May 2024

Summary of Evidence

S1 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 and planning in the UK and abroad, and have done so for over 40 years.

S2 For the last three years, I have been involved with many renewable energy (wind / solar) proposals in the UK, some of which are Nationally Significant Infrastructure Projects currently undergoing examination.

S3 In March 2024, I was commissioned by the Hawksworth and Thoroton Action Group, who are opposing the proposed development and have formed a Rule 6(6) party, to act as their expert landscape witness at this Inquiry.

S4 To inform my evidence, I carried out a full review of the Application documents, and undertook my own technical assessment of landscape and visual effects, in accordance with published guidance (Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3) and other relevant documents).

S5 My objectives were to i) better understand all the key issues of relevance to landscape and visual effects, and establish whether they had been identified and addressed in the Appellant's submissions; ii) determine whether the Appellant's submissions provided sufficient information to ensure that informed judgements about landscape and visual effects can be made, and on which decision-makers can confidently rely; and iii) establish a) the main areas of agreement and disagreement, and b) the reasons for such agreement / disagreement.

S6 RBC refused the Application for two reasons, both of which concern landscape character and visual amenity.

S7 The Council's first reason for refusal (RfR) is that the proposed development '*would have a significant adverse impact on landscape character and visual amenity*'.

S8 On the basis of the findings of my assessment and review, I agree with this conclusion.

S9 The Council's second RfR is that '*The proposed development does not contribute to the preservation or enhancement of the setting of the Hawksworth and Thoroton Conservation Areas and does not contribute to the preservation of the setting of a number of listed buildings within these conservation areas*'.

S10 I also agree with this conclusion. It is important to note that landscape character and views are integral to the reasons for the designations of these heritage assets.

S11 The landscape and visual issues which I consider to be of most relevance to the Inquiry, and where there is most disagreement between the parties, relate to the LVA having significantly underestimated the levels of landscape and visual effects which are predicted to arise from the construction, operation and decommissioning of the proposed development.

S12 The reasons for this are explained in detail in my evidence, but in summary:

i) Insufficient baseline study and analysis has resulted in many landscape and visual / recreational receptors not being identified.

ii) Several of the excluded landscape receptors are of very high value / sensitivity, and make highly important contributions to landscape character and visual amenity.

iii) In particular, the LVA did not consider the landscape history and historic landscape character of the site and surrounding area, which is a key factor in levels of landscape value and sensitivity having been underestimated.

iv) The plan showing the locations of the LVA's identified viewpoints suggests that the extent of visual effects would be very limited (all the viewpoints are within c. 400m of the site), whereas the site is visible at distances of up to c. 4km.

v) The LVA assessed the extent of visibility of the developed site on the basis of 2.8m high solar panels across the site. In fact, many of the scheme elements would be far taller than this (for example, the proposed substation would have a 15m high tower), therefore the visual effects of the proposal would extend much further than assumed.

vi) The LVA did not consider sequential visual effects, in that the proposed development would be visible multiple times from different points along the same journey.

vii) The LVA did not assess cumulative visual (or landscape) effects, on the basis that '*no developments requiring cumulative assessment were identified in this instance*'; however, there are two operational solar developments within 3km of the site (albeit considerably smaller than the proposed scheme), with potential intervisibility.

viii) Many of the excluded visual / recreational receptors are also of high sensitivity.

ix) The LVA did not consider the fact that this area is a very highly-valued recreational resource which is well-used not only by the local communities, but also visitors from around the country and abroad. This is due to factors such as high levels of aesthetic and perceptual qualities, including beautiful, tranquil rural landscapes and historic villages, and the excellent network of lightly-trafficked lanes and public rights of way.

x) As a result of the above, the LVA underestimated levels of landscape and visual value, and susceptibility to the form of change proposed, and thus, levels of receptor sensitivity were under-reported.

xi) The LVA did not factor in the cause and nature of many of the effects likely to arise during project construction, operation, and decommissioning. In particular, the LVA underestimated the scale and extent of most of the landscape and visual effects.

xii) Levels of magnitude of effect were underestimated / under-reported due to errors and flaws in the methods used, including:

a) Inadequate / flawed criteria.

b) Erroneous assumptions, for example that certain effects on character can be mitigated when they cannot, and that screen planting which is proposed to mitigate adverse effects on views would also mitigate direct adverse effects on character.

c) Double-counting mitigation measures as enhancements.

xiii) Other reasons for levels of magnitude of effect having been under-reported include:

a) Over-reliance on existing and proposed vegetation to screen views.

b) Incorrect assumptions made about plant growth rates, and how screening vegetation would be managed.

c) Some of the proposed landscape and visual mitigation measures in themselves giving rise to adverse landscape and visual effects, for example, some of the planting being highly uncharacteristic in these landscapes, and screening fine, highly-valued views.

S13 Landscape and visual assessment guidance explains that the process for assessing landscape and visual effects entails combining levels of receptor sensitivity with levels of magnitude of effect in order to arrive at overall levels of effect (for example, High + Low = Moderate). Professional judgement must also be applied. Thus, if levels of sensitivity and magnitude are underestimated, then overall levels of effects will be under-reported, as is the case here.

S14 In fact, there is some agreement between the parties about the assessments' findings, in that some of the adverse effects arising during the first few years of operation would be 'significant'.

S15 However, the LVA assumes that as the proposed screen planting matures, levels of the majority if not all adverse landscape and visual effects would reduce. In fact, many adverse effects would remain at the same high, 'significant' levels throughout the project's lifetime.

S16 The LVA concludes that the proposed development:

- '*is sensitively sited with a design and layout that positively integrates with its local context;*
- *conserves and enhances local landscape character;*
- *protects and enhances Green Infrastructure with greater access, connection and amenity enhancements;*
- *the historic environment and heritage assets and their settings are protected including Listed Buildings and Conservation Areas;*
- *protects the settlement pattern and residential amenity; and*
- *is not visually intrusive, whilst protecting the visual amenity of any residents and users of public rights of way*
- *At the end of the Proposed Development's lifespan, the predicted effects are reversible as the land would be returned to its former agricultural use, similar in form to its current state.*'

S17 The Appellant's Design and Access Statement states that '*Largely because of the above-mentioned attributes, as well as the benign nature of solar farm development, very little disturbance to the existing environment will be required to implement the Proposed Development*.'

S18 I fundamentally disagree with all the above assertions. My own assessment concluded that the proposed development is entirely inappropriate in this location. It would radically change this quintessentially rural, highly tranquil landscape – which also displays significant time-depth, and considerable biodiversity – into an industrialised, modern 'techscape', entirely at odds with, and alien within, the receiving environment.

S19 Furthermore, the development would result in the loss of many of the very important and highly-valued landscape and visual functions that the site performs, such as a setting for heritage assets.

S20 There would be unacceptably high levels of adverse effects on all aspects of landscape character, including aesthetic and perceptual qualities, local distinctiveness, heritage assets / historic landscapes, biodiversity, Green Infrastructure, and soil and water quality; visual, social, recreational and residential amenity; and human health and wellbeing, and quality of life. The majority of the adverse effects could not be successfully mitigated.

S21 In fact, the proposed development would not deliver any landscape or visual benefits or enhancements: all the landscape and visual effects would be adverse, and many would be 'significant'.

S22 I concluded that not all of the key issues of relevance to landscape and visual effects were identified and addressed in the Appellant's submissions, and that the Appellant has not provided sufficient information to ensure that informed judgements about landscape and visual effects can be made, and on which decision-makers can confidently rely.

1 Introduction

1.1 Background and Summary of Key Issues

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 March 2023, Rushcliffe Borough Council (RBC) refused planning permission for the development which is now the subject of this Appeal.

1.1.3 In March 2024, I was approached by the Hawksworth and Thoroton Action Group (HTAG), who are opposing the proposed development and have formed a Rule 6(6) party, asking whether I would be prepared to act as their expert landscape witness at, and assist, this Inquiry.

1.1.4 In order to establish whether I could support HTAG's case and assist / advise, I needed to gain a preliminary understanding of the key issues likely to be involved, so I carried out a fairly rapid review of the background to the Application and the associated material. In the light of this exercise, I concluded that I was prepared to undertake the commission, and was subsequently instructed by HTAG to proceed.

1.1.5 I then carried out a full review of the Application, and undertook my own technical assessment of landscape and visual effects, in accordance with published guidance (Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3) and other relevant documents).

1.1.6 My objectives were to i) better understand all the key issues of relevance to landscape and visual effects, and establish whether they had been identified and addressed in the Appellant's submissions; ii) determine whether the Appellant's submissions provided sufficient information to ensure that informed judgements about landscape and visual effects can be made, and on which decision-makers can confidently rely; and iii) establish a) the main areas of agreement and disagreement, and b) the reasons for such agreement / disagreement.

1.1.7 Due to tie constraints, I did not write up my review and assessment results separately; instead, I incorporated them directly into my evidence, in this report.

1.1.8 RBC refused the Application for two reasons, both of which concern landscape character and visual amenity.

1.1.9 The Council's first reason for refusal (RfR) is that the proposed development '*would have a significant adverse impact on landscape character and visual amenity*'.

1.1.10 On the basis of the findings of my assessment and review, I **agree** with this conclusion.

1.1.11 The Council's second RfR is that '*The proposed development does not contribute to the preservation or enhancement of the setting of the Hawksworth and Thoroton Conservation Areas and does not contribute to the preservation of the setting of a number of listed buildings within these conservation areas*'.

1.1.12 I also **agree** with this conclusion. It is important to note that landscape character and views are integral to the reasons for the designations of these heritage assets.

1.1.13 The landscape and visual issues which I consider to be of most relevance to this Inquiry, and where there is most disagreement between the parties, relate to the levels of landscape and visual effects which are predicted to arise from the construction, operation and decommissioning of the proposed development.

1.1.14 The Appellant's case, which is summarised at para. 8.12 of the Appellant's SoC, and is based on the conclusions of the Appellant's Landscape and Visual Assessment (LVA), is that:

- '*no significant effects are predicted on any landscape character types/areas or landscape designations within the 5km study area;*
- *effects upon the visual amenity of visual receptor within the core study of 2.5km area* [sic, and NB 2km in the LVA] *would be not significant; and*
- *once planting matures, effects on the remainder of the PRoW network are predicted to be not significant*.'

1.1.15 LVA para. 2.16 explains that '*most of the significant effects predicted during year 1, are likely to become not significant at around this time*' (ie '*after approximately year 5*').

1.1.16 I **disagree** that there would no longer be 'significant' landscape and visual effects after c. Year 5 of operation; on the contrary, many of the landscape and visual effects arising could neither be mitigated nor compensated for, and certain 'significant' adverse landscape and visual effects would be experienced throughout the project's lifetime.

1.1.17 Regarding the use of the term 'significant' in this context, please see Section 5.2 below.

1.1.18 I do agree with certain conclusions drawn in the LVA.

1.1.19 For example, I **agree** that (apart from along the construction route), levels of adverse effects on landscape character and visual / social amenity arising from construction and operation of the developed site would decrease with distance, and that the highest levels of effects (potentially 'significant') would be experienced on the site and within a distance of up to c. 2.5km from the site boundary.

1.1.20 However, I **disagree** with the LVA's conclusions about the geographical extent of visual effects, which would be far greater than reported in the LVA: thus, there would be higher levels of visual harm than the LVA suggests.

1.1.21 I also **disagree** with the LVA's assumptions about the likely effectiveness of some of the mitigating measures which are proposed to reduce levels of adverse effects on views.

1.1.22 The main reasons for the parties' differences of opinion about levels of landscape and visual effects appear to me to lie in flaws in the Appellant's LVA's method and process. These are explained in my evidence, but examples are summarised below:

i) The baseline landscape and visual information which has been gathered and analysed as part of the LVA process is too limited to provide a full understanding of the Appeal site's levels of landscape and visual value, and susceptibility to change. The lack of information has resulted in a) many highly relevant landscape and visual receptors not having been identified (see Section 2); and / or b) levels of landscape and visual receptor sensitivity having been underestimated.

ii) The methods and criteria used in the LVA to establish levels of receptor sensitivity and magnitudes of effect are confusing, and have led to errors, resulting in the underestimation of levels of effects.

iii) Perhaps due to the above, but certainly despite published and actual evidence to the contrary, the LVA's judgements about levels of receptor sensitivity and magnitudes of effect – which led to the conclusion (with which I fundamentally **disagree**) that the proposed development *'is sensitively sited with a design and layout that positively integrates with its local context*', and '*conserves and enhances local landscape character*' (LVA para. 7.9) – are based on the assumption that the Appeal site lies within a '*semi-rural*' location (LVA para. 4.1).

iv) However, site visits will confirm that despite a few modern detractors, not only are the site and its contextual landscapes quintessentially rural, and very tranquil: they also display significant time-depth. Despite its relevance here, and recommendations in relevant published guidance, the LVA does not address or factor in cultural heritage and historic landscape character.

v) The site and its contextual landscapes also display considerable biodiversity, but the LVA does not address or factor this in either, despite guidance emphasising that it is integral to both character and appearance.

vi) The LVA has not considered the very high value of the area as a recreational resource (walking, running, cycling and horse-riding in particular), not just for local residents, but also for

communities within the wider area, and visitors from all around the country, and abroad as well.

vii) Many come specifically to enjoy the landscapes' outstanding aesthetic and perceptual qualities (the Appeal site lies within the Vale of Belvoir, which was proposed as a candidate Areas of Outstanding Natural Beauty (AONB, now National Landscape)[1]: the local road and public right of way (PRoW) network is very lightly-trafficked, and offers excellent opportunities for people of all ages and abilities. For local residents, the recreational resource makes an extremely important contribution to their health and well-being, and the quality of their lives.

viii) The LVA has not factored in the nature and likely extent of many of the effects which are likely to arise throughout the project's lifetime, resulting in magnitudes of effect having been underestimated.

ix) In making predictions about the overall levels of landscape and visual effects, the LVA has made some erroneous assumptions. For example, it assumes that mitigating measures can be double-counted as enhancements, and that high levels of adverse effects on landscape character can be reduced through planting to screen views. Published guidance confirms that neither is correct.

x) The implications of the above two errors in particular are that judgements about overall levels of effects (and thus, about the acceptability or otherwise of the scheme from a planning policy perspective) are based on the erroneous assumption that high levels of adverse effects are reduced when enhancements / benefits are factored into the equation, which is simply not the case.

xi) This is clearly illustrated in the Appellant's SoC at para. 5.10, which states that '*The provision of significant landscape and ecology enhancement measures is also considered to provide weight in terms of the appeal*' (but note that landscape and visual mitigation measures may be counted as ecological enhancements if appropriate).

1.1.23 My evidence is set out along the lines of the above matters, which broadly follow the structure of the LVIA / LVA process set out in GLVIA3.

[1] https://www.nottinghampost.com/news/local-news/campaign-launched-make-vale-belvoir-1622789

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, and have done so for over forty years. I am also a Design Council Expert, and an author.

1.2.2 I have been involved in the planning, design, co-ordination, management and implementation of many large-scale, high-profile developments in the UK and overseas, working for Governments and NGOs, alongside architects including Richard Rogers and Norman Foster. I have experience of a wide range of development types, including residential, commercial, industrial, agricultural, recreational, historical and ecological.

1.2.3 For many years, I have developed and promoted the landscape-led and iterative approach to development, which has now been adopted by the LI, Local Planning Authorities (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 (for example, LI Technical Information Note (TIN) 04/2018 Environmental Colour Assessment); and responding to consultations by government / other bodies (eg recently, revisions to National Policy Statements (NPS) and the National Planning Policy Framework (NPPF); the LI's Technical Guidance Note (TGN) 02/21 *Assessing landscape value outside national designations*; the Government's *25 Year Environment Plan*; and the Agriculture Bill).

1.2.4 I advise bodies responsible for National Parks / National Landscapes, and LPAs, producing guidance documents (I am currently advising a National Landscape partnership on solar development guidance), carrying out character, sensitivity, capacity, and effects assessments, and reviewing planning applications. I also provide specialised in-field LVIA training for LPA and National Landscape officers, landscape practitioners and others.

1.2.5 I am regularly called as an expert witness for planning inquiries, giving evidence on behalf of appellants, defendants, and Rule 6 parties.

1.2.6 For the last three years, I have been involved with many renewable energy (wind / solar) proposals in the UK, some of which are Nationally Significant Infrastructure Projects (NSIPs) currently undergoing examination.

1.2.7 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 Landscape & Visual Baseline

2.1 Introduction

2.1.1 As explained in Section 1, my review and assessment concluded that the baseline landscape and visual information gathered and analysed as part of the Appellant's LVA process is too limited to provide a full understanding of the Appeal site's levels of landscape and visual value, and susceptibility to change. This has implications for subsequent judgements made about levels of a) receptor sensitivity, and b) magnitudes of landscape and visual effects.

2.1.2 The lack of baseline information has resulted in many highly important landscape and visual receptors not being identified, and / or their value not being recognised. As a consequence of this, levels of landscape and visual receptor sensitivity have been underestimated.

2.1.3 The LVA sets out its descriptions of the character of the site and its contextual landscapes in Section 4. Whilst key landscape elements, features and characteristics are identified and described (predominantly by way of excerpts from published national, regional and local landscape character assessments (LCAs)), the analysis is insufficient, especially in terms of their present-day and historic functions within these landscapes, for example contribution to the settings of heritage assets. The baseline information in the LVA is not repeated here unless for ease of reference.

2.1.4 This section describes the other landscape elements, features and characteristics of the site and its contextual landscapes identified during my own studies, which are of relevance to the assessment of both landscape and visual effects.

2.1.5 My surveys and assessments were carried out with the assistance of members of HTAG 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 'back yards' than anyone else, and are a mine of information. Furthermore, involvement in the studies helps engender a sense of responsibility, and a greater understanding of its value. Sometimes during these exercises, previously unknown features come to light which turn out to be of regional / national importance.

2.1.6 The residents used Ordnance Survey (OS) and other maps for their studies, including the hand-drawn landscape and visual baseline plans I had already prepared, based on a 1:25,000 OS map of the study area. 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.
- Routes used for regular organised sporting events such as cycle and running races.
- Public and residential viewpoints (VPs).
- Constraints along the proposed construction route.

2.1.7 The visual studies were cross-referenced with the landscape studies, which identified the key natural, cultural and recreational / social features in the area, many of which are of relevance to views and effects upon them.

2.1.8 The plans we produced form appendices to my evidence. They comprise:

- Cycling / Running Routes and Venues Plan (Appendix CT-A)
- Horsiculture Plan (Appendix CT-B)
- R6P VPs and View Routes Plan and Key (Appendix CT-C)
- Construction Route Constraints Plan (Appendix CT-E)
- Hawksworth Corner Sketch (Appendix CT-F).

2.1.9 The LVA's VPs were marked on the VPs and View Routes 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.

2.2 Landscape Character Baseline

2.2.1 The first point to make is that I **disagree** with the Appellant's use of the term 'semi-rural' to describe the site and its contextual landscapes: for example, para. 1.17 of the Planning Statement, and para. 1.10 of the Design and Access Statement (DAS), say that '*The Application Site is located in a semi-rural setting*'.

2.2.2 These and other documents appear to have taken the wording directly from LVA para. 4.1, which says exactly the same thing.

2.2.3 In fact, the LVA only uses the term 'semi-rural' once. Elsewhere in the LVA it is made very clear (and as site visits confirm) that the site and its contextual landscapes are indeed typically 'rural'. So to describe the site as 'semi-rural' in the rest of the submission does not reflect the true baseline situation. Having said that, the description of the site and surrounding area set out at para. 1.54 of the DAS actually portrays a typical rural English lowland landscape: '*undulating farmland surrounded by hedgerows and occasional tree belts and woodland, which provide varying levels of containment and screening in the surrounding landscape. Additionally, the closest settlement area lies 0.1km west, with another 0.2km away to the southeast*'.

View of site and contextual landscapes from spire of Grade I listed Church of St Helena, Thoroton

2.2.4 The following points help to justify the conclusion that the site lies within a rural location:

i) LVA para. 4.8 says that '*The Proposed Development lies within NCA Profile: 48: Trent and Belvoir Vales. NCA Profile: 48: Trent and Belvoir Vales*' (in fact, the site does not lie within an NCA 'profile': the profile is the name of the document produced by NE for each NCA).

ii) Excerpts from the profile are provided in the LVA where relevant to the baseline situation here, one of which describes the typical NCA 48 landscapes as being "*… characterised by undulating, **strongly rural** and predominantly arable farmland… A low-lying **rural** landscape with relatively little woodland cover, the NCA offers long, open views*" (my emphases).

iii) The LVA does not state whether it considers the site and its contextual landscapes to be typical, or good representations of the host NCA, but my own assessment concluded that they were good representations. The LVA did not include other relevant excerpts from the

NCA 48 profile (which are helpful in making judgements about levels of value and susceptibility to change), for example:

- '*Rural tranquillity is still a feature over much of the area*.'
- '*A predominantly rural and sparsely settled area with small villages and dispersed farms linked by quiet lanes, contrasting with the busy market towns… cities…* [and[*major roads*'.
- '*Most of the area contains productive farmland*.'
- '*Cultural heritage is evident in the Trent and Belvoir Vales NCA with the overall settlement pattern little changed since medieval times*.'
- '*Ecosystem Services: The Trent and Belvoir Vales NCA provides a wide range of benefits to society* [including] *Food provision; Regulating soil quality; Sense of place/inspiration; Sense of history; Tranquillity;* and *Recreation*.'

iv) In para. 4.10, the LVA refers to the *Nottinghamshire Landscape Character Assessment*, (2009), which I assume to be the *Greater Nottingham Landscape Character Assessment* (July 2009). This shows that the site and much of its contextual landscape lie within the South Nottinghamshire Farmlands Regional Character Area (RCA). Para. 4.11 goes on to explain that '*These RCA's, have been detailed further, mapped and described in the Melton and Rushcliffe Landscape Sensitivity Study: Wind Energy Development, (2014) (MRLSS), as shown in Appendix 1C*'.

v) At para. 4.12, the LVA explains that with reference to the latter, '*… the Proposed Development lies within the district level Landscape Character Assessment Unit (LCU) 25: South Nottinghamshire Farmlands: Aslockton Village Farmland. The host character type stretches from the Application Site and covers the detailed study area within 2km to the east and north, extending up to and beyond 3km to the west and 10km to the south. It therefore provides the key focus of landscape character across the Application Site…*'. Aslockton is a village lying just c. 2.3km south west of the site.

vi) I **agree** with this conclusion (but note the acronym LCU should be Landscape Character Unit[2]).

[2] '*The terms Landscape Character Areas (in respect of Melton) and Draft Policy Zones (DPZs) (in respect of Rushcliffe) refer to the landscape units of roughly equal size with similar characteristics, as identified in the Landscape Character Assessments for the two boroughs. The Melton Character Assessment (2006) uses the term 'Landscape Character Areas' whilst the Greater Nottingham Landscape Character Assessment (2009) which covers the borough of Rushcliffe, uses 'Draft Policy Zones'. However, the terms are broadly interchangeable. This study uses the term 'Landscape Character Units' (LCUs) as units for assessment- these are based on the Melton and Rushcliffe Landscape Character Areas and DPZs*' (source: August 2014 *Melton and Rushcliffe Landscape Sensitivity Study*, Footnote 1'.

vii) At para. 4.13, the LVA sets out the '*The key landscape characteristics of the LCU 25 relevant to the Application Site [inter alia]*'. Those which emphasise the unspoilt rural character of the area include:

- '*Rural remote and tranquil character comprising arable farmlands and a regular dispersal of small rural settlements*.'
- '*Land use is mostly arable although pasture is common around village fringes*.'
- '*Villages are particularly distinctive often containing very little modern development; they are along narrow roads*.'
- '*Scattered farmsteads*.'

viii) The Wind Landscape Sensitivity Study also notes:

- '*Scenic qualities: The relatively intact rural character of the LCU results in typical rural scenes of farming and distinctive small villages along narrow roads often bordered by red brick walls set in a wooded character of hedgerows, hedgerow trees and scattered woodlands.*'

2.2.5 There are a few modern detractors within the LCU, some of which are evident on the site and within parts of its contextual landscapes: '*Many prominent overhead line routes are present within the landscape and are always visible on the skyline*'. However, such features are not uncommon even in National Parks and Landscapes. It is also important to note that the site lies within the Vale of Belvoir, which was proposed as a candidate Area of Outstanding Natural Beauty (AONB) (now called National Landscapes).

2.2.6 There are also a few historic farmsteads which have been enlarged to accommodate intensive uses such as egg / poultry production; intensive 'horsiculture' in some places (see recreation baseline below); and a small cluster of large wind turbines just beyond the northern edge of the study area. However, these have limited influence on the majority of the study area's landscapes.

2.2.7 The large settlements closest to the site are the city of Nottingham, the easternmost outskirts of which lie c. 12.5km south west of the site; and the towns of Newark (c. 8.5km to the north), and Grantham (c. 14.5km to the south east).

2.2.8 In terms of main road and rail infrastructure within the study area, at its closest point, the site lies c. 3.3km east of the A46, c. 6.4km west of the A1, c. 4km north of the A52, and c. 2.7km north of the Nottingham - Grantham railway line.

2.2.9 Although there is erosion and disturbance at the edges of the main settlements and along the main infrastructure corridors, just beyond, in the open countryside, the high levels of landscape

quality and condition are, for the most part, restored. Also, there are surprisingly high levels of tranquillity: much depends on the direction the wind is coming from, but the most I heard during my surveys around the site was a distant hum from the A46. This meant I could clearly hear the wind itself, and birdsong (including many skylarks in / above the site's open arable fields). In the centre of the area, where the site lies, the night skies are quite dark.

2.2.10 A few photographs of the site and its contextual landscapes are provided below.

Cultural Heritage and Historic Landscape Character

2.2.11 Not only are the site and its contextual landscapes quintessentially rural with high levels of aesthetic and perceptual qualities, but they also contain significant buried archaeology, display significant time-depth, and are very biodiverse.

2.2.12 The study area is characterised by many important heritage assets, most of which are identified and described in detail in submissions by / responses from the Appellant, RBC, heritage experts, and local residents, so these should be consulted for detailed information about the area's cultural heritage. However, what is not fully considered in the LVA in particular, in my opinion –

despite its relevance here, and recommendations in relevant published guidance[3] – is historic landscape character, in terms of a) the contribution that the heritage assets make to the present-day landscapes, and visual amenity; and b) the contribution that the contextual landscapes make to the settings of the heritage assets.

2.2.13 These are ancient landscapes. Lying so centrally, it is inevitable that as glaciers retreated, over 11,000 years ago, and people could travel further, the wider landscapes were crossed by many routeways which converged in the region, usually following higher ground that was not still inundated with post-glacial meltwater. There is evidence of human activity and settlement (and no doubt, trade) occurring here from at least the Neolithic period to the present day.

2.2.14 Many of the ancient features found on the site / within the surrounding area, are noted in the Historic Environment Record (HER), and include:

i) Neolithic trackway along Longhedge Lane, which runs along the site's northern boundary (winding, with old mixed-species hedge, strongly suggesting existing prior to, and not altered during, the late 1700s Enclosures).

ii) Neolithic axe head, flint and scraper finds.

iii) Roman villas (typically with managed farms of c. 1500 acres).

iv) Romano British settlement.

v) The Fosse Way is a notable Roman Road.

2.2.15 The NCA 48 profile adds that '*The gravel terraces along the Trent have been the focus of human activity for many thousands of years*'.

2.2.16 Whilst many of the landscape's more ancient features are still visible, the prevailing historic character and landscape patterns here are medieval, as shown in the photos above, with grid-like Enclosure patterns superimposed / integrated in places (new, straight roads, and regularly-shaped fields with single-species hedges, predominantly hawthorn). Remnant strip fields / burgage plots characterise settlement patterns in many of the small villages, including Hawksworth and Thoroton, and there is what appears to be ridge-and-furrow in places, for example on the slopes just north-east of Orston. The historic gardens and parkland of Thoroton Hall are a non-designated heritage asset.

[3] See for example GLVIA3 paras. 5.7 – 5.11; LI (TGN) 02/21 *Assessing landscape value outside national designations*; and *Landscape Character Assessment Guidance for England and Scotland - Topic Paper 5: Understanding Historic Landscape Character* The Countryside Agency and Scottish Natural Heritage (2002)

Possible ridge-and-furrow at Orston

2.2.17 The landscapes west of the site, around Flintham, have a clearly visible historic parkland character, a combination of medieval (deer park), and 19th century (ornamental pleasure grounds and gardens). Parts of the parkland are now a Grade II Registered Park and Garden. The well-wooded landscapes are associated with Grade I listed Flintham Hall (with adjacent Grade I listed church of St Augustine), dating from the 10th century, which takes advantage of the slightly more pronounced topography in this area.

Historic landscapes around Flintham

2.2.18 One of the area's most charming attributes is the quiet routes winding through countryside which has retained its historic character, the journey punctuated by the contrast of small, quaint, sleepy villages, many of which have medieval (or earlier) origins, and are now Conservation Areas, most with Grade I or II* listed churches. This applies especially to Hawksworth, and Thoroton, and also Car Colston, through which the proposed construction route would pass.

Grade I listed Church of St Helena , Thoroton[4]

[4] Photograph extracted from https://thorotonchurch.co.uk/, photographer unknown

Grade II listed Church of St Mary and All Saints, Hawksworth*

Car Colston Conservation Area

2.2.19 The cultural heritage and historic landscape character of Hawksworth and Thoroton, and their associated landscapes, are comprehensively described and illustrated in RBC's Conservation Area Appraisals and Management Plans, and accompanying Townscape Appraisals, which were carried out for both villages in 2009. These documents explain how the landscapes and the

settlements / their heritage assets are intrinsically linked, physically and historically. They also emphasise that an integral and important part of the experience and appreciation of the assets is the availability of fine, unspoilt and open views towards them, across their settings, and outward from the assets across their settings. As within the rest of the study area, at both villages, the church spire / tower are notable features in the wider landscape (albeit today often screened by vegetation).

2.2.20 Another important and highly relevant (and valuable) historic landscape feature on the Appeal site is a section of the boundary between the parishes / communities of Hawksworth and Thoroton. The boundary, which is marked by mature trees, is contiguous with the western boundaries of Fields 6 and 8 (apart from at the small, square woodland block), then crosses the northern part of the site, forming the boundary between Fields 4 and 5.

Natural Heritage and Biodiversity

2.2.21 It appears that the site and its contextual landscapes are very biodiverse: I saw a wide variety of fauna / signs of them during my visits to the area, and the R6P / local residents have supplied lists of records of fauna, especially a very large number of different bird species.

2.2.22 The LVA did not consider natural heritage / biodiversity in the baseline studies, but biodiversity / ecology are integral to both character and appearance. Different habitats have different characteristics and features which contribute to a landscape's character, and thus are important factors in landscape and visual assessments. 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*.' 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*.'

2.2.23 Loss or erosion of habitats can lead to adverse effects on character and appearance. As noted at GLVIA3 para. 3.22, development may result in '*alterations to a drainage regime which might change the vegetation downstream with consequences for the landscape*'. Changes to landscape features, elements and landcover can also result in changes to these habitats and the species of flora and fauna they support. Thus, landscape and ecological consultants should work in close collaboration.

2.2.24 The baseline information which needs to be gathered and considered in landscape assessments is set out in the guidance; the list includes 'literature on wildlife' such as relevant NCA profiles, Biodiversity Action Plans, management plans, and habitat / other surveys.

2.2.25 In fact, there is a Site of Special Scientific Interest (SSSI) c. 2.5km south of the site (Orston Plaster Pits), and three Local Wildlife Sites (LWSs) lying c. 1.5km from the site (including the River Smite – see hydrology below).

2.2.26 Although there are very few ancient semi-natural woodlands (ASNWs) remaining within the study area (none within c. 5km of the site – long-established woodland was often cleared during Enclosure), there are several diverse Priority Habitat Inventory (PHI) / Priority Habitat sites, some of which are indicative of historic land-uses / management practices. Indeed, due to the lack of mature woodland and traditionally-managed habitats, the PHI / BAP sites are very valuable resources.

2.2.27 The sites include PHI Deciduous Woodland, which covers the majority of the small, scattered woodland blocks and belts in the area including those on the site (many are plantations / game coverts); Traditional Orchards (including in and around Hawksworth and Thoroton); Woodpasture and Parkland BAP sites (often associated with medieval deer parks / chases); Lowland Meadows; Lowland Calcareous Grassland; Coastal and Floodplain Grazing Marsh; and Good quality semi-improved grassland.

Woodland blocks on Appeal site

Hydrology

2.2.28 As noted above, hydrology is relevant to character and appearance, and effects upon them.

2.2.29 The site is crossed by several small watercourses ('drains' on the OS map), which interconnect with the network of other watercourses in the area. The River Smite (LWS) collects many of the small drains, gutters and becks: it flows north-eastwards, joining the River Devon (Nottinghamshire) north east of Shelton, c. 2.6km from the site. The River Devon discharges into the River Trent west of Newark.

2.2.30 In the Appellant's Ecological Appraisal (30th November 2022), para. 7.14 states that '*there is no direct hydrological connectivity between the Application Site and the River Smite LWS. Indirect hydrological connectivity in the form of surface waters is a possibility*'. However, it appears to me that there could be direct hydrological connectivity between the Application Site and the River Smite.

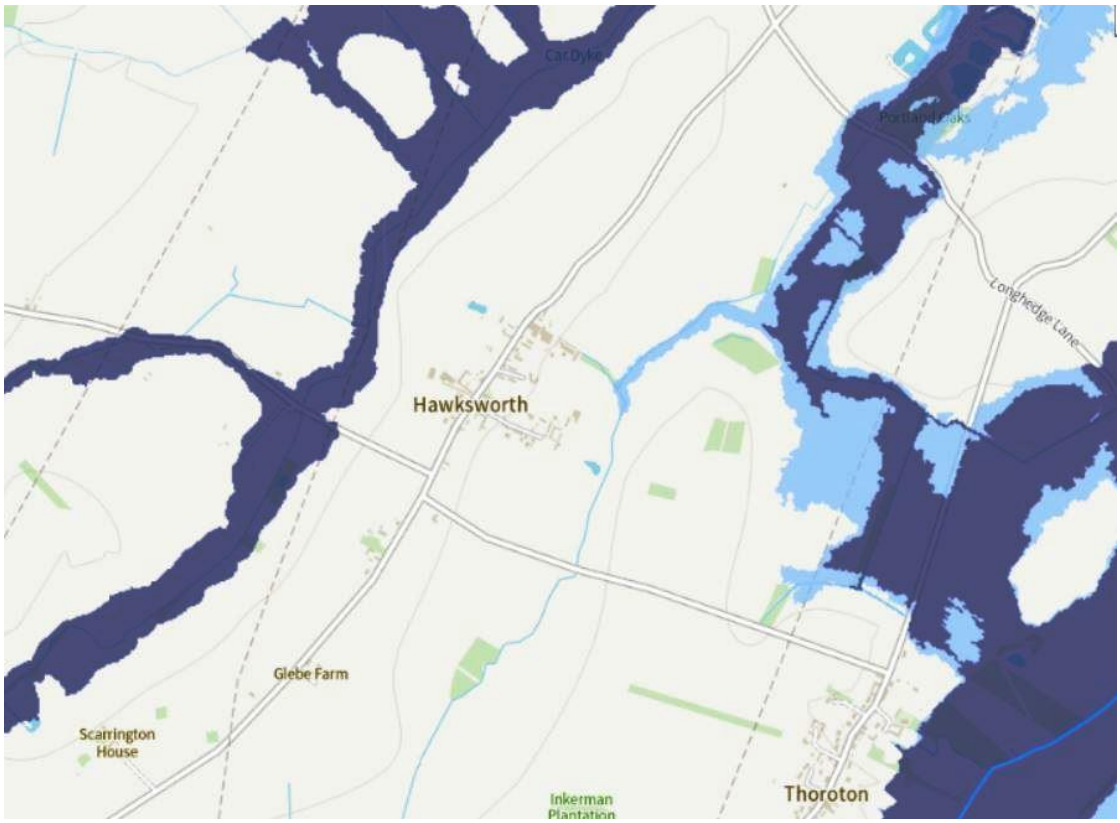
2.2.31 A watercourse called The Gutter, which appears to rise in the vicinity of Aslockton, flows north through the north-western sector of the site, forming the boundary between Fields 1 / 2, and 3 / 4.

The Gutter

2.2.32 The Gutter continues north, running under Longhedge Lane and through the centre of the Portland Fishing Lakes area on the other side of the lane. Just beyond the lakes, The Gutter joins Back Dyke, which appears to rise in the vicinity of the lakes (although some watercourses shown on 19th century maps have since disappeared underground). Back Dyke discharges into the River Devon (Nottinghamshire) just north of Brecks Lane, c. 2.8km north east of the site.

2.2.33 An extract from the Environment Agency's flood map is provided below. This shows that a) a section of the proposed construction route, just west of Hawksworth, and b) a large proportion of the site, are within Flood Zones 2 and 3 (but see below). On the site, the whole of Fields 4, 7 and 9, the majority of Fields 3 and 6, and the eastern parts of Fields 1, 2 and 8, lie within these zones.

Extract from Flood Map[5]



2.2.34 Photographs taken by local residents of floods on the site in late winter / early spring 2024 are provided overleaf.

[5] https://flood-map-for-planning.service.gov.uk/

2.2.35 However, unfortunately, the Appellant does not appear to have factored in the recent revisions to climate change allowances. This is potentially highly problematic.

2.2.36 Para. 4.79 of the Appellant's Technical Appendix 4: Flood Risk and Drainage Impact Assessment (FRDIA) (dated the 30th of November 2022 and not updated since as far as I am aware) explains that:

'*The 100 year plus 20% climate change allowance flood extent with modelled peakwater levels is shown in Figure 4.6: Appendix 4A. Vulnerable infrastructure is sited outside the climate change floodplain with the exception of a single Inverter pairing in Field 7, as shown in the flood map inset. The Inverter pairing will be raised above the 100 year plus climate change level (17.60 m*

AOD) with a freeboard of 600mm to account for modelling uncertainties (i.e. Finished Floor Level (FFL) of 18.20 m AOD). It is noted that this will also set Finished Floor Levels above the 1 in 1000 year level. Vulnerable infrastructure outside the climate change floodplain will also have the FFL raised 300mm above surrounding ground levels. This inverter was required to be located within Flood Zone 2 due to its distance to surrounding panels and reducing cable losses to within a reasonable level of tolerance'.

2.2.37 Para. 4.81 states that '*Predicted maximum flood depths during the climate change event are less than 1.0m across the Application Site (outside the channels of the drains) and the solar panels will therefore be raised above the maximum modelled flood level, remaining operational. The majority of the potential flooding is below 0.5m depth and therefore the standard panel heights of 0.8m will suffice and also include a freeboard of 0.3m*'.

2.2.38 Thus, as a result of the risk of flooding identified in the FRDIA, within Flood Zone 2 areas, the inverters' FFL would be c. 550mm above existing ground level (GL), plus 300mm. The inverter units would be 3m high. Therefore the top of the units would be 3.85m above ground level.

2.2.39 In Flood Zone 1 areas, an additional 600mm is required, so the top of the units would be 4.45m above ground level – 1.65m higher than assumed in the LVA.

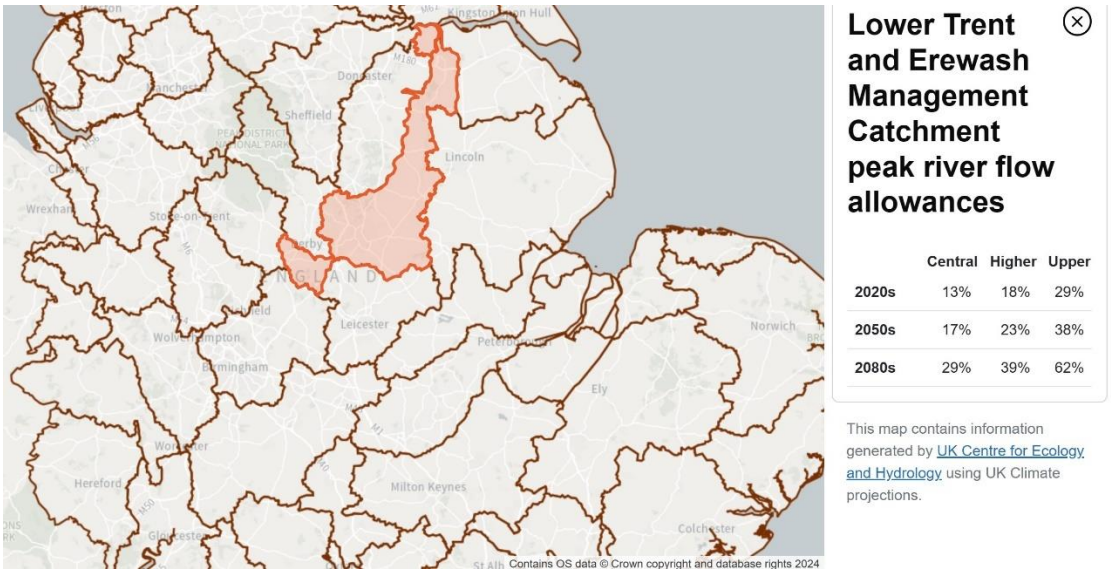
2.2.40 However, after the significant flooding events of 2020, the Environment Agency reviewed climate change allowances for all of their river basin management plans.

2.2.41 The FRDIA was published in November 2022. In December 2022, the revised allowances for the Humber Basin were published (the site is within the Lower Trent and Erewash management catchment of the Humber Basin).

2.2.42 Therefore, the figures used and assumptions made in the FRDIA (20% allowance) are out-of-date, and significantly understate the potential extent and depth of potential flooding across the site.

2.2.43 On the assumption that the proposed development would operate for 40 years, ie into the 2060s, the siting, layout and design of should be adjusted to reflect the relevant current peak river flow allowances for this catchment, as shown in the screenshot overleaf from the Humber River Basin Management Plan, December 2022, ie ranging from 17% to 38% for the 2050s, rising to 29% to 62% for the 2080s.

Screenshot from Environment Agency's Hydrology Data Explorer



2.2.44 This would inevitably entail raising the height of other infrastructure as well (by up to c. 2m), including the DNO substation. The panels would also have to be raised higher, as the current freeboard is 800mm, which would not be sufficient.

2.2.45 Evidently, this would significantly increase the extent of the developed site's visibility, and levels of visual effects – see Section 6.

Recreational and Social Amenity

2.2.46 The LVA has not considered the area's recreational resources and functions (for example, for walking, running, cycling, and horse-riding in particular), which are not just of value to local residents, but also to communities within the wider area, and visitors from all around the country – abroad as well.

2.2.47 Many come specifically to enjoy the landscapes' high levels of aesthetic and perceptual qualities, described above, especially tranquillity. The local road and PRoW network is very lightly-trafficked (most of my photographs were taken from the middle of the road), and offers excellent opportunities for people of all ages and abilities. For local residents, the recreational resource makes an extremely important contribution to their health and well-being, and the quality of their lives.

2.2.48 During my site visits, I encountered many people engaging in the above recreational pursuits, and spoke to several of them. Some were local residents, who regularly use the lanes for a variety of purposes, including visiting family and friends; keeping fit; walking the dog; riding the horse; enjoying the scenery and wildlife; and travelling to and from school, places of work and worship,

commercial outlets, hostelries, and other local facilities / destinations. Others were visitors from different parts of the country and abroad. Most said that they came for the combination of the quality of the recreational resource, and the scenery: a network of very lightly-trafficked lanes and PRsoW with good accessibility for all (partly due to being so flat), and hostelries / other facilities in beautiful, historic villages along the way. A couple were ornithologists.

2.2.49 Many people particularly enjoy the fact that the network of lanes and PRsoW allow loop-routes to be completed, of varying lengths and qualities. Indeed, on several occasions, over a period of two or three hours, I encountered the same groups / individuals at a number of different locations.

2.2.50 Some of the most well-used cycling, running and horse-riding routes, which are also used by walkers, are shown on the plans in Appendices CT-A and CT-B respectively.

2.2.51 The photographs below, taken by me and residents, show people engaged in a range of activities on the local lanes, including those which run along the site boundaries.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2.2.52 One of the most popular stopping / start and finish points is a cycling centre called *Caffé Velo Verde*[6], located in the village of Screveton, c. 2.2km west of the site. According to Tripadvisor ratings, it is '*Nottinghamshire's top café*'[7]. According to the owners, the average number of customers at weekends is 600 – 700, and on weekdays (Tuesday to Friday) it is 300 to 400.

2.2.53 The facilities that *Velo Verde* provides for cyclists are excellent, but the café in particular also draws day-trippers in cars, walkers, joggers, and runners (Bingham Triathlon Club operates from there). Also, it is part of a larger, also very popular complex called *FarmEco Community Farm*[8]. According to its website, this is '*a registered Community Benefit Society with a vision to build a sustainable farming model for FarmEco that benefits both the community and the environment*'. It runs workshops and experiences, and hosts family fun days.

Caffé Velo Verde

2.2.54 The lanes and PRsoW in the study area are used by local cycling groups eg Velo Club Flintham, and groups from further afield eg Grantham, Leicester, and Lincoln.

2.2.55 Two annual triathlon events called '*The Outlaw*' are held in May and July. Over 2000 athletes compete in these events, accompanied by supporters and event crews. Both are regularly voted as the UK's best middle- and long-distance triathlons, due in part to the route for the cycling sections of the events being on quiet country lanes in a high-quality rural environment. The cycling route follows the proposed construction route from the A46 via Car Colston up to

[6] https://caffeveloverde.co.uk/

[7] https://www.nottinghampost.com/whats-on/food-drink/nottinghamshires-number-one-cafe-tripadvisor-7039988

[8] https://www.farmeco.co.uk/

Hawksworth. It then follows the lanes forming the western and northern site boundaries, going on to Scarrington, and returning via Car Colston.

2.2.56 Other regular organised road-based events using the local lanes including the construction route include Full and Half Ironman challenges; BTC Duathlon and OVB Criterium Races; and the Orston Spring Dash.

2.2.57 This is a very active equine area, no doubt due in no small part to the quality of the resource as described above.

2.2.58 There are racecourses at Nottingham and Southwell, a stud at Car Colston, several commercial livery yards (at Scarrington (3 no.), Aslockton (2 no.), Orston (1 no., very large), Sibthorpe (1 no.), and Screveton (1 no.)), and many private stables, often with associated paddocks (there are stables at properties adjacent / very close to the site in Hawksworth village (3 no.), Thoroton (2 no.), and one at Portland Lakes). In the wider area there are private stables on the Hawksworth / Scarrington road (3 no.), the Hawksworth / Screveton road (3 no.), the Orston road (Smite Lane) (4 no.), in Orston (8 no.), Screveton (2 no.), Car Colston (3 no.), Aslockton / Whatton (4 no.), Shelton (3 no.), Flawborough (2 no.), Sibthorpe (3 no.), and Flintham (7 no.). Local drag hunts regularly hold meets at Sibthorpe, Flintham, Scarrington, Orston, and Hawksworth. At least one establishment offers rides along the lanes in horse-drawn traps. People at the travellers' community site at Screveton also use ponies and carts.

2.2.59 According to local residents, the local pubs and cafés are welcoming regular stops for those out on horse rides, for example the Durham Ox at Orston, the Royal Oak at Car Colston, the Boot and Shoe at Flintham, and the café at Portland Lodge Fishing Lakes near the site (see below).

2.2.60 Riders enjoy using the system of loop routes described above, along quiet lanes, bridleways, BOATs, and occasionally, permissive bridleways (for example along the river north of Oscar Bridge, which can be accessed via the bridleway crossing the site).

2.2.61 These routes include the proposed construction route, the lanes along the site boundaries, and the bridleway crossing the site. According to local equestrians, the Scarrington to Hawksworth Road, which forms part of the construction route, is the route of choice for riders from Scarrington livery yards to get to the routes north of Scarrington crossroads.

2.2.62 The photographs overleaf show horse-related activities taking place along the local lanes.

2.2.63 The Portland Fishing Lakes complex, which includes eight coarse fishing lakes and a café, lies opposite the site, on the northern side of Longhedge Lane.

2.2.64 It is evidently a very popular recreational venue, perhaps partly due to being in a quiet, rural location with abundant wildlife. According to an online source[9], '*The current owners have plans to build on this in the future and expand the fishery. The venue is great for anyone with disabilities, there is wheelchair friendly access to all areas. On site, there is a toilet block and a club house that offers food over the weekend – they have a drinks licence, so that means you can also get a pint! The lakes at Portland Fishery are often booked for matches, if you want to fish on a specific water, then it would be wise to check in advance to make sure you can fish where you want to*'.

2.2.65 Other key destinations / attractions / facilities in the local area / along the construction route include:

- Meadow Vale Retreats on the Hawksworth road east of Screveton.
- Caravan and camping site at the rear of the Royal Oak, Car Colston.
- Friday coffee mornings at Aslockton Community Centre.
- Coffee mornings at the Whatton village hall.
- Cafe at the Orston gun club.
- Blue Diamond Garden Centre (extremely busy all year round with restaurant and soft play area).
- Tot spots on a Friday at the Thomas Cranmer Centre, Aslockton.
- South Fields child care, Car Colston. 2 - 5 years, full time, fifty weeks.
- Car Colston cricket club.
- In Aslockton, Larder shop, Post Office on one day, Cranmer Arms PH and the Hairdressers.

2.2.66 Visitors to the above resources and facilities make a highly important contribution to the local economy.

[9] https://looksfishy.co.uk/places-to-fish/east-midlands/nottinghamshire/portland-fishing-lakes/

2.3 Visual Baseline

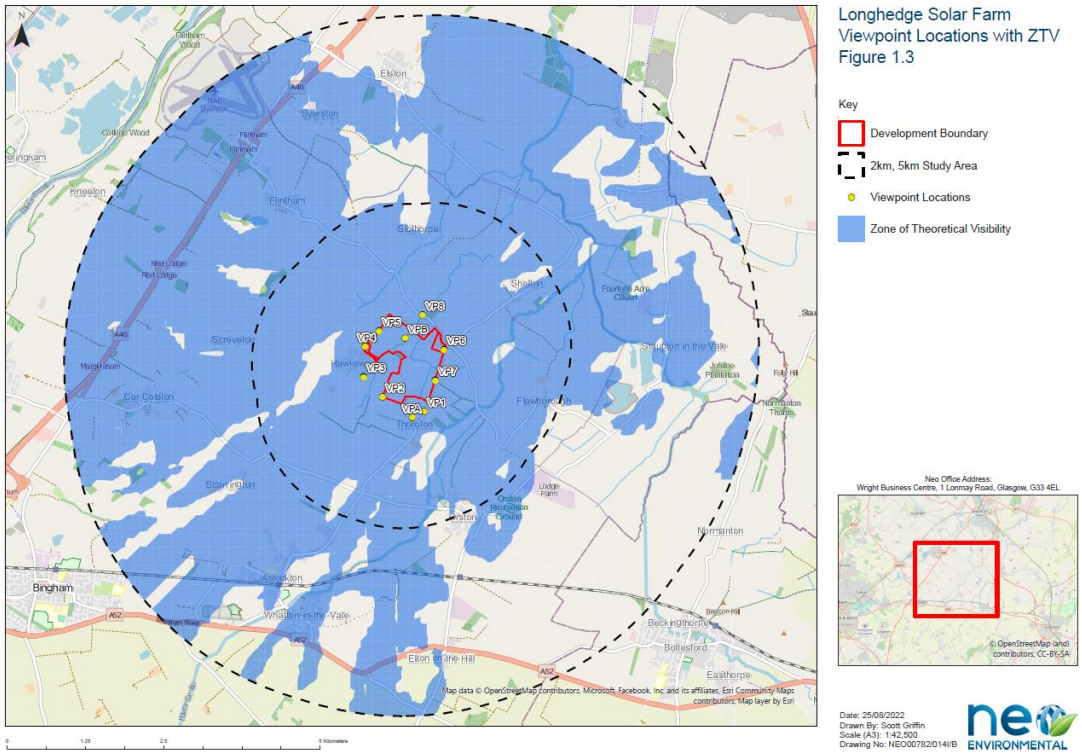
2.3.1 This section provides an overview of the visual baseline situation. It focusses on how the landscapes described above are perceived by people, as opposed to who is likely to experience views of the site during construction, operation and decommissioning, and from where. The latter is set out in the visual effects section, which also provides more detailed descriptions and illustrations of the visual baseline situation.

2.3.2 The flat / gently undulating topography plays an important role in the degree of visibility of a target within the wider landscapes, allowing long, open views in many places. This is clearly illustrated on the LVA's plan (Viewpoint Locations with ZTV Figure 1.3) (extract below), which shows the Zone of Theoretical Visibility (ZTV) of 2.8m high solar panels on the site.

2.3.3 However, some scheme elements would be far taller than 2.8m, and would therefore be visible over a much wider area - see Section 6.

2.3.4 The ZTV is based on a bare-earth scenario, ie screening elements such as settlements and woodlands aren't factored in (which in my opinion is the best approach), but there are few settlements or woodlands to screen views anyway.

ZTV extract



2.3.5 I do take issue with the LVA's emphasis on the character of the site and its contextual landscapes being 'wooded'. The term occurs throughout (eg para. 5.5: '*wooded farmland landscape*'; 4th para. under 6.78: '*characteristic wooded tree belts and hedgerows*'; para. 6.79: '*characteristic wooded field boundary planting*').

2.3.6 This gives the impression that there is more woodland and mature tree cover than there actually is, and the assertion is used to justify mitigating measures in the form of the planting proposed to screen certain views, and the proposal to allow hedges to mature into 'wooded belts' (see Sections 4.4 and 6).

2.3.7 However, it is important to note that whilst the mature hedgerows and scattered woodland blocks, along with mature trees characterising many of the villages (and historic parklands), give rise to a well-wooded impression, due to the landscapes being so flat, in reality, these are not well-wooded – or even 'wooded' – landscapes (see photo below).

Tree cover on and around site

2.3.8 Indeed, the following extracts from LVA para. 4.13 which describe '*the key landscape characteristics of the LCU 25 relevant to the Application Site*' reinforce this:

- *There is a relatively low level of woodland cover with a regular pattern of small geometric and irregular shaped woodlands throughout; other woodland is often linear in character following the line of a former railway, around village fringes and where individual hedgerows are left to mature.*
- *Hedgerow trees are infrequent although clustered around pasture fields on village margins and within villages. Where hedgerows are often taller around arable fields trees tend to be less frequent.*

- *The combination of taller hedgerows, hedgerow trees and scattered woodlands creates a dispersed wooded character which is key component within skyline views.*

2.3.9 Regarding hedges, here, one of the most important factors in the nature of the existing (and proposed) screening vegetation is that throughout much of the study area, and certainly in the vicinity of the site / the site itself, there is what appears to be (reinforced by anecdotal evidence from landowners / managers and local residents), a traditional and very specific form of hedgerow management.

2.3.10 On my first visit to the area, I was surprised to see such a wide variety of hedgerow heights, although I eventually realised this was highly characteristic. The heights range from newly-laid hedges at c. 1m, to well-managed, trimmed hedges maintained at c. 1.2m, and unmanaged hedges between c. 4 and 6m (taller hedges exist but they are unusual).

2.3.11 What also surprised me was that the majority of the taller hedges were in very good condition, with leaf cover right down to the ground: usually, unmanaged hedges become gappy at the bottom over time.

2.3.12 I was told that tall, thick hedges are needed to form wind-breaks, since here, strong winds blow across the flat terrain from all points of the compass. However, the hedges are only allowed to remain tall for a few years – precisely to avoid legginess. Then they are laid, and allowed to grow on again, but with regular trimming (which promotes faster growth) to keep them bushy and in full health.

2.3.13 The result of this practice is that the amount of screening provided by hedges varies significantly from place to place, and over relatively short periods of time. It may also explain why mature hedgerow trees are not characteristic in this area.

2.3.14 The photographs overleaf illustrate the variety of hedge heights, and typical forms of management in the area, including on the site / along its boundaries.

2.3.15 The photo below is an example of a hedge (on the site) which has not been cut back regularly, so it is not in optimum condition, having become leggy, and gappy at the bottom.

3 Landscape & Visual Receptor Sensitivity

3.1 Introduction

3.1.1 The previous section explains how the lack of baseline information gathered and analysed in the Appellant's LVA has resulted in many highly important landscape and visual receptors not being identified, and / or their value not being recognised. As a consequence of this, levels of landscape and visual receptor sensitivity have been underestimated, which has implications for subsequent judgements made about levels of landscape and visual effects.

3.1.2 Furthermore, the methods and criteria used in the LVA to establish levels of landscape and visual receptor sensitivity are confusing, and have led to errors, resulting in the underestimation of levels of effects.

3.1.3 This section sets out the findings of my own assessment of landscape and visual receptor sensitivity, and compares them with the Appellant's.

3.2 Landscape Receptor Sensitivity

3.2.1 In LVIA / LVA, the process for determining levels of landscape and visual receptor sensitivity is the same.

3.2.2 The first step involves analysing the baseline landscape and visual information which has been gathered through desktop and in-field studies; then, with reference to published guidance, and based on professional experience, ascribing levels of landscape and visual value, and landscape and visual susceptibility to change, to each of the landscape and visual receptors which have been identified.

Landscape Value

3.2.3 At para. 4.19, the LVA concludes that the overall level of value of the site and its contextual landscapes (which I **agree** predominantly comprise LCU 25) is **Medium**.

3.2.4 I **disagree** with this conclusion. My own assessment concluded that the level of landscape value is **Medium to High** (based on the LVA's scale – see below).

3.2.5 Establishing levels of landscape value is an integral part of the LVIA / LVA process of arriving at judgements about levels of effects. GLVIA3 para. 5.19 explains that '*Value can apply to areas of landscape as a whole, or to the individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape*'.

3.2.6 'Landscape value' is defined in GLVIA3 (para. 5.19) as '*The relative value that is attached to different landscapes by society, bearing in mind that a landscape may be valued by different stakeholders for a whole variety of reasons*'; the guidance explains how levels of landscape value should be established through the LVIA process.

3.2.7 Understanding 'landscape value' is essential, especially as it plays a major role in many environmental, landscape and social planning policies / forms of guidance, and is an integral component of 'quality of life'. Pursuing sustainable development, which is at the heart of national planning policy, involves seeking positive improvements in people's quality of life, as well as in the quality of the built, natural and historic environment.

3.2.8 Also, the community and social value of the landscape matters greatly in land use planning, especially as this value is tied to the important role landscape plays in quality of life. The European Landscape Convention (ELC) states (my emphases):

"*It is because people have a perception of their territory (definition of landscape) that they are capable of evaluating it, namely, of applying to this area "as perceived by people" value systems which underlie landscape assessment.* ***This evaluation by the population enables people to voice their aspirations, the expression of which in the form of landscape quality objectives is the basic principle of landscape policies and of specific measures with a view to landscape protection, management and planning***.

"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****"*.

3.2.9 Community values are often difficult to quantify. However, in order to arrive at objective conclusions, methods which are as objective and transparent as possible should be used, regardless of whether the assessments are being carried out by qualified professionals or people from the local communities (and it must be borne in mind that not only are many community members competent experts in certain fields; they are also ready, willing and quick to learn how to 'speak the language' of landscape, and planning).

3.2.10 Regarding the LVA's conclusion that the site and contextual landscapes' level of landscape value is Medium, the first point to make here is that the LVA's method and criteria for establishing overall levels of landscape and visual effects are inconsistent (they are set out in LVA Appendix 1B - LVA Methodology). In my own assessments / reviews, I tend to explain the methods used in each section, and refer to separate criteria (see Appendix CT-D).

3.2.11 When reviewing LVIAs / LVAs, to avoid confusion, I prefer to work with the applicant's / appellant's criteria; however, as in this case, where there are clear differences of opinion, I refer to both.

3.2.12 In LVA Appendix 1B, Table 1-1: Criteria for Landscape Value sets out levels of landscape value on a three-point scale (High, Medium and Low). No hard-and-fast rules for this are set out in GLVIA3, but:

a) for some reason, the LVA uses a variety of scales for different stages of the process (three-, four-, and five-point) – explained further below, but combining a variety of scales skews the results; and

b) three-point scales are often used for high-level / strategic assessments, especially where the geographical extent of the study area is large, but the High – Medium – Low range does not allow enough granular differentiation between landscapes. For example, if the High level is reserved for nationally- / regionally-designated landscapes, and Low for very poor-quality landscapes, then Medium must cover the majority of the landscapes in the country. Of course, categories can be split (eg High – Medium), but the LVA's value criteria are very limited, so not very helpful for making value judgements (for comparison, see Tables 1 and 2 in Appendix CT-D; NB I use a five-point scale ranging from Very High to Very Low, with Moderate in the middle).

3.2.13 For some reason, having set out the justifications for the conclusion that the site and contextual landscapes are of Medium value at para. 4.19, later (at paras. 4.23 – 28), the LVA goes on to describe landscape value features and factors including designated sites / features, apparently without factoring them in to the value judgement.

3.2.14 Even if they were factored in to the judgement, the lack of baseline information gathered and analysed in the LVA has resulted in many important landscape value features and factors being excluded.

3.2.15 Furthermore, the LVA relies heavily on GLVIA3 Box 5.1 for value indicators. LVA Table 1-2: Factors Helping to Identify Landscape Value, under para. 1.23 of LVA Appendix 1B, sets out '*factors* [which] *help to influence landscape value as determined in this assessment. They are based on GLVA3 Box 5.1 factors*'. GLVIA3 para. 5.19 explains that '*Value can apply to areas of landscape as a whole, or*

to the individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape'.

3.2.16 However, the LVA does not appear to have considered what is not only a highly relevant document in this case, but also, current best practice, ie the LI's TGN 02/21 *Assessing landscape value outside national designations*.

3.2.17 The TGN was published eight years after GLVIA3, the aim being to supplement existing advice and guidance on making judgements about landscape value, including that contained in GLVIA3 (I was a member of the LI's working group which advised on its production). The TGN was '*prompted by a need to interpret the (England) National Planning Policy Framework February 2019 (NPPF) term 'valued landscape*' (and also, the wording of the NPPF's 'valued landscape' policy).

3.2.18 Table 1 of the TGN sets out the range of factors to be considered when making judgements about landscape value. Those which were either not mentioned / factored in to the LVA at all, or about which very little relevant information was provided, include:

- Natural heritage
- Cultural heritage
- Landscape condition
- Associations [cultural]
- Distinctiveness
- Perceptual (scenic / wilderness / tranquillity)
- Functional [in terms of what the landscape contributes to, for example, ecosystem services, GI, hydrological systems / floodplains, and so on].

3.2.19 'Landscape function' is especially important, as it was not included in the GLVIA3 Box 5.1 *Range of factors that can help in the identification of valued landscapes* (NB it is a common misconception that the 'valued landscapes' in the title refers to the 'valued landscapes' of the NPPF; in fact, both Box 5.1 and the term 'valued landscapes' are derived from the 2002 LCA guidance, in the context of making judgements about whether certain landscapes were worthy of designation).

3.2.20 Today, 'landscape function' is far better understood, and known to be critically important, hence the emphasis in the TGN.

3.2.21 Landscape function also includes / involves:

i) *Healthy* functioning of the landscape *e.g. natural hydrological systems / floodplains, areas of undisturbed and healthy soils, areas that form carbon sinks such as peat bogs, woodlands and oceans, areas of diverse landcover (benefits pest regulation), pollinator-rich habitats such as wildflower meadows.*

ii) *Areas that form an important part of a multifunctional Green Infrastructure network Landscapes and landscape elements that have strong physical or functional links with an adjacent national landscape designation, or are important to the appreciation of the designated landscape and its special qualities*.

iii) *Setting, context. Gap, buffer, separation. Gateways and approaches.*

iv) Contribution to / role played in landscape character, visual and social amenity.

v) Contribution to / role played in maintaining / enhancing people's mental and physical health and wellbeing, and quality of life.

vi) Contribution to / role played in context and setting (eg National Park / Landscape, heritage asset, settlement).

vii) Green gap / buffer / separation / transition zone.

viii) Approach / gateway / corridor / link.

ix) Ecosystem services / natural capital / Green and Blue Infrastructure.

x) Flood zone / water catchment.

3.2.22 Of relevance here is that under the heading *Ecosystem Services*' the NCA 48 profile notes that '*The Trent and Belvoir Vales NCA provides a wide range of benefits to society* [including] *Food provision; Regulating soil quality; Sense of place/inspiration; Sense of history; Tranquillity;* and *Recreation*.'

3.2.23 Many of the value factors identified in my own assessment, including landscape and visual functions, are set out in the baseline sections above, and where relevant, are noted in the effects sections which follow. I also took into account the findings of the Appellant's ecological, heritage, and other assessments, which provided some of the missing information.

3.2.24 The LVA relies heavily on the published LCU descriptions in making value judgements. In the LVA report, at para. 4.15, the LVA concludes that the site and contextual landscapes are 'fairly' representative of the host LCU. However, my own assessment concluded that they are typical, and good representations of the host LCU.

3.2.25 LVA para. 4.13 lists '*the key landscape characteristics of the LCU 25 relevant to the Application Site [inter alia]*'; para. 4.14 explains that '*the study also notes important landmarks and views and notes for this LCU that "Church spires form local landmarks throughout the LCU*"'.

3.2.26 The key characteristics which I consider to be well-represented here, and which are therefore of high value, include (with my emphases): '***Rural remote and tranquil character*** *comprising arable farmlands and a regular dispersal of small rural settlements… Land use is mostly arable although pasture is common around village fringes… Villages are particularly distinctive often containing* ***very little modern development****; they are along* ***narrow roads*** *often bordered by red brick walls…* ***Churches within villages*** *constructed from local stone and either* ***towers or spires***'.

3.2.27 Note that the Church of St Helena in Thoroton (with spire) is Grade I listed, and the Church of St Mary and All Saints in Hawksworth is Grade II* listed. Many other villages boast Grade I and II* churches.

3.2.28 The LVA also notes the landscape value of *Other features of Landscape Value* (within the LVA's 2km study area): para. 4.25 lists three items:

- *Public Rights of Way network including a National Cycleway Network route 64;*
- *A distribution of woodlands and network of field boundaries; and*
- *Secondary Landmarks of Borough-wide importance (noted in the MRLSS).*

3.2.29 However, no analysis of the above in terms of their value is provided, so it is not possible to know what level of value has been ascribed.

3.2.30 It is important to note the following, which are explained in more detail in Section 2 above:

i) The landscapes within which the site lies are a highly-valued and valuable recreational resource for local residents and visitors alike, many people coming from far afield to enjoy the area's high levels of aesthetic and perceptual qualities.

ii) The *distribution of woodlands and network of field boundaries* not only reflect the area's history and cultural heritage, they also are integral to the settings of highly-valued heritage assets.

iii) Some of the *Secondary Landmarks of Borough-wide importance* are nationally-designated heritage assets.

iv) There are numerous highly important historic landscape features on the site (for example, the parish boundary, remnant Enclosure / earlier hedgelines, 19th century coppice / covert).

3.2.31 The lack of consideration of cultural heritage, and historic landscape character in particular, has contributed to the LVA having underestimated levels of landscape value, although as noted previously, so has the lack of consideration of natural heritage.

3.2.32 Another matter not factored in to the LVA's judgements about value is the very important role played by the site and contextual landscapes in people's mental and physical health and wellbeing; the quality of their lives; and their social, recreational and visual amenity. All are integral both to 'landscape', and to assessments of landscape and visual effects.

3.2.33 GLVIA3 Figure 1 shows examples of LVIA 'discussion areas', which under the heading 'human beings', includes 'social impacts'.

3.2.34 Furthermore, the importance of the above is made abundantly clear in the LI's policy on public health[10], and associated position statement *Public Health and Landscape: creating healthy places*[11]. Both are derived from the ELC – see relevant excerpts above.

3.2.35 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***'.

Landscape Susceptibility to Change

3.2.36 At para. 4.20, the LVA concludes that the overall level of the site and its contextual landscapes' susceptibility to change in the form of the proposed solar development is **Medium**.

3.2.37 I **disagree** with this conclusion. My own assessment concluded that the level of landscape susceptibility to change is **High** (based on the LVA's scale).

3.2.38 In the context of landscape character, the term 'landscape susceptibility' is defined in GLVIA3 (para. 5.40) as '*the ability of the landscape receptor… to accommodate the proposed development without undue consequences for the baseline situation and / or the achievement of landscape planning policies and strategies*'.

3.2.39 It is very important consider the landscape and visual receptor's susceptibility to the type of change that is proposed (which may be a broad category such as 'residential development', or more specific, eg '450 no. two-storey residential properties' – here it is a large-scale ground-mounted solar power station with ancillary infrastructure).

[10] https://www.landscapeinstitute.org/policy/health/#:~:text=We%20believe%20those%20involved%20in,high%20quality%20landscape%20increase%20wellbeing

[11] https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2013/11/Public-Health-and-Landscape_FINAL_single-page.pdf

3.2.40 Susceptibility is not a landscape character attribute: judgements about it are (or should be) made on the basis of the available baseline information, and thorough analysis of that information.

3.2.41 In LVA Appendix 1B, Table 1-3: Landscape Susceptibility to Solar Farm Developments sets out levels of landscape susceptibility on a three-point scale (High, Medium and Low). The comments above about the three-point scale used for landscape value apply here as well.

3.2.42 The LVA criteria are not helpful in making judgements about levels of susceptibility: for example, the criteria for High are simply '*A low potential to accommodate the specific proposed development without undue negative consequences. A more vulnerable landscape unlikely to be able to accommodate the Proposal with a low risk of harm*'. But this does not explain *why* the landscape is 'more vulnerable', and has 'low potential' for this type of development.

3.2.43 LVA para. 4.20 very briefly justifies the decision to ascribe a Medium level of susceptibility as follows: '*The LCU across the Application Site comprises medium to large scale agriculture which is interspersed with intermittent vegetated enclosures*'.

3.2.44 The criteria I use when making judgements about levels of landscape susceptibility are set out in Table 3 of CT Appendix-D (as with value, a five-point scale is used: note that on this scale, I judge the level of susceptibility to be High, not Very High).

3.2.45 One of the most important criteria is whether the study area landscapes contain, or are even characterised by, the type of development proposed. As with the assessment of cumulative effects (which are dealt with in the effects sections below), the types of development which are to be considered should be specified: for example, is the search restricted to solar development, or does it include other forms of industrialising development of a similar nature, such as polytunnels?

3.2.46 At para. 6.88, the LVA explains that '*no developments requiring cumulative assessment were identified in this instance*'. It is not clear whether the search was within a 5km or 2km study area, but there is a small (c. 12.4MW) operational ground-mounted solar development lying c. 2km south east of the Appeal site (RBC ref 13/01609), and a smaller (c. 10MW) one lying c. 3km to the south (RBC ref. 14/01739). I factored the presence of both into my own assessment.

3.2.47 In summary, the main reasons for my conclusion that the level of susceptibility of the site and contextual landscapes is **High** are as follows:

i) Very limited existing development within the landscape that is the same as or similar to the proposed development.

ii) Few detracting features in the area and where present, these have little influence on the character and experience of the landscape.

iii) Many of the existing historic landscape characteristics / elements / features of value would not be easy to replace or substitute, and it is unlikely that loss could be compensated for.

iv) Some potential for mitigation and enhancement.

v) The landscape receptor has a low level of ability to tolerate the nature / scale of change / development proposed: long-term / permanent consequences of concern in terms of the maintenance of the baseline situation.

vi) The proposed change / development is unlikely to comply with relevant national planning policies, guidance, and / or strategies.

Landscape Receptor Sensitivity

3.2.48 Judgements about levels of landscape receptor sensitivity are based on a combination of the level of landscape value, and the level of susceptibility to change (although professional judgement must also be applied, through testing and comparing the results).

3.2.49 Thus, in terms of the site and its contextual landscapes, at para. 4.21, the LVA explains that '*The combination of the medium value and medium susceptibility results in a **Medium** sensitivity to the Proposed Development*' (my emphasis).

3.2.50 My own assessment concluded that the site and its contextual landscapes' level of sensitivity is **at the higher end of between Medium to High and High** (based on the LVA's criteria, and my own judgements of Moderate to High landscape value, and High susceptibility to change).

3.2.51 In LVA Appendix 1B, Table 1-4 sets out the criteria for landscape sensitivity: this is unusual, nor is there a need, since as explained above, the criteria for value and susceptibility are already set out. Here, they have been combined. I **disagree** with this procedure, because it does not allow for differentiation between landscapes with varying levels of value and susceptibility. For example, a Medium sensitivity receptor could comprise a High value landscape with Low susceptibility to change; or, a landscape of Medium value, and Medium susceptibility. The difference is very important, and very different factors are involved.

3.2.52 Furthermore, for some reason, levels of sensitivity are set out on a four-point scale: High, Medium, Low, and Very Low. The Very Low category is an anomaly: there is no Very Low category for either value or susceptibility. Also, by adding the Very Low category but not adding Very High, the Medium category is no longer in the middle, so that may be misleading if taken out of context.

3.2.53 The above matters have implications for judgements made about overall levels of landscape effects, so where relevant, are explained further in the effects sections.

3.3 Visual Receptor Sensitivity

3.3.1 Broadly, the process for establishing levels of visual receptor sensitivity is the same as for landscape sensitivity, ie levels of visual value, and the visual receptor's susceptibility to the type of changed proposed, are combined.

3.3.2 LVA Appendix 1B Table 1-5 sets out 'Factors Helping to Identify Visual Value'. Oddly, these criteria are set out on a five-point scale, ranging from 'National' to 'Limited'. They are also very brief (see my criteria in Table 7, Appendix CT-D).

3.3.3 LVA Appendix 1B Table 1-6 sets out 'Susceptibility of Receptors to Change in their Views or Visual Amenity'. In contrast, these are set out on a three-point scale (High, Medium, Low). Broadly, I **agree** with the criteria given, but I **disagree** with the use of the limited three-point scale - see also Tables 8 and 9 in Appendix CT-D.

3.3.4 LVA Appendix 1B Table 1-7 sets out levels of Visual Sensitivity. Here, a four-point scale is used: High, Medium, Low, and Very Low. However, a) there is no Very Low category for either value or susceptibility; b) the five-point scale used for value doesn't 'fit' into the four-point scale; and c) the Medium category is no longer in the middle.

3.3.5 Also, as far as I could ascertain, the LVA does not explain the process of how judgements about levels of visual receptor sensitivity were made: it provides the level, but does not set out the levels of visual value, and visual susceptibility to change upon which it was based. Also, as with landscape sensitivity, visual sensitivity criteria are given, but the same comments apply (ie value and susceptibility criteria are conflated).

3.3.6 It is important to know which levels of value and susceptibility to change were ascribed, in order to understand what the issues are. For example, a Medium level of visual sensitivity could be a combination of a High value view (eg within a nationally-designated landscape for the purpose of enjoying the experience), and visual receptors with Low susceptibility to change (eg people moving through the area at high speed, with little or no focus on or interest in the landscape through which they are travelling). This requires clarification.

3.3.7 LVA para. 4.33 explains that '*The extent of the effect upon certain groups will vary according to their level of sensitivity to the nature of development* [ie level of susceptibility to change]. *For the purpose of this assessment three key groups are identified: (1) local residents of nearby settlements; (2) the travelling public/road users; and (3) recreational visitors / tourists to the area. The baseline sensitivity and susceptibility of these groups is summarised in the methodology in Appendix 1B*'.

3.3.8 My comments on the identified groups of receptors are as follows:

i) *Local residents of nearby settlements*: the qualification is unnecessary; the receptors are simply 'residents at home' (GLVIA3 para. 6.32 – see below).

ii) I assume that by '*the travelling public/road users*', the LVA means people in cars / other vehicles, although it could potentially apply to people on foot / bicycle / horseback. It would be helpful if this could be clarified.

iii) There is only one reference to '*recreational visitors / tourists to the area*', which is in the above paragraph (LVA para. 4.33). In LVA Table 1-2 Representative Viewpoint Baseline, the receptors comprise '*Residents*'; '*road users*'; '*PRoW users*'; '*recreation users*'; and '*Conservation Areas*' (re the latter, see below). Table 1-2's *recreation users* are only identified at one viewpoint (VP 8), at Portland Fishing Lakes, so they are not users of PRsoW. It is possible that *recreational visitors / tourists to the area* are the *PRoW users*, but local residents use the PRsoW as well. Again, clarification would be helpful. Where I have made assumptions about these matters, it is noted.

iv) The LVA's judgements about visual receptors' levels of sensitivity are set out in LVA Table 1.2. It appears, but is not certain (see below) that all the identified visual receptors are categorised as being of a **High – Medium** level of sensitivity, apart from those at LVA VP 8, who are categorised as being of **Medium – Low** sensitivity.

v) I **disagree** that *Local residents of nearby settlements* are only High – Medium sensitivity: they should be categorised as **High** (using the LVA's criteria: in mine, they are Very High).

vi) This may be an error, as in LVA Appendix 1B Table 1-7: *Visual Sensitivity*, residential receptors are indeed categorised as being of **High** sensitivity. This conforms with GLVIA3 para. 6.32, which states that '*the visual receptors most susceptible to change are generally likely to include:* (i) *residents at home*', and the fact that the residents' views are highly-valued. However, at para. 6.39, the LVA confirms that the ascribed level of residential receptor sensitivity is **High – Medium**.

vii) Also, for some reason, the LVA qualifies residential receptor sensitivity with the note '*Residents away from property curtilage*'. It is not clear what this means, and clarification would be helpful: are these receptors at their homes, or are they local residents travelling around the area? If residents at home / within the curtilage of their property, then their level of sensitivity is **High**.

viii) Whether '*the travelling public/road users*' are in cars / other vehicles, or walking / cycling / riding, I **disagree** that all such receptors are only High – Medium sensitivity (or potentially,

only Medium, or even Medium - Low, which appears to be the case at VP8 – see LVA Table 1.2).

ix) In LVIAs / LVAs, it is often assumed that road-users are of lower sensitivity than residents and users of PRsoW, because – as the criteria in LVA Table 1-7 correctly state, they may be engaged in '*Activity where interest or appreciation of the view is secondary to the activity or the period of exposure to the view is limited (e.g. people at work, motorists travelling through the area or people engaged in outdoor recreation that does not focus on an appreciation of the landscape)*'.

x) However, here, some road-user receptors are likely to be of **High** sensitivity.

xi) In LVA Table 1-7, the criteria for High sensitivity receptors include '*people engaged in outdoor recreation whose attention is focused on the landscape and where people might visit purely to experience the view*', which I **agree** is appropriate for certain road-users in this area.

xii) The LVA should have adopted the worst-case scenario, assuming that some road-users would be **High** sensitivity receptors.

xiii) That is because some people travelling in cars / other vehicles 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 makes a highly important contribution to their mental and physical health and well-being, and quality of life.

xiv) Also, the LVA has not considered the very high value of the area as a recreational resource (walking, running, cycling and horse-riding in particular), not just for local residents, but also for communities within the wider area, and visitors from all around the country, and abroad as well.

xv) Many come specifically to enjoy the landscapes' outstanding aesthetic and perceptual qualities (as mentioned above, the Appeal site lies within the Vale of Belvoir, which was proposed as a candidate AONB): the local road and PRoW network is very lightly-trafficked, and offers excellent opportunities for people of all ages and abilities. For local residents, the recreational resource makes an extremely important contribution to their health and well-being, and the quality of their lives.

xvi) Thus, I also **disagree** that recreational users of the local PRsoW should be categorised as **High – Medium** sensitivity receptors: in accordance with the LVA's criteria, and adopting the worst-case scenario, they should be **High**.

xvii) The LVA appears to categorise receptors at Portland Fishing Lakes (VP8) as Medium - Low sensitivity. In my opinion, receptors at the fishing lakes should be categorised as **at least High – Medium** sensitivity receptors, if not **High**.

xviii) In LVA Table 1-7: Visual Sensitivity, the criteria for High sensitivity receptors are as follows: '*Activity resulting in a particular interest or appreciation of the view (e.g…. people engaged in outdoor recreation whose attention is focused on the landscape*'. In my experience, the landscape context and views are usually an integral and important part of recreational fishing.

xix) LVA Table 1-2 Representative Viewpoint Baseline includes people within Conservation Areas, but the LVA does not appear to have ascribed levels of sensitivity for these receptors. According to the LVA's criteria (and I would **agree**), people in Conservation Areas should also be categorised as being of **High** sensitivity (ie the highest possible level).

3.3.9 Another matter which requires clarification relates to discrepancies between LVA Table 1.2, and the reporting of the LVA's assessment of visual effects in LVA Section 6, under the heading *Visual Effects*.

3.3.10 LVA Table 1-2 lists the groups of receptors which are relevant to (likely to experience views from) each VP, as set out above. At six of the eight VPs, there is more than one group of receptors. However, in LVA Section 6, at each of the VPs, only one receptor group is reported, as follows:

- VP 1: groups comprise residents and road-users, but only residents ('*away from property curtilage*') are noted. NB VP 1 is within Thoroton Conservation Area, but this receptor is not noted.
- VP 2: PRoW users only.
- VP 3: PRoW users, residents and Conservation Area, but only PRoW users are noted.
- VP 4: residents and road-users, but only residents ('away from property curtilage') are noted.
- VP 5: PRoW users only.
- VP 6: PRoW and road-users, but only PRoW users are noted.
- VP 7: PRoW and road-users, but only PRoW users are noted.
- VP 8: road-users and recreation users, but only road-users are noted.

3.3.11 The above matters have implications for judgements made about overall levels of visual effects, so where relevant, are explained further in the visual effects section below.

4 Nature and Magnitude of Effects

4.1 Introduction

4.1.1 The previous section explains how levels of landscape and visual receptor sensitivity were underestimated in the Appellant's LVA, which has implications for subsequent judgements made about levels of landscape and visual effects.

4.1.2 In the LVIA / LVA process, judgements about levels of landscape and visual effects are arrived at by combining the level of receptor sensitivity with the level of magnitude of effect (eg High sensitivity plus Low level of magnitude equals Medium level of overall effect) – explained further below.

4.1.3 The following part of this section deals with the nature of the impacts and effects which are likely to occur throughout the lifetime of the proposed development; the next part with the likely magnitudes of effect. The final part covers matters of relevance to judgements about levels of magnitude including the duration of effects; mitigation and enhancement; effects of noise; effects on soils; and the effects of glint and glare.

4.2 Cause and Nature of Effects

4.2.1 Effects may be direct, indirect, secondary, cumulative (inter- and intra-project), short-, medium-, and long-term, permanent, temporary, positive and negative (or adverse – the terms are interchangeable, although 'adverse' tends to be used for magnitudes of effect, and 'negative' for overall levels of effect). All these aspects should be considered in LVIA / LVA.

4.2.2 The LVA and other submitted documents provide limited information about, and / or do not factor in, the cause, nature, and likely extent of many of the effects which are likely to arise throughout the project's lifetime, resulting in magnitudes of effect having been underestimated.

4.2.3 It is very important to understand the nature of the effects, because if the proposed development was granted planning permission, some of the problems may need to be resolved through scheme design adjustments / mitigation / planning conditions. 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.

4.2.4 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.

Construction / Decommissioning Impacts / Nature of Effects

4.2.5 The construction and decommissioning effects likely to arise / their causes are explained in more detail in the effects sections where relevant, but a summary is provided here:

i. Temporary features during construction / decommissioning phases including compound/s.

ii. Modern, highly industrialising features and activities inserted into / occurring within highly rural, tranquil landscapes displaying high levels of scenic quality and time depth, which currently contain very few developments of, or similar to, the type proposed.

iii. Adverse changes in positive aesthetic / perceptual qualities of the landscape: disturbance / activity / movement / noise (vehicular, mechanical and human); odour; clutter and paraphernalia associated with activities on site; bright colours; glint / glare from reflective surfaces; and lighting (see note on tranquillity in operational impacts / nature of effects section below).

iv. Regarding lighting, although I could not find any reference to this in the Appellant's submissions, I note that the proposed substation complex includes pole-mounted floodlights.

v. Changes to / loss of landscape function and contribution to landscape character and settings of heritage assets made by site.

vi. Extensive engineering works.

vii. Construction / decommissioning route along narrow lanes with several constraints, including high levels of recreational use by local residents and visitors.

viii. 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.

ix. During decommissioning and / or interim maintenance / panel 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.

x. 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.

xi. Pollution of soil, air and / or water - residues and emissions, odour and dust (also nuisances) – see below.

xii. Long-term adverse effects on soil structure and microbiology.

xiii. Loss of wildlife.

xiv. Changes to / loss of views resulting from the above.

xv. Adverse effects of noise, light, pollution, traffic etc. on people's residential and social amenity, mental / physical health and well-being, and quality of life.

4.2.6 Regarding adverse effects on soil and water quality, 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-G), 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 the site).

4.2.7 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 N02, were recorded at very much higher levels postconstruction compared with pre-construction*'.

4.2.8 The letter goes on to say that '*The flora on the site has been severely damaged by the construction process and there is no evidence of any attempts to mitigate against this. 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, in stark contrast to the grazing marsh habitat of the site before construction. It should be stressed that this is merely a snapshot of the damage caused to the SSSI, and that further damage is likely to manifest itself as the years go by*'.

4.2.9 It also notes that following construction, 'The diversity of bat species decreased markedly, and for the majority of locations, abundance of species has dropped dramatically (95- 100%)'.

Operational Impacts / Nature of Effects

4.2.10 The operational effects likely to arise / their causes are explained in more detail in the effects sections where relevant, but a summary is provided here:

i) Modern, highly industrialising features and activities inserted into / occurring within highly rural, tranquil landscapes displaying high levels of scenic quality and time depth, which currently contain very few developments of, or similar to, the type proposed.

ii) 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.

iii) Regarding lighting, as noted previously, the proposed substation complex includes pole-mounted floodlights. This is an area with dark night skies.

iv) Changes to / loss of landscape function and contribution to landscape character and settings of heritage assets made by site.

v) Some of the proposed features / activities have a high degree of permanence, others would be 'truly' permanent, for example the proposed Distribution Network Operator (DNO)[12] substation and associated infrastructure, access, cabling etc would remain after the solar plant was decommissioned.

vi) Loss of characteristic vegetation.

vii) The site's historical landscape patterns would be disrupted by the proposed creation of new boundaries on arbitrary lines.

viii) 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.

ix) There would be substantial adverse changes to / loss of views and visual amenity resulting from the above, including to highly-valued and important heritage assets.

x) There would be substantial adverse changes to the highly-valued and valuable recreational resource, from which local economic benefits are derived.

xi) Tranquillity is a relevant consideration here, because the site and parts of the contextual landscapes benefit from this landscape quality.

[12] 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.

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 subject[13] (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*'.

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*'.

f) Natural England lists 'relative tranquillity' as one of six factors that contribute to natural beauty.

[13] https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2017/02/Tranquillity-An-Overview-1-DH.pdf

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.

4.3 Magnitude of Effect

4.3.1 In the LVIA / LVA process, in order to establish the level of magnitude of each of the impacts and effects which have been identified, it is necessary to establish factors such as the size, scale, geographical extent, duration and reversibility of the effect.

4.3.2 Regarding duration and reversibility, LVA para. 6.16 states that '*the solar farm would create a temporary new land use*'. I assume, therefore, that landscape and visual effects were assessed on the basis that the proposed development is temporary, not permanent, and that levels of effects were reduced accordingly. The matter of temporary vs permanent is explained further in Section 4.5 below.

4.3.3 It is also necessary to consider the nature of each of the landscape and visual receptors identified; how each impact / effect would affect them; and what the consequences would be.

4.3.4 The LVIA / LVA should set out the methods and criteria followed / applied when making judgements about levels of magnitude of effect; however, the methods and criteria used in the LVA are confusing and have led to errors, resulting in the underestimation of levels of effects.

4.3.5 In the Appellant's LVA, the criteria for magnitudes of landscape effect are set out in LVA Appendix B1, Table 1-8, and magnitudes of visual effect in Table 1-9.

4.3.6 For this exercise, both tables are set out on a five-point scale – see comments about point scales in Section 3 above: here, the scale is High, Medium, Low, Very Low and None.

4.3.7 Firstly, logically, if there is a Very Low level, there should also be a Very High level, and Moderate should be in the middle.

4.3.8 Secondly, I agree that with magnitudes of effect, it is possible that there may be No Effect. However, the problem with adding a No Effect level into the matrix (see LVA Appendix B1 Table 1-10: Degrees of landscape and visual effects) is that the combination of five- and four-point scales can skew the results. In my own assessments, I deal with this by stating that '*If the Magnitude of Effect is Neutral (i.e. 'No Change'), all effects will be Neutral*' (see for example Table 6 in Appendix CT-D).

4.3.9 Magnitudes of effect arising from the proposed development are discussed further in the effects sections below, including the adverse effects arising from the proposed mitigation / 'enhancement'.

4.4 Mitigation and Enhancement

4.4.1 In the LVIA / LVA process, mitigation and enhancement are factored in to judgments made about levels of magnitude of landscape and visual effects.

4.4.2 My assessment found that there are problems with the way the LVA approached and factored mitigation and enhancement in to both the scheme design, and the assessment process. The matters are explained below, but in summary:

i) The LVA erroneously double-counted mitigating measures as enhancements.

ii) Some of the proposed mitigating measures would give rise to adverse effects on both character and views.

iii) The LVA relies heavily on existing and proposed vegetation to screen views, but for a number of reasons, that is problematic.

4.4.3 However, also as explained below:

i) If mitigating measures are proposed to reduce levels of adverse effects on character, they cannot then be double-counted as visual enhancements / benefits.

ii) A view cannot be enhanced through landscape / visual mitigation measures.

iii) Landscape character is not enhanced by planting that is proposed to screen views.

iv) 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.

v) Levels of adverse visual effects can be reduced through measures such as screening / camouflage / visual integration into the landscape.

4.4.4 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.

Double-counting Mitigation As Enhancement

4.4.5 In LVIA / LVA, it is very important to understand the difference between mitigation and enhancement. If they are confused / conflated, there are likely to be adverse implications for judgements made about levels of landscape and / or visual effects.

4.4.6 GLVIA3 defines mitigation as '*measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects'), including landscape and visual effects*' (para. 3.37).

4.4.7 It defines enhancement as measures which are '*not specifically related to mitigation of adverse landscape and visual effects but 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*' (para. 3.39).

4.4.8 Unfortunately, the Appellant's LVA is based on the erroneous assumption that enhancements to landscape character would be derived from the screen planting which is proposed to reduce levels of adverse visual effects. In other words, it has double-counted visual mitigation measures as landscape enhancement measures. It confirms throughout that the planting and management proposals are mitigation which is required to help screen views.

4.4.9 The Appellant's Landscape and Ecological Management Plan (Overall) (Drawing No. NEO00782_023I_D Figure 1.12a Rev D) illustrates what are described as '*Landscape Biodiversity & Enhancement Measures*'. Although not clear, evidently the plan is intended to show enhancement **and** mitigation measures (as confirmed at LVA para. 5.3, which states, '*Landscape mitigation proposals are incorporated into the scheme design and are illustrated on the Landscape and Ecological Management Plan (LEMP) (Figure 1.12: Appendix 1A)*').

4.4.10 An example of the double-counting error can be found in LVA para. 5.3, which states (with my emphases), '*The landscape mitigation proposals include measures that aim to avoid, reduce, or remedy adverse any potential impacts on the landscape by ensuring that the scheme has a good fit within the landscape setting. It also includes measures that would* ***reduce the visual***

prominence of the solar arrays *in local views* ***by enhancing the condition of key field boundaries*** *on the perimeter of the Application Site or more exposed sections of the Application Site*'.

4.4.11 Also unfortunately, this is a common error in LVIA / LVIA, as GLVIA3 para. 3.39 explains: '*Enhancement… is often referred to incorrectly as an outcome of proposed mitigation measures – for example where planting is proposed to mitigate landscape and/or visual effects but will also achieve an enhancement of the baseline condition of the landscape*'.

4.4.12 An important point to note from the outset is that it is not possible to mitigate the impact of effects on character arising from the replacement of a greenfield site to a developed one. An example of where the LVA has erroneously assumed that this is possible is at para. 6.13, which states that '*the substation area has been located within a central low lying part of the site which has* ***good screening*** *from surrounding vegetation patterns which* ***would help to reduce*** *visibility and* ***effects on character***' (my emphases).

4.4.13 Levels of other adverse effects on landscape character can be reduced by planting if it is appropriate / characteristic, for example to assist with the perception of integration into the receiving landscape. Landscape mitigation measures may also act as visual mitigation in the form of screening, for example, but either way, they are mitigation, not enhancement. Also, I understand that certain landscape and visual mitigation measures such as planting can be counted as biodiversity benefits, if appropriate, as has been done in this case.

4.4.14 At para. 5.4, the LVA sets out the primary mitigation measures which were '*incorporated into the siting and design of the Application Site to reduce potential impacts and improve the layout of the Proposal*'. The most relevant measures are summarised below. Note that I have emboldened sections which are other examples of mitigating measures having erroneously been double-counted as enhancements.

i) '*Exclusion of any development from more sensitive fields surrounding the site*.'

ii) '*Set back of panels and new boundary planting along the southern boundary of field 3*.'

iii) '*Exclusion of solar PV panels from higher ground to the northeast*.'

iv) '*Setting back of panels from the south sides of field 1 and retaining and* ***enhancing the amenity of adjacent residential properties with new mitigation planting*** *and hedgerow gapping up and management*.'

v) '*Setting back of panels from the western and southern boundaries of field 8 and 9 and retaining and* ***enhancing the field boundaries by gapping up and supplementing with***

new mitigation planting *and management to fully screen the Proposed Development from the edges of Hawksworth and Thoroton to the south*.'

vi) '*Setting back the solar panels and development edges from other boundary points where new permissive footpaths are proposed*.'

vii) '*Setting back the substation area within a lower lying central section of the site so that it is less visible from the surrounding area*.'

viii) '*Screening elements of the Proposed Development from key receptor locations, e.g., users of the PRoW and residential properties adjacent to the Site boundaries using a mix of characteristic hedgerows and woodland planting*.'

4.4.15 LVA para. 5.5 goes on to describe '*The key landscape and mitigation measures* [which] *are shown on the LEMP*'. These comprise (again, emboldened where mitigating measures having erroneously been double-counted as enhancements):

i) '*New woodland edge along the southern side of field 8 and field 9 and the, northern boundary of field 5*.'

ii) '*New hedgerow planting with hedgerow trees*.'

iii) '***Gap up existing field boundaries*** *around the perimeter of the Proposed Development* ***and additional enhancement measures*** *(comprising native species of local provenance) and management and maintenance of these features up to 5-6m to reinforce the structure and resilience of the landscape fabric*'. Regarding the emboldened text, elsewhere, gapping-up hedges is proposed to help screen views: for example, the seventh sub-paragraph of LVA para. 5.4 states, '*gapping up and supplementing with new mitigation planting and management to fully screen the Proposed Development*'; and the fourth sub-paragraph of para. 6.78 states, '*Visual effects will be further limited once the mitigation planting and gapping up of hedgerows along the Application Site has matured*'.

iv) '*The proposed landscape management would produce landscape features of varied heights to* ***provide effective screening*** *towards the Proposed Development within 5 - 10 years (short to medium term).* ***The proposed elements would also enhance the local landscape character and provide additional screening*** *towards the Proposed Development, helping it to integrate with the surrounding wooded farmland landscape*' (see note about 'wooded' landscapes in Section 2.3).

4.4.16 The implication of the double-counting error is that judgements about overall levels of effects (and thus, about the acceptability or otherwise of the scheme from a planning policy perspective)

are based on the erroneous assumption that high levels of adverse effects are reduced when enhancements / benefits are factored into the equation, which is simply not the case. This is explained further in the landscape and visual effects sections.

Reliance on Vegetation to Screen Views

4.4.17 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.

4.4.18 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).

4.4.19 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.

4.4.20 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?

4.4.21 My assessment concluded that as a result of this over-reliance on vegetation for mitigation, the LVA has underestimated levels of adverse visual effects.

4.4.22 Firstly, LVA para. 2.5 states the assumption that by Year 10 of operation, '*mitigation planting has fully matured*', and thus all the proposed screen planting would have become effective. The aim is to manage both existing and proposed hedges at a height of up to 3 – 4m. I **disagree** that new planting would be fully mature within ten years.

i) 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.

ii) As explained above, successful plant establishment is subject to numerous factors. Also, where height is required for screening purposes, for example in the new hedges and 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 such as oak, which is proposed here, have an average annual growth rate of 30cm).

iii) In addition, even if occasional standard trees were planted, they would be so far apart that they would contribute very little to screening even in the much longer term.

iv) If planted at 60cm tall, and not managed (see below), with an average growth-rate of 30cm, the hedges could potentially reach c. 3.5m tall at Year 10 of operation, but the plants would certainly not be 'fully mature'. At an NSIP hearing I attended[14], 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).

v) Also, 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. This is confirmed at para. 1.89 of the Appellant's Biodiversity Management Plan (30th November 2022), which sets out the proposed hedge-cutting regime. Also, para. 1.36 of the Appellant's Bird Hazard Management Plan states that '*New and existing hedgerows that contain hawthorn Crataegus monogyna will be trimmed every two years to limit berry production*' (in my opinion, this would adversely affect birds and other creatures which rely on berries for food during the winter months, and would deprive people of the seasonal visual interest that berries provide).

vi) In the meantime, visual effects would remain at their highest levels.

vii) Very importantly, not all views could be fully or even partially screened. At more elevated viewpoints where the land below is seen more in plan-form, and at lower-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 6.

4.4.23 The second point about relying on vegetation to screen views relates to the way that hedges in the local area are managed by regular layering to the ground, as explained in Section 2.3. The

[14] Application for development consent for the Norfolk Boreas and Norfolk Vanguard Offshore Wind Farms (EN010087 and EN010079).

result of this practice is that the amount of screening provided by hedges varies significantly from place to place, and over relatively short periods of time. Whilst the management of the hedges within the site and on its boundaries could possibly be controlled, beyond the site's boundaries, it is simply impossible to predict which views would be screened by which hedges at any point in the future, and thus what the visual magnitudes of effect are likely to be at any one time.

4.5 Other Effects Matters

4.5.1 The following matters are also of relevance to judgements about levels of magnitude of landscape and visual effects.

1) Temporary vs Permanent

4.5.2 The Appellant describes the 40-year operational lifespan of the proposed development as 'temporary': for example, the second-to-last bullet point at para. 1.89 of the November 2022 Planning Statement says, '*At the end of the 40-year operational period, the site can be returned to its current former agricultural state as the Proposed Development is temporary*'; DAS para. 1.30 says, '*The proposed solar farm will involve the temporary change of use of the land but, due to the time restricted nature of the development, the agricultural use will be retained in the long term*'.

4.5.3 LVA para. 6.16 confirms that '*the solar farm would create a temporary new land use*'. I assume, therefore, that landscape and visual effects were assessed on the basis that the proposed development is temporary, not permanent, and that levels of effects were reduced accordingly.

4.5.4 However, firstly, a 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.

4.5.5 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 elements[15] would be removed during the decommissioning phase. If not, then effects should be reassessed on that basis.

[15] *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*'.

4.5.6 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.

4.5.7 As noted in Section 9 of the R6P's SoC, 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.

4.5.8 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*'.

4.5.9 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[16] states, '*The operational life of the 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*'.

2) Duration of Construction and Decommissioning Effects

4.5.10 The Appellant estimates that '*the construction of the Proposed Development will typically take in the region of c. 6 months*' (Planning Statement para. 1.59).

4.5.11 In my opinion, six months is over-optimistic.

4.5.12 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.

4.5.13 A good example is at a solar development under construction at Bishampton, near Pershore (20/02071/FUL). It is considerably smaller than the Appeal scheme: the Bishampton site is c. 36.4ha with a capacity of c. 30MW, the Appeal site is c. 94.24ha, and according to the Appellant, has a capacity of c. 49.9MW (but see Section 2 of the R6P's SoC).

[16] EN010127 Mallard Pass

4.5.14 At Bishampton, the construction period was stated as being three months. Construction began in August 2022. At the time of writing (early May 2024), the works are still ongoing, 20 months after construction commenced, ie nearly **seven** times longer than predicted. Not only are the works not complete, they are also the subject of enforcement.

4.5.15 The Appellant estimates (Planning Statement para. 1.65) that for decommissioning, '*It is expected that the decommissioning process should be similar to that of the construction phase and an allowance of 1 year is suggested to cater for any unforeseen delays that could be experienced*'.

4.5.16 It is not clear why decommissioning could take twice as long as construction, but see decommissioning effects in Section 5.3 below.

3) Noise

4.5.17 Noise during the construction of large-scale ground-mounted solar developments is a particular problem that would certainly adversely affect the qualities and experiences of these rural and tranquil landscapes and those who enjoy them.

4.5.18 I have visited solar developments both during construction and operation, and have heard the noise.

4.5.19 At the Bishampton solar development mentioned above, which I visited, local residents had 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 was clearly audible to receptors c. 3km away, and intolerable / distressing to those living in the vicinity of the works. Also as noted above, construction noise has continued for seven times longer than the Applicant had predicted.

4.5.20 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 footnote[17]).

4.5.21 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.

[17] 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

4.5.22 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*'.

4.5.23 During operation, apart from during maintenance / panel replacement operations, solar developments are relatively quiet at longer distances; however, at closer quarters, the loud buzzing noise emanating from inverters (in particular) and substations is clearly audible.

4.5.24 At the inquiry, if possible, I would like to play recordings of piling and inverters.

4.5.25 Another potentially significant source of noise arising during the operational phase of this particular solar development stems from the measures which are required to mitigate the risks posed by wild birds to aviation.

4.5.26 The measures, the reasons for them, and the relevant guidance, can be found in the Appellant's Appendix 2.3 Bird Hazard Management Plan. Para. 1.45 states that '*Any unusually large aggregation of birds roosting or loafing outside the bird breeding season may be dispersed, if deemed necessary. Consideration will be given to the use of deterrent measures to encourage this, e.g. playing of recorded distress calls, or using gas cannons*'.

4.5.27 Para. 1.62 of the Appellant's Appendix 2.1: Biodiversity Management Plan (30th November 2022) states that '*During the operational phase, the disturbance to local wildlife will be more limited than the levels of disturbance the land is subject to from current farming practice*' (author's emphasis). However, it appears that the ecological assessment has not factored in the noise emanating from the above deterrent measures.

4) Effects on BMV Land / Soils / Sward Establishment / Sheep-grazing

BMV Land

4.5.28 The proposed development would result in the loss of 34.4ha of Best and Most Versatile (BMV) land, with the remainder on Grade 3b land, which is predominantly in arable production.

4.5.29 The loss of BMV land is significant and warranted a statutory consultation with Natural England. Natural England's response is not an endorsement of the loss of BMV land, and simply notes that the loss is not permanent within the parameters of the application as described. Natural England highlights relevant policy and notes that the weight attached to a particular consideration is a matter of judgement for the local authority as decision maker.

4.5.30 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.

4.5.31 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*'[18].

4.5.32 Of course, whilst LPAs have to take account of the above, it is up to the applicant to demonstrate that use of BMV land is appropriate. In fact, any proposal for a solar power station involving BMV land must be justified by the most compelling evidence[19].

4.5.33 The WMS referred to in the footnote below is linked to updated National Planning Policy Guidance (NPPG).

4.5.34 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.

4.5.35 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).

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[18] 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

[19] 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

4.5.36 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).

4.5.37 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.

Soils

4.5.38 The proposed development would give rise to adverse effects on soils. This matter is highlighted in the R6P's SoC, and in depth in the R6P's soils expert's evidence, but it is important to note, and very relevant in this case, that adverse effects on soils are highly likely to have adverse effects on landscape character, visual amenity, and biodiversity.

4.5.39 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)*'.

4.5.40 The evidence is clear that irreversible damage can be caused to soils during the construction, operation, and decommissioning of solar developments, 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. See for example the March 2023 report by ADAS for the Welsh Government called *The impact of solar photovoltaic (PV) sites on agricultural soils and land quality*[20] (see Appendix CT-H). *Inter alia*, it notes that construction works '*can negatively impact the flexibility of agricultural land, **potentially lowering quality and ALC grade***' (my emphasis).

4.5.41 In one of its responses (March 2023) to a proposed solar development (Mallard Pass NSIP EN010127), Natural England explained 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*

[20] https://www.gov.wales/impact-solar-photovoltaic-sites-agricultural-soils-and-land-quality-summary

the panels. Therefore, ***it is unknown what the overall impact of a temporary solar development will have on soil health***' (my emphases).

4.5.42 Also, there are problems with the proposal to establish species-rich wildflower meadow / pasture on the site. This is very relevant to landscape and visual effects, because the LVA treats the establishment of the meadow as 'enhancement'. For example, para. 7.3 states that the proposals would 'provide enhanced areas of landscape and visual amenity with characteristic wooded field boundaries and wildflower meadow planting (Field 5), helping to integrate it into the local landscape' (the latter part of the phrase confirming that this is in fact a mitigation measure).

4.5.43 Again, this matter is dealt with in depth by the R6P's soils expert, but in summary:

i) Arable land – best and most versatile (BMV) land in particular – 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 Appellant 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 '*restored to its former agricultural use*' (DAS para. 1.48), 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?

Sheep-grazing

4.5.44 The Appellant proposes to graze sheep on the land during the operational period. However, the evidence indicates that in practice, grazing sheep within solar developments is not only highly impractical, but unwise.

4.5.45 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.

4.5.46 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.

4.5.47 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 endectocides[21]).

4.5.48 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.

4.5.49 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).

4.5.50 However, within the confines of solar arrays, due to the configuration of the panels, all but near-distance views are completely blocked – see photo overleaf.

[21] 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.

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

4.5.51 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).

4.5.52 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.

4.5.53 A 2016 study at the operational Westmill solar site in the UK[22] 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 grasses, with only one broadleaved flowering plant present, being yarrow (Achillea millefolium), which is both shade-and drought-tolerant*'.

4.5.54 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*'.

[22] 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

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

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

4.5.55 Furthermore, I have been advised that at one operational site, "*a large array had to be completely recabled after sheep were given access*".

4.5.56 For the above reasons, in my opinion, it is not safe to assume that the site would be grazed by sheep (presumably that could not be the subject of a planning condition). The Appellant'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.

5) Glint and Glare

4.5.57 Despite the subject being of great relevance to the assessment of effects on landscape character and visual / other forms of amenity, the LVA appears not to have considered the effects of glint and glare in its judgements about levels of magnitude.

4.5.58 LVA para. 6.30 simply states that '*An assessment of potential glint and glare effects from the Proposed Development upon the nearest receptors has been undertaken as a separate report within this planning submission. (See Technical Appendix 7: Glint and Glare Assessment)*'.

4.5.59 This section a) provides more information about the nature and magnitude of the effects which arise from glint and glare, and b) sets out my review of the methods used in the Appellant's *Glint and Glare Assessment* (GGA) (30th November 2022). Where glint / glare is likely to affect landscape character and views, it is set out in the relevant effects sections.

Overview of glint and glare effects

4.5.60 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.

4.5.61 According to a study called *Understanding Emerging Impacts and Requirements Related to Utility-Scale Solar Development* (September 2016) by Argonne National Laboratory[23], the glint and glare arising from solar panels is '*of* ***unusual intensity and unique appearance***' (my emphasis).

4.5.62 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).

4.5.63 The images overleaf show examples of 1) glint, and 2) glare, arising from solar panels.

[23] https://publications.anl.gov/anlpubs/2016/10/130700.pdf

1) Glint

2) Glare

4.5.64 Glint and glare can give rise to very high levels of adverse effects on visual and other amenity, and landscape character. 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.

4.5.65 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.

4.5.66 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, a public bridleway crosses the site, and there are several other PRsoW, roads, and residential properties on the boundary of, and close to, the site.

Appellant's GGA

4.5.67 Firstly, 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, although not referred to in the GGA, most experts in the field seem to use the informal guidance produced and published by Pager Power, (*Independent Solar Photovoltaic & Building Development – Glint & Glare Guidance*, currently 4th Edition (September 2022), Pager Power[24]): Pager Power seems to carry out the majority of GGAs for large-scale solar developments in the UK. In fact, the Appellant's GGA's method is very similar to Pager Power's.

4.5.68 Secondly, for some reason, the GGA does not consider receptors using PRsoW. This is a significant omission, given the fact that a bridleway crosses the site, and there is a network of PRsoW around the site / throughout the local area.

4.5.69 Nor does the GGA include receptors using 'minor roads'. This is also problematic, because not only do people regularly drive along the local roads and lanes, they also walk, ride and cycle.

4.5.70 The GGA does not consider the effects on heritage assets / their settings / associated receptors either: again, problematic due to the high value assets in close proximity to the site.

[24] https://www.pagerpower.com/wp-content/uploads/2022/09/Solar-Photovoltaic-Glint-and-Glare-Guidance-Fourth-Edition.pdf

4.5.71 Thirdly, GGA para. 6.69 states : '*An observer height of 2m was utilised for residential receptors, as this is a typical height for a ground-floor window. Upper floor windows are not analysed geometrically; however, are considered as part of the visual analysis. With regards to road users, a receptor height of 1.5m was employed as this is typical of eye level*'.

4.5.72 However: a) these days, many people's principal rooms are on upper floors, especially if they work from home; b) the GGA does not appear to have considered effects on people outside their homes, within the gardens / grounds / curtilage of their property; and c) the GGA has not factored in people travelling along roads on horseback: these receptors are likely to have a much higher eye-level than ground-based receptors, and may be able to see over screening vegetation.

4.5.73 Fourthly, GGA para. 6.68 states that '*A 1km study area from the panels was deemed appropriate for the assessment of groundbased receptors as this seemed to contain a good spread of residential and road receptors in most directions from the Proposed Development*'. In my opinion, the 1km study area is not only arbitrary, but also highly unsatisfactory.

4.5.74 The 1km boundary limit does not factor in a) the size of the proposed development, nor b) the elevation of the viewpoint.

4.5.75 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).

4.5.76 Last year, as part of my research into this matter, I spoke to 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'.

4.5.77 The GGA does not appear to have factored elevation and angle of view in to the assessments, but it is relevant. 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).

4.5.78 The fifth and final point relates to the GGA's recommendations for certain mitigating measures to be put in place to reduce high levels of adverse effects.

4.5.79 At para. 6.6, the GGA explains that '*Mitigation is required to ensure the High impact views from Residential Receptors 9 – 12 and 73 - 75, as well as Road Receptors 15 – 17, 21, 28 and 39 – 41 into the Proposed Development are screened. This includes* [the planting] *as proposed in the Landscape and Ecology Management Plan*'. In other words, the measures proposed in the LVA to screen views are the same as those required to reduce levels of effects of glint and glare.

4.5.80 Evidently, the problems associated with the proposed screen planting set out above and below also apply to the GGA. Thus, many receptors are likely to experience far higher levels of adverse glint and glare effects than the study predicts. See Section 6.2.

6) Security Fencing

4.5.81 High-security palisade fencing would be required to protect the proposed DNO substation complex (illustrated on Appellant's Figure 9: Typical Security Fence Detail).

4.5.82 Elsewhere – around the perimeter of the site, and the proposed buffer zones, and along recreational corridors – deer-proof fencing is proposed (2.4m high timber post and wire netting – see Figure 13 Typical Deer Fence).

4.5.83 However, the proposed deer-proof fencing may not be adequate for security purposes.

4.5.84 This matter is explained further in Section 7.

5 Effects on Landscape Character

5.1 Introduction

5.1.1 This section deals with the landscape effects likely to arise from the proposed development during construction, operation and decommissioning, comparing the results of the Appellant's assessments with my own.

5.1.2 The Council's first RfR is that the proposed development '*would have a significant adverse impact on landscape character and visual amenity*'.

5.1.3 On the basis of the findings of my assessment and review (see below), I **agree** with this conclusion.

5.1.4 The Council's second RfR is that '*The proposed development does not contribute to the preservation or enhancement of the setting of the Hawksworth and Thoroton Conservation Areas and does not contribute to the preservation of the setting of a number of listed buildings within these conservation areas*'.

5.1.5 I also **agree** with this conclusion. Landscape character and views are integral to the reasons for the designations of these heritage assets, and effects on character and views are integral to judgements about effects on these heritage assets / their settings.

5.1.6 The Appellant's case, which is summarised at para. 8.12 of their SoC, and is based on the conclusions of the Appellant's Landscape and Visual Assessment (LVA), is that:

- '*no significant effects are predicted on any landscape character types/areas or landscape designations within the 5km study area;*
- *effects upon the visual amenity of visual receptor within the core study of 2.5km area would be not significant; and*
- *once planting matures, effects on the remainder of the PRoW network are predicted to be not significant.*'

5.1.7 However, the above is contradicted in LVA para. 2.16, which explains that '*most of the significant effects predicted during year 1, are likely to become not significant at around this time*' (ie '*after approximately year 5*').

5.1.8 Also, I **disagree** that there would no longer be 'significant' landscape and visual effects after c. Year 5 of operation; on the contrary, many of the landscape and visual effects arising could neither

be mitigated nor compensated for, and certain 'significant' adverse landscape and visual effects would be experienced throughout the project's lifetime.

5.1.9 The use of the term 'significance' in this context is explained below.

5.1.10 I do agree with certain conclusions drawn in the LVA, as explained in the previous and following sections.

5.1.11 For example, I **agree** that (apart from along the construction route), levels of adverse effects on landscape character arising from construction, operation and decommissioning of the developed site would decrease with distance, and that the highest levels of landscape effects (potentially 'significant') would be experienced on the site and within a distance of c. 2.5km from the site boundary.

5.1.12 The main reasons for the parties' differences of opinion about levels of landscape and visual effects appear to me to lie in flaws in the Appellant's LVA's method and process. As explained in previous sections, in making predictions about the overall levels of landscape and visual effects, the LVA has made some erroneous assumptions. For example, it assumes that mitigating measures can be double-counted as enhancements, and that high levels of adverse effects on landscape character can be reduced through planting to screen views.

5.1.13 Where relevant, these matters are explained in more detail below, but in summary, the implications of the above errors in particular are that judgements about overall levels of effects (and thus, about the acceptability or otherwise of the scheme from a planning policy perspective) are based on the erroneous assumption that high levels of adverse effects are reduced when enhancements / benefits are factored into the equation, which is simply not the case.

5.1.14 This is clearly illustrated in the Appellant's SoC at para. 5.10, which states that '*The provision of significant landscape and ecology enhancement measures is also considered to provide weight in terms of the appeal*' (note that landscape and visual mitigation measures may be counted as ecological enhancements, so long as they can be demonstrated).

5.2 'Significance'

5.2.1 Regarding the use of the term 'significant' in the above context, whilst the LVA does not specifically report which receptors would experience 'significant' adverse effects, it does address the subject of 'significance' in Appendix 1B - LVA Methodology.

5.2.2 Para. 1.2 states, '*The LVA methodology is based on the approach set out in in the Guidelines for Landscape and Visual* [sic] *Assessment (*GLVA3*), when determining professional judgement. Whilst*

this LVA is not for an Environmental Impact Assessment (EIA) development type, it follows the same approach as set out in Figure 3.5 of GLVA3. The GLVA3 guidance states that the level of assessment should be proportional to the scale of the project and the nature of the likely effects'.

5.2.3 Para. 1.3 goes on to say: '*In accordance with the GLVA3 process, the LVA will include the following key stages:*

• Baseline review;

• Sensitivity (nature of the receptor);

• Magnitude Impact (nature of effect); and

• Significance of Effects.'

5.2.4 I **disagree** that this is '*In accordance with the GLVA3 process*'.

5.2.5 The LVA is correct in saying that the Appeal scheme was not the subject of an EIA, but the LVA has not correctly interpreted GLVIA3. In fact, this is a fairly common error amongst practitioners: so much so that the LI has produced a statement of clarification on the subject, and last year, issued Draft Technical Guidance Note 05/23 *Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3)* – a compilation of previous clarifications in one document for ease of reference, due to be published soon.

5.2.6 *GLVIA3 Statement of Clarification 1/13 10-06-13* is the current document which deals with the matter. Under the heading 3. Significance it says:

'*Members may find the following helpful: In simple terms, assume an environment (A). Then assume a proposed development (B). B is placed into A and, as a result, gives rise to impacts which permit the identification of effects of various sorts. The level of, or degree of, effect may then be judged. This may be achieved, for example, by determining magnitude and registering it against sensitivity, each as defined in GLVIA3 in Paras 3.23 to 3.30. Depending on the means of judgement and terminology (which should be explicitly set out), effects of varying degrees of change (or levels of change), may be derived. The assessor should then establish (and it is for the assessor to decide and explain) the degree or level of change that is considered to be significant*'.

5.2.7 Those responsible for carrying out the EIA will set out in the Environmental Statement (ES) what significance threshold has been applied in the assessments (it may vary from topic to topic, but ideally, should be consistent throughout).

5.2.8 Usually, levels of effects are recorded on a scale ranging from 'Major' (or 'Substantial') to 'Negligible' (or 'Neutral'), with 'Moderate' in the middle. Effects which are Moderate or higher

are often categorised as 'significant', although some practitioners set the threshold at 'between Moderate and Major' (much depends on the number of points in the scale that is being used).

5.2.9 The LI's *GLVIA3 Statement of Clarification 1/13 10-06-13* explain why understanding 'significance' is so important.

5.2.10 As noted above, the LVA *did* conclude that there would be 'significant' effects, albeit '*most of the significant effects predicted during year 1, are likely to become not significant at around this time*' (ie '*after approximately year 5*')'.

5.2.11 However, my own assessment concluded that in the majority of cases, the very high levels of adverse effects would **not** reduce as assumed in the LVA, and certain 'significant' adverse landscape and visual effects would be experienced throughout the project's lifetime.

5.2.12 Where effects are likely to be considered 'significant', it is noted.

5.3 Construction and Decommissioning Effects on Character

5.3.1 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. These are summarised in Section 4, and where relevant, explained in more detail below.

5.3.2 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.

Construction Route

5.3.3 The proposed construction route is shown on Appellant's Figure 5.1.

5.3.4 The first point to make here relates to the choice of route. There are two versions of the Appellant's Construction Traffic Management Plan (CTMP): one is dated the 30th of November 2022, the other the 2nd of March 2023. I have relied on the latter for my assessment and review.

5.3.5 At para. 5.51, the CTMP explains that '*The haulage route will be from the A46 to the southwest of the Application Site*'. However, the CTMP does not explain how construction vehicles arriving from the east would be guaranteed not to use alternative routes – it must be borne in mind that Nottingham is right in the middle of England, so likely that as much traffic would arrive from the east as from the west. Also, it is well-known that many construction vehicle drivers don't follow stipulated construction routes, whether through choice; reliance on satnav instead of instructions; or simply getting lost. Furthermore, if sections of the construction route are flooded,

by surface water runoff and / or rising river levels (see Section 2.2), drivers may have no choice but to take alternative routes.

5.3.6 For example, if a construction vehicle was arriving from the south east via the A1 and was committed to following the proposed construction route, at Grantham, they would turn west along the A52 to the A46 south west of Bingham, and travel north along the A46 to the Fosse Way junction, which is where the proposed construction route begins. From Grantham to the site, the distance is c. 24 miles / c. 38.5km.

5.3.7 Google offers alternative routes between the same point on the A1 at Grantham and the site, for example:

1) Continue north along the A1. At Long Bennington, turn west along Valley Lane. Continue south west through Shelton towards Thoroton. At Thoroton, turn west along Thoroton Road to site access. Distance c. 13.5 miles / c. 21.5km.

2) At Grantham, take the A52 westbound. At Elton, turn north. Traverse Orston and turn west along Smite Lane. Turn north east along Cliffhill Lane to Thoroton. Traverse Thoroton. Turn west along Thoroton Road to site access. Distance c. 12 miles / c. 19.5km.

5.3.8 Thus, if arriving from the south east, it would be much faster (and in theory, more sustainable) to take the alternative routes.

5.3.9 It is possible that the reason for restricting all construction traffic to arrival at the site via the A46 to the west is because of constraints along the alternative routes to the site from the east, although these do not appear to be very different from those along the route from the west, for example: narrow lanes with blind bends and summits; bridges with possible weight restrictions (CTMP para. 5.59 states that '*The load bearing capacity of any bridges or structures has not been measured. These should be checked with the Highways Department prior to the construction period*'); good quality landscapes; Conservation Areas; and high numbers of recreational users.

5.3.10 The LVA does not appear to have assessed effects on character arising from construction traffic travelling along the proposed route. All that is said about the subject is at para. 6.8: '*Movement of construction traffic to and from the Site would result in some minor disturbance along local minor roads before dissipating*'.

5.3.11 Given the lack of information provided in the CTMP, it is unclear how the conclusion that there would only be '*minor disturbance*' was arrived at, nor what the 'disturbance' would be, nor who nor what would be 'disturbed'. There is no reference to the existing baseline situation along the

construction route, nor are receptors (landscape / human) identified; the nature of the effects is not stated (see summary in Section 4 above, and further commentary below).

5.3.12 My own assessment concluded that along the construction route, levels of many of the adverse effects would be unacceptably high (at least **Major to Moderate Negative**, based on the LVA's criteria), and could not be mitigated; and that some effects could be truly permanent (ie extending beyond the decommissioning phase). Although the construction period would be temporary, Section 4.5 explains how difficult it can be to make accurate estimates of duration, with a smaller solar development than the one proposed here already having taken seven times longer to construct than predicted. The main reasons for my conclusions are set out below.

5.3.13 The CTMP assumes that a typical transformer transport vehicle would be c. 16.5m long, and demonstrates how access into the site would be achieved on the *Swept Path Analysis* drawing (Revision C). However, the drawing notes that a) '*actual vehicle dimensions may vary*'; b) '*route should be assessed by haulier with regard to the vehicle combinations prior to transport*'; and c) '*no allowances made for rear steering*'.

5.3.14 Regarding point a), it is important to know whether Abnormal Indivisible Loads (AILs), or other abnormally-large vehicles would be required to transport certain scheme elements such as the DNO substation. If so, even if the proposed route could accommodate 16.5m-long vehicles (see below), it may not be able to accommodate AILs.

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

AIL vehicle carrying electricity transformer

5.3.15 Regarding point b) '*route should be assessed by haulier with regard to the vehicle combinations prior to transport*', it does not appear that constraints and effects were considered at all in the CTMP: para. 5.60 states that '*All traffic management and safety implications will be considered by suitably qualified and experienced personnel when arranging the transit of the loads and can be agreed through a suitably worded condition following planning approval*'.

5.3.16 However, due to the multitude of constraints along the route, and the high potential for conflict between 'normal' road-users and construction traffic, in my opinion, this is not an acceptable approach.

5.3.17 Some of the constraints and problems along the route are identified on the Construction Route Constraints plan in Appendix CT-E. The plan in Appendix CT-F is a to-scale hand-drawn sketch produced by a local resident showing the constraints at a point which is locally known as 'Hawksworth Corner', at the junction between Hawksworth Lane, and the lane leading to Thoroton, along which the proposed site access would be. This clearly shows that standard HGVs / agricultural vehicles cannot pass on these lanes (the sketch shows a tractor pulling a standard width trailer, for comparison).

5.3.18 Regarding point c) '*no allowances made for rear steering*', given the likelihood of construction vehicles meeting large vehicles (other construction vehicles, or farm machinery) coming in the opposite direction; the narrowness of the lanes; the blind bends and summits; and encountering flooded sections of road, it would seem sensible to give this matter serious consideration, in case it has implications for the construction of the scheme.

5.3.19 It is inevitable that the increase in traffic along the lanes, much of which would comprise HGVs, cranes, and other types of vehicles, possibly including AILs, would result in damage to and / or loss of highly sensitive landscape elements and features; erosion / loss of the area's special qualities; and erosion / loss of the highly-valued and valuable landscape / visual / recreational / historic resource. Along the route, there would be traffic, noise, movement and lights, disturbance, mud / dust and various forms of pollution, all of which have the potential to adversely affect environmental and human health.

5.3.20 As shown in the photographs in Section 2, some lanes have no verge, they are just bound by hedges, others have relatively wide verges. In the rural areas, they are grass and mixed native wildflower species. In the villages, they are well-maintained: according to local residents, villagers are proud of the verges and work hard to maintain them in good condition, with regular "purge the verge" litter picks, and a combination of mowing as lawns, and planting / managing as wildflower meadow. Often, there is a ditch running between the verge and the hedgeline (probably historic hedge-ditch-lynchet systems).

5.3.21 These are highly characteristic, highly-valued, and valuable features, which are highly susceptible to change. All make important contributions to the area's character, sense of place / local distinctiveness, and people's health and well-being and quality of life.

5.3.22 DAS para. 1.65 states that '*The local access route is predominantly consisting of roads wide enough for vehicles to pass, however Thoroton Road becomes a single lane road towards the site entrance. This road has good forward visibility and a number of passing places*'; however, the only 'passing places' are at field gates, none of which would be long enough for 16m or longer vehicles to pull into / out of.

5.3.23 In fact, there is already evidence of damage to characteristic landscape features along the lanes, some of which appears to be relatively recent. This could be due in part to numbers of 'white van' home deliveries having risen over the last few years.

5.3.24 The construction route traverses Car Colston Conservation Area. Car Colston is a very beautiful village. It boasts a Scheduled Monument (minor Romano-British villa, moat and associated medieval manorial and village earthworks, including six fishponds), and the Grade I listed Church of St Mary.

5.3.25 The construction route also traverses one of the most distinctive features of this Conservation Area, which sets it apart from others in the locality, namely the extensive common (also Open Access Land and Village Green), which lies south of the main part of the village. There is also a well-kept cricket pitch, and a pub.

Car Colston (adjacent to construction route)

5.3.26 Evidently, the introduction of heavy construction traffic into this idyllic rural scene would be highly inappropriate. It would also potentially be dangerous, given the use of the lane by recreational users who are used to very little traffic, especially as there is a series of very tight bends at the eastern end of the common (see photos below).

5.3.27 As explained and illustrated in Section 2, the lanes along which the construction route is proposed are very lightly-trafficked, with high levels of tranquillity. As a result, they are well-used by local communities and visitors. There is a high potential for conflict between these road-users, and construction traffic.

5.3.28 The proposed route would avoid conflict with users of NCN 64, which runs along the lane on the east side of the site; however, it is on a well-used cycle route linking NCN 64 to NCN 48, part of which runs along the Fosse Way to the west, where the construction route would start. Also, the proposed route is used for many organised cycling and running races / other road-based events which involve large numbers of people (although event traffic management procedures are often put in place).

5.3.29 Even cyclists tend to travel slowly (when not competing), lingering to enjoy the variety of views and experiences along the way. However, construction vehicle drivers are more likely to want to get from A to B as quickly as possible.

5.3.30 Along the lanes, the speed limit is unrestricted (60mph). During site visits, I was occasionally passed by vehicles which appeared to be travelling even faster than this, despite sudden blind bends and summits. Sunlight in the eyes / strobe effects of sun through trees / sun glinting off solar panels can also disorientate a driver. Thus, there must be a high degree of probability that at many places along the route – especially where it is very narrow, and / or there are blind bends and summits, construction traffic could encounter stationary / slow-moving cars, pedestrians, equestrians and cyclists, and potentially run into them.

5.3.31 The photographs overleaf show how much space vehicles occupy along lanes along the route, and in the vicinity of the site.


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5.3.32 Local residents have supplied information about peak road-usage times, as follows:

- *The road from Scarrington Cross Roads to the A46 is a key commute route not just for Hawksworth and Thoroton but also for Car Colston Orston, Flawborough, Sibthorpe, Staunton, Screveton, Shelton, and Aslockton*
- *There is no scheduled public transport from the vast majority of these villages, generating a high volume of private vehicle movements along the haul route.*
- *Peak volumes start about 07.00 to about 08.30. School traffic returns from 15.00, and other traffic builds from about 16.30.*
- *At weekends there is extensive use of the haul route by cyclists from 07.00 until well into the afternoon.*

5.3.33 Local residents also undertook a road traffic survey:

- *We have undertaken a survey on Saturday 4th May – 7.00 to 16.00. At the corner of Scarrington Road and Thoroton Road in Hawksworth.*
- *Total of movements: 72 walkers, 29 dog walkers, 8 runners, 248 cyclists, 20 equestrians, 314 cars (including at least 35 visitors to the Fishing lakes), 16 farm/agricultural vehicles*
- *Of those that stopped, a lot mentioned tranquil landscape, quite roads, mental health/escape the urban environment.*

5.3.34 As the above landscape features / qualities / factors were not considered in the LVA, no mitigation measures to avoid / remedy / reduce adverse effects – some of which could potentially be 'significant' – were proposed. Notwithstanding this, in my opinion, many could not be mitigated, nor could they adequately be compensated for, given the rarity / antiquity of some of the features. Some effects could be permanent, lasting well beyond the scheme's planned 40-year lifetime.

5.3.35 Certain types of vegetation along the construction route could potentially recover / grow back over time / be replaced; however, another concern is that the solar panels may be stolen / vandalised / damaged / reach the end of the industry's stated 25-year lifespan, and thus have to be replaced, entailing further construction activities and re-damaging slowly-recovering features.

Site Access

5.3.36 DAS para. 1.64 states, '*The site will be accessed from a new site access point off Thoroton Road and will be designed in accordance with the Nottinghamshire Highway Design Guide to ensure that the largest construction vehicles can enter and exit the site access point. To facilitate this, 13.3m of hedgerow will need to be removed*'.

5.3.37 LVA para. 6.3 states that the works '*would also include* [sic – loss of?] *two short sections of hedgerow to facilitate access but these will not include any sections with mature trees*'. I assume that the second section would be at the proposed pedestrian access into Field 1, although if that is the case, I was not able to ascertain the amount of loss at this point: clarification would be helpful. Nor does the LVA appear to assess the effects on character arising from the introduction of a new access along the lane.

5.3.38 My own assessment concluded that due to the main access point being the focus of activity in terms of arrival / departure, and the highly industrialising nature of the arrangement within a very rural and tranquil area, the works would give rise to **High** levels of adverse effects on character.

5.3.39 The photograph below shows the access into a similarly-sized solar development, near Darlington, which is currently under construction. This is a typical scene, in my experience.

5.3.40 However, it is not clear why a new access point is required at all: I imagine it was not possible to use the existing one to the west, as it is at the brow of a blind summit; however, there is an existing one to the east which could potentially be suitable, and in theory would involve less loss of hedgerow (see photo overleaf).

Existing access into Field 8

Construction on site

5.3.41 The LVA did not factor in the nature of many of the effects likely to arise during the operational period, which are summarised in Section 4.2. See also effects on soils and water quality in the R6P's soil expert's evidence (also briefly summarised in the following sections where relevant).

5.3.42 At para. 6.9, the LVA concludes that '*The direct effects upon the Site during the construction phase would be temporary and shortterm, lasting only for the construction period. They would have a Medium magnitude of change which together with the Site's Medium sensitivity, would result in a* ***Moderate adverse*** *effect during construction*'.

5.3.43 I imagine that this judgement factors in the temporary nature of the works (as per GLVIA3); however, as mentioned previously, the duration may be far longer than anticipated. Also, even if temporary, the magnitude of the effect would be **High** for the duration.

3.2.54 Also, the judgement erroneously assumes that proposed mitigation measures such as planting would have become effective, and would thus reduce levels of adverse effects, which of course is not the case (see Section 4.4): under the heading *Construction Effects*, LVA para. 6.6 states, '*retained field boundary hedgerows and tree belts within the Application Site extents would be gapped up and enhanced to provide mature field boundaries that link with the pattern and character of other field boundaries and tree belts in the wider setting. In addition, approximately 2.5km of new hedgerows and tree belts would be planted along intermittent sections of the Application Site on its boundaries*'.

5.3.44 In addition, the LVA assumes that levels of adverse effects on character are reduced by existing / proposed screening vegetation, which, as noted previously, is simply not the case.

5.3.45 Furthermore, the LVA's judgement is based on the assumption that the site's level of sensitivity is Medium, whereas as explained in Section 3.2, my own assessment concluded that the site and its contextual landscapes' level of landscape sensitivity is **at the higher end of between Medium to High and High** (based on the LVA's criteria, and my own judgements of Moderate to High landscape value, and High susceptibility to change).

5.3.46 My assessment concluded that during construction, the overall level of effect on the character of the site and its immediate surrounds would be **Major to Moderate Negative** (based on the LVA's criteria). The level of effect would decrease gradually with distance.

Decommissioning

5.3.47 DAS para. 1.4 asserts that '*Following the 40-year operational phase, the equipment associated with the Proposed Development would be removed, and the Application Site reinstated to its former state. This, coupled with the measures that are proposed to enhance the landscape and increase biodiversity of the Application Site will ensure that upon decommissioning, the Application Site can not only be restored to its current agricultural use, but will also have resulted in net beneficial gains for ecology and the local landscape fabric*'.

5.3.48 Planning Statement para. 1.65 states, '*The intention is that the site can be returned to its former state at the expiry of the Proposed Developments lifespan. All elements of the Proposed Development will be completely removed and either recycled or reused. It is expected that the decommissioning process should be similar to that of the construction phase and an allowance of 1 year is suggested to cater for any unforeseen delays that could be experienced*'. Para. 1.66 goes on to say that '*The number of HGVs required for the decommissioning period will be slightly higher than the construction phase due to the materials not being as neatly packed as when shipped from factory conditions*'.

5.3.49 Firstly, it is not clear why decommissioning could take twice as long as construction (but if that is expected to be the case, then based on the problems experienced at the Bishampton site mentioned above, then in theory, decommissioning could last a couple of years).

5.3.50 Secondly, it is not made clear – and apparently, not factored in to the assessments of effects – that the DNO substation, along with associated infrastructure and the proposed new access to the site, would remain in place permanently, ie post-decommissioning.

5.3.51 Thirdly, as set out in the R6P's evidence, the Application site is highly unlikely to be returned to its former state after 40 years.

5.3.52 Fourthly, there would not be any landscape (or visual) enhancements.

5.3.53 In the light of the above, and the fact that it concluded that effects during construction would be ***Moderate adverse***, it is difficult to understand how the LVA arrived at the conclusion (at para. 6.21), that '*The direct effects upon the Application Site during Decommissioning would be temporary and short-term lasting for the decommissioning period. They would have a Low magnitude of change which together with the Application Site's sensitivity, would result in no more than a* ***Moderate to Minor adverse*** *effect during decommissioning*'.

5.3.54 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 to Moderate Negative,** but at the higher end of the scale due to the duration being twice as long.

5.3.55 The R6P's soils expert's evidence covers these matters in detail, but a good source of information about the effects of decommissioning on soils specifically (of relevance to character and views) can be found in the previously-mentioned ADAS / Welsh Government report *The impact of solar photovoltaic (PV) sites on agricultural soils and land quality*.

5.3.56 In particular, as explained in Section 5.3, there is the question of how soil fertility would be restored to its previous level after having been taken out of agricultural production for over 40 years.

5.3.57 Another point about decommissioning is that in the Appellant's submissions, there is neither clarity nor certainty about how the land would be left after the decommissioning works were complete.

5.3.58 There is the possibility / likelihood that agricultural practices and requirements would have changed considerably over the 40-year operational period, due to unpredictable factors such as climate change and consumer demand. However, for the purposes of the granting of planning permission, it is important to know what is intended.

5.3.59 LVA para. 7.4 states, '*After the approved operational period ceases, the above ground structures would be removed from the Application Site during decommissioning. The enhanced field boundary hedgerows and environmental enhancement areas to the west would be left in situ which, together with the reversion of the land to its former agricultural use, would have Minor beneficial effects upon the landscape character and quality of the Application Site and surrounding landscape*'.

5.3.60 Firstly, as noted previously, I **strongly disagree** that the landscape design and management proposals constitute enhancement, and that they would result in 'beneficial effects'. On the

contrary, they are mitigating measures which in themselves would give rise to adverse effects on character (and views). It would be more beneficial if the highly uncharacteristic) hedge and tree planting was removed, and the historic field pattern restored.

5.3.61 Secondly, it is quite possible that later, the proposed hedges and trees would be taken out by those responsible for managing the land, given they would be an impediment to the use of large machinery, and their removal would allow more food production.

5.3.62 Of course, should the planting be removed, there would certainly be adverse effects on flora and fauna. Such effects need to be taken into account at this stage, and appropriate mitigation / compensation proposed.

5.3.63 These matters should be carefully considered. They could potentially be the subject of a well-worded planning condition that dealt with the securing of desirable / appropriate legacy landscaping, and the removal of undesirable / inappropriate landscape scheme elements. However, my understanding is that following the expiry of planning permission, any condition relating to landscaping and seeking to regulate the use of the land would cease to have effect after the expiry of permission.

5.4 Operational Effects on Character

5.4.1 At para. 6.18, the LVA concludes that in terms of effects on the character of the site and its contextual landscapes, '*The magnitude effect on the landscape character the LCU 25: South Nottinghamshire Farmlands: Aslockton Village Farmland context, would be Medium on completion (Year1) and in the short term (up to approximately 5 years), reducing to Low in the medium to long-term as the pattern of characteristic mitigation planting matures around the Application Site boundaries and the site is more heavily screened from the surrounding landscape. As the sensitivity of the Site is judged to be medium, the extent of effect would be* ***Moderate Adverse*** *(Operational Year 1), but* ***reduces Moderate to Minor*** *in the medium to long term (, up to Year 10). Refer to Appendix 1 A for details of duration*' (sic, my emphases).

5.4.2 I **disagree** with these conclusions, for the following reasons.

i) Firstly, as explained in Section 3.2, I do not agree that the site's level of landscape sensitivity is Medium. My own assessment judged the sensitivity of both the site and its contextual landscapes to be **at the higher end of between Medium to High and High**, based on the LVA's criteria, and my own judgements of Moderate to High landscape value, and High susceptibility to change. The reasons for the differences of opinion about these levels are set

out in previous sections, but they include what I consider to be erroneous assumptions factored in to the LVA's judgements, for example that the site lies within a '*semi-rural*' location (LVA para. 4.1). However, not only is this contradicted elsewhere in the LVA, but also, site visits will confirm that despite a few modern detractors, not only are the site and its contextual landscapes quintessentially rural: they also display significant time-depth, and considerable biodiversity.

ii) Secondly, I do not agree that the level of magnitude of effect on the character of the site would be the same as it would be throughout the contextual landscapes. Within the contextual landscapes, apart from along the construction route, the effects would be indirect, whereas on the site, they would be direct. This is confirmed in the LVA at para. 6.10, which states that '*During operation, direct landscape effects would include replacing the prevailing improved grassland land use within the Application Site with energy infrastructure elements which principally contain solar PV panels*' (but note that the description of '*prevailing improved grassland land use within the Application Site*' is not correct).

iii) Thirdly, I do not agree that the level of magnitude of effect on the site and its contextual landscapes would be Medium Adverse between Years 1 and 5 of operation. In LVA Table 1-8, the criteria for Medium are '*Partial loss or noticeable damage to key characteristics or distinctive features, and/or the addition of new features and whilst notable or obvious, the change would not fundamentally alter the balance of the key characteristics*'.

iv) My own assessment concluded that the proposed development would certainly *fundamentally alter the balance of the key characteristics*, through the introduction of large-scale modern industrial development into landscapes where the key characteristics (as set out in the published LCA) include (with my emphases): '***Rural remote and tranquil character*** *comprising arable farmlands and a regular dispersal of small rural settlements… Land use is mostly arable although pasture is common around village fringes… Villages are particularly distinctive often containing* ***very little modern development****; they are along* ***narrow roads*** *often bordered by red brick walls…* ***Churches within villages*** *constructed from local stone and either* ***towers or spires***'.

v) Other key characteristics of the site and its contextual landscapes include significant time-depth, biodiversity, and recreational resources – effects on these and other landscape qualities / features / factors are explained further below.

vi) Thus, the level of magnitude of effect on the character of the site, which would be a direct effect, would be **High Adverse** between Years 1 and 5 of operation (based on the LVA's criteria in Table 1-8, ie '*Total loss or large scale damage to key characteristics or distinctive features, and/or the addition of new features or components that will substantially alter the character or setting of the area*').

vii) The level of magnitude of effect on the character of the contextual landscapes, which would predominantly be indirect (apart from along the construction route), would gradually decrease with distance from the site (ie from **High – Medium Adverse** to **None**) (although in theory, there can be an abrupt break in association / influence, caused by features such as high hills, and large settlements).

viii) Of relevance here, with reference to the extent of landscape effects, is the fact that the LVA scoped certain effects out of the assessment. At para. 2.12, under the heading *Effects Scoped Out*, it states, '*On the basis of the desk-based appraisal and fieldwork undertaken, the professional judgment of the LVA team, experience from other relevant projects and policy guidance or standards, the following topic areas have been scoped out of this appraisal:*

- *Effects on landscape and visual receptors beyond a 2km radius from the Proposed Development, where it is judged that potential adverse effects are unlikely to occur;*
- *Effects on landscape and visual receptors (people) that have minimal or no theoretical visibility as indicated by the ZTV and accounted for during fieldwork) and are therefore unlikely to experience adverse visual effects; …*

ix) Regarding the first point, I **disagree** that there would be **no** adverse effects on character *beyond a 2km radius from the Proposed Development*, but I did conclude that apart from along the construction route, effects beyond 2km from the site would not be 'significant'. The second point is an example of the LVA having erroneously assumed that levels of effects on character are reduced by visual screening – see below.

x) Fourthly, I **disagree** that by Year 10, the level of magnitude of effect would have reduced from Medium to Low, and would remain at that level for the remainder of the 40-year operational period.

xi) In making this judgement, the LVA erroneously assumes that levels of adverse direct effects on character arising from the replacement of a green field with development can be mitigated, which, as explained in Section 4.4, is not the case.

xii) The LVA also assumes that the levels of magnitude of indirect effect on character would reduce over time, as proposed screen planting matures. However, as explained in Section 4.4, it is not possible to reduce levels of effects on character by screening views.

xiii) In fact, the levels would remain the same for the duration of the operation (apart from periods of increased activity / disturbance during interim panel replacement works, for example).

xiv) Also, it is not clear how the LVA arrived at the conclusion that the level of magnitude would be Medium. This is considered further below, but I believe that the LVA factored landscape and visual enhancements / benefits in to the results, ie it was erroneously assumed that enhancements to landscape character would be derived from the proposed screen planting (see double-counting mitigation as enhancement in Section 4.4), and therefore reduced the levels of magnitudes of adverse effects on landscape character accordingly.

xv) The fifth point relates to problems with the LVA's criteria. As explained previously, the number of points used in the LVA's scales vary from table to table, so when combined, the results are skewed.

xvi) For example, LVA Table 1-8 Magnitude of Landscape Effects is set out on a five-point scale, with a Very Low category, but no Very High to balance, plus a category for 'None'. As a result, a 'Medium' level of magnitude is not at the mid-point where it should be, it is the second-highest level of effect. This makes it very difficult to objectively interpret the results.

5.4.3 Based on the matrix in LVA Table 1-10 and my own results, I concluded that the overall level of direct effect on the character of the site would be **Major to Moderate Negative** for the duration of the operation.

5.4.4 On the character of the site's contextual landscapes, I concluded that the overall level of indirect effect would endure for the duration of the operation, and would gradually decrease with distance from the site (ie from **between Major to Moderate and Moderate Negative**, to **None**).

5.4.5 As well as the above problems with criteria and erroneous assumptions, the reasons for the differences of opinion about levels of magnitudes of effects include factors explained in previous sections: mainly, the lack of baseline study, survey and analysis, which resulted in many highly-valued and valuable landscape receptors either having been omitted, or effects upon them not having been considered; and also, not factoring in the nature of the effects likely to arise.

5.4.6 The LVA did not provide much commentary about the reasons for judgements made about effects on character, so the following sections set out the findings of my own assessment of

effects, which led me to the conclusion that the proposed development would give rise to such high levels of adverse effects on the character of the site and its contextual landscapes, for the duration of the 40-year operational period.

5.4.7 A summary of the nature of the landscape effects that would arise during operation is provided in Section 4.2.

5.4.8 Here, it is important to note that:

i) The measures proposed in the LVA to mitigate adverse effects on views, such as gapping up existing hedges and planting new ones, do not reduce levels of effects on character, and cannot be double-counted as landscape benefits.

ii) Some of the proposed visual mitigation measures would in themselves give rise to adverse effects on landscape character, and recreational and visual amenity.

Adverse Effects of Proposed Mitigation / 'Enhancement'

5.4.9 Firstly, between the northern edge of Hawksworth village and Field 1, a buffer / set-back zone is proposed where no development would be located, to increase the distance between the Conservation Area and receptors within it, and the site.

5.4.10 It is not clear what the treatment / management of the buffer zone would be (possibly a 'species-rich wildflower meadow'), but on the northern side of the zone, a new hedge is proposed, with scattered trees planted along its length, along with the proposed security fence. However:

a) The proposed hedged boundary is on an arbitrary line, where historically, no boundary existed. This would disrupt the landscape's distinctive historic / characteristic field patterns.

b) As explained previously, field boundary hedgerow trees are not characteristic in this area (although mature linear tree cover is characteristic along larger watercourses).

c) The creation of this buffer zone would interfere with, and undermine, Hawksworth's close historical relationship with its immediately contextual landscapes comprising arable fields.

5.4.11 Secondly, new hedges and security fencing are proposed along the western half of the bridleway which crosses the northern sector of the site. Scattered trees are proposed along the hedge south of the bridleway, and a very small, triangular area of 'woodland' is proposed on the northern side of the western end of the corridor where the bridleway joins the lane.

a) This would create an uncharacteristic narrow hedged / fenced corridor where none existed before. The effects of this measure are set out below.

b) Hedgerow trees are not characteristic in this area.

c) Due to its very small size, I am not convinced that the proposed woodland planting constitutes 'woodland'.

5.4.12 Thirdly, in the north-eastern sector of the site, measures are proposed to try to reduce levels of effects on people travelling along the eastern half of the bridleway. These comprise a continuation of the hedged / fenced corridor described above, which goes as far as the existing trees between Fields 4 and 5, before opening up into a buffer zone in the site's north-eastern corner, which the bridleway crosses, where no development would be located. On the northern side of the bridleway, a new hedge (no trees, but with security fence) would return north to Longhedge Lane; on the south side, a new hedge with scattered trees and security fencing would form a curved / irregularly-shaped area south of the buffer zone. Within the area, randomly-scattered blobs of tree groups and individual trees would be planted (see photomontage shown on LVA Figure 1.11).

5.4.13 The purpose of the trees is to help screen / filter views towards Thoroton (Conservation Area and the Grade I listed Church of St Helena), which would otherwise be significantly adversely affected by the proposed development. However:

a) The hedged boundaries are on arbitrary lines, where historically, no boundaries existed. This would disrupt the landscape's distinctive historic / characteristic field patterns.

b) Hedgerow trees are not characteristic in this area.

c) Some of the hedges end abruptly, without connecting to other hedges or copses.

d) The proposed groups of trees south of the buffer zone are highly uncharacteristic, giving rise to high levels of adverse effects (historically, all the fields were, and still are, open, with no in-field trees: small, geometrically-shaped game coverts / copses were planted in the 19th century, but contiguous to hedged boundaries).

e) The proposed screen planting could potentially become effective over time, but the result would be the total loss of a very high value view.

f) Whilst the vegetation was maturing, the buffer zone would be experienced as a space surrounded by security fencing.

5.4.14 Fourthly, although this could be dealt with by way of a planning condition if consent was granted, the proposed inverter and other containers are proposed to be green (DAS para. 1.55: '*The substation and containers which house the inverters/transformers will be recessively coloured to blend in with the landscape (RAL 6005 –Moss Green)*').

5.4.15 Actually, and perhaps surprisingly, green is one of the most difficult colours to integrate into the landscape, although the most important factors are a) context, and b) tonality. If in doubt, very dark grey is likely to be most recessive, but if dark, care must be taken where the containers (and other structures) are seen against sky or other light-coloured background.

Scale

5.4.16 The site area is c. 94.24 hectares (ha). An understanding of the magnitude of size and scale of the proposal, especially relative to its wider context and how much land it would cover, can be gained by driving / walking a loop along the lanes around the site's perimeters. The distance is **c. 5.3km**. If walking at an average pace and without stopping, it takes around 45 minutes – one hour to complete the loop.

5.4.17 Also, by way of comparison, I calculated the size of nearby settlements. The measurements below include residential properties, gardens (not associated paddocks / fields), public buildings and spaces (including schools / sports grounds), but not commercial / light industrial.

5.4.18 Hawksworth village is no more than 8ha (Thoroton is smaller). Therefore, the site could accommodate almost **twelve** Hawksworth villages. Or, two settlements the size of Aslockton (c. 47ha, north and south of the railway).

Effects on historic landscape character

5.4.19 The LVA does consider effects on the landscape settings of certain heritage assets (from a landscape perspective, not from that of a heritage expert, this being the usual approach in LVIA / LVA), albeit only those of the Conservation Areas at Thoroton and Hawksworth. However, despite its relevance here, and recommendations in GLVIA3, the LVA does not consider historic landscape character. Thus, the correspondingly high levels of value and susceptibility to change were not factored in to judgements about overall effects on character.

5.4.20 The proposed development would heavily industrialise these rural and historic landscapes, which are common to / 'borrowed' by Hawksworth and Thoroton, and form an integral and highly important aspect of the context and settings of several heritage assets, especially the Conservation Areas, and their respective churches, which themselves make a highly important contribution to landscape character.

5.4.21 Importantly, many of the heritage assets do not exist in isolation, they exist due to, and as an integral part of, the landscapes around them, including the site, and their settings are closely reliant on the historic character of these landscapes.

5.4.22 In terms of effects on the Conservation Areas, at para. 4.28, the LVA states, '*In terms of the landscape setting of these historic landscape features (their visual and contextual relationship with their surroundings) there are two Conservation Areas (CAs) at Thoroton (165m south) and Hawksworth (10m, south) which lie close to the Application Site boundary. While there would be* ***some potential for visibility*** *from the farmland areas between the Application Site and the CA's,* ***as noted on the ZTV, views from the CA's would be more restricted*** *due to localised variations and landform and landcover patterns, as evidenced on fieldwork and shown on the photopanels in Figures Figure 1.4-7: Appendix 1A and evidenced further by the Illustrative Viewpoint A in Appendix 1D*' (sic, my emphases).

5.4.23 However, in reaching this conclusion, the LVA erroneously assumed that if new development is screened from view, there would be no adverse effects on character or setting. In fact, the setting of a heritage asset is neither necessarily determined by its present-day visibility, nor even by visibility *per se*. 'Setting' is defined in the NPPF as '*the surroundings in which a heritage asset is* ***experienced***' (my emphasis).

5.4.24 Historic England's publication *The Setting of Heritage Assets Historic Environment Good Practice Advice in Planning Note 3* (Second Edition) explains that '*The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is* ***also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places***. *For example,* ***buildings that are in close proximity but are not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each***' (my emphases).

5.4.25 Also, note that vegetation which currently screens views of a heritage asset from a development site, and / or an associated heritage asset, may be a recent addition; temporary in nature; neither characteristic of, nor appropriate within, an asset's historical setting; and never intended / required to perform an historical function. That is one of the reasons why it is so important to consider character and views separately.

Effects on Recreational Resources

5.4.26 During operation, the proposed development would give rise to high levels of adverse effects on the landscapes as a recreational resource, and the amenity it provides to those who use them.

5.4.27 Visual effects are dealt with in Section 6. The resources, and their importance and value to local communities and visitors, are described in Section 2.2.

5.4.28 In summary, the high levels of aesthetic and perceptual qualities are one of the main reasons why the recreational resource is so highly-valued by local communities and visitors alike.

5.4.29 Due to the effects described in Section 4.2 and elsewhere, the proposed development would result in the industrialisation of a very large part of these quintessentially rural, highly tranquil landscapes, which also display significant time-depth, and considerable biodiversity.

5.4.30 The way in which the landscapes are experienced would fundamentally change for the worse.

5.4.31 Whilst high levels of adverse effects would be experienced within the site's contextual landscapes, there is no doubt that the greatest change, and the highest levels of adverse effects, would be experienced by people travelling along the existing bridleway which crosses the northern sector of the site, and the new permissive bridleway proposed along the inside of the site's eastern and southern boundaries.

5.4.32 The new permissive bridleway is actually proposed as a 'significant' enhancement / scheme benefit. DAS para. 1.49 states (with my emphasis) that '*The design also includes* ***significant PRoW enhancements****, by the inclusion of two Permissive Bridleways, that meet existing bridleways 1&6, that traverses on an east to west axis, across fields 5&4, dissecting fields 1&2. This significantly improves recreational benefits to a wide range of Public Rights of Way users whilst also improving road safety for all users as they can avoid using the road network. See Figure 3 of Volume 2: Planning Application Drawings*'.

5.4.33 I **fundamentally disagree** that the proposed permissive bridleway would be an enhancement / scheme benefit, let alone a 'significant' one, for the following reasons.

5.4.34 The character of the bridleway route crossing northern sector of the site would change from open, undeveloped, tranquil, and rural, to enclosed, developed, busy, industrial 'techscape'. The character of the permissive bridleway route would also be experienced as a developed, busy, industrial 'techscape', although the fenced enclosure would only be along one side – the other side would be existing hedgerow.

5.4.35 The experience of travelling along fenced-in corridors through industrial-scale solar developments (elements of which are noisy as well as visually-intrusive) is extremely unpleasant.

5.4.36 Computer-generated images (CGIs) / photomontages are often much better at conveying that experience than words, so some groups I work with commission a professional expert with considerable experience in producing CGIs for similar types of development. Examples of changes to PRsoW currently running through open arable fields at another proposed solar development site are provided below.

5.4.37 It should be noted that the CGIs do not show the proposed security fencing as deer-proof timber post and wire netting; instead, they show high-security fencing (LPS 1175 level 3), which is usually recommended by the Police for large-scale solar developments (see Section 7).

5.4.38 The CGIs do include the screen planting that was proposed, but shown as it was likely to be during the early years, whilst starting to establish.

5.4.39 The first set of images overleaf shows the difference between the existing and proposed situation along one of the bridleways which crosses the site (at the proposed development that was the subject of the CGIs).

Existing situation

Proposed situation

5.4.40 The second set of images (below) shows the difference between existing and proposed views at one of the picnic areas that was proposed to be built along the bridleway route.

Existing situation

Proposed situation

5.4.41 There is another concern relating to the proposed security fencing which is not related to the type of fencing used, namely, the dangers associated with creating an inescapable fenced corridor.

5.4.42 Bridleways are not only used by equestrians, they are used by people on foot, and riding bicycles. People on foot may be accompanied by small children, and / or may be elderly / infirm. Some may have dogs. Given the large deer populations in this area, it is inevitable that deer would also use these routes. Furthermore, as the proposed mammal passes in the proposed deer-proof fencing would only be c. 10cm high, larger mammals such as badgers, foxes and hares would use them too.

5.4.43 Thus, it is inevitable that at some point, there would be conflict between one or more of the above, for example: horses bolting (see below); dogs running out of control / chasing people or animals; equestrians / cyclists travelling fast towards other equestrians / cyclists, or walkers, who may not hear them approaching. This could potentially result in serious injury to both humans and animals, especially where there is no room to stand out of the way.

5.4.44 Notwithstanding the above concerns, I respectfully suggest that the decision to suggest the idea of the permissive bridleway was made by someone with limited experience of horse-riding.

5.4.45 Local riders attest that riding along the lane which forms the site's eastern boundary in particular is a very pleasant experience, due to the lack of traffic, and the fine views in most directions, especially those in an arc looking from north east to south east (away from the site) across very beautiful landscapes. Belvoir Castle can be seen within wooded hills on the horizon, and looking south towards Thoroton, the church spire is the focal point.

5.4.46 The proposed alternative would offer a completely different and potentially not just unpleasant, but dangerous alternative.

5.4.47 In terms of the safety of horses and riders along both the permissive bridleway and the existing one (which would also mostly be a fenced corridor):

i) Horses may be reluctant to go along enclosed, narrow corridors, or get part way along and refuse to go further.

ii) Even during operation when there is no activity on the site, they may be spooked by the noise of inverters / the proposed bird-scaring measures / substations; glint / glare; sheep / other animals (deer / dogs); and people walking / cycling along the path.

iii) If the horse is spooked, or bolts, there is very little room for other path users to move out of the way.

5.4.48 Finally, it is important to consider the risks of the enclosed fenced corridors to personal safety and security.

5.4.49 I was advising a group objecting to a proposed solar development in Worcestershire[25]. In a letter dated the 10th of November 2021, the Parish Clerk wrote to the LPA on behalf of '*three parishioners who have asked for anonymous representation in responding to this planning application*'. The letter went on to say that *'As Parish Clerk I have brought these residents together in this response so that they can share their experiences and material concerns with District Councillors*'.

5.4.50 The letter explained that the three parishioners used the local footpaths on a daily basis, and all had specific and very sound reasons for not wishing to find themselves trapped within a fenced corridor along the footpaths, for example, due to the threat of pursuit / violence from known parties.

5.4.51 The Clerk explained that the parishioners' opinion is that there was a '*lack of any consideration of public safety and well being in the sense that this application creates an* ***inescapable corridor*** *along an existing right of way that was previously open to the wider countryside. The route as it currently exists provides users under threat with numerous options for escape and means of drawing attention in the event of an emergency. This is not the case if the current solar farm layout and design is carried out*' (my emphasis). It is not clear how such risks could be designed out.

[25] LPA ref 21/01846/FUL (refused), PINS ref APP/J1860/W/23/3325112 (appeal dismissed)

Cumulative Effects

5.4.52 Regarding cumulative landscape effects, at para. 2.12, under the heading *Effects Scoped Out*, the LVA states that '*On the basis of the desk-based appraisal and fieldwork undertaken, the professional judgment of the LVA team, experience from other relevant projects and policy guidance or standards, the following topic areas have been scoped out of this appraisal: …*

- *Cumulative interactions with similar proposed developments at screening and scoping given their uncertainty in the planning system*'.

5.4.53 I note that this is contradicted in LVA Appendix 1B, para. 1.42, which states that '*The baseline for assessing cumulative effects will… include scope for cumulative effects with the Eggington Solar Farm which is now operational*'; however, I assume this is an error: perhaps the LVA method section was from another scheme – as far as I could ascertain, Eggington Solar Farm is in Bedfordshire (see also Section 6.2).

5.4.54 As noted in Section 3 above, it is not clear whether the search for similar developments was within a 5km or 2km study area, but there is a small (c. 12.4MW) operational ground-mounted solar development lying c. 2km south east of the Appeal site, and a smaller (c. 10MW) one lying c. 3km to the south. I factored the presence of both into my own assessment.

5.4.55 There is some interinfluence between the three sites, mainly as they all lie within LCU 25: South Nottinghamshire Farmlands: Aslockton Village Farmland, but also due to the low-lying nature of the land which means that interinfluence / associations between places can extend over several kilometres.

5.4.56 Currently, because the existing sites are quite small and the interinfluence between them is relatively limited, they do not give rise to high levels of adverse cumulative landscape effects. However, the introduction of a solar development of the size and scale proposed here is likely to result in a **Moderate to High Adverse** level of cumulative landscape effect.

5.4.57 There would also be sequential visual effects, and potentially, cumulative visual effects, with points to the south east of the study area from which the proposed development and the existing solar site to the south east would be seen in the same views – see Section 6.

Summary of Effects on Landscape Character

5.4.58 The Council's first RfR is that the proposed development '*would have a significant adverse impact on landscape character and visual amenity*'. On the basis of the findings of my assessment and review, I **agree** with this conclusion.

5.4.59 The Council's second RfR is that '*The proposed development does not contribute to the preservation or enhancement of the setting of the Hawksworth and Thoroton Conservation Areas and does not contribute to the preservation of the setting of a number of listed buildings within these conservation areas*'. I also **agree** with this conclusion.

5.4.60 Section 3 explains how levels of landscape receptor sensitivity were underestimated in the Appellant's LVA, which has implications for subsequent judgements made about levels of landscape effects. Section 4 explains the cause, nature and magnitude of the effects likely to arise, and notes that errors in the LVA process have led to levels of magnitude also having been underestimated, again, with implications for judgements made about overall levels of effects.

5.3.64 The LVA does not appear to have assessed effects on character arising from traffic travelling along the proposed construction route. My assessment concluded that along the construction route, levels of many of the adverse effects would be at least **Major to Moderate Negative**.

5.4.61 The LVA concluded that during construction, effects on the character of the site would be **Moderate Adverse.**

5.4.62 My assessment concluded that the level of effect on the character of the site would be **Major to Moderate Negative** (based on the LVA's criteria), and the level would decrease gradually with distance.

5.4.63 During operation, the LVA concluded that the level of effect would be **Moderate Adverse** (Operational Year 1), reducing to **Moderate to Minor** in the medium to long term (up to Year 10).

5.4.64 My assessment concluded that the overall level of direct effect on the character of the site would be **at least Major to Moderate Negative** for the duration of the operation.

5.4.65 On the character of the site's contextual landscapes, I concluded that the overall level of indirect effect would endure for the duration of the operation, and would gradually decrease with distance from the site (ie from **between Major to Moderate and Moderate Negative**, to **None**).

5.4.66 During decommissioning, the LVA predicted **Moderate to Minor Adverse** effects on the character of the site.

5.4.67 My assessment concluded that the overall level of effect would be **Major to Moderate Negative**.

5.4.68 The LVA scoped out cumulative character effects. My assessment concluded that the proposed development in combination with the existing solar developments within the study area would result in a **Moderate to High Adverse** level of cumulative landscape effect.

5.4.69 As noted in Section 5.2, although this is not EIA development, the LVA did consider 'significance'. Levels of effects which are Moderate or higher are often categorised as 'significant', although some practitioners set the threshold at 'between Moderate and Major' (much depends on the number of points in the scale that is being used).

5.4.70 Given that effects on the character of the site would be at least Major to Moderate Negative, then there is no doubt that if this development was subject to EIA (which in my opinion, it should have been), the effects would be categorised as 'significant'.

6 Effects on Views and Visual Amenity

6.1 Introduction

6.1.1 In principle, the process for making judgements about levels of visual effects is the same as that used for landscape effects, ie levels of (visual) receptor sensitivity are combined with the level of magnitude of (visual) effect, with professional judgement applied.

6.1.2 During operation, adverse visual effects would be caused by the adverse changes to landscape character that would occur as a result of the operation of the proposed development, which are described in the previous section.

6.1.3 As mentioned previously, I agree with certain aspects of the LVA's visual effects assessment.

6.1.4 For example, I **agree** with the use of a 'bare earth' ZTV (Figure 1.3: Appendix 1A), since as noted in Section 4.4, it is not safe to rely on vegetation to screen views.

6.1.5 I also **agree** that levels of adverse effects on visual / social amenity arising from operation of the developed site would decrease with distance, and that the highest levels of visual effects (potentially 'significant') would be experienced on the site and within a distance of c. 2.5km from the site boundary.

6.1.6 However, as explained in Section 3.3, I **disagree** with certain aspects of the LVA's methods and processes, and with some of the criteria used in the LVA's visual effects assessment. For example, the ZTV does not factor in the taller scheme elements (eg the 15m high DNO substation tower) that would be visible over a much wider area.

6.1.7 Also, as set out in Section 4.4, I **disagree** with the LVA's assumptions about the likely effectiveness of some of the mitigating measures which are proposed to reduce levels of adverse effects on views.

6.1.8 In addition, I **disagree** with the LVA's conclusions about levels of visual effects, which would be higher than reported in the LVA – partly due to errors in the LVA method; and with the LVA's conclusions about the extent of visual effects, which would be greater than reported, and thus more harmful than the LVA suggests.

6.1.9 These and other matters relating to the assessment of visual effects with which I agree or disagree, and / or am concerned about, are explained in the following sections.

6.2 Visual Effects

Overview

6.2.1 I found the reasoning behind certain aspects of the LVA's assessment of visual effects difficult to follow, and several matters require clarification. This is partly due to omissions in the reporting process, errors / contradictions, and erroneous assumptions, as set out in previous sections (mainly Section 3.3), and explained further below where relevant. For ease of reference and comparison between the LVA's findings and my own, I therefore set them out in tabular format, also explained below.

6.2.2 Firstly, para. 1.9 of Appendix 1B - LVA Methodology states that '*A total of eight representative viewpoints were chosen from a range of locations and receptors; each viewpoint is detailed in the LVA assessment (see Figure 1.3 Appendix 1A for locations). The initial draft viewpoints were selected during the baseline desktop study and later refined when undertaking the field work. These were then consulted upon and agreed with Central Bedfordshire Planning officers and a further 5 viewpoints where* [sic] *requested and included within the assessment*'.

6.2.3 The reference to *Central Bedfordshire*, along with mention (at LVA Appendix 1B para. 1.42) of Eggington Solar Farm, which is in Bedfordshire (see Section 5.4), suggests that the LVA's method statement was produced for a different scheme. Therefore, it would be helpful to know whether the rest of the information (in this paragraph and elsewhere in LVA Appendix 1B) relates to the site in Bedfordshire, or if it is specific to the Appeal scheme.

6.2.4 It is not easy to find the precise locations of the VPs on LVA Figure 1.3 Appendix 1A due to the scale of the plan, but they are marked on the R6P's VPs and View Routes plan in Appendix CT-C.

6.2.5 LVA para. 1.9 suggests that originally, only three viewpoints were selected for assessment, which evidently would not have been adequate.

6.2.6 LVA para. 1.64 goes on to say that '*Two additional viewpoints (A and B) are included as illustrative views to demonstrate other effects. These are included as photo panoramas within Appendix 1D*'. However, as far as I could ascertain, nothing further is said about 'other effects' at VPs A and B, neither in the LVA report, nor on the photo panoramas.

6.2.7 I do not understand why VPs A and B were not included in the effects assessments. VP A is looking north towards the site from a point along the public footpath west of Thoroton, at the edge of the Conservation Area, with High sensitivity receptors. The footpath is a view route.

6.2.8 VP B is located at a central point along the well-used public bridleway which crosses the northern part of the site, looking south (the LVA does consider views along the bridleway, but only at either end, where they join the lanes). My own assessment considered effects on visual receptors at VPs A and B.

6.2.9 I note that in the Thoroton Townscape Appraisal (see Appendix 2 of the *Thoroton Conservation Area Appraisal and Management Plan*), there is an 'Important vista' from a VP / view route along the central section of the bridleway, in the vicinity of LVA VP B, towards the spire of the Grade I listed Church of St Helena in Thoroton.

6.2.10 In summary, the LVA concluded as follows:

i) During construction and at Year 1 of operation, the highest level of effect experienced by any visual receptor would be **Major to Moderate Adverse**.

ii) By Year 10 of operation, and for the remainder of the duration of the 40-year operational period, the highest level of visual effect would be **Moderate to Minor Adverse**.

iii) During decommissioning, the highest level of visual effect experienced by any visual receptor would be **Moderate to Minor Adverse**.

6.2.11 My own assessment concluded that at each of the VPs, levels of visual effects would be higher than predicted in the LVA, due to a number of factors (note that for ease of reference, both assessments' conclusions about levels of sensitivity, magnitude of effect, and overall effect at each of the eight VPs assessed in the LVA are set out in Table CT-1 Visual Effects Comparison below).

6.2.12 The LVA does consider view routes, ie routes between two or more VPs along which there would be views of the developed site, either continuously or intermittently, clear or filtered. However, they are only briefly described in the LVA report, and are not shown on a plan. The view routes identified in my own assessment are shown on the VPs and View Routes plan in Appendix CT-C.

Visual Receptor Sensitivity

6.2.13 Firstly, Section 3.3 explains that for various reasons, the LVA under-reported levels of visual receptor sensitivity. One issue is the use of different point-scales at different stages of the process and combining them at the end, which skews the results. Notwithstanding this, however, in making judgements about overall levels of visual effects, the LVA assumed the following (with a summary of my own findings alongside):

i) Residential receptors are of **High – Medium** sensitivity. My assessment concluded that they should be **High**.

ii) Road-users are of **High – Medium** sensitivity, (or potentially, **Medium**, which appears to be the case at VP8). In my opinion, here, certain road-users are of **High** sensitivity.

iii) Recreational users of PRsoW are of **High – Medium** sensitivity. However, here, certain recreational users of PRsoW are of **High** sensitivity.

iv) Recreational receptors at Portland Fishing Lakes (VP8) are of **Medium - Low** sensitivity. In my opinion, receptors at the fishing lakes should be categorised as **at least High – Medium** sensitivity receptors, if not **High**.

v) LVA Table 1-2 Representative Viewpoint Baseline includes people within Conservation Areas, but the LVA does not appear to have ascribed levels of sensitivity for these receptors.

vi) According to the LVA's criteria (and I would agree), people in Conservation Areas should also be categorised as being of **High** sensitivity (ie the highest possible level).

vii) Also, only receptors in Hawksworth Conservation Area are included (at VP 3). The LVA does not note that VP 1 is within Thoroton Conservation Area.

viii) Note that in the Thoroton Townscape Appraisal (see plan at Appendix 2), VP1 is the location of an important '*Panoramic (wide) view (medium to long distance)*', looking in the same direction as VP1, ie north / north west towards the site.

6.2.14 In summary, the LVA categorises all visual receptors as being of **High – Medium** sensitivity, apart from those at LVA VP8, who are categorised as being **Medium – Low**. I categorise all visual receptors as **High** (based on the worst-case scenario – see Section 3.3).

6.2.15 Thus, at each of the LVA's VPs, levels of visual effects would be higher than reported. The details are set out in Table CT-1 below, but an example is provided here (using the LVA's criteria, and predicted magnitudes of effect, but see below).

6.2.16 At VP5, during construction and Year 1, the LVA's predicted Major to Moderate Adverse effect would increase to **Major Adverse**. From Year 10 until decommissioning, and during decommissioning, the LVA's predicted Moderate to Minor Adverse would increase to **Moderate Adverse**.

6.2.17 However, this assumes that by Year 10, the existing screen planting (on the site and in the wider landscapes) would be fully effective, and the proposed screen planting would have fully matured

(or at least, have become fully effective). However, as explained previously, and below, this is very unlikely.

Magnitudes of Visual Effect

6.2.18 Another factor that has resulted in levels of visual effects being underestimated / under-reported is judgements made in the LVA about levels of magnitude of effect at some of the VPs, some of which, in my opinion, have also been underestimated. A summary is provided below, followed by reasons for the matters of disagreement.

6.2.19 It is important to note that where I say I agree with the LVA's levels of magnitude, this is based on the LVA's assumption that the proposed screening vegetation would have become effective by Year 10, which may not be the case (explained below).

6.2.20 Note that in the LVA (Appendix B1 Table 1-9), High is the highest possible category of level of visual magnitude (on a five-point scale). All the reported effects are Adverse.

6.2.21 I **agree** with the LVA's predicted levels of magnitude during construction and Year 1 at VP 1 (Medium); VP 4 (High); VP 5 (High); VP 6 (High); and VP 7 (High – Medium).

6.2.22 I **disagree** with the LVA's predicted levels of magnitude during construction and Year 1 at VP 2 (LVA: High – Medium, CT: High); and VP 8 (LVA: Medium, CT High – Medium).

6.2.23 I **agree** with the LVA's predicted levels of magnitude during operation at VP 7 (Medium - Low); and VP 8 (Low, but note concerns about over-reliance on vegetation to screen views: at this VP, without screening vegetation, the proposed development along the western side of Field 8 would dominate the skyline).

6.2.24 In principle, I **agree** with the LVA's predicted levels of magnitude during construction / decommissioning and operation at VP 3 (None, but note my concerns about over-reliance on vegetation to screen views). However, that only applies to the VP location at the northern end of the public footpath: travelling south east, there is far less existing mature vegetation to screen views – the vegetation shown in the photo from VP 3 (LVA Figure 1.5) is predominantly ornamental trees in the grounds of Hawksworth Manor, on the edge of Hawksworth village. Thus, even factoring in future vegetation growth, the level of magnitude of effect where there are more open views would be at least Medium during construction, and Medium – Low during operation.

6.2.25 I **disagree** with the LVA's predicted levels of magnitude during operation at VP 1 = (LVA: Very Low, CT: Medium); VP 2 = (LVA: Low, CT: High); VP 4 = (LVA: Low, CT: Medium); VP 5 = (LVA: Low, CT: High); and VP 6 = (LVA: Medium, CT: High).

6.2.26 Regarding levels of magnitude during decommissioning, the LVA assumes that at all VPs, they would be the same as during operation. That may be because the LVA assumes that the proposed screening vegetation would remain effective during the whole of the operational phase, which in my opinion, is unlikely – see below. However, even if the proposed screening was effective during the decommissioning phase, the levels of magnitude at certain VPs would still be higher (as per operational magnitude disagreement above).

6.2.27 My own assessment concluded that during decommissioning, levels of effects are most likely to be similar to those experienced during construction, ie **Major to Moderate Negative,** but at the higher end of the scale due to the duration being twice as long.

6.2.28 The main reason for the above conclusion (which is relevant to visual magnitudes of effect at all the LVA's VPs) is due to the LVA's over-reliance on vegetation to screen views.

6.2.29 As explained in Section 4.4, there is no guarantee that existing or proposed screening vegetation would remain effective, or remain at all, in the longer term. This may be due to factors such as climate change; maintenance and management regimes; deliberate removal (authorised, for example forestry plantations, or unauthorised); and death from pests / pathogens / diseases.

6.2.30 The result of the traditional and highly locally-characteristic form of hedgerow management described in Section 2.3 is that the amount of screening provided by hedges varies significantly from place to place, and over relatively short periods of time. It also explains why mature hedgerow trees are not characteristic in this area.

6.2.31 The LVA's conclusions about the extent and degree of visibility of the developed site were based on surveys carried out in February 2022 (LVA para. 2.14). My own surveys were carried out just over two years later. It is therefore quite possible that views which the LVA noted as being screened are no longer screened, or that views which were not screened now are.

6.2.32 As explained in Section 4.4, it may be that if the proposed development was granted consent, hedgerows would be left tall around the perimeter of the site for the duration of the 40-year operation, albeit legginess would occur, providing less screening than envisaged. However, beyond the site's boundaries, **it is simply impossible to predict which views would be screened by which hedges at any point in the future**.

6.2.33 There are several other factors which have led to the LVA having underestimated levels of visual magnitudes of effect:

Equestrians

a) As noted previously, the lanes within the local area are very well-used by equestrians.

b) However, the LVA did not consider the fact that equestrians' eye level is usually higher than pedestrians'.

c) For these receptors, the extent of visibility would be greater – especially where views over hedge-tops are possible that wouldn't be from a path of road.

d) Therefore, levels of magnitude would be higher.

e) See also summary of overall effects along the existing and proposed permissive bridleways below.

Mitigation

a) As explained in Section 4.4, some of the proposed mitigating measures would in themselves give rise to adverse visual effects, including the total loss of highly-valued public views.

b) The LVA relies heavily on existing and proposed vegetation to screen views, but that is problematic.

c) The LVA assumes that the operational effects would be temporary.

d) The LVA erroneously double-counts mitigating measures as enhancements, and assumes visual benefits where there would be none.

Lighting / Glint and Glare

a) Regarding lighting, as noted previously, the proposed DNO substation complex includes pole-mounted floodlights. The substation is located in open countryside, in an area valued for its dark night skies. The floodlights would give rise to very high levels of adverse visual effects whilst on (and would adversely affect nocturnal fauna).

b) As explained in Section 4.5, the Appellant's GGA's method is flawed, and therefore, the results cannot be relied upon. For example, the number of receptors experiencing glint and glare would be higher than assumed, as people using PRsoW and minor roads were excluded, and the extent of the effects of glint and glare was underestimated.

c) Importantly, the GGA relies on mitigation to reduce levels of adverse glint and glare effects, in the form of screen planting. The planting is the same as that proposed in the LVA.

d) Evidently, the problems associated with relying on existing and / or proposed vegetation to screen views apply to the GGA.

e) Therefore, many receptors are likely to experience far higher levels of adverse glint and glare effects than the study predicts.

f) The adverse effects would be experienced within the site's contextual landscapes, although levels of effects would decrease with distance.

g) However, evidently, the highest levels of adverse effects would be experienced by people adjacent to, and travelling through the site, especially along the existing and proposed permissive bridleways, as explained below. In my opinion, when experienced at close quarters, the level of effect would be extremely and unbearably high.

Photomontages / CGIs

a) Para. 1.11 of LVA Appendix B1 explains that photomontages were produced to illustrate views of the proposed development '*at Year 1 (Figure b) with planting and at Year 10 (Figure c) with planting*'.

b) Firstly, it is highly unlikely that at Year 10, the proposed new hedges would look as mature and tall as shown in the montages. The photographs overleaf show screen planting at two different solar development sites, respectively c. five and eight years after planting. Also,

here, the proposal is for hedges to be cut back regularly, not only for good management and to promote bushy growth, but also to remove berry-bearing wood to deter birds.

c) Secondly, whilst the photomontages are helpful in understanding the likely visual effects, they do not accurately reflect the reality of the future situation, i) because they do not include the taller scheme elements; and ii) 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.

d) Overleaf are:

1) one of the Appellant's LVA's photomontages;

2) examples of the variation of the effects of light on panels at the existing solar development south east of the site.

3) an example of the difference between 1) a photomontage with similar problems produced by an appellant for a proposed development, and 2) for the same proposed development, a CGI from a viewpoint in close proximity produced by an expert with experience of solar development; and

4) an example of a CGI aerial view for a different scheme produced by the same expert.

1) Extract from Appellant's Figure 1.4 - photomontage at LVA VP4 (Year 1)

2) Existing solar site south east of Appeal site

3) Photomontage of a developed view at Year 1

4) Alternative photomontage of the developed view at Year 1

5) Example of CGI of proposed solar development, aerial view

Overall Levels of Visual Effects (LVA VPs)

6.2.34 For ease of reference, I have summarised the findings of the LVA's assessment of overall levels of visual effects in Table CT-1 Visual Effects Comparison and compared them with my own assessment of effects at the LVA's VPs – see the end of this section.

Effects at Other VPs / Other Visual Effects Matters

6.2.35 Five of the eight VP locations selected for assessment in the LVA are adjacent to, or within the site. Of the remainder, VP 1 is c. 160m from the site; VP 3 is c. 400m away, but at the southern end of the public footpath, from which the developed site would be visible, the site is c. 235m away; VP8 is c. 275m away from the site.

6.2.36 This suggests that the extent of the developed site's visibility would be very limited, and does not give a true indication of the likely extent of adverse visual effects.

6.2.37 Also, the LVA's VP location plan (Figure 1.3) does not show the views routes between the VPs, of which there are several.

6.2.38 Furthermore, the LVA's visual assessment was only based on the visibility of the solar panels, not the other infrastructure elements, some of which are far taller.

ZTV: Height of Scheme Elements

6.2.39 LVA para. 1.8 explains that the ZTV *was based on* '*the maximum height of the solar arrays set at 2.8m above ground level*'.

6.2.40 However, firstly:

i) The inverters are 3m high (Figure 11 Typical Inverter Substation).

ii) The DNO substation complex includes several structures which are 3.85m tall (Figure 12A Client/DNO Substation Plan & Elevation Option 1) (Option 2 is the same in this respect).

iii) The DNO substation also includes a 15m high communications tower.

6.2.41 Evidently, especially within these flat / gently undulating landscapes which are not well-wooded, taller elements would be visible at greater distances than the panels, especially the tower, and would affect larger numbers of receptors.

6.2.42 DAS para. 1.52 states (with my emphasis) that in terms of the proposed ancillary buildings and associated infrastructure, '*Such structures, **with the exception of the tower on the substation** located in Field 8, will not be prominent within the surroundings*'.

6.2.43 Whilst I **disagree** that ancillary buildings and associated infrastructure would not be prominent within the surroundings at closer quarters at least, the above statement clearly indicates that the substation tower **would** be prominent within the surroundings.

6.2.44 Secondly, as explained in Section 2.2, the Appellant's FRDIA did not factor in the Environment Agency's revisions to climate change allowances for the Humber Basin, which were published in December 2022. Therefore, unfortunately, the figures used and assumptions made in the FRDIA are out-of-date, and significantly understate the potential extent and depth of potential flooding across the site.

6.2.45 As a result, the height of much of the scheme's infrastructure and elements, including the solar panels, would have to be raised considerably higher of the ground than assumed (by up to c. 2m in some cases).

6.2.46 Evidently, this would significantly increase the extent of the developed site's visibility, and levels of visual effects.

Visual Effects at Other VPs

6.2.47 My own assessment identified views of the site / potential views of the developed site from many other VPs and view routes up to a distance of c. 4km.

6.2.48 The locations of the 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. are shown on the plan in Appendix CT-C, along with the locations of the LVA's assessed VPs, and LVA illustrative VPs A and B.

6.2.49 This plan gives a much more realistic indication of the likely spread of visual effects.

6.2.50 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.

6.2.51 Also, and very importantly, it is impossible to predict with any certainty the degree of visibility of the developed site during construction, operation, and decommissioning, because the location, amount, depth and height of existing and proposed screening vegetation will vary significantly over time.

6.2.52 However, for the purposes of this exercise, my judgements about overall levels of visual effects assume that there would be a certain amount of screening from vegetation at most VPs.

6.2.53 They also adopt the worst-case scenario of the level of sensitivity of all visual receptors being **High**.

6.2.54 Broadly speaking, and depending on factors such as localised topographical variations, built form, and existing / proposed screening vegetation, my assessment concluded as follows:

i) Along the construction (also presumably decommissioning) route, receptors would experience **Major to Moderate Negative** effects, meaning that high levels of adverse visual effects would be experienced several kilometres from the site, although again, levels of effects arising along the route would decrease with distance from the route.

ii) In terms of visual effects arising from development on the site, all the identified VPs and view routes would be adversely affected to varying degrees, but levels of visual effects would be highest within the site (see below), and adjacent to it where there would be clear / partially-screened views (**Major Negative**), and would gradually decrease to **Neutral** with distance (up to c. 4km).

iii) The adverse effects of glint and glare are likely to be experienced beyond c. 4km, but are unlikely to be significant at such distances.

6.2.55 Views along the existing bridleway which crosses the site would change from open, undeveloped, tranquil, and rural, to enclosed, developed, busy, industrial 'techscape'. The LVA did not assess visual effects arising when travelling through the site, only effects from either end of the bridleway.

6.2.56 The most important views – towards Thoroton and Hawksworth Conservation Areas, and their respective churches – would either be ruined by the intervening industrialisation, or completely lost through proposed screening.

6.2.57 Along the permissive bridleway route, views would be along a narrow corridor with a high hedge on one side and a security fence / new hedging on the other, on the other side of which would be an industrial-scale solar development. The high hedge would screen / filter any good, open views looking away from the development across the wider landscapes to the east, and fine views of the landscapes and villages to the south and west would be completely lost.

6.2.58 Visual receptor sensitivity along the bridleways is **High**. The magnitude of visual effect along both routes would be **High** (LVA Table 1-8). Therefore, for the duration of the 40-year operation, the overall level of visual effect would be **Major Negative** (LVA Table 1-10). In the LVA, that is the highest possible level of effect.

6.2.59 If this was EIA development, that level would be 'significant'.

Sequential Visual Effects

6.2.60 The LVA did not consider sequential visual effects, which is recommended in GLVIA3 (for example see 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*').

6.2.61 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 are likely to 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.

Cumulative Visual Effects

6.2.62 The LVA did not assess the cumulative visual effects arising from the combination of the proposed development and the two other operational solar developments identified within the study area, which lie c. 2km south east, and c. 3km south of the site.

6.2.63 There are points to the south east of the study area from which the proposed development and the existing solar site to the south east would almost certainly be seen in the same views, and possibly the one to the south as well, but due to time and other constraints, I was not able to do an in-depth assessment.

6.2.64 As the distances between the potential cumulative VPs and the sites are relatively long, I doubt that the levels of cumulative effects from the VPs / associated view routes would be higher than **Moderate – Minor Negative**.

6.2.65 However, whilst travelling around this part of the study area, visual receptors would potentially experience **at least Moderate Negative** sequential visual cumulative effects.

Summary of Effects on Views and Visual Amenity

6.2.66 The LVA concluded as follows:

i) During construction and at Year 1 of operation, the highest level of effect experienced by any visual receptor would be **Major to Moderate Adverse**.

ii) By Year 10 of operation, and for the remainder of the duration of the 40-year operational period, the highest level of visual effect would be **Moderate to Minor Adverse**.

iii) During decommissioning, the highest level of visual effect experienced by any visual receptor would be **Moderate to Minor Adverse**.

6.2.67 My own assessment concluded as follows:

i) During construction and at Year 1 of operation, the highest level of visual effect experienced by any visual receptor would be **Major Adverse**.

ii) At Year 10 of operation, the highest level of visual effect would be **Major Adverse**.

iii) For these receptors, the **Major Adverse** level of effect would remain for the duration of the 40-year operational period.

iv) During decommissioning, the highest level of effect experienced by any visual receptor would be **Major Adverse**.

6.2.68 If this development was subject to EIA, the effects would be categorised as 'significant'.

Table CT-1 Visual Effects Comparison

Note all results are based on the Appellant's LVA criteria. CT's results are subject to caveats expressed in evidence eg over-reliance on vegetation to screen views, but have assumed a higher degree of screening than is likely to be provided.

VP	Location	Distance from site	Receptors	Sensitivity	Magnitude of effect (all Adverse)	Overall effect
1	Minor Road, Thoroton	160m	Residents & road-users	**High - Medium**	Construction & Year 1: Medium Year 10 until decommissioning: Very Low Decommissioning: Very Low	Construction & Year 1: **Moderate Adverse** Year 10 until decommissioning: **Minor Adverse** Decommissioning: **Minor Adverse**
1 (CT)	Minor Road, Thoroton	160m	Residents & road-users	**High**	Construction & Year 1: Medium Year 10 until decommissioning: Medium Decommissioning: Medium	Construction & Year 1: **Major to Moderate Adverse** Year 10 until decommissioning: **Moderate Adverse** Decommissioning: **Moderate Adverse**
2	PRoW to Thoroton from minor road	10m	PRoW users	**High-Medium**	Construction & Year 1: High - Medium Year 10 until decommissioning: Low Decommissioning: Low	Construction & Year 1: **Major - Moderate Adverse** Year 10 until decommissioning: **Moderate to Minor Adverse** Decommissioning: **Moderate to Minor Adverse**

VP	Location	Distance from site	Receptors	Sensitivity	Magnitude of effect (all Adverse)	Overall effect
2 (CT)	PRoW to Thoroton from minor road	10m	PRoW users	**High**	Construction & Year 1: High Year 10 until decommissioning: High Decommissioning: High	Construction & Year 1: **Major Adverse** Year 10 until decommissioning: **Major Adverse** Decommissioning: **Major Adverse**
3	PRoW Hawksworth, south of Manor Farm	410m	PRoW users, residents, & Conservation Area to west	**High-Medium**	Construction & Year 1: Very Low Year 10 until decommissioning: None Decommissioning: None	Construction & Year 1: **Minor Adverse** Year 10 until decommissioning: **No change** Decommissioning: **No change**
3 (CT)	PRoW Hawksworth, south of Manor Farm	410m	PRoW users, residents, & Conservation Area to west	**High**	Construction & Year 1: Medium - Low Year 10 until decommissioning: Low Decommissioning: Low	Construction & Year 1: **between Moderate and Major to Moderate Adverse** Year 10 until decommissioning: **Moderate Adverse** Decommissioning: **Moderate Adverse**
4	Main road north side of Hawksworth	20m	Residents, road-users to west	**High-Medium**	Construction & Year 1: High Year 10 until decommissioning: Low Decommissioning: Low	Construction & Year 1: **Major to Moderate Adverse** Year 10 until decommissioning: **Moderate to Minor Adverse** Decommissioning: **Moderate to Minor Adverse**

VP	Location	Distance from site	Receptors	Sensitivity	Magnitude of effect (all Adverse)	Overall effect
4 (CT)	Main road north side of Hawksworth	20m	Residents, road-users to west	**High**	Construction & Year 1: High Year 10 until decommissioning: Medium Decommissioning: Medium	Construction & Year 1: **Major Adverse** Year 10 until decommissioning: **Major to Moderate Adverse** Decommissioning: **Major to Moderate Adverse**
5	PRoW, east side of main road (Hawksworth BW1)	0m	PRoW users within site to northwest, x 2 sequential views	**High-Medium**	Construction & Year 1: High Year 10 until decommissioning: Low Decommissioning: Low	Construction & Year 1: **Major to Moderate Adverse** Year 10 until decommissioning: **Moderate to Minor Adverse** Decommissioning: **Moderate to Minor Adverse**
5 (CT)	PRoW, east side of main road (Hawksworth BW1)	0m	PRoW users within site to northwest, x 2 sequential views	**High**	Construction & Year 1: High Year 10 until decommissioning: High Decommissioning: High	Construction & Year 1: **Major Adverse** Year 10 until decommissioning: **Major Adverse** Decommissioning: **Major Adverse**
6	PRoW, northeast site boundary	0m	PRoW and road-users to northeast	**High-Medium**	Construction & Year 1: High Year 10 until decommissioning: Medium Decommissioning: Medium	Construction & Year 1: **Major to Moderate Adverse** Year 10 until decommissioning: **Moderate to Minor Adverse** Decommissioning: **Moderate to Minor Adverse**

VP	Location	Distance from site	Receptors	Sensitivity	Magnitude of effect (all Adverse)	Overall effect
6 (CT)	PRoW, northeast site boundary	0m	PRoW and road-users to northeast	**High**	Construction & Year 1: High Year 10 until decommissioning: High Decommissioning: High	Construction & Year 1: **Major Adverse** Year 10 until decommissioning: **Major Adverse** Decommissioning: **Major Adverse**
7	PRoW, site boundary	10m	PRoW and road-users to east	**High-Medium**	Construction & Year 1: High - Medium Year 10 until decommissioning: Medium - Low Decommissioning: Medium - Low	Construction & Year 1: **Major to Moderate Adverse** Year 10 until decommissioning: **Moderate to Minor Adverse** Decommissioning: **Moderate to Minor Adverse**
7 (CT)	PRoW, site boundary	10m	PRoW and road-users to east	**High**	Construction & Year 1: High - Medium Year 10 until decommissioning: Medium - Low Decommissioning: Medium - Low	Construction & Year 1: **between Major and Major to Moderate Adverse** Year 10 until decommissioning: **between Major to Moderate and Moderate Adverse** Decommissioning: **between Major to Moderate and Moderate Adverse**

VP	Location	Distance from site	Receptors	Sensitivity	Magnitude of effect (all Adverse)	Overall effect
8	Longhedge Lane, at Portland Fishing Lakes	280m	Road-users and recreation users to north	**Medium-Low**	Construction & Year 1: Medium Year 10 until decommissioning: Low Decommissioning: Low	Construction & Year 1: **Moderate – Minor Adverse** Year 10 until decommissioning: **Minor Adverse** Decommissioning: **Minor Adverse**
8 (CT)	Longhedge Lane, at Portland Fishing Lakes	280m	Road-users and recreation users to north	**High**	Construction & Year 1: High - Medium Year 10 until decommissioning: Low Decommissioning: Low	Construction & Year 1: **Major to Moderate Adverse** Year 10 until decommissioning: **Moderate Adverse** Decommissioning: **Moderate Adverse**

7 Security Fencing

7.1 The Application includes security fencing.

7.2 High-security palisade fencing would be required to protect the proposed DNO substation complex. This is shown on Appellant's Figure 9: Typical Security Fence Detail, and a typical example is illustrated in the photo below.

Typical DNO substation complex fencing

7.3 Elsewhere – around the perimeter of the site, and the proposed buffer zones, and along recreational corridors – deer-proof fencing is proposed (2.4m high timber post and wire netting – see Figure 13 Typical Deer Fence).

7.4 The security fencing would remain in place for the lifetime of the scheme, albeit probably with repair / replacement at times, as required.

7.5 The Applicant's LVA was carried out based on these assumptions, as was my own.

7.6 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.

7.7 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, 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.

7.8 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.

7.9 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.

7.10 In recent responses to planning applications for solar development, many DOCOs (including Nottinghamshire Police's DOCO's response to the proposed development – see below), 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 3[26].

7.11 This matter goes back some time. In an email dated 9th December 2022, the Northumbria Police DOCO was amongst the first DOCOs to comment on a solar development proposed in Northumberland (application ref. 22/03978/FUL) as follows:

[26] 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 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.

'*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*[27]*, 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*'.

7.12 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).

7.13 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).

7.14 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

[27] See for example https://www.nicrp.org/news/2023/2/solar-farm-crime/

organised networks involved in acquisitive crime in partnership with the public / private sector'[28]. A company called DeterTech was responsible for the production of the document[29].

7.15 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 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).

7.16 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).

7.17 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*'.

7.18 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.

7.19 Nottinghamshire Police's DOCO's response to this Application is a good source of reference for these matters, 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:

[28] https://nbcc.police.uk/business-support/urban-dictionary/opal

[29] 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/

i) '*Nottinghamshire has small, medium, and large solar parks / farms which have over the past 10 years been subject to theft, criminal damage and other crime types, and these have included the theft of solar panels, and removal of cabling and infrastructure which has proved costly to the various developers and management companies that operate such facilities. The security and safety of the sites should therefore be an important feature of the planning and design of them*.'

ii) '*I would strongly advise to* ***avoid the use of*** *what is described as* ***'Deer Fencing'****, which is referred to in the DAS on this planning submission, as this does not provide any difficulty or deterrent to the criminal*' (author's emphases).

iii) '*I would recommend that the boundary fence is to a minimum of LPS 1175 level 3 and to a height of 2.4 metres or to the current UK Government standard, SEAP (Security Equipment Approval Panel) class 1-3*.'

iv) '*Landscaping techniques such as ditches and berms (bunds) may also be appropriate in some instances. To be effective in stopping vehicles these need to be designed carefully*.'

7.20 Regarding the latter point, the effects of such works / features would have to be assessed, as they could adversely affect biodiversity, character, views, and hydrology.

7.21 The *Theft From Solar Farms* report, and Police DOCOs, recommend extensive use of CCTV cameras. The Nottinghamshire Police's DOCO's response to this Application explains that '*the installation of a remotely monitored, with motion detection, CCTV system is an effective deterrent and is most likely to provide effective evidence should a crime occur*', and that '*There will probably be little reward in deploying CCTV or other defence unless it is monitored in some way or can provide an instant alert in some form*'. 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.

7.22 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 Commercial[30], now has the following on its forms for solar development insurance applications (with my emphasis):

[30] https://www.marshcommercial.co.uk/for-business/renewable-energy-insurance/solar-panel-and-projects

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?

7.23 Last year, 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).

7.24 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).

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

7.26 In summary, around twelve months ago, the situation appeared 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.

7.27 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.

7.28 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).

7.29 Regarding transparency, some DOCOs recommend that '*where appropriate, security fencing systems are transparent to facilitate observation from outside the site*'[31]. However, Nottinghamshire Police's response to this Application states: ''*The development will need to have regard in both its design layout, and future maintenance plans for the retention of growth of vegetation on these important boundaries, including the opportunity for trees within the boundaries to grow on to maturity. The use of natural vegetation as a feature should not compromise the benefit of clear and unobstructed natural and formal (CCTV System) surveillance*'.

7.30 The problem is that planting along fencelines, as is proposed here to screen views of the development / avoid the effects of glint and glare, would not allow the required transparency (although as shown in the following photos, the high-security fencing isn't particularly transparent, especially when viewed from oblique angles).

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

[31] 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

7.31 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.

7.32 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

7.33 In addition, the change from deer-proof to high-security fencing would have adverse implications for wildlife.

7.34 At para. 7.48, the Appellant's Ecological Appraisal states that '*Post and wire deer fencing used at the Proposed Development Site will contain 10cm gaps at the bottom to allow continued hare, hedgehog, and other mammal movement (see Appendix 2.1 – BMP). This will prevent the Proposed Development affecting access to foraging areas within the Application Site*'.

7.35 Firstly, I am very surprised that only a 10cm gap is proposed to allow the unrestricted passage of mammals throughout the site. Even hares and hedgehogs would have difficulty squeezing through such a small space (which would inevitably become choked with grass), let alone larger mammals such as badgers.

7.36 In my experience, this is very unusual: for similar solar developments, the usual solution is either a 30cm gap under the fence, or minimum 30cm-high purpose-made mammal gates / flaps.

7.37 However, according to the manufacturers, suppliers and contractors I contacted, a) the high-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.

7.38 Furthermore, in some places, the proposed fencing would have to cross hedges and watercourses. 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.

7.39 Evidently, this work would adversely affect many ecological receptors, and the soil. Also, all the concrete would have to be removed during decommissioning.

7.40 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.

7.41 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).

7.42 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 overleaf). However, the type of fencing used has a lower security rating than is recommended by the Police for solar developments. It is not known whether mammal passes were a proposed ecological mitigation measure, and if so, whether / how they were created in the high-security fence.

LLPS 17 fencing at BESS site

7.43 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).

7.44 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.

7.45 The above or similar condition is recommended in this case.

8 Conclusions

8.1 The objectives of my review and assessment were to i) better understand all the key issues of relevance to landscape and visual effects, and establish whether they had been identified and addressed in the Appellant's submissions; ii) determine whether the Appellant's submissions provided sufficient information to ensure that informed judgements about landscape and visual effects can be made, and on which decision-makers can confidently rely; and iii) establish a) the main areas of agreement and disagreement, and b) the reasons for such agreement / disagreement.

8.2 RBC refused the Application for two reasons, both of which concern landscape character and visual amenity.

8.3 The Council's first reason for refusal (RfR) is that the proposed development '*would have a significant adverse impact on landscape character and visual amenity*'.

8.4 On the basis of the findings of my assessment and review, I agree with this conclusion.

8.5 The Council's second RfR is that '*The proposed development does not contribute to the preservation or enhancement of the setting of the Hawksworth and Thoroton Conservation Areas and does not contribute to the preservation of the setting of a number of listed buildings within these conservation areas*'.

8.6 I also agree with this conclusion. It is important to note that landscape character and views are integral to the reasons for the designations of these heritage assets.

8.7 The landscape and visual issues which I consider to be of most relevance to the Inquiry, and where there is most disagreement between the parties, relate to the LVA having significantly underestimated the levels of landscape and visual effects which are predicted to arise from the construction, operation and decommissioning of the proposed development.

8.8 The reasons for this are explained in detail in my evidence, but in summary:

i) Insufficient baseline study and analysis has resulted in many landscape and visual / recreational receptors not being identified.

ii) Several of the excluded landscape receptors are of very high value / sensitivity, and make highly important contributions to landscape character and visual amenity.

iii) In particular, the LVA did not consider the landscape history and historic landscape character of the site and surrounding area, which is a key factor in levels of landscape value and sensitivity having been underestimated.

iv) The plan showing the locations of the LVA's identified viewpoints suggests that the extent of visual effects would be very limited (all the viewpoints are within c. 400m of the site), whereas the site is visible at distances of up to c. 4km.

v) The LVA assessed the extent of visibility of the developed site on the basis of 2.8m high solar panels across the site. In fact, many of the scheme elements would be far taller than this (for example, the proposed substation would have a 15m high tower), therefore the visual effects of the proposal would extend much further than assumed.

vi) The LVA did not consider sequential visual effects, in that the proposed development would be visible multiple times from different points along the same journey.

vii) The LVA did not assess cumulative visual (or landscape) effects, on the basis that '*no developments requiring cumulative assessment were identified in this instance*'; however, there are two operational solar developments within 3km of the site (albeit considerably smaller than the proposed scheme), with potential intervisibility.

viii) Many of the excluded visual / recreational receptors are also of high sensitivity.

ix) The LVA did not consider the fact that this area is a very highly-valued recreational resource which is well-used not only by the local communities, but also visitors from around the country and abroad. This is due to factors such as high levels of aesthetic and perceptual qualities, including beautiful, tranquil rural landscapes and historic villages, and the excellent network of lightly-trafficked lanes and public rights of way.

x) As a result of the above, the LVA underestimated levels of landscape and visual value, and susceptibility to the form of change proposed, and thus, levels of receptor sensitivity were under-reported.

xi) The LVA did not factor in the cause and nature of many of the effects likely to arise during project construction, operation, and decommissioning. In particular, the LVA underestimated the scale and extent of most of the landscape and visual effects.

xii) Levels of magnitude of effect were underestimated / under-reported due to errors and flaws in the methods used, including:

a) Inadequate / flawed criteria.

b) Erroneous assumptions, for example that certain effects on character can be mitigated when they cannot, and that screen planting which is proposed to mitigate adverse effects on views would also mitigate the direct adverse effects on character.

c) Double-counting mitigation measures as enhancements.

xiii) Other reasons for levels of magnitude of effect having been under-reported include:

a) Over-reliance on existing and proposed vegetation to screen views.

b) Incorrect assumptions made about plant growth rates, and how screening vegetation would be managed.

c) Some of the proposed landscape and visual mitigation measures in themselves giving rise to adverse landscape and visual effects, for example, some of the planting being highly uncharacteristic in these landscapes, and screening fine, highly-valued views.

8.9 Landscape and visual assessment guidance explains that the process for assessing landscape and visual effects entails combining levels of receptor sensitivity with levels of magnitude of effect in order to arrive at overall levels of effect (for example, High + Low = Moderate). Professional judgement must also be applied. Thus, if levels of sensitivity and magnitude are underestimated, then overall levels of effects will be under-reported, as is the case here.

8.10 In fact, there is some agreement between the parties about the assessments' findings, in that some of the adverse effects arising during the first few years of operation would be 'significant'.

8.11 However, the LVA assumes that as the proposed screen planting matures, levels of the majority if not all adverse landscape and visual effects would reduce. In fact, many adverse effects would remain at the same high, 'significant' levels throughout the project's lifetime.

8.12 The LVA concludes that the proposed development:

- '*is sensitively sited with a design and layout that positively integrates with its local context;*
- *conserves and enhances local landscape character;*
- *protects and enhances Green Infrastructure with greater access, connection and amenity enhancements;*
- *the historic environment and heritage assets and their settings are protected including Listed Buildings and Conservation Areas;*
- *protects the settlement pattern and residential amenity; and*

- *is not visually intrusive, whilst protecting the visual amenity of any residents and users of public rights of way*
- *At the end of the Proposed Development's lifespan, the predicted effects are reversible as the land would be returned to its former agricultural use, similar in form to its current state.*'

8.13 The Appellant's Design and Access Statement states that '*Largely because of the above-mentioned attributes, as well as the benign nature of solar farm development, very little disturbance to the existing environment will be required to implement the Proposed Development*.'

8.14 I fundamentally disagree with all the above assertions.

8.15 My own assessment concluded that the proposed development is entirely inappropriate in this location. It would radically change this quintessentially rural, highly tranquil landscape – which also displays significant time-depth, and considerable biodiversity – into an industrialised, modern 'techscape', entirely at odds with, and alien within, the receiving environment.

8.16 Furthermore, the development would result in the loss of many of the very important and highly-valued landscape and visual functions that the site performs, such as a setting for heritage assets.

8.17 There would be unacceptably high levels of adverse effects on all aspects of landscape character, including aesthetic and perceptual qualities, local distinctiveness, heritage assets / historic landscapes, biodiversity, Green Infrastructure, and soil and water quality; visual, social, recreational and residential amenity; and human health and wellbeing, and quality of life.

8.18 The majority of the adverse effects could not be successfully mitigated.

8.19 In fact, the proposed development would not deliver any landscape or visual benefits or enhancements: all the landscape and visual effects would be adverse, and many would be 'significant'.

8.20 I concluded that not all of the key issues of relevance to landscape and visual effects were identified and addressed in the Appellant's submissions, and that the Appellant has not provided sufficient information to ensure that informed judgements about landscape and visual effects can be made, and on which decision-makers can confidently rely.

Carly Tinkler BA CMLI FRSA MIALE 14th May 2024

APPENDICES

Note that only Appendix CT-D is bound in this document: the others are available separately

Appendix CT-A

Cycling / Running Routes and Venues Plan

Appendix CT-B

Horsiculture Plan

Appendix CT-C

R6P VPs and View Routes Plan and Key

Appendix CT-D

Tables of Criteria & Matrices for Landscape & Visual Assessment

Landscape

Visual

Table 1: Criteria for Judging Levels of Landscape Quality

Level of Quality	Definition
Very High	• Landscapes of an 'awe-inspiring' or 'sublime' nature and which are important and valued on an international and national level (DMRB) • Unspoilt areas comprising a strong, clear and highly aesthetically-pleasing composition of highly characteristic landscape elements and features in excellent condition and health, intact and distinctive • Excellent representation of the landscape area / type • Very high level of management, or care, or pristine natural / semi-natural environment • Exceptional scenic integrity • Very strong sense of place • Negligible or no atypical or incongruous features or detractors
High	• Very attractive landscapes which are of high value nationally and can be defined as highly scenic (DMRB) • Areas with components combined in an aesthetically pleasing composition, in very good condition and health • Very good representation of the landscape area / type • High level of management, or care, or natural / semi-natural environment in very good form and health • Very good scenic integrity • Strong sense of place • Few atypical or incongruous features or detractors
Moderate	• Good landscape containing areas that, although still attractive, have less significant and more common landscape features (DMRB) • Areas of some value for their landscapes, components combined in an aesthetically pleasing composition but showing signs of erosion and loss, in good to fair condition and health • Good to fair representation of the landscape area / type • Good to fair level of management, environment in good to fair form and health • Good to fair scenic integrity • Some loss of, or change to, intrinsic sense of place • Some atypical or incongruous features or detractors
Low	• Ordinary landscape containing areas that have only common landscape features and some intrusive elements such as conspicuous infrastructure with scope for improvement in management (DMRB) • Areas of limited landscape value, disturbed and lacking coherence and structure. Limited aesthetically-pleasing composition. Signs of urbanisation and / or erosion, characteristic landscape elements and features degraded and / or lost. Poor condition / health • Limited representation of the landscape area / type

Level of Quality	Definition
	• Limited management, or care, environment in fair to poor form and health • Poor scenic integrity • Little if any sense of place • Several atypical or incongruous features or detractors
Very Low	• Poor landscape with areas that contain frequent detracting aspects and/or lack of management which results in a degraded landscape with very few valued features (DMRB) • Areas with few or no valued landscape components or comprising degraded and / or lost characteristic elements and features, making negative contribution to aesthetic composition • Poor or no representation of the landscape area / type • Little or no management, or care, environment in very poor form and health • Little or no scenic integrity • Negative sense of place • Widespread atypical or incongruous features or detractors

Table 2: Criteria for Judging Levels of Landscape Value

Level of Value	Definition
Very High	• 'Outstanding' landscapes (ELC) • Internationally and / or nationally-designated landscapes e.g. World Heritage Sites, National Parks, AONBs • Presence of internationally and / or nationally-designated areas / features of landscape, nature conservation, archaeological, historic, geological and / or other importance e.g. SACs, SSSIs, Scheduled Monuments, Grade I and / or II* listed buildings, Registered Historic Parks and Gardens, Local Geodiversity Sites • Significant wider landscape / visual function e.g. Green Belt, context / setting of heritage asset, contribution to character of settlement of international or national importance • Landscapes in excellent condition and / or of very high quality as defined by appropriate criteria • Significant cultural associations • Exceptional representation of landscape area / type / characteristics and / or rare • Exceptional aesthetic and perceptual attributes and qualities e.g. significant scenic beauty, iconic views, very distinctive sense of place, very high degree of wildness / remoteness, tranquillity • No detractors present • The quality / qualities of, and / or features in, the landscape are likely to be the primary purpose of the visit • Significant contribution to wider public amenity, access and recreation e.g. national trails, Open Access Land • Significant Green Infrastructure assets
High	• Landscapes between 'Outstanding' and 'Everyday' (ELC) • Regionally / locally-designated landscapes e.g. Areas of Great Landscape Value (AGLV) which may be subject of strategy and / or guidance • Presence of regionally / countywide-level designated areas / features of landscape, nature conservation, archaeological, historic, geological and / or other importance e.g. Country Parks, TPOs, National Forest Inventory, Priority Habitat Inventory sites, Local Wildlife Sites / Local Nature Reserves, Grade II Listed Buildings, Conservation Areas, Unregistered Historic Parks and Gardens, SMR / HER. Also National Trust land • Important wider, or significant local, landscape / visual function e.g. context / setting of heritage asset, contribution to character of settlement of regional importance, green gap, buffer zone etc. • Landscapes in very good condition and / or of high quality as defined by appropriate criteria • Important cultural associations • Very good representation of landscape area / type / characteristics and / or uncommon

Level of Value	Definition
	• Very good aesthetic and perceptual attributes and qualities e.g. high degree of scenic beauty, fine / key views, distinctive sense of place, high degree of wildness / remoteness, tranquillity • Negligible / few detractors present • The quality / qualities of, and / or features in, the landscape are likely to be one of the main reasons for the visit • Important contribution to wider public amenity, access and recreation e.g. long-distance / themed trails, well-used public rights of way, Heritage Coast, Public Open Space / Local Green Space. May be protected by / subject of planning policy • Important wider, or significant local Green Infrastructure assets
Moderate	• 'Everyday' landscapes (ELC) • Undesignated landscapes although may be subject of strategy and / or guidance • Presence of undesignated, 'informally' designated and / or locally-important areas / features of landscape, nature conservation, archaeological, historic, geological and / or other interest • Important local landscape / visual function e.g. context / setting of heritage asset, contribution to character of settlement, green gap, buffer zone etc. • Landscapes in good to fair condition and / or of moderate quality as defined by appropriate criteria but good potential for improvement • Important local cultural associations • Good to fair representation of landscape area / type / characteristics but common • Good to fair aesthetic and perceptual attributes and qualities e.g. moderate degree of scenic beauty, local key views, moderate sense of place, moderate degree of wildness / remoteness, tranquillity • Some detractors present • The quality / qualities of, and / or features in, the landscape are unlikely to be one of the main reasons for the visit, but make a positive contribution to the experience • Important contribution to local public amenity, access and recreation e.g. well-used public rights of way, green open spaces, common land • Good local Green Infrastructure assets
Low	• Landscapes between 'Everyday' and 'Degraded' (ELC) • Undesignated landscapes unlikely to be subject of strategy and / or guidance (unless for restoration) • Few if any areas / features of landscape, nature conservation, archaeological, historic, geological and / or other interest • Little or no local landscape / visual function • Landscapes in fair to poor condition and / or of low quality as defined by appropriate criteria but some potential for improvement • Few if any cultural associations • Fair to poor representation of landscape area / type / characteristics and common

Level of Value	Definition
	• Few if any aesthetic and perceptual attributes and qualities: little sense of place, little or no sense of wildness / remoteness, tranquillity • Several detractors present • The quality / qualities of, and / or features in, the landscape are unlikely to be a reason for visiting • Little or no contribution to public amenity, access and recreation • Few Green Infrastructure assets
Very Low	• 'Degraded' landscapes (ELC) • Undesignated landscapes, and not subject of strategy and / or guidance (unless for restoration) • No areas / features of landscape, nature conservation, archaeological, historic, geological and / or other interest • Negligible or no landscape / visual function • Landscapes in very poor condition and / or of very low quality as defined by appropriate criteria – may be contaminated land. Situation likely to be permanent, and very little if any potential for improvement • No cultural associations • Poor representation of landscape area / type / characteristics • Negative aesthetic and perceptual attributes and qualities: no sense of place, high levels of landscape and visual disturbance • Widespread detractors present / dominant • The quality / qualities of, and / or features in, the landscape may discourage people from visiting • No contribution to public amenity, access and recreation • Very few or no Green Infrastructure assets

Table 3: Criteria for Judging Levels of Landscape Susceptibility to Change

Level of Susceptibility	Definition
Very High	• The landscape is of a very large scale and / or there is a negligible level of containment, resulting in a significant degree of interaction between landform, topography, vegetation cover, field pattern and built form • There is no existing reference or context within the landscape to the type of change / development proposed • Detracting features are not present in the area • The majority of the existing landscape characteristics / elements / features of value (e.g. ancient woodland, mature / veteran trees, traditional orchards etc.) could not be replaced / substituted and their loss could not be compensated for • Very limited or no opportunities for mitigation • The landscape receptor has a very low level of ability to tolerate the nature / scale of change / development proposed: permanent serious negative consequences in terms of the maintenance of the baseline situation • The proposed change / development would not comply with relevant national planning policies, guidance, and / or strategies
High	• The landscape is of a large scale and / or there is a low level of containment, resulting in a high degree of interaction between landform, topography, vegetation cover, field pattern and built form • There is very limited existing reference or context within the landscape to the type of change / development proposed • Few detracting features in the area and where present, these have little influence on the character and experience of the landscape • Many of the existing landscape characteristics / elements / features of value would not be easy to replace or substitute, and it is unlikely that loss could be compensated for • Some potential for mitigation and enhancement • The landscape receptor has a low level of ability to tolerate the nature / scale of change / development proposed: long-term / permanent consequences of concern in terms of the maintenance of the baseline situation • The proposed change / development is unlikely to comply with relevant national planning policies, guidance, and / or strategies
Moderate	• The landscape is of a medium scale and / or there is a moderate level of containment, resulting in a moderate degree of interaction between landform, topography, vegetation cover, field pattern and built form • There is some existing reference or context within the landscape to the type of change / development proposed • Some detracting features and / or major infrastructure are present in the area, and these have a noticeable influence on the character and experience of the landscape

	• Existing landscape characteristics / elements / features of limited value and could potentially be replaced / substituted, and / or loss satisfactorily compensated for • Good potential for mitigation and enhancement • The landscape receptor has a moderate level of ability to tolerate the nature / scale of change / development proposed: some concern in terms of the maintenance of the baseline situation without mitigation • The proposed change / development may be in conflict with some relevant national planning policies, guidance, and / or strategies, but may comply with others
Low	• The landscape is small scale and / or has a high level of containment, resulting in only a slight degree of interaction between landform, topography, vegetation cover, field pattern and built form • There are many existing references within the landscape to the type of development / change proposed • Several detractors present which have a negative influence on the character and / or experience of the landscape • Few / no landscape characteristics / elements / features of value are present or, where they are present, they can easily be replaced / substituted and / or loss could be satisfactorily compensated for • The landscape receptor has a high level of ability to tolerate the nature / scale of change / development proposed: limited concern in terms of the maintenance of the baseline situation • Very good opportunities for mitigation and enhancement • The proposed change / development is unlikely to be in conflict with relevant national planning policies, guidance, and / or strategies. The site may be allocated for the type of development proposed
Very Low	• The landscape is of such a small scale and / or has such a high level of containment, that there is little or no interaction between landform, topography, vegetation cover, field pattern and built form • The landscape displays the characteristics of the type of development / change proposed • Widespread detractors present which negatively influence the character and / or experience of the landscape • No landscape characteristics / elements / features of value are present • The landscape receptor has a very high level of ability to tolerate the nature / scale of change / development proposed: no concern in terms of the maintenance of the baseline situation • Change / development could result in noticeable improvements to the area • The proposed change / development is likely to comply with relevant national planning policies, guidance, and / or strategies. The site may be allocated for the type of development proposed or for restoration

Table 4: Matrix for Evaluating Levels of Landscape Sensitivity

		Level of Landscape Susceptibility to Change				
		Very High	**High**	**Moderate**	**Low**	**Very Low**
Level of Landscape Value	**Very High**	Very High	High to Very High	High	Medium to High	Medium
	High	High to Very High	High	Medium to High	Medium	Low to Medium
	Moderate	High	Medium to High	Medium	Low to Medium	Low
	Low	Medium to High	Medium	Low to Medium	Low	Very Low to Low
	Very Low	Medium	Low to Medium	Low	Very Low to Low	Very Low

Table 5: Criteria for Judging Levels of Magnitude of Effect (Landscape Character)

Level of Magnitude	Definition
Very Large Adverse	• Major alteration to, or complete loss of, key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of change is considered very large due to the extent and proportion of loss of, or change to, existing landscape components • Effects likely to be experienced at a very large scale, influencing several character areas or types • Major alteration to, or complete loss of, key elements, features, characteristics and functions of the baseline condition, and / or the addition of highly uncharacteristic, conspicuous elements, features and / activities, would result in major alteration to, or complete loss of, aesthetic and / or perceptual qualities • The duration of effect would be considered permanent and irreversible
Large Adverse	• Noticeable alteration to, or significant loss of, key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of change is considered large due to the extent and proportion of loss of, or change to, existing landscape components • Effects likely to be experienced at a large scale, influencing the character area and / or type within which the change is proposed • Noticeable alteration to, or loss of, key elements, features, characteristics and functions of the baseline condition, and / or the addition of uncharacteristic, conspicuous elements, features and / activities, would result in noticeable alteration to, or loss of, aesthetic and / or perceptual qualities • The duration of effect would be considered long-term / permanent and probably irreversible
Moderate Adverse	• Partial alteration to, or loss of, key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of change is considered medium due to the extent and proportion of loss of, or change to, existing landscape components • Effects likely to be experienced at a moderate scale, influencing the character type within which the change is proposed but at a local level • Partial alteration to, or loss of, key elements, features, characteristics and functions of the baseline condition, and / or the addition of elements, features and / activities which are not characteristic in the area, would result in partial alteration to, or loss of, aesthetic and / or perceptual qualities • The duration of effect would be considered long-term / permanent and very difficult to reverse in practical terms

Level of Magnitude	Definition
Small Adverse	• Minor alteration to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of change is considered small due to the extent and proportion of loss of, or change to, existing landscape components • Effects likely to be experienced at a small scale, influencing the landscape within which the change is proposed at a local level • Minor alteration to, or loss of, key elements, features, characteristics and functions of the baseline condition, and / or the addition of elements, features and / activities which are not characteristic in the area, would result in minor alteration to aesthetic and / or perceptual qualities • The duration of effect may be considered long-term / permanent but is potentially reversible
Negligible Adverse	• Barely discernible alterations to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of change is considered very small due to the extent and proportion of loss of, or change to, existing landscape components • Effects likely to be experienced at a very small scale, with no influence beyond the site and its immediate surroundings on the landscape within which the change is proposed • Barely discernible alterations to key elements, features, characteristics and functions of the baseline condition, and / or the addition of elements, features and / activities which are entirely characteristic in the area, would result in barely discernible alteration to aesthetic and / or perceptual qualities • The duration of effect may be considered temporary (i.e. short- or medium-term); but may also be long-term / permanent. Some effects potentially reversible
Neutral	• No change to the baseline condition, or an equal balance of negative / positive effects
Negligible Beneficial	• Barely discernible improvements to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of improvement is considered very small due to the extent and proportion of new landscape components • Beneficial effects likely to be experienced at a very small scale, with no influence beyond the site and its immediate surroundings on the landscape within which the improvement is proposed • Barely discernible improvements to existing, or addition of new, key elements, features, characteristics and functions of the baseline condition would result in barely discernible improvements in aesthetic and / or perceptual qualities • Some / all improvements are temporary (i.e. short- or medium-term)

Level of Magnitude	Definition
Small Beneficial	• Small but noticeable improvements to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of improvement is considered small due to the extent and proportion of new landscape components • Beneficial effects likely to be experienced at a small scale, influencing the local landscape • Small but noticeable improvements to existing, or addition of new, key elements, features, characteristics and functions of the baseline condition would result in discernible improvements in aesthetic and / or perceptual qualities • Improvements are medium- to long-term
Moderate Beneficial	• Noticeable improvements to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of improvement is considered medium due to the extent and proportion of new landscape components • Beneficial effects likely to be experienced at a moderate scale, influencing the character type within which the change is proposed but at a local level • Noticeable improvements to existing, or addition of new, key elements, features, characteristics and functions of the baseline condition would result in noticeable improvements in aesthetic and / or perceptual qualities • Improvements are long-term / permanent
Large Beneficial	• Major improvements to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of improvement is considered large due to the extent and proportion of new landscape components • Beneficial effects likely to be experienced at a large scale, influencing the character area and / or type within which the change is proposed • Major improvements to existing, or addition of new, key elements, features, characteristics and functions of the baseline condition would result in considerable improvements in aesthetic and / or perceptual qualities • Improvements are long-term / permanent
Very Large Beneficial	• Substantial improvements to key elements, features, characteristics and functions of the baseline condition • The size, scale and / or geographical extent of improvement is considered very large due to the extent and proportion of new landscape components • Beneficial effects likely to be experienced at a very large scale, influencing several character areas or types • Substantial improvements to existing, or addition of new, key elements, features, characteristics and functions of the baseline condition would result in substantial improvements in aesthetic and / or perceptual qualities • Improvements are permanent

Table 6: Matrix for Evaluating Overall Levels of Landscape Effects

NOTE 1: The level of Magnitude of Effect can be expressed as Adverse or Beneficial, and the overall Level of Effect can be expressed as Negative or Positive.

NOTE 2: If the Magnitude of Effect is Neutral (i.e. 'No Change'), all effects will be Neutral

		Sensitivity of Receptor				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Level of Magnitude of Effect	**Very Large**	Substantial	Major to Substantial	Major	Moderate to Major	Moderate
	Large	Major to Substantial	Major	Moderate to Major	Moderate	Moderate to Minor
	Moderate	Major	Moderate to Major	**Moderate**	Moderate to Minor	Minor
	Small	Moderate to Major	Moderate	Moderate to Minor	Minor	Minor to Negligible
	Negligible	Moderate	Moderate to Minor	Minor	Minor to Negligible	Negligible

Table 7: Criteria for Judging Levels of Visual Value

Level of Visual Value	Criteria
Very High	• Views from, or towards, designated landscapes and / or features of international and national importance (e.g. World Heritage Sites, National Parks, AONBs, Registered Historic Parks and Gardens, Scheduled Monuments, Grade I or II* Listed Buildings etc.) especially where contributing to the significance of an asset / feature • View is of outstanding scenic beauty and very high quality • View makes a highly important contribution to understanding of landscape function / contribution • Likely to be the subject of planning policy and / or guidance / protected views • Views from landscapes / viewpoints within highly popular visitor attractions / tourist destinations, and / or from national trails, used by very large numbers of people • Views with social / cultural / historic associations (e.g. in art and literature, or an historically-important vista over a battlefield) of international / national importance
High	• Views from within, or towards, designated landscapes and / or features of regional or countywide importance (e.g. Areas of Great Landscape Value (AGLV), Country Parks, Conservation Areas, Grade II listed buildings, National Trust land etc.), especially where contributing to the significance of an asset / feature • View is of high scenic beauty and high quality • View makes an important contribution to understanding of landscape function / contribution • Views from well-used and popular visitor attractions / tourist destinations, including long-distance / themed trails, Heritage Coasts, Public Open Spaces / Local Green Spaces, used by relatively large numbers of people • Views with social / cultural / historic associations of countywide importance • Views in which receptors have a proprietary interest, including people living in residential properties
Moderate	• Views from within, or towards, undesignated landscapes and / or features of local importance • View is of moderate scenic beauty and moderate quality • View makes a moderate contribution to understanding of landscape function / contribution • Views from locally-popular recreation areas / green open spaces / public rights of way, but not used by many visitors • Views with social / cultural / historic associations of local importance

Low	• Views from within, or towards, undesignated landscapes and / or features of site-wide importance • View is of low scenic beauty and low quality • View makes a very limited contribution to understanding of landscape function / contribution • Views from landscapes / viewpoints which are not particularly popular or recognised as being destinations in their own right, including infrequently used rights of way • Views with no social / cultural / historic associations
Very Low	• Views from, or towards, undesignated landscapes and / or features of no importance • View is of poor scenic beauty / quality - landscape may be permanently degraded

Table 8: Criteria for Judging Levels of a Landscape's Visual Susceptibility to Change

Level of Visual Sensitivity	Definition
Very High	• Highly visible in wider area • Forms part of exceptional / iconic / very highly valued views • Internationally / nationally important visual function (context, setting, gateway, gap, screen, buffer, transition zone, skyline, panorama, vista, focal point, cultural association etc.) • Very open to public or private views of the countryside or open space which are significant • Development would create unacceptable visual intrusion into the wider landscape that almost certainly could not be mitigated
High	• Visible in wider area • Highly visible in local area • Forms part of wider important / highly valued views • Forms part of views of significant local value • Important wider visual function • Significant local visual function • Very open to public or private views of the countryside or open space which are of wider importance • Development would be uncharacteristically conspicuous in the wider area and mitigation unlikely to reduce adverse effects • Development would create unacceptable visual intrusion into the local landscape that almost certainly could not be mitigated
Moderate	• Not visible from wider area or of no influence • Locally visible but limited influence • Views are of some wider importance but there is scope for mitigating potential adverse visual effects • Locally highly-valued views • Limited wider visual function • Important local visual function • Partially open to public or private views of the countryside or open space which are of wider importance • Open to views public or private views of the countryside or open space which are of local importance • Development likely to be perceptible in the wider area but would not significantly alter the balance of features or elements within the existing view • Development would be uncharacteristically conspicuous in the local area and mitigation unlikely to reduce adverse effects

Level of Visual Sensitivity	Definition
Low	• Not visible from wider area • Limited local visibility • Views of limited importance • Development could be integrated into the land- / town- / villagescape although possibly only with mitigation • Site is fairly well-screened from public and private views • Development may be discernible in the wider area but would not result in loss of, or change to, important views or wider visual amenity • Development likely to be perceptible in the local area but would not significantly alter the balance of features or elements within the existing view
Very Low	• Not visible from wider area • Little or no local visibility • Views of little or no importance • Development would not lead to unacceptable visual intrusion into the landscape, or adverse effects on the settlement, with or without mitigation • Site is very well-screened from public and private views • Development would not be discernible or would enhance views or existing visual amenity

Table 9: Criteria for Judging Levels of Visual Receptors' Susceptibility to Change

Level of Susceptibility	Criteria
Very High	• Receptors (tourists / visitors) within, or looking towards, internationally- or nationally- designated landscapes, areas and features such as World Heritage Sites, National Parks, Areas of Outstanding Natural Beauty, Registered Historic Parks and Gardens, Scheduled Ancient Monuments, Grade I and II* listed buildings and other places where the landscape / feature is the main reason for the visit • People using national trails and other nationally-designated routes where the view is likely to be the focus of attention • People living in residential properties
High	• Receptors (tourists / visitors) within, or looking towards, landscapes, areas and features with regional / countywide designations e.g. Areas of Great Landscape Value (AGLV), Country Parks, Conservation Areas, Grade II listed buildings, National Trust land etc. and other places (such as Open Access Land) where the landscape / feature is part of the reason for the visit • People using long-distance footpaths / scenic routes / themed trails / engaged in outdoor recreation (e.g. walkers, riders, cyclists, boat users, motorists), whose attention may be focused on the landscape and / or particular views, and / or for whom the view is a factor in the enjoyment of the activity • Communities living in areas where the landscape setting makes a highly important contribution to visual amenity
Moderate	• Receptors within, or looking towards, undesignated landscapes, areas and features of local importance, and in places where the landscape / feature is not necessarily part of the reason for the visit • People using local public rights of way / engaged in outdoor recreation whose attention is unlikely to be focused on the landscape and / or particular views, and / or for whom the view is not necessarily a factor in the enjoyment of the activity • People staying in hotels and healthcare institutions who are likely to appreciate and / or benefit from views of their surroundings • People working in premises where the views are likely to make an important contribution to the setting, and / or to the quality of working life
Low	• Receptors in commercial and industrial premises, schools, playing fields etc. where the view is not central to the use • People using main roads, rail corridors, infrequently used / inaccessible public rights of way and likely to be travelling for a purpose other than to enjoy the view
Very Low	• People moving past the view often at high speed (e.g. on motorways and main line railways) and with little or no focus on or interest in the landscape through which they are travelling

Table 10: Matrix for Evaluating Levels of Visual and Visual Receptor Sensitivity

		Level of Visual Susceptibility to Change				
		Very High	**High**	**Moderate**	**Low**	**Very Low**
Level of Visual Value	**Very High**	Very High	High to Very High	High	Medium to High	Medium
	High	High to Very High	High	Medium to High	Medium	Low to Medium
	Moderate	High	Medium to High	Medium	Low to Medium	Low
	Low	Medium to High	Medium	Low to Medium	Low	Very Low to Low
	Very Low	Medium	Low to Medium	Low	Very Low to Low	Very Low

Table 11: Criteria for Judging Levels of Magnitude of Effect (Views & Visual Amenity)

Level of Magnitude	Definition
Very Large Adverse	• Significant and substantial deterioration in, or a significant and substantial change to, a very large proportion of the existing view • Complete loss of, or substantial change to, site's visual function / contribution • The change may be noticeable over a large geographical area, or substantial over a more limited area • Development, or a large part of it, would be a dominant new component and / or focus in the view, and would have a strongly-defining influence on it • The duration of effect would be considered permanent and irreversible
Large Adverse	• Development would cause a highly noticeable deterioration in, or a highly noticeable change to, a large proportion of the existing view, or significant deterioration in or a significant change to a smaller proportion of the existing view • Noticeable loss of, or change to, site's visual function / contribution • Development, or a large part of it, would be a significant new component and / or focus in the view, and would have a defining influence on it • The duration of effect would be considered long-term / permanent and probably irreversible
Moderate Adverse	• Development would cause a visible deterioration in, or change to, a large proportion of the existing view, or highly noticeable deterioration in, or change to, a smaller proportion of the existing view • Partial loss of, or change to, site's visual function / contribution • Development appears at odds with local landscape character and would form an apparent element within local views • The duration of effect would be considered long-term / permanent and very difficult to reverse in practical terms
Small Adverse	• Development would cause a small deterioration in, or change to, a large proportion of the existing view, or a visible deterioration in, or change to, a smaller proportion of the existing view • Small change to site's visual function / contribution • Development would form a minor constituent of the view, being partially-visible, or at a sufficient distance to be a limited component of a view • The duration of effect may be considered long-term / permanent but is potentially reversible

Level of Magnitude	Definition
Negligible Adverse	• Development would cause a barely-perceptible deterioration in, or change to, the existing view • Barely-perceptible change to site's visual function / contribution • The duration of effect may be considered temporary (i.e. short- or medium-term); but if long-term / permanent, effects potentially reversible (and may be likely to happen)
Neutral	• No change to the existing view, or equal balance of negative and positive effects
Negligible Beneficial	• Development would result in a barely-discernible improvement in the existing view • Improvements are temporary (i.e. short- or medium-term)
Small Beneficial	• Development would result in a small improvement in a large proportion of the existing view, or a noticeable improvement to a smaller proportion of the existing view • Small improvement to site's visual function / contribution • Development would improve a small part of the view • Improvements are long-term / permanent
Moderate Beneficial	• Development would result in a noticeable improvement to a large proportion of the existing view, or locally-important improvement to a smaller proportion of the existing view • Improvements are long-term / permanent
Large Beneficial	• Development would result in an important improvement to a large proportion of the existing view, or significant improvement to a smaller proportion of the existing view • Improvements are long-term / permanent
Very Large Beneficial	• Development would result in a significant improvement to a large proportion of the existing view • Improvements are permanent

Table 12: Matrix for Determining Overall Levels of Visual Effects

NOTE 1: The level of Magnitude of Effect can be expressed as Adverse or Beneficial, and the overall Level of Effect can be expressed as Negative or Positive.

NOTE 2: If the Magnitude of Effect is Neutral (i.e. 'No Change'), all effects will be Neutral

		Sensitivity of Receptor				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Level of Magnitude of Effect	**Very Large**	Substantial	Major to Substantial	Major	Moderate to Major	Moderate
	Large	Major to Substantial	Major	Moderate to Major	Moderate	Moderate to Minor
	Moderate	Major	Moderate to Major	**Moderate**	Moderate to Minor	Minor
	Small	Moderate to Major	Moderate	Moderate to Minor	Minor	Minor to Negligible
	Negligible	Moderate	Moderate to Minor	Minor	Minor to Negligible	Negligible

Appendix CT-E

Construction Route Constraints Plan

Appendix CT-F

Hawksworth Corner Sketch

Appendix CT-G

Letter from Gwent Wildlife Trust and Friends of the Gwent Levels

Appendix CT-H

ADAS Welsh Govt Solar Soil Impacts Report