

Technical Note

Project: Hilfield Solar Farm and Battery Storage site

Subject: Review of Pager Power Ltd Glint and Glare Report

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Project Hilfield Solar Farm and Battery Storage site

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Client signature / date

1. Introduction

Atkins Ltd has been commissioned to review the Glint and Glare assessment report (referred to as 'assessment report') prepared by Pager Power Ltd for the Hilfield Solar Farm and Battery Storage site (Planning Application 21/0050/FULEI validated 8 January 2021).

Hertsmere Borough Council is seeking the input of relevant specialists in order to provide an independent technical review of that report, to advise on its scope and contents and whether its findings are representative and accurate to inform decision making on the application.

Where required recommendations or next steps on whether further work is required by the applicant will be provided, in order to understand all relevant impacts of the scheme and any associated mitigation measures.

Other relevant reports in the Environmental Statement that form part of the development application for the solar farm include a Landscape and Visual Impact Assessment (LVIA) prepared by LDA Design. However, this does not form part of the instruction by Hertsmere Borough Council for this assessment review.

The scope of this technical note is to specifically focus on the assessment report and review its contents and findings and whether there is agreement with its conclusions and the receptors assessed. This review, therefore, does not extend to the review of other reports within the application.

It should be noted that this technical note is authored by a Chartered Landscape Architect and only deals with matters relating to visual impact in the Glint and Glare assessment. The assessment report has been considered in the context of 'Guidance for Landscape and Visual Impact Assessment, Third edition, Landscape Institute and Institute of Environmental Management & Assessment' (GLVIA) which is the standard reference point for landscape and visual assessment. Landscape impact assessment is not a consideration in this technical note as the assessment report only deals with visual matters.

It is acknowledged that the assessment report has not been prepared using GLVIA guidance and that this technical note is considering the report from an alternative professional position.

The structure of this technical note is as follows:

- Section 2, Scope – overall scope and approach of the assessment report
- Section 3, Methodology – a description and assessment of the methodology
- Section 4, Further Commentary - comments on specific items in the assessment report
- Section 5, Summary and recommendations

2. Scope

The 130 hectare site is located in a rural location to the north east and west of Elstree Aerodrome, Hertfordshire and is broadly divided into two main land parcels that is made up of twenty individual sites. Of the overall site area 85 hectares (65%) will be used for solar farm development purposes (see Landscape and Ecological Management Plan ref. 009 v

1.8). The assessment report describes the tilt, orientation and height of the panels for each of these sites.

The assessment report makes it clear, within paragraph 4.4.1 that the scope of the assessment considers aviation, dwelling and road receptors. In normal practice, a visual impact assessment would identify other sensitive receptors as part of the baseline. These visual receptors would include those enjoying the countryside as users on Public Rights of Way (PRoW), visitors to heritage assets or to a lesser extent those in their workplace or undertaking outdoor sport. Road users usually fall into an intermediate level of susceptibility. Susceptibility is 'the ability of a visual receptor to accommodate the specific proposed development without undue negative consequences' (GLVIA).

Within Appendix A of the assessment report, reference is made to the National Planning Policy Framework under planning practice guidelines for Renewable and Low Carbon Energy (specifically to solar farms, Para 013). Here it states:

'The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.

Particular factors a local planning authority will need to consider include:

- the proposal's visual impact, the effect on landscape of glint and glare (see guidance on landscape assessment) and on **neighbouring uses and aircraft safety**;*
- the extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;*

As noted in Section 1, (Introduction), this technical review deals with visual aspects only and not the effect of glint and glare on the landscape.

It is understood from this policy that safety considerations are for aircraft safety only and that this does not relate to neighbouring uses or indeed landscape and visual effects. However, the assessment report deals with road users on the basis of safety and dwelling receptors are also included.

3. Methodology

The methodology for road and dwelling receptors is set out in Appendix D of the separate appendices document of the assessment report (Document Reference:R012).

A table titled 'Impact significance definition' (page 160 of Appendix D) provides a four scale significance format from 'no impact', 'low', 'moderate' and 'major impact significance'. There is no source provided for this table and clarification of this would be useful. The intended purpose of the table is to identify the mitigation requirement for each of these levels, noting that only a major impact significance automatically requires mitigation. There is, it appears, no cross reference to the LVIA that forms part of the Environmental Statement (ES) and how the methodology within that integrates with this report. This would

be useful because this assessment report and the LVIA both deal with visual impact matters but from different standpoints and professional positions. Therefore, a more integrated approach would be useful to inform Hertsmere Borough Council in their decision making process. Whilst this assessment report focuses on receptors that may be affected by glare and glint, it would be useful to understand how this compares with visual receptors identified in the LVIA. If there is a difference, is this because of a methodology approach?

The methodology set out in Appendix D uses flow charts (pp 163, 164) to show the step process to determine the mitigation required for road and dwelling receptors. The testing principle here is whether solar reflection is geometrically possible and unshielded. This technical note does not comment on the validity of the geometric possibility as it is beyond the professional skill area of a Chartered Landscape Architect.

The approach in Appendix D states that mitigation should be implemented as a matter of course if the solar reflection is 'in front of the road user'. It is assumed this means in the eyeline of the driver looking ahead..

A similar approach is used for dwelling receptors within Appendix D. In this instance the test is whether the solar reflection lasts more than 3 months per year, and if so, mitigation should be implemented if reflection lasts more than 60 minutes per day. If the latter is not the case, the methodology states that mitigation is not required but could be considered.

4. Further Commentary

This part of the technical note describes in **Table 1** specific items that have been identified in the review of the assessment report. Text in **bold** identifies recommendations for further work or information that is required.

Table 1 – Comments on report contents

Item no.	Item description	Comment
1	Study area	The assessment does not show a defined study area – this would be useful to show.
2	Public rights of way (PRoW)	A number of PRoW cross through the red line boundary in a north-south, east-west direction and within the vicinity of the development. They

		include restricted byways, bridleways and footpaths. It is understood that these PRow will be retained as part of the development and will pass through the solar farm. The users of these routes would normally be classified as being highly sensitive users enjoying their surroundings and could in some instances be vulnerable to glint and glare. It is noted that the assessment does not consider them. An explanation for excluding this group of receptors (and other receptor groups) is required.
3	Other visual receptors e.g. heritage and recreational.	There is a Registered Park and Garden and Country Park nearby the site. Whilst not included within the assessment it is assumed that these are identified in the LVIA. To be confirmed that there are no glint or glare issues.
4	Proposed vegetation screening	The type and detail of this is not included in the assessment. It is not stated on what basis the glare and glint assessment is made regarding new vegetation screens, given that it is likely that they will not achieve full effectiveness until established. For instance, what height will they need to be to become effective – is there a short term position where the assessment should take this into account? Over what timescale will the judgment alter? This may be included within the LVIA and other documentation – a cross check is required.
5	Dwelling receptors	In LVIA terminology these would be identified as residential receptors. For

		consistency with the LVIA this would be a useful approach unless there are other valid reasons for not doing so. To be confirmed.
6	Views from dwellings	<p>A height above ground level of 1.8 metres has been taken as the typical eye level for an observer on the ground floor of each dwelling. Whilst this may be useful as a theoretical measurement to gain a geometrically possible visibility, it does not take into account that most of the properties are two storeys high.</p> <p>What further approach within the methodology deals with this consideration?</p>
7	Existing vegetation screening to dwellings	<p>Table 6, Section 8.5 describes 85 properties where reflection possibilities towards dwellings occur. Where no impact is expected this is because existing vegetation has been identified. How has existing vegetation been measured – also see Item 9?</p>
8	Dwellings requiring screening mitigation	<p>Section 9.5 discusses these effects where for 10 dwellings reflections are expected to last for more than 3 months per year but for less than 1 hour per day, and some or no screening will result in low or moderate impact. Of these only dwellings referenced 99 to 102 (four dwellings) will require mitigation vegetation to remove views of reflective areas. Refer to Item 4.</p>
9	Existing vegetation height	<p>Section 9.5 - Judgements on the effectiveness of existing vegetation are made through the analysis of aerial imagery.</p>

		<p>How has the vertical three dimensional form of vegetation been assessed? Is this separately covered by the LVIA?</p>
10	Figures 30 to 34	<p>Figures 30 to 34 are colour coded although no key or explanation to the colours is provided. In addition, there is no description evident as to what has determined the angle of the view cones. Greater clarity of these figures would be useful.</p>
11	Dwellings – Executive Summary	<p><i>‘For only four dwelling receptors, the impact is moderate under the current baseline conditions and mitigation is required. However, the developer has proposed screening at these locations which should be sufficient to remove all views of the reflective areas (further information can be found in Section 9.5). Therefore, no impact is expected.’</i></p> <p>Whilst this may be the case once vegetation screening has become established over time, there could be a delay in this being achieved. Cross reference to the LVIA and other reports is required within the assessment report to prove this point.</p>
12	Roads receptors	<p>The assessment covers six roads:</p> <ul style="list-style-type: none"> • M1 • A41 • Hilfield Lane • Aldenham Road • Butterfly Lane • A5183 <p>In total 69 road receptor points have been identified. Judgements have been made in a similar way to dwellings in terms of vegetation and whether geometrically possible</p>

		<p>glare and glint views exist. It should be noted that topography is also a consideration – not just vegetation.</p> <p>The approach to corridor assessment is not the same as a standard LVIA methodology and it would be useful, in addition, to make reference to the LVIA findings in the ES for purposes of consistency.</p>
13	Roads – Executive Summary	<p><i>‘For only four road receptors the impact is categorised as moderate under the current baseline scenario. However, the developer has proposed screening which will be sufficient to remove all views of the reflective areas (further information can be found in Section 9.6)’.</i></p> <p>As with dwelling receptors this will be dependent on the type, form and growth rate of the vegetation screening in terms of when it becomes an effective screen.</p> <p>Further cross reference to the LVIA is required.</p>
14	Landscape and Ecology Enhancement Plan (LEEP)	<p>Limited reference is made to this, but it is an important consideration in the future visibility, and hence glint and glare impacts. Further cross reference to this would be useful.</p>

5. Summary and conclusions

This Glint and Glare report is a technical report that focuses purely on the geometric possibility of solar reflection on road and dwelling receptors as a result of the proposed development. It is not a Landscape and Visual Impact Assessment, but because it deals

with visual matters there is a close relationship with the LVIA in the ES that forms part of the planning application. Cross reference to the LVIA or other documents in the application would be useful to show how the assessment report works with these other ES documents.

This technical note does not make comment on or test the validity of the methodology in terms of geometric possibilities of solar reflection. Therefore, no comment can be made on its validity.. Given the extent of existing vegetation and topographical variations in the locality of the application site it would appear that the findings of the assessment report are likely to be reasonable judgements for dwellings and road receptors. However, there is a need for the assessment report to cross refer to the LVIA in the ES and fully establish these findings conclusively.. It is recommended that Hertsmere Borough Council requests that the applicant provide further information to address this matter and demonstrate a fully integrated approach.

Specific points of clarification and further information required are contained within Section 4, Table 1 of this technical note. Much of this relates to receptor groups chosen, existing vegetation, proposed vegetation, the clarity of diagrams and the overall topic of cross referencing to the LVIA.