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Briefing Note

Our ref 64194/06/MS/OW
Date 16 April 2025
To Planning Inspectorate
From Oxford Aviation Services Limited

Subject **Open Floor Hearing – Written Submission on behalf of Oxford Aviation Services Limited (London Oxford Airport)**

1.0 Introduction

1.1 This Statement has been prepared on behalf of Oxford Aviation Services Limited ("OASL"), the operators of London Oxford Airport ("the Airport"), in response to the Rule 6 letter received concerning the application by Photovolt Development Partners ("PVDP") for an Order Granting Development Consent for the Botley West Solar Farm project.

1.2 This Statement responds to Annex E, of the Rule 6 letter – Notification of Initial Hearings. Specifically, the below provides a summary of the comments the Airport wishes to raise with the Inspectors.

2.0 London Oxford Airport Context

2.1 The Airport is one of only 29 aerodromes in the UK that are officially safeguarded through the provisions of the Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002. According to Annex 1 of the Direction, these aerodromes are safeguarded due to:

"Their importance to the national air transport system… in order to ensure that their operation and development are not inhibited by buildings, structures, erections or works which infringe protected surfaces, obscure runway approach lights or have the potential to impair the performance of aerodrome navigation aids, radio aids or telecommunication systems; by lighting which has the potential to distract pilots; or by developments which have the potential to increase the number of birds or the bird hazard risk."

2.2 The Airport is a general and business aviation aerodrome, and has been at the forefront of commercial pilot training for several decades. In excess of 50,000 airline cadet trainees have started their careers at the Airport. Some 75% of all the flying activity is training-related today, with close to 70,000 movements a year under a permitted limit of 160,000; no other peers have a similar capability.

2.3 The Airport stands out among other general aviation airports due to its ongoing focus on providing an environment ideal for professional training requirements, including long opening hours, seven days a week operating, facilitating night flying all through the year and an air traffic control set-up, replicating the same environment as one would find at a

commercial airport hosting airline activity. Geographically, the airport resides in busy and complex airspace which – compared to other aerodromes – is a very positive environment for trainees to establish the necessary skills and disciplines required.

2.4 In recent decades, the Airport has become ever more valuable as a training base in the UK, as notable peers have reduced capacity and/or diminished operating hours, lost navigational aids and overall capability, or encountered other issues. For example:

- Gloucestershire Airport now has significantly reduced slot capacity and no radar service;
- Cranfield has reduced hours and therefore capacity; and
- Cambridge Airport will be closed by 2030.

2.5 There are no other 'IFR' (all weather/day/night) airports within the southern half of the UK with anything close to the capacity and capabilities of the Airport. Most other 'commercial' regional airports in the UK have to give priority to scheduled airline and commercial activities and have significantly less capacity to host professional pilot training.

2.6 Since Brexit, training organisations have had to retain a capability to offer both UK CAA licence qualifications alongside EU EASA qualifications, such that airlines need to be able to find solutions for both. The choices of airport from where that is possible have diminished significantly.

2.7 In hosting several professional pilot training organisations today, the Airport is still the first choice option for cadets and the airlines ultimately employing them, with the acknowledged highest standards of training found globally. The Airport's business model relies significantly upon the sector.

2.8 Any threat to its ability to maintain its current offer to pilot training would be critical to the Airport, but also detrimental to the UK's overall position in the professional pilot training system and its offering to the world's airlines, with many students trained coming from overseas (representing a source of global exports with associated economic value to the UK).

3.0 Principal Concerns

3.1 The Airport liaised with the applicant prior to the submission of the application. They raised their concerns with the placement of solar panels in close proximity to the Airport, requesting amendments to the application. It is therefore disappointing to see that these matters have not been addressed by the final submission.

3.2 In particular, in considering the impact on the Airport, sufficient regard has not been had for the type of aircraft using the Airport, which predominantly comprises light aircraft, including single engine, more susceptible to change and impacts. The same is true of the pilots who populate the training schools. These factors are material considerations in considering whether the risks and possible impacts associated with the development are outweighed by the benefits in this area.

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Engine Failure After Take-Off (EFATO)

3.3 The Airport is largely surrounded by agricultural land, particularly to the southern end of the runway approach. Given the significant use of the airfield by light aircraft, including single engine, for flight training, these areas are crucial to the safe operations of the Airport. The Airport shared the document, in Annex 1, with the applicant during pre-application discussions. This document highlights areas of concern with the placement of solar panels and requests modifications to the layout.

3.4 These concerns are not unfounded. Last summer a single engine aircraft was forced to make an emergency landing immediately after take-off due to engine failure (Annex 2). A safe landing was made and all occupants unharmed. The area of land available for making such a landing would, as a result of the proposed development, be populated by solar panels.

3.5 The presence of solar panels, rather that open agricultural land, would:

1 Significantly reduce the ability for a safe landing to be made, putting at risk the occupants of the aircraft;

2 Significantly increases the risk of damage to the aircraft and the possibility of a fire safety hazard;

3 Damage the solar infrastructure in the event of an emergency landing; and

4 Significantly reduce the ability of emergency services to reach the scene.

3.6 Application document ref: APP-128 'Glint and Glare Study inc. Technical Aerodrome Safeguarding Report', at page 11, considers EFATO and concludes that an extended safeguarded zone is required, which should be free from solar panels. However, the recommendations of the report are not shown on the submitted drawings nor, as far as the Airport is concerned, are they sufficient.

3.7 This matter warrants further consideration and discussion and an exclusion zone should be agreed between parties prior to determination. As identified in para 5.5.51 of NPS EN1:

"the Secretary of State should be satisfied that the proposal has been designed, where possible, to minimise adverse impacts on the operation and safety of aerodromes"

Glint and Glare

3.8 The issue of Glint and Glare has, very recently, caused the closure of one of Europe's busiest airports, Schiphol (Annex 3). Indeed, the author of the applicants report APP-128, Pagepower, commented on the closure in a recent blog post on their website (Annex 4), in which they note that whilst it may be rare for significant impacts to materialise, they can happen and 'challenges will persist' due to solar projects increasing in scale and these projects increasingly being sited near aerodromes.

3.9 App-128 notes that there is the potential for glint and glare to have an impact on the Air Traffic Control Tower (ACT), runway approach 01 and runways approach 19. In particular, at the ATC, the report notes that 'green' glare was possible. That is to say reflected light with a low potential for temporary after images is possible. The Airport has been advised that

under FAA guidelines (US Federal Aviation Administration[1]) this would generally be considered an "ocular impact" and thus require mitigation. No mitigation is proposed.

3.10 In light of the recent closures at Schiphol, the findings of the Pager Power report in respect of identified impacts and the decision not to provided mitigation, the Airport considers that this matter warrants further consideration before determination.

Ecology

3.11 At para 5.5.42, NPS EN-1 identifies the following:

"Bird Strike Risk - Aircraft are vulnerable to wildlife strike, in particular bird strike. Birds and other wildlife may be attracted to the vicinity of an aerodrome by various types of development, for example, large buildings with perching/roosting opportunities for birds. It is therefore important that infrastructure, buildings and other elements from energy installations, as well as environmental mitigation are designed in such a way so as not to increase the bird strike risk to the airport for developments within 13km"

3.12 Risk of bird strike is a significant concern for the Airport, particularly given the nature of the aircraft that make use of the aerodrome. The Airport has instructed its own peer review of the application submission in respect of risk of bird strike (Annex 5). The key points are as follows:

- The guidance and legislation concerning the safeguarding of Airports is well established and makes clear the concerns and risks surrounding bird strikes, which the Civil Aviation Authority (CAP 738) describe a posing "serious threat to flight safety";
- The proposed replacement of agricultural land with solar panels risks the displacement of birds onto open land on the Airport. This significant risk to safety has not been addressed in the application;
- The introduction of species rich grassland in immediate proximity to the Airport has the potential to attract more birds. In some cases, designed specifically to attract them. This should not be considered appropriate adjacent to an aerodrome.
- The solar panels, by reflecting polarised light, can attract polaristic insects, which in turn will attract more birds that feed off the insects.
- Research has also shown that solar PV arrays can be mistaken by water bodies by birds. This can attract larger bird species such as waterfowl, know to be in population locally as well as geese, swans and gulls. Larger birds create a greater risk of serious bird strike.

3.13 The report notes that without detailed consideration and assessment, which is absent from the application, there is no evidence that the "proposals will not alter bird strike risk and lead to an unacceptable level of risk to life and equipment" (para 4.3). Given the significant risk posed by bird strike to the Airport, this matter warrants more detailed consideration to ensure that the proposals will not create a safety issue.

1 Similar to many other nations, the UK's Civil Aviation Authority (CAA) does not have prescriptive requirements related to assessing the impact of photovoltaics (PV) on airport operations. Thus, common practice is to utilise the approach of the United States Federal Aviation Administration (FAA).

Heat induced Turbulence

3.14 The application provides little by way of detailed consideration of the potential for impact via heat induced turbulence. The appraisal in App-128 is high level and opinion based, this is not considered an appropriate level of analysis given the potential safety issues. This includes no analysis of wind statistics (i.e. speed and direction) or consideration of aircraft type.

3.15 App-128, on page 13, states that "it is not anticipated that panels would reach temperatures significantly greater than the surrounding ground". The Airport has been advised that solar panels efficiency at converting sunlight to electricity varies, but typically may be at 15%-20%, with much of the remainder lost to heat. Given that most of the panels around the Airport will replace green fields, it does not follow that the temperature would be similar.

3.16 The concern is that App-128's conclusions are not robustly evidenced and a potential risk has not been adequately considered.

4.0 Conclusion

4.1 The Airport is not in objection to the principle of the application. However, it considers that the proximity of the development to the Airport boundary, and the associated risks that emanate from this, should be scrutinised in greater detail and that the design should be amended to remove panels in areas where they may cause a risk to the operation and safety of the Airport.

4.2 The Airport looks forward to addressing the Inspectors in due course.

Annex 1

LONDON OXFORD AIRPORT

LOCAL RUNWAY SAFETY TEAM

Review of Engine Failure After Take-off
options for
Botley West Solar Farm Proposal

Version 1

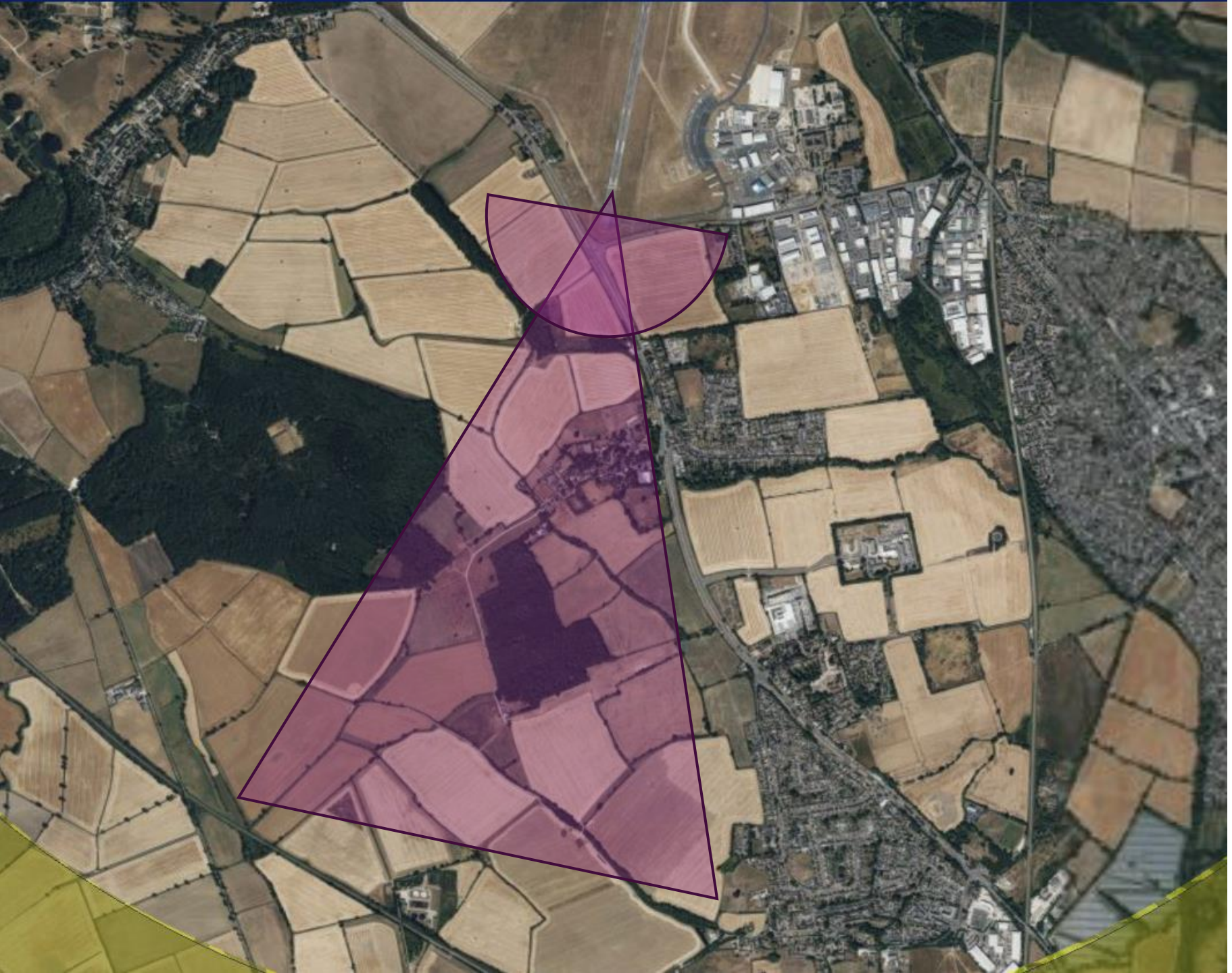
Current Situation

This image shows the current extensive agricultural areas available for use by aircraft experiencing an engine failure after take-off (EFATO).

These areas are crucial to the safe conduct of single engine flight training.

It is important to consider that student pilots do not have the experience to operate to the same accuracy as commercial pilots and therefore greater flexibility is required when planning for emergencies.

LONDON OXFORD AIRPORT

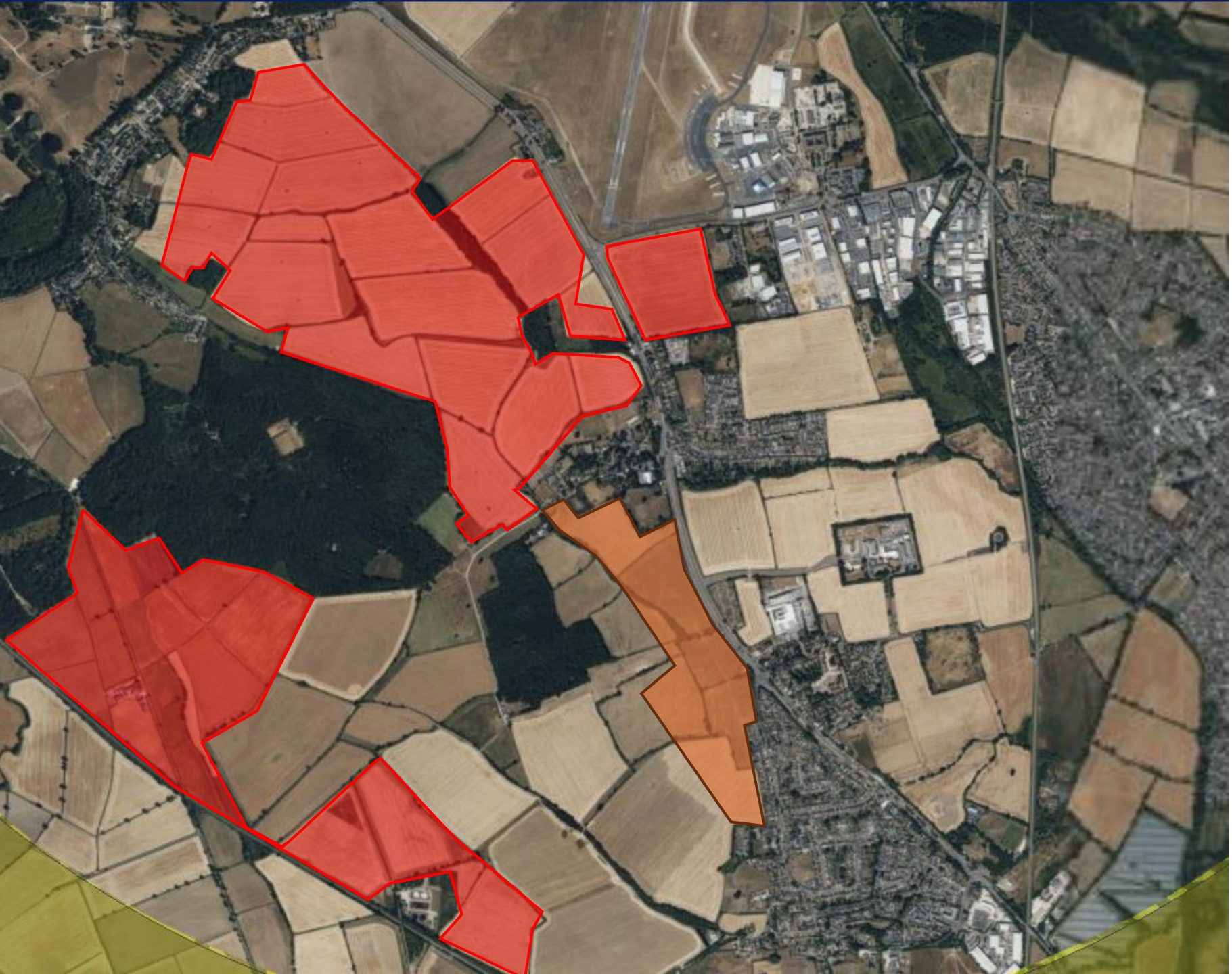


EFATO Zones

The Local Runway Safety Team (LRST), which includes the based flight training schools, has determined that the areas identified here are the areas most likely to be required in the event of an EFATO event.

It is not possible to define specific fields as every event is different based on the height of the aircraft above the ground at the point of engine failure and also environmental factors such as wind speed and direction.

LONDON OXFORD AIRPORT

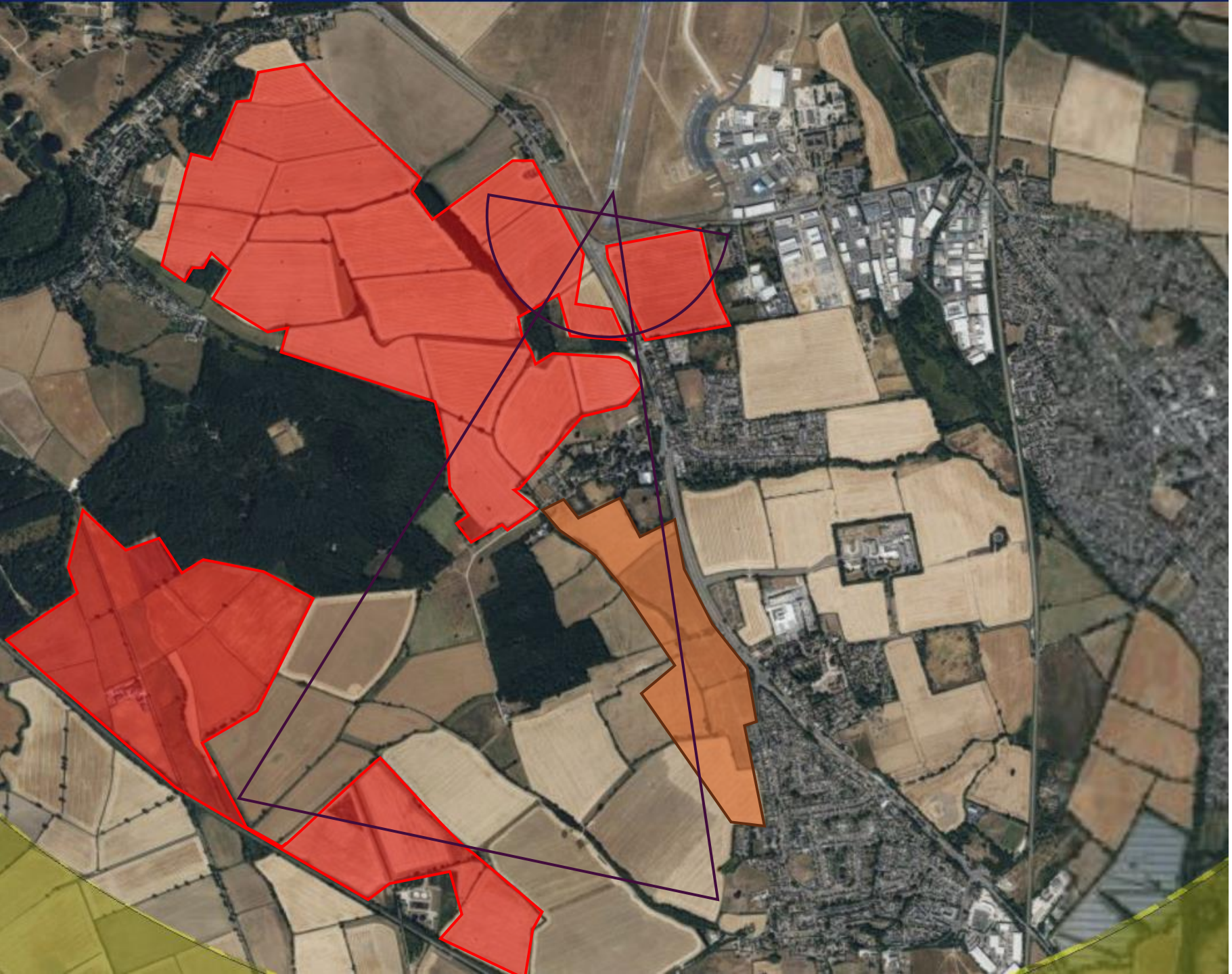


Botley West Solar Farm

This image shows in red the areas where it is proposed to install solar panels (as shown in drawing 2.4 Land Plans from the DCO application).

For additional context, shown in orange is the PR9 zone designated for housing development in the Cherwell District Local Plan .

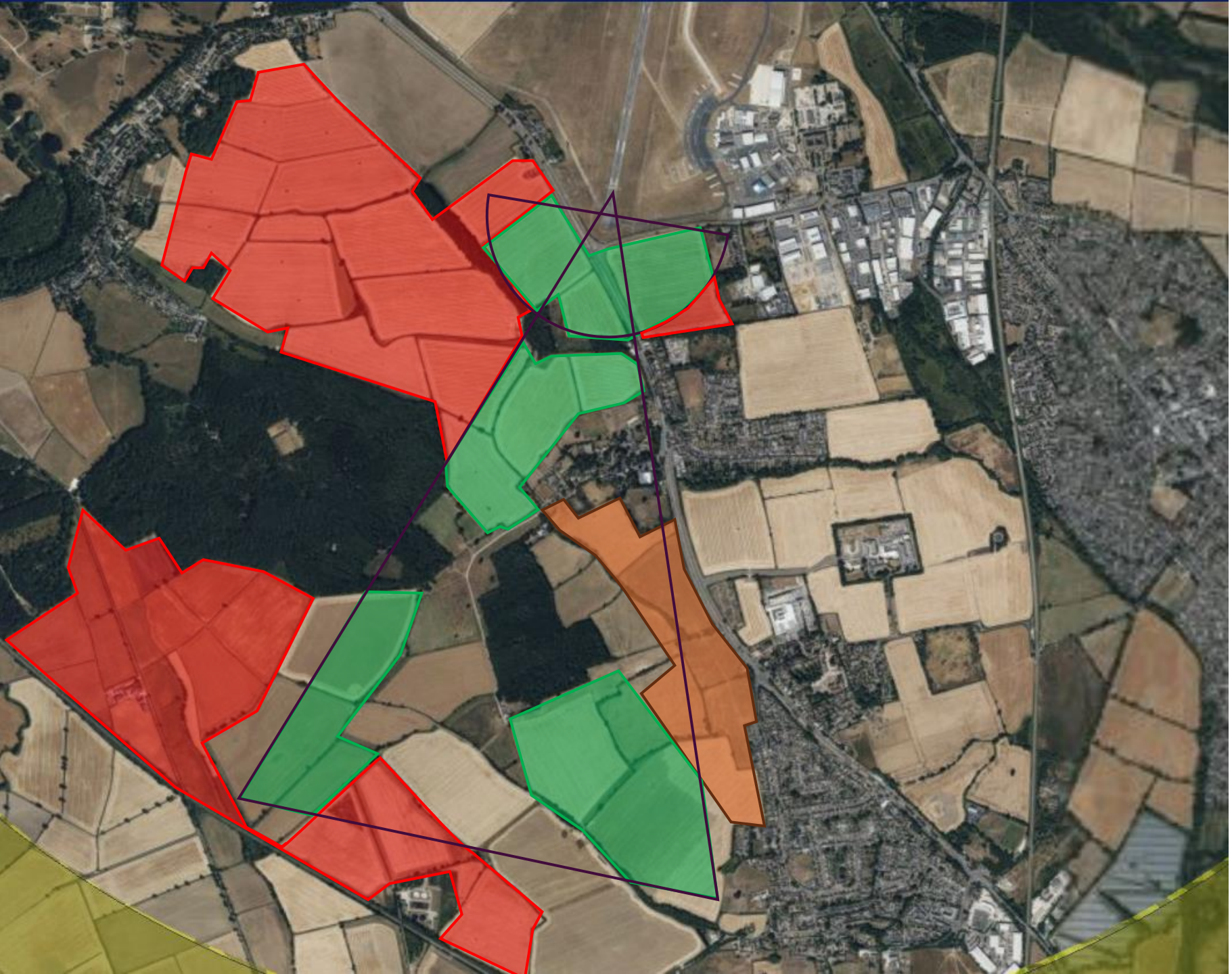
LONDON OXFORD AIRPORT



Botley West Solar Farm

This image shows the areas within the designated EFATO zones that would be unavailable for use in the event of an EFATO if the proposals were to be permitted.

LONDON OXFORD AIRPORT



Botley West Solar Farm

As an absolute minimum the LRST recommend that the areas shown in green are protected from future development to safeguard the future of single engine flight training at London Oxford Airport.

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Additional Considerations

- It is also recommended that the following issues are considered:
  - Panel orientation and survivability in the event of an aircraft crash
  - Thermal/effects of turbulence when low level on short final to runway 01
  - Wildlife displacement and control
  - Obstacle Limitation Surfaces
  - Communication, Navigation & Surveillance system impact

LONDON OXFORD AIRPORT

Annex 2

https://www.bbc.co.uk/news/articles/cl7yg180lp1o

BBC News Oxfordshire

The aircraft took off from London Oxford Airport but landed in a nearby field following an engine malfunction.

2 July 2024

A flying instructor has been commended for his "calm and professional" response after a plane made an emergency landing in a field during a training flight.

The aircraft took off from London Oxford Airport, near Kidlington, on Monday afternoon, but landed in a nearby field at 13:00 BST following an engine malfunction.

Pilot Flight Training Ltd said the instructor ensured the "safety of the student pilot and the public was prioritised at all times".

There were no injuries, and no damage to the plane. Investigations are under way.

Emergency services gathered near the landing site next to the A44 Woodstock East, close to the Begbroke slip road.

Oxfordshire Fire and Rescue Service sent engines from Kidlington, Eynsham and Rewley Road fire stations, supported by the airport fire and rescue service, but said they were not required as the occupants were out of the aircraft when they arrived.

[redacted], director of Pilot Flight Training Ltd, described it as a "precautionary landing" following "some abnormal engine indications".

He added: "Airport and local emergency services were quickly on the scene and confirmed the safe evacuation of the occupants.

"Our thanks go to London Oxford Airport air traffic control, the police and local emergency services for their quick actions and professional support... an investigation is under way into the cause of the incident."

[redacted], managing director at the airport, said: "A light single engine training aircraft made an emergency landing in an agricultural field after experiencing an engine malfunction shortly after departure from Oxford Airport.

"There were no injuries to anyone resulting, both occupants safely evacuated the aircraft and there was no damage to the aircraft involved.

"The aircraft is being recovered to the airport by road where it will be carefully inspected by technicians before further flight."

A spokesperson for the Air Accidents Investigation Branch said they were "aware of a serious incident involving a light aircraft at Oxford Airport which occurred on Monday".

They said they had "made initial inquires and will be conducting an investigation".

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Annex 3

NL Times

An airplane landing at the Polderbaan at Schiphol Airport in 2021 - Credit: [redacted] / Amsterdam Airport Schiphol - License: All Rights Reserved

Monday, 24 March 2025 - 21:10

Schiphol runway closure extended as solar panel glare poses safety risk

The closure of Schiphol Airport's Polderbaan runway will be extended by two weeks due to glare from solar panels at a nearby solar park, causing visibility issues for pilots, according to *RTL.* Initially set to end on March 23, the restriction will now remain in place until April 6, aviation authorities confirmed.

The decision, backed by Luchtverkeersleiding Nederland (LVNL), KLM, easyJet, and Schiphol, is reportedly necessary to ensure flight safety. "A short-term solution from the municipality is not yet available, and additional research shows that pilots will continue to experience impaired visibility due to glare over a longer period," the parties stated in a press release. Meanwhile, authorities are working with the Haarlemmermeer municipality to find a long-term fix.

Until the daylight savings time change on March 30, the Polderbaan will be closed from 10 a.m. to 12 p.m. daily when pilots report sun interference. After the time shift, closures will occur from 11 a.m. to 1 p.m. This disruption forces aircraft to reroute to the Zwanenburgbaan or Buitenveldertbaan runways, increasing noise pollution for residents near those flight paths.

The visibility issues reportedly arise from intense sunlight reflecting off thousands of solar panels at the recently constructed Groene Energie Corridor near Zwanenburg. Covering approximately 100 hectares, the solar farm was designed with an anti-reflective coating, but the glass still produces a glare strong enough to impair pilots' vision.

Schiphol Airport had recommended the use of specialized textured glass that absorbs rather than reflects sunlight. However, the solar park developers stated that such panels were unavailable at the time of construction.

Annex 4

https://www.pagerpower.com/news/glare-impact-closes-schiphol-runway/

PAGERPOWER, Urban & Renewables

April 7, 2025 **By Kai Frolic**

Schiphol Airport in Amsterdam is one of the world's busiest airports [1]. It has six runways and processes tens of millions of passengers per year.

Schiphol Runway Closure

However, in March of this year they had to close one of their runways due to glare impacts from a nearby solar farm [2], with the closure recently being extended by a further two weeks. Specifically, the reported impact is visibility issues for pilots and included in this decision were the Dutch air traffic control agency LVNL, airlines KLM and EasyJet, as well as Schiphol Airport itself.

The closure means aircraft have to utilise other runways instead, which has various operational issues associated with it.

Glare Impacts

Glare impacts occur when a bright light source is directed towards an observer. In the case of solar farms and aerodromes, the issue is predominantly due to reflections of the sun's rays towards pilots and/or air traffic controllers.

Similar impacts can occur due to other specular (which is to say mirror-like) surfaces, including windows and metallic roofs.

Concerns over reflections from solar panels affecting airports first became widely known in the solar community after a 2012 incident in the USA whereby panels on an airport had to be covered due to reflections towards its air traffic controllers [3].

Modern Challenges

A lot has changed since glare impacts from solar PV first became widely known, but there is also more awareness of the issue, with potential glint and glare impacts now often being considered at the design stage.

However, challenges remain, as evidenced by the Schiphol case. These include:

- Whilst there is more awareness of the issue, it is inconsistently regulated and assessed.
- There is often no legal requirement to model such impacts at the planning stage.
- The protocol for how reported impacts are managed is often undefined, although some developers do this pro-actively or in response to requests from stakeholders.

It is rare for significant impacts to materialise, and particularly for this to lead to a runway closure. However, this case has shown that it can happen. Challenges will persist because:

- Solar PV Projects are increasing in scale.
- Solar PV projects are increasingly being sited near aerodromes simply because they are becoming more prevalent in the environment.
- Projects are utilising more complex technologies, such as tracker systems that move the mounting structure to follow the sun.
- Airports themselves are increasingly looking to incorporate solar onsite in order to be greener.

Therefore, the risk of impacts is likely to persist.

How Can Pager Power Help?

Pager Power has been providing support to developers and stakeholders for glint and glare issues for over a decade. The inconsistent regulation was an issue that we identified many years ago, and it prompted us to produce our own guidance document in consultation with peers and stakeholders alike – this is now in its fourth edition and remains freely available via our website. If you have a solar project that we can help with, please do get in touch.

References

[1] Travel and Tour World (2024), *Amsterdam's Schiphol Ranks as World's Third Busiest Airport* (link), Travel and Tour World, last accessed April 2025.
[2] NL Times (2025), *Schiphol runway closure extended as solar panel glare poses safety risk* (link).
[3] Ho, C (2013), *Relieving a Glaring Problem* (link), Solar Today Magazine, last accessed April 2025.
[4] Amsterdam Airport Schiphol (November 2014) from Wikimedia Commons. Last accessed on 7th April 2025 (link).

Annex 5

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12686: Botley Solar

Airport & Solar Farm – Ecological Interactions

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1. Introduction

1.1. Ecology Solutions was instructed in February 2025 on behalf of Oxford Aviation Services Ltd to undertake a peer-review of the information submitted in support of the Botley West Solar Farm DCO, and to make representations as part of the examination process if necessary.

1.2. A review of the published material was undertaken, specifically regarding potential interactions between key ecological receptors and the operations of the airport.

1.3. The note below sets out the findings of this review. Of principal concern is the lack of assessment which has been afforded to potential interactions between the airport's operations and the avian assemblages present within the site. The significance of this is discussed below.

2. Relevant Guidance

2.1. Aerodrome Safeguarding is required under International Civil Aviation Organisation Regulations and European Aviation Safety Agency Regulations.

DfT/ODPM: Circular 01/2003

2.2. The town and country planning (safeguarded aerodromes, technical sites and military explosives storage areas) direction 2002 came into effect in February 2003. It was updated in December 2016.

2.3. The circular primarily provides details of the system of safeguarding and was produced by the Department for Transport (DfT) and Office of the Deputy Prime Minister (ODPM). Annex 2 of the circular considers the birdstrike hazard. It states that:

> *"If a man-made development provides feeding, roosting or breeding opportunities, or shelter and security, it may, depending on the siting of the development and the species which it attracts, increase the number of birds visiting or overflying an aerodrome or the number of birds in the airspace used by aircraft."*

Civil Aviation Authority: CAP 772

2.4. The UK Civil Aviation Authority provides information, specialist advice and supplementary guidance to the regulations. The guidance relating to wildlife hazard management at aerodromes was published in 2014 and revised in October 2017.

2.5. It states that safeguarding systems are required on and "in the vicinity" of aerodromes, and sets the broad zone of influence when considering potential impacts at 13km.

Civil Aviation Authority: CAP 738

2.6. Similarly, CAP 738 sets out the principle of airport safeguarding, defining aerodrome safeguarding as follows:

> *"Safeguarding is the process by which the Aerodrome Operator can, in consultation with the Local Planning Authority (LPA) and within their capability, protect the environment surrounding the Aerodrome from developments and activities that have the potential to impact on the aerodrome's safe operation. Aerodrome safeguarding covers several aspects. Its purpose is to protect:*
>
> *[…]*
>
> *d) the aerodrome from any increased wildlife strike risk. In particular bird strikes, which pose a serious threat to flight safety."*

2.7. Additionally, the publication highlights the ways in which planting can alter risks within the Obstacle Limitation Surface (OLS), stating that:

> *"Finally, the introduction of trees within a landscaping scheme can introduce hazards to aircraft safety, for example the final height of the tree(s) may not have been considered in the initial scheme, but which may end up resulting in an infringement of the obstacle limitation surfaces and the species of tree could provide a roosting opportunity for a significant number of birds."*

Airport Operators Association: Safeguarding Advice Note 3

2.8. The Airport Operators Association (AOA) also publishes advice notes in relation to safeguarding, in association with the Civil Aviation Authority.

2.9. Safeguarding Advice Note 32 was published in August 2016. It states that most birdstrikes are recorded below a height of 2000 feet, noting that an aircraft on standard approach to an airport will enter this height approximately 13km from the runway.

2.10. The note states that large birds and flocking species generally present the greatest hazard. It specifically identifies all wildfowls (including ducks, geese and swans), large waterfowl, gamebirds, birds of prey, large waders, starlings and all pigeon, gull and corvid species as "common hazardous birds".

2.11. It also sets outs how birds may be attracted to a site during construction works and the operational phase of a development. The advice notes states that sites resulting in an increased risk during construction are "likely to be located in relatively close proximity to the aerodrome, or beneath the aerodrome approaches".

Overarching National Policy Statement for Energy (EN-1)

2.12. Turning to proposed energy sites (including solar installations), guidance is provided by the Department for Energy Security & Net Zero in respect of energy developments which have the potential to lead to impacts on aerodromes and aviation activity, stating:

> *"All aerodromes, covering civil and military activities, as well as aviation technical sites, meteorological radars and other types of defence interests (both onshore and offshore) can be affected by new energy development.*
>
> *Collaboration and co-existence between aviation, defence and energy industry stakeholders should be strived for to ensure scenarios such that neither is unduly compromised."*

2.13. Additionally this cross-references a number of the Civil Aviation Publications set out above. It proceeds to state that a range of measures may need to be considered where there is the potential for adverse impacts on the operations of aerodromes, including altering the design of development proposals, imposing mitigation requirements, and applying conditions to any consent.

3. Aspects of the proposals anticipated to alter bird activity

Habitat management

3.1. As set out in the Biodiversity Net Gain report[1] for the site a large extent of grassland, woodland and hedgerow is to be created across the development site, including in close proximity to the airport. In addition, extensive swathes of agricultural land are to be replaced with photovoltaic (PV) arrays. This is illustrated in Figure 1 below which presents an excerpt of the plans showing the proposed vegetation post-development in the areas closest to the airport.

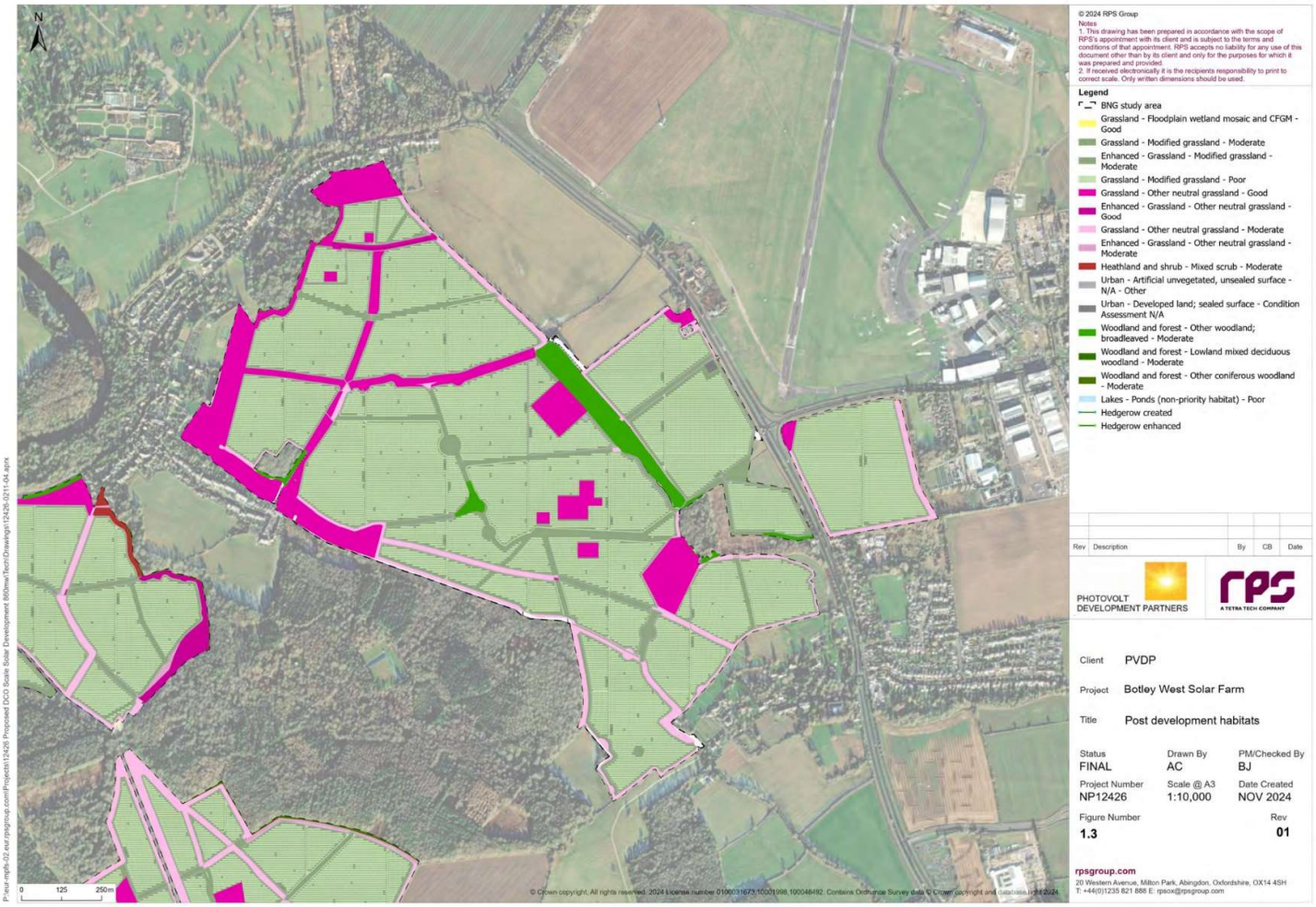

Fig. 1 – extracted plan showing habitat creation in close proximity to the airport

3.2. The combination of the loss of farmland and open grassland in the areas where PV installation is proposed, and the enhancement of areas of habitat around the periphery of the site have the potential to dramatically alter the distribution of avian assemblages post-completion.

[1] Appendix 9.13: Biodiversity Net Gain Statement - Document Ref: EN010147/APP/6.5

3.3. **Displacement.** A large number of birds species which exhibit a preference for open farmland have been recorded within the application site. These are set out in the ES chapter and accompanying reports, and include Skylark, Lapwing and Corn Bunting, all of which are BoCC (Birds of Conservation Concern) Red List species.

3.4. Table 9.4.1. of the Ecology ES chapter accepts that "displacement of species" is a key issue requiring consideration in relation to the both the construction and operational phases of the proposed development. This is not just an issue for UK solar arrays[2], but has been studied on the global scale[3]. In particular, the best available evidence has been generated by investigations into a number of solar farms in the southwestern United States[4,5]. Furthermore, this known risk has been incorporated into international guidelines, for example those produced by BirdLife in relation to African solar facilities[6,7].

3.5. With a range of avian species having been recorded in abundance by dedicated bird surveys across the site of the proposed development there is a significant risk of these being displaced to adjacent areas of similar habitat such as the open grassland within the airport.

3.6. **Re-distribution.** In addition to the habitats which are to be lost or degraded as a result of the installation of the PV panels, areas of habitat are to be enhanced around the periphery of the development site. As illustrated in Figure 1 above this includes areas of species-rich grassland adjacent to the airport's boundary. These have been designed to attract birds, with the ES stating that "wildflower meadow grasslands will be managed specifically for wintering birds including wintering seed mixes to provide foraging resources for wintering birds."

3.7. Just as solar facilities have the potential to displace certain species, research conducted by the University of Cambridge and RSPB has demonstrated how solar facilities which are managed for wildlife can act to attract birds[8]. Whilst on face value this seems beneficial to wildlife, the potential to increase the abundance of birds in close proximity to the airport and its operations poses a significant risk.

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[2] Harrison C, Lloyd H, Field C. Evidence review of the impact of solar farms on birds, bats and general ecology. Natural England; 2017.

[3] Smallwood KS. Utility-scale solar impacts to volant wildlife. The Journal of Wildlife Management. 2022 May;86(4):e22216.

[4] Kagan RA, Viner TC, Trail PW, Espinoza EO. Avian mortality at solar energy facilities in southern California: a preliminary analysis. National Fish and Wildlife Forensics Laboratory. 2014 Apr;28:1-28.

[5] Kosciuch K, Riser-Espinoza D, Gerringer M, Erickson W. A summary of bird mortality at photovoltaic utility scale solar facilities in the Southwestern US. PloS one. 2020 Apr 24;15(4):e0232034.

[6] Smit HA. Guidelines to minimise the impact on birds of Solar Facilities and Associated Infrastructure in South Africa. BirdLife South Africa, Johannesburg. 2012.

[7] Jenkins AR, Ralston-Paton S, Smit-Robinson HA. Guidelines for Assessing and Monitoring the Impact of Solar Power Generating Facilities on Birds in Southern Africa. BirdLife South Africa. 2017.

[8] Copping JP, Waite CE, Balmford A, Bradbury RB, Field RH, Morris I, Finch T. Solar farm management influences breeding bird responses in an arable-dominated landscape. Bird Study. 2025 Jan 31:1-6.

Further effects associated with PV arrays

3.8. There also exist a number of other pathways by which the installation of solar panels can influence the abundance, distribution and behaviour of avian assemblages. Whilst a range of sources discuss the potential mechanisms and effects a valuable summary is provided by the Natural England Evidence Review NEER012[9].

3.9. Firstly, it has been demonstrated that "solar panels have the capacity to reflect polarised light, which can attract polarotactic insects". This in turn has been shown to attract a wide array of insectivorous species, altering population distributions at a landscape scale and therefore causing fluctuations of bird numbers at sensitive locations.

3.10. Furthermore, the Natural England report states that "the polarising effect of solar panels may also induce drinking behaviour in some bird taxa, where the birds mistake the panels for water."

3.11. This is an issue which is further highlighted by an IUCN report regarding the impacts associated with solar power projects[10]. This stresses that "collisions with a PV plant with large continuous arrays (that water birds might mistake for water bodies) in Southern California, USA, resulted in a relatively high number of water bird fatalities."

3.12. Whilst the causal mechanisms remain poorly understood, data collected in a range of studies[2, 3] has found a link between photovoltaic arrays and the occurrence of waterfowl and water-obligate avian species (those which rely on water for part of their life-cycle).

3.13. A large population of waterfowl is known to regularly use Farmoor reservoir which is located only a short distance from the site, and as such there is considered to be a significant risk associated with birds such as Geese, Swans and Gulls becoming disoriented by the PV arrays, with this leading to individuals of these species being drawn towards this area and in turn the airport.

[9] Harrison C, Lloyd H, Field C. Evidence review of the impact of solar farms on birds, bats and general ecology. Natural England; 2017.

[10] Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N., Carbone, G. (2021). Mitigating biodiversity impacts associated with solar and wind energy development. Guidelines for project developers. Gland, Switzerland: IUCN and Cambridge, UK: The Biodiversity Consultancy.

4. Implications of altered bird activity/distribution

Increased risk of bird strikes – public safety

4.1. Firstly there is the potential risk posed to the planes and helicopters landing and taking off at the airport. As discussed above, the proposed changes of land use have the potential to displace birds from land which was previously supporting them – particularly for foraging – and lead to landscape-level population redistribution. As highlighted by the ODPM circular and AOA: Safeguarding Advice Note discussed in Section 2 this has the potential to raise the risk of bird strikes, increasing the risk of damage to material and equipment, and more importantly increasing the risk of injury or death amongst those accessing the airport and its facilities.

4.2. These risks are discussed in the published literature and risk assessments have been undertaken[11]. In the case of wildlife and bird strikes, risk assessments using the International Civil Aviation Organisation (ICAO) risk matrix return a result of '4B' (Hazardous, Occasional), which corresponds to an "unacceptable" level of risk.

4.3. Without detailed assessment there cannot be confidence that the proposals will not alter bird strike risk and lead to an unacceptable level of risk to life and equipment.

Increased risk of bird strikes – ecological impacts

4.4. Secondly, there is the ecological risk posed to the bird species known to be present within the local area. As highlighted by the ES chapter[12] the survey work undertaken recorded 107 bird species present across the site, with 33 of these being species of conservation concern. The Civil Aviation Publications discussed above point to collision risk being significant up to 13km from the airport meaning that there is an undeniable risk associated with the work proposed in extremely close proximity (<100m) to the airport's perimeter.

4.5. As mentioned above, skylark were recorded as being present in relatively high numbers, with 228 pairs recorded in 2024. Skylark are of the highest level of conservation concern according to the British Trust for Ornithology's BoCC categorisation, being classified a Red List species. These favour farmland as a nesting and foraging habitat and are therefore highly likely to be displaced by the creation of solar panels, with those in the airport's zone of influence being at high risk of strikes – particularly due to Skylark's territorial/courtship flight style which involves protracted and repeated steep climbs through the air.

[11] Mostafa MF, Aleem SH, Zobaa AF. Risk assessment and possible mitigation solutions for using solar photovoltaic at airports. In2016 eighteenth international middle east power systems conference (MEPCON) 2016 Dec 27 (pp. 81-88). IEEE.

[12] Chapter 9: Ecology and Nature Conservation - Document Ref: EN010147/APP/6.3 – para 9.6.55. onwards

4.6. It can therefore be seen that there is a clear pathway by which birds of a high conservation status risk being harmed as a result of interactions with the airport, a pathway which has not been considered by existing assessment work.

5. Conclusion

5.1. The proposals, particularly those in close proximity to the Oxford Airport have the potential alter the distribution of key ecological receptors.

5.2. In particular the proposals are anticipated to alter the distribution and abundance of avian assemblages known to be supported by these areas, displacing certain species from former habitat whilst encouraging others towards the site and surrounding areas.

5.3. Alteration of avian distribution and abundance in close proximity to Oxford Airport and its operations creates significant risks, particularly in respect of bird strikes which threaten both human health and safety, and the conservations of protected species.

5.4. Without additional assessment the decision-makers cannot have confidence in any conclusions drawn in relation to interactions between avian assemblages and operations at Oxford Airport.